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Opening Lecture

Honorary Lecture dedicated to Prof. Dr. Alaittin Elhan

The concept of clinical neuroanatomy

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Anatomy and neurosurgery relation regardless many other departments always have been very close. Why do we need to learn anatomy? There has been always a connection between research interest and clinical practice. How can we learn it? Is through clinical application? Is this way ethical? It is questionable. Books and colored atlases do not provide satisfactory information. However, 3D integrity only can be learned with cadaver dissection and this personal experience cannot be transfer to others. Every individual should do the dissections personally. During all these periods mostly there is not enough time and motivation. At the beginning some questions may arise: Is learning anatomy necessary? What will we learn? We already know. Most of the learned subjects in anatomy are unnecessary and are not used. However, to be honest with ourselves, we need to ask how much we know and how much we do not. To understand clinical neuroanatomy concept we need to start from clinic. Ask the right question? What is the problem and how am I going to deal with it? And then go to anatomy lab, find the answer, back to clinic, collaborate with radiology if necessary, go to lab again and find the answer.

Invited Lectures

(I-01 — I-24)

I-01

Crista Ivanici - a landmark for safe pediculation in spine surgery

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Dorsal transpedicular screw placement is a common procedure in posterior stabilisation surgery of the human lumbar spine. Severe neurologic complications are caused by misplacement of the screw, which is a result of the lack of anatomical landmarks for orientation and correct placement. Thus, the goal of this study was to determine and prove the existence of a target point located on the posterior aspect of the vertebral pedicle which might be a useful for orientation in posterior pedicle screw placement. In 130 lumbar vertebrae of 26 skeletal lumbar spines the osseous structures on the posterior aspect were investigated. A so far unnamed crest that had been used for orientation during a large numbeer of lumbar spine surgeries was regularly found on the back of the pedicles. This crest identiefied by the surgeon (Prof. Ivanic) – therefore called Crista Ivanici – was evaluated and classified regarding to shape, lemgth, height and width. The Crista Ivanici was found in 98 percent of all lumbar vertebrae regardless of gender or age. However, correlations between lumbar segments and shape and length of the cristae were found. The crista seems to be a helpful target point for transpedicular screw placement in surgery of the lumbar spine due to its special location.

I-02

Quantitative analysis of the perforators and local vascular differences in the perfusion zones of the deep inferior epigastric perforator flap: anatomical study

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The objective of this study was to investigate some vascularity differences between the same parts of perfusion zones II and III according to Hartrampf perfusion zones. The study was performed on 10 fresh cadavers (20 hemiabdomens) using the gelatin injection technique. All perforators were identified, and their localization and diameter were noted. Measurements were made at the level of the fascia, using a loupe with 4x magnification and caliper. We noted localization and diameter of arteries on cross-sectional planes of either part of the flap. The 79.43% perforators were located in perfusion zone I, 13.48% were located in zone III, 6.38% were located in zone II, and 0.71% in zone IV. Significant differences were recorded between proximal and middle horizontal regions of zones II and III and between medial vertical part of zone III and medial vertical part of zone II. Anastomoses between zones I and II are considerably smaller compared with anastomoses between zones I and III. The best vascularized parts of the lower abdominal wall were perfusion zone I, then the inner 2/3 of zone III and medial 1/3 of zone II. Keeping of a large perforator medially in the middle 1/3 part of zone I is very important. Because of the individual variation, it is sometimes necessary to select two perforators to capture both the proximal and distal parts.

Keywords: Epigastric arteries, Surgical Flaps/blood supply, Abdomen/blood supply, DIEP

I-03

Brain stereotactic anatomy

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The Stereotactic (or Stereotaxic) Anatomy deals with the three-dimensional (3-D) localization of organs and structures, taking into account their individual variability. All variants, from the average till the extreme anatomical deviations, are concerned in this scope. The name Stereotaxy comes from the ancient words stereos (space) and taxis (situation, position) and means spacial localization. The Stereotactic Anatomy is based on the precise referenciation of each anatomical entity, globally considered or taking only some of its partial aspects: contours, limits, extremities, center, etc. Within each body compartment this referenciation is often defined in relation to anatomical structures that are normal, constant, as less variable as possible and easily recognizable; these special structures that are used as reliable standard landmarks (or fidutials) are named Stereotactic References. This stereotactic method makes possible to define the exact 3-D location of anatomical structures that are not directly visible or even not visualized through the modern imaging techniques (CT, MRI), provided their distances to the Stereotactic References - their 3-D Stereotactic Coordinates - can be accurately measured. The same method permits the exact localization of any normal or pathological

structure inside the human body through its referenciation relative to an external stereotyped frame (Stereotactic Frame) firmly attached to a body rigid surface. And it also allows, by 3-D image reconstruction, to "navigate" in virtual reality through the interior of the human body in referenced conditions; it is the so-called Neuronavigation, in what respects the brain anatomy. The Stereotactic Anatomy was born with the purpose of localizing structures deeply seated within the living human body, namely brain structures inside the skull. The development of the stereotactic method broke out a variety of operative techniques aimed to target and approach such structures selectively, for diagnostic or therapeutic purposes: through probes, needles or electrodes (Stereotactic Surgery), or radiation beams (Stereotactic Radiotherapy or Radiosurgery) it is possible nowadays to reach with great precision many deep seated targets within the body. Some of the most recent applications of the Stereotactic Anatomy concern brain structures involved in neurological and psychiatric disorders like Parkinson's disease, dystonia, obsessive compulsive disorder, depression, epilepsy: Subthalamic nucleus, nucleus Accumbens, Locus Coeruleus, etc. That is why the Stereotactic Anatomy of these structures has been the object of research at the Institute of Anatomy of the Lisbon Faculty of Medicine during the last years. An overview of this research activity and its main results is shown in this presentation.

I-04

Clinical anatomy of the midface

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The midface is an anatomical composite that contributes to the overall morphology of the face, but it is also critical for normal physiological functions including mastication, phonation and respiration. The purpose of this presentation is to discuss new advances in quantitative imaging methods for the analysis of midfacial growth patterns. Molecular mechanisms directing midfacial morphogenesis also will be presented. Morphometric analyses were conducted utilizing a large cohort of Class III malocclusion patients and defects likely affected airway morphology. Cone beam imaging software was developed to facilitate localization of airway defects. Experimental studies were conducted using mouse models to identify potential genes responsible for midfacial malocclusions. Class III malocclusion patients display a cranial base that is shorter and kyphotic compared to normal control individuals. The abnormal cranial base form may be associated with airway malfunction and novel cone-beam imaging software localized potential defects. Genetic analyses utilizing mouse models demonstrated that the transcription factor six2 and the morphogen wnt9b likely play significant roles in the development of the midface. An understanding of the morphogenetic processes responsible for normal and abnormal midfacial growth and development should facilitate development of novel approaches for craniofacial tissue regeneration and therapy.

I-05

In memory of Professor Jürgen Koebke

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Jürgen Koebke, emeritus Professor and former head of the Anatomical Institute of the University of Cologne, Germany, who was one of the last representatives of German school of clinical anatomy has passed away unexpectedly at the age of 66 on 23th February 2012 in Cologne. He was the first honored foreign member of Turkish Society of Anatomy and Clinical Anatomy, and contributed to practical development of many young Turkish anatomists and clinicians who were interested in applied anatomy, as well as numerous scientists from all over the world. He had constructed fruitful bridges between anatomy and surgical disciplines such as orthopedics, plastic and maxillofacial surgery. Besides these, he was a beloved teacher, an encouraging co-worker, a humoristic scholar and an exemplary humanist. Professor Koebke should be remembered as a great clinical anatomist and as a modern age philosopher, as well, who had friendly balanced the trilogy of science-human-god in his heart.

I-06

First dorsal intermetacarpal space artery

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The first dorsal metacarpal space usually contains only superficial veins (tributaries of cephalic vein) and branches of the superficial branch of radial nerve. The radial artery arterial pattern of the hand dorsum can feature several variations. Arteria radialis enters the Guiot´s space at the very proximal end through the first dorsal interosseous muscle and before sends off dorsal metacarpal arteries. Sometimes, it can branch off a thick artery running superficially across the muscle into the palm. Here, it usually anastomoses directly with the superficial palmar arch from ulnar artery. 221 extremities were dissected and 100 examined with ultrasound. The caliber of the until now not termed artery is 0.7-1.5 mm and its incidence is 17.8 % in cadavers and 10.0 % in ultrasound examination. The variants less than 0.5 mm wide were excluded from total numbers due to their minimal clinical importance. This variation artery seems to be a good alternative for other dorsal metacarpal

arteries in reconstruction surgery with the flap plastics, especially in the area of the thumb.

Keywords: Radial artery, thumb, variation

I-07

Aberrant or accessory obturator artery?

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Arteria obturatoria is a branch from arteria iliaca interna. However, in minority of cases it stems from the arteria iliaca externa system, crossing ramus superior ossis pubis to enter the lesser pelvis. Such vessel is called "corona mortis (Hesselbachi)". The terminological problem concerns precise definition of such vessel. Arteria obturatoria aberrans should indicate unusual origin of the artery, it means from other larger arteries, without any counterpart in its usual (textbook) localization. On the other hand, arteria obturatoria accessoria describes the "corona mortis" in presence of the "usual" arteria obturatoria. Unfortunately, such clear and descriptive anatomical approach has often been neglected and the data from previous studies are misleading and confusing. We performed dissection of 100 cadavers, studied 100 patients with CT-angiography of pelvic arterial system and performed a meta-analysis of more than 4500 hemipelves. Arteria obturatoria aberrans is present in approximately 20% of cases, arteria obturatoria accessoria in 5% of cases. The overall incidence of arterial "corona mortis" is approximately 25 % (with vessel being more than 1 mm wide). The clinical relevance of "corona mortis" consists in fractures of pubic bone and their surgical treatment, hernia repair, prostatectomy, angiographic embolization or harvesting of an arterial graft.

Keywords: Arteria obturatoria accessoria, arteria obturatoria aberrans

I-08

The genitofemoral nerve: troublemaker for lumbar sympathetic blocks!

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The affection of the genitofemoral nerve (GFN) represents a very uncomfortable complication of lumbar sympathetic blocks. Therefore the topography of all lumbar plexus´ branches with focus on the GFN to the lumbar sympathetic trunk (LST) was investigated from vertebral levels L1 to L5. The course of the GFN was investigated on 60 cadavers (of these 110 sides) embalmed with Thiel´s method. 82 sides were assessable concerning the lateral cutaneous femoris nerve (LCFN). The nerves were dissected from their innervation area to their intervertebral exits. Distances of the GFN and LCFN to the LST were measured at levels L2/3, L3/4 and L4/5 which represents the most common levels for lumbar sympathetic blocks. In 96 cases, the GFN, in 12 cases its femoral branch only, ran along the ventral face of the psoas muscle, passed the LST at level of L3/4 with a distance between 0 and 28mm (MD 9mm; SD±8mm) and ran dorsally between the medial margin of the psoas muscle and the vertebral body of L3 to reach the intervertebral foramen at L2/3. In two cases the GFN fused with the LCFN. In 17 cases the GFN showed a distance to the LST between 0 and 13mm at L4/5 and in 8 cases of 9-19mm at level of L2/3. The LCFN approached the lateral margin of the psoas muscle and entered the intervertebral foramen at level of L2/3 in 75 cases. There is a higher risk to affect the GFN at level L3/4 during neurolysis of the LST due to its topography. The LCFN very rarely shows a strong relation to the LST.

I-09

Clinical anatomy and biomechanical aspects of the PFH trochanteric fractures osteosynthesis

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Trochanteric massive fractures as a part of proximal femur fractures are the most common at all, especially in elderly persons. According to the fracture line course, the size of fragments and their position, from which we can deduce damage to the morphological structures, these fractures are divided on stable and unstable. Proximal femoral nail is currently the dominating implant for internal fixation of unstable pertrochanteric fractures. The aim was to verify the biomechanical load and thus the stability of the intramedullary implant by experimentally-mathematical model. Typical examples of trochanteric massive fractures were selected, 3-D mathematical model based on data from MRI was created, and PFH was virtually implanted in 5 variants of his position to the bone. Then the finite element method was used for calculation of

surface tension distribution in individual cases. There was clearly demonstrated the biomechanical stability of the osteosynthesis using PFH modeled in all five variants. PFH is such a clear method of choice for trochanteric massif fractures.

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I-10

Editorial experience in publishing about anatomical variations

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Anatomical variations represent a large part of the anatomical knowledge and may influence the clinical practice. We wanted to present the one-year editorial activity related to this field of clinical anatomy. the management of the 107 manuscripts related to anatomical variations submitted to the journal Surgical and Radiologic Anatomy in 2011 has been studied, the parameters have been: the initial and late outcome, the contents (well known or original), the quality of presentation (regarding the respect given to the Instructions for Authors), the task of the editorial board (through the number of revised versions and the number of required reviewers). 2 (1.9%) were immediately accepted, 34 (31.7%) manuscripts needed 61 editorial procedures and 1 to 4revised versions before acceptance, 71 (66.3%) were rejected. 72.3% did not take into account the Instructions for Authors. 210 reviewers were requested for 107 manuscripts. these parameters showed the difficult management of manuscripts related to anatomical variations. Our main ratings are: check the reality of a "new fact", ensure about the clinical relevance, and take into account the Instructions for Authors before submitting.

I-11

Progression in the teaching of clinical anatomy in postgraduate medical education in our anatomy department

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The Thiel´s method of cadavers impregnation is used for embalming in the Educational Centre for Anatomy, Endoscopy and Microsurgery of our department. We have got equipment for miniinvasive techniques – rigid and flexible endoscopic towers with instruments, operative table, operative microscope, X-ray C-arm, etc. We are able to organize a large scale of invasive and noninvasive techniques courses not for medical students only but for physicians too. The project of improvement equipment usability started in 2008 by creation of E-learning modules of different topics - arthroscopy (hip, knee, wrist, ankle, shoulder, wrist, small joints of hand), bronchoscopy, gastroscopy, interventional radiography, FESS. Last year we finished modules axial skeleton traumatology and traumatology of upper limb. The continuation for next year is to prepare multimedia educational materials in the field of the pelvis traumatology. The topic is not skeletal injury only but soft tissue trauma too. Specialists from different medical fields are involved to make remarks with the problematic of sequelae and final results of the treatment (e.g. urologists in pelvic fractures, neurosurgeons in vertebral column fractures). All postgradual students can use e-learning materials designed for the selected practical course in advance to their enrollment. Distant educational components together with the practical cadaver courses seem to be a good approach in clinical anatomy education and surgical skills improvement.

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I-12

An introduction to the world of electron microscopy

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Electron microscopes produce electronically-magnified images of various specimens for detailed observations. They use particle beam of electrons to illuminate the specimens and create magnified images of the samples. The parts of an electron microscope are the electron gun, column, specimen chamber, volume valves, rotary pump and diffusion pump. Transmission electron microscope (TEM), scanning electron microscope (SEM), reflection electron microscope (REM), scanning transmission electron microscope (STEM) and low voltage electron microscope (LVEM) are the various types of electron microscopes. Each of them has very different characteristics and can be chosen according to the type of the studies and samples. In electron microscopic studies, the tissue preparation techniques are very important. According to the type of the tissue, the most suitable technique must be chosen and it must be performed with great care. For some special tissues, special techniques must be used. Fixation, dehydration, pre-embedding, embedding, polymerization, sectioning and staining steps are necessary for the examination of the ultrastructure of biologi-

cal specimens. In the surface examination of biological and biomedical specimens; fixation, dehydration, critical point drying and sputtering have a great importance. Additionally; there are many other special techniques for special microscopes. In conclusion; the aim of the study and type of the microscope which has to be used for this aim has a great importance for obtaining the correct results.

I-13

Whole rat embryo culture system and its applications

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It was aimed to introduce whole rat embryo culture (WEC) system as an alternative test for developmental toxicity assay as well as a method in order to investigate the roles of growth promoting factors on embryonic development. The rat embryos were dissected and cultured for 48 hr. The culture medium is supplemented with serum and oxygen. Test compounds are added into the culture medium at the beginning of the culture. At the end of the culture, embryos are evaluated for the presence of any abnormalities and overall embryonic growth. To quantitate embryonic development, six developmental stages of series of structures are defined and scored (total morphological score). Along with this, yolk-sac diameter, crown-rump length, somite number and protein content determined which reflects the development of the embryo. Many investigations along with our studies indicate that the WEC assay is considered a well established in vitro model for identifying and characterizing teratogenic properties of test compounds. The method also can be used to determine the effects of growth factors and hormones as well as their mechanism of action. The successful validation makes the WEC a complex in vitro embryotoxicity test with high accuracy and predictability.

Keywords: Embryo culture, toxicity, teratogenicity, growth, development

I-14

Predictive value of tissue markers - morphometrical evaluation

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Prostate adenocarcinoma (PCa) is the most frequently diagnosed cancer among men in the Western world and the first leading cause of cancer death among men in Slovenia. As with all tumors, early detection of prostate tumors affects the treatment and prognosis of the disease. The criteria available for the diagnosis and prognosis of prostate cancer, such as stage assessment, PSA value and Gleason histological scoring often do not sufficiently predict course and outcome of the disease. Knowledge of predictive value of tissue markers would increase understanding of disease, improve staging, enable earlier detection prostate cancer in cases of false negative diagnose or help in choosing optimal treatment. Proliferation and apoptosis provide a basis for describing cellular dynamics in healthy and tumor-modified tissues. Tumor growth depends on disrupted control of cellular growth (proliferation), cellular death (apoptosis), or both. In the prostate cancer as in the other tumors, the balance between these two processes is lost, mostly due to increased proliferation. Knowledge of ratio between proliferation and apoptosis and their markers could explain tumor dynamics and thus lead to ability for predicting tumor aggressiveness and disease outcome. When growing, tumors are supplied with oxygen and nutrients by the blood vessels; therefore, the formation of new vessels (angiogenesis) is also required for tumor growth. Angiogenesis is the formation of new blood vessels by capillary sprouting from pre-existing vessels and plays an important role in tumor progression and metastasis. Some studies have suggested that the microvessel density (MVD) of prostatic adenocarcinoma may be of prognostic value. Tissue markers: Cellular proliferation and apoptosis can be determined by various tissue markers and immunohistochemical methods play an important role for their detection. p53 is a tumor-inhibitory gene/protein. In cancerous cells, this gene is mainly mutated therefore, cancerous cells divide uncontrollably. Sequential activation of caspases plays a central role in the execution-phase of cell apoptosis. Bcl-2 is an apoptosis inhibitor that acts in connection with p53. The loss of Bcl-2 repression due to the mutation of p53 would lead to an excessive formation of bcl-2 protein and therefore form an immortal cell. AgNOR, a synonym for silver stained nucleolar organizing regions (NOR) of DNA located on short ends of acrocentric chromosomes, are emphasized in proliferative active cells. Endoglin (CD 105), a receptor for transforming growth factor β1, is expressed on endothelial cells during tumor angiogenesis and inflammation with weak or negative expression in vascular endothelium of normal tissue. Morphometrical evaluation: Images of the sections with the immunohistochemically positive stained tissue were quantitative analysed. 1000 cell nuclei of prostatic glands were counted on three fields of each slide and those stained on p53, caspase 3 and Bcl-2 were counted separately. Nuclear staining of tissue markers was expressed as index (number of positive stained cells per 1000 counted cells). The AgNOR was expressed as average number of positive stained grains per nucleus per patient's specimen. Endoglin positive cells per field were expressed as microvessel density (MVD per mm^2). Results of our different studies show a significant correlation between tissue markers, we examine, and clinical parameters when tissue markers were examined together not on their own. New tissue molecular markers should enable the more detailed definition of an individual's risk for the development and course of the disease. Knowledge on the predictive value of tissue molecular markers would enable earlier detection of prostate cancer and help in choosing the treatment. MVD eval-

uation as determined by anti-endoglin monoclonal antibodies has already been proven to be an independent prognostic factor for certain malignant neoplasias, such as breast carcinoma and non-small-cell lung carcinoma. Because many results of studying the role of tissue markers, especially in most commonly studied markers p53 and bcl-2, are conflicting, no tissue marker has moved from the research setting into the routine assessment of prostatic carcinoma.

I-15

From bedside to bench and back again: the role of the Transcription factor Fra-2 in human breast cancer

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Fos-related antigen 2 (Fra-2) is a member of the Fos family of AP-1 transcription factors which are often up-regulated in clinical samples of breast cancer. Previous preliminary clinical studies and initial experimental investigations using human breast cancer cell lines suggested that Fra-2 might be involved in the regulation of tumour invasion and metastasis in breast cancer. In order to analyze the impact of Fra-2 on the aggressive behaviour of breast cancer cells, we established stable Fra-2 over expressing transfectants of weakly invasive MCF-7 cells and of highly invasive MDA-MB231 human breast cancer cells. The consequences of Fra-2 up regulation on the biological behaviour of the breast cancer cells were analysed by MTT assays (proliferation), Matrigel invasion assays (invasion and motility) and a flow-through adhesion assay using E-selectin coated capillaries. Possible target genes which were differentially regulated in stable transfectants with Fra-2 over expression were identified by microarray analysis (Affymetrix) and validated partly by Western blots or FACS analysis. Over expression of Fra-2 resulted in an increase of invasiveness in both cell lines, but not in changes in proliferation. cDNA microarray analysis showed interesting changes in expression of several well-known cell adhesion molecules in both cell lines, i.e.: a decrease of molecules involved in cell-cell contacts (Cx43, DSC2, ALCAM) and an increase of factors involved in attachment to ECM and endothelial cells and known to be associated with poor prognosis in some tumour entities (L1-CAM, ICAM1 etc.) Over expression of Fra2 resulted in weak increases in adhesion to the ECM substances vitronectin, fibronectin, collagen I and collagen IV in MCF7 cells, whereas adhesion of MDA- MB231 cells to ECM substances was only changed for fibronectin and collagen I. In a flow-through adhesion assay, the number of rolling cells on E-selectin-coated surfaces is highly increased in cells showing Fra-2 over expression. The association of Fra-2 over expression and high L1-CAM and ICAM1 levels could also be demonstrated in our clinical cohort of breast cancer patients. High expression of Fra-2 is associated with an aggressive phenotype in clinical breast cancer samples. By microarray analysis in two breast cancer cell lines, we found that Fra-2 over expression is associated with deregulation of various adhesion molecules, i.e. down-regulation of molecules involved in cell-cell contacts within tissues (Cx43, DSC2, ALCAM), and up-regulation of others involved in adhesion to ECM during migration and/or attachment to endothelial cells during extravasation (ICAM1, L1-CAM, etc.). The highly increased adhesion to E-selectin, an important cell adhesion molecules expressed by activated endothelial cells, supports the hypothesis that Fra-2 promotes metastasis of breast cancer cells by changing the expression pattern of cell adhesion molecules.

I-16

Corneal graft survival in association with donor´s cause of death

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A chance of graft survival increases with more endothelial cells on donor's corneal endothelium – newborns have 4-5000/mm2, numbers decrease exponentialy. Limit for clear cornea maintenance is about 500/mm2, and minimal amount of endothelial cells of donor corneas in our eye bank is 2000/mm2. The aim of our study was to evaluate a possible relationship between amounts of endothelial cells in groups of donors which were divided following their cause of death. Corneas of donors from the International Eye Bank of Prague, Third Faculty of Medicine, Charles University and Teaching Hospital Kralovske Vinohrady in Prague in years 2008, 2009, 2010 were obtained. Confocal microscope was used for analyzing amount of endothelial cells. Three essential causes of death were observed: sudden death, atherosclerosis depending on chronic ischemic disease and tumorous dissemination. Time from the death to preservation, age and sex of donors were monitored in last two years. Standard statistic evaluation was applied. Amount of endothelial cells decreased significantly in donors with following cause of death: sudden death, chronic ischemic changes associated with atherosclerosis, tumorous dissemination in all three years. Young donors have more endothelial cells than older donors. Dependence between time of death to preservation and sex of donors compared to cell´s density was not observed.The cause of death of the donor and his age appears to be one of important factors for endothelial cell density and thus for the future of a corneal graft.

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I-17

Serotonin/dopamin relationship

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Serotonin (5-HT) is one of the first neurotransmitters that appears during development. Serotonin/dopamine synthesis is caused by the enzyme L-amino acid decarboxylase. The serotonin precursor's 5-hydroxytryptophan (5-HTP) or tryptophan depletes dopamine while dopamine precursors tyrosine or levodopa deplete of serotonin. Normally, serotonin and dopamine play opposite roles in the central nervous system. Namely, serotonin decreases behaviors (enhances inactivity) while dopamine stimulates behaviors (stimulates action). It is known that there is a balance of actions between serotonin and dopamine called the serotonin/dopamine balance as well as there is a balance of actions between serotonin itself. For instance, most serotonin actions decrease dopaminergic activity while, sometimes, serotonin can, paradoxically, enhance dopamine influence for example. Both stimulatory and inhibitory effects have been reported about the role of serotonin in the differentiation and growth of dopaminergic neurons (DA). Does it mean that 5-HT and DA share a common precursor? It is important to clarify inductive signals that mediate the differentiation of neural precursors into 5-HT or DA neurons in obtaining DA neurons for possible cell therapy in Parkinson's disease.

Keywords: Serotonin, dopamine, serotonin/dopamine balance.

I-18

Brain, behavior and evolution

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Standard atlases using identical nomenclature enable scientists to navigate seamlessly between the brain of humans and experimental animals to test hypotheses inspired by human considerations and relate data from experimental animals to humans. In current atlas construction we make use of genes that are responsible for the segmentation of the brain in development (hox genes). Using evidence from transgenic mice and birds we are proposing a new plan for the organization and function of certain brain regions of mammals. The brainstem, for instance, can no longer be considered as a container of haphazardly arranged nuclei (as potatoes in a sac), but instead as regions which co-vary (start and end) with their neighbours. The human brain features many more homologies with the brain of monkey (eg, virtually all areas of the cortex are homologous), of the rat and of the bird than previously thought. Areas which are shown to be homologous are likely to have similar function as for example are 9/46 of the prefrontal cortex which is homologous in human and monkey and is involved in executive processing in working memory in both species.Using MR images in mice and non-human primates we are attempting to provide 3D volumes of canonical brains against which transgenic varieties with clinical significance can be compared.

I-19

Introducing the first human spinal cord atlas, anatomy of the spinal cord from rodents to monkeys and human

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There are spinal cord atlases for the rodents; however, there were no spinal cord atlases for the monkeys, and although there were some schematic drawings on adult human spinal cord, there is no human spinal cord atlas. This study fills a big gap in neuroscience by constructing a human spinal cord histological atlas. Recently, we have also prepared the marmoset and Rhesus monkey spinal cord atlases. Human spinal cord fixed with 10% formaldehyde was divided into 31 segments, blocked in paraffin and cut at 8 micrometer thickness. Nissl and immunohistochemistry were performed for seven markers. Sections were photographed under light microscopy and printed on A2 color photograph cards, and atlases were constructed by drawings on transparent paper. The human reference atlas reveals over 80 structures including the Rexed's laminae, spinal nuclei and motor neuron groups with the assistance of neurochemical markers and cell morphology and density. Several nuclei have been identified such as central cervical and lateral cervical nuclei, dorsal nucleus of Clarke, intermediolateral, intercalated and sacral parasympathetic and sacral dorsal commissural nuclei. A human spinal cord atlas enables us to correctly plan and interpret human studies, to analyze if studies on experimental animals can really be a model for the human spinal cord, and to provide new data on the neurochemical content of the human spinal cord. Monkey spinal cord atlases provide a detailed reference for experimental spinal cord studies.

Key words: Spinal cord, human, monkey, anatomy

I-20

Myocardial bridge: from anatomy to the clinical setting

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Myocardial bridge (MB) continues to be an important concern from anatomy to clinical practice. Since its first anatomical description, there are increasingly many published scientific papers describing patients with MB who present symptoms of angina, myocardial infarction and sudden death. Milking effect is described as narrowing during systole and widening during diastole in the segment wit MB during catheter angiography. Recent reports have described the utility of electrocardiograph (ECG)-gated multidetector computer tomography (CTA) for non invasive evaluation of coronary artery disease. Intravascular ultrasound is an alternative imaging method which provides morphological and functional information for MB. However this method is invasive and is not commonly used in daily practice. So, in order to contribute with some answers we have developed macroscopic, microscopic and biochemical studies of human and non-human hearts from fetuses to adult specimens. According to our results we found that MB is not acquired during life once it was found in fetuses (28%), Gender has no influence in MB incidence (55% male vs 44% female). Moreover, differently from what is found in adults, the light and scanning microscopic l analysis in children revealed a well-defined adipocyte layer, located immediately under the MB and perhaps functioning as a protective cushion for the vessel wall against systolic constriction since it was not described any symptom in children. The distribution and composition of glycosaminoglicans: choindritin sulfate, dermatan sulfate and heparin sulfate were also evaluated in coronary artery under MB. This analysis showed an increase in 47% of these components. All these important aspects of MB described in the last years make until now, the need of hardly study this anatomical variation.

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I-21

Applied clinical anatomy of perforator flaps: microsurgery meets radiology

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Development of modern reconstructive plastic surgery has seen great changes over the past 50 years, from random pattern flaps, tubed and axial flaps to muscle and fascio-cutaneous flaps and finally, perforator-based flaps. In recent years, perforator flaps have become the mainstay of treatment in modern reconstructive microsurgery. Their well described advantages over "classical" free and pedicled flaps include reduced donor site morbidity, increased flap mobility and shaping thereby providing more versatile reconstructive procedures. These essentially fasciocutaneous flaps rely on the musculocutaneous and/or septocutaneous perforators of various vascular territories in the body. The variable vascular anatomy not only among different individuals but also between both »sides« of the same individual resulted in relatively longer, more risky and technically challenging procedures at the beggining of perforator-flaps evolution 20 years ago, as systematic and precise knowledge of the dominant perforating vessels was not feasible due to high variability of the vascular plexus and one was often surprised by the previous surgical damage, scar formation or anatomical variants intra-operatively. For these reasons, a reliable method for precise identification of the dominant perforator regarding its position, course and caliber for every patient would be extremely useful. Evolution of radiological techniques for preoperative planning of perforator flaps in reconstructive microsurgery is discussed, from Doppler ultrasound and Color Doppler imaging to CTA and non-contrast MRI, with indications as well as pro's an con's for each technique in relation to flaps harvested from different anatomical areas.

I-22

Goals, objectives, handouts and examinations: do they keep the pace with the quest for making the anatomical sciences increasingly applied and clinically relevant?

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The anatomical sciences represent an important component and a traditional milestone in the health sciences professions education. It is therefore expected that the quest for making these sciences increasingly clinically relevant and the global transformation of the learning process have reciprocally influenced each other. And yet, are the goals, objectives, handouts and examinations aligned in the planning process and/or reflected by the outcome in a manner that suggests the long-term acquisition and utilization of critical knowledge, skills and attitudes? The integrated curricula combined with a reduction of time allocated to the direct teaching of anatomical sciences make this question even more significant. How much, what, when and how is expected to be taught and assimilated at one stage or another in order to address the learners' needs as groups and individuals? Moreover, how much and what do the learners really retain for further use at later stages of their instruction or in the clinical practice, especially when taking into consideration the unprecedented diversification of specialties and subspecialties in the medical field? Are the lab and written exams during the training period consistent with the long-term goals of producing new generations of well-rounded medical practitioners, educators and researchers? As medical

education is undergoing many and deep transitions, this presentation analyzes major trends regarding the newly emerging place, identity and role of anatomical sciences in the modern curricula and explores creative approaches to enhance their effectiveness in a local and global context. The needed shift from identification to reasoning is emphasized. Examples of matching and mismatching teaching and testing strategies are provided. The presentation also discusses methods that could be used at various levels in order to achieve both explicit and tacit knowledge and increase the instructional continuity and consistency across the entire formal, informal and hidden curriculum from prematriculation to residency training.

I-23

Clinical anatomy - evolution or revolution

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Clinical anatomy is anatomy relevant and applicable in diagnostic and therapeutic procedures in sick patients (clinic: inclining, laying, sick). Therefore, clinical anatomy developed in close relation with surgical and radiological techniques. Within the last four centuries, sectional anatomy gained more and more importance due to the development of computer assisted (1972) and magnetic resonance imaging (1977), and the development of new minimally invasive surgical techniques and fiberglass endoscopes (1990) created a demand for another different anatomical viewpoint: the inside-outlook or endo- and arthroscopic anatomy. Human anatomy does not change, however the view changes and creates the demand for a reliable overview of gross anatomy. On the other hand, the development of technology provided us with "microscopical and biological knifes" that enabled dissection down to submacroscopic, subcellular and even biochemical level. This evolution, however, create a wide gap between macro and micro, eventually terminating in the revolutionary formation of clinical anatomical associations with their own scientific journals. The separation caused a loss in the readership of these journals, followes by a loss of impact factors. Atthempts to re-united the two parties failed, whenever based on macro- and micro-science. When based on the common interest – education - the reunion succeded creating higher impact factors than ever. Due to the late development Turkey seems to be the lucky looser – instead of a revolutionary separation, an evolutionary integration led to the foundation of the Turkish Society of Anatomy and Clinical Anatomy and its integrated journal "Anatomy".

I-24

International and national morphological nomenclatures in 21st century

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The anatomical, histological and embryological nomenclatures serve as an elementary and principal communication tool in medicine. It has undergone substantial changes in last more than 100 years. Anatomy possesses such a tool from 1895 (BNA), histology and embryology from 1975 (NH+NE). The last valid reviews were published as Terminologia Anatomica (TA 1998), issued by FCAT, Terminologia Histologica (TH 2007) issued by FICAT but Terminologia Embryologica, although approved in 2009, has not yet been published in printed form. All three nomenclatures are not spread enough worldwide and especially not among clinicians, who neglect them. FIPAT (Federative International Programme on Anatomical Terminology) is now the leading platform for the further development and improvement of morphological nomenclatures. The national equivalent nomenclatures are back-stepped in many countries, e.g. the English versions are only a list of existing terms with no codification. The only exceptions are Spanish, Brazil Portuguese, Polish and Japanese, other languages possess either older versions only or even no one. The Czech morphological nomenclatures are now accessible via internet, although they are not officially approved. The main task of morphologist nowadays is to spread the nomenclatures among physicians and to publish the valid official national nomenclatures for purposes of both specialist in medicine and translators.

Satellite Symposiums

(C-01 — C-19)

C-01

Endoscopic anatomy of the sinonasal cavity and its clinical implications

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Today endoscopic sinus surgery is accepted as the "Standard of care" for treating refractory inflammatory diseases of the paranasal sinuses through improving sinus ventilation. Around the globe it is being widely used as a safe and effective treatment. Nevertheless complications still do occur. Like at any surgical procedure, knowledge of anatomy is imperative to perform this surgery. Additionally, endoscopic view of the surgical anatomical landmarks and orientation to them especially for this type of surgery is utmost important to safely accomplish surgical tasks and avoid complications. Furthermore, in recent years, continuous advances in instrumentations and diagnostic imaging as well as enhanced knowledge of endoscopic anatomy let clinicians to explore neighborhood regions through transnasal corridors using the endoscopic techniques. In these presentations we will demonstrate the endoscopic anatomy of the sinonasal cavity and beyond while sharing our experiences with the endoscopic surgery.

C-02

Endoscopic dissection and anatomy of the retromandibular fossa

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The use of rigid endoscopes remains a powerful tool for minimally invasive surgical approaches. Endoscopic anatomy is important for working corridors of endoscopic assisted surgery in reaching of retromandibular fossa. The surgical corridor, without bone removal, begins at the natural bony window between the mandibular ramus and maxillary tuberosity. Endoscopic exposure, manipulation, and control of major vessels in this area are important. The safe endoscopic exploration of this region requires a three-dimensional understanding of the anatomy of this area. In these presentations we will demonstrate the endoscopic anatomy of the retromandibular fossa and its clinical implications.

C-03

Clinically oriented surgical anatomy of the neck dissection

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Neck dissection is an important surgical procedure in which the fibrofatty contents of the neck are removed for the treatment of cervical lymphatic metastases. In order to have safe and effective surgery knowledge of the anatomical landmarks is essential. Head and neck pathologies usually surrounded by critical anatomical structures such as carotid arteries, large veins and cranial nerves. Awareness of these structures allows us performing a successful surgical intervention and limits the rate of complications. In addition, anatomical dissection provides the development of new surgical skills and an understanding of physiology of the body system. In this presentation, we will demonstrate clinically oriented surgical anatomy of the neck dissection.

C-04

A scientific journey with colleagues

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After one of my forensic scientist friends informed me about the uniqueness and usability of frontal sinus in forensic identification we established a research team with the participation of colleagues from otorhinolaryngology and radiology. The paper presenting our results 'Identification of unknown bodies by using CT images of frontal sinus' was published in a highly respected journal 'Forensic Science International'. When I was reading the papers for this study, I had noticed the surgical importance of the morphometry of frontal sinus. We decided to make a research on this subject and our article 'CT Study on Morphometry of Frontal Sinus' was published in 'Clinical Anatomy' and it became the cover of the issue. My otorhinolaryngologist colleague proposed me another study. We made

it in the Anatomy Department of Ankara University. 'Surgical anatomy of the nasolacrimal duct on the lateral nasal wall as revealed by serial dissections' was published in Anatomical Science International. We made a study on the true retaining ligaments of face with a colleague from Plastic Surgery defining an anthropometric approach for face- lift procedure. We are investigating the relations of lateralization and asymmetry of auricles now. We obtained pleasing results from my collaboration with clinician colleagues.

C-05

Oblique split method: anatomical aspects of a novel method to carve rib cartilage grafts without warping

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Reconstruction of the nasal framework is the foundation of augmentation rhinoplasty. The major disadvantage of costal cartilage grafting in rhinoplasty is its tendency to warp postoperatively. A novel method (Oblique Split Method- OSM) for carving costal cartilage grafts is presented in order to obtain straight grafts in varying thicknesses and to eliminate the risk of warping. OSM provides a complete rib segment with an intact surface layer and can easily be carved according to the "principle of the balanced cross-section". The OSM graft's surface has equaled circumferential forces of contracture at all points on the periphery of the graft and may be said to be "balanced". Grafts may safely be modified into rectangular shape, carved asymmetrically or may have their edges beveled as they strictly preserve their straight form. The OSM is a flexible operative technique for utilizing costal cartilage grafts in difficult structural rhinoplasty cases requiring numerous grafts. Predictable long term results can be achieved by OSM as it provides straight grafts in varying thicknesses without risk of warping.

C-06

The contributions of "Prof. Dr. Alaittin Elhan" to surgical neuroanatomy

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Prof. Dr Alaittin Elhan was born in 1945, was in our department since 1969 and has been a Head of the Department of Anatomy, Ankara University Faculty of Medicine since 1997. He has been the author of "Anatomy" which became a classic text about anatomy and its second volume includes huge detailed knowledge about anatomy of the central and peripheral nervous system. During educational programs of our department he made his important contribution to neuroanatomical knowledge of many anatomists, clinicians and especially to neurosurgeons and with his careful dissections he demonstrates many neural structures and their relations which guided not only neurosurgeons during their surgeries, but also help to understand many neuroanatomical structures. He always believes that dissection of human cadavers is very important to clinicians and especially for surgeons and always support studies about clinical neuroanatomy with his dissections. He was always our senior dissector and scientific neuroanatomical studies performed with his contributions was recognized by attribution of many grants and awarded many times.

C-07

Surgical and endoscopic anatomy of the lateral and third ventricles

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Numerous operative approaches to the lateral and third ventricles have been described and these structures are among the most surgically inaccessible areas in the brain. The anatomical relationship of the lesion to the lateral and third ventricles and involving structures such as fornix, midbrain, aqueduct of Sylvius, foramen of Monro, thalamus, corpus callosum is important during selection of the best operative approach. Additionally, some structures that form part of the walls of the lateral ventricle are also seen in the third ventricle. Lateral ventricles contain parts as frontal, temporal, and occipital horns, the body, and the atrium. Each of these five parts has medial and lateral walls, a roof, and a floor. In addition, the frontal and temporal horns and the atrium have anterior walls. The third ventricle is a narrow, funnel-shaped, unilocular, midline cavity and has has a roof, a floor, and an anterior, posterior, and two lateral walls. Anatomical structures that constitute the floor of the third ventricle and its neighbors (mamillary bodies, infundibulum, the oculomotor nerve, the hypothalamic nuclei, and the position of the basilar tip) are important not only for endoscopic third ventriculostomies but also for craniopharyngiomas, pituitary tumors, and third ventricular tumors. Before the individual operative approaches to the lateral and third ventricles knowledge about their surgical and endoscopic anatomy and their neural and vascular relationship will provide the basis for optimizing clinical outcomes.

C-08

Use of current neuroradiological knowledge in neurosurgery and neuroanatomy

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After the giant improvements in neuroradiological investigation techniques, safer neurosurgery became feasible and can be

performed in many centers. The use of tractography, 3 Tesla magnetic resonance imaging (MRI) and functional MRI defines the borders and relationship of intracranial lesions located in eloquent areas with critical neuroanatomical structures. The neuronavigation systems are helpful in localizing and planning of these critical neurosurgical procedures. The translational research in neurosurgery and neuroanatomy gave birth to new neurosurgical techniques and adding the update neuroradiological knowledge to these new techniques showed us the current dimensions and limitations of surgical approaches. But without neuroanatomical knowledge, the interpretation of neuroradiological investigations and their clinical applications would have been difficult. We would like to share our clinical experience on this important topic.

C-09

Dostoyevsky's epilepsy: neuroanatomy, clinic and his novels

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Fyodor M. Dostoyevsky (1821-1881), lived as an epileptic patient for many years. His epilepsy is named ecstatic epilepsy or temporolimbic epilepsy. Ecstatic seizures are characterized by extreme pleasure and contentment sometimes associated with components of cognitive and spiritual experiential phenomena. There are many references to seizure related phenomena in his novels. In this paper the influence of this form of epilepsy on Dostoyevsky's life and effect of art science in generally is discussed.

C-10

Neuroanatomy of middle cerebral artery

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Middle cerebral artery (MCA) is the one of important artery which supplied approximately all two third of the lateral surface of the brain. The vascularization pattern and surgical neuroanatomy of the MCA is still debatable in some point. The diameter of the branches at their origin, vascularization areas of the cortical branches and their variations are important during surgery. Also one of controversial terminology that intermediate trunk and its importance must be known. This knowledge may affect all MCA-related pathologies' management especially aneurysms operations. In each hemisphere the surgical neuroanatomy of the MCA is different and it must be known especially by neurosurgeons, neurologist, interventional radiologists and anatomists.

C-11

Applied anterior communicating artery aneurysm dome projection related anatomy

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The success of an operation is dependent not only on advanced microsurgical instruments, timing and correct indications but also on anatomical positioning of the head during the surgery. Position is especially important when minimal tissue removal is desired. In aneurysm surgery, minimal tissue manipulation should be done in order to prevent the development of postoperative vasospasm. However, a review of the literature demonstrated a range of suggestions for anterior communicating artery aneurysm surgical positioning and head positioning and the degree of rotation for anterior communicating artery aneurysm surgery is controversial. In this presentation anterior communicating artery aneurysm dome projection related anatomy will be reviewed according to head positioning. The most suitable degree of head rotation for each projection and related anatomical structures that can be injured will be discussed.

C-12

The dentate nucleus and its projection system in the human cerebellum: a microsurgical anatomical study

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This study examined the dentate nucleus (DN) and aimed to investigate the position of the DN in various surgical approaches to the cerebellum by means of fiber tract techniques. Ten formalin-fixed human hemispheres were dissected using Klinglers fiber-dissection technique with the aid of X6 to X40 magnifications. Three dimensional Diffuse Tensor Imaging (DTI) anatomical images were created. The relationship of the DN to the tentorium, suboccipital and lateral surfaces of the cerebellum and its position in relation to surgical approaches to the cerebellum and fourth ventricle were examined. The fiber tracts terminating at and surrounding the DN were identified. Results: The DN is at greater risk of being damaged in the transvermian and supratonsillar approaches to the cerebellar and fourth ventricle and at less risk in the telovelar and subtonsillar approaches. The lateral mesencephalic approach to the brain stem is immediately opposite the DN adjacent to the efferent dentate fibers. The DN is important in posterior fossa surgery, especially for elder patients due to atrophy problems. Functionally and anatomically, the DN has a close relation tothe superior and middle cerebellar peduncles.

The inferior cerebellar peduncle has positional risk as it passesanterior and superior to the DN. The telovelar approach is a safer procedure for operating fourth ventricle floor pathologies.

C-13

Microsurgical anatomy of cognitive neurosurgery

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This study examined the dentate nucleus (DN) and aimed to investigate the position of the DN in various surgical approaches to the cerebellum by means of fiber tract techniques. Ten formalin-fixed human hemispheres were dissected using Klinglers fiber-dissection technique with the aid of X6 to X40 magnifications. Three dimensional Diffuse Tensor Imaging (DTI) anatomical images were created. The relationship of the DN to the tentorium, suboccipital and lateral surfaces of the cerebellum and its position in relation to surgical approaches to the cerebellum and fourth ventricle were examined. The fiber tracts terminating at and surrounding the DN were identified. Results: The DN is at greater risk of being damaged in the transvermian and supratonsillar approaches to the cerebellar and fourth ventricle and at less risk in the telovelar and subtonsillar approaches. The lateral mesencephalic approach to the brain stem is immediately opposite the DN adjacent to the efferent dentate fibers. The DN is important in posterior fossa surgery, especially for elder patients due to atrophy problems. Functionally and anatomically, the DN has a close relation tothe superior and middle cerebellar peduncles. The inferior cerebellar peduncle has positional risk as it passesanterior and superior to the DN. The telovelar approach is a safer procedure for operating fourth ventricle floor pathologies.

C-14

Applied anatomy of the temporoparietal fascia

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Temporoparietal fascia constitutes a very important structural unit fromboth an aesthetic and a reconstructive surgical point of view. A histologically supported anatomic study was conducted for the reappraisal of the anatomic relationships and clinical application potentials of the data obtained. Anatomy of the temporoparietal fascia was investigated on 20 sides from 10 cadavers. After dissections, necropsies were obtained to demonstrate histologic features of the temporoparietal fascia. The outer part of the temporoparietal fascia is continuous with the superficial musculoaponeurotic system (SMAS) in the inferior border and with orbicularis oculi and frontalis muscles in the anterior border. Therefore, plication of the temporoparietal fascia can increase tightness of the SMAS, orbicularis oculi, and frontalis muscle in rhytidectomy. The frontal branches of facial nerve were noted to course parallel to the frontal branch of the superficial temporal artery, lying deeper to the temporoparietal fascia within the innominate fascia. In the view of these findings, conventional subfascial dissection, which is performed to protect frontal branches of the facial nerve, is not reasonable during the temporalpart of rhytidectomy. Careful subcutaneous dissection just under the hair follicles is more appropriate to avoid nerve injury and also provides excellent exposure of the temporoparietal fascia for plication in hytidectomy with protection of the auriculotemporal nerve and the superficial temporal vessels. Furthermore, two layered structures of the temporoparietal fascia are very suitable to insert a framework into the temporoparietal fascia for ear reconstruction to eliminate some of the shortcomings of Brent's technique. A thin muscle layer was also noted within the outer part of the temporoparietal fascia below the temporal line; the term temporoparietal myofascial flap" would, therefore, be more accurate than "temporoparietal fascial flap." Finally, the innominate fascia and the deep temporal fascia can be elevated with the two layers of the temporoparietal myofascial flap to obtain a well-vascularized, four-layered myofascial flap based on the superficial temporal vessels. This multilayered flap can be used to reconstruct all defects when fine, pliable, thin, multilayered flaps are required.

C-15

Anatomical aspects of maxilla allograft for transplantation

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The aim of this study is to present an anatomic study and a dissection technique to prepare maxilla graft for transplantation.Six fixed adult human cadavers were used for dissection of the maxilla grafts. Retrospective reviews of archives of 10 MRI and 5 angiographies of the maxillary region were performed to demonstrate the vascular and soft tissue anatomy of this area. We have harvested maxilla graft as a single unit (larger type of Le Fort II) based on arterial and venous pedicle ready for transplantation. MRI evaluation revealed the vascular structures in the masticatory space and its anterior pterygomaxillary extension. Angiographic observations have demonstrated the arterial blood supply of the maxillary region, which lies within the pterygomaxillary region that we have included in the graft. We are presenting a method for harvesting of the maxilla graft, with vascular supply based on certain anatomic landmarks.

C-16

Clinical anatomy of levator labii alaeque nasi muscle in dorsal septal deviations

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Nose can be affected by nasal muscles, and deviation becomes more overt when the patient smiles if levator labii alaeque nasi muscle is dominant. This condition depends on especially activity of levator labii alaeque nasi muscle. In our research we also performed 10 levator labii alaeque nasi muscle dissection in 5 fixed cadavers and anatomical relation and functional contiguity of the muscle fully understood. A total of 124 septorhinoplasty operations were performed to correct dorsal concave septal deviation between 2005 and 2009 years. The 70 women and 54 men included in the study had an average age of 28 years. The average follow-up period was 12 months. Open septorhinoplasty was preferred in all cases. The medial part of the levator labii alaeque nasi muscle was extensively dissected from the lateral crus and surrounding tissues. The lateral crura of the alar cartilages were separated from the upper lateral cartilages in the scroll area. The dorsal septal deviation was corrected by combination of bilateral spreader grafts, which reinforced cartilage with horizontal control sutures. Comparison of preoperative and postoperative photographs demonstrated improved dorsal nasal contour. The corrected septal cartilage was in a good position in all revised cases; therefore, septal surgery was not performed in the revision operations. In conclusion, surgical disruption of the anatomic relationship between the muscle with the dorsal septal cartilage and reinforcement of the dorsal septal cartilage with spreader grafts and horizontal control sutures can decrease risk of recurrence.

C-17

Reconstructive Surgery and clinical anatomy oriented vascular anatomy studies

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Perforator flap concept has increased the importance of vascular anatomy studies which has been the main problem in plastic and reconstructive surgery. Detailed vascular anatomy studies has become inevitable for preoperative planning, in adition to preoperative imaging techniques. Clinic oriented plastic surgery based vascular anatomy studies have indicated much diversity when compared to classical vascular anatomy. Thus, between 2002 and 2012, studies accomplished by the authors will be presented based on these principles.The results and the influences of these studies and information on the surgical procedures and on the surgery oriented anatomical studies will be disscussed.

C-18

An anatomical point of view for smiling deformity: anatomical relations of depressor septi nasi

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Smiling causes a deformity in some rhinoplasty patients, which includes drooping of the nasal tip, elevation and shortening of the upper lip and increased maxillary gingival show. The depressor septi muscle leads this deformity. The dermocartilaginous ligament originates from the fascia of the upper third of the nose, and extends down to the medial crus, merging into the depressor septi muscle. One hundred primary rhinoplasty patients were studied for hyperdynamic nasal tip ptosis. Thirty-six patients had hyperdynamic nasal tip ptosis due to hyperactive depressor septi nasi muscle. The dermocartilaginous ligament was used as a guide to reach the depressor septi muscle in open rhinoplasty. Muscle excision was performed just below the foot plates of the medial crura. A strong columellar strut graft was placed between medial crura to avoid narrowing in the columellar width due to tissue excision and to withstand activation of depressor septi muscle remnants. There were no complications such as infection and hematoma in the early postoperative period. The technique corrected the hyperdynamic nasal tip ptosis, increased upper lip length, and decreased gingival show when patients smiled. There was no narrowing in the columellar width. We did not observe any depression in the columellar labial junction due to distal resection of the depressor septi muscle. The dermocartilagenous ligament can be used as a reliable guide to reach the depressor septi muscle in open rhinoplasty. Therefore hyperactive depressor septi muscle can be definitively identified and treated without any intraoral approach.

C-19

Breaking strength and rigidity of anatomical parts of fibula and using them for bone reconstruction

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Weight bearing bone reconstruction needs a strong segment of bone that can be reshaped for contour restoration Fibula is one of the most commonly used bones for mandibula and long bone reconstructions. The fibular bones harvested from cadavers were divided into three equal segments and breaking strengths and rigidity of each segment were compared. The middle segments of the fibulae had higher breaking strength and rigidity than the proximal and distal segments. We think static properties of bone flaps must be kept in mind while reconstructing a dynamic weight bearing bone.

Oral Presentations

(O-01 — O-63)

O-01

Reliability and reproducibility of MRI classification of interspinous ligament degeneration of the lumbar spine

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Posterior spinal ligament pathology is becoming increasingly recognized as a significant cause of low back pain. Formal reliability studies for the magnetic resonance imaging (MRI) evaluation of interspinous ligament degeneration have not been well studied. This study seeks to test the reliability of the recently proposed MRI classification system by Keorochana et al. 200 patients who had low back pain with or without leg discomfort (100 males, 100 females) with a mean age of 67.8 years (range 56–80 years) were studied. Images were assessed by 3 orthopaedic surgeons. Reliability was assessed by kappa statistics. The intra-observer agreement was excellent in all readers (kappa range 0.800–0.911). As expected, the inter-observer agreement was lower, within a substantial to excellent range (kappa range 0.701–0.801). We conclude that this MRI classification of interspinous ligament degeneration proposed was reliable and reproducible. Its use as a standardized nomenclature in clinical and radiographic spine research is recommended.

Keywords: Lumbar, degeneration, interspinous ligament, classification, magnetic resonance imaging, reliability

O-02

Spontaneous vertebral fusion: an osteological and histological study

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Intervertebral fusion is associated with infection, disc degeneration, kyphosis, scoliosis, tuberculosis and surgery. The aim was to determine the incidence and histology of spontaneous vertebral body fusion in a cadaveric study. Hundred random, adult human skeletal vertebral columns were evaluated. A cohort of 20,500 individual bones and 2500 vertebra were studied. Selected fused areas were subjected to histological assessment. The incidence of spontaneous bony fusion was 10% (median age 75-years), compared to the unaffected vertebrae (mean age 57-years), 20-years older than the current South African life-expectancy of 49.3-years. 40% of fusions occurred in the cervical and thoracic regions and 20% in the lumbar area. Fused segments varied from 2-8 vertebrae, with an age range for fused vertebrae of 57-98 years. The male to female ratio was 4:1 respectively. Vertebral bodies, osteophytes and ossified anterior longitudinal ligaments showed predominantly osteopenia and osteoporosis. Anterior longitudinal ligament ossification was present in two cadavers, with two gross cases of kyphosis. Age-related, bony-bridge, claw osteophytes and traction-spurs were consistently present in the cervical and lumbar regions. Age-related, spontaneous, degenerative vertebral body fusion occurred in 10% of the cohort studied. Further refinement is needed to delineate the mechanism and relationship of intervertebral disc degeneration and spinal fusion.

Keywords: Anterior longitudinal ligament ossification, osteopenia, histology

O-03

Why is the tibial tuberosity an unreliable landmark for rotational alignment of tibial component in TKA?

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Rotational malalignment of the tibia is an unresolved issue in knee replacement. Mostly preferred anatomic reference by the surgeons is the tibial tuberosity. Previous studies reported that tibial tuberosity is not a reliable reference. The aim of this study is to evaluate variations in tibial tuberosity position and proximal tibial torsion. Thirty-nine dry tibias were scanned. To evaluate proximal tibia we have evaluated (1) position of the tuberosity with respect to tibial spines, (2) degree of rotation between tibial tuberosity and geometric center of the bone, (3) degree of rotation between tibial tuberosity and anatomic axis of the bone, (4) degree of torsion of the proximal tibia. In 6 of the 39 bones (15.38%) tuberosity was positioned medial to the lateral spine. The distance between the tuberosity and the lateral spine changed between 0.7-17mm (mean=6.2mm ± 5.3). Rotgc varied

between 18.12-41.72º (mean=29.41º±6.86). Rotaa varied between 8.14-47.51º (mean=30.96º ± 9.07). Equality of variance test showed that the rotgc values did not vary significantly, whereas rotaa did. The torsion showed significant variance in each bone. It was not correlated with rotgc and rotaa, and distance measurements. The difference between the first slice through the tuberosity (slice 4) and the last slice through the tuberosity (slice 6) was moderately associated with distance and rotgc. Tibial tuberosity shows great variations in sagittal axis, due to the variations in structure of the bones. Individual planning for each bone may be assessed particularly with CT before the operation.

Keywords: Tibial tuberosity, malalignment, rotation, tibial component

O-04

Evaluation of orbit by geometric morphometrics: a novel computer assisted method

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The aim of this study was to evaluate the morphology the orbit according to gender. Geometric morphometrics analysis were performed on the photographs of 44 (10 females, 34 males) skulls taken in standard positions. Data were collected in 10 homologues landmark coordinates which give the standard definition of orbit using the TpsDig software. The form of each orbit is represented by the Cartesian coordinates of the anatomical landmarks. To eliminate the non-shape variation in the sample, generalized Procrustes analysis (GPA) was used. The scaling procedure adjusted the landmark coordinates such that each orbit had unit centroid size. Analysis of variance (ANOVA) was used to compare mean male and female centroid size values. Relative warps analysis; a multivariate analysis of variance (MANOVA) was used to assess shape variation of orbits. Orbits on the right and the left sides were evaluated separately. There were no statistically significant differences between shape of right and left orbit of males and females depending on MANOVA ($p>0.05$). Centroid size data of the right and left orbit were analyzed with one-way ANOVA, and the differences between genders were not statistically significant ($p>0.05$). Depending on these results it can be suggested that shape and size of orbit are similar in both genders.

Keywords: Orbit, geometric morphometrics, gender

O-05

The effect of simvastatin on hippocampal morphology of rats exposed to high-fat diet during pre- and post-natal period

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Nutritional state plays a critical role in programming neural circuitry. In this study, we investigated the hippocampal morphology of male rats exposed to high-fat diet (HFD) throughout pre- and postnatal period and the effect of simvastatin, antihyperlipidemic drug inhibiting the enzyme HMG-CoA reductase, on these animals. Pregnant rats were fed with either standard or HFD (65% calories from fat) during gestation and lactation period. After weaning, offspring (n=6/group) were continued to feed with similar diet regimen for 14 weeks. Then, oral simvastatin (5mg/kg) treatment was applied to animals for 4 weeks. After perfusion, coronal sections along the entire extent of hippocampus were taken and stained with cresyl violet solution. Volumetric changes in the CA1-3 subfields of the hippocampus and dentate gyrus were analyzed by Cavalieri method. Total numbers of pyramidal neurons were estimated by using optical fractionator probe of the Stereo-Investigator system. Total volume estimation of granule cell layer of the dentate gyrus and the pyramidal cell layer of the hippocampus revealed no significant change between control and HFD groups. However, simvastatin treatment significantly ($p<0.01$) increased the volume of pyramidal cell layer in animals fed with HFD. Total number of pyramidal neurons showed a significant ($p<0.05$) reduction in HFD animals; but it increased back to the level of control groups following simvastatin treatment. HFD exposure during pre- and postnatal periods has detrimental effects on pyramidal neurons of the hippocampus. Since chronic simvastatin treatment counteracts these effects, it might have protective effects on cognitive functions.

Keywords: High-fat diet, hippocampus, simvastatin, optic fractionator, stereology

O-06

A cadaveric study of aberrant internal carotid artery: the impact of complex carotid geometry on endovascular stent-graft placement

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Carotid artery stenting (CAS) is a rapidly advancing treatment option for carotid occlusive disease. Published series on CAS deals mainly with lesions at the junction of the common (CCA) and internal carotid (ICA) arteries. Stenting in distal lesions of the cervical-ICA can be difficult due to geometrical variations

in this vessel. This study presents a tortuous variation of the cervical-ICA, exploring the implications on stent-graft placement and challenges of stent design to enhance success. A neck dissection of an 86-year-old male cadaver was performed. The carotid triangle was exposed and the CCA and cervical-ICA were identified and photographed. The cervical-ICA displayed a double wave-form curvature (at CCA-ICA angle and distal ICA segment) as it coursed to the skull base. Vessel diameter was 5.4, 4.7 and 5.5-millimetres at the proximal, middle and distal segments, respectively. Such aberrant cervical-ICA segments may provoke vessel kinking, in-stent restenosis and subsequent peri-operative complications following stent implantation. The novel open-cell stent design has shown promising flexibility to tortuous anatomy but may not provide adequate scaffolding for long-term performance. Endovascular specialists need to work with industry to produce stent-grafts that conform to complex carotid angulations and minimize the high number of graft-related complications observed in this area.

Keywords: Carotid artery stenting, stent re-stenosis

O-07

A kinematic analysis of scapula during humeral elevation in healthy subjects

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The kinematic interaction between the scapula and the humerus has an important biomechanical effect on elevation of the arm for activities of daily life. This study was designed to analysis the scapular kinematics and to determine the contribution of scapula to the humeral elevation in healthy subjects. This study included 16 healthy volunteers (8 men, 8 women with a mean age of 21±2.7 years. Scapular motions at humeral angles of 450, 900, 1200, and at maximal elevation in both frontal and sagittal planes were measured. Scapular motions were described in two coordinate planes: Upward rotation in the frontal plane about an anterior-posterior coordinate axis (z axis); and external rotation in the transverse plane around a superior-inferior axis (y axis). Scapular movements were measured with a digital inclinometer. Scapular external rotation increases, except at maximal humeral elevation. Scapular external rotation increases at all angles of humeral elevation in the sagittal plane. Scapular upward rotation is greater in the sagittal plane than in the frontal plane ($p< 0,001$). The current study shows that scapula contribute to elevation of the arm in healthy participants. These findings can be used in understanding the typical kinematic pattern of the scapula, and may provide a basis for evaluation of shoulder pathology.

Keywords: Scapular motion, humeral elevation, scapulohumeral ritm, kinematic analysis

O-08

Bony structures related to snapping scapula. Anatomical study on 264 dried scapulae

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Purpose of the present study was to record the incidence and morphology of the bony structures involved in the pathogenesis of the snapping scapula. The angle of the scapula vertebral border, i.e. between the supraspinatus and infraspinatus portion, was measured with a digital goniometer in 140 Greek dried scapulae (36 women and 34 men). The vertebral border morphology was classified according to Graves (1910) and the existence of the Luschka tubercle as well as the teres major tubercle was examined in 264 Greek dried scapulae. The average vertebral border angle was 143.34º±9.03º (range 113º-171º). The vertebral border was straight in 99 (37.5%), convex in 135 (51.1%) and concave in 30 (11.4%) bones. The Luschka tubercle was present in 8/264 (3%) scapulae and the teres major tubercle in 114/264 (43.2%). In 9/264 (3.4%) scapulae the teres major tubercle was curved towards the thoracic wall. The concave verebral border (11.4%), the Luschka tubercle (3%) and the curved teres major tubercle (3.4%), which predispose to snapping scapula, are not rare. The degree of the vertebral border angle has implications for the surgical treatment of the snapping scapula. Therefore, the diagnostic approach to symptomatic snapping scapula should include the anatomical structures described.

Keywords: Osteology, scapula, anatomical variations, snapping scapula

O-09

Adding sciatic nerve blockade to adductor canal blockade: an anatomical study

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We aimed to blockade the saphenous, the medial femoral cutaneous, the sciatic and the posterior branch of the obturator nerves effectively by single intervention during the knee operations and to control the postoperative pain. This study was performed on 8 formaldehyde embalmed cadavers. The anatomy of adductor canal and the course of these nerves within the canal were dissected. The relationships of the nerves with each other and with the fascial compartments were investigated. Colored latex was used to demonstrate the anesthetic blockage of the nerves. It was observed that the femoral artery and vein,

posterior branch of the obturator nerve, the saphenous nerve and the medial femoral cutaneous nerve which is a branch of anterior femoral cutaneous nerve were located in the adductor canal. The superomedial border of vastoadductor membrane (A) was determined as the ideal point of injection. The distances between this point and medial (B) and superior (C) borders of patella were measured. Accordingly, the mean A-B and A-C distances were measured as 17.4 cm and 5.3 cm respectively. There was a fascial plane which doesn't allow the passage of anesthetic agent towards the sciatic nerve. In order to traversing this fascial membrane it was necessary to insert the needle 900 perpendicular to the plane which was tangent to this point along half of diameter of the thigh. Thus, the colored latex was observed to fill the compartment where the sciatic nerve lied within. We suggest that to blockade of these four nerves by a single injection for anesthetic interventions will find a practical application area during the knee surgeries.

Keywords: Adductor canal, sciatic nerve, the medial femoral cutaneous nerve, saphenus nerve, obturator nerve

O-10

Comparison of podoscope and podograph devices for examination of foot deformities in mentally retarded individuals

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Feet are very important organs which give moving ability for human-being and for every creature that can walk. By some aspects, they can be considered as the symbol of independence for giving moving freedom. For this reason, feet should be well examined and necessary interventions with appropriate methods have to be made in case of deformities at early stages of walking. As a consequence of foot examination importance, several devices and methods were developed. Our study involves feet examination of 43 subjects, who can get commands, out of 53 mild mentally retarded people who are recruited from Trabzon Rehabilitation Center. Podograph is a device between two plastic dampers and this device has a 2 mm-wide rough rubber which can absorb ink on one of its surfaces. A white paper is put under rubber which was previously treated with ink. The subject puts his/her foot on the other surface and by this way the pressure field of the foot can be reflected on to the white paper. The figure on the paper is evaluated with a variety of criteria. Podoscope is a device with 25-30 cm height, obliquely positioned mirror on its base, and this device also has internal lightening. Inside the device there is a computer connected camera which can observe foot from bottom. The subject is mounted on the podoscope and the view of feet is sent to computer by using camera. Foot analysis data on the podoscope and podograph are collected and compared. Chippaux-Smirak Index is used for comparison with modification. Chippaux-Smirak Index includes the ratio of the most narrow part of foot arcus shadow (a) and the most wide part of metatarsal region (b) (the first and fifth metatarsus regions) which are obtained by computer measures (a/b). These ratios are measured for each footh and classified as Pes cavus (a/b<0,299), normal (a/b= 0.3-0.399), pes planus (a/b> 0.4). Comparison is made between these ratios. In our study group, positive correlations were obtained between podograph and podoscope measures of left feet. This correlation is highly meaningful ($p<0.01$). Likewise the correlation between the two measures of right feet is also highly meaningful ($p<0.01$). Podoscope and podograph measures between right and left feet didn't show any meaningful difference ($p>0.05$). In general, the results of both types of device measures are consistent with each other. Due to observations during experiment procedure, it can be mentioned that measuring with podoscope is more practical and also less time consuming. Procedure of podograph requires standing on top of single foot and no motion when contacting foot on to the surface with ink. When we consider our target invalid population and children, it would be even more difficult to use podograph. For our experiments, there were some difficulties during measurements for keeping participants on devices without motion and loading the total weight on single foot even though they were individuals who can get commands. As a consequence, measurements had to be repeated for several times. But for podoscope measurement it is enough just to stand on podoscope with two feet for a short time. Measurements were done well even though some subjects were afraid of standing on a glass surface. In sum, by results of our study; it can be said that podoscope is a more appropriate device with its simple usage and security for evaluating feet deformities.

Keywords: Podoscope, podograph, pes planus, pes cavus

O-11

The gluteal sling: an anatomical study

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Sciatic nerve palsy is a devastating complication which may be seen after acetabular exposure in total hip resurfacing via a posterior approach. Gluteal sling was suggested to play a role in sciatic nerve palsies in total hip arthroplasty so it is suggested to be released to avoid such compressive injuries. The purpose of this study is to demonstrate the impact of releasing the gluteal sling to decrease the tension on sciatic nerve during posterior hip arthroplasties. We also aimed to point the degree of gluteal sling releasing and to visit the anatomical structures at risk during releasing procedure.The gluteal sling was exam-

ined in six adult cadavers. Its relation with the sciatic nerve, first perforating artery, the tip of greater trochanter and the ischial tuberosity were evaluated by measurements using a digital caliper accurate to 0.01 mm. Kendall's tau-b correlation analysis was used in order to detect correlation between the parameters. The distance of the sciatic nerve to the proximal edge of the gluteal sling was measured as 24.76 ±7.29 mm; and to the distal edge of the gluteal sling was 21.76 ± 4.98 mm. The closest distance between the gluteal sling and the sciatic nerve was measured as 18.93 ± 6,46 mm. This distance measured by taking reference of the point where the sciatic nerve lies at the closest position to the gluteal sling. This point was corresponding to the distal 2/3 part of the gluteal sling. The results of our study revealed that it is enough to release the proximal 2/3 of the gluteal sling to avoid its compression on the sciatic nerve. Releasing it totally may disturb the insertion characteristics of the gluteus maximus which may soon result in postoperative gait abnormalities.

Keywords: Sciatic nerve, total hip arthroplasty, gluteal sling, sciatic palsy

O-12

Foot deformity and IQ relationship in mild mentally retarded individuals

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The role of foot in moving ability is so important. It is thought that in those mentally retarded individuals, who get ability of walking lately and also have difficulties in communication, mental ability may affect foot development. 43 out of 50 mentally retarded individuals, who were recruited from Trabzon Rehabilitation Center, are participated in our study. These participants were able to communicate. Approval forms are getting by informing families of participants. Foot examination is done by using podoscope device. Podoscope is a device with 25-30 cm height, obliquely positioned mirror on its base, and this device also has internal lightening. Inside the device there is a computer connected camera which can observe feet from bottom side. The subject is mounted on the podoscope and the view of feet is send to computer by using camera. These send views are examined by using modified Chippaux-Smirak index. Chippaux-Smirak index involves the ratio of the most narrow part of foot arcus(a) and the most wide part of metatarsal region(b) (the first and fifth metatarsus regions) which are obtained by computer measures. These values are measured for both feet distinctly and grouped as Pes kavus (a/b<0,299), Normal (a/b= 0,3-0.399), Pes planus (a/b> 0,4). We observed 35 Normal, 37 Pes Planus and 14 Pes Kavus property out of 86 extremities. The ratios of foot deformity in society are presented in literature with studies from Turkey and abroad. But these studies involved participants at walking age and/or school age. According to these studies deformity observation ratios varied between 1.1% to 59.8%. At first glance, this case gives the idea of a relationship between IQ level and foot deformity, but in our study we couldn't obtain such kind of relationship by our statistical analysis. This result may be explained by the low number of participants and narrow IQ band. As we observed in our study that it is difficult to measure foot deformity in mentally retarded people and appropriate method should be selected very carefully. In general, mentally retarded individuals start to walk lately and may have some walking and posture problems. These problems might be associated with foot deformities.

Keywords: Mental retardation, pes planus, podoscope

O-13

What is an anatomical variation? Why it is important?

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Case report is a very important kind of publication. It can be seen in many general medical and scientific journals. In the area of anatomy, most of the case reports are constituted from anatomical variations. In this study, we wondered to come into a proper definition of anatomical variation, and discuss its importance in medical education and practice. Available literature reviewed. Especially we went over the studies of pioneers in this area, as well as the biographies of the doyens of anatomy. By nature, case report is a qualitative report on interesting specific situation, which can be useful and valuable for the readers. In general, the case report describes one or few cases or situation that can be the new thing or interesting points to the general readers. In anatomical science anatomical variations are the main components of case reports. To start writing an anatomical variation, one has to know what to report; not all variations deserve publication since it must deal with interesting and useful situations. Interestingly, there is no consensus in terminology; most of the authors define any unusual appearance as an anomaly. However, an anomaly is an unusual situation which leads to a dysfunction and/or disease. On the other hand, an anatomical variation is an evidence of variety in the formation of the human body. Variations are important parts of normal human anatomical structure. Their relationship in solving or understanding clinical problems is obvious and is an essential part of our investigation. It is better to conclude with own words of Dr. Ronald Bergman: "Perhaps we will, one day, get over the myth of a single anatomical prototype and that any variation is anomalous or abnormal".

Keywords: Anatomical variation, case report, unusual presentation

O-14

Creating value added multimedia e-content in anatomy education: A study

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This study sought to analyze the value of creating multimedia content to first semester medical student learning of anatomy at a Caribbean medical school. This content included the video capture of several activities of a classroom anatomy lecture using a Tablet PC. The software simultaneously recorded the lecturer presentation, Power Point lecture slides and the creation of diagrams and charts. The final electronic file is then rendered in a video format and edited with the addition of quizzes and is then made available for the students to review asynchronously creating a virtual learning platform for students. Students attending the lectures were sent an email asking them to complete an anonymous survey via a link to the survey. Fifty-four percent of the students (n=124) responded to the survey with over 95% of the students replying that the ability of this multimedia content enhanced their understanding of the material in the anatomy course. Over 80% of the students viewed the anatomy lecture videos at least once. We conclude that the usefulness to medical students of this innovative multimedia content, including video capture of live lectures, is invaluable to their understanding of course content and preparation for performance on exams.

Keywords: Instructional technology, anatomy education, e-learning, multimedia content creation

O-15

Opinions of clinical teaching staff on term II anatomy education

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Anatomy is without doubt the foundation of medical teaching for hundred years. However, currently education in basic medical sciences especially in anatomy is a controversial area. Teaching styles, the level of the knowledge that is necessary for medical and surgical practice, time dedicated to the gross anatomy courses within the medical school curriculum are still being widely discussed among medical educators. There is a growing concern among medical educators that conventional models of teaching in the field of medicine neither encourage the right qualities in students nor imparts a life-long respect of learning. Most of the authors recommend that decreasing the anatomy lectures will allow students more time to study. However, nearly half of the recently graduated medical doctors believe that they have received insufficient anatomy teaching. Not only the students but also teaching staff complain from the lack of anatomy knowledge of the third phase students. The aim of the present study was to evaluate Term II anatomy education depending on the opinions of the clinicians. All the clinicians working as teaching staff in the sections of medical sciences and surgical sciences of Baskent University Faculty of Medicine were requested to answer a questioner prepared by the departments of anatomy and medical education containing 15 questions about the level of the anatomy education given in Term II, its reflections on the forward education in the faculty of medicine and the clinical practice of the students and their expectations. The main approach of the clinical teaching staff was that the anatomy education given in Term II was largely forgotten in Terms IV, V and VI when it is really needed, and the related subjects should be needed before clinical education. The results of the study will absolutely allow the teaching staff to reorganize the way of anatomy education, the time dedicated to anatomy classes and its place in the whole medical curriculum

Keywords: Anatomy, education, medical teaching

O-16

Modern aspects of continuous anatomy education

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Anatomy teaching dates from the time of the earliest Medical schools. Traditional anatomy concept at undergraduate study of medicine is based on cadaveric dissection practice. However, somewhere anatomy education is based on modern technology. Those methods are computer simulation, plastic models etc. In our Department of Anatomy cadaveric dissection is an essential method of anatomy teaching. We have noticed a need for further anatomy education after the undergraduate study, during residency. Learning of anatomy is sometimes included in residency programmes, but not as a practice, only as sort of theoretical reminding. There is a need for official anatomy education governed by anatomists in different fields of surgery and other medical professions such as anesthesiology. Also, there is a need for long-life learning of anatomy through thematic courses in all clinical fields. Such courses should be performed on cadaveric specimens and conducted by professional anatomists. Department of Anatomy, Faculty of Medicine, University of Rijeka has more than 50 years of the teaching experience of practice on cadaveric specimens. Such a professional background along with dissection rooms equipped by adequate technology adjusted to clinicians needs, made us recognizable as successful Department of Anatomy and also unique in Croatia.

Keywords: Anatomy education

O-17

Features of the small intestine peyer's patches cellular composition of the immature rats' males after cyclophosphamide injection

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Scientific and technical progress in the all world is the one of the cases of the environmental contamination, which leads to an increase of the lymphoproliferation disorders in children. The main method of correction these disorders are used of the cytotoxical drugs, which have immunosupression influence. Small intestine is one from the first organs, which along contact with antigens, so it has aggregates lymphatic tissue, disorders function which lead to an imbalance of the all systems in the organism. On this basis, the aim of the work was studied of the cellular composition of the immature rats' males under immunosuppression after cyclophosphamide injection. Investigation was conducted on the 24 immature male rats with mass 60-90 g. The model of the immunodeficiency condition was created after single cyclophosphamide injection in the dose 200 mg/kg. Animals were subjected to euthanasia on the 30 and 90 day, the control was intact rats. The small intestine were separated and fixed. The histological sections were made, stained with hematoxilin-eosin. Number of the cell nuclei per unit aria (1000 mcm^2) in the region of the dome, peripheral zone, germinal center and internodulus zone of the small intestine peyer's patches are determined by the morphmetric program. The amount of the nuclei per 1000 mcm^2 decreased in the dome, peripheral zone, germinal center and internodulus zone by 17,02%, 18,87%, 25,00% and 8,70% to 30 days. All experiment data are leveled with control at 90 days. Thus, cyclophosphamide injection is the case of the immunosuppression effect on the peyer's patches of the rats' small intestine during month. Full restoration of the structure occurs in three months.

Keywords: Peyer's patches, small intestine, rats, cyclophosphamide

O-18

The comparison of three experimental rat varicocele models: their effect on testicular morphology and spermiogram

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Studies to elucidate the pathophysiology of varicocele in human subjects are limited because the study designs must not be invasive. There is therefore a resort to animal models. We aim in this study to determine the most effective model, in terms of testicular toxicity induction among the three commonly used models. Forty male Wistar rats were used. Group A had varicocele established by complete ligation of left the main spermatic vein. Group B animals had partial ligation of the left renal vein and group C rats had a ligation of the communicating branch of renal vein after a partial ligation of the left renal vein. There was also a control group which was sham-operated. All the animals were sacrificed after 90 days. Testicular histology and sperm parameters were assessed. The animals that had their main spermatic veins ligated demonstrated worst testes histological profiles. Similarly, this group also showed a greater derangement in their sperm parameters compared to the control ($p < 0.05$). Ligation of the main spermatic vein provides the effective method of experimental varicocele model in terms of inducing testicular toxicity in rats.

Keywords: Varicocele, testis histology, sperm parameters, Wistar rat

O-19

Is there any preventive effect of prednisolone on azathioprine induced teratogenesis in cultured rat embryos?

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It was aimed to investigate the effects of azathioprine, an immunosuppressive agent on embryonic development. Any preventive effect of prednisolone on azathioprine induced teratogenesis was also investigated. Rat embryos were cultured from day 9.5 of gestation for 48 hours. Whole rat serum was used as a culture medium for the control group while different concentrations of azathioprine (0.3-10 µg/ml) were added for the experimental groups in the presence and absence of prednisolone (20 µg/ml). Effects on embryonic developmental parameters were compared using morphological method. Embryos were evaluated for the presence of any malformations. Azathioprine caused growth retardation in morphological score, crown-rump length and somite number equal to and higher than 1µg/ml while causing edema, haematoma and flexion deformity at significant levels. Addition of prednisolone along with azathioprine (1 µg/ml) reduced the toxic effects, however this effect was observed at a certain dose, not with higher doses. This combination also caused malformations at significant level. It seems that azathioprine is toxic and teratogen agent on developing rat embryos in culture. However, we cannot conclude that the preventive effect of prednisolone on azathioprine induced teratogenesis occurs. Therefore, it needs further investigations using histochemical or biochemical methods.

Keywords: Prednisolone, azathioprine, toxicity, teratogenicity, whole embryo culture

O-20

Effect of adding cholesterol on fertilizing ability of frozen/thawed C57BL/6 mouse sperm in vitro

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Cholesterol-loaded-cyclodextrin (CLC) which leads to increase plasma membrane fluidity in low temperatures was examined for its ability to increase the cryosurvival of C57BL/6 mouse sperm, the main strain of genetically engineered mice. The intactness of acrosome, motility and fertilizing ability of frozen/thawed spermatozoa were used to monitor cryosurvival. In this experimental study, male mice were randomly divided in three groups: control, experimental 1 and experimental 2. In experimental groups spermatozoa were exposed to two different concentrations of CLC (1 & 2 mg/ml) over a period of 1 hour and were subsequently cryopreserved. Spermatozoa in control group were frozen without any exposure to CLC. The post-thaw sperms were evaluated for their motility, acrosomal status and fertilizing ability. The values of the intact acrosome, motility and fertilizing ability increased significantly with concentration of CLC compared to control group ($P<0.05$). These results indicate that cryosurvival of C57BL/6 mouse spermatozoon is enhanced by exposure to CLC before freezing.

Keywords: Cholesterol-loaded-cyclodextrin

O-21

Effect of ecstasy administration during pregnancy period on mice fetuses and fertility potentials

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Ecstasy or 3, 4-Methylenedioxymethamphetamine (MDMA) is a psychotropic and addictive substance that teenagers may consume due to psychological and social pressures. The purpose was to assess the influencing effects of ecstasy administration on the mice fetuses and their fertility potentials. 20 adult female mice were randomly divided into control (#5) and experimental group (X-mice, #15). In experimental group, 5mg / kg of ecstasy was injected on 7th and 14th days of pregnancy; while, d-water was injected as IP in controls. The anatomical features of palate, skull, external ear, eye, fingers, and toes, as well as their weight and fertility of newborn mice were studied. This study was approved by our institute ethics committee. No abnormalities were observed in the skull and the outer ear of 163 newborns in two groups. Significant differences between male and female birth rates were observed in both groups. Hypoplasia of the fingers in the newborn mice was significantly higher in X-mice (p=0. 000). The rates of cyndactily was also higher in X-mice, but insignificant (p =0.11). Female fertility in newborn mice between two groups was significant (p=0. 000). Administration of ecstasy during pregnancy may cause anatomical alteration in organogenesis as well as fertility potential in newborn mice. Further ultrastructual studies are needed to elucidate the effect of ectasy on organogenesis at the cellular level.

Keywords: Ectasy, organogenesis, mouse, fertility

O-22

Melatonin protects follicogenesis through up-regulation of estrogen receptors in mouse under treatment with nicotine

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In this study the efficacy of melatonin co-administration with nicotine on mouse follicogenesis was investigated. Female adult mice were divided into four groups. The control group received vehicle, group 2 received nicotine (0.4 mg/100g BW) for 15 days, group 3was administered melatonin 10 mg/kg for 5 days. Group 4(n=8) received both nicotine (0.4 mg/100g body weight) and melatonin (10 mg/kg). After autopsy on 16th day, evaluations were made by immunohistochemistry for evaluation of P53 & estrogen receptor (ER) expression in ovarian follicles and Elisa for assay of serum estradiol level. Nicotine significantly reduced both follicogenesis and estradiol levels compared to the control ($p<0.01$). While melatonin in group 4 caused a marked normalization in follicogenesis and estradiol levels compared to group 2. There was not a significant statistical difference in p53 expression in ovarian follicles in all groups. Co-administration of Melatonin- nicotine in last group increased expression of (ER) in compare with group 2. The results from this study suggest that administration of melatonin can protect follicogenesis in mouse ovary under treatment with nicotine, partly through up-regulation of estrogen receptors.

Keywords: Nicotine, melatonin, estrogen receptor, P53, estradiol

O-23

Effect of pentoxifylline on brain cortex following transient global ischemia/reperfusion in Wistar rat

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Cerebral ischemic/reperfusion cause severe neural damage and apoptosis. Nowadays, vasodilator drugs such as pentoxifylline

(PTX) are considered for their neuroprotective effects but there is no study on possible neurotrophic effect of this drug and it's effective dose in transient global ischemic/reperfusion on experimental models. The possible neuroprotective and neurotrophic effects of PTX on brain cortex were studied on male Wistar rats subjected to transient global brain ischemia. Rats (n=36) were randomly divided into 6 groups as follows: experimental groups 1, 2 & 3 were injected intraperitonealy by 200, 400 & 600 mg/kg PTX respectively 1h before and 1h after ischemia. Other groups were control, ischemia and vehicle (normal saline). 4 days after ischemia, brains were removed and prepared for histological study (Nissl method) and TUNEL technique for investigating of apoptotic bodies. Data showed that PTX administration in cerebral ischemia significantly improved the number of viable pyramidal cells in 200 mg/kg PTX treated group after reperfusion as compared to other groups. Also, the number of apoptotic bodies significantly decreased in experimental group 1. It seems that administration of 200mg/kg PTX can reduce brain ischemic damage in rat model of transient global cerebral ischemia.

Keywords: Ischemia, reperfusion, global, pentoxifylline, brain cortex

O-24

Auditory ossicles development in fetal life

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The middle ear contains three auditory small serious ossicles, which are, in order from the eardrum to the inner ear: malleus, incus, and stapes. Studies have shown that ossicles ossify endochondrally as a parts of Meckel´s cartilage, that are attached to the jaw. Anatomy of ossicles in adult humans was described in different studies. In a contrary to the adult studies there are only few data available about ossicles dimensions during fetal life. The aim of our study was to investigate the dynamic of growth process of ossicles in fetal skulls. In this experiment we used 30 ossicles from bone collection of the Department of Anatomy, University of Zagreb. Bones were scanned by microCT and for bone volume analysis CTAn software was used. Bones were divided in three groups based on fetus length: 300, 400, and 500mm. Average incus and malleus bone volume in all groups was increased in accordance with the fetal linear growth. Average stapes bone volume in 500mm fetus length showed a dynamic growth. In other two groups bone volume was without significant change. In conclusion, we showed that stapes increased in size when fetus gained 500mm, while incus and malleus enlarges linearly during whole fetal period.

Keywords: Auditory ossicles

O-25

Assessment of morphological changes in neonate vitrified testis grafts after host treatment with melatonin

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This study was conducted to assess the effect of melatonin on the ultrastructure of testis and spermatogenesis dynamics in neonate vitrified testis grafts. Neonate vitrified testes, candidates for transplantation to experiment or control groups, were warmed in the thawing media which have or doesn't have the supplement of 100 µM melatonin, respectively. Following transplantation, melatonin (20mg/kg/day) or saline was given in the treated and non-treated groups, respectively. The initiating spermatogenesis and ultrastructure of testis graft were examined. Cell apoptosis (TUNEL) and proliferation (Brdu) in germ cells were determined. Histological studies revealed dynamic of spermatogenesis process in the testis graft. However, ultrastructural analysis of the testicular parenchyma revealed that the structural characteristics of interstitial space and germinal epithelium in non-treated group were get worse than treated group. Furthermore, the proportion of apoptotic germ cells together with a reduced proportion of proliferated germ cells was higher in non-treated group than treated. Overall, the number of seminiferous tubules in testes graft of both groups was stayed steady. However, non-treated testes graft contained more damaged seminiferous tubules, than treated ones. The thickness of seminiferous tubules was thicker in melatonin treated than non-treated group. Indeed, the thickness of germinal epithelium was higher significantly in treated group than non-treated. The study showed a positive effect with melatonin resulting in more grafts restoring puberty. Furthermore, the associated increasing in healthy number of seminiferous tubules suggests that melatonin may has preventative ischemia/antioxidant role and in fact be useful to initiated spermatogenesis process.

Keywords: Ultrastructure of testis, melatonin

O-26

Macrosom babies from non-diabetic mothers, during 2011 Maternal Hospital "Niko Glozheni"

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Macrosomia is a term to apply to newborn depending with gestational age (LGA). We defined the macrosomic babies from non-diabetic mothers. Is the retrospective study, included new-

born during January-December 2011. Among2011 deliveries 4509 newborns 344 were macrosomic (7.3%). Involved the newborn until >4500kg.Womens had no pathology during the pregnancy. Among 2011 deliveries 4509, 344 (7.3%) were macrosomic. 51 of newborns were with birth weight 3800-4000kg,(14.8%).With birth weights of 4000-4500 kg results 237 newborns (68.8%) and>4500 kg was only 56 (16.3%). Delivered males were 233 (67.7) and female 111 (32%). In depending of gestational age we had newborn that delivered among 37-38 week only 8 (2.3%) week 38-39 delivery 34 (9.8%),week 39-40, delivery 219 (63.6%). On the 40-41 week deliveries 36 (10%) newborns and 47(13.6) among 41-42 week. 7.3% of newborn was macrosomic. 63.6% of the deliveries were among 39-40th gestational week. Most of the newborn were males 67.7%. If the mothers were diagnosed with a macrosomic fetus by sonography, more care should be taken during the delivery to decrease the risk of fetal injury, such as asphyxia, brachial plexus palsy.

Keywords: Macrosomia, prevalence, gestational age

O-27

Biomaterials in regenerative medicine: uses and perspectives

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Regenerative adult cell therapy with or without supporting biocompatible material, has been currently successfully treated in horses and dogs, especially in joint, bone and ligament injuries. Mesenchimal stem cells (MSC) including dental pulp stem cells (DPSC) are showing increasing promise in applications as tissue engineering and cell therapy. There is some evidence showing bone regeneration from MSC loaded on each hydroxyapatite tricalcium phosphate (HAP/TCP), Gelatin/,TCP sponge etc., as a scaffolds. The aim of this study was to evaluate the biocompatibility of new fabricated ,TCP, and compare results with other standard bioceramic materials (BCM) – dental ceramic (DC), HAP, ,TCP. In adition, hDPSC were evaluated for MSC biological characterizations and differentiation into mesenchimal lineages. DC; ·TCP, ,TCP and HAP were implanted in rat subcutaneous tissue according to the ISO 10993-6; 10993-10 for screening tests by histological examinations (using the routine histological techniques and immunohistochemical method [for labelling T and B lymphocytes and macrophages]). DPSC from 5 adult humans were isolated, ex-vivo expanded and characterized in vitro by FACS, immunocytochemistry and histochemistry. The irritation index (the level of tissue injuring) among the different BCM were in all cases in the range of biocompatibility. Evaluating different responses according to BCM, the most intense tissue reaction was noticed at HAP, grading as severe, and mild to moderate for DC, ,TCP and ·TCP. MSC characteristics of DPSC were demonstrated by the expression of STRO-1, CD73, CD105, CD44. The potential od DPSCs to differentiate into osteoblasts, adipocytes and chondrocytes, was further confirmed by positive expression of markers of respective cell types, and positive histochemical stainings. This study demonstrated suitability of ,TCP for application in regenerative medicine. Also, data for DPSC demonstrated that ex-vivo expanded DPSCs posses multi-lineage differentiation, i.e. potential for differentiation in bone, cartilage and adipose tissues.

Keywords: Regenerative medicine, bioceramics, biocompatibility, DPSC

O-28

Adipose-Derived Stem Cells Could Sense the Nano-scale Cues as Myogenic-differentiating Factors

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It has been revealed that some microenvironmental cues, such as surface topography and substrate stiffness, may promote stem cells adhesion, morphology, alignment, proliferation and differentiation. The aim of this work was to investigate ASCs adhesion, alignment and differentiation into myogenic lineage on nanofibrous polymeric scaffolds with anisotropic topography. To fabricate nanostructured scaffolds, Polycaprolactone (PCL) and the polycarbonateurethane ChronoFlex AL80A (CFAL) were used. Nanofibrous mats were fabricated using a home-made electrospinning apparatus into four morphologies: smooth film (s) obtained by solvent casting, randomized matrix (r), parallel fibers on randomized matrix (pr) and parallel fibers on smooth film (ps). Human ASCs were cultured on the scaffolds and differentiated into myogenic lineage using growth factors. After 7 days, cells on scaffolds were fixed and examined using SEM and immunofluorescence. A good degree of fiber alignment was observed for scaffold with aligned nanofibers. Immunofluorescence showed that the cells expressed myosin (fast skeletal) and tropomyosin in all morphologies of PCL and CFAL scaffolds. SEM indicated that myotube formation was only occurred on CFAL scaffolds especially pr and r morphologies and that only few myotubes were observed on PCL scaffolds. It was concluded that nano-scale fibers, their orientation and the stiffness and elasticity of a substrate seemed to play a vital role in promoting the myogenic differentiation of ASCs.

Keywords: Adipose-derived stem cells, Nanofibrous scaffolds, topography, myogenic differentiation

O-29

The protective effect of omega-3 against the toxicity of ifosfamide in male rat testis

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Several antioxidants have been used by researchers attenuate the side effects of the anticancer drug, Ifosfamide (IFO).The present study was performed to evaluate the ability of omega-3 fatty acids (a strong antioxidant) to protect ifosfamide (IFO) treated rats against the testotoxic effect of this drug. Thirty adult Wister male albino rats were divided into six groups. Group 1: control (given only saline), Group 2: omega-3(1gm/kg diet), Group 3: IFO (50mg/kg b.wt.), Group 4: IFO (80mg/kg b.wt.), Group 5: IFO (50mg/kg b. wt) plus omega-3, Group 6: IFO (80mg/kg b. wt) plus omega-3. Duration time was five days for IFO and six days for the oil. Biochemical and histological analyses were achieved. Biochemically, IFO caused significant increase in the level of serum testosterone, while omega-3 oil returned the level of the hormone approximately to the control value. Histologically, IFO has caused degeneration of the germinal cells lining the testis, in which a large number of the seminiferous tubule lumens appeared empty, but when omega-3 oil administered in combination with IFO, it has shown approximately normal histological appearance compared with the IFO group. Ifosfamide can negatively affect fertility of the treated animals, while omega-3 can be considered as a protective agent against testicular histological and physiological changes caused by the IFO.

Keywords: Ifosfamide, testis, Omega-3 Fish oil

O-30

Variations of tibial tuberosity in relation with total knee arthroplasty

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Tibial tuberosity is one of the main anatomical landmarks used for implantation of the tibial component in proper position during total knee arthroplasty. However, this landmark shows great variation among subjects. Our aim was to demonstrate the variations of tibial tuberosity in order to carry out a successful surgery. Thirty tibia of adult subjects were used for this study. Tibias are photographed from anterior and superior aspects. The relation of tibial tuberosity with the tibial crest was evaluated on photographs with a computer analysis system. Then CT images of these were taken. The degree of rotation of proximal extremity of the tibia in relation to tibial tuberiosity was evaluated on axial CT sections. The tibial tubersity were located on medial one third of the tibial crest in 10 of the cases, whereas on medial two thirds of the tibial crest on 19 of the cases. It was located on lateral one third of the tibial crest in one case. The CT images showed that the proximal extremity of the tibia was internally rotated in respect to its shaft on axial sections. The variant positions and shapes of the tibial tuberosity may cause improper implantation of tibial component of total knee prosthesis. We suggest that the variations presented in this study should be kept in mind during total knee arthroplasty. We also suggest considering new anatomical landmarks to minimize the risk of improper implantation.

Keywords: Tibial tuberosity, tibial crest, knee arthroplasty

O-31

An accessory bundle from lateral fasciculus of brachial plexus merges into median nerve; case report.

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The close relations of brachial plexus in axillary region increase clinical and anatomical importance of variations of it. In this case report on musculocutaneus and median nerve variations while originating from the lateral fasciculus of brachial plexus are reported. During the routine educational dissection session on upper extremity of a 58 years old male cadaver, it is explored that musculocutaneus and median nerves having traces out from Brachial plexus different than normally expected. All pieces are photographed and corresponding diagrams drawn. Median nerve is formed by the lateral and medial roots originated from respectively lateral and medial fasciculi. In the case of cadaver, the lateral root exits out from lateral fasciculus and merges into median nerve bundle at level of normally the musculocutaneus nerve exits. Also the musculocutaneus nerve exits from lateral fasciculus at lower level than normally expected. A second bundle from the lateral fasciculus merges into Median nerve at 2.2 cm distal to the point that Median nerve originated. That accesory bundle is 1.7 cm long. Rest of the structures was normal except that. A second bundle from lateral fasciculus merges into median nerve and musculocutaneus nerve exits from lateral fascicul at a lower level than expected.

Keywords: Brachial plexsus, lateral fasciculus, median nerve, musculocutaneus nerve

O-32

Morphometric analysis of retroperitoneal adipocytes in rats exposed to high-fat diet during pre- and post-natal period

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In rats, growth of body fat depots is not homogenous and susceptible to change by diverse environmental stimuli. We examined the effect of high-fat diet (HFD) exposure during pre- and

postnatal period on the distribution of fat pads and morphology of the retroperitoneal adipocytes. Pregnant rats were fed with either standard or HFD (65% calories from fat) during gestation and lactation period. Offspring (n=12/group) were continued to feed with similar diet for 14 weeks. After perfusion, retroperitoneal and retrogonadal fat pads were dissected and their weights were expressed relative to body weight. Horizontal sections (n=6/group) along the entire extent of retroperitoneal fat tissue were stained with haematoxylin-eosin solution. Mean surface areas of adipocytes per fat volume were estimated by Surface density (Sv) method and differences were compared by appropriate statistical tests. Retroperitoneal and retrogonadal fat tissue to body weight ratios of controls (0.0146±0.01; 0.0168±0.01) were not significantly different compared to HFD group (0.0165±0.01; 0.0185±0.01), respectively. Analysis of the estimated area of the adipocytes also revealed no significant difference between control (56.91±2.08) and HFD (62.06±3.14) groups. HFD exposure during pre- and postnatal period did not induce variations in the distribution of various visceral fat depots and size of the retroperitoneal adipocytes seems to be resistant to applied diet.

Keywords: High-fat diet, visceral fat pad, retroperitoneal fat, surface density, stereology

O-33

The potential protective role of curcumin against the toxic effects of nicotine on the histological profile of the lung of adult male mices

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Nicotine is an alkaloid that was responsible for most of the dangerous effects of cigarette smoking on human body health.Curcumin is a component of turmeric that is a yellow spice derived from the plant curcuma longa and has anti-inflammatory, antioxidant and antimalignancy properties.Is to study the ability of curcumin to protect against the toxic effects of nicotine on the lungs of adult male mice using the light and electron microscopes. 30 adult male mice were used in this study. They were divided into three groups. The 1st group was considered as control, the second group were received subcutaneous nicotine in a dose of 2.5 mg/kg/day for one month while the third group were received subcutaneous nicotine in a dose of 2.5 mg/kg/day and oral curcumin in a dose of 80 mg/kg/day for one month. At the end of the expirement the animals were sacrified and specimens of the lungs were extracted and processed to be examined by light and electron microscopy. In group two, there was hypervascularity, marked cellular infiltration around the walls of the bronchioles, destruction of the elastic fibers and appearance of vacuoles in the cytoplasm of type II pneumocytes, while in group three, there were ameloriation of these toxic effects that was induced by nicotine. Curcumin can be used to decrease the harmful effects of nicotine on the lungs in both active and passive smokers.

Keywords: Lung histology, nicotine–curcumin

O-34

Can fetal ossicles be used as prosthesis in adults: a morphometric study

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The tympanic cavity contains 3 small immovable bones, the malleus, incus and stapes. Extensive studies have been carried out on the morphometry of the ossicles. According to some scientists, in human beings the auditory ossicles reach their definitive size and shape in fetal periods and postnatal modifications are minimal while there are certain studies which contradict this claim. These contradictory claims prompted us to make an endeavor to find out the growth pattern of the ear ossicles and comparing the data with adults. 22 fetal cadavers of either sex, ranging in gestational ages between 24-40 weeks, were collected from local hospitals and 15 adult cadavers fixed in formalin in age groups of 20-30 years were taken. For the study the fetuses were kept in 2 groups of 24-28 weeks and 36-40 weeks. From the data obtained the mean, standard deviation and percentage gain from one group to another in different dimensions of various parts of each ossicle was calculated. The age periods between 40 weeks (full term fetuses) and adults, revealed spurt in the growth of diameter of head of malleus (3%), width of short process of incus (2.7%), width of footplate (5.2%) and height of stapes (13%). These changes were insignificant in terms of acoustic transmission. It is concluded that by the end of gestation the ear ossicles develop morphometric features comparable to adults with no appreciable changes in the post natal period. Hence, they can be used as prosthesis in adults suffering from ossicular chain malformations and can be an easy and cheap method for treatment of these types of patients.

Keywords: Morphometry, ossicles, malleus, incus, stapes, prosthesis

O-35

Inter-observer and intra-observer variability for measurement of low grade spondylolisthesis using lumbar spine radiographs

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Lower back pain is one of the most common presenting complaints in the general practitioner and orthopaedic surgeons' clinic. Plain lateral radiographs of the lumbar spine are often

used as a screening modality for lumbar spine pathology. The reliability of lumbar spine radiograph measurements to detect low grade spondylolisthesis has not been well studied. This study seeks to investigate the inter-observer and intra-observer variability for measurements of low grade spondylolisthesis amongst 3 orthopaedic surgeons. 80 pre-selected lateral lumbar spine radiographs from 80 patients (40 males and 40 females with a mean age of 65.3 years) with varying severity of spondylolisthesis were measured 3 times by each surgeon, on a separate day each time. Surgeons were blinded to patient particulars. Translational slip was measured using the institutions built-in radiograph viewing software. Reliability was assessed by kappa statistics. The intra-observer agreement was excellent in all readers (kappa range 0.820-0.901). As expected, the inter-observer agreement was lower, within a substantial to excellent range (kappa range 0.780-0.811). We conclude that segmental instability measurements on plain lumbar radiographs are reproducible and consistent in trained personnel. Lateral lumbar spine radiographs are still relevant as screening aids for low-grade spondylolisthesis.

Keywords: Spondylolisthesis, radiography

O-36

Macrocystic tumors of the pancreas: the clinical impact of MRI in their diagnosis and treatment.

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Pancreatic cystic tumors represent a heterogeneous group of neoplasms with various clinical outcome. The incidence of this neoplasia is growing if compared with the past and this is mainly due to the larger use of more and more performing imaging techniques. The role of MRI and in particular of Cholangio-Pancreato Magnetic Resonance (CPMR) seems to be fundamental in the characterization of these cystic lesions. Between May 2009 and May 2011 a hundred and seventy six (176) patients with a suspect cystic lesion of the pancreas were evaluated. All patients had already undergone ultrasound and/or CT scan. CPMR was realized in each patient. Among these patients we only considered 51 without neither solid lesions or pseudocysts nor clear signs of malignancy. We found 10 Serous Cystic Tumors (SCT), 7 Mucinous Cystic Tumors (MCT) and 34 Intraductal Papillary Mucinous Neoplasia (IPMN). Thirty two (32) out of 34 IPMN revealed at CPMR a communication with the main pancreatic duct. This sign is pathognomonic of these lesions. CPMR seems to be mandatory to discriminate IPMN among the other pancreatic cystic neoplasia. Its role is fundamental for an early diagnosis and to give the best chance of cure in these aggressive and insidious tumors.

Keywords: Pancreatic cysts, intraductal papillary mucinous neoplasia (IPMN), cholangio-pancreato magnetic resonance imaging (CPMRI)

O-37

Effect of short-term exposure to dichlorvos on rat brain: Molecular and stereological approach

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Dichlorvos (DDVP) is an organophosphate compound that causes neurotoxicity. Apoptosis plays an important role in neurotoxic cell death in the brain. The aim of this study was to examine caspase 1, caspase-3 and also cell apoptosis related genes as p53, Tumor Necrosis Factor-alpha, Hypoxia Inducible Factor 1-alpha expressions in hippocampus, cerebellum, cortex, and to estimate total hippocampal neuron number in DDVP treated rats. Ten female albino rats were divided into control (n:5) and dose (n:5) groups. In dose group, single dose of DDVP (25 mg/kg) was administered to the animals via oral gavage. A week later, brains were removed and total neuron number was estimated in the left hippocampus using by optical fractionator method. The right part of the brain was used for gene expression analysis. In dose group, total hippocampal neuron number was significantly decreased compared to control group (p=0.008). Caspase 1 and TNF-alpha gene expression were increased in all brain tissues and p53 gene expression was decreased in only hippocampus tissue in dose group. Short-term exposure to dichlorvos leads to neuronal loss in hippocampus and TNF-a rapidly and potently induces apoptosis and also several caspases as possible participants in the apoptotic cascade.

Keywords: DDVP, hippocampus, apoptosis, optical fractionator method

O-38

A review of sciatic nerve bifurcation with respect to regional anaesthesia

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In this study of 50 cases which underwent a randomized nerve-stimulator guided sciatic nerve block, 42 cases had successful peripheral nerve block and 8 cases failed: these latter cases subsequently underwent an advanced procedure (6 general and 2 spinal "subarachnoid block" anesthesia): the failure rate is 16%. The site of the sciatic nerve block is ranging from 7 to 10 cm above popliteal skin crease. Based on anatomical dissection of 72 specimens the sciatic nerve usually bifurcates into its terminal branches between inferior border of piriformis and the knee joint line. Bifurcation was observed in the upper, middle and lower parts of the thigh in 12.5%, 22.2 % and 45.8% respectively. In addition, the tibial and common peroneal nerves exited the pelvis and descended independently in 16.7% (early bifurcation),

while a delayed bifurcation below the knee joint line was observed in 2.8%. Early bifurcation and bifurcation in the upper part of the posterior thigh accounted for approximately 30% of all bifurcations: this may be one reason for sciatic nerve block failure. General anesthesia has a high risk on patient's life escalating with age and coexistence of chronic illnesses, e.g. diabetes mellitus, hypertension and ischemic heart disease. Consequently, sciatic nerve morphology has to be assessed using ultrasound to estimate the correct position of its bifurcation prior to peripheral nerve block leading to reduce the incidence of advance procedures resulting from a failed block.

Keywords: Sciatic nerve variation, sciatic nerve block failure

O-39

Arterial supply of the sciatic nerve roots

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The lateral sacral artery supplies all sciatic nerve roots during its course, in addition the superior and inferior gluteal and internal pudendal arteries also participate: the sciatic artery may coexist and also supply the nerve roots. In a study of 63 specimens the superior gluteal artery (SGA) was observed to supply the lumbosacral trunk (LS) and S1 root in 52/63 (82.5%) and the sciatic artery in 11/63 (17.5%) specimens either by substitution (10) or replacement (1). The sciatic artery was usually a direct continuation of the posterior trunk of the internal iliac artery descending between the LS and S1 roots supplying all roots dorsally except S4. It course is a mirror image of lateral sacral artery. Occasionally, the sciatic artery arose passed between the LS and S1 roots and did not supply S3 as it became dorsal to sciatic formation. The sciatic artery was also observed to pass ventral to the sciatic nerve formation as it passed between S2 and S3. The internal pudendal artery supplies the S2 root in 14.8%, S3 in 40.7% and S4 in 31.5% of specimens. Consequently thrombotic aneurysm and/or iatrogenic injury to any of these arteries during pelvic surgery may lead to interruption of the arterial supply resulting in symptomatic atypical sciatica.

Keywords: Sciatic roots, internal pudendal artery, superior and inferior gluteal artery, gluteopudendal trunk, atypical sciatica, sciatic nerve supply

O-40

Significance of persistent sciatic artery in renal transplantation

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The sciatic artery (is also known as the axial, ischiatic or persistent sciatic artery, or ischiopopliteal arterial trunk) is a rare (0.04 to 0.06%) congenital anomaly resulting in lack of regression of the embryonic dorsal axial artery: it is a direct continuation of the internal iliac artery (IIA). The present study focused on the incidence of the sciatic artery in relation to renal transplant postsurgical complications. The incidence of persistent sciatic artery (PSA) was 20.3% in 82 specimens (36 female, 46 male), with 30% being bilateral: 25% of females and 15.6% of males had a PSA. The most common origin of the PSA is from the posterior trunk of the IIA (13.4%), giving rise to the superior (15.9%) and inferior (1.6%) gluteal arteries: 2 (2.4%) arteries arose from the anterior trunk. The PSA was observed to give branches within (obturator 9.4%, lateral sacral arteries 17.5%) and outside (to sciatic nerve, hip joint, gluteal and adductor muscles) the pelvis. Consequently, it is important to identify the origin of and branches from the sciatic artery. Clinically, surgeons and radiologist have to be aware of existence of a sciatic artery in renal transplant to avoid sciatic palsy and avascular necrosis of the femoral head.

Keywords: Sciatic artery, postcomplication of kidney transplant, sciatic palsy, avascular necrosis of the femoral head

O-41

Arterial supply of the conducting system of the human heart

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Available data on the arterial supply of pacemaker system (SN, AVN) are controversial. Arteries to conducting system are less examined, their nomenclature is not uniform. However, knowledge of these arteries is essential in planning cardiac interventions. Our aim was to examine the blood supply of pacemaker and conducting system, to make statistics and compare them with the available data. Coronaries of 86 human hearts were injected with resin, and then corroded. We examined the site of origin, course and diameters of the arteries and analyzed their CT scans. Double supply of AV node occurred in 51%, and that of the sinus node was 21%. Contrary to our results previous data mentioned lower incidence of double supply (2-10% and 2-5%). We described an artery originating from CRUX-region coursing on the upper edge of muscular interventricular septum, dividing into two branches that descend on both sides of the septum. Considering its localization, we suppose that this artery supplies the proximal left and right bundle branches. Most of them originated from RVPL (62%), and CX (20%). The middle and distal parts of right Tawara bundle penetrating the septomarginal trabecule were supplied by the LDSA, which arose from the septal branches of LAD (S1-19%, S2-34%, S3-14%, S4-9%, S5-2%, S6-2%, S7-

2%, S8-2%). Present results differ from data published earlier, that may reflect population differences or the diverse methods. Considering the artery supplying the proximal parts of Tawara bundles we recommend to introduce the name: Proximal Bundle Branch Artery.

Keywords: Coronary artery, conducting system, septomarginal trabecule, bundle branches

O-42

Age-related dynamics of the folliculo-stellate cells in chronic stress

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Recently folliculo-stellate cells (FSC) of the adenohypophysis were shown to be capable of transdermal differentiation which is one of the characteristics to the organ-specific stem cells. It was presumed that they may differentiate into chromophils and thus be involved in stress-related adaptation of the hypothalamo-hypophyseo-adrenocortical axis. The objective of the present investigation was to determine age-related changes of the population of FSC under chronic stress conditions. Prepubertal (25 days), young (3 months old) and adult (6 months old) male Sprague-Dawley rats were chronically exposed to homo- or heterotypic stressor or served as age-matched control. Pituitary glands were processed for immunohistochemistry and stained for ACTH, PCNA, caspase-3, CD68 and S100 protein with subsequent digital morphometry. Chronic stress induced significant changes in the volume and numeric density of FSC and corticotrophs in the adenohypophysis. It also affected the number of macrophages, proliferating and apoptotic cells in pars distalis. These changes were more prominent in animals exposed to heterotypic stressor compared to the homotypic stressor group and were modulated by the age of experimental animals. Chronic stress exposure effects distribution of the FSC in the pituitary gland of rats depending on the age of experimental animals and the stressor type (homo- or heterotypic).

Keywords: Folliculo-stellate cells, immunohistochemistry, image analysis, pituitary gland, age

O-43

Anthropometric features and sport background of female athlete students participating in the athletic race of health ministry of Iran

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The quantification of morphological characteristics of athletes can be a key point in relating body structure to sports performance. There is little data on the physical characteristics of young female athletes. Therefore, the purpose of this study was to determine the anthropometric characteristics of women's in colleges, in order to use this for training, detection and identification of talented players. This study has done on 251 female students who are take part in athletic games. Height, weight, waist circumference and hip circumference and also students' athletes background mentioned in questionnaire. The mean of athletes' age were 22 years old and the average of their height and weight was 161.64 cm and 55.56 kg, respectively. The average of their body mass index was 21.27 kg/m2, which is normal. The average of waist circumference and hip circumference were 71.22 cm and 94.83 cm, respectively. The average of waist circumference to height ratio and waist to hip circumference ratio were 44.11 and 0.75, respectively which are normal. This study showed that students had more than 1 year and 2 months exercise break off, will confront by BMI increasing and reducing of waist circumference to height ratio. Most of students in various sport fields were in normal zone of BMI and waist to hip circumference ratio. By using this information, athlete clothing manufactures can use these averages. These findings also suggest to completion and exercise responsible to design special programs for these specific athletes.

Keywords: Anthropometric, female students, athletic races

O-44

Estimation of total brain volume using different software with MRI

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There are different software to estimate total brain volume (TBV) for manual, stereologic, automated and semi-automated techniques from MRIs such as Analyze, EasyMeasure, BRAINS, DISPLAY, BrainVoyager and FreeSurfer etc. Also, there are many different segmentation methods for estimating TBV using semi-automated or automated techniques. The object of the present study was to compare stereological estimates using EasyMeasure to thresholding using ImageJ of TBV by MRI. Brains of 33 healthy human (20 male, 13 female) were imaged using a 3-T scanner. The mean (± SD) TBVs were 1398.30±212.39 cm3 and 1398.15 ± 212.09 cm3 in EasyMasure and ImageJ softwares, respectively. We evaluated the use of EasyMeasure software for an unbiased and time efficient estimate of TBV. The entire process of a MRI-based TBV using EasyMeasure takes about a few minutes. MRI based volume measurements of TBV can be useful indicators in

humans suffering from different neurologic and neuropsychiatric diseases.

Keywords: Stereology, threshold, total brain volume, MRI

O-45

Ultrastructural effects of nicotine exposure on peripheric nerve repair

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Nicotine has so many effects on cell proliferation and wound healing. It is observed that nicotinic receptors of endothelial cells have important effects on proanjiogenesis. As a common performed procedure in plastic surgery, while repairing nerves in traumatic or reconstructive attempts; chronic nicotine intake has adverse effects on nerve repair. In this study, we examined the ultrastructural effects of nicotine exposure on peripheric nerve repair. Three groups participated in this study. In Group I, we placed nicotine patch on the Wistar-albino rats' back in dosage 1,7mg/kg for four weeks and dissected the sciatic nerve in full thickness and sutured. In Group II, we continued to give nicotine during post-operative 15 days in addition to previous nicotine application. No medication was applied to group III. The peripheric nerves of three groups were taken and processed for light and transmission electron microscopy.We observed that the amount of nicotine affects the thickness of myelin. There were mast cells in nicotine exposure groups. In group II, myelin degeneration, myelin damage, Schwann cell cytoplasm swelling and erythrocyte coagulation in the vessels were more than the other groups.Up to now, it was observed that using nicotine has adverse effects on peripheric nerve repair. In this study, it has been shown that nicotine usage has histomorphometrically and ultrastructurally similar effects on repair of full thickness nerve dissection.

Keywords: Nerve reparation, nicotine, histomorphometry, ultrastructure

O-46

Volume fractional changes of the brain parts during the development of the children: a stereological study

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Available studies report different volumetric data for the developmental process of the brain parts in the newborns and children. In the present study, we evaluated the volume fractional changes of the brain parts during the first two years development of the children on magnetic resonance (MR) images using stereological techniques. The ethical committee of Meram Medical Faculty approved this study. The brain MR images of 52 normal children ranging between 1 to 24 months analyzed. The children grouped as 1-4, 5-8, 9-12 and 13-24 months. The volume fractions of the right hemisphere, left hemispheres, cerebellum and brainstem were obtained using manual planimetry. The mean (±SD) volume fractions of the right hemisphere, left hemisphere, cerebellum and brainstem were 44.84±1.04; 44.55±1.30; 9.11±1.83; and 1.51±0.59 %, respectively. The volume fraction of cerebellum in 1 to 4 months age group was smaller in size (7.60±1.20%) and it was different than the other age groups ($p>0.05$). Our results suggest that there are proportional changes of the brain parts during the development of the child brain. The cerebellar volume fraction was less in the early development of the brain. This may be depending on the functions of the parts of the brain during the development.

Keywords: Brain, development, streology, fractional volume

O-47

The topographic anatomy of the masseteric nerve and the effective zone of botulinum toxin A injections in masseter

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Botulinum toxin injections are reported to be a minimally invasive alternative method for treating masseteric hypertrophy. However an ideal place for injection has not been previously defined. This study aims to document the anatomical landmarks of the motor entry point of masseteric nerve in the masseter muscle for effective botulinum toxin injections. Eight sides from 4 adult fixed cadavers were used. The masseteric nerve was dissected under a surgical microscope and the motor entry points of the nerve were defined in relation to palpable bony landmarks including the zygomatic arch, temporomandibular joint, ramus and angle of mandible. The masseteric nerve has a predictable course inside the muscle which can be identified topographically within a square area under the zygomatic arch. The main trunk of the masseteric nerve was located 0.8±0.2 cm below the zygomatic arch, 1.1±0.3 cm anterior to the temporomandibular joint and 1.5±0.1 cm deep into the masseteric muscle. The nerve had a parallel course to the ramus of mandible and had separate branches to innervate superficial and deep portions of the masseter muscle. The knowledge of the anatomy of the masseteric nerve plays a key role to provide ideal site of Botulinum toxin injections.

Keywords: Masseteric nerve, masseter muscle, botulinum toxin

O-48

Volumetric changes in masticatory muscles due to bilateral teeth loss

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Masticator movements are the rhythmic movements of the lower jaw by the construction of the related muscles. Occlusal alterations caused by tooth loss affect the jaws, temporomandibular joint and adjacent muscles. The main aim of the present study is to investigate the volumetric changes in the masticatory muscles due to unilateral teeth loss. Twenty adult male Sprague Dawley rats were used in the study. After all the teeth on the right side had been extracted the temporal and massater muscles were dissected bilaterally in sixth and 12th weeks and volumetric measurements were done. In Group I right temporal was 0.50±0.13 mlt and left temporal muscle was 0.57±0.12 mlt while right masseter muscle was 2.08±0.20 mlt and left masseter muscle was 2.67±0.26 mlt. In Group II right temporal was 0.41±0.07 mlt and left temporal muscle was 0.63 ±0,10 mlt while right masseter muscle was 1.86±0.38 mlt and left masseter muscle was 3.07±0.35 mlt. While side difference in the massater muscle volume was statistical significant in the Group II ($p \leq 0.05$), side difference in the temporal muscle volume was not statistical significant in this group ($p \geq 0.05$). It could be concluded that unilateral teeth loss causes volumetric differences in masseter and temporal muscles.

Keywords: Anatomy, masticatory muscles, tooth loss, volume

O-49

Topographical anatomy of the upper lateral cartilages and their histological analysis

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The aim of this study was to perform anatomical and histological evaluation of upper lateral cartilages, to understand their relationships with anatomical structures and their relations with skin coverage. Nasal regions of twenty formalin fixed cadavers were dissected. Forty upper lateral cartilages were measured. During dissection stages all dimensions of upper lateral cartilages (ULC), and the distance between ULC and neighbor structures were measured using digital caliper. At different part of ULC, biopsies were taken and histological examinations were performed. Dates were analyzed by using SPSS 12.0 and values of $p<0.05$ were accepted statistically significant. ULC border measurements were as follows: ULC-Medial was 18.47 mm, ULC-Inferior was 13.15 mm, ULC-S was 12.17 mm, ULC-part at nasal bone was 4.12 mm, Scroll point was 2.90 mm, distance of ULC to nasolabial fold was 8.97 mm, distance between both ULC's was 4.91 and ULC-width was 1.00 mm. The inferior angle of nasal valve was (angle I) 19.8º, middle angle was (angle M) 16º and the superior angle was (angle S) 11.15º. There was no statistical difference between genders. Septum to nose ratio was calculated as 0.47. Histological examination of the zone ULC and lower lateral cartilages shaved regular connective tissue. There are sesamoid cartilages and dense fibrous tissue between ULC and nasolabial folds. There was no anatomic connection between two ULC and space was lined with loose connective tissue. Any specific structure has not been found between ULC and caudal septum. There was no true anatomical connection between ULC and nasal bones and this connection region has been proved in histological sections. Standard dimensions and anatomic relations of ULC were determined with this study. The results are guiding for ULC remodeling in reconstructive surgery. Additionally this study provides information about the surrounding structures of ULC and histological anatomy of this area. Detailed knowledge about histological and anatomic structure helps surgeons in diagnosis and treatment of hump excision or during other interventions like rhinoplasty operations in order to solve nasal valve problems in reforming the nasal dorsum. Additionally information about the detailed anatomy of this region helps to reduce potential complications.

Keywords: Upper lateral cartilages, rhinoplasty, topographical anatomy, histological evaluation

O-50

Changing anatomy curricula for dental students

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In the recent years the time for anatomy teaching has been dramatically reduced. There was a need for designing new anatomy curricula for dental students. This work describes the preparation of new anatomy program relevant for dental students. Original anatomy curricula with total teaching time 336 hours, devoted 112 hours to lectures and 224 hours to practical lessons. There was a reduction of original time for teaching anatomy to dental students from previous to final 252 hours, 84 of which made lectures and 168 hours was the time spent in the dissecting room. The most of time was devoted to teaching anatomy of head and neck included neuroanatomy. For gross anatomy of human body was intended to spent less time, majority of which covered the teaching of thorax, upper extremity and abdomen. The only main structures were taught from the pelvis and lower extremity. Traditional discipline based strategy of teaching was used with the emphasize on regional anatomy. With the reduction of teaching time, a new anatomy curriculum for dental students was created. Main emphasize was put on the teaching of head and neck regions, gross anatomy underwent major revisions. This study was supported by Grant KEGA 006UPJS-4/2011

Keywords: Dental students, anatomy teaching, curriculum

O-51

Processing of facial reconstruction from skull: ABAB method (new model)

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Facial reconstruction has been doing in many ways from the forensic medicine to surgical requirement. The aim of this study is to make facial reconstruction from our own head skeletal from our own excavating area (Anatolia). Previously, there are many studies that make possible identification of face by using the method of facial soft tissue on underneath bone structure. For this reason, computed tomography (CT) of head skeleton from excavation were done. Datas were saved to computer. At the same time skeletons were examined by Forensic medicine specialist and anatomist by naked eyes. By the helps of all data, finally, computer and sculptor made the facial reconstruction together. Every region of our country is the center of world civilization. Found or discovered skull or other bone fragments in all applicants with the facial reconstruction will show us the general panorama of people who lived in this region at different times of history. We want to come to these studies is to make the top spot phenotype and genotype comparison. In other words, configure the face from the genetic information.

Keywords: Forensic science, anthropology, facial reconstruction, 3D, skull

O-52

Reliability of measurement of the lumbar lordosis on computed tomography images using projection area per length squared: a planimetric study

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The assessment of the degree of lumbar lordosis in patient with spinal disorders is important to determine the disease's progression and effectiveness of treatment. In the present study we evaluated the degree of lumbar lordosis on computed tomography (CT) scans using a planimetric method the projection area per length squared (PAL). Abdominal CT images in axial plane from 30 females and 30 males were converted to sagittal images and reoriented to obtain section in 1mm using OsiriX software. Three performers estimated the degree of lumbar lordosis on midsagittal images. The results were compared depending on the performers and orienting. The mean PAL (±SEM) estimated by three observers was 4.16±0.20%. The mean PAL of reoriented and original CT images estimated by three observers were 4.37±0.23%; 4.72±0.24% and 3.60±0.20%, 4.27±0.23%; 4.68±0.28% and 3.54±0.19% respectively. There was no statistical difference between the original and reoriented images ($p>0.05$) while there was statistical difference between third observer and others ($p<0.05$). The estimated values did not affected by the orientation. The results of one observer were different from others. This problem can be overcome by training the performers to use standard points for the measurements. Finally, the lumbar lordosis can be evaluated on ordinary CT scans using PAL method.

Keywords: Lumbar lordosis, projection area per length squared, computed tomography, planimetry, inter- and intra-observer variance

O-53

Morphological condition of the heart in case of the induced renovascular hypertension and usage of different treatment patterns (experimental research)

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Arterial hypertension is one of the most actual problems in nowadays medicine. The aim of our research was to investigate the character of morphological changes that take place in the heart in case of induced renovascular hypertension and usage of the different treatment options. In the first experimental group we used angiotensin-converting enzyme inhibitors, in the second group – calcium channel blockers, in third – combined action of the above mentioned drugs. Histological (light microscopic and electron microscopic) and morph metrical researches were used to evaluate the degree of changes that take place in the heart. Morphological condition of the heart showed an improvement in the second experimental group (calcium channel blockers) - clearly marked signs of hypertrophy (cells are large in size (they occupy almost the whole myocardium) and have big polyploid nuclei, T-system is well developed; cells have a lot of mitochondria; glycogen granules are seen everywhere in the cell; right next to the cardiomyocytes we've found not less than 2 capillaries per cell). Our observations showed that morphological condition of the heart was improved due to the monotherapy (calcium channel blockers) in case of induced renovascular hypertension.

Keywords: Hypertension, heart, morphology, experiment

O-54

Estimation of splenic volume and surface area of the newborns' cadaveric spleen using stereological methods

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Changes in spleen size and morphology take an important place in clinical diagnosis and treatment. We aimed to reveal

the between these methods, using the USG, MRI, Archimedean principle and slicing methods on the newborns' cadaveric spleen. In this study, dimensional measurements were made in five newborns' cadaveric spleens in the laboratory of the Department of Anatomy at Erciyes University Medical Faculty with USG and calipers, and stereological measurements were also made on the images of MR and the sliced spleens. We calculated the mean spleen volumes obtained with MRI, USG, slicing method and the gold standard to be 4.66±3.76 cm3, 4.70±3.02 cm3, 4.45±3.46 cm3, and 4.82±3.85 cm3, respectively. The spleen surface area means calculated in slicing method, axial, coronal, and sagittal planes to be 32.3±20.6 cmÇ, 24.9±14.36 cmÇ, 24.3±12.7 cmÇ and 18.5±5.9 cmÇ, respectively. It was found from the results obtained from MRI slices that the volume values calculated in coronal plane in 1.6 mm slice thickness were the closest values to the gold standard.

Keywords: Splenic volume, surface area, stereology, cavalieri principle

O-55

Effect of ferrous and vitamin E on male rabbit serum lipoproteins

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Fatty streaks are the primary lesions to form atherosclerosis. Lipid per oxidation by free- radicals, plays an important role in plaque formation. Vitamin E, as a lipid in soluble vitamin, is an important antioxidant and may prevent or delay the coronary heart disease by limiting LDL oxidation. Our goal was to evaluate the effect of vitamin E and iron on blood serum lipids in male rabbits fed high- cholestrol diet. This research was a experimental study carried out in the department of anatomy, Isfahan university of medical sciences Thirty white male rabbits were weighed and blood serum samples were taken for analysis of serum lipoproteins. They were randomly divided into five groups each containing 6 rabbits and given diets for six weeks as follows: Group1 was given normal diet. Group 2 fed with high cholesterol (2 %) diet. Group 3 fed with high cholesterol diet with iron (50 mg/kg). Group 4 fed with high cholesterol diet with vitamin E (50 mg/kg).Group 5 fed with high cholesterol diet with iron (50 mg/kg) and vitamin E (50 mg/kg). These groups were again weighed and blood samples were taken for analysis of serum lipoproteins after 42 days. . Data analysis of this study was evaluated with software SPSS and one way variance test for comparing serum lipoproteins before and after experiments. Significant difference in cholesterol, LDL, HDL, TG, and VLDL were seen before and after the experiment in all 5 groups ($P < 0.001$). The significant difference was observed between all groups in relation to the effect of iron and vitamin E on lipid metabolism. While vitamin E can play a protective role in preventing atherosclerosis, it seems that use of iron has a provocation role in serum lipids.

Keywords: Iron, vitamin E, lipoproteins, atherosclerosis

O-56

Investigation of development of the brain and ventricles in the postnatal period of rats by stereological methods

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Determination of the brain volumes of rats in the postnatal period as well as delineating the effects of neuronal proliferation and the structures of ventricular-subventricular zones by means of sexes and developmental periods at cellular level during the development of brain and ventricles were aimed. Sprague dawley rats aged 1, 7, 14, 30, 60, 90, 120, 150 and 180 days were used in this study. Eight groups of rats each containing 7 males and 7 females were included in the study. The brains were fixed with formaldehyde and volumes were calculated stereologically. Furthermore, after routine tissue tracking the sections were stained with hematoxyline-eosin, then ependymal and subependymal cells were classified according to their shape and cellular density in subventricular region was calculated. In the sections obtained from the anterior part of third ventricle and the inferior horn of lateral ventricles, proliferation index of ependymal, subependymal, glial, neuronal cells were examined after staining with ki67. Brain volumes showed an increase among the groups parallel to the age when calculated with point counting grid and brain volume of male rats was found to be larger than females. In light microscopic examination, cubic ciliated and stratified cells were more common in 1, 7, and 14 day-old rats, however in older groups one layered cubic ciliated cells were widespread and proliferation rate decreased. On the other hand, proliferation index was found significantly high in sections passing through the inferior horn of lateral ventricle. Neuronal tissue is known to develop predominantly in the prenatal period, however progenitor cells in some distinct parts of the brain were conveyed to differentiate and lead to the development of new neurons even for some time after birth. In another study, proliferation and neurogenesis were reported on the lateral wall of the lateral ventricles during the first postnatal month of rats. The brain volume was demonstrated to increase parallel to age in postnatal rats in our study. On the other hand, cellular density in ventricular and subventricular regions was found to decrease in contrast with the age and cellular differentiation was shown to continue, in accordance with other studies in the literature.

Keywords: Rat, brain, postnatal development, stereology, point counting grid

O-57

Computer-based hybrid e-teaching (virtual medical teaching) or traditional teaching: a comparison between medical and dentistry students

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Computer-based learning and computer based training applies computers to aid in the delivery of stand-alone multimedia packages for learning and teaching. The main objective of this study is to compare the effect of e-learning in histology course of students studying in Guilan Medical Sciences University. This study was performed as a clinical–trial procedure. The participants of intervention group were medical students while the control group was dentistry student. An electronic educational package named'' virtual Medical Teaching ''and designed by the researcher (have the second ranking in national educational festival of shahid Motahhari in 1389) was used to teach medical students in the histology course. We used traditional method to teach dentistry students. The final exam scores of students were analyzed by SPSS software at the end of the term. This research was conducted on 75 (34 female, 41 male) medical students as intervention group and 37 (20 female and 17 male) dentistry students as control group. The scores of both groups' students at the final homogenized practical exam (out of 20) were evaluated. The average scores in the final exam of histology course for medical students who were using virtual medical teaching was 15.45 while the average score for dentistry students who were subjected to traditional education was 12.06; which were significantly different from each other (p value = 0.0001). The ratio of those failed in histology course for medical students and dentistry students was 0.02 and 0.27, respectively. In this research, the scores gained in histology course' by students using virtual medical teaching were significantly higher than those who did not use this method. It is recommended to investigate other factors such as living in dormitory, constant access to computer, motivation and interest in the course, learning ability, exam anxiety, and etc. which can affect students learning process. Also, it is suggested to design such an educational package and software in other course and study efficacy of this method on other courses.

Keywords: Virtual microscopy, educational package, medical education, histology education

O-58

Snakes and ladders: a new method for increasing of medical student's excitement

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With respect to abundance of text books and frequency of topics in medical education, new methods can help instructors and students to achieve better results in learning. In this study we proposed a new method and then analyzed students function and attitudes about the efficacy of that. We designed a Snakes and ladders game that there were many questions in those boxes. The questions were about trunk anatomy and this puzzle gave to the 31 first year medical students. The students divided to four people group randomly. After that a questionnaire were given to them including 7 questions. For analyzing data we used SPSS. ver 19. In this study 10 of the students were female (32/2%) and the others were male(67/8%). The mean age of students were 18/73± 0/78. 67/7% of students said that the quality of our exam were good. 51/6% of them thought very good positive attitude. 64/5 % of them believed that our design had a very powerful effect on learning. For designing the puzzle 20/45% of questions were designed 3 degree difficulty, 43/18% of them 2 degree difficulty and 36/36% 1 degree difficulty. Through the overall examination of the results gathered through the questionnaire used in this study, it was found that using education games lead to increase of learning excitement and development of a positive attitude toward learning. In this research, application of educational games, namely "Snakes and Ladders", was evaluated in anatomy course; however, in many other studies application of other educational games such as puzzle matching and game cards have been previously studied in courses such as pharmacology, immunology, etc. Elie A. et al conducted a systematic review, "educational games for health professionals", from the "The Cochrane Collaboration, Through study of 1156 papers they concluded that: The findings do not confirm nor refute the utility of games as a teaching strategy for health professional, so, there is a need for additional high-quality research to explore the impact of educational games on patient and performance outcomes.

Keywords: Medical student, medical learning, student excitement

O-59

A complicated variation of the inguinal region about femoral artery and deep circumflex iliac vein

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The femoral artery is the major blood supply for the lower extremity. Interventional radiological examinations and vascular surgery; it is important to know the variations of femoral artery in terms of anatomical and clinical aspects. During the routine educational dissection session on lower extremity of a 58 years old cadaver, it is explored that femoral artery was forming an unusual branching pattern different than the normally expected. The unusual branches were measured and pho-

tographed, corresponding diagrams were drawn as well. A perpendicular line drawn from the point that circumflex femoral artery emerges out of the Femoral artery and the distance from that point to inguinal ligament was 1.5 cm. When the same measurement was done for the lateral circumflex femoral artery it was recorded that it was branched out from femoral artery right under the inguinal ligament instead of branching from deep femoral artery as it is expected to be. The deep femoral artery was originated from the femoral, 3.5 cm distal to the inguinal ligament. Then, the deep femoral artery coursed laterally in the same diameter and 2.9 cm distal to its origin; it was giving 3 perforating branches medially. The distal continuation of the femoral artery was terminating in between the muscles as muscular branches. Additionally in this case; the deep circumflex iliac vein crossed the external iliac artery just under the inguinal ligament. This vein was draining to external iliac vein. Variations of the femoral artery and its branches are very common. It is imperative to know possible variations about the Femoral artery and its branches to perform a successful routine clinical procedure.

Keywords: Femoral artery, circumflex lateral femoral artery, circumflex medial femoral artery, deep femoral artery, deep circumflex iliac vein

O-60

A unique case: the sural nerve originating from the sciatic nerve; a case report

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The anatomical trace and local anatomical relations of sural nerve is very important in terms of clinical and surgical approaches as well. Anatomical variations of the sural nerve are considered in local or regional anesthesia and nerve graft applications. During the routine educational dissection session on lower extremity of a 58 years old cadaver, it is explored that the sural nerve is originated from sciatic nerve which was different than its known variations. The level of the the sciatic nerve out of infrapiriform foramen was recorded; the length of the sciatic nerve and the distance between sural nerve and terminal division of the sciatic nerve were measured. All pieces are photographed and corresponding diagrams drawn. The distance of sciatic nerve between ischial tuberosity and terminal division was 18.9 cm. The sciatic nerve branching sural nerve at 15.2 cm distal to ischiadic tubercule. Additionally; the distance of sural nerve to terminal division of the sciatic nerve was 3.7 cm. The sural nerve normally innervates lateral side of the foot. Due to it is importance in nerve grafts, normal anatomy and variations of sural nerve should be known very well to prevent a possible damage during a surgical intervention.

Keywords: Sural nerve, sciatic nerve

O-61

Why the incidence of the upward fixation of the patella is higher in buffalo than in cattle?

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Buffaloes and cattle are the main sources of meat and milk production in Egypt. The incidence of the upward fixation of the patella is higher in buffaloes than cattle. The aim of this work is to study the anatomical causes of this fact. This study was carried out on ten stifle regions, five for each adult buffalo and cattle of local breeds. The specimens were dissected grossly. The trochlear groove is shallower and narrower in buffalo (42.87 2.71mm) than in cattle (48.52 2.28 mm). The articular surface of the patella is larger in buffalo than in cattle so the adaptation between the trochlea and patella is incongruent. The resting part of the trochlea and that of the patella is larger in buffalo than in cattle. The patellar ligaments are longer in buffalo than in cattle, where the length of the medial, intermediate and lateral patellar ligaments is 141.85±0.58, 161.88±0.50 and151.43±0.30 mm respectively in buffalo and is 136.46± 0.45, 146.99±0.4 and 141.46±0.43 mm respectively in cattle. The space between the medial and intermediate patellar ligaments is wider in buffalo than in cattle, therefore the loop formed between these ligaments may be catched over the medial ridge. The caudal ligament of the lateral meniscus is longer in buffalo than in cattle. This may predispose to move the femur more cranially. The stability of the menisci in buffalo is less than cattle. This may be due to the absence of the transverse genual ligament which fixes the menisci cranially. The high incidence of the upward fixation of the patella in buffaloes than in the cattle depend upon the depth of the trochlea, the length of the patellar ligaments, the space between the medial and intermediate patellar ligaments as well as the stability of the menisci.

Keywords: menisci, buffalo, cattle

O-62

Developmental studies on the pharyngeal roof of the ducks

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The anatomy of the oropharyngeal cavity in the birds was inadequate and lacks the necessary details especially the developmental anatomy of the pharyngeal roof in the ducks, therefore this work was carried out. This work was carried out on the pharyngeal roof of five groups of Muscovy ducks ranging from 1-60 days old. The gross, morphometrical, scanning electron microscopical and histological features are described. The length of the pharyngeal roof forms15.19-19.44 % from the

total length of the oropharynx. The infundibular slit increases in length with the advancement of the age. Its caudal commissure terminates rostral to the pharyngoesophageal junction by a variable distances depending on the age of the duck. The SEM findings reveal that at one day old, fine papillae are scattered on each side of the infundibular slit. At 15 days old, two types of papillae can be identified. At 60 days old, numerous different sized papillae are demonstrated on the pharyngeal roof. In all ages, numerous glandular openings are scattered between the pharyngeal papillae. The light microscopical findings indicate that at one day old, compound tubular mucous sphenopterygoid glands are demonstrated in the lamina propria. Few lymphatic infiltration could be observed close to the margin of the infundibular slit. The pharyngeal papillae appear small in size .In advanced ages, the glands become more lobulated and the papillae are highly cornified. Abundant lymphoid infiltration and lymphatic nodules are observed. The developmental changes concerning the pharyngeal papillae, salivary glands and lymphoid structures are important for the swallowing accommodation in the swimming birds.

Keywords: oropharyngeal cavity, ducks

O-63

Some morphological studies on the marginal lingual papillae in posthatching ducks

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Since the information are scanty in the anatomy of the oropharyngeal floor of the posthatching Muscovy ducks, therefore this study is carried out to explain the anatomical features at the first 60 days after hatching. Forty nine Muscovy ducks (1 – 60 days old) are used. Gross, morphometrical, scanning electron and light microscopical investigations were performed. The marginal lingual papillae of duck are arranged in three groups; rostral, middle and caudal. Grossly, two groups can be identified at one day old, but the third one can be detected at 7 days old. The SEM indicates that at one day old the dorsal row of the rostral group consists of thread-like papillae. At 15 days old, few desquamated cells are observed. At 60 days old, the papillae become larger and the degree of desquamation increases. The papillae of the middle group at one day old are wedge-shape. With the advancement of the age, another row of slender-like papillae appears ventral to the previous row. The papillae of the caudal group can be detected at one day old only by the aid of SEM. Structurally, at one day old, the marginal papillae consist of connective tissue core covered with slightly keratinized epithelium. Some of them contain sensory corpuscles. With the advancement of the age, the keratinized epithelium becomes high and the connective tissue core increases in size and containing larger sensory corpuscles. The morphological changes in the marginal lingual papillae during the posthatching period play a great role in the collection and filtration of the eating food.

Keywords: oropharyngeal floor, ducks

Poster Presentations

(P-1 — P-206)

P-1

Multidetector computed tomography for evaluation of accessory hepatic lobe: case report

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The incidence of an accessory hepatic lobe is rare. They are usually asymptomatic and are found incidentally at surgery or autopsy. Despite recent advances in imaging modalities, accessory lobes of the liver are mainly diagnosed at laparotomy. Here in we present an accessory hepatic lob mimicking an intraabdominal mass in terms of the multislice computed tomography (MDCT) images. 69-year-old man complaining of abdominal bloating, nausea and vomiting with a history of 10 days was admitted to our hospital. There was no history of systemic disease or a surgical operation. Ultrasonography showed splenomegaly and irregular contour of the liver. Conventional computed tomography (CT) revealed a 74x73 mm mass draining to the portal venous system. Abdominal MDCT, performed for characterization of the mass, demonstrated that the mass seen in subdiafragmatic place was a hepatic segment since it had hepatic vascularization. The hepatic segment, connected to the right lobe of liver by a thin paranchymal band with a 8.5 mm diameter, evaluated as accessory liver lobe. Anomalies of hepatic morphology are rare unlike the anatomical variations. In etiopathogenesis, the ectopic liver tissue was believed to be an incomplete atrophy or it could be a result of regression of liver lobes during embryologic development. These accessory lobes could be attached to the liver by parenchyma or by a mesenteric band. MDCT is useful in determining parenchymal structure and size of accessory lobe, exclusion of malignancy, patency of the venous system, variant hepatic arterial anatomy, accessory hepatic veins.

Keywords: Accessory hepatic lobe, MDCT

P-2

Asymmetric complete absence of quadratus femoris

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Complete absence of quadratus femoris (QF) muscle is a rarely reported entity. Although it is rare, it may be the only finding in patients with pain complaint. Therefore, muscle groups imaged for various indications should be evaluated regarding any developmental anomaly. In this report imaging findings of complete absence of quadratus femoris is presented. A 41-year old male admitted with hip pain. Physical examination revealed no abnormalities. The patient underwent magnetic resonance imaging (MRI). In MRI conducted, left quadratus femoris was evaluated to be normal in size and configuration whereas, right quadratus femoris was absent. Neither variations nor hypertrophy was detected in the neighboring muscle groups. No associated findings were present in MRI. QF muscle is the main external rotator of the hip. In patients with hip pain, in the absence of impingement or other muscle pathologies, anatomical variations should be considered and the muscle groups imaged should be evaluated in this regard.

Keywords: Quadratus femoris, variation

P-3

The assessment of structural features of renal mesangial cells under natural and experimental conditions

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Mesangium serves as the core of the glomerulus from functional and structural point of view; thus many of the glomerular disorders target the mesangium as the primary and/or initial site of injury. Mesangial cells generally proliferate with an increasing pace in response to injury and undergo phenotypic alterations. In this study, the renal tissues of 50 mg/kg STZ induced diabetic rats were examined and evaluated under light, confocal and electron microscope. It is aimed to reveal the morphological and functional changes exhibited by the mesangial cells after the damage in the glomeruli via histological methods.In diabetes induced rats, under light microscope, mesangial expansion, nodular sclerosis, hyalinosis in arterioles, thickening in the tubules basement membranes, lipid accumulation in proximal tubules, and under confocal microscope, increase in laminin and ASMA signals were observed. Under the electron microscope, sclerosis in mesangium, increase in the number of mesangial cells, number of organelles and cytoskeleton elements of cytoplasm, degenerative changes in the mitochondria of the podocytes were observed. As a result, in the light of these findings it is found out that mesangial cells exhibited ultra-structural and phenotypic alterations due to the damaging effect of diabetes.

Keywords: Renal corpuscle, mesangial cells, diabetes, ultrastructure

P-4

Location of facial foramina in Turkish population from cone-beam computed tomography scans of human skulls

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The present study aimed to determine morphometric analysis of the infraorbital (IOF), supraorbital (SOF), mental (MF), and zygomaticofacial foramina (ZF) relative to surgical landmarks. Fifty-two dry human skulls (18 men, 34 women) aged between 10-76 years were obtained from the dentomaxillofacial radiology department at the faculty of dentistry of Suleyman Demirel Universty. All measurements were done bilaterally and performed by one observer. The identification between SOF and notch (SON) was made.Following measurements were taken: the distance between IOF to priformis aperture, anterior nasal spine, zygomaticomaxillary suture, inferior lateral border of the orbita, zygomaticofrontal suture, and SOF. The distance between SOF to zygomaticofrontal suture, and nasal skeletal midline. The distance between zygomaticofacial foramen to inferior lateral border of the orbita, and zygomaticofrontal suture. The distance between mental foramen to inferior border of the mandible, angle of the mandible and maxillar midline. Means and standard deviations (mean ± SD) according to age and genders were calculated. Obtained data were compared according to gender and lateralization by student's t- test. There were differences in some parameters. On the right there were 9 SOF and 43 SON. On the left there were 22 SOF and 30 SON. It was concluded that, the results of this study are important for performing local nerve block and surgery in the face, in order to avoid the neurovascular structures passing through these foramina.

Keywords: Infraorbital foramen, supraorbital foramen, mental foramen, zygomaticofacial foramen, cone-beam computed tomography

P-5

Anatomical landmarks on distal extremity of the femur for localization of articular line of the knee during total knee arthroplasty

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Preserving the articular line of the knee is a crucial step for a successful total knee arthroplasty, particularly during revision arthroplasties. Some anatomical bony landmarks on the distal extremity of the femur can be used for exact localization of the articular line of the knee. The aim of this study was to clearly define if the articular line of the knee is affected by the relationship of these bony landmarks, thus to easily identify the articular line during surgery. This study was conducted on 47 femur. Following measurements were taken from the distal extremity of the femur: (1) anteroposterior diameter of the femur; (2) mediolateral diameter of the femur; (3) the distance of the joint surface to the transverse plane; (4) the distance of the joint surface to the medial and (5) lateral epicondyle; (6) angle between transepiconylar axis and the posterior condlylar axis. The corelation between these measurements was evaluated statistically. The anteroposterior diameter of the femur was measured as 56.53 mm, whereas the mediolateral diameter as 79.37mm. There was a strong correlation between these parameters. The width of the joint surface was 67.39 and there was a strong correlation between this distance and the anteroposterior and mediolateral diameters of the femur (r: 0,576 and 0,774). The distance of the joint surface to medial epicondyle was 29.41 mm and to lateral epicondlyle 23.20 mm. Former distance was not correlated with the anteroposterior diameter but with the mediolateral diameter (r: 0.189). The latter was not correlated to either of the diameters but with the former one ($p<0.001$). The angle between transepiconylar axis and the posterior condlylar axis was not correlated with either of the measurements. Precise knowledge of the relation between the defined bony landmarks in this study may help the surgeons to define the articular line of the knee during total knee arthroplasty.

Keywords: Medial epicondyle, lateral epicondyle, total knee arthroplasty

P-6

The angular relationship of the minor trochanter with the femoral neck and epicondylar axis

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The anteversion angle of the femoral neck is an important factor for stability of the hip. A precise knowledge of the posterior condylar and epicondylar axis and also the angle between the minor traochanter and femoral neck are important to determine the anteversion and version defects. This study was con-

ducted on 47 femurs. Following measurements were taken from the proximal and distal extremity of the femur: the angle between the femoral neck and trochanter minor, the angle between the femoral neck and the posterior condylar and epicondylar axis, the angle between posterior condylar and epicondylar axis. The mean angle between the femoral neck and the trochanter minor was 38.530. The mean angle between the femoral epicondylar axis and posterior condylar axis was measured as 4.080. There was no statistically significant relationship between this angle and the angle between femoral neck and trochanter minor. The epicondylar axis was in parallel with the posterior cortical axis, not the long axis of trochanter minor. The results of this study suggested as that while considering the angular relationship of the femoral neck and the epicondylar axis, it is important to take the posterior cortical axis of the trochanter minor rather than its long axis. This angular relationship is important to consider the version defects and to implant femoral stem in proper anterversion angle during hip prosthesis operations.

Keywords: Trochanter minor, femoral anteversion, epicondylar axis, posterior condylar axis

P-7

Anatomical study of rotator cuff tendon and bony landmarks

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This study investigated relationship between the insertion areas of the rotator cuff tendon and the bony landmarks in humerus for the effective treatment of shoulder injury. Forty specimens from 20 cadavers (71.9 years old) were used. We assigned 2 reference lines and 1 reference point, and 4 bony landmarks: 1) Line Y was long axis of the humerus, 2) Line X was a perpendicular line of Line Y at the line from the most lateral tip of humeral head area in lateral view, 3) the central point that Line Y met Line X. We measured 10 widths, 4 lengths and 4 depths, and 14 angles. In the angle, the anterior part of Line Y was described positive value and the posterior part was marked negative value. All measurements didn't have a significant difference between the right and left sides. Three measurements showed statistically significant difference between the sexes ($P<0.05$). Those were the proximal and distal widths and the length of tendon of the subscapularis. The tendon of the suprascapular muscle attached -3° ~ 24° on humerus, it located near the upper border of the humeral head and Line Y. Four bony landmarks located under the rotator cuff and around 25% of the length of tendon from the lateral border. The tendon of the supraspinatus overlapped with of the infraspinatus on the upper border of the insertion area, others did not do. The anterior edge of the acromion, the most common bony landmark during the medical procedure, located the anterior part from Line Y.

Keywords: Rotator cuff, bony landmark, humerus, shoulder injury

P-8

An anatomical study of saphenous nerve branch in thigh

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The saphenous nerve (SN) is the largest and longest cutaneous branch of the femoral nerve. It descends in the femoral triangle, goes through the adductor canal (AC) and gives sensory branches. The vastoadductor membrane (VAM) is the distal part of roof of the AC, there is occurrence of the SN entrapment syndrome. To treat this syndrome, ultrasound guided approach for the SN blockade is used within the distal part of the AC. There was a report about a side effect that temporal paralysis of the nerve to vastus medialis (NVM). The purpose of this study is to find out the relationship between the SN, the NVM and the VAM. We used 50 legs (31 males, 19 females) and measured 3 distances: 1) the inguinal ligament (IL) to the bifurcating point of the SN and the NVM, 2) the adductor tubercle to the distal border of the VAM, 3) the adductor tubercle to the NVM in anteromedial aspect of the thigh. The occurrence of the NVM and the SN enveloped by connective tissue was 79.6%, and the distance from IL to the point of division was 9.5±3.4cm. In all cases, the infrapatella branch of the SN was descended to knee and passed through the distal border of the VAM, except one case. The cutaneous branch of the SN was pierced the VAM (32.6%) and the sartorius (68.4%). The distance from the adductor tubercle to the distal border of the VAM was 11.3±1.7cm, and the distance to the NVM was 12±2.6cm.

Keywords: Saphenous nerve, vastoadductor membrane, infrapatella branch, nerve to vastus medialis

P-9

A complex variation of the coeliac trunk: case report

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During the educational dissections in 2011-2012 term, a complex variation of the coeliac trunk (CT) was found in a 71-year-old male cadaver. The length of the CT was 2 cm and it branched into splenic (SA), left gastric (LGA), and common hepatic (CHA) arteries as usual. The CHA branched into gastroduodenal (GA), and hepatic artery proper (HAP), but the HAP was extremely thin, and gave off the right gastric artery

(RGA) before entering the porta hepatis. The left branch of the hepatic artery (LB) branched from the LGA, while the right branch (RB) from the superior mesenteric artery (SMA). After the RB, the SMA gave off the cystic artery (CA). In our case the there were some variations seen very rare. The incidence of the branching pattern of the LB and RB was mentioned as <1%, and the incidence of branching of the CA from the SMA is <1% in the literature. These rare variations should be taken into account by surgeons and radiologists during the procedures at the region for the safety and good results.

Keywords: Anatomy, variation, hepatic artery, cystic artery, superior mesenteric artery

P-10

A rare variation of the superior thyroid artery: case report

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During an investigational dissection at the neck region of a 75-year-old male cadaver, it was observed that anterior glandular branch of the right superior thyroid artery (RSTa) was supplying both ipsi- and the contralateral sides of the thyroid gland. The anterior glandular branch of the left superior thyroid artery (LSTa) was absent. The posterior glandular branches of the both thyroid arteries (RSTp, LSTp) were supplying ipsilateral sides of the gland, and anastomosing with the ipsilateral inferior thyroid arteries, as usual. There are numerous studies about the arterial supply of the thyroid gland due to its importance in surgical and radiologic procedures. Although it is possible to find much information about the arterial supply of the gland, we could not find similar case in the literature. The arterial supply to the thyroid gland is important during surgery at the region. This kind of variations should be remembered during any intervention to prevent any complication.

Keywords: Anatomy, variation, superior thyroid artery, anterior glandular branch

P-11

Effect of nilvadipine on hippocampal volume in the penicillin-induced epileptic rats

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Epilepsy is a common neurological disorder due to uncontrolled, abnormal and intensive electrical discharges of a group of neurons in central nervous system. It results in neuronal deaths in various regions of brain especially in hippocampus. It is believed that calcium influx is one of the main mechanisms that stimulate cell death. The aim of this study is to research the effects of nilvadipine on penicillin-induced epilepsy hippocampal volume in rat. We used 4 month-old, 25 female adult Spraque-Dawley rats in our study. They were divided into five groups each of five rats: Sham (S), Control-saline (C), Epilepsy, Epilepsy+Nilva1 and Epilepsy+Nilva2. Epilepsy was induced by intracortical (i.c.) 1500 IU/2µl penicillin. Epilepsy+Nilva1 group had firstly received nilvadipine (3.2 mg/kg, i.p.) followed 30 min later by penicillin. In Epilepsy+Nilva2 group nilvadipine (3.2 mg/kg, i.p.) was administered for 7 days, and penicillin was administered 2h after the last dose of nilvadipine. The rats were decapitated at the end of the experiments. Hippocampal volume was estimated by the Cavalieri method (a stereological method) in transverse brain sections. Mean hippocampal volumes estimated in S group 3.26 mm?, C group 3.01 mm?, Epilepsy group 2.17 mm?, Epilepsy+Nilva1 group 2.95 mm?, Epilepsy+Nilva2 group 2.51 mm?. The results showed that in Epilepsy group the hippocampal volume where less than C group ($p<0.05$). Epilepsy+Nilva1 and Epilepsy+Nilva2 groups the hippocampal volume where more than Epilepsy group ($p<0.05$). According to the present results, nilvadipine reduces hippocampal volume loss due to experimental penicillin-epileptic seizures in rat.

Keywords: Hippocampal volume, penicillin, nilvadipine, stereology, cavalieri method

P-12

Toxic effects of formaldehyde inhalation on rat liver tissue and possible protective effect of Nigella sativa oil

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The purpose of this study was to investigate the effects of formaldehyde exposure on rat liver and possible protective effect of Nigella sativa oil. In this study sixty-six adult male rats were exposed to FA by inhalation. FA was inhaled for five days per week and eight hours per day. We have two control groups (n=5) for 4 and 13 weeks study periods. The other fifty-six rats were diveded into eight groups (n=7) for FA inhalation for either 4 weeks or 13 weeks. These animals were exposed to 5 and 10 ppm FA. At the end of the study, all rats were killed by decapitation and liver tissues were removed. For light microscopic evaluation, liver tissues were embedded in paraffin blocks after histological procedures. In liver tissues mild hydropic degeneration were observed in all 5 ppm FA inhalation groups. Furthermore generalized hydropic degeneration were observed in all 10 ppm FA inhalation groups. We deter-

mined that FA exposure affect liver. And Nigella sativa couldn't improve these degeneration histologically.

Keywords: Formaldehyde, nigella sativa, liver, rat

P-13

Two vascular variations in one patient: splenic artery directly originating from abdominal aorta (truncus hepatogastrica) and retroaortic left renal vein

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To evaluate the multidetector computed tomography findings of the splenic artery which was directly originating from abdominal aorta. 61-year-old man with right upper quadrant pain was underwent abdominal computed tomography examination. A solid lesion originating from biliary tract was detected on computed tomography. While evaluating of vascular structures; splenic artery was directly originating from abdominal aorta. Retroaortic left renal vein was also seen on computed tomography. The celiac trunk is the first major branch of the abdominal aorta, originates at the level of the T12–L1. Splenic artery is the largest branch of celiac trunk. The anatomical variations of splenic artery are due to unusual embryological development of ventral splanchnic arteries. Most of the splenic artery originates from coeliac trunk. If not originating from coeliac trunk, splenic artery has an aberrant from either aorta, superior mesenteric artery or left gastric artery. Abdominal aorta origin of splenic artery is a rare variation. The retroaortic left renal vein is a malformation characterized by the presence of a vessel that drains the left renal blood up to the inferior vena cava crossing behind the aortic artery. Retroaortic left renal vein is a relatively frequent venous variation with a reported incidence of 0.5 %-3.7%. Knowledge of variations of vascular structures is of extreme clinical importance while performing surgical prosedure such as total pancreatectomy or in patients undergoing diagnostic angiography for gastrointestinal bleeding or transcatheter therapy.

Keywords: Multidetector computed tomography, variation, abdominal aortae

P-14

Splenic artery directly originating from abdominal aorta (truncus hepatogastrica)

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To evaluate the multidetector computed tomography findings of the splenic artery which was directly originating from abdominal aorta. 65-year-old man with right upper quadrant pain and constipation was underwent abdominal computed tomography examination. A solid lesion originating from colonic segment was detected on computed tomography. Multiple liver metastatic lesion was also seen. While evaluating of vascular structures; splenic artery was directly originating from abdominal aorta. The celiac trunk is the first major branch of the abdominal aorta, originates at the level of the T12–L1. Splenic artery is the largest branch of celiac trunk. The anatomical variations of splenic artery are due to unusual embryological development of ventral splanchnic arteries. Most of the splenic artey originates from coeliac trunk. If not originating from coeliac trunk,splenic artery has an aberrant from either aorta, superior mesenteric artery or left gastric artery. Abdominal aorta origin of splenic artery is a rare variation. Knowledge of variations of splenic artery is of extreme clinical importance while performing total pancreatectomy or in patients undergoing diagnostic angiography for gastrointestinal bleeding or transcatheter therapy.

Keywords: Multidetector computed tomography, variation, splenic artery

P-15

Harmful effects of formaldehyde and possible protective effect of nigella sativa on the trachea of rats

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We aimed in this study to investigate the harmful effects of formaldehyde inhalation and possible protective effects of Nigella sativa (NS) oil on the trachea of rats. In this study, 21 adult male spraque-Dawley rats were used. Animals were divided in three groups. The rats in group I were used as control group. The rats in group II were exposed formaldehyde inhalation (10 ppm/8 hours/day) for 13 weeks. The rats of group III were administered Nigella sativa oil (p.o) plus formaldehyde inhalation. After 13 weeks all rats were killed by decapitation. All rats' trachea were removed. Tissue specimens were embedded in parafin blocks following routine histological procedures, for light microscopic examination. Specimens were examined with light microscope. Distortion of tracheal epithelium, cilia loss on epithelial surformaldehyde ce and diffuse lymphoid infiltration in lamina propria were present in Group II. However, NS oil treatment in Group III had prevented lymphoid infiltration and protected the epithelial structure, despite some shedded areas. Difference of tracheal epithelial thickness and histological score was statistical significant between Group

II and III. Chronic administration of NS decline formaldehyde induced tracheal damage in rats. Hence we belive that NS may be used to prevent development of formaldehyde induced tracheal damage. However, further studies are needed to reveal the mechanisms of the improving effect of NS oil on formaldehyde inhalation induced tracheal damages.

Keywords: Formaldehyde, nigella sativa, trachea, rat

P-16

Effects of cyclosporine A on rat embryonic development

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The aim of the present study is to investigate the toxicity and teratogenicity of cyclosporine A, a calcineurin inhibitor and a widely used immunosuppressive drug, in cultured rat embryos undergoing organogenesis. The explanted embryos were cultured from day 9.5 of gestation for 48 hours. Whole rat serum was used as a culture medium for the control group while different concentrations of cyclosporine A (0.1-4 µg/ml) were added to serum for the experimental groups. At the end of the culture period, the degree of growth and development of each embryo was evaluated by means of a morphological scoring system. Embryos were also evaluated for the presence of any malformations. Compared with the controls, the addition of different concentrations of cyclosporine A did not affect embryonic growth and development. The only teretogenic effect observed with cyclosporine A was haematoma which was determined on the addition of 0.5 µg/ml and higher doses of the agent. At the doses used in this investigation we did not determine any detrimental and toxic effects of cyclosporine A on embryonic development. Therefore, in order to find minimal toxic concentrations of the agent, a further investigation was planned using higher doses.

Keywords: Cyclosporin A, toxicity, teratogenicity, whole embryo culture

P-17

Left superior vena cava: a case report

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A left superior vena cava is a frequent variation of the thoracic venous system explained by the persistence of the left superior cardinal vein, but in most of the cases, it drains into the coronary sinus. It was occurring in approximately 0.3% to 0.5% of the general population and usually draining into a dilated coronary sinus. Left superior vena cava was observed in thorax computed tomography of a 34-year-old woman at Department of Radiology. In this case, left jugular vein (16 mm) and left axillary vein (10 mm) were combining and forming a vein which was moving along to the downside and opening to coronary sinus. It is reported that left superior vena cava may occur in as many as up to 12% of individuals with other documented congenital heart abnormalities. In conclusion, as these variations may cause misinterpretation in radiologic examinations and surgical operations, the knowledge of these variations is important for anatomists, radiologists and surgeons.

Keywords: Left superior vena cava, variation, thorax CT, anatomy

P-18

Morphometry for caudal epidural block using multidetector computed tomography in a pediatric population

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Caudal epidural block (CEB) administered through the sacral hiatus is a common regional anesthetic technique used in children. To facilitate and optimize pediatric CEB, morphometric data for several bone structures were obtained using multidetector computed tomography (MDCT) in a pediatric population. Images from 79 children (39 females and 40 males, between 1 and 9 years old) were divided into three groups according to age and retrospectively examined. Data were gathered via multiplanar-reconstructed and 3D volume-rendered images. Measurements included the height and width of the sacral bone, the transverse and sagittal diameters of the sacral canal, the height and width of the sacral hiatus, the distances between the poles of the unfused spinous process, and the dimensions of the triangle formed between the right and left posterior superior iliac spines and the apex of the sacral hiatus. The triangle formed by the right and left posterior superior iliac spines and the apex of the sacral hiatus was not equilateral. The most frequent spinous process fusion was at the S2 level among all age groups examined, whereas there were no observed cases of fusion at S5. The traditional "equilateral" triangle used to locate the hiatus sacralis may be unreliable in children. Also, it may not be necessary to palpate the sacral cornua during the placement of the caudal needle because of the unfused spinous processes. In fact, the sacral canal is clearly visible and CEB may be performed at any point below the level of S3.

Keywords: Caudal epidural block, landmarks, posterior superior iliac spine, regional anesthesia, sacral hiatus

P-19

Right aortic arch with aberrant left subclavian artery

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To evaluate the multidetector computed tomography findings of the right aortic arch with aberrant left subclavian artery. 59-year-old man with chest pain was underwent pulmonary computed tomography angiography examination. The CT of thorax demonstrated a right aortic arch. The left common carotid artery, the ?rst major artery to arise from the arch, is followed by the right common carotid, right subclavian and left subclavian arteries. The descending aorta continues inferiorly to the right side of the vertebral column. The ?ndings are consistent with a right aortic arch with aberrant left subclavian artery. Bilateral pulmonary embolism was also detected on computed tomography. Right-sided thoracic aortic arch is an anatomical variant present in approximately 0.1% of the general adult population. In half of these cases, there is also an aberrant origin of the left subclavian artery, which may either arise as the last branch of the right-sided aortic arch or from a diverticulum. It is the commonest anomaly associated with a right aortic arch. The majority of patients with right-sided aortic arches with aberrant left subclavian arteries are asymptomatic, with diagnosis being a fortuitous discovery on chest radiograph or CT performed for other indications. Any symptoms, which result from an aberrant left subclavian artery, are associated with compression of the esophagus or trachea and are most likely to occur if its origin is dilated.

Keywords: Right aortic arch, variation, left subclavian artery, multidetector computed tomography

P-20

Morphometric analysis of styloid process using multidetector computed tomography

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Styloid process is a cylindrical anatomical structure located at anterior side of stylomastoid foramen. Normally it's 20-25mm in length and can vary with age and sex. An elongated styloid process is an unusual source of craniofacial and cervical pain. In our study, length of styloid process with multidetector computerized tomograph was measured. The clinical role of morphometric data of styloid process was discussed for Eagle syndrome. In this study, images with 64-slice multidetector computed tomography (Somatom Sensation 64, Siemens, Germany) from Radiology Department's archive of Konya University were used. The examined images were collected from 60 patients (30 female and 30 male). The length of right and left styloid process was measured. There was no significant difference according to gender and lateralization ($P > 0.05$). But, in males, the length of styloid process was higher than females. We think that our study will provide guidence to surgeons of this area.

Keywords: Styloid process, morphometry, multidetector computed tomography

P-21

Gender-dependent behavioral effects of early life stress

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Stress exposure negatively affects the brain development. In this study, anxiety levels of pups exposed to stress during pre- and postnatal periods was compared in a time and gender-dependent manner. Pups were exposed to prenatal stress by keeping dams immobile in wire-mesh cylinders for 3 hours daily at their last gestational week. After birth, they were exposed to maternal separation (3 hours/day) stress until weaning. Anxiety levels were evaluated by elevated plus maze test at postnatal day (P) 30 and P60. Percentage of the time spent in the open arms relative to the total time spent in both arms was calculated as a parameter of anxiety level. At P30, female pups in stress group spent significantly ($p<0.05$) less time in open arm than those of controls; whereas it was similar between stressed and control males. At P60, open arm durations of stressed females and males were comparable to those of control groups. The Wilcoxon test was used to analyze the change in open arm duration of control and stress groups between P30 and P60. While in control groups, open arm duration were similar in both gender; it showed a significant ($p<0.001$) increase in stressed females and males at P60. Experimental animals are quite suitable in revealing the effects of early life stressors. Stress exposure during pre- and postnatal period causes anxiety-like behaviors in the offspring. These behavioral alterations are more prominent in females especially at early ages; but declines from childhood to adult life.

Keywords: Elevated plus maze, prenatal stress, maternal separation, anxiety

P-22

The effect of the melatonin on osteoid volume of femur in ovariectomized rats

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The results of in vitro and in vivo studies indicated that melatonin influences osteoblast and osteoclast activation and bone formation. Initial studies demonstrated that exogenous application of this hormone prevents osteoporosis in biochemical and densitometric analysis. Aim of this study was to determine osteoblastic activity in postmenopausal osteoporosis after the melatonin treatment. Forty-five female rats with control group, group A (ovariectomy (ovx)), group B (ovx+10 mg/kg/day melatonin), group C (ovx+30 mg/kg/day melatonin), group S (sham+10 mg/kg/day melatonin) were used. Hydroxyproline analysis was made on femurs at 12th week. Osteoid volume was evaluated histomorphometrically with a semi-automatic image analysis system. Osteoid volume analysis revealed a significant decrease in group A compared to control group; significant increase in group B and C compared to group A (p0.003). No meaningful difference among groups in the analysis of hydroxyproline (p>0.003). It is concluded that the positive effect on the osteoid volume after melatonin treatment is a function of inhibition of osteoclastic enzymes by melatonin which is a strong anti-oxidant.

Keywords: Osteoporosis, melatonin, osteoid, histomorphometry, hydroxyproline

P-23

Evaluation of chondrogenesis and osteogenesis in intrauterine growth retardation in rats

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Skeletal development includes coordination of multiple events such as cell differentiation, apoptosis, extracellular matrix remodeling, angiogenesis and activation of multiple cell types. The aim of this study was to determine if ischemia related intrauterine growth retardation (IUGR) leads to short of stature via chondrogenesis and osteogenesis. Rats were randomly divided into 3 groups. No surgery was applied in control group. All surgical procedures were performed except for the uterine artery ligation in sham group. The maternal uterine arteries were bilaterally ligated near the cervical end of the arterial cascade on gestational day (GD) 18 in experimental group. On GD20, fetuses were taken. In sample from left proximal tibia, thicknesses of growth plate, thicknesses of reserve, proliferative, hypertrophic and degenerative zones, trabecular number and thickness and cortical thickness were evaluated with histomorphometric analysis. Probability value is <0.05. Thicknesses of growth plates were found significantly shorter (p<0.01), thicknesses of the proliferation zone (p<0.05) and degeneration zone were found thinner in experimental group than in the others (p<0.01). Also, trabecular numbers (p<0.01) were lesser and trabecular thicknesses (p<0.05) were found thinner in rats in the experimental group than in the others. In the light of this study, it was seen that regression of chondrogenesis and osteogenesis, related to the IUGR may lead to short of stature in rats.

Keywords: Intrauterine growth retardation, growth plate, chondrogenesis, osteogenesis, histomorphometry

P-24

Anatomical study of nutrient foramina in cadaveric dry metacarpal bones

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The aim of the study was to study the morphological and topographic anatomy of nutrient foramina and to determine the foraminal index of metacarpal bones. The study consisted of 438 unpaired, human metacarpal bones of unknown age and sex. Nutrient foramina in each of the bones were grossly identified in relation with number and its position. The foraminal index was calculated by applying the Hughes formula. A digital vernier caliper was used to perform the measurements. Among our specimens, 93.1% of metacarpals had single foramen, 2% had double foramina, 0.3% of the bones had triple foramina and in 4.6% cases the foramen was absent. The mean foraminal indexes of the 1st, 2nd, 3rd, 4th and 5th metacarpal were 60.1, 53, 43.1, 43.7 and 45.9 respectively. It was observed that the morphology and topography of nutrient foramina differ in different metacarpals. In 1st and 2nd metacarpals, foramina were situated mostly on the medial surface and in other metacarpals, mostly on the lateral surface. The data are important to the plastic surgeon as the microvascular bone transfer is becoming more popular. The knowledge about these foramina is useful in certain surgical procedures to preserve the circulation.

Keywords: Foraminal index, metacarpal, morphology, nutrient foramen, topography

P-25

Relationship between rankings competition and the digit ratios of elite swimmers

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The aim of this study was to determine the relationship between the effects of digit ratio and rankings competition of male and female elite swimmers. 35 men and 24 women elite swimmers aged between 13-18 participated in the study. The digit ratios in both hands by a caliper; heights and weights of athletes were measured and body mass index was calculated. Results were evaluated with SPSS 15.0. When the digit ratios of dominant and recessive hands of the male and female elite swimmer groups were compared, no statistically significant differences between the groups were found. There were significant correlation the body weight between the lengths of the ring finger of both hand and were between BMI and the length of the dominant ring finger in all swimmers. While ranking in the top ten swimmers compared others among finger ratios were not significantly different. There is no significant correlation between digit ratio and rankings competition of elite swimmers and originality of this study that it is not advisable to use digit ratios in determining the sporting achievement as previously recommended.

Keywords: Digit ratio, elite swimmers, rankings competition, sporting achievement

P-26

The personality characteristics related to finger ratios

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The aim of this study was to investigate the personality characteristics related to finger ratios. 58 men and 224 women aged between 17-34 filed the 5FKE and the digit ratios of them were recorded. Three groups were composed according to the dominance of estrogen or testosterone and a mediocre group. When the difference between two fingers smaller than 1mm showed statistical difference on Complaisance dimension on the left hand and the difference was on Self-Confidence dimension in both hands. When the difference between two fingers smaller than 2 mm showed differences on Agreeableness depending on the left hand and differences on Compliance with The Rules (CR), Emotional Instability (EI) and Sensitivity dimensions depending on right hand, there was difference on CR and EI dimensions in both hands. When the difference between two fingers smaller than 3 mm showed statistical differences on Complaisance, Agreeableness dimensions on the right hand. There was statistically significant difference on EI and Sensitivity dimensions and on the main effect depending on the left hand. The findings pointed to the differences of personality characteristics of the groups consisted according to 2/4 finger ratio.

Keywords: Finger ratios, personality, estrogen, testosteron

P-27

Phenotypic features in individuals with autism: 2D/4D finger ratios, hair whorl and hand dominance properties

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The aim of this study is to compare the digit ratios of the hand, hair whorl direction, hand, foot and eye dominance in autistic and healthy individuals and to investigate the phenotypic characheristics of autism. In 41 male patients diagnosed with autistic disorder and 121 healthy boys, the length of index and ring fingers of both hands from the proximal bend of the metacarpophalangeal joint up to the fingertips were measured with digital calipers and the index - ring finger ratio was determined. In the case and control group, the distance between the hair whorls, their perpendicular distance from the mid-sagittal line and their clockwise direction were calculated. Hand, foot and eye dominance were determined in both groups. Results were evaluated with SPSS 15.0. The autism group had a greater number of hair whorls than the control group. The distance between the hair whorls and the mid-coronal line were longer particularly in those with left hand and left eye dominance.When the digit ratios of right and left hands of the autistic and control groups were compared, no statistically significant differences between the groups were found. The statistically significant result that the autistic individuals have more hair whorls than the control group and that the hair whorls in the autistic individuals with the left hand and left eye dominance have a tendency to be located further away from the mid-coronal line are the unique findings which are thought to contribute to determining the phenotypic features specific to autism.

Keywords: Autism, finger ratio, the hair whorl, hand dominance

P-28

Development of two dimensional body image scale, investigation of psychometric properties by means of item response theory and comparison of gender differences

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It has been reported that body image is described as 'the picture of body in our mind'. The aim of this study was to develop a body image scale for general samples by using the applications of previous "Body Image Appraisal Scale" as a preliminary study. 905 women and 567 men ages between 15-82 participated in the study. Test-retest study has been done by administering the test to some of the subjects second and third times by one and two week intervals. The original scale consisting of 75 items has been reduced to 63. The scale has been determined as having two dimensions by factor analysis and the dimensions have been called 'Functions' and 'Appearance'. Internal consistency coefficient of the whole scale was 0.93, and internal consistency coefficients of Functions and Appearance dimensions were 0.83 and 0.92 respectively. Gender groups have been compared to determine the differences between groups by multivariable variance analysis (MANOVA) and effect of gender on the items of the scale has been found statistically significant. Findings showed that psychometric properties of Two Dimensional Body Image Scale were acceptable.

Keywords: Body image, gender difference, psychometric properties

P-29

Investigate the effect of diabetic foot infection resulted from the deterioration of the anatomical structure's integrity of lower limbs

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As a result of neuropathy and vascular complications caused by hyperglycemia lasting over years, most organs of the patient are affected. Especially, lower limbs. The leading cause is peripheral neuropathy of diabetic foot lesions. It is understood that the majority of the patients hospitalized for shock, impact, stinging, burning, etc were unaware of these damaging physical factors. The microorganisms lead to infection is added to these damages. The infection is not the primary cause of the etiology of diabetic foot. Depending on the deterioration of anatomical structure resulting from the formation of ulcers or cracks, the infection progresses to the deep tissues of the foot which leads to massive tissue necrosis and gangrene in a short time. The patient may be in danger of losing his foot, and even his/her lives. For example a case of 42-year-old male patient, trauma patient, suddenly did not recognize the right big toe injury occurred as a result of neuropathy. Doppler ultrasound revealed grade 3 peripheral vascular disease. Despite antibiotics and hyperbaric oxygen treatment, the patient's lower limbs were amputated below the knee level.

Keywords: Diabetic foot, infection, anatomical deterioration

P-30

A case with recurrent pulmonary infections after left phrenic nevre paralysis due to prostetic valve replacement surgery

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Pneumonia is one of the most common reason for labour loss and death in society. The high cost of its treatment and increasing the resistance to antibiotics are the other important results of these infections. A 34 year-old male patient with fever, fatigue, left costovertebral pain, swelling and echimosis in his left lower extremity admitted to our hospital. The patient had a prosthetic aortic valve surgery due to aortical failure in 2010. His left N. phrenicus was injured after surgery. The patient's physical activity had been extreme over the last three days. The patient had a history of recurrent infection detected in lung and lower extremity. In the result of Doppler ultrasound, lung x-ray and blood test, the patient was diagnosed with lower respiratory tract infection and cellulitis infection in the left lower limb. The patient was treated with antibiotics and he recovered.

Keywords: nervus phrenicus, pneumonia, cellulitis

P-31

Changes of organs structure of immune and endocrine systems and their interaction during exogenous influence

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Immune answer of organism is a highly specific process, intensity of which is regulated by neurohumoral factors. Last years humoral factors, participating in realization of connection between nervous, endocrine and immune systems were found out. Hereupon, a complex study of immune and endocrine systems at the changed immune status presents the interest. The research was carried out on 36 mature white rats-males in accordance to existing ethics norms during work with experimental animals. A single dose of cyclophosphamide (200 mgs/kg, intramuscular) as model of the different states of immune and endocrine systems at the action of exogenous factors was administered. The morphological features of structure of hypophysis, thymus and spleen on microscopic level were studied. It was found out that after administration of cyclophosphamide the structure of thymus of white rats-males suffers certain changes. So, through 1 day after administration of drug the reliable diminishings of relative mass of organ on 37.23%, width of cortex on 7.69%, area of cortex on 1.29%

were marked - as compared to data in the control group of rats. The changes of white pulp of spleen are informing also. In the indicated term the area of this structure also diminished in relation to the index of animals of control group that affects executable functions. The considerable changes of hypophysis at microscopic level were not found out. These results testify to close intercommunication of the studied organs in the process of the neuroendocrine adjusting of the immune system at the exogenous affecting of the organism.

Keywords: Thymus, hypophysis, spleen, cyclophosphamide

P-32

Anatomical variation of the left suclavian artery in a calf

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In the ruminant the brachiocephalic trunk, forming a common trunk with the left subclavian artery. It gives off branches supplying the head, neck, thoracic limb and the cranial portion of the thoracic cavity. This report described the variation of the origin of the left subclavian artery in an embalmed calf. The ascending aorta runs at first almost straight cranially and then turns caudally, forming a very sharp, curved aortic arch. In this calf the origin of the left subclavian artery was different. In this animal observed that, it originated separately from the convexity of the aortic arch after brachiocephalic trunk. This branching pattern is similar to carnivores and it seems that the existence of left subclavian branching from the aortic arch in calf should be considered as a rare condition.

Keywords: Calf, left subclavian artery, variation

P-33

Toxicity effect of cisplatin-treatment on cerebellar Purkinje cells at during lactation in neonate rat

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Cisplatin is a drug to treat certain types of cancer. Although genital neoplasia can be supposed soon after cisplatin treatment, its side effects, although uncommon at during lactation.In this research we studied the effect of cisplatin-treatment on Cerebellar Purkinje cells at During Lactation in Neonate Rat. 60 Female Rat at lactation period divided randomly to control & experimental groups. Experimental group were injected by cisplatin (25 mg/kg IP on days 1th, 8th, 15th of lactation period.Neonate brains (21days old) fixed with perfusion procedure & removed from skull.Then cerebellum embedded in 10% formalin solution. The 5-micromiter sections taken from cerebellum of neonate were stained by H&E. Density & volume of purkinje cells & distance of cells from each other studied with light microscopy & digital camera. T-test were used for analysis ($P<0.05$). The body weight in experimental group reduced in contrast to control group. The volume of purkinje cells in experimental group were increased than the control group. The number of cells was a few decreased and the distance of cells in experimental group a few increased. Cisplatin effect on neonate purkinje cells is excreted in breast milk with decrease the number of cells.

Keywords: Cisplatin, neonate rat, Purkinje cell

P-34

Histogenesis study of choroid plexus and ependymal epithelium in brain lateral ventricle of goat fetus

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The aim of this study is to determine of histogenesis of ependymal cells and choroid plexus in goat fetus. About 100 goat fetus were gathered and acording to x=2.1 (17+y) formula their ages from 45 to 150 days old were measured. After that, fetuses fixed in formaldehid, Fetus brain tissue after staining with H&E studied under light microscope. The thickness of medial wall's neuroblastic masses is less than other regions. Superficial ependymal cells of medial and mediodorsal walls with low neuroblastic differentiation showed a dark coloured zone in their free surface at 8th week and cilia at 11th week. From 16th week and over, the angiogenesis will be increase under ependymal cell layer. The continuous presence of cilia on the ependymal cells has a direct relationship with choroid plexus. The thickness and mitotic activation of neuroblastic mass in different regions of ventricle walls in foetus brain have a direct relationship with brain parts growing rate after parturation. And the all of ventricle wall ependymal cells keep their cilias after differentiation, with the exception of ventral part of ventricles that the choroid plexus did not extend to this part.

Keywords: Choroid plexus, ependyma, goat fetus, histogenesis

P-35

Teratogenic effect of vinblastine-treatment at on neonatal rat

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Vinblastine is an Alkaloid derived from Vinca rosea. This drug is used in chemical treatment with high multiplication as ovarian cancer, cervical cancer and mammary cancer. This drug can have teratogenic effects on fetus. Therefore, we have been tried in this study to evaluate the toxic effects of this drug during pregnancy on neonatal rat. Pregnant rats were divided randomly into 2 groups as Control and Experimental. Experimental group were injected by vinblastine (3mg/kg- IP) on days 9th, 10th and 11th of gestation. The control group injected by distilled saline normal. After parturition, the newborn infants were evaluated by the parameters of External morphology anomaly and the data was evaluated by T-test and SPSS software. The analysis of the statistics showed that the use of vinblastine at during pregnancy on the newborn infants was teratogenic effects. In comparing the average of the parameters in the experimental group with control group, there was significant difference ($P<0.05$). The results show that treat vinblastine is teratogenic effect on fetus and is accompanied by Clinical manifestations. Effects of this drug are considered as an unreturnable effect on fetus. While taking this drug for cancerous patients during pregnancy and lactation for women is not recommended.

Keywords: Rat, teratology, vinblastine

P-36

Study of nephrotoxic effects of vincristine-treatment on rat

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Vinca-alkaloids drugs such as vincristine and vinblastine are known to disrupt microtubule functions of the cell. These alkaloids are extensively used intravenously in the treatment of neoplasia. Hyper-uricaemia may occur in some patients receiving vincristine. According this adverse reaction we evaluated nephrotoxic effect on rat kidney tissue. In this study 60 heads of adult male rat. Rat of treatment group were interjected with 3 doses as 5 mg/Kg IP (body weight) .Samples (kidney) were stained with H&E and Masson's Trichorome in duration histotechnique stages and studied under light microscope. Data were analyzed by T-test and SPSS software ($P<0.05$). Treatment by vincristine induced necrotic effect on proximal convoluted tubules. Epithelial cells of tubules were seen with hyperchromatin nucleus and hyper eosinophilated cytoplasm and destructions of Brush borders observed too. Furthermore hyaline droplets were observed in collecting ducts. Additionally Memberano-glumerolopathy and Proliferative glomerulonephritis were seen. In this study revealed that nephrotoxic effect of the vincristine was obvious has in renal tissue particularly, the existing of proteinuria after vincristine administration is the major consequences of drug induced Glomerolopathy.

Keywords: Nephrotoxicity, rat, vincristine

P-37

Medical students' views about practical lessons' slides which used education of practical anatomy

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In this study, 113 medical students views which related to using of the photographs of bones and anatomical models on the slides were evaluated and tried to gather comments about effects of slides to anatomy practical education. A questionnaire which consisting of three open-ended question was prepared by the Anatomy Department of Meram Medical Faculty of the Konya Universtiy and then they were presented to 113 students. Participants ages of this survey were between 18-30. The obtained data were evaluated using SPSS computer program. The answers that questionnaire about the practical trainings shows; classified through the student opposition wheter: negative, positive and evolution. Whole the volunteers reported that there is a positive impact on the education of practical anatomy using the slides. While 28 % of the students did not give negative opinion on the other hand, 16 % of the student did not give any opinion for evaluate this slides. 20.5% of male students and %1,8 female students gave an opposition about the "advantage of practical slides for lessons" ($p<0.001$). 15.4% of male students opposition shows that there is no need to attend the classes, on the other hand; 100% of female students disagree on this view. 100% of male student and 19,1% female student agreed on a idea that the slides should develop and evaluate by adding the opinion such that; in the conclusion of the slides there should be a questions and the summary. Using the models, bones and slides have an possitive effect on learning anatomy practical education. The results demonstrate that; slides method should be develop by such an subject: technique, meaning and variation. As a result, to reach the better goals on anatomy education, it can be better for anatomy practical education that matter the opinion of students.

Keywords: Anatomy practical education, practical lesson slides, anatomical models

P-38

A new low cost device developed for measuring the force

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Some institutions that use physical performance tests (Department of Physical Education and Sport Training, etc.) for their entrance examinations are aimed to measure motor

properties (strength, endurance, speed, flexibility and coordination). It is wondered that how much of these features are maintained during the training period of those who are selected by this way. The target here is to design an original low-cost force measurement instrument in order to determine the level of students where they were and where they will be. Dynamometers is designed in different forms according to the purpose they serve that different prices as regards accuracy, measurement range, measurement capability, and quality of materials. While some dynamometers addressing a limited number of muscle group (Hydraulic Hand Dynamometer) some of others capable of measuring for many muscle groups but very high-cost devices (Cybex). Two rollers, foot stand, chain, handle, digital scales and the carrier profile are used in the production of the designed instrument. When the mechanism is operated, the force applied by the subject is detected vertical and digital scales are shown in kilograms. It is possible to perform measurements that extension of the body (back strength), elbow flexion (arm strength) and knee extension (leg strength) using the designed instrument. All of these measurements are calculated in kilograms. Measurements between groups of individuals, within the same individual before and after training period and individual's measurements between right and left limbs can be performed easily with the force measurement instrument that cheaper than equivalents on the market. In addition, it is thought that it could be used in some clinical applications; in the process of recovery of getting strengthen loss of the limb, in monitoring the development of the force obtained as a result of rehabilitation. Consequently, in terms of its outstanding features, such as reasonable cost and easy to be manufactured, it is thought that individuals, health clubs or institutions can take the advantage of this instrument. This paper has been taken from master's thesis that named "Comparison of Physical Education and Sports Training School starting and final year students amongst each other and control groups in terms of several anatomical measurements and strength values."

Keywords: Dynamometer, muscle Strength, body extension, forearm flexion

P-39

Protective effects of thymoquinone and melatonin on intestinal ischemia-reperfusion injury

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In the present study, we aimed to investigate the protective effects of melatonin and thymoquinon, which have antioxidant and anti-inflammatory properties, against oxidative stress induced IR injury in rat's intestinal tissue. The study was performed using 32 male Wistar-Albino rats (weighing 180–200 g) randomly divided into four groups. Groups designed as Group I sham group, Group II I/R group, Group III, I/R+melatonin group, Group IV, I/R+thymoquinon group. After laparotomy, ischemia and reperfusion were performed taking 60 and 120 minutes, respectively all groups. Intestine tissue sections were stained with routine histological methods and examined under the light microscope. In addition, the sections were immunohistochemically stained using TUNEL method for determination of apoptosis. The intestine tissue activities of superoxide dismutase (SOD), glutathione peroxidase (GSH-Px), and malondialdehyde (MDA) levels were also measured. Significantly elevated tissue SOD, GSH-Px activity and MDA levels were found in I/R group compared to sham group. Thymoquinon and melatonin administration efficiently reduced these increases. Increased numbers of apoptotic cell were observed in the intestine tissue of I/R group compared to control. Treatment of Thymoquinon and melatonin markedly reduced the number of apoptotic cells. The effect of melatonin and thymoquinon are similar in IR-induced oxidative stress in rat intestine. Our findings suggest that melatonin and thymoquinon have a protective activity on I/R-induced intestine injury.

Keywords: Intestine, ischemia-reperfusion injury, oxidative stress, melatonin, thymoquinone

P-40

Examination of apoptotic effects of high-dose toluene on the brain cortex and cerebellum tissue during the acute phase: an experimental study

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The aim of this study is to examine the apoptotic effects of high-dose toluene on rat brain cortex and cerebellum tissues during the acute phase. Fourteen albino Wistar rats (180-200 g) were divided into two equal groups (n=7). While Group I was used as a control group, Group II was applied to a high dose of toluene (5200 mg/kg / gavage). At the end of a three-hour experimental period brain tissue samples were taken from the killed animals and tissues were fixed in %10 neutral formalin, then, embedded in paraffin and sectioned (thickness, 5 μm) to determine the immune reactivity of Bax, sections were

stained immunohistochemically with avidin biotin-peroxidase method. At the same time the TUNEL method was used for detection of apoptosis in the brain cortex and cerebellum. As a result of the study, increased Bax immune reactivity was seen in the brain cortex (+++) and cerebellum (++++) of toluene treated rats compared to control. The numbers of TUNEL-positive cells were significantly higher in the cerebellum tissues of animals exposed to toluene than the control. Nevertheless there was not a significantly difference in terms of TUNEL positivity between the brain cortex of control and toluene exposed animals. As a result of this study it was shown that a high-dose of toluene can trigger apoptosis of the brain cortex and cerebellum in a very short period of time.

Keywords: toluene, apoptosis, brain cortex and cerebellum, rat

P-41

Protective effect of thymoquinone against testicular torsion induced oxidative injury

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We aimed to investigate the protective effects of thymoquinon, which have antioxidant and anti-inflammatory properties, against oxidative stress induced ischemia-reperfusion (IR) injury in rat's testis tissue. 27 male Wistar albino rats, averaging 16 weeks old, randomly divided into three equal groups. Groups designed as Group I sham, Group II torsion (I/R), and Group III, torsion + thymoquinon group. Testicular torsion was created by rotating the left testis 720° in a clockwise direction. The ischemia period was 2 h and orchiectomy was performed after 30 min of detorsion. Testis tissue sections stained with routine histological methods and examined under the light microscope. Bouin fixed and paraffin embedded testicular sections were analyzed for in situ apoptotic DNA fragmentation using the terminal transferase mediated dUTP-nick end labeling (TUNEL) assay (Roche). The testis tissue activities of superoxide dismutase (SOD), glutathione peroxidase (GSH-Px), and malondialdehyde (MDA) levels also measured. The activity of SOD and the level of MDA in group II were significantly increases compared to sham group ($p<0.05$). Thymoquinon administration efficiently reduced these increases. Control rats showed normal seminiferous tubule morphology. Testicular germ cell apoptosis detected by TUNEL assay and apoptotic index in all groups determined. A significant increase in apoptotic index was observed in group II compared to control. Administration of thymoquinon was significantly reduced the apoptotic index ($p<0.05$). Our findings demonstrated that thymoquinon has a protective role on oxidative stress induced IR injury in rat's testis tissue.

Keywords: Testis, ischemia-reperfusion injury, oxidative stress, thymoquinone

P-42

Isolated upgaze palsy in a patient with a dolichoectatic vertebrobasilar artery: a case

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Vertical gaze palsy is associated with rostral interstitial nucleus of the medial longitudinal fasciculus, posterior commissure, and the interstitial nucleus of Cajal. Abnormal enlargement and elongation of the vertebrobasilar artery (dolichoectasia) that leads to symptoms related to ischemia or compression is rare. Here, we report a patient with a sudden onset of upgaze palsy and convergence disorder. We report a patient who was a 48-year-old man who showed a sudden onset of upgaze palsy and convergence disorder. The left vertebral artery and basilar artery are shown to be greatly expanded, elongated and tortuous in cranial MRI (magnetic resonance imaging). The vertebrobasilar artery runs along the outside of sulcus basilaris superiorly to the ponto mesencephalic junction. In our case, there was no evidence other than upgaze palsy and convergence disorder. Brain MRI, in our patient clearly demonstrated a close contact between dolichoectatic basilar artery and the pons. Dolichoectatic basilar artery may cause to compression in the midbrain structures related to vertical gaze.

Keywords: Vertical gaze palsy, dolichoectasia, midbrain, magnetic resonance imaging

P-43

Aquaporin-1 and aquaporin-3 expressions in the intervertebral disc of rats with aging

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Intervertebral disc (IVD) undergoes biochemical and morphologic degenerative changes during the process of aging. Aquaporins (AQPs) are a family of water channel proteins that facilitate water and small solute movement in tissues and may have a potential role in aging degeneration of IVDs. One of the important problems in understanding disc degeneration is to

find out cellular molecules which contribute to the pathogenesis of IVDs. The aim of this study was to demonstrate the expression of aquaporin 1 and 3 in nucleus pulposus (NP), annulus fibrosus(AF) cells of rat lumbar intervertebral discs from both young and aged animals using immunohistochemistry. Twenty Wistar-albino rats were used in the study. The rats were separated into two groups: 2-month-old rats (n=10) as the young group, 18-month-old rats (n=10) as the old group. The intervertebral disc tissues from the lumbar spine (L1–L4, 4 discs) were used for immunohistochemical staining of AQP-1 and 3. This study demonstrated that AQP-1 and AQP-3 immunoreactivity significantly decreased in NP and AF of aged rats compared to the young rats. We suggest that AQP-1 and 3 may contribute to the age related degeneration of intervertebral disc.

Keywords: intervertebral disc, aquaporin 1 and aquaporin 3, immunohistochemistry, aging, rat

P-44

The levels of oxidant-antioxidant parameters of MK-801 and CAPE in rat heart

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We evaluated the effects of CAPE on antioxidant enzyme levels in dizocilpine (MK-801) induced rat heart. MK-801 was shown to be one of the most neurotoxic NMDA receptor antagonists. A total of 30 adult male Wistar-Albino rats were divided into three groups. Group I was used as control. Group II was injected MK-801 and group III was injected CAPE in addition to MK-801. The hearts were harvested for biochemical. Catalase, superoxide dismutase and glutathione peroxidase enzyme activities, malondialdehyde, protein carbonyl and nitric oxide levels in heart tissues were analyzed with spectrophotometric methods. In Mk-801 treated rats, tissue MDA, PC, NO levels and SOD, GSH-Px enzyme activities were not changed, whereas CAT enzyme activity significantly increased when compared to control ($p< 0.0001$ respectively). In addition, NO level in CAPE group was significantly increased compared with MK-801 group ($p<0.0001$). In conclusion, the underlying mechanism of NMDA receptor in may be related to oxidative stress, but requires further investigation.

Keywords: Heart, Mk-801, CAPE, antioxidant parameters

P-45

The comparison of oxidant-antioxidant effects of MK-801 and melatonin in rat heart

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In order to establish new treatments, MK-801 and melatonin have been tested rat hearts. MK-801 is an antagonist NMDA receptor. Melatonin is a hormone highly important antioxidant. A total of 30 adult male Wistar-Albino rats were divided into three groups. Group I was used as control. Group II was injected MK-801 and group III was injected Melatonin in addition to MK-801. MK-801 was given intraperitoneally at the dose of 0.5 mg/kg/day once a day for 5 days. In group III, 50 mg/kg/day was given to the rats while exposed MK-801. The hearts were harvested for biochemical analyze. Catalase, superoxide dismutase and glutathione peroxidase enzyme activities, malondialdehyde, protein carbonyl and nitric oxide levels in heart tissues were analyzed with spectrophotometric methods. In group II and group III rats, heart CAT activity increased compared to control ($p<0.05$). In group III rats, MDA, NO, PC levels significantly increased compared to MK-801 and control group ($p<0.004$, $p<0.001$, $p<0.001$ respectively). In Group III, GSH-Px activity significantly decreased compared to control and MK-801 ($p<0.001$). This experimental study provides some evidence protective effects of MK-801.

Keywords: Heart, MK-801, melatonin, oxidative stress

P-46

The oxidative stress in cortex of rats exposed to cigarette smoke and protective effects of melatonin and BQ-123

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The aims of this study to show the oxidative stress after cigarette smoke exposure in rat cortex and to analyze the effects of melatonin and BQ-123. Fourty rats were divided into four groups of ten. Group 1 were used as control. Group 2 were exposed to cigarette smoke (3x30 min/day). Group 3 were exposed to cigarette to cigarette smoke and received daily intraperitoneal injections of melatonin (25 mg/ kg/day), and Group 4 were exposed to cigarette smoke and received once a week intra tail ven injections of BQ-123 (1 mg/kg). After four weeks all the rats were killed and the levels of MDA, PC, NO, and antioxidant enzymes such as SOD, GSH-Px were studied in cortex tissues at rats with spectrophotometric analysis. There was no significant difference in SOD, MDA, PC levels among the groups. In BQ-123 group GSH-Px activity was increased when compared to control and cigarette group and melatonin group. However in BQ-123 group NO levels was decreased compared with control and cigarette group. These results reveal that smoking exposure caused no change oxidative stress parameters in rat cortex tissue and BQ-123 has an ameliorating effect on the oxidative stress via its antioxidant property.

Keywords: Smoking, melatonin, BQ-123, oxidative stress

P-47

Evaluation of dermal papilla length and epidermis thickness in lower breast and abdomen skin

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Dermis supports the epidermis in the skin. Mergers throughout the dermis and epidermis are weakness in skin tissue and this weakness is strengthened by fingerlike dermal papilla. In this study, the lengths of the papilla and the thickness of the epidermis belonged to each papilla were measured to determine variability of the length of the papilla and the thickness of the epidermis from abdomen and lower breast skin. The fresh skins belonged to abdomen and breast (6 pieces) obtained from Department of Plastic Surgery, Faculty of Meram Medicine. The skins were fixed two days in %10 formaldehyde solution. The routine histological process applied to skins tissues. Hematoxylin-Eosin stain applied to 5 micron thick paraffin skin sections. The length of the papilla and the thickness of the epidermis were measured with the oculometer from 10 different areas in each pieces and mean values calculated. The mean length of the breast papilla was 70.45±20.12µm and the mean length of the abdomen papilla was 80.31±22.07µm, the mean thickness of the breast epidermis was 32.9±2.74µm and the mean thickness of the abdomen epidermis was 34.92±2.54µm. Statistical evaluation of the abdomen and breast epidermis (p=0.21) and papilla of breast and abdomen dermis (p=0.43) did not reveal any statistical significance (p> 0.05). The skin of the lower breast and abdominal skin are similar to each other in terms of the epidermis thickness and the length of the dermal papilla.

Keywords: Breast, abdomen, epidermis, dermal papilla

P-48

Evaluation of mast cell numbers in experimental endotoxemia

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Lipopolysaccharide (LPS) is a component of the outer wall of Gram-negative bacteria. The liver plays an important physiological role in lipopolysaccharide detoxification by hepatocytes and Kupfer cells. Also, Mast cells (MC) secrete proinflamatory mediators to protect mice against lethal enterovirus infections have been reported. In this study, the numbers of the MC were aimed to investigate as a result of the LPS toxification in the portal area of the liver. 15 male Sprague-Dawley rats were divided into 3 groups (n=5). One group was served as a control group and 4-ml LPS administered intraperitoneally to other groups. The groups were sacrificed at 2 and 8 hours later after LPS treatments. Toluidine blue staining was performed to 5 micron thick parafin sections. MC numbers were counted at 5 five portal areas in each section at light microscope. The mean number of the mast cells in the control group, second and third groups was 1.75, 1.5 and 1.85 respectively. Statistical evaluation of the control and the other groups did not reveal any statistical significance (p> 0.05). In one study, at the end of 3 hours after the addition of LPS in cell culture, MC was not activated. But exposure of MC to 10 times dose of LPS than MC's were seen as active cells after 10 and 12 hours. These results may be considered as a reason for the lack of change in the number of the MC in our study.

Keywords: LPS, endotoxemia, mast cell, liver

P-49

Evaluation of children (1-5 ages) cerebrum volumes

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Total brain volume and regional brain size can vary in men and women. It is investigated in literature. Sexual dimorphism between male and female brains starts at fetal period by the influence of genetic and hormonal stimulation. And a newborn's brain begins to change in terms of brain volume and morphology with past years. In this research we want to evaluate gender-related advances in brain volume in children (1-5 age). 20 MR images (10 male, 10 female) obtained from University of Konya, Faculty of Meram Medicine and Department of Radiology. The MR images selected carefully from healthy children. The Cavalieri method and point counting were used to determine the brain hemispheres volumes from these images. These data were evaluated statistically by SPSS. In this study, female's right-cerebrum mean volume was 430.12±34.53 cm^3, male's right-cerebrum mean volume was 470.84±51.44 cm^3, female's left-cerebrum mean volume was 419.58±32.06 cm^3, male's left -cerebrum mean volume was 475.47±49.18 cm^3. Female's total cerebrum mean volume was 849.71±66.48 cm^3 and male's total cerebrum mean volume was 946.31±100.13 cm^3. Statistical evaluation of the cerebrum hemispheres volumes of female and male did not reveal any statistical significance (p>0.05). Male and female children's (1-5 age) cerebrum volumes are not effected by gender to generate a statistical difference in cerebrum volume.

Keywords: Cavalieri, cerebrum volume, gender

P-50

The study of the role of genetic polymorphisms of cytokines in the hyperplastic uterogenic processes formation

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The aim of the study was to investigate the role of molecular-genetic markers of cytokines in the formation of hyperplastic processes in uterus. Twenty genetic polymorphisms were genotyped [-308 G/A TNFa, +250 A/G Ltα +36A/G by TNFR1, -322VNTR TNFR2,-889 C/T IL – 1A,-511 With/t IL-1B, IL-1RA,-584C/t IL4, - 703C/T IL-5,-174 G/C IL-6,-251 A/T IL-8, - T113M IL-9,-592 C/A IL10, A/T MIP-1 (rs1719153), +764 G/with MCP-1,-801 G/A SDF-1, G/A I-tac (rs4512021), -403 G/A RANTES, C/T MIG (rs28694761), C/T IP-10 (rs867562)]. The investigated sample included 687 patients with hyperplastic uterogenics processes (hysteromyoma n=221, adenomyosis n=223, endometrial hyperplasia n=243) and 246 women of population control. The molecular and genetic markers, which associated with formation of hyperplastic processes in uterus, were identified. Risk factors for hysreromyoma were: +250GG Ltα (OR = 2.74, R = 0.005); - 889C IL – 1A (OR = 1.37, R = 0.02); - 889CC IL – 1A (OR = 2.32, R = 0.04), endometrial hyperplasia - +36AG TNFR1 (OR =1.87, R = 0.002). The concentration of genotype +36 GG TNFR1 (5.13 %) for patients with hysreromyoma accompanied with adenomyosis, was four times less compared with the control group (22.93%, p=0.048), and the differences in frequency of allele +36 G TNFR1, between these groups, reached 150% (p=0.006). Patients with hysteromyoma, accompanied by hyperplastic uterogenics processes, had high frequency of genitals inflammatory diseases (85.71%, p=0.013) and the greatest prevalence of the genetic markers-308 and (17.33%) and - 308 AA TNFα (8.00%) (OR=1.91 - 13.57, p=0.03). The maximum concentration of these markers was observed in cases when the hysteromyoma was accompanied by the polip of endometrium.

Keywords: Hyperplastic processes, molecular-genetic markers

P-51

Correlation in blood supply to bladder and prostate during various phases of vesical functional activity

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To study peculiarities of hemodynamics in prostate and urinary bladder in dependence on bladder filling with the help of high resolution impedancometry and harmonic analysis. In experiments with mature random bred dogs (n=4) and rats (n=11), the small variations of vesical and prostatic impedance were recorded and analyzed with harmonic (Fourier) technique in the void bladder and during its progressive filling via a cystostomy tube. Simultaneously, intravesical pressure and ECG were recorded. Blood supply to these organs was assessed with effective pulsatile impedance (EPI) derived from the cardiac harmonics in the impedance spectrum. Both dogs and rats demonstrated similar changes in blood supply to the examined organs. During bladder filling, the intravesical pressure rose from 2.6±0.9 to 36.7±4.8 cmH2O in rats and dogs. During filling, vesical EPI increased by 48±8% in rats and by 53±9% in dogs. At the same time, prostatic EPI decreased by 49±7% in rats and by 77±10% in dogs. The urinary bladder and prostate in dogs and rats demonstrate the opposite changes in blood supply during progressive filling and voiding of the bladder.

Keywords: Impedance, prostate, urinary bladder, blood supply

P-52

Age's x-ray anatomy of skeleton scapular waist and forlimb of sheep prikatunsky type Gornoaltay breed in postnatal ontogenesis

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The purpose of the research is to find durations of appearance focuses of ossification bones of scapular waist, stylopodium (humerus), zeygopodium (forearm) and autopodium (proximal phalanx) of sheep of Prikatunsky type in postnatal ontogenesis. The samples were taken from nine sheep of Prikatunsky type of Gornoaltay breed at age of 1, 4 and 12, months of Altai (Russian gerion). Proximal phalanx, of a one month old sheep has lateral and medial focuses of ossification in both distal and proximal parts. An X-ray of a 4 month old sheep shows, that the scapula still consists of 60% of cartilage. The humerus still has synhondrosis between the collum and the caput. Along the perimeter of semilunar incisur a solid architectonic is observable. Proximal epyphisis matches with metaphysic and suture is in the phase of ossification. 70 % of scapula of 12 month old sheep underwent the process of ossification, synhondrosis are not visible. On lateral surface of humerus there is a small part of metaphysis cartilage. Ossification of skeleton scapular and forelimb of pricatunsky type sheep of Gornoaltaysky breed skeleton scapular and forelimb is almost fully ended at age 12 months.

Keywords: Sheep, X-ray, ossification, development, bone

P-53

The role of Ivan Alekseevich Dvigubskiy in Russian morphological terminology of animals formation

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Ivan Alekseevich Dvigubskiy - physicist, zoologist, botanist, paleontologist, geologist and geographer, doctor of medicine, rector of the Moscow University, honored professor of physics

and natural history. In the history of morphology he is known as the author of translation (1796) of an anatomic manual by J.J. Plenck "Primae Lineae Anatomes, in Usum Praelectionum" (1780). His role in formation of Russian morphological terminology of animals is less known. The comparative analysis of term definitions of I. A. Dvigubskiy's scientific works In translated and original works instead of Russian terms I. A. Dvigubskiy as a rule uses: 1) equivalents of Latin words, for example, he translates lat. dorsum as dorslim (foot back), genu – knee; 2) word-for-word translations - femur - thigh, digiti - fingers; antebrachium – forearm, etc. I.A. Dvigubskiy had offered a set of original morphological terms, many of which were kept till our times: «doctrine of bones» (osteology), «angiology», «big horn» «spine column», «medullary canal», etc. I. A. Dvigubskiy is not only an all-round scholar who has left the bright trace in various fields of scientific knowledge. Today we can easily say that he became one of the first scientists who formed the Russian morphological terminology of animals.

Keywords: Dvigubskiy, morphological terminology, animals

P-54

Anthropometric measurements for the design of the knee joint prosthesis

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The aim of this study is to obtain anthropometric measurements in both dry bones and living subjects for the ideal design of prosthesis related to knee joint. Anthropometric measurements were performed on 109 femurs and 119 tibias. Anthropometric measurements were also performed on 58 volunteers aged between 55-65. Digital caliper and plastic goniometer were used for dry bone measurements. Living subjects measurements were made by using anthropometric set, goniometer and digital caliper. Except intercondylar notch width, a strong correlation among the measurements of femur was determined ($p<0.001$). The measurements on the right side were bigger than those of left side. There were positive correlation between height and range of motion (ROM) of knee ($p<0.001$), negative correlation between weight and body mass index and ROM of knee ($p<0.001$). The bi-iliac diamater, thigh and leg circumference were bigger in females than in males, but ROM of knee and Q angle were lower than in males. The morfometric studies of the knee joint, both in dry bones and in living subjects should be taken into consideration to minimize the disharmony between the surface of resected bone and knee prosthesis. These findings provide data for designing of appropriate sized and shaped knee prosthesis.

Keywords: Anthropometric measurements, knee joint, femoral component design, tibial component design, total knee arthroplasty

P-55

Immunohistochemical investigation of the effect of green tea and vitamin E to the rat kidney cortical eNOS and iNOS distribution in streptozotocin induced diabetes mellitus

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Diabetes mellitus is a chronic metabolic disease. Diabetes mellitus complications have been linked to oxidant stress, in particular the formation of superoxide, impaired nitric oxide mechanism, decreased consumption of oxygene in mitochondrions and reduced antioxidant defense of the body. Our aim was to investigate the possible effect of the antioxidant therapy such as green tea and vitamin E to the kidney iNOS (NOS2) and eNOS (NOS3) distribution in an experimental model of diabetes mellitus. In this study, 54 Wistar albino rats, divided into nine groups were used. After 6 weeks of the streptozotocin (STZ) injection, 4 weeks group 7, 8 and 9 received orally green tea (300 mg/kg) and vitamin E (0.4 mg/kg). Group 1: Normal control, Group 2: Na sitrat, Group 3: Green tea, Group 4: Vitamin E, Group 5: Green tea+ vitamin E, Group 6: Diabetic control (STZ (50 mg/kg), single injection), Group 7: STZ +green tea, Group 8: STZ + Vitamin E, Group 9: STZ + green tea + vitamin E. At the end of the ten-week, all the animals were anaesthetized and sacrified. Sections for immunohistochemical examination of anti-NOS2, anti-NOS3 was done. Slides were examined with Photo-light microscope. In diabetic control group, NOS2 and NOS3 immunoreactivity was increased in kidney cortex especially in macula densa and glomerular capillaries. An increased cell number was observed in glomerulars probably related to podosit proliferation. In antioxidant treated groups, NOS2 and NOS3 immunoreactivity was decreased in macula densa and glomerular capillaries. Increased immunoreactivity of NOS2 and NOS3 in diabetes related to oxidative stress was decreased with administered antioxidants. So, we believe that the weaken antioxidant defense system in diabetes mellitus could be supported by these agents and they could have positive effect to reverse the functional damage appearing in kidneys of these patients.

Keywords: Diabetes, kidney, green tea, vitamin E, immunohistochemistry

P-56

Immunohistochemical investigation of the effect of oral methylphenidate administration in rat cardiac tissue dopamine 2 receptor activity three month after the cessation of the drug

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Ritalin (methylphenidate) is widely used in treatment of children with ADHD. Our aim was to determine the effect of methylphenidate in rat heart tissue after several months following the termination of drug administration. In experiment, 110 g (±20) 36 female Wistar albino rats, divided into two different dose (10–A1, 20–A2 mg/kg) and time group (three months drug administration -B1- and three months follow-up after drug cessation -B2-) with their control groups (A0, B0), were used. Prepubertal (35days old) rats, were treated orally with MPH dissolved in saline solution for 5 days/week during 3 months. At the end of third month, A1 and A2 group rats were perfused with 1.25% glutaraldehyde and 1% paraformaldehyde solutions; left ventricle of cardiac tissue was removed. B1 and B2 group rats were feeded for 3 more months without any substance administration and they followed same procedure. For immunohistochemical studies, left ventricular heart tissues from each group were marked with anti-dopamine-2R primary antibody. Sections evaluated by Photo-light microscope (DM4000B IAS, Leica, Germany). In A0 group, moderate dopamine-2R immunoreactivity was observed in muscle fibers with some fibers demonstrating no sign of staining. In A1 group, overall immunoreactivity was observed. In A2 group, pericellular oedema was remarkable with strong immunoreactivity in most cardiac muscle fibers, with few moderate immunoreactive stained cells. In B0 group, dopamine-2R immunoreactivity was showing minimal increase regarding A0 group. In B1 group, dopamine-2R immunoreactivity was similar to A1 group. In B2 group, oedema was absent compared to A2 group and dopamine-2R immunostaining was demonstrating resemblance to A1 group from weak to moderate immunoreactivity in all muscle fibers. We observed that dopamine-2R staining was increased in ventricular cardiac tissue with methylphenidate in dose-dependent manner. After termination of drug administration, in normal dose group, these effects reversed while in high dose, structrucal improvement was observed but without being a total recovery.

Keywords: Methylphenidate, heart, immunohistochemistry, dose related

P-57

Comparing hand grip strength and hand anthropometric measurements, between healthy individuals and patients with osteoarthritis

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Osteoarthritis is one of the most encountered joint diseases of worldwide. Involvement of hand joints, leads declining in life quality of the patients. In this study, by comparing healthy individuals and osteoarthritis in terms of hand grip strength and range of motions (ROM), it is aimed to evaluate patients' in activities of daily living. 52 women were diagnosed as OA according to American College of Rheumatology criterion and 52 healthy women as control group were evaluated for 104 (age range: 30-60) individuals. Electronic hand and finger dynamometer were measured grip and pinch strength. Standard and finger goniometer were used for ROM measurement of wrist and fingers. Circumference and diameter of wrist and length of hand were measured with standard anthropometric measurement tools. Disability was scored by using health assessment questionnaire (HAQ). Hand and finger grip strength, ROM measurement of wrist and fingers, and measurement of wrist circumference and diameter values of patients with osteoarthritis rather were found significantly lower than control group ($p<0.001$). Hand length measurements of patients and healthy individuals there was no statistically significant difference ($p>0.05$). Statistically significant differences were found between control-patient groups' dominant hands and control-patient groups' nondominant hands ($p<0.01$). Statistically significant difference was found in HAQ scores which evaluated in control and patient groups ($p<0.001$). It was found that grip strength and ROM decreased on patients with osteoarthritis, as a result hand functions and quality of their life was impaired.

Keywords: Osteoarthritis, hand, grip strength, range of motion, anthropometry

P-58

Comparing hand grip strength and hand anthropometric measurements, between healthy individuals and patients with rheumatoid arthritis

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Wrist and hand joints in rheumatoid arthritis are the first and most frequently involved joints. Stiffness of the hand joints and hand functions is one of the most important factors that determine effect of disease on daily living. In this study, by comparing healthy individuals and rheumatoid arthritis in terms of hand grip strength and range of motions (ROM), it is aimed to evaluate patients' independence in activities of daily living.62 women were diagnosed as RA according to American College of Rheumatology criterion and 52 healthy women as control group were evaluated for 114 (age range: 30-60) individuals in this study. Electronic hand and finger dynamometer were measured grip and pinch strength. Standard and finger goniometer were used for ROM measurement of wrist and fingers. Circumference and diameter of wrist and length of hand were measured with standard anthropometric measurement tools. Disability was scored by using health assessment questionnaire (HAQ). Hand and finger grip strength, ROM measurement of wrist and fingers, and measurement of wrist circumference and diameter values of patients with osteoarthritis rather were found significantly lower than control group ($p<0.001$). Hand length measurements of patients and healthy individuals there was no statistically significant difference ($p>0.05$). Statistically significant difference was found in HAQ scores which evaluated in control and patient groups ($p<0.001$). ROM and grip strength are affected by RA as a result hand function and activities of daily living have been decreased.

Keywords: Rheumatoid arthritis, grip strength, range of motion, hand, measurement

P-59

Age related changes volumetric of fat within renal sinus: a stereological study on computer tomography

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This area may be affected by various pathologic conditions arising from the different tissues within the renal sinus (RS). In our study, we aimed to investigate the age related volumetric changes of fat in RS and the relationship between these changes and certain parameters. Our study was conducted retrospectively on CT images of 240 individuals. Patients with known vascular disease, hypertension, diabetes mellitus or renal disease were excluded from the study. Cases were grouped according to age and body mass index (BMI). RS fat volume was calculated on CT images using the "Cavalieri principle" which is a stereologic method. It was found that there was a difference between left and right RS fat volumes. There was positive correlation between left and right RS fat volume and certain parameters. It was determined that left and right RS fat volumes gradually increased until the 7th decade and then remained constant. We think that our study may provide a reference for determining the degree of age-related volumetric changes in RS, may help in diagnosis of various related disorders.

Keywords: Renal sinus, adipose tissue, CT, age related changes, stereology

P-60

Age related changes volumetric in pancreas: a stereological study on computer tomography

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Pancreatic parenchyma is replaced by fatty tissue progressively with aging and this also increases lobulation of pancreas. In our study, we aimed to investigate the age related volumetric changes in pancreas and the relationship between these changes and certain parameters. Our study was conducted retrospectively on CT images of 272 individuals who had no complaints of pancreatic disease. Cases were grouped according to age and body mass index (BMI). The ages of the cases were between 3rd and 9th decades. Pancreatic volume (PV) was calculated using the "Cavalieri principle" which is a stereologic method. Sagittal abdominal diameter (SAD) and transverse abdominal diameter (TAD), skin thickness and pancreatic density were measured on the CT images. There was a negative correlation between PV and age (p<0,001, r:-0,473). We found positive correlation between PV and BMI, SAD, TAD, anterior skin thickness, posterior skin thickness, and bilateral skin thickness. We think that our study may provide a reference work for determining the limits of age related volumetric changes in pancreas and may help in diagnosing possible diseases.

Keywords: Pancreas, CT, age related changes, stereology

P-61

Duplication of left hepatic artery and right hepatic artery arose from superior mesenteric artery

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The vascular anatomy of the liver is variable. Knowledge of anatomic variations of the hepatic arteries is very important, especially in terms of reducing complications of radiological or invasive procedures and surgery. The variations shown in our case which may help the surgeons, radiologists and also anatomists are quite rare. Case Report: During routine dissections for anatomy education in 75 years old male cadaver, variations of left and right hepatic arteries were observed. Double left hepatic arteries arose from common hepatic artery. It was confirmed that left hepatic arteries supplied only the left lobe of the liver. Right hepatic artery arose from superior mesenteric artery and supplied the right lobe of the liver. Conclusion: The knowledge of the anatomic variations of the hepatic artery is quite essential in preoperative and operative stages. The lack of knowledge of these variations exposes to the risk of certain complications which are sometimes fetal during hepatic transplants, pancreatic surgery and cholecystectomy.

Keywords: Hepatic arteries, duplication, replaced

P-62

Anatomy and variations of palmaris longus in fetuses

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Palmaris longus is a slender and fusiform muscle lying medial to flexor carpi radialis. It is often described as one of the most variable muscles in the human body and phylogenetically classified as a retrogressive muscle. It is widely agreed that the palmaris longus tendon is the first choice as a donor tendon, because it meets the necessary requirements of length, diameter and availability, and can be used without causing any func-

tional deformity. Fifty-eight spontaneously aborted human fetuses (26 female, 32 male, 116 upper extremities) were studied. The presence or absence of the palmaris longus was determined. The lengths of the belly and tendon were measured, and belly/tendon length ratio was calculated. Correlation with gestational age, body side and gender were studied. The muscle was absent in 44 forearms (37.93%; 20 right side, 34.48%; 24 left side, 41.38%); being bilateral in 19 of 58 fetuses (32.76%) and unilateral in 6 (10.34%). The unilateral absence rate was higher on the left side with a statistically significant difference. The absence of palmaris longus was more common in females, and the difference was statistically significant. The belly/tendon length ratio was 1.04 ± 0.35 on the right side and 1.09 ± 0.3 on the left. It did not show any difference according the fetal age. In our study, bilateral absence was more common than unilateral absence; this is comparable with the earlier studies. During the development the belly/tendon length ratio is maintained.

Keywords: Palmaris longus, absence, variation, morphometry, belly/tendon length ratio

P-63

Matrix metalloproteinases 1 and 13 markedly modulated by using interleukin-4 and prednisolone in bovine nasal cartilage treated by interleukin-1

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Glucocorticosteroids (GCs) could apply to protect articular cartilage from progressive degeneration in joint diseases. We undertook the present study to investigate the effects of Prednisolone and interleukin-4 (IL-4) on the production of MMPs (1, 13) and extracellular matrix (ECM) alterations, that induced by interleukin-1 (IL-1) in bovine nasal cartilage (BNC) explants. Explants of BNC were cultured in Dulbecco's modified Eagle's medium (DMEM) in the presence of IL-1 (10 ng /ml), Prednisolone (1nM, 1000 nM) and IL-4 (50 ng /ml) at the same time for 28 days. At determined days supernatants were removed and stored in -20°C. By using alcian blue staining and standard western blotting techniques, the induced tissue was assessed. Cell membrane integrity and cell viability were evaluated by using cytotoxic detection kit. In IL-l treated explants, a very clear band for MMP-1 and MMP-13 from the media at day 14 of culture was detected and matrix normal blue staining markedly modulated. In the presence of IL-4 and Prednisolone, both MMP-1 and MMP-13 bands were disappeared. Proteogycan loss markedly reduced and ECM clearly showed normal characteristics. Combination of IL-4 and Prednisolone showed strong protective effects on cartilage. These data could suggest a valuable candidate for joint diseases.

Keywords: Interleukin-4, prednisolone,c, interleukin-1, matrix metalloproteinase-1 (MMP-1), matrix metalloproteinase-13

P-64

Bilateral renal artery variation

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Since kidney transplantation improves the quality of a patient's life, renal artery anatomy has great importance for surgeons. Although each kidney is thought of as being supplied by a single renal artery, renal artery variations are common. Case report: During dissection classes in 2012 in the Department of Anatomy at Ege University Faculty of Medicine, bilateral renal artery variations was determined on a formalin fixed male cadaver without any trace of scars, adhesions or signs of trauma or operation . The right accessory artery supplied the lower renal pole (right polar artery). This right polar artery was arising from abdominal aorta 1.2 cm below to the inferior mesenteric artery and crossed posterior to the ureter. On the left side, the length of the renal artey was 1.0 cm. Then it divided into the inferior and superior branches. The left testicular artery originated from the inferior branch of the left renal artery. Variations of renal artery anatomy have grown in importance with the increased frequency of renal transplantation. The presence of multiple renal arteries increases the complexity of the transplant surgery procedure. Numerous published studies describe variations in renal artery anatomy. Especially the left renal artery anatomy is among most critical arterial variations because it is referred side for resecting the donor kidney.

Keywords: Renal artery variations, renal transplantasyon, testicular artery anatomy

P-65

The effects of perinatal high-fat diet exposure on the hippocampal functions and morphology

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The hippocampus retains a well-established role in consolidation of information, which mostly takes place during adolescence. We design this study to investigate whether feeding with high fat diet (HFD) throughout pre- and postnatal period is detrimental to the hippocampal functions and morphology. Spraque-Dawley rats in control and HFD groups were fed with standard or saturated (65% of calories from saturated fat) pellets, respectively, during their gestation and lactation period. After weaning, pups (n=8 for each group and gender) sustained in similar diet for 6 more weeks. Spatial learning and memory

functions of animals were evaluated by Morris water maze test. Volumetric changes in the hippocampal subfields were analyzed by Cavalieri method. In water-maze, the effect of HFD exposure on the change in escape latency times during the 4-day of test period was investigated using repeated measures analysis of variance. In both females and males, there was no significant difference between HFD and control groups. Similarly, retrieval (memory) indexes of animals, calculated as the mean time spent in target quadrant on day 5, were found comparable in all groups. Morphometric analysis of the hippocampus also revealed parallel findings. Total volume estimation of granule cell layer of the dentate gyrus and the pyramidal cell layer of the hippocampus were not significantly different between control and HFD groups, in both males and females. Maternal and postnatal HFD exposure does not adversely affect the cognitive functions and hippocampal morphology, at least during the adolescent period.

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Keywords: High-fat diet, Morris water maze, hippocampus, stereology, Cavalieri

P-66

The effects of perinatal high-fat diet exposure on growth parameters and serum lipid profiles of the offspring

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Perinatal nutrition affects susceptibility to metabolic disorders. In this study, we examined the effects of high-fat diet (HFD) exposure during perinatal period on growth parameters of the offspring. Spraque-Dawley rats were fed with either saturated (65% calories from fat) or standard (10% calories from fat) pellets during their gestation and lactation period. Litters were culled to 8 pups and housed with their dams until weaning. After weaning, pups sustained in similar diet for 6 more weeks. Body weight and naso-anal length measurements were done weekly to calculate the body mass index (BMI). At the end of 10th week, spontaneous locomotor activities of pups were evaluated and serum lipid profiles were measured. BMI of HFD-females pups were significantly lower than controls at the 4th and 5th week; but it showed a significant ($p<0.001$) increase after the 8th week. In males on the other hand, BMI were comparable after weaning; however at the end of experiment, it was significantly ($p<0.01$) higher in HFD group. In activitymeter measurements, total distance and ambulatory activity of HFD-males were significantly higher than controls; whereas locomotor activities of HFD-females were similar to controls. In contrast, serum lipid profiles did not change in HFD-males; while HFD exposure significantly increased blood-serum LDL in females, without changing HDL, total cholesterol and triglyceride levels. HFD exposure during the perinatal period produces alterations on the growth parameters in a gender-dependent manner. Serum lipid profiles appeared to be adversely affected by the locomotor activity of animals.

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Keywords: High-fat diet, body weight, naso-anal length, locomotor activity, serum lipids

P-67

The role and structure of spleen and gut associated lymphatic tissues in defensive system of Acipenser gueldenstaedti

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Due to exposure of this species of sturgeon to different pathogens, this histological study aimed to clarify the structures involve in defensive system. For this, a total of ten sturgeons have been subjected to study. The specimens were removed and immediately put in 10% buffered formalin, sectioned at 6 microns and stained by Hematoxylin and Eosin. The results showed that spleen as the most important immunizing organ, possessed a capsule lining with a cuboidal cells, underlined by elastic connective tissue and muscle fibers. The parenchyma of the spleen consisted of white pulps amongst the splenic cords and red pulp. The former was composed of splenic corpuscles and lymphatic cords, whereas the latter contained splenic sinusoids and pulp cords. An important part of lymphatic system is situated in the alimentary canal, which are scattered throughout the canal, and more in laminae propriae and submucosae of intestines as diffuse lymphatic tissues and lymphatic nodules. Spleen by producing lymphatic cells as the main immune component secretes antibodies mainly IgA following an antigenic stimulating in the gut by food particles and from the circulating antigens, by GALT and spleen, respectively.

Keywords: Spleen, lymphatic tissues, defensive system, Acipenser gueldenstaedti

P-68

Aberrant renal arteries and its clinical significance: a case report

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Renal arteries are arising from abdominal aorta from both sides as left and right. They divide at the intervertebral disc between

1st and 2nd lumbal vertebras vertically. These vessels are both functional and nutritious vessels of kidneys. Renal arteries divide to its segmental arteries when they reach renal hilum. The brunch outs prior to these levels are named as accessory or aberrant arteries. In the retrospective screening from Konya University, Meram Medical Faculty, Department of radiology archive, a male patient at age 48 with renal artery variation has been detected. Renal arteries which provide the main blood supply of kidney, on the left side renal artery arise from the abdominal aorta at level of lower 1st lumbar vertebra. The root diameters are respectively 0,48cm and 0,44cm. Other than these branches an aberrant artery root diameter of 0,17cm before right renal artery enters the hilum and again on right side another secondary accessory artery root diameter of 0,25cm originated from anterolateral of abdominal aorta has been detected. There has not been seen any variations on other abdominal branches at this case. Understanding of renal vascular structure and its variations become important to surgeons because of the recent increase of laparoscopic kidney surgeries, kidney transplants. Otherwise the presence of abnormal vessels may endanger patient's health in kidney transplants. In addition, abnormal vessel structures are reasons for difficulties in radiological procedures other than kidney pathologies. Therefore, knowledge of anatomical variations will useful to surgeons on their operations.

Keywords: Multidetector computed tomography, renal artery, variations

P-69

Morphomethric analysis of C1 vertebrae on multidedector computed tomography

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In this study, it 7 been intended to make the morphometrical measurements of C1 vertebra (atlas), detect its possible variations and determine the incidence of these variations depending on gender. Obtained data contribution to clinical branches has been also intended. In this study,We used retrospective screening of cervical CT images data from Konya University Meram medical Faculty, Radiodiagnostic department. Screenings of data were between 2010 and 2012. 25 male and 25 female, 50 patients in total had been included to the study. The distance between transverse process peaks, lateral margins of transverse foramens, medial margins of transverse foramens, the maximum size of vertebral canal on anteroposterior direction, lenght of facies articularis superior, lenght of facies articularis inferior and width of facies articularis inferior would be measured. Statistical analyze would be done by SPSS 13 program. In all data measurements of male subjects' have been founded higher than female subjects; however the difference has been found statistically unsignificant. Mortality rate of surgical treatments to C1 vertebra traumas, vertebral artery injuries, spinal cord injuries is high and chance of improvement with conservative treatements is greater. We believe that it is important for surgeons dealing with this region to know Atlas which morphomethric measurements have been carried out in our study.

Keywords: Multidetector computed tomography, C1 vertebrae, morphometric measurement

P-70

Distribution of retinal cone photoreceptor oil droplets, and identification of their carotenoids in mallard duck (anas platyrhynchos var. domesticus)

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Retinal cone oil droplets were studied by using fresh retinal sample and extracted retinal carotenoids were saponified under a stream of nitrogen, and then identified with reverse-phase high-performance liquid chromatography (HPLC). To evaluate the effects of saponification conditions on carotenoid recovery from duck retina, we varied base concentration and the total time of saponification across a wide range and again used HPLC to compare carotenoid concentrations among conditions. Based on colors of the oil droplets, five types of oil droplets were recognized in the duck retina i.e., red, orange, greenish-yellow, yellowish and clear. With the average of 13,960/mm^2, the density gradually declines with eccentric manner from optic disc. In retina, the density and size of droplets are inversely related. In periphery zone, the oil droplets were significantly larger than that of the central area. The proportion of greenish-yellow oil droplets (33%) was highest, whereas orange, red, yellowish and clear were 22%, 21%, 13% and 12%, respectively. Three types of carotenoid (astaxanthin, galloxanthin and lutein) together with one unknown carotenoid were recovered in the duck retina, whereas astaxanthin was the dominant carotenoids among them. The recovery of carotenoids was affected by saponification conditions. Astaxanthin was well recovered in weak alkali (0.06 M KOH), in contrast, xanthophylls carotenoids were best recovered in strong alkali (0.6 M KOH).

Keywords: Carotenoids, oil droplets, retina, saponification

P-71

Complete ossification of superior transverse scapular ligament and clinical significance

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Scapula has three margin and angle and located posterolateral of thorax. One of the anatomical structures of scapula is suprascapular notch located medial to coracoid process base. Suprascapular notch can be seen in different shapes and depth. Suprascapular notch is surrounded by transverse scapular ligament which is a short and strong ligament. Suprascapular notch creates an osteofibrous passage with this structure within suprascapular nerve passes. It has been reported that this osteofibrous structure can completely or partially ossify. Peripheral nerves have different courses in body. All lesions of nerves arised in course as result of exposure to compression, tension and bending are called entrapment neuropathy. Like other peripheral nerves suprascapular nerve can be exposed to compression while passing suprascapular notch. As a result of this compression suprascapular entrapment neuropathy may occur. There is direct trauma, repetitive microtrauma, neurit, progressive compressive lesions in suprascapular entrapment neuropathies etiology. A suprascapular notch taken foramen shape can be a predisposing factor to entrapment neuropathy. In the retrospective screening from Konya University, Meram Medical Faculty, Department of radiology archive, a male patient at age 68 with suprascapular notch variation has been detected. This patient's right suprascapular notch had become foramen by an osseous bridge. Diameters of foramen has been measured as 5.27 mm transverse 6,48 mm vertical. We believe having detailed knowledge of suprascapular notch is considerable as a possible reason of back and shoulder pain is entrapment of suprascapular nerve in suprascapular notch causes nerve paresis, and it will give a right direction to clinicians in surgical practices.

Keywords: Suprascapular notch, multidetector computed tomography, variations

P-72

Antropometric evaluation of body measurements on medicine faculty students

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Antropometric values of socities appear with effect of genetic structions and enviromental factories. We aimed to present antropometric values of the students that come from different cities for medical education. The study performed on 203 students (100 male, 103 female) that studied in Universty of Konya Faculty of Meram Medicine between 2011-2012 in the semesters of first and second.The ages of the participants between 18-22. In the top of weight and height the diferent measurement had been performed on the whole students. Performed data transferred to the SPSS 15.0 programme. Statistical Analyze method of Pearson Correlation, Ki-Kare and Student T used and appraisalled. The average of the male students height was 1.78, weight: 74.8 and waist size 85,4. On the other hand female students height was 1.63, weight: 56,8 and waist size 75. In the performed data, with the ages rising the height increase and seat height increases detected. Results of the study demonstrate that there is no relation sensible between the left/right hand wirsts size and dominant hand using. Between the genders there is an positive, strong and sensible correlation on BMI (Body, Mass, Index), weight and wirsts size.

The performed actual datas will be usefull for the antropometric studies in the future.

Keywords: BMI, seat height, antropometry

P-73

Ultrasonic features of a knee joint meniscus complex in children with first-degree longitudinal platypodia

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Up to 70% of a shock load that appears while healthy people walk or run is dampened down at foot level. With platypodia the function of feet to cushion shock loads is almost lost. Therefore some other structures of a knee joint have to undertake the role of shock absorbers. Hence we have studied meniscus thickness.

During ultrasonic scanning we measured meniscus thickness at the level of joint space of posteromedial and posterolateral sections of popliteal space holding transducer completely perpendicular to the back surface of a shinbone. We analyzed 156 ultrasonograms of healthy children's knee joints and 150 ultrasonograms of children with first-degree longitudinal platypodia. Patients at the age of 5-7 with first-degree longitudinal platypodia mostly had varus type of meniscus adaptation (43,4%); those at the age of 8-12 had symmetrical type (51,9%), and those aged 13-17 had valgus type (56%). Healthy children of all ages had valgus type of meniscus adaptation. In our opinion predominance of varus type meniscus complex in children at the age of 5-7 and its further transformation into valgus type with first-degree longitudinal platypodia reflects slowdown of lower limb varus transformation to the more advantageous, in terms of functionality, valgus position with formation of decompensated valgus version of meniscus complex and development of joint incongruency at the age of 13-17 years.

Keywords: Meniscus, knee joint, children, ultrasonic scanning

P-74

Therapeutic effect of estrogen in experimental colitis

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The lack of Estrogen, a biological hormone, facilitates the onset of inflammation. This work investigated the role of estrogen in

the management of experimental intestinal inflammation. It assessed the morphological changes, and the activity of mast cells [MC]. 185 adult male Sprague-Dawley rats, were divided into 4 groups: Group I: induced with colitis and treated with estrogen; Group II: induced with colitis; Group III: receiving estrogen only; Group IV: normal. In groups I and II, colitis was induced by Iodoacetamide [IA], IA + Enteropathogenic E. Coli [EPEC], Trinnitrobenzene sulfonic acid [TNBS], and Dextran sulfate sodium salt [DSS]. Daily observations of signs and symptoms as well as macroscopic and microscopic evaluations were done on days 7, 14, 28 and 56. The estrogen treated rats showed significantly less bleeding, diarrhea, inflammation, and histological alterations in the colon and jejunum. On day 56, the histological alterations were persistent in groups IA, IA+EPEC and TNBS with an overall marked increase in the MC count. Such an increase was significantly correlated with longer duration of the inflammation and invasion of the various intestinal layers. The presence of estrogen reduced significantly ($p<0.05$) the MC counts in all categories.

Keywords: IBD, colitis, mast cells, estrogen, inflammation

P-75

The division levels of the sciatic nerve: a cadaver study

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Sciatic nerve splits into its terminal branches; the tibial and the common peroneal nerves. The branching patterns of the sciatic nerve can be observed in any point between the level of sacral plexus and the popliteal region. Sciatic nerve branching level may have a great effect on the success of neuro-stimulation guided sciatic nerve block with the popliteal approach. 29 formaldehyde fixed lower extremity were dissected for the identification of the level where the sciatic nerve splits into its branches. Beston and Anson's classification was used for the identification of sciatic nerve branching level. According to this classification; G1: foramen infrapiriforme level, G2: sulcus glutea level, U1: upper 1/3 of thigh, U2: middle of thigh, U3: lower 1/3 of thigh, P fossa poplitea. The branching level of the sciatic nerve was detected in 8 (%26,4) cases at G1, in 3 (%9,9) cases at G2, in 4 (%13,2) cases at U1, in 9 (%29,7) cases at U2, in 2 (%6,6) cases at U3 and finally in 3 cases (%9,9) at P. The evaluation of the dissections revealed that in 24 (%79,2) of the dissected lower extremities, the branching point was in the middle and proximal part of the lower extremity. These results show that application of the neuro-stimulation guided popliteal blockage in the middle part of the thigh may increase the clinical success rate of the anesthesia. In more distal applications we think that multi injections should be used for blocking both branches of the sciatic nerve.

Keywords: Sciatic nerve, common peroneal nerve, tibial nerve, cadaver

P-76

Morphological studies on the seasonal changes in epididymis of the one humped camel

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The reproductive efficiency in camel varies with the season of the year. Camels are considered seasonal breeders. The morphology and function of the epididymis in seasonally reproducing animals change analogue to the testicular tissue. Although many investigations have been made on the testis little is known about morphological changes in the epididymis of the camel in relation to the season. The current study aims to elucidate the morphometrical and morphological changes in the epididymis of the camel in Upper Egypt (Assiut governorate) in relation to season. The present work was carried out on 20 testes and epididymis of sexually mature camel (about 5 in every season) to elucidate the gross anatomical, morphometerical, light microscopical and scanning electron microscopical features of the epididymis in different seasons. The epididymal epithelium of the camel displays numerous intraepithelial glands in the middle segment. However these glands may be also demonstrated in the initial and terminal segments. The spring months (with increasing day light and temperate temperature) offer ideal circumstances for maximal reproductive activity in this semi domesticated species. Despite increasing light in summer months, their extreme temperature has a greater negative effect on fertility.

Keywords: Camels, epididymis, intraepithelial glands

P-77

Immunomorphological peculiarities of mast cells in human thymus

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Mast cells (MC) contain intensely basophilic granules that store chemical substances known as mediators of inflammation. They are found in different tissues throughout the body, including thymus, but their role in the physiological and the pathological events is still unclear. In the present study we investigate and discuss some structural, immunomorphological and immunobiological characteristics of mast cells as an element of the thymocyte microenvironment in human thymus.

Autopsy thymic specimens from young healthy individuals were examined at light and electron microscopic level by toluidine blue, immunoperoxidase, transmission electron microscopy and cell separation techniques. Normal young thymuses showed intact lobular structure with distinct corticomedullary junction. One type of MC contains granule-associated tryptase and chymase and is referred to as MCtc mast cells. The other types of MC produce only tryptase and are termed MCt mast cells. In our case we predominantly observed tryptase immunopositive mast cells in the interlobular connective tissue and in the thymus cortex. Single mast cells were found in the medulla. Some mast cells formed rosette-like structures with lymphoid cells. The closed contacts between mast cells and lymphocytes in rosette structures are a new evidence for the important role of the intercellular communications and lymphostromal complexes in the pathophysiology of some inflammatory and autoimmune diseases.

Keywords: Mast cells, rosette-like structures, thymus, lymphostromal complexes

P-78

Radiological examination of paranasal sinuses anatomy variation and clinical importance

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This study examines the variations of paranasal sinuses through computerized tomography (CT), in order to help endoscopic sinus surgeons operating sinus surgery and to contribute to the prevention of possible complications. 200 patients through their paranasal sinus tomography (100 men, 100 women) were examined to study anatomical variations. The number of persons variation observed was taken as 1, even in one case it was seen as both sided regarding variation frequencies. To compare bio-statistical data of our working group, the Chi-square and Fisher's exact probability test were used together with SPSS package program (version 17.5). One or more anatomical variations were identified along with paranasal sinus CT examinations of 169 persons over 200 (84,5%). The result were as follows: septal deviation in 133 persons (66,5%), concha bullosa in 120 persons (60%), agger nasi cells in 108 persons (54%), septal spur in 68 persons (34%), haller cells in 42 persons (21%), frontal cells in 40 persons (20%), pneumatizatized anterior clinoid in 33 persons (16,5%), onodi cells in 27 persons (13,5%), paradoxical middle concha in 13 persons (6,5%), pneumatized crista galli in 8 persons (4%), pneumatized uncinate in 4 persons (2%). Additionally, we observed sinusitis in 73 persons (36,5%) over 200 (100%). Concerning 67 persons (91,7%) over 73 patients having with sinusitis, we identified variations as follows: concha bullosa in 43 persons (58,9%), septal deviation in 50 persons (68,4%), agger nasi cells in 37 persons (50,6%), onodi cells in 11 persons (15,1%). Concerning 121 persons (95,2%) over 127 (100%) patients with no sinusitis we identified variations as follows: concha bullosa in 79 persons (62,2%), septal deviation in 80 persons (62,9%), agger nasi cells in 71 persons (55,9%), onodi cells in 16 persons (12,6%). It seems important if surgeons who are going to have operations on such sinus locations for chronic sinusitis or other reasons should take into consideration variations to prevent possible complications in such locations.

Keywords: Sinus paranasales, anatomic variation, clinical importance

P-79

Relationship of congenital lumbar vertebral anomalies and vertebral height, width and height to width ratio in asymtomatic young adult males

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The development errors of vertebrae are variable disorders. Some genetic and environmental theories are being thought in their etiology. The aim of this study is to investigate the relationship of vertebral anatomy and abnormality. X-rays of lumbar vertebrae of 146 asymptomatic young adult males were assessed retrospectively. The heights and widths of vertebrae were measured by a radiologist on digital X-ray films. The vertebral height, width and height to width ratios (H/W ratio) were statistically analyzed in the groups of vertebral anomalies and controls. There were 13 (8%) individuals with posterior fusion defect, 14 (9.5%) with transitional vertebrae and 7 (4.7%) with scoliosis. The height of L1 and H/W ratio of L1 were statistically higher in individuals with vertebral anomalies (mean height: 3.47 cm, H/W ratio: 0.767) than in controls (mean height: 3 cm, H/W ratio: 0.689 ; $p< 0.001$ and p:0.02). In conclusion the increase in the height of L1 vertebrae can be thought as an example of adaptation of human body to its new environment.

Keywords: Vertebra, anomaly, x-ray, height, width

P-80

Histomorphological examination of age-related change in rat esophagus and stomach

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In this study, it was aimed that age-related morphological changes in rat esophagus and stomach was investigated with light microscopy. In this study, 21 female Sprage-Dawley rats were used. Rats were divided into three groups as follows. Group1:21 days old, Group2:2 month old and Group3:19 month old. At the end of the examination esophagus and stomach tissues were removed.The sections stained wiht hematoxylin-eosin and evaluated light microscopically. The mean

thickness of esophagus epithelium was measured. It was 31.85±5.7 μm in Group1, 40.95±6.7 μm in Group2 and 44.68±9.2 μm in Group3. The mean thickness of tunica muscularis in esophagus measured. It was 128.9±23.1 μm in Group1, 207.8±38.5 μm in Group 2 and 256.07±35.52 in Group 3. We observed that the thickness of esophagus epithelium and tunica muscularis were significantly increased by age in all groups ($p<0.05$). Likewise, the mean thickness of tunica mucosa in stomach was measured. It was 67.87±8.25 μm in Group1, 127.76±21.8 μm in Group2 and 181.23±35.1 μm in Group 3. The mean thickness of tunika muscularis in stomach was measured. It was 56.65±15.9 μm in Group1, 125.68±21.36 μm in Group2, 174.07±22.5 μm in Group3. We observed that the thickness of tunica mucosa and tunica muscularis were significantly increased by age in all groups ($p<0.05$). The morfology of esophagus and stomach in rats were observed to change with increasing age. We believe that obtained in this study as age-related changes in rat esophagus and stomach may shed light on other morphological studies and that will contribute to the literature.

Keywords: Aging, histomorfology, osephagus, stomach, rat

P-81

Radiographic markers of the index to ring finger ratio (2D: 4D) in adults

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The hand - this is the most important and the main part of a unique biological, social and creative tool for the person.There is three types of brushes: ulnar or male (4D> 2D), radial or female (4D <2D) and uncertain (2D = 4D). However, until the end of the unexplored question remains, what is decisive in respect of the brush to a particular type. X-ray morphometry carried 100 men and 100 women aged 23÷77 years, which included measurement of the length of II, IV metacarpal bones and wing II, IV fingers. Hand type was determined by comparing the lengths of fingers II and IV. Analysis and classification performed in Statistica Neural Network 6.0 (StatSoft, USA). When the results of genetic algorithm selection of data is most appropriate for the analysis are indicators of the length of metacarpal II, the length of the distal phalanges of fingers II, the average phalanges of fingers II and IV, the length of the proximal phalanx of finger IV. The analysis found that the most promising type of neural network as a model for classification is the network architecture of RBF 5:5-9-3:1 allowed correct classification of 92.5% of observations. Thus, the identified parameters are decisive from the standpoint of the classification of morphological types of brushes that can be used in the algorithms of identification.

Keywords: 2D: 4D ratios, metacarpals, phalanges

P-82

Comparison of semi-automated segmentation method and Cavalieri technique for the volume estimation of the subcortical structures using magnetic resonance imaging

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The subcortical brain structures associated with other structures of nervous system therefore they have major influence on sensorimotor, limbic and cognitive information processing. Magnetic resonance imaging (MRI) provides a detailed knowledge of normal and diseased anatomical structures for medical research. The aim of the current study was to compare the volumes of subcortical brain structures in healthy subjects using stereological (point-counting) and semi-automatic segmentation methods. MR scans were obtained from 30 subjects (17 males, 13 females) who are free of any psychiatric, neurological or cognitive impairment. MR images were analyzed by using two methods. We didn't find any significant differences among the subjects with respect to gender using both methods. Also, no significant difference was found between point counting and semi-automated segmentation methods for the volumes of subcortical structures ($P>0.05$). From these results, it can be concluded that the semi-automated segmentation method and stereological technique can be used for reliable volume estimation of subcortical structures. However the stereological method takes less time than semi-automated segmentation, it is simple, reliable inexpensive. Further studies are required with larger samples in order to support these data.

Keywords: Segmentation, stereology, MRI, subcortical structure

P-83

Study of the brain development in the sturgeon (Acipenser gueldenstaedtii)

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In this study, development of the brain in Acipenser gueldenstaedtii is described from 1 to 36 days post-hatch (dph). Larvae were euthanized and serial sections of specimen were performed. This study was concentrate on 5 important parts of the brain containing telencephalon or forebrain, diencephalon, mesencephalon, cerebellum and rhombencephalon. Samples of fish larvae (Acipenser gueldenstaedtii) were obtained from north of Iran, Agh Ghala shahdi Marjani Hatchery center in Gorgan city. Received samples were classified in 1 to 36 days post hatching old (dph). They were euthanized and fixed in 10% buffered formalin and dehydrated in graded ethanol and embedded in paraf-

fin. Serial sections of specimens performed 25 times with 4μm thickness were cut from each block. Section of specimens were mounted on glass slides and stained with Hematoxylin-eosin for tissue studies. The primary observation of the telencephalon in histological specimens of Acipenser gueldenstaedtii is observed in 1-week-old specimens. The size of forebrain remains relatively steady and it doesn't demonstrate considerable changes compared to the other parts of brain. The diencephalon changes are noticeable in 3-week-old Acipenser gueldenstaedtii. The mesencephalon is rather poorly developed and maintains the embryonic tube-like shape during ontogenesis. As in other chondrosteans, the cerebellum appears strongly developed. The floor of the rhombencephalon is strongly curved during the first days of development, but later this curvature disappears. Our survey was a preliminary study on Acipenser gueldenstaedtii with histological aspects of brain development for understanding more about sturgeon brain. It shows species differences and also similarities with other species.

Keywords: Acipenser gueldenstaedtii, sturgeon, development, brain

P-84

Location of the infraorbital foramen with reference to the soft-tissue landmarks

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The purpose of the present study was to determine the locations of the infraorbital foramen based on soft-tissue landmarks to facilitate prediction of the locations of these structures during periorbital surgery. Twenty intact adult cadavers (40 sides; 10 male, 10 female) were obtained from department of anatomy of Gulhane Military Medical Academy. The measurements taken for this study are depicted under the three items. We are created a triangle combines the medial and lateral canthus and the ala of the nose. The location of the infraorbital foramen was evaluated according to the place of the borders of this triangle. In additional, the number of the infraorbital foramen was noted. In all cadavers examined, the mean distance between the infraorbital foramen and the inferior orbital rim was 8.74 mm. The mean distance between the infraorbital foramen from the facial midline was 29.43 mm. The length of the line extending between the lateral canthus and the ala of the nose was 54.79 mm. According to the triangle formed by three soft-tissue landmark, the 11 of the 40 sides (27.5%), the infraorbital foramen was found outside of this triangle. The 29 of the 40 sides (72.5%), the infraorbital foramen was on the line extending between the lateral canthus and the ala of the nose. Multiple ipsilateral foramina were found in 1 of cadavers (2.5%). Such information may allow clinicians to better approximate the location of the infraorbital foramen for nerve blockade and periorbital surgery.

Keywords: Infraorbital foramen, soft-tissue landmarks, periorbital surgery

P-85

A comparative study of the nasal anthropometric measurements in young Turkish males and females

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The aim of the study was to describe and compare the average of the nasal anthropometric measurements in young Turkish males and females. Study group consisted of 56 volunteer young males and 59 females whose ages were ranging 18–30 years (mean age 21.22 years-old). All subjects were student in Yasar Dogu School of Physical Education and Sports of Ondokuz Mayis University. The means of males' nasal length, height, width and bridge width were 52.95, 54.38; 35.24 and 17.83 mm, respectively. The means of females' nasal length, height, width and bridge width were 47.81 and 50.90; 31.59 and 17.36 mm, respectively. The means of males' the columella length and width were 12.76 and 5.77 mm, respectively. The means of females' the columella length and width were 11.88 and 5.60 mm, respectively. The means of male frontonasal and nasolabial angle were 123.85 and 97.91°, respectively. The means of females' frontonasal and nasolabial angle were 133.16 and 98.91°, respectively. Average values of the nose in this population may be used as a landmark for guidance to plan corrective surgery of the nose and development of the accessories like glasses.

Keywords: Nasal measurements, sex difference, anthropometry

P-86

Variations associated with high division superficial brachial artery

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The arterial variations of the upper limb are quite common. In recent years, many surgical procedures performed on the upper extremity. Therefore, to know the vascular variations of the upper extremity was important. This variation was found in the left upper limb of the 38 weeks female fetus during the routine dissection. In the upper of the teres major muscle, the axillary artery was to keep going as brachial artery. The superficial brachial artery derived from high division brachial artery was extended as superficial the inner side of the arm. In the cubital fossa, the brachial artery was continuing as ulnar artery inner side of the forearm. The superficial brachial artery was crossed to brachial artery 5 cm above the interepicondylar line. This artery was to run as superficial radial artery the outer side of the forearm. The approximately 1 cm below of the interepicondylar line, we have found a connection between the high division brachial artery and superficial radial artery. The other branches of the axillar and brachial arteries were observed as normal.

High division brachial artery, superficial brachial artery and superficial radial artery are rare the same extremities. Knowledge of such variations, flap of the forearm, intravenous drug applications, amputations, the use of radial artery coronary artery bypass surgery and fasciotomy to treat compartment syndrome, has clinical importance.

Keywords: High division brachial artery, superficial brachial artery, superficial radial artery

P-87

An investigation of some morphometric parameters measured by echocardiography in coronary slow flow phenomenon

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Although there are numerous studies on coronary slow flow phenomenon, its precise etiology has not been clarified yet. The aim of this study was to compare some echocardiographic parameters between patients with coronary slow flow and control subjects. This study included 30 patients with chest pain complaint who were diagnosed with coronary slow flow using angiographic TIMI (thrombolysis in myocardial infarction) frame counts and 30 control subjects with normal coronary arteries. Ascending aortic diameter, aortic root end-diastolic and end-systolic diameters, aortic valve movement, left ventricular diastolic and systolic diameters, interventricular septum thickness, and ejection fraction were echocardiographically measured in all subjects. Data compared using Student's t-test. End-systolic aortic root diameter and ascending aortic diameter were significantly larger in patients with coronary slow flow compared to control group ($p<0.05$). Differences in measurements of end-diastolic aortic root diameter, aortic valve movement, left ventricular diastolic and systolic diameters, interventricular septum thickness, and ejection fraction were not statistically significant between patients and control group. In view of the present findings, it is suggested that there may be a relation between coronary slow flow and aortic dilatation.

Keywords: Coronary slow flow, coronary angiography, echocardiography, ascending aorta

P-88

The changing shape of the skull?

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Brachycephalization was the most conspicuous morphological change in the human cranium since the end of the Pleistocene. In 1945 a short head belt between North and South Europe was identified. Brachycephalization was not described in Sub-Saharan Africa. In South Africa, earlier studies showed narrower crania (dolicocephalic) for black and white males, and black females, but not white females. The aim was to determine the presence or not of skull shape changes in a South African study population. The length and breadth of black and white adult male and female skulls from institutions in South Africa, from the Early Iron Age to 20th century, were measured. Mean, maximum and minimum values for the cranial index were determined and compared. Cranial Index values were classified according to the classification by De Villiers. Changes in the shape of the skull were observed in the cranial index for both black and white males and females during the latter half of the 20th century. Mean maximum values for both white males and females changed from brachycephalic to mesocephalic. Mean maximum values for black males and females changed from mesocephalic / dolichocephalic to brachycephalic for black males, while for black females the change was from mesocephalic to brachycephalic.

Keywords: Skull, brachycephalic, dolichocephalic, South Africa

P-89

The evaluation of morphometry of mastoid process using multidetector computed tomography in a living population

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The aim of this study was to examine the relationships of the bony landmarks on the lateral surface of mastoid process and the present the difference between these standard anatomical landmarks. It was also the target of this study to reveal the importance of sexual dimorphism in terms of mastoid triangle. Our study was performed on 140 (70 females, 70 males) multidetector computed tomography (MDCT) images obtained from patients underwent radiological examination at the department of Radiology in Meram Medical Faculty, Necmettin Erbakan University. The height of mastoid process was measured using two different ways. The distance between the mastoid apex and the midpoint of the distance of porion and mastoid notch was measured mastoid height 1. Then the distance between Frankfurt Horizontal Plane and the mastoid apex was measured the mastoid height 2. The distances between porion-mastoid notch, porion-mastoid apex, porion-asterion, asterion-mastoid apex, articular tubercle-asterion, articular tubercle-mastoid apex and right and left mastoid processes were also measured. Finally, the angles between porion-mastoid apex-asterion, mastoid apex-

asterion-porion and asterion-porion-mastoid apex were measured respectively. All data were analyzed statistically using Student's t test. According to the results of the measurements, all right and left parameters of males were higher than females' right and left sides except for the angle between asterion-porion-mastoid apex. And all right and left parameters were almost same with each other both of two sexes. Having the knowledge of measurements of the distances between the major landmarks of the temporal bone is essential to avoid possible complications during facial, mastoid and especially sigmoid sinus surgeries.

Keywords: mastoid process, porion, asterion, MDCT, sexual dimorphism

P-90

The evaluation of morphometry of nasal bone and pyriform aperture using multidetector computed tomography in a living population

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The aim of this study was to measure nasal bone (NB) and pyriform aperture (PA) morphometrically, reveal and classify different types of NB and PA and determine the sexual differences. Our study was performed on 120 (60 females, 60 males) multidetector computed tomography (MDCT) images obtained from patients underwent radiological examination at the department of Radiology in Meram Medical Faculty, Necmettin Erbakan University. The right and left and heights of NB and the height of NB on the median plane, the superior and inferior widths of NB, the width of PA and the distance between rhinion-anterior nasal spine (as the height of PA) were measured. Fronto-nasal and internasal angles were also measured. All data were analyzed statistically using Student's t test. According to the results of the measurements, all parameters of males were higher than females' except for the superior and inferior widths of NB and fronto-nasal angle. Both NB and PA were classified into seven different types. Having the knowledge of measurements and different types of the NB and PA is essential for sex determination, all surgical procedures related to this area and nasal reconstructions.

Keywords: Pyriform aperture, nasal bone, MDCT, morphometry, nasal reconstruction

P-91

Quantitative analysis of micro blood vessels in atherosclerotic coronary artery disease

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The formation of new blood vessel in ischemic myocardium introduces a new modality of treatment for coronary heart disease. The present work aims to study stereologically changes of micro blood vessels in the human myocardium with coronary stenosis described by qualitative histological analysis. On the serial cross myocardial section from 30 autopsied hearts with ischemic lesions devided in two equal groups (with and without coronary stenosis), stained by immunohistochemistry using a monoclonal antibody (von Willebrand factor) and with hematoxylin-eosin method, we analysed. Stereologically the volume densities (VV) of micro blood vessels. Myocardial sections included proximal, distal part of stenosis and area of stenosis of coronary vessels. Quantitative stereological analysis showed a significant increase in the volume densities of micro blood vessels in the group with coronary stenosis compared with control group. The significant increase in the volume densities of blood vessels was greater in the distal part of stenosis and area of stenosis, than in the proximal part of the stenosis. In the group with coronary stenosis we established significant reduction in the volume density of myocytes and increasing of volume density of interstitial tissue. Significant increase in the volume density of micro blood vessels in the group with coronary stenosis (on the stenosis, below and above of stenosis), assesses the role of micro blood vessels in a case with compromitation of coronary circulation. Our stereological analysis of micro blood vessels gives the proof of significant changes in ischemic myocardium described by qualitative histological analysis.

Keywords: Micro blood vessels, coronary disease, stereology, histology

P-92

Volume fraction of the eyeball volume within the orbit to total orbital volume: a computed tomography stereological study

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The purpose of this study is to estimate volume fraction of the eyeball volume within the orbit to total orbital volume and to show differences between the genders. Cranial computed tomography (CT) images of 80 normally evaluated subjects were selected from 1,087 CT examinations. The volumes of the eyeball and orbital and their ratios were estimated using the Cavalieri method and volume fraction-stereological methods. The ratio of the eyeball volume within the orbit (right and left) to total orbital volume (right and left) was comparable between the genders. Mean volume fraction of the eyeball volume within the orbit to total orbital volume was 33.4% and 31.2% in females and males, respectively. There was no statistically difference ($p>0.05$). The percentage of the right eyeball volume within orbit was 68.14% and 68.79% in females and males, respectively. The percentage of the left eyeball volume within orbit was 66.29% and 66.10% in females and males, respectively. There was no statistically difference ($p>0.05$). In this

study we showed the percentage of the orbital volume that have been filled with eyeball and also the percentage of the eyeball volume that is positioned in the orbit. The ratio of the eyeball volume to total orbital volume may be important tools in determining some ophthalmology diseases.

Keywords: Eyeball volume, orbital volume, computed tomography, stereology

P-93

Stereological comparison of the white and gray matter volume of the cerebellum between sexes in African race

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Although there are studies comparing the amount of the white and gray matter in cerebrum between sexes we could not found a study on the cerebellum. The cerebellar volume, white and gray matter volume and volume fraction were evaluated on magnetic resonance (MR) images using the Cavalieri principle. Consecutive coronal plane MR images of cerebrum in 1 mm thickness of 10 normal subjects (5 male, 5 female) were converted to sagittal images in Talairach plane. The images sampled in 1/5 and 1/4 fractions were obtained. The cerebellar volume and white and gray matter volume and volume fractions were obtained using manual planimetry in ImageJ. The mean (±SD) cerebellar volumes were 147.01±6.00 and 144.85±5.79 cm3 in females and males, respectively. The volume fractions of gray and white matters of cerebellum were 77.80±1.37%, 22.20±1.37%; 80.25±0.57, 19.75±0.57 in females and males, respectively. The obtained data did not show statistical differences between the sexes ($p>0.05$). There was not difference between sexes. Because of analyzing process has not yet completed, the current results were obtained from available data. When this study is completed we presume that there will be sex dependence differences in the cerebellar volume and volume fraction of cortex and medulla.

Keywords: Cavalieri principle, cerebellum, stereology, volume, volume fraction

P-94

Anatomy of the coracoclavicular ligaments: a cadaver study

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The acromioclavicular joint is a diarthrodial joint that allowing movement in the anterior/posterior and the superior/inferior planes. The acromioclavicular joint is stabilized by both static and dynamic stabilizers. The static stabilizers include the acromioclavicular ligaments, the coracoclavicular ligaments, and the coracoacromial ligament. The coracoclavicular ligaments main contribution is with vertical stability preventing superior and inferior translation of the clavicle. This complex is made up of two structures: the trapezoid and the conoid ligaments. These two stout ligaments are responsible for suspending the scapula and the upper extremity from the under surface of the clavicle. The coracoclavicular ligaments vary widely in morphology. Few authors have adequately described the coracoclavicular ligaments' anatomy in the anatomy literature. Anatomy of the coracoclavicular ligaments and their relationships has been aimed in the present study. This will provide guidance for surgeons to know the differences ligaments. The coracoclavicular ligament was studied by gross examination in 33 shoulders of unknown ages of human cadaver specimens. Digital caliper was used for measurements. A total of six measurements were performed in each shoulder. Thickness and width measurements were achieved at level of mid-points of the ligaments. Its length was measured between attachment points on the bones. If the two ligaments originated commonly from a common trunk, width measurement was taken from the trunk. We have classified the ligament one to four by the number of it, 33,3%, 27,3%, 30,3% and 3%, respectively. In some cases, the coracoid process was fused the clavicle. Average width, length and thickness of Conoid ligament, were 12, 8.4 and 4.6 mm, respectively. Average width, length and thickness of trapezoid ligament were 9.2, 11.4 and 2.5 mm, respectively. Mean width of the common trunk was 52 (on the right) and 38 (on the left) mm. The reason of the difference of the width of the common trunk on the right and left sides might be using the dominant right upper extremity. The knowledge of the conoid and trapezoid ligament can assist the surgeon in performing anatomic reconstruction of the coracoclavicular ligament, treating an acute or chronic acromioclavicular joint instability.

Keywords: Coracoclavicular ligaments, trapezoid ligament, conoid ligament, acromioclavicular joint, anatomy

P-95

Anomalous muscle to the little finger originated from the flexor digitorum superficialis

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Flexor digitorum superficialis is a muscle which exists on the front side of the forearm. The main tendon of the muscle divides into four tendons. It makes insertio to the both sides of the mid-phalanx of 2-5th fingers. It has 2-5th fingers made rapid and strong flexion. We report the cadaveric findings of an unusual variant of FDS. We have come across this variation in a 78 year old male cadaver during an educational dissection of

the front side of the right arm. The main tendon of FDS divides into three tendons. The tendon going through the 5th finger of FDS was absent. The anomalous muscle belly was 4.9 mm in width and 48.8 mm in length. The total length of the tendon from the musculocutaneus merger point to the insertio site is 130 mm. While the first part of 83.5 mm of the tendon from the musculocutaneus merge point (width 1.3 mm) is in the shape of slip, its width from the metacarpophalangeal joint continues as the thick structure of 4.4 mm. It was crossed at the top of the level of the wrist by the tendon going through the 4th finger of FDS. The distance of this abnormal muscle originating origo from the belly which goes through the 2nd and 3rd fingers of FDS to the radiocarpal joint was 82.7 mm. The fact that these kinds of muscle/tendon abnormalities are known is highly imperative in the compressive neuropathies due to the close neigbourhood of the tendons of FDS with the median nevre in the wrist.

Keywords: Anomalous muscle, compression, flexor digitorum superficialis, forearm, variation

P-96

The morphometric analysis of the insertio tendons of peroneus tertius muscle

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Peroneus tertius (PT) is the part of extensor digitorum longus muscle (EDL). PT demonstrates the difference between the people for muscle trunk and tendon structure. The aim of this study is to detect the difference by performing the morphometric analysis of PT and the clasification of them. In our study, the lengths of PT tendons, and the widths in midpoint (medial point) and the points of insertio were measured in 45 lower extremities. Data obtained was compared statistically. For this, PT insertio width was mean14.22±3.19 mm on the right and it was 15.69±5.52 mm on the left. The lengths tendon of the left was 62.17±8.65 mm and 57.66±10.79 mm respectively. PT was researched in two types according to the number of tendons. Type 1 having a single tendon and type 2 having two tendons were in proportion of 90.5% and 9.5% respectively. PT displaces adhesion to the fifth metatarsal bone bases at most in proportion of 54.8%. PT does not exist in 4.4% of the cases. The rate of slipli cases were 10%.The intertendinous adhesions between PT and EDL may contribute to the stronger movement in dorsiflexion and evertion of the foot. We agree that the insertio characteristics of PT, these different types and the cases with slip are known in details and will contribute to the physicians dealing with especially the rotantional grafts in the lower extremity and to the literature.

Keywords: Peroneus tertius muscle, extensor digitorum longus muscle, tendon variation.

P-97

Incidence of sesamoid bones in the hand: a radiaographic study of the Turkish subjects

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The prevalance and distribution of sesamoid and accessory bones in the hands is quet variable between different populations and ethnics groups. However, there are no published data on their distrubution in Turkish populations. Our aim was to document a detailed investigation on the accessory ossicles and sesamoid bones of Turkish subjects in both the hands according to the sex, frequency and division of the bones coexistence and bilaterality by radiography. A three centered study was performed retrospectively to determine in incidence of the accessory ossicles and sesemoid bones in the hand. Sesamoid bones were detected by Radiographs of 448 subjects (252 female, 196 male). There was an incidence of 100 % sesamoid bones in the 1st metacarpophalangeal (MCP) joint, 59% in the 2nd MCP joint, 2 % in the 3th MCP joint, 0.4% in the 4th MCP joint and 79 % 5th MCP joint. The incidence in the 1st interphalangeal joints was 15%. Distribution of the most common sesamoid bones in Male and female subjects was similar. We reported the incidence of accessory ossicles and sesamoid bones of the hand in Turkish adult populations.

Keywords: Sesamoid bones, hand, radiaographic study

P-98

The accessory tendon of the extensor digitorum muscle of the foot: a case report

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An accessory muscle adjacent to the extensor digitorum brevis (EDB) was encountered between the EDB and tendon of the peroneus brevis in the lateral side of both legs of the cadaver of a 75-year old male and it was observed that the tendon of this muscle extended to the fifth toe. The present study was aimed morphology of this muscle in human cadavers. This accessory muscle, unlike the variations identified to date, is considered to extend to the fifth toe. To know the variations of the muscles and tendons of the leg are important with regard to understanding the function of the lower limb and correlating these abnormalities. In conclusion, this accessory muscle or tendon may be used to correct big toe deformities, tendon ruptures or reconstructive surgery.

Keywords: Extensor digitorum brevis, variation

P-99

Determination of thyroid volume using different approaches

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The accurate estimation of the thyroid volume is very important for the evaluation and management of thyroid disorders. There are lots of methods for estimating thyroid volume using different imaging techniques. We compare volume measurement of the thyroid gland using CT and linear measurement and finally we defined an optimal correction factor in thyroid volume assessment according to gold standard. In this study we compared three methods for the determination of thyroid volume: thyroid volume measured ellipsoid formula via linear measurement, the stereological (point-counting) method using CT and fluid displacement technique as a gold standard. Correction factors from 0.450 to 0.600 in steps of 0.001 were modeled separately and mean squared errors were calculated for each model to find an optimal correction factor for thyroid volume estimation. The thyroid volumes were calculated in a total of 8 cadavers (2 women and 6 men). The mean±SD thyroid volumes of the fluid displacement, point counting and ellipsoid were 14.58±9.84, 15.28±9.38, and 14.97 ± 8.35 cm3, respectively. No significant difference was found among the methods of calculating thyroid volume ($p > 0.05$). It can be concluded that acceptable correction factor is situated in 0.523 using linear measurement according to gold standard.

Keywords: Thyroid volume, actual volume, correction factor, stereology

P-100

The effect of essence of Heracleum persicum on lipid profile and coronary artery fatty streak formation in hypercholesterolemic rabbits

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Cardiovascular disease is considered as most prevalent cause of mortality in the developing countries. Hypercholesterolemia is one of the important factor causing coronary artery diseases and atherosclerosis. The aim of the present study was to evaluate the relationship between Heracleum Persicum, statin, serum lipid levels and fatty streaks on coronary arteries in hypercholestrolemic male rabbits. The experiment was carried on 30 male rabbits divided into five groups of six rabbits each. The animals were fed with 2% cholesterol diet for nine weeks except group one, sacrificed after six weeks. In addition animals from groups (3, 4) received heracleum persicum of 200µl/kg and 400µl/kg for the last three weeks respectively whereas group (5) was fed with levostatin 6mg/kg. Finally animal were sacrificed, blood and tissue samples were analyzed. The results indicate that there was a significant difference in lipid profile of rabbits fed with heraceleum persicum and statin in comparison to control group ($p < 0.05$). Similarly there was significant decrease in fatty streak of coronary arteries ($p < 0.05$). Heracleum Persicum has beneficial effect in preventing cardiovascular diseases, atherosclerosis and dyslipidemia.

Keywords: Heracleum Persicum, atherosclerosis, coronary arteries, cholesterol

P-101

Clinical pathology of basal cell nevus syndrome

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Basal cell nevus syndrome (BCNS), also known as Gorlin–Goltz syndrome is due to genetic alterations in patients produced by a germ-line mutation in the "Patched" tumor suppressor gene (PTCH gene) a tumor suppressor gene and the human homologue of the Drosophila patched gene. This syndrome shows a high penetrance and variable expressiveness. It is diagnosed on the basis of clinical and radiological criteria and can be confirmed by genetic study and is characterized by five main pathological features: the presence of multiple pigmented basocellular carcinomas, keratocystic odontogenic tumors, palmar and/or plantar pits and calcification of the falxcerebri. One case was diagnosed in dental department of Isfahan University of medical sciences according to clinical criteria. Due to the importance of oral maxillofacial manifestations of this syndrome, it is fundamental to know its characteristic features in order to make a precise early diagnosis and necessary preventive treatment to establish right genetic advice. In this study,the clinicopathologic with therapeutic management and treatment of patient by enucleation of the cysts and extraction of the impacted teeth have been done and followed up. The patient prognosis was found to be good, with normal life. In this work the main clinico-pathologic and the therapeutic aspects related to the syndrome was reviewed which may have profound relevance to specialists in Oral and Maxillo-Facial Surgery, Oral Medicine and Radiology.

Keywords: Gorlin-Goltz, basal cell carcinoma, keratocysts, pits.

P-102

Separate coronary arteries originating from the right sinus of valsalva

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We report a case with three separate coronary arteries originating from the right or left coronary sinus of Valsalva which had been seen exceedingly rarely. A hypertensive and smoker 48-year-old man admitted to the outpatient clinic with stable angina pectoris for two years. His blood pressure was 160/100 mm Hg. The electrocardiography showed negative T waves on precordial leads. The treadmill exercise was positive, so we performed coronary angiography. We observed all coronary arteries arising from the right sinus of Valsalva. Coronary artery anomalies were found in 1-1.3% of patients undergoing coronary arteriography and 0.3-0.78% of performed autopsies. These anomalies include anomalies of origin and distribution (87%) and coronary artery fistulae (13%). Coronary anomalies are usually discovered as incidental findings at the coronary angiography. Eighty-one percent of anomalies are benign in character including separate origin of the left anterior descending (LAD) and circumflex (CX) arteries from the left sinus of Valsalva, ectopic origin of CX from the right sinus of Valsalva, ectopic coronary origin from the non-coronary sinus of Valsalva, anomalous coronary origin from the ascending aorta, absent CX, intercoronary communications, and small coronary artery fistulae. Nineteen percent of the anomalies are regarded as serious because of the association with serious cardiac events, which include ectopic coronary origin from the pulmonary artery, ectopic coronary origin from the opposite aortic sinus, single coronary artery and large coronary fistulae. The clinical course depends on the site of origin and the anatomical trace.

Keywords: Coronary anomalies, congenital, angiography

P-103

The importance of sternalis muscle in breast surgery

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Sternalis muscle which has different variations is localized on the superficial part of the pectoral muscle, on the anterior aspect of chest wall in the parasternal region. Its variations have surgical importance because its presence changes the dissection plan. The intra-operative approach to a 72 year old patient who has had modified radical mastectomy and had sternalis muscle variation is assessed. 72 year old patient was admitted to clinic with a mass in right breast. The consultations were completed and excisional biopsy was made. The frozen section came malignant so modified radical mastectomy was planned in the same session. During the operation the sternalis muscle was seen, beginning and laying superficially on the pectoralis major muscle and ending on rectus muscle. Sternalis muscle was detected and dissection plan was enlarged between sternalis muscle-pectoralis major muscle and connective tissue and lenfatic tissue between them were removed. After that axillary dissection was completed. The sternalis muscle is localized on the anterior aspect of chest wall; it is on the superficial part of pectoralis major muscle and has different variations. This variations change according to gender and race. It is seen more in female than male. It can be observed easily during the operation. It can be assessed as a mass in breast by mistake. The decision of the removal of the muscle during the operation is important if it's close to the lesion because of the risks and post-operative care. For those reasons, the anatomical variation of this muscle must be known for surgical operations. It is important to know the variations of the muscle by surgeons and radiologists because of its potential effects during the operation and post-operative treatment.

Keywords: Sternalis muscle, breast cancer, modified radical mastectomy

P-104

A study on the effect of EMF exposure on folliculogenesis in neonatal female mice

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The concern of scientists on the electron magnetic field (EMF) effect on reproductive system goes back to quite long time. The present study was carried out during the developmental period of adulthood mice, to evaluate the effect of EMF exposure on histopathological properties of ovaries. BALB/c mice were mated and exposed to 3 mT EMF for 21 day, 4 hours /day. In the control group, both control and experimental groups were kept under normal conditions. Ovaries were fixed for light (LM) and Electron microscopy (EM) examinations. In contrast with control group LM results revealed broken oocyte nests, irregular nuclei, whereas through the EM results, nuclei of oocytes were shrunken, chromatin condensation, and several autophagic vacuoles were evident. EMF exposure during intrauterine life may well the affect on oocytes, cell division. Ultimately, may lead in subfertility.

Keywords: Folliculogenesis, electromagnetic field, atresia follicle, neonatal mice

P-105

Formation of hyaline cartilage tissue using chondrocyte/PCL constructs transplantation in rabbit articular cartilage lesions

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Articular cartilage has a limited capacity for repair. Osteoarthritis (OA) is characterized by cartilage degradation induced by cytokines. Current therapeutic options result in fibrocartilage

formation interfering with normal joint function. Cartilage tissue engineering can provide solutions to tissue damage. In this study we investigated if a technique of allograft cartilage transplantation using chondrocyte/seeded polycaprolactic acid (PCL) in rabbit articular cartilage defect can enhance matrix synthesis and integrity in comparison to microdrilling technique. Cartilage harvested from knee joints of a New Zealand white rabbit. Chondrocytes expanded in monolayer culture then seeded onto PCL scaffolds. 4 mm diameter defects created in both knees. 12 defects randomly filled with constructs or treated with microdrilling. Lesions assessed 12 weeks post-surgery on the basis of macroscopic appearance and microscopic scores using the International Cartilage Research Society (ICRS) score. By gross evaluation, complete or partial filling of lesion sites with new thin cartilage-like tissue were observed in construct treated defects in comparison to whitish fibrous tissue observed in microdrilling. Histological, repaired hyaline tissue in construct transplanted groups compared with fibrous connective tissue observed in microdrilling. This study demonstrates that is possible to seed chondrocytes onto PCL scaffolds and subsequently produce in vivo repaired cartilage tissue.

Keywords: PCL, osteoarthritis, chondrocyte, scaffold, transplantation

P-106

Protective effects of fish omega-3 fatty acids on doxorubicin-induced testicular apoptosis and oxidative damage in rats

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Doxorubicin (DOX) provokes oxidative stress and cell apoptosis in testicular tissues and disrupts spermatogenesis. The aim of this study was to examine the protective effects of fish omega-3 fatty acids on DOX-induced testicular damage and apoptosis. 24 male rats were divided into three groups: control (0,4 ml/kg/day of saline, i.g.), DOX treated and DOX treated with fish omega-3 fatty acids. The rats in the fish omega-3 fatty acids-pretreated group were given 400 mg/kg/day fish omega-3 fatty acids for 30 days by intra-gastric intubation. To induce testicular toxicity, DOX (30 mg/kg) was injected intraperitoneally by a single dose and the rats were sacrificed after 48 hours. DOX treatment caused severe damage such as disorganization and separation of germ cells in the seminiferous tubules. The fish omega-3 fatty acids-pretreated rats showed an improved histological appearance in the DOX-treated group. Our data indicate a significant reduction in the activity of TUNEL; there was a rise in the expression of PCNA in testis tissues of the DOX group treated with fish omega-3 fatty acids therapy. In conclusion, these data suggested that fish omega-3 fatty acids pretreatment may be beneficial for spermatogenesis following DOX-induced testicular damage by decreasing germ cell apoptosis.

Keywords: PCNA, doxorubicin, fish omega-3 fatty acids, testis, apoptosis

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Cardioprotective effects of fish omega-3 fatty acids on doxorubicin-induced cardiotoxicity in rats

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Doxorubicin (DOX) has been used in cancer treatment. However, its clinical use became restricted because of the dose-dependent cardiomyopathy. The aim of this study was to investigate the anti-apoptotic effects of fish omega-3 fatty acids on DOX-induced cardiotoxicity. 24 male rats were divided into three experimental groups: control, DOX treated and DOX treated with fish omega-3 fatty acids. Control group received 0.4 ml/kg of saline by intra-gastric intubation. The rats in the fish omega-3 fatty acids-pretreated group were given 400 mg/kg/day fish omega-3 fatty acids for 30 days by intra-gastric intubation. To induce cardiotoxicity, DOX (30 mg/kg) was injected intraperitoneally by a single dose and the rats were sacrificed after 48 hours. DOX treatment caused severe damage in the heart tissues. Disorganization of myocardial muscle fibers, myofibrillar loss and cardiotoxic myocardial fibers with cytoplasmic vacuoles were seen. Fish omega-3 fatty acids-treated rats showed an improved histological appearance in the DOX-treated group. Our data indicate a significant reduction in the activity of TUNEL in cardiomyocytes of the DOX-treated group with fish omega-3 fatty acids therapy. The present study showed that fish omega-3 fatty acids may be a suitable cardioprotector against toxic effects of DOX.

Keywords: Doxorubicin, fish omega-3 fatty acids, heart, apoptosis

P-108

Evaluation of the corpus callosum in the temporal lobe epilepsy patients

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The corpus callosum (CC) is the largest fiber tract between hemispheres and one of the structures that is affected during brain development. This study aimed to evaluate the morphological effects of temporal lobe epilepsy (TLE) on CC in a large group of patients. Weanalyzed certain CC dimensions in 103 TLE patients and in 33 healthy controls by using in vivo magnetic resonance imaging (MRI) for the measurements. In particula rwe used theclinical (right-left TLE, age at disease onset, disease period-frequency of seizure, before-afte rtheoperation) and demographical (age, gender, handedness) features for comparing the patients' CC with each other and with the CC of the control group. There was no significant difference between patients' CC in view of gender, age and handedness. However except for the rostrum, a significant decrease in dimensions was seen for the other parts of the CC. This general reduction in the size of the CC was thought to be the result of cortical atrophy secondary to the disease and the fibers of the frontal lobe were thought topass through a pathway other then the tracts in the rostrum.

Keywords: Temporal lobe epilepsy, corpus callosum, MRI

P-109

A short postgraduate anatomy course may improve the junior surgical residents' anatomy knowledge for the nerves of the inguinal region

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Inguinal hernia repair is one of the most common operations in a junior surgical resident's postgraduate training. Short recall courses can improve junior residents anatomy knowledge and results in better surgical outcomes. We aimed to investigate the effect of a short course on anatomical competency during inguinal hernia repairs. During the first 25 inguinal hernia repairs, two junior residents were asked to identify iliohypogastric, ilioinguinal, and genital branch of genitofemoral nerves. Then, the residents were given a short recall course by anatomists. Afterwards, the participants were taken into an in-vivo anatomy test again. The same parameters were recorded in another 25 inguinal hernia repairs. In addition to the nerve identification records, case characteristics [body mass index (BMI ñ 25 vs. >25), hernia type (indirect vs. direct), and anesthesia used (general or regional vs. local)] were recorded. Anatomy education had a clear impact on the correct identification rates for the iliohypogastric and ilioinguinal nerves. The rates increased from 70% to 90% and above. Correct identification rate for the three nerves together significantly increased from 16 to 52% following anatomy education (P = 0.006). All three nerves were identified with significantly higher success rates after anatomy education. The increase in the success rate for identification of the genital branch of genitofemoral nerve was 4-fold. Short anatomy courses in specific subjects for junior surgical residents given by formal anatomists may be effective during postgraduate education. The benefit obtained in the present study for the inguinal region nerves may be expanded to more important anatomical structures, such as the recurrent laryngeal nerve in a thyroidectomy, or more complex subjects.

Keywords: Inguinal hernia, ilioinguinal nerve, iliohypogastric nerve, genitofemoral, gross anatomy, dissection, surgical anatomy, postgraduate education, surgery resident education

P-110

A rare case report: thyrolingual trunk and the absence of facial artery determined by 3D-CTA

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Here, we report a male patient with cerebrovascular disease in whom thyrolingual trunk arising from the left common carotid artery and the absence of facial artery were incidentally determined by three dimensional angiography (3D-CTA). A 59-year-old male patient applied to the Neurology Outpatient clinic of Inonu University Turgut Ozal Medical Center with the complaints of syncope was performed 3D-CTA to evaluate carotid stenosis and intracranial vascular structures. On 3D-CTA, thyrolingual trunk arose from the left common carotid artery anterior. While the right facial artery was observed, no left facial artery was noted. The initial artery arising from the left external carotid artery was the occipital artery that bifurcated from the posterior. On the right side, however, superior thyroid artery originated from the common carotid artery anterior as a single. Furthermore, fenestration was observed in the basilar artery that was 1 mm in diameter and extended 9.3 mm from one outer end to the other, 5.8 mm after the merging of the right and left arteries. In conclusion, for surgical and interventional approaches to the cranial and cervical area, awareness and description of potential variations are highly important.

Keywords: Variation, common carotid artery, thyrolingual trunk, 3D-CTA, the absence of facial artery

P-111

Beneficial effects of montelukast against methotrexate induced liver toxicity: a biochemical and histological study

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The effects of montelukast against methotrexate-induced liver damage were investigated. 35 Wistar albino female rats were divided into 5 groups as follows: Group I: Control; Group II: Montelukast (ML); Group III: Methotrexate (Mtx); Group IV: Montelukast treatment after methotrexate application (Mtx+ML); Group V: Montelukast treatment before methotrexate application (ML+Mtx). At the end of the experiment, the liver tissues of rats were removed. Malondialdehyde (MDA), myeloperoxidase (MPO), and reduced glutathione levels were determined from liver tissues. In addition the liver tissues were examined histologically. MDA and MPO levels of Mtx group were significantly increased when compared to control group. In Mtx+ML group, these parameters were decreased as compared to Mtx group. Mtx injection exhibited major histological alterations such as eosinophilic staining and swelling of hepatocytes. The glycogen storage in hepatocytes was observed as decreased by periodic acid schiff staining in Mtx group as compared to controls. ML treatment did not completely ameliorate the lesions and milder degenerative alterations as loss of the glycogen content was still present. It was showed that montelukast treatment after methotrexate application could reduce methotrexate-induced experimental liver damage.

Keywords: Methotrexate, montelukast, liver, rat

P-112

Effect of melatonin on Proliferation of spermatogonial stem cells

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This study was conducted to assess the effects of melatonin on proliferation of spermatogonial stem cells of 6 days mice. To isolate spermatogonial stem cells twenty 6 days mice testis were dissociated enzymatically. The harvested spermatogonial stem cells divided into groups.group1: cultured in media with melatonin (100ÌM) group 2: Cultured in media without melatonin. The media was DMEM andGDNF; bFGF and EGF were taken into account as growth factors. Several tests were conducted on the 10th days past of the culture such as calculating of colony number, cell number and area of every colony. Colony assay revealed a higher colony number as well as higher cell number and area of colony in media with melatonin on day 10 in compared with another group of study($p<0.05$). Such SSCs markers as ,1, c-kit, ·6, thy-1, OCT-4 and Plzf were also detected using immunoflourecent staining. This staining proved that colony consisting of SSCs. The data of this study indicated that the adding melatonin to media greatly enhanced proliferation and as well as self- renewal of spermatogonial stem cells of mice.

Keywords: Spermatogonial stem cells, melatonin, mice, infertility

P-113

Formation of sural nerve in fetal cadavers with histological verification

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The purpose of this study is to determine formation of the sural nerve (SN) and its components. In this study 100 limbs from 50 embalmed fetuses aged between 15-40 weeks of gestation with no external pathology or anomaly were studied in Department of Anatomy Laboratory Faculty of Medicine at SDU. SN and its components were seen by dissection. All contributions to the SN were noted and the origin of SN was classified into four main types. The contributions of the medial sural cutaneous nerve (MSCN) and peroneal communicating branch (PCB) were analyzed via histological techniques by axon counting. Type A was the anastomotic type, in which both the MSCN and the PCB contributed to the formation of the SN and was found 71% of the cases. Histological analyses showed that MSCN was thicker than the PCB, except one case. When the MSCN or PCB was in the place of the SN, at the origin and at the termination levels of the MSCN or PCB were analyzed and numbers of axons were equal. The present study has revealed that the formation of the SN during the fetal period. We hope that present results can be considered as providing some useful findings for future studies.

Keywords: Fetus, sural nerve, axon counting

P-114

History of anatomical plastination

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Plastination is a modern method for conservation and long-term preservation of biological specimens free of special requirements. It was introduced into practice by the German anatomist Gunther von Hagens (1978) based on previous conservation technologies, coupled with advanced chemical products. Originally proposed thermosetting resins and elastomers are now replaced with silicone resins for plastination of specimens in anatomy, pathology and forensics. In S10 classical technique tissue water is removed and replaced with Biodur products that preserve pre-fixed tissues in lifelike appearance. In Europe the method is further developed and enriched by Andreas Weiglein from Graz University - Austria that directs its efforts mainly in the field of brain plastination. Its results are used by hundreds plastinators worldwide. Robert Henry is a

leading U.S. plastinator. He formulated the basic principles of the process and details in plastination of various organs. Orly and Grondin from Quebec - Canada offer recycling of the dehydrator for economic reasons. Haffajee from South Africa prepares fetuses and enrich knowledge of human embryology. The only plastination laboratory in Eastern Europe, having 20 years of history, is situated in the University of Thrace - Stara Zagora, Bulgaria. It makes high quality products, including the unique plastination of eyeballs.

Keywords: Plastination, anatomy, biodur, Von Hagens, plastination laboratory

P-115

Anthropometric study on a group of young adults

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Anthropometric data are required in determining the malnutritions, craniofacial anomalies and malformations; and in the fields of Plastic Surgery, Dentistry, and Sports; and in designing orthesis as spectacles and hearing devices. The aim of this study was to determine the anthropometric measurements on the heads and faces of a group of young adults from Manisa region and to investigate the correlations among the measurements. 130 male and 130 female university students who had no pathology on their heads and faces attended the study. 46 single and 43 paired linear anthropometric measurements were taken from the heads and faces of the subjects. Measurements of males and females were compared with independent t test and relations of the measurements were determined with Pearson correlation analysis. $P < 0.05$ was accepted as statistically significant. Most of the measurements were higher in males than in females but height of the orbit, vermilion surface arcs of upper lip and lower lip were higher in females. There were significant correlations between nose height and heights of face in both sexes. We suggest that present study will make a contribution to define the anthropometry of Turkish people and broaden the human knowledge.

Keywords: Anatomy, anthropometry, head, face

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Variability of the sciatic nerve with a coexistent sciatic artery

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The sciatic nerve emerges from the greater sciatic foramen inferior to piriformis descending posterior to quadratus femoris between the ischial tuberosity and greater trochanter: in approximately 10% of individuals the common peroneal nerve emerges superior to piriformis. In an investigation of the arterial supply of the sciatic nerve, the sciatic artery (an anatomical anomaly) was observed to be common in this study, which investigated the association of the sciatic artery to variability of the sciatic nerve in 34 specimens. The sciatic nerve bifurcated into its terminal branches between the inferior edge of piriformis and knee joint line: this area was divided into proximal, middle and distal parts. The sciatic artery was associated with division of the sciatic nerve in proximal part of the thigh (19/34), whereas it was associated with bifurcation of the sciatic nerve in the middle (5/34) and distal (2/34) parts of the thigh. In addition, the sciatic artery was associated bifurcation of the sciatic nerve below the knee joint line (4/34) and non-union of the nerve (4/34). An associated of the sciatic artery with high bifurcation of sciatic nerve around one piriformis (where the common peroneal nerve passed superior and tibial nerve penetrated piriformis) was observed, together with a double piriformis (both common femoral and tibial nerves passed inferior to piriformis) in one case. Anomalies of the sciatic artery are associated with low bifurcation of the sciatic nerve.

Keywords: Sciatic nerve division level, piriformis, sciatic artery

P-117

Variability of the origin of the inferior gluteal artery with a coexistent sciatic artery

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The sciatic artery is said to be an extremely rare vascular anomaly resulting from lack of regression of the embryonic dorsal axial artery. During the first trimester lower limb bud growth depends on blood supply, which is secure by the sciatic artery. In an investigation of 20 hemipelves, variable origins of the inferior gluteal artery were observed from the internal iliac artery (IIA) in conjunction with a coexistent sciatic artery. Frequently, the inferior gluteal artery arose from the anterior trunk of the IIA, either directly (7/20) or indirectly (6/20), from the posterior trunk of the IIA (1/20) and from the IIA bifurcation (1/20). In 1 specimen the inferior gluteal artery arose from sciatic artery, while in 2 specimens it was absent. Based on these observations the inferior gluteal artery is present in 50% in cases with a sciatic artery, suggesting that the embryologic development of the inferior gluteal artery is a highly linked with the sciatic artery theory. In addition, the sciatic artery forms a major supply to the sciatic nerve in 20% of specimens (3/15) especially in cases of absence of the inferior gluteal artery. Consequently, surgeons must be aware of these variations during pelvic surgery to avoid unnecessary proximal ligation of the sciatic origin that could lead to sciatic nerve palsy or neuropathy.

Keywords: Sciatic artery, inferior gluteal artery

P-118

Arterial supply of the sciatic nerve in the gluteal region

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The sciatic nerve usually leaves the pelvic cavity through greater sciatic foramen below piriformis: the presence of a double piriformis may change this course. Consequently, the sciatic nerve may have a different arterial supply in the gluteal region. Frequently, the sciatic nerve is supplied by a sciatic branch (arteria comitans nervi ischiadici) from the inferior gluteal artery. This study of 53 gluteal regions showed that the sciatic nerve was supplied by a sciatic branch from inferior gluteal artery in 40 specimens, the internal pudendal artery in 8 and the superior gluteal artery in 3: in 3 specimens no sciatic artery was observed. The sciatic branches from the internal pudendal and superior gluteal arteries were the major supply in 6 and 1 specimens respectively. In 13 specimens there were more than a single sciatic artery arising from several sources. Occasionally, the sciatic nerve has been supplied from the first perforating artery during its course in one specimen. In conclusion the sciatic branch or arteria comitans nervi ischiadica has variable origin in the gluteal region and was present in 94.4% specimens.

Keywords: Sciatic nerve arterial supply, gluteal region, arteria comitans nervi ischiadici, inferior gluteal artery, superior gluteal artery, internal pudendal artery

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Vascular supply of the sciatic nerve in the pelvis

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Within the pelvis a combination of lumbosacral nerve roots combine to form the sciatic nerve prior to its exit from the pelvis inferior to piriformis. A number of arteries may contribute to supplying the sciatic nerve formation. The present study in 62 specimens was undertaken to identify the arteries involved as the sciatic nerve exits the pelvic cavity. The inferior gluteal artery, which arose either independently or from a gluteopundendal trunk, penetrated the formation in 1 specimen (1.6%), whereas the pundendal artery did not participate. The gluteopudendal trunk supplied the formation in 14/62 specimens (22.6%); however in approximately 75% of specimens the trunk passed between the sciatic roots without supplying them. A sciatic artery was observed in 13/62 specimens (20.9%); when present it supplied the sciatic formation in 10/62 specimens (16.1%) as it passed dorsally and 1 specimen (1.6%) as it passed ventrally, in addition to passing between the sciatic roots in 1 specimen (1.6%). In one specimen, there is no supply from sciatic artery as it origin was below the sciatic formation, i.e. in the gluteal region. In conclusion the sciatic nerve formation is supplied by several arteries as it leaves the pelvis. Care must therefore in this region from both a clinical and surgical anatomy point of view.

Keywords: Sciatic nerve

P-120

Survey of clinical anatomy of scalp

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The Scalp include of skin and subcutaneous tissue. This part covers neurocranium from the superior nuchal lines of occipital bone to the supraorbital margins of the frontal bone. Recognizing the importance of this sector and its clinical anatomy, excessive damage to the area. The purpose of this study points scalp anatomy and spread the risks of damage is probable. For this study all the books of gross anatomy and clinical anatomy and Medline database and in English were examined. The search with Keywords such as "scalp" and "Clinical Anatomy" and neurocranium" done. Basis of existing resources, review of clinical anatomy of the scalp. Scalp can develop deep and superficial wound and infection. Infection can be areas of the cranial cavity, under the zygomatic arch; the roots will penetrate the nose and eyelids. But because of connection of occipital bellies of the occipitofrontalis muscle to the occipital bone and mastoid part of the temporal bone. The scalp injury can be investigated with CT and MRI. Given that in the scalp exist important parts such as skin, knowing the damage is important for doctors, especially surgeons. Further research in the field of restoration and improvement of expected damage and scalp infections occur.

Keywords: Scalp, clinical anatomy, infection, neurocranium

P-121

Morphology of multiple Kaposi's sarcoma lesions in a cadaver: a case report

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Kaposi's Sarcoma (KS) is a mesenchymal tumor caused by human herpesvirus 8 (HHV-8), and originates from lymphatic endothelium. Four variants are distinguished; chronic, endemic, iatrogenic and AIDS-associated KS. AIDS-associated KS, the most aggressive and most common type in South Africa, is associated with multiple organ involvement. The majority of case reports and autopsy studies have been on cutaneous KS lesions. The aim of the present study is to provide a detailed description of the morphology of KS lesions observed in an

embalmed cadaver. KS was diagnosed in a 31 year-old male cadaver. The diagnostic hemorrhagic lesions were observed in multiple organs, specifically the skin, palate, lungs, pulmonary hilar nodes, epicardium, liver, spleen, stomach, intestines and superficial inguinal nodes. Standard hematoxylin & eosin (H&E) histology slides were examined and immunohistochemistry was performed to test for the presence of HHV-8. Macroscopically, the KS lesions had a vascular, reddish-brown appearance. Microscopically, tumor masses mostly consisting of spindle-shaped cells immediately adjacent to vascular spaces of differing sizes were observed. Cleft-like spaces containing extravasated erythrocytes, typical of KS, were also observed. Immunohistochemistry of the liver and epicardium tested positive for HHV-8. The results describe in detail the morphology of KS lesions in multiple organs in an embalmed cadaver.

Keywords: Kaposi's sarcoma, HIV, AIDS-associated KS, pathology

P-122

Comparison of the effects of hydroxyapatite and collagen on radial fracture healing in rats

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Hydroxyapatite (HA), as bone substitute materials has the advantages of abundant supply and absence of immunogenicity. This study was conducted to evaluate the effects of hydroxyapatite and collagen on radial fracture healing in rats was assessed by radiographic and histological methods. Twenty four healthy rats were randomly divided into four equal groups. Each group was divided to two subgroups (n = 3). All rats were generally anesthetized and transverse osteotomy was performed in the mid-shaft of the right radius under aseptic condition. In groups 1 and 2, the osteotomy gap was filled with the HA and collagen respectively. Group 3 received combination of hydryapatite-collagen and group 4 not received any treatment, and was used as a negative control. Radiographs were taken in lateral view at days of 0, 14 and 28. From each subgroup three rats were euthanized at days of 14 and 28 and the radial bones harvested and prepared for histological test. Histological finding of bone healing in negative control were lower than from treated groups. This sign in groups 1 and 3 was higher and in collagen treated group was moderate. Radiographical sign was the same as histological results. It was concluded that application of hydroxyapatite and combination of hydryapatite-collagen have the positive effects on radial fracture healing process in rats compared with collagen alone.

Keywords: Hydroxyapatite, collagen, fracture, rats.

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Comparative anatomy of arcus aortae in humans and domestic animals

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Comparing the scientific literature that studies the anatomy of the aortic arch, we found difference in the appearance of the aortic arch between some species of domestic animals, and also the difference in the appearance of the aortic arch in humans and domestic animals. In order to confirm our observations, we have made the review of the thoracic organs with special reference to the aortic arch. In the experiment we carried out an overview at ten carcasses of cattle and pigs, and a troop of horses. We performed the autopsy of ten people in different ages and different sexes. Aortic arches are recorded in situ. The obtained results correspond to the description of the aortic arch in some animals acording to Nomina Anatomica Veterinaria in 2005. We also confirmed the literature data of the structure and appearance of the aortic arch in humans, comparing the obtained results with the terminology Anatomica (TA) in 1998, and histologic terminology from 2008. In this paper we present the basic difference in the appearance of the aorta in humans and domestic animals. The difference is manifested by the presence of a single truncus brachicephalicus in horses and cattle and in pigs from the aortic arch, particularly separating a.subclavia sinistra and a.subclavia dextra with its branches. In humans, the brachiocephalic common arterial tree saparate in a branches : a.carotis communis dextra and a.subclavia dextra. The left and behind of the beginning of the brachoicephalic arterial tree, starting separately a.carotis communis sinistra and a. subclavia sinistra, and directly from the aortic arch. The results confirmed that the aortic arch of people differ in appearance from the aortic arch of domestic animals-horses, cattle and pigs.

Keywords: Comparative anatomy, arcus aorte, truncus brachiocephalicus.

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Comparative anatomy of auditory ossicle of humans and domestic animals

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By studyng the professional literature, there (papers, books, atlases and practicum), we found difference in the number and arrangement of the ossicles of humans and domestic animals. At people there are three auditory ossicles / ossicula auditus /:

maleus, incus and stapes. At animals, according to the Nomina Anatomica Veterinaria (2005), Incus has the same parts as in humans: the body-corpus incudis, long-arm crus longum and short-arm crus breve. In domestic animals is a long arm ends with procesus lenticularis, which continues the os lenticulare. In order to confirm these findings we have conducted our review in the slaughterhouse, the middle ear of all domestic animals in our area and slaughtered for human consumption (horse, cow, pig, sheep, goats). Usually operations and the opening of the pars petrosa ossis temporalis and timpani scale, we selected auditory ossicles and the appropriate procedures isolated, freed of soft tissue-muscles, ligaments and connective tissue. Auditory ossicles are recorded in situ and after separation of the soft tissues. We performed a trepanation of the skull five people of different age and gender, where we apply the same methods of examination and recording in situ and ossicular separation with method of cooking and further processing of the ossicles. Results: The obtained results confirm the literature data and observations. Os lenticulare is special auditory ossicles, which is located between the anvil (incus) and stirrup (stapes). By comparing the literature data on the anatomy of the middle ear, auditory ossicles in particular, we found that there is a difference between the number and arrangement of the ossicles of humans and domestic animals. To look over of middle ear of slaughtered animals are confirmed our expectations and the literature data on the auditory of exist for auditory ossicles: maleus, incus, os lenticulare and stapes. With autopsy and trepanation os petrosums and opening of the middle ear of five people of different age and sex, we are confirmed the literature data on the existence of the three auditory ossicles-glanders-malleus, anvil- incus and stirrup-stapes.

Keywords: Comparative anatomy, auditory ossicle, humans, domestic animals

P-125

Investigation of developmental toxicity and teratogenicity of prednisolone on cultured rat embryos

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Prednisolone can be used in combination with immunosuppressive agents in pregnancy when continues immunosuppressive treatment is needed. In this study, it is aimed to investigate the effects of prednisolone on cultured rat embryos. Embryos were explanted and cultured for 48 hours. Whole rat serum was used as a culture medium for the control group while different concentrations of prednisolone (5 - 30 µg/ml) were added for the experimental groups. Dose-dependent effects of prednisolone were investigated using morphological method and embryos were evaluated for the presence of any malformations. We also investigated the potential role of apoptosis on the teratogenic effects of prednisolone using the Tunel assay. Compared with the controls, prednisolone treatment did not cause any developmental toxicity. However addition of 30 µg/ml concentration caused odema at the hind brain and at this dose apopitosis was also observed. This study showed the minimal toxic concentration of prednisolone in culture conditions is 30 µg/ml, and maximal safety dose at prednisolone which can be used along with immunosuppressive agents in pregnancy appears to the 20 µg/ml. It thought to be important to determine these doses for the clinicians in their treatment planning.

Keywords: Prednisolone, toxicity, teratogenicity, whole embryo culture

P-126

Usage of brain image technic in discovery of stress destructive power

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With brain image technic on ptsp patient's very clear neuroanatomic changes in some brain parts are found. Destructive power of stress can be translated to a last psychosomatic phaze and can triger somatic answer to the stress and can cause structural anatomic change at hippocampal formation which downseizing led to explicit clinical symptoms on ptsp. Therefore our goal is to compare area of hippocampal formation at control and ptsp group. Methods are analysys of MRI scan of the temporal lobus, measuring diemenzions of hippocampal formation on 3 projections: sagital on two levels, aksial on two levels and coronar on four levels at 30 participants without ptsp and 26 participants with ptsp symptoms. Measuring of hippocampal formation area by matematical formula given by usage of dimensions measured with MRI scan in 3 projections: sagital on two levels, aksial on two levels and coronar on four levels. Our results shows that ptsp patients have smaller hippocampal area in compare to persons without ptsp.

Keywords: Posttraumatic stress disorder, trauma, war veterans, hippocampal formation

P-127

Evaluation of cranium symmetry-asymmetry in relation to gender: a preliminary study

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The brain is asymmetric in structure and function. Like the brain, the cranium is frequently asymmetrical. The asymmetry related with cranium is more prominent on the occipital part. The aim of this study is to evaluate the asymmetry of the frontal part of the skull in relation to gender. A line passing through crista galli and internal occipital protuberance constituted the midline. From a point on the midline anterior to the skull, two lines were drawn passing the most prominent part of skull on

both sides. The angle between these two lines and midline were measured using OSIRIS. The cranium was defined to be asymmetrical when the difference of angles was greater than 2 degrees. Thus three groups were determined: right asymmetry, left asymmetry and symmetry group. Then the degree of asymmetry was evaluated according to gender. Furthermore signed, absolute (unsigned), and relative asymmetries were determined by the formulas; R-L, Faculty of Medicine, Bülent Ecevit University Zonguldak, Turkey √(R – L)2 and √[(R – L)2]/[(R+L)/2], respectively. Statistical analysis was performed with SPSS 18.0 software. Continuous variables were compared with the Independent Sample t test or Mann-Whitney U test and categorical variables were compared using Pearson's Chi-square test. P value of less than 0.05 was considered statistically significant for all tests. There were no statistically significant differences between the three groups according to gender ($p>0.05$). The differences between signed, absolute (unsigned), and relative asymmetry values according to gender were not statistically significant ($p>0.05$). Depending on these results it can be suggested that there is no significant asymmetry for the cranium of human beings in relation to gender.

Keywords: Cranium, asymmetry, symmetry, angle, gender

P-128

Evaluation of the surgical neck of the humerus in respect to muscle tears

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Evaluation of the dimension of surgical neck of humerus in relation to rotator cuff tears. The study is performed on left shoulder images of the 37 male subjects. The left shoulder magnetic resonance images (MRI) of 17 subjects with rotator cuff tears, composed of 10 subjects with partial rupture and 7 subjects with whole rupture, were compared with normal MRI images of 20 subjects. Length of surgical neck of humerus was measured using Digimizer software. The data was evaluated with SPSS 13.0 software. The mean length of the surgical neck of the subjects with muscle rupture and healthy control group were 9.09 mm and 10.19 mm, respectively. The difference between the groups was statistically significant ($p<0.05$). The length of the surgical neck of the humerus is suggested to be associated with rotator cuff tears.

Keywords: Rotator cuff, rupture, humerus, surgical neck

P-129

Relationship between Traube's space and BMI in relation to gender

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Traube's space is located in precordial area of the anterior chest wall and used in evaluation of spleen size; therefore, proper evaluation during physical examination is extremely important. The aim of this study is to evaluate of the association between Traube's space and BMI in relation to gender. Traube's space of 66 subjects who were evaluated with percussion in 2007. 35 of them were re-evaluated in 2010.Twenty-one male and fourteen female subjects were evaluated by the same physician with percussion method. Traube's space was determined on thorax wall and shape was drawn on transparent paper using the reference points. The areas of the images were calculated using the Digimizer software. Body Mass Index (BMI) was calculated by body weight/(height)2 formula. The data obtained in 2010 was evaluated according to gender with SPSS 13.0 software. Body weight, height, BMI and Traube's spaces were higher in men and the difference between the two genders were statistically significant ($p<0.05$). Considering the whole study group, there was a positive, strong and significant correlation between the Traube's space and subjects' height and weight ($p<0.05$). Obtained data is suggested to be useful for evaluation of Traube's space and spleen size during physical examination.

Keywords: Traube's space, BMI, male, female

P-130

Evaluation of twining line according to gender: a preliminary study

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Twining line is the distance between tuberculum sellae and internal occipital protuberance. The aim of the study is to evaluate Twining line in relation to gender. Midsagittal MR images of 26 male and 24 female individuals without any neurological disorder were evaluated. Twining line was measured using Digimizer software. Statistical analysis was performed using SPSS 11.0 Mann-Whitney U test was used for statistical analysis. Twining line of males was 48.34 ± 3.52 mm and that of females was 47.02 ± 2.04 mm. The difference between males and females was not statistically significant ($p>0.05$). The twining line is suggested to be similar in both genders.

Keywords: Twining line, cranium, male, female

P-131

Expression pattern of tumor necrosis factor alpha in placentae of idiopathic fetal growth restriction

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This study aimed to characterize the immunohistochemical expression and localization of TNF-α in idiopathic FGR placentae in comparison with those of appropriate for gestational age (AGA) fetuses. 75 human placentae were collected between April, 2010 and March, 2011; 50 placentae were collected from pregnancies associated with idiopathic FGR and 25 placentae from AGA pregnancies. Histological and Immunohistochemical methodologies were employed in formalin fixed paraffin-embedded sections from the placentae of all subjects. Area percent of TNF-α immunostaining was evaluated using image analysis technique. In both AGA and idiopathic FGR placentae, cytoplasmic TNF-α was localized in the decidual and chorionic trophoblasts and in the endothelium of decidual and chorionic vessels. Trophoblast giant cells (TGC) in the decidua and chorionic villi of AGA specimens show deficient or negative TNF-· immunoexpression while those of idiopathic FGR show positive immunostaining. The mean area percent of TNF-α staining was greater in idiopathic FGR placentae (5.93±0.69) compared to AGA ones (3.28±0.41) (p=0.001). Enhanced placental expression and specific cellular localization and of TNF-α are expected to contribute to impaired fetal development in idiopathic FGR and the TGCs are proposed to be an obvious source of this cytokine in such cases.

Keywords: TNF-α, idiopathic FGR, human placentae

P-132

The comparative study of anthropometric measurements of the mouth circumference in young women and men

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The aim of this study was determine the measurements of the mouth circumference among young Turkish women and men. Anthropometric measurements were taken from in 116 participants (56 men and 60 women) between 18-30 years old. Participants were students in Yasar Dogu School of Physical Education and Sport of Ondokuz Mayis University and they were sign an informed consent to participate in study. The means of the mouth width, length and width of philtrum, thickness of the upper and lower lips in women were 50.08, 14.48, 13.23, 9.23 and 11.22 mm, respectively. The means of the mouth width, length and width of philtrum, thickness of upper and lower lips in men were 53.30, 16.66, 14.22, 9.51 and 11.42 mm, respectively. The means angle of mentolabial, nasolabial and mentocervical in women and men were 110.73, 99.44 and 89.18°; 112.47, 99.17 and 90.54°, respectively. The results of this study may be used as a landmark for guidance to plan corrective surgery of the mouth and lips.

Keywords: Mouth circumference, lips, angles

P-133

Intraobserver and interobserver reliability of nine tests used for predicting the presence of palmaris longus muscle

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The palmaris longus is one of the most variable muscles in terms of its presence, attachments, and morphology. The palmaris longus tendon is frequently used for tendon transfers and is well established as a graft for craniofacial and upper extremity reconstruction because of its ease of harvest and suitability. The preoperative assessment of the presence of the palmaris longus tendon is the crucial point in harvesting. Various tests are reported in the literature for the assessment of the presence or absence of palmaris longus. This study evaluates the nine different types of tests used for predicting the presence of palmaris longus muscle in a single-blind design. Three observers have tested the presence of palmaris longus muscle in three different times on each of the 52 subjects' right and left wrists. For intraobserver and interobserver reliability, 3 observers tested 52 subjects' right and left wrists retested them after 2 weeks. The interobserver agreement of the observers was evaluated using Cohen's Kappa statistics. And the intraobserver agreement of the observers was evaluated using Intraclass Correlation Coefficent. Weighted Kappa statistics were defined as follows: Kappa < 0.40 was considered to indicate "no agreement"; Kappa = 0.41 to 0.60 as "moderate agreement"; Kappa = 0.61 to 0.80 as "substantial agreement"; Kappa = 0.81 to 1.00 as "almost perfect agreement".

Keywords: palmaris longus, test, interobserver, intraobserver, reliability

P-134

Modifications of mandibular condyle due to unilateral teeth loss

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Bone metabolism is highly affected by physical forces and it is known that high physical activity causes significant changes not only in bone mass but also in the morphology of the related area when compared with the unused side. The aim of the present study was to investigate the morphometric modifications of the mandibular condyle due to unilateral tooth loss. Twenty adult male Sprague Dawley rats were used in the study. After all the teeth on the right side had been extracted the experiment group was divided in to two subgroups. The mandibles of the rats were removed and the morphometric measurements of the mandibular condyles were taken by using a sliding caliper.

The results of the study indicate no difference between the dimension of right and left mandibular condyles in the control group. However slight difference both in Group I and Group II were statistically significant (p≤0.05). The results of the study indicate that tooth loss cause dimensional changes on mandibular condyle in six and twelve weeks.

Keywords: Mandibular condyle, tooth loss, morphometric modification

P-135

Investigation of effects of profenofos and MCPA on ultrastructural level on testis

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Endocrine disruptors cause malfunction of hormones by imitating or blocking them. A significant group of endocrine disruptors is pesticides. Organophosphates are the most widely use group of endocrine disruptors among pesticides. It is known that two of these compounds, profenofos and 4-chloro-2-methylphenoxy acetic acid (MCPA), have negative effects on male genital system. However, studies about those effects on ultrastructural level are limited. In this study, we aimed to investigate the effect of both MCPA and profenofos on testis seminifereous tubules on the ultrastructural level comparatively. Thirty male rats, all of which were fourteen weeks old, were divided into three groups (profenofos, MCPA, control group) containing ten rats. Two times per week, on determined day and time, 17 mg/kg profenofos was administered to the group of profenofos by gavage for one month. Every day, on determined time, 190 mg/kg MCPA was administered to the group of MCPA by gavage for one month. Only distilled water was administered to the control group by gavage. Electron microscopic investigations were performed on excluded tissues of testis. Structural degenerations were observed on spermatogenic and Sertoli cells in the group of profenofos. In the group of MCPA, gaps between spermatogenic series cells, cellular degeneration and structural damage were more apparent than profenofos group. Apoptosis was seen in some Leydig cells in the group of MCPA. Causing structural degenerations in the testes, profenofos and MCPA, as endocrine distruptors, may impede the process of spermatogenesis.

Keywords: Testis, profenofos, MCPA, electron microscopy

P-136

The light microscopical evaluation of age dependent modifications in rat ileum

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In this study, we aimed to examine the number, height and width of villi, and the number of goblet cells in rat ileum. 24 female Sprague Dawley rats were divided into 3 groups. Group 1 (n=8):21 days old, Group 2 (n=8):60 days old, Group 3 (n=8):19 months old. At the end of the experimentation ileum tissuses were removed. The tissue samples were fixed in 10% formalin and were embedded in paraffin. Blocks were cut at 5 µm, mounted on slides stained with Hematoxylin-eosin and Periodic acid schiff. Tissues were examined using a Leica DFC280 light microscope and number, height and width of villi and number of goblet cells was determined by a Leica Q Win Image Analysis system. Statistical analysis was carried out using the SPSS 13.0 and MedCalc 11.0 statistical programs. All data are expressed as arithmetic mean±SE. For comparison between groups Kruskal-Wallis and Connover tests were used. $p<0.05$ was regarded as significant. In the present study, the mean number of villi was 9.50±0.202 in 21 days old, 7.50±0.164 in 60 days old and 7.07±0.180 in 19 months old rats. There was a statistically significant difference between 21 days old and 60 days old groups, and 21 days old and 19 months old groups ($p=0.0001$). We have detected that the mean villi heights as 320.73±3.801 Ìm in 21 days old, 509.34±4.207 Ìm in 60 days old and 381.09±3.528 Ìm in 19 months old rats. All three groups had statistically significant differences compared with each other ($p=0.0001$). We have detected that the mean villi width was 86.75±1.665 Ìm in 21 days old, 110.08±1.331 Ìm in 60 days old and 100.51±2.140 Ìm in 19 months old rats. All three groups had a statistically significant difference compared with each other ($p=0.0001$). We have detected that mean number of goblet cells was 14.83±0.184 in 21 days old, 24.42±0.239 in 60 days old and 18.70±0.241 in 19 months old rats. All three groups had a statistically significant difference compared with each other ($p=0.0001$). The collected data shall provide a reference point for future studies.

Keywords: Ileum, goblet cells, villi, rat

P-137

Protective effects of Prunus armeniaca L (apricot) against low dose radiation-induced gastric damage

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Low-dose of radiation is harmful effects to the gastrointestinal system. We aimed that an apricot-rich diet might ameliorate the detrimental effects of low-dose x-rays on stomach tissue.

60 male Sprague-Dawley rats divided into 6 groups. Each group included 10 rats. Group 1 (Regular diet): Rats on a regular diet for 28 weeks. Group 2 (Regular diet+Radiation): Rats on a regular diet for 28 weeks, X-Ray on last day of eighth week. Group 3 (Apricot diet): Rats on an apricot diet for 28 weeks, Group 4 (Apricot diet+Radiation): Rats on an apricot diet for 28 weeks, X-Ray on last day of eighth week. Group 5 (Regular diet+Apricot diet): Rats on a regular diet for 8 weeks, followed by an apricot diet for the following 20 weeks, Group

6 (Apricot diet+(Regular diet+Radiation): Rats on a regular diet for 8 weeks, X-Ray on last day of eighth week, followed by an apricot diet for 20 weeks. At the end of the experimentation stomach tissuses were removed. The tissue samples were fixed in 10% formalin and were embedded in paraffin. Blocks were cut at 5 µm, mounted on slides stained with Hematoxylin-eosin. Histopathologic damage score was calculated in regard to damage of mucosa, vascular congestion, infiltration, dilatation of the gastric glands and hemorrhage. Maximum score was 15. Tissues were examined using a Leica DFC280 light microscope and a Leica Q Win Image Analysis system. Statistical analysis was carried out using the SPSS 13.0 and MedCalc 11.0 statistical programs. All data are expressed as arithmetic mean±SE. For comparison between histological score Kruskal wallis and Connover tests were used. $p<0.05$ was regarded as significant. The sections from group 1, 3 and 5 were normal in histological appearance. The mean histopathological damage score was 0.00±0.00, 0.90±0.13 and 0.50±0.22 respectively. The mean histopathological damage score was 8.20±0,32 in Group 2. In this group, severe radiation-induced gastric damage was detected. Findings in Group 4 and 6, were significantly lower than Group 2 ($p=0.0001$). The mean histopatological damage score of Group 4 and 6 was 2.30±0.47 and, 2.20±0.66, respectively. In this study, we concluded that apricot administration reduced radiation-induced stomach injury.

Keywords: Radiation, stomach, apricot, histopathology, rat

P-138

Investigation of the relation between the projection area of corpus callosum and ventricular volumes with the motor and cognitive functions in children with periventricular leukomalasia

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Periventricular leukomalasia is a neurodevelopmental disorder in premature infants due to various aetiological factors and causes white matter injury around the ventricles coursing with motor and cognitive functional impairment. In this study we aimed at investigating the change in ventricular volumes as well as the area of corpus callosum by using stereological methods in children with periventricular leukomalasia, and correlate these changes with the clinical picture. Cranial MRIs of 24 children with periventricular leukomalasia and 24 healthy ones with the age range of 1-11 years who applied to our pediatric neurology clinic between the years of 2009 and 2010 were evaluated. Projection area of corpus callosum and ventricular volumes were calculated by applying a stereological method on the MR images. Motor functions were evaluated according to gross motor function measurements and cognitive functions were evaluated according to Wechsler Intelligence scale. Mean projection area of corpus callosum in children with periventricular leukomalasia was found statistically significantly lower than the control group, however their ventricular volumes were seen to be increased. Furthermore, the correlations between the thinning of the corpus callosum and both motor and cognitive functions were 70% and 43%, respectively. Periventricular leukomalasia is one of the factors affecting the neurodevelopmental prognosis in preterm infants. It was seen in our study that there was a strong correlation between the ventricular volumes and projection area of corpus callosum on one side and motor and cognitive functions on the other. Motor and cognitive impairment in patients in the study group as well as the dilatation of the lateral ventricles and thinning of the corpus callosum were in accordance with the literature. Since the increase in volume of lateral ventricles will cause a decrease in cerebral volume, it may coexist with severe impairment in motor and cognitive functions.

Keywords: Streology, periventricular leukomalasia, preterm infants

P-139

Investigation of the effects of ciprofloxacin applied on pregnancy on fetal rat brain and morphological structure: quercetin's possible protective role

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The spermatozoon cells of the male gamete combined with the oocyte cell of the female gamete and this creates a zygote. This zygote multiplying becomes a multi-cellular human being. Use of the some of the pharmacological agents in pregnancy can cause embryonic-fetal malformation and defects. The purpose of this study is to investigate the protective role of quercetin against possible development of the brain damage by use of ciprofloxacin in the pregnancy. In this study, female Wistar albino strain (n=28) average 250 g b.w. were used, and the rats were provided from Inonu University Faculty of Medicine, Center of Experimental Animal Research and Reproduction and generated in pregnancy. Pregnant rats were divided into four groups as control, ciprofloxacin, quercetin, ciprofloxacin+ quercetin. At 20th day of gestation, the fetuses were taken by cesarean section. At the end of the study, the growth parameters such as the number of abnormal embryos, embryo weight, and crown-rump length between the groups were evaluated by morphological methods. Malformation data of embryos in all groups were compared by Kolmogorov-Smirnov test. In the multiple comparisons between groups, the Bon-ferroni- correction Mann-Whitney U test was used. $p<0.05$ was considered as significant level. The dates of experimental groups were compared with the

control group; applied ciprofloxacin treatment have suppressed and impair fetal development, degeneration of neurons in the morphological structures of the fetal brain tissue and cause hemorrhagic defects. Quercetin is a flavonoid with strong antioxidant properties, and it is understood that based on some parameters have distinctly suppresses by quercetin, fetal brain tissue development the degenerative effect of ciprofloxacin. Our results suggest that usage of ciprofloxacin during pregnancy appears to be detrimental, however, if antibioitic therapy is obligatory, a strong antioxidant like quercetin may be used to counterbalance the negative effects of the antibioitics.

Keywords: ciprofloxacin, quercetin, rat fetus, morfological structure

P-140

Investing of saphenous nerve anatomically and determining safe area for surgical incisions: an anatomical study

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Minor complications such as sensory loss after knee surgeries may cause dissatisfaction of the patients at the postoperative period. Injury to the infrapatellar branch of the saphenous nerve (IBS) was suggested to cause such complications. The aim of this study, therefore, is to investigate the anatomic course of IBS and to define anatomical landmarks that may be used by surgeons during knee surgeries. The anatomy of the IBS was examined in 11 limbs derived from 6 adult formalin embalmed cadavers. The anatomic course of the IBS was documented in reference to the medial border of patella (MP) and the tibial tuberosity (TT). The distances from medial border of patella and tibial tuberosity to the points which IBS arose from saphenous nerve; the point where the IBS pierced the sartorius muscle; the point where the IBS traversed the lower border of sartorius muscle; the most distal, proximal and lateral points where IBS distributed were measured. The IBS was confined to the MP and TT in 8 of the cases. However it was distributed to a larger area in rest of the cases. The distance where the most distal point of IBS reached to MP and TT was 91.69±13.32 and 17.98±5.55 respectively. The distance where the most proximal point of IBS reached to MP and TT was 60.56±17.03 and 23.66±8.85 respectively. Other results were given in the table. We suggest that the results of the present study may decrease the complications related with IBS injury during skin incisions in various knee surgeries.

Keywords: Saphenous nerve, infrapatellar branch, knee surgery incisions

P-141

The impact of using educational video films on teaching anatomy to medical students

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This study aimed to compare effect of educational video films with traditional methods on teaching anatomy to medical students of Medical Sciences. The course of anatomy was the genital system. Forty students of University of Medical Sciences were divided into two groups randomly, control and film groups. Each group included 20 students. Theoretical classes were presented to each group. Practical anatomy sessions are presented in two different methods. In the first method, based on traditional approach educational materials were shown on the cadaver, anatomical models, or bone. In the second method were shown on the cadaver, anatomical models, or bone and Video films related to the same part of the body were shown to one group (film group). The practical and theoretical scores of students were statistically analyzed. The data analyzed showed that the mean of theoretical and practical exam score of film group was higher than control groups significantly. Also, Film group students were more satisfied with their teaching method. The results obtained that although film method takes a longer time, taking these new perspectives on traditional methods of teaching anatomy provides a much more engaging, motivating, inspiring and enjoyable environment for better learning.

Keywords: Medical students, video films, teaching anatomy

P-142

Comparison of in vitro maturation of cryopreserved oocytes in mice

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Oxidative stress has a critical role in biological procedures. Cryobiology and in vitro maturation of oocytes are very important tools of reproductive technology. Oocyte plays an important role in fertility. The objective of this research is Comparison Study the effect of invitro maturation and IVF fertilization of cryopreserved oocyte with fresh oocyte in mice. For this purpose, For this purpose,30 adult female and 5 adult male bulb/c mice were kept in standard condition and divided into 3 groups of experimental, sham and control. The experimental group received 2 mmol/kg BSO daily for 2 weeks as IP injection. The sham group was received the solvent of BSO and the control group did not received any. After superovulation was performed oocytes were isolated mechanically from the ovary. Then isolated 100 oocytes in each three groups vitrified with rapid freeze-rapid thaw method. Fresh and freeze-thawed oocytes moved into culture medium and were put into the Co2 incubator for 48 hours and some factors were evaluated such as

growth and maturation of the oocytes presence or absence of polar body and extension of cumulus were used as criteria. The result showed that the percent of degenerated oocytes were significantly ($p<0.005$) higher in cryopreserved BSO received oocytes and the integrity of cumulus cells had lost in most of the oocytes in this group. In control group 50% of oocyte, BSO received group 17.03% and in sham group 37.13% of oocyte had expanded cumulus. In control group 50.33% of oocyte, BSO received group 14.53% and in sham group 46.23% of oocyte had polar bodies. It is concluded that maturation of vitrified oocytes after induction of oxidative stress damages the oocytes and decrease their ability for growth and division. This is probably induced by harming cumulus cells.

Keywords: Oocyte, vitrification, mouse, oxidative stres

P-143

Immunostaining characteristics of the caudate nucleus

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The caudate nucleus as a part of the basal ganglia is involved in motor control and memory processes. Ontogenetically, the head of the caudate nucleus is derived from three parts: the medial elevation, which is localized in the side wall of the cerebral vesicle, the lateral elevation, which overtakes the medial one in length and volume, and finally a third component, termed the intermediate elevation, which wedges between the medial and the lateral elevation and which overgrows the lateral one. The tail of the caudate nucleus is formed by the posterior regions of the medial and lateral elevation, the second being the greater contributor. Immunostaining of the caudate nucleus reveals common characteristics between the ventral and dorsal part of it, and also some differences. The dorsal caudate nucleus shows the typical distribution of markers, which means there is a matrix rich in choline acetyltransferase (ChAT), calbindin and tyrosine hydroxylase (TH) immunostaining with striosomes that express less intensely ChAT and TH than the matrix, but are enriched in enkephalin and substance P (SP) immunostaining. In the ventral caudate nucleus the boundaries of the ChAT-stained regions not always being in register with stains for calbindin, enkephalin and SP, the neurochemical architecture of the ventral part of the caudate nucleus appears to be more complex.

Keywords: Caudate nucleus, immunostaining

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Morphological study of the permeability the skin and placenta of the rat for the gold nanoparticles

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Current parenteral use of gold nanoparticles in nanobiotechnology in diagnostic and therapeutic purposes requires the study of their permeability through tissue barriers, distribution and circulation kinetics and possible toxicity. The purpose of this experimental study is to evaluate permeability gold nanoparticles through tissue barriers, their accumulation and distribution in maternal and fetal tissues. Experiments were carried out on pregnant white inbred rats on days 14-15 of gestation. The first group of animals, gold nanoparticles containing solution or gel was applied to skin twice a day. The second group was given a suspension of nanoparticles with the same frequency were administered intravenously via the tail vein. The content of nanoparticles was evaluated using morphological methods and absorption spectrophotometry of samples of organs tissues. Transdermal treatment with a suspension of gold nanoparticles did not cause significant changes in the morphology of the internal organs of mothers and fetuses compared with control animals. Placental barrier is permeable to gold nanoparticles, as the gold content in tissue samples of embryos of experimental group significantly higher than in the control group. These findings are also confirmed by histochemical methods. Pregnant rats is the of adequate and quality experimental model for studying the tissue penetration, toxicity, therapeutic and morphogenetic effects of gold nanoparticles, their kinetics, accumulation and distribution in the body and organs of laboratory animals.

Keywords: Gold nanoparticles, permeability, skin, fetus

P-145

Transplantation of hair follicle stem cells (HFSC) in hippocampus of alzheimer's rat model

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The purpose of this study was to evaluate the effects of transplanting HFSC into rats models of AD. 2 weeks after induction alzheimer by injection of ß-amyloid 1-40 into CA1 of rat hippocampus, Y-maze test was done to show deficit of learning and memory abilities. HFSC were obtained from the vibrissa hair follicle of the rat, cultured and labeled with 5-Bromo-2-deoxyuridine (BrdU).When behavioral test proved Alzheimer, HFSC were transplanted into hippocampus CA3 area of rat model of AD. Nestin, CD34 and Kr15 flowcytometry was done. Double-labeling immunofluorescence was done to study survival and differentiation of the grafted cells. We showed that HFSC transplanted survive and produce many neurons and a few glial cells that present GFAP. Cell proliferation in the hippocampus was observed with double staining markers. The results indicate that transplanted HFSC can differentiate into neurons and glia cells in vivo. Total granule cells number was estimated to be more per hippocamp in the rat model of Alzheimer's disease that were transplanted cells in compared to AD control group so we belived that transplanted cells can

induced neurogenesis. We observed that transplanted rats had significantly less error than AD control rats on the Y-maze.

Keywords: Hair follicle stem cells, alzheimer

P-146

Genesis of the dural cavernous sinus

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Cavernous sinus is central venous structure of the skull base. Data of its genesis is very important for understanding of pathogenesis of some sinus pathology. Methods of the intravascular plastic injection and corrosion were used for making of 60 specimens of the dural sinuses of the human fetuses (16-40 weeks of pregnancy) which were studied applying stereomorphometry. Results of research have shown that cavernous sinus develops in result of the primary venous net differentiation and already in the early fetal period was presented by circular venous plexus that closely connected with extracranial veins of the skull base. Degree of reduction of the primary venous net defines peculiarity of internal structure of the cavernous sinus that in the late fetal period was characterized by wide diapason of individual variability. Networks between cavernous sinus and extracranial venous plexus were kept. Internal carotid artery else pass in duplication of parasellar dura mater. Connections of the extracranial venous plexuses with cavernous sinus are the ways for inflammatory process distribution that results in sinus thrombosis. Disorders of blood circulation can develop in cases of an aneurysm of the intracavernous part of internal carotid artery and carotid-cavernous fistula.

Keywords: Cavernous sinus, development, networks, clinical application

P-147

Aberrant right subclavian artery: anatomical study on 78 cadavers

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An aberrant right subclavian artery (ARSA) arises as the last branch of the left sided aortic arch, distal to the normally positioned left subclavian artery. The purpose of the present study is to report the incidence of ARSA in cadavers and to discuss its clinical impact. A total of 78 (46 female and 32 male) Caucasian formalin embalmed cadavers were dissected and examined for the presence of ARSA. Two male and two female cadavers were find to have an ARSA (Incidence: Total = 5.13 %, Males = 6.25 %, Females = 4.35%). The two male cadavers had an ARSA in combination with a bicarotid trunk. The ARSA is associated with several congenital cardiovascular anomalies and some chromosomal and other syndromes. It is occasionally responsible for causing dysphagia, dyspnoea, or acute ischemia to the right upper limb and may present as superior mediastinal mass in cases of aneurysm formation.

Keywords: Aortic arch, great vessels, right subclavian artery, anatomical variations, dysphagia lusoria

P-148

High origin of the radial artery: anatomical study on 81 cadavers

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Aim of the present study was to report the incidence of high origin radial artery along with its clinical impact during surgical approaches. The presence of the variant artery was examined during anatomy dissection of 81 formalin-embalmed Caucasian cadavers. A radial artery with high origin and superficial course was observed in 3/81 cadavers (4.94%). 1st case: a bilateral radial artery with high origin was observed in a 77-year-old female cadaver. It originated from the brachial artery, 2.2cm distal to the inferior border of the pectoralis major tendon. 2nd case: a unilateral high-origin radial artery was found in an 82-year-old male cadaver. The artery originated from the right brachial artery, 2.7cm distal to the inferior border of the pectoralis major tendon. 3rd case: a unilateral case of a high-origin radial artery was noticed in a 77-year-old female cadaver. It originated from the left brachial artery, approximately 2.5 cm below the inferior border of the pectoralis major tendon. The high origin of the radial artery is the most common arterial variation in the upper limb. During anterior approach of the cubital fossa, surgeons should bear in mind that the artery, when present, is at risk of injury.

Keywords: Upper limb, radial artery, anatomical variations, surgical approaches

P-149

Protective effect of Tragopogon collinus extract against ethanol induced hepatic enzymes changes in rat

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Ethanol induces different side effects on tissues and organs of the body. The aim of the present work was to investigate the protective effect of Tragopogon collinus extract against ethanol induced hepatic enzymes changes in male rat serum. In this experimental study, 30 male wistar rats (weight: 200±20 gr) were divided into control which received distilled water (1 ml)

and 3 experimental groups which received 50, 100 and 150 mg/kg of T. collinus extract, respectively for 14 days by gavage. Animals (except control) received ethanol (5 gr/kg) and 1 hour later, they were anesthetized and blood samples were taken. Their serums were separated and liver enzymes (ALT, AST, and AP) were measured by ELISA method and serum Nitric Oxide (NO) was assayed by Greiss method. Data were analyzed by one-way ANOVA and $p<0.05$ was considered significant. Ethanol increased NO, ATL, AST and AP in male rat serum. Tragopogon collinus extract decreased NO, ALT and AP significantly, but didn't decrease AST. T. collinus showed protective effect against ethanol induced liver enzymes secretion in rat.

Keywords: Ethanol, liver, nitric oxide, ALT, AST

P-150

Anatomical variation of the thyroid gland blood supply – contribution to dental education

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This study highlights the clinically significant variation in the blood supply to the thyroid gland. The perfect knowledge of vascular variations is important for making surgical procedures. Risk of damage can be minimized by keeping in mind all possible anatomical variations. This study was made during the routine anatomy dissection on 72-year-old adult female cadaver. This study was supported by Grant KEGA 006UPJS-4/2011. Two anomalous thyroid arteries were observed on the right side of the thyroid gland. The middle thyroid artery arose as a short branch from the right common carotid artery, entering the lateral part of the right thyroid lobe. The accessory inferior thyroid artery arose nearby the brachiocephalic trunk to supply the base and posterior part of the thyroid isthmus. In case of third thyroid ima artery, it aroses similarly from anteromedial surface of brachiocephalic trunk. The superior thyroid and inferior thyroid ateries have been found in normal anatomical position. It is necessary to understand the possible existence of this anomaly, in order to carry out successful radical neck dissection and to minimize the risk of postoperative complications in patients.

Keywords: Blood supply, thyroid gland, variation, clinical significance

P-151

NADPH-diaphorase expression in the ventricular myocardium after treatment with all-trans retinoic acid

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Retinoic acid (RA) the active derivate of vitamin A is implicated in various step of cardiovascular development. It is assumed, that maternal excess of vitamin A during pregnancy results in developmental heart abnormalities. The administration of excess RA given at an early stage in the rat embryo has teratogenic effect on early heart development. The distribution of the nitrergic nerves and vessels in the rat myocardium after treatment with all-trans RA in postnatal period at the 1st, 14th and 21st days was the aim of this study. Histochemical methods were used for the detection nicotinamide adenine dinucleotide phosphate diaphorase (NADPH-d) activity in nerve fibres and vessels of ventricular myocardium. Treatment of early stage at embryos with RA causes severe myocardial defects and general loss of nitrergic nerves. All samples of ventricular myocardium showed a disturbed nitrergic distribution and reduction of NADPH-d nerves in retinoic acid treatment rats. The abnormal number of dilated vessels in the myocardium and nerve fibres in perivascular and adventitial location were also observed. These results indicate that the neurovascular components are sensitive to the retinoid treatment. This work was supported by grant VEGA 1/0154/11

Keywords: Postnatal development, myocardium, rat, all-trans retinoic acid

P-152

Survey of anatomical variations of clavicle bone

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Clavicle is a Long bone that in all its length through the skin is palpable. Anatomical variations in this bone more than the other long bones occur. Recognizing the importance of anatomical variation, increase their ability to differentiate non-natural. The purpose of this study is to identify anatomical variation in the clavicle bone. The study of anatomy books and searching the Medline database and is done in English language. For this Search were used keywords such as “clavicle” and “anatomical variations”. The articles were based on anatomical variations of the clavicle bone. May ossification process, which does not form part of the bone in the shoulder are not close together. Sometimes due to not being connected to two bones between the external and middle bone loss occurs when a radiograph can help to diagnose it. If supraclavicular nerve, pierce the bone, the bone will be built without internal epiphyses. Knowledge of these variations can be detected in healthy clavicle bone to help the injured. Given the great variety in the bone, recognizing them for all doctors, surgeons and anatomists seem necessary. We expect more studies on the diagnostic and imaging techniques as these variations occur.

Keywords: Clavicle, variation, ossification

P-153

Investigation of developmental toxicity and teratogenicity of lyophylised aqueous distillate of Nerium oleander on rat embryos cultured in vitro

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Nerium oleander, an evergreen shrub, is used in folklore medicine as an antidiabetic and antilipidemic and exhibits a wide spectrum of bioactivities. This study was planned to investigate the effects of Nerium oleander lyophilised distillate on developing rat embryos in culture. Postimplantation rat embryos of day 9.5 were cultured for 48 h in whole rat serum with the addition of various concentrations of Nerium oleander distillate (0.2- 8 µg/ml). At least 10 embryos were used for each concentration. Aqueous distilate of Nerium oleander was obtained by hydrodistillation method. Dose-dependent effects of Nerium oleander on embryonic developmental parameters such as total morphological score, yolk sac diameter, crown-rump length and somite number were compared using morphological method. Embryos were also evaluated for the presence of any malformations. Compared with the controls, the addition of different concentrations of Nerium oleander did not cause any growth retardation and/or malformations. These results indicate that the use of Nerium oleander in pregnancy may not affect the developing embryos negatively. However, these findings should be supported by further in vivo experiments as well as cell-line studies.

Keywords: Nerium oleander, toxicity, teratogenicity, whole embryo culture

P-154

Annular pancreas associated with nutcracker syndrome: a case report

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The pancreas is usually develops from the fusion of the dorsal and ventral pancreatic buds between the first 4–9 weeks of embryonic life. Annular pancreas is consists of a ring of pancreatic tissue partially or completely surround the descending portion of the duodenum. Annular pancreas is an uncommon congenital anomaly. The etiology of this anomaly is still unknown. There are approximately 700 case reports of annular pancreas in the literature. The annular pancreas has been associated with other congenital anomalies and various clinical symptoms. Association of annular pancreas with nutcracker is rare. The nutcracker phenomenon is defined as compression of the left renal vein between the aorta and superior mesenteric artery. We reported of a 54-year-old patient who presented with a 15-day history of nausea and vomiting associated with weight loss. On MRCP (magnetic resonance cholangiopancreatography) and CT (computer tomography) examination, an annular pancreas and a nutcracker syndrome were diagnosed, respectively. In this study, we reported the radiologic and clinical findings of associated annular pancreas with nutcracker syndrome may be clinical importance for surgical procedures.

Keywords: Annular pancreas, congenital anomaly, nutcracker phenomenon, MRCP, CT

P-155

Anatomical study of the pelvic nerves after total mesorectal excision

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The purpose of this study was to demonstrate the integrity of the pelvic nerves after rectal resection using the technique of total mesorectal excision. Rectal resection with total mesorectal excision was carried out during dissections of 30 fresh cadavers. The pelvic nerves were then dissected and studied.

The superior hypogastric plexus was located in the aortic bifurcation, at the level of the first sacral vertebra. Two hypogastric nerves were found in all cases. They were the termination of the superior hypogastric plexus. They were covered by the parietal pelvic fascia. They joined the anterior branches of the sacral roots to form the inferior hypogastric plexus. The latter was roughly quadrilateral, measuring 37 * 27 mm. It was the most at risk of injury during dissection of the side walls of the rectum. All these nerves were intact after the total mesorectal excision. Perfect knowledge of the pelvic nerves is a fundamental step of total mesorectal excision. This surgical technique allows the reduction of genitourinary postoperative complications while maintaining an oncologic resection.

Keywords: Pelvic nerves, mesorectal excision

P-156

Anatomy of the superior and middle rectal arteries

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To describe the surgical anatomy of the rectal vessels contained within the mesorectum in order to try to understand the role of the vascularisation of the rectum in the occurrence of anasto-

motic leakage following rectal surgery. Low anterior rectal resection was carried out in 30 fresh cadaver dissections. The superior rectal artery (SRA) was injected with a mixture of resin, red dye and contrast material. Angiography images of resected specimens were taken. The middle rectal arteries (MRA) were identified during pelvic dissection. The SRA was the terminal branch of the inferior mesenteric artery in all cases. It was divided into two branches in 25 cases and three branches in 5 cases. The MRA was present in 11 cases (bilateral: 4, right: 6, left: 1). Extravasation of colored resin by the lumen of all MRA confirmed the presence of anastomoses between the SRA and MRA. In low anterior resection, the MRA is always removed, and the rectal stump is not well-vascularised. Diverting stoma should be used routinely. In high anterior resection, however, diverting stoma could be avoided in patients in whom MRA is shown to be present in pre operative imaging procedures.

Keywords: Anatomy, rectal artery, mesorectum, anastomotic leakage, colorectal surgery

P-157

Protective effects of melatonin hormone on the cadmium induced oxidative damage and histopathological changes in liver

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The aim of this study was to evaluate the protective effects of the melatonin on the cadmium induced oxidative damage in rat liver. Twenty-one male Wistar-Albino rats were randomly divided into three equal groups; Group 1 was control group, Group 2 was cadmium group and Group 3 was cadmium + melatonin group. Rats in Group 1 were injected by saline solution subcutaneously for 30 days. Subcutaneous cadmium chlorur (1 mg/kg) injections and subcutaneous cadmium chlorur (1 mg/kg) + intraperitoneal melatonin (25 mg/kg) injections were administered to the rats in Group 2 and Group 3 respectively for 30 days. Liver samples were examined biochemically and by light microscopy. In cadmium treated group, liver SOD and GSH-Px levels were significantly lower and MDA levels were significantly higher than the control group ($p<0.05$). Cadmium + melatonin treatment resulted in a statistically significant increase in SOD and GSH-Px enzyme activities, and a decrease in MDA levels in Group 3 rats ($p<0.05$). Microscopically some histopathological changes, namely fatty degeneration, hydropic degeneration, fibrosis and mononuclear cell infiltration were observed in the livers of the cadmium treated rats. Histopathological changes were not observed in rats treated by cadmium + melatonin. It is concluded that cadmium creates oxidative damage in liver and melatonin has protective effects against this cadmium induced damage.

Keywords: Cadmium, melatonin, oxidative stress

P-158

Morphological effects of administration of resveratrol and selenium in diabetes

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In diabetes, accumulation of free fatty acids and triglyceride storage in hepatocytes or steatosis depends on insulin resistance and oxidative stress in liver. Resveratrol promote insulin sensitivity in streptozotocin-induced diabetic (STZ-DM) rats and have antioxidant, anti-inflammatory, and anticancer effects. In addition, selenium possesses a potent antioxidant action against the damaging effect of oxidative stress in diabetes. We aimed to investigate whether resveratrol and selenium decreased hepatic steatosis in an animal model of streptozotocin-induced diabetes. Thirty-seven male rats of Wistar albino species were divided into 5 groups: group 1 (n=7): control, group 2 (n=7): diabetes mellitus (DM), group 3 (n=8): resveratrol pretreatment+DM, group 4 (n=7): DM+resveratrol, group 5 (n=8): DM+selenium. Tissue sections were fixed in 3.5 % paraformaldehyde (PFA) solution for light microscopy. Then sections cut 10 µm thicknesses by cryostat after puting into 0.1 % PFA solution containing 30% sucrose one day. They were stained with Oil- red O and examined using Nicon Eclipse E600 microscope. Intrahepatic lipids in sections of group 2 is excessive dense. Liver sections of group 3 showed smaller lipid droplets and number of lipid droplets are less than group 2. Group 4 and 5 are similar with group 2 in point of size and distribution of lipid droplets. Group 1 is evaluated normal. In our study, hepatic steatosis was significantly decreased in rats pretreated with resveratrol (group 3). Mechanism of this may be explained that the hypoglycemic and hypolipidemic effects of resveratrol arise from anti-inflammatory, antioxidant, decreasing lipid peroxidation and enchancing insulin sensitivity properties.

Keywords: Resveratrol, selenium, steatosis, streptozotocin-induced diabetic rats

P-159

Morphometry of human insular cortex: a cadaveric study

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Although the morphology and the function of central nervous system have been researched for a long time, there are still some important aspects which keep their secrets, like insula. Hence, in the present study insular structures of 32 hemispherium cerebri (16 brains) were evaluated. The brains were

removed and fixed with 10% formaldehyde. Lateral sulcus, periinsular sulcus, gyrus located at apex of insula, gyri and sulci of insula, the distance between the apex and limen insula and the length of central sulcus of insula have been identified and the measurements have been accomplished. The number of short and long gyri of insula and the length of sulci between these gyri has been evaluated. After the vertical projection of the gyrus which forms the anterior border of the insula has been determined, the distances of this point to central sulcus of insula and frontal pole have been measured. The measurement processes have been achieved by using a surgical suture material with fixed length and width and than evaluated milimetrically by electronic compass. After all measurement processes have been completed, the dissected hemispheres have been visulized by the Fine Pix S7000 camera. All the data were examined statistically. The results of this study are thought to be contributing about insula morphology and will be beneficial for the neurosurgical operations. Further on, the compared anatomical studies of fresh cadavers with clinical and radiological data should be required.

Keywords: Insula, morphology, morhpometry, cadaveric study

P-160

The arterial anatomy of the saphenous flap: a cadaveric study

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The saphenous flap is a fasciocutaneous flap generally used for knee and upper third of the leg coverage. Due to various descriptions of the saphenous flap such as venous, sensory and free flap in literature, knowledge on the origin and distributing characteristics of the saphenous artery are important for plastic surgeons. Hence, the aim of this cadaveric study was to evaluate the anatomical features of the saphenous flap. The pedicle of the saphenous flap was dissected under 4x loop magnification in thirty-two legs of 16 formalin-fixed adult cadavers. The findings of this anatomic study were as follows: Descending genicular artery originated from the femoral artery in all of the cases. The first musculoarticular branch, which arose from descending genicular, to the vastus medialis muscle were existed in all dissections. The saphenous artery was found to be as the second branch which originating from descending genicular artery separately in all of the cases. At the level of origin the mean diameter of the saphenous artery was found 1.61 mm. The muscular branches to anterior or posterior side of the sartorious muscle were existed in all of the dissections. Two venae comitantes and saphenous nerve were accompanying the saphenous artery in all cadavers. The mean distance between the origin of the artery and interepicondylar line of tibia were 115 mm. Due to variations of the arterial anatomy and limited number of anatomic studies of the saphenous flap, we studied the topography and anatomy of the saphenous artery for increasing reliability of the saphenous flap.

Keywords: Saphenous artery, anatomy, flap, reconstruction

P-161

Craniofacial dimensions for the estimation of body figure: a preliminary study on male subject

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Personal identification gains importance with the increase in terrorist attacks in recent days besides mass disasters in which great amount of people had been killed. Sex, age at death, race and stature is the main four parameters required for a reliable identification. However estimation of body figure also provides insight into the identity of the victim. Detailed studies on the estimation of body figure depending on craniofacial dimensions are not reported in the literature. The main aim of the present study is to evaluate the relationship between craniofacial dimensions and some width dimensions from the body and the limbs. The present study consists of a sample of 71 male subjects with a mean age 21.18 ± 2.26. Besides stature shoulder, heap, elbow, knee, wrist, ankle breadths, hand and foot lengths and breadths were measured. In addition seven craniofacial measurements as head circumstance, head breadth, head length, facial height, bifrontal, bizygomatic and bigonial breadths were taken. Statistical analyses indicated significant correlation between body and extremity breadth values ($p<0.01$). However no or mild correlation was observed between craniofacial dimensions and body and extremity breadth values. Though they are not highly reliable craniofacial dimensions may provide an idea for the estimation of body figure.

Keywords: Forensic anthropology, identification, craniofacial dimensions

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Incidence of Labbe and Troland veins: MR venography study

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Cerebral veins are divided into three as deep, cortical and back hole. Thalamostriate and internal cerebral veins drains to sinus

rectus by the mediation of Galen vein which can be easily showed at angiographies. Cortical veins show difference in terms of the drainage zones and numerics, and they connect with eachother by the help of rich anastomoses. Superior anastomotic veins (Trolard vein) and inferior anastomotic vein (Labbe vein) are anastomotic structures that they can be clearly detected in angiography recpectively between middle cerebral veins and superior sagittal sinus and sinus lateralis. These anastomotic structures have an important role to being a drainage way to alternative surface sinuses while superior sagittal sinus and lateral sinus obstruction. We planned to search the anatomy and the variations of these important cerebral veins by using MR venography in this study. The study achieved in three health center. MR venographies of 48 healthy volunteers (28 female-20 male) are analysed. Labbe vein is detected in 8 cases at right side, in 4 cases at left side and in 30 cases bilaterally. Trolard vein is seen in 4 cases at right side, in 8 cases at left side and in 4 cases bilaterally. Moreover the brain sinuses of the cases are analysed and differencies are obtained between superior sagittal sinus and transvers sinus in 11 cases. At the same time Labbe and Trolard veins are important vascular structures at transpetrosal, transtemporal and suboccipital surgical approaches.

Keywords: Cerebral vein, magnetic resonance imaging, venography, Labbe vein, Troland vein

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Anatomical prerequisites of cerebrobasilar insufficiency subject to shape of skull

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The posterior circulation of brain is under particular interest due to complex course and relations of the vertebral artery. Variability of the third segment (V3) of vertebral artery (VA) in correlation with individual shape of skull was studied by analyses of 32 MRI and angiograms of 64 arteries. According to value of cranial index, our research group was divided into three subgroups: dolichocephalic (15.6%), mesocephalic (43.8%), and brachycephalic (40.6%). The patients with brachycephalic shape of skull are at risk of the vertebrobasilar insufficiency with following ischemic stroke due to small width of the arteries and presence of anatomic prerequisites for obstruction of the distal loop of VA. In addition, the brachycephalic patients must be at the greatest attention of surgeons, because the horizontal part of the VA is in close proximity to the base the skull in this group, encumbering the posterolateral approaches to the foramen magnum and craniovertebral junction. The anatomic prerequisites for obstruction of the proximal loop of VA were revealed in the dolichocephalic group, as well as excessive sagging of the horizontal segment of V3 that can lead to inflection of the distal loop during head rotation severing as an important prerequisite for onset of the bow hunter's syndrome. The anatomical variability of V3 has close correlation with the shape of skull and can be easily estimated at the stage of primary inspection of patient.

Keywords: Vertebral artery - V3 segment, variability, cranial index, shape of skull

P-164

Morphological development of testes in ostrich embryo and newly hatched ostrich chick

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Despite some studies on ostrich testes there is no clear information about anatomical and histological development of testes in ostrich embryo and newly hatched ostrich chick. The aim of the study was to provide this information. Fertile ostrich eggs were obtained and incubated for 20, 26, 36 embryos and one-day-old chick. Testes was separated from kidney and immersed in bouin's solution. 5µm thick paraffin sections were prepared and stained with H&E, PAS and Masson trichrome stains for histological observation by light microscope. In 20-d-old embryo, testes with a dirty white color were located in the ventral surface of mesonephros kidneys. In 26-d-old embryo testes are brighter and more distinguishable from kidney in texture and color. In 20-d-old embryos aggregations of Sertoli cells corralled some primordial germ cells (PGCs). In 26-d-old embryos Sertoli cells aggregations were more regular and more similar to shape of cord. PGCs are clearly increased relative to 20-d-old embryos. In 36-d-old embryos external coat in all sides was a thin tunica albuginea. Sertoli cell aggregations were completely replaced by organized sex cords. Precursors of Leydig cells were also present in the interstitial tissue. In 1-d-old chick cover of testis had smooth surface. The sex cords still had no lumen. Sex cords had many PGCs that tend toward the basement membrane. Interstitial tissue had mesenchymal cells and Leydig cells. Ostrich testes like other avian species are located in the abdominal cavity at the ventral side of the kidneys. Probably define number of PGCs inter to each testis and surround by mesenchymal cells that are progenitors of the sertoli cells. Forming of primary sex cords commences before day 20 of embryonic period, whereas forming of tunica albuginea and complete separation from kidney structures starts later. At one day old chick in spite of expanding in testis volume it sounds not to increase in number of mitotic germ cells. At this time leydig cells appear in single.

Keywords: Ostrich embryo, testes, sex cords, primordial germ cells, sertoli cells

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The effect of excess retinoic acid during pregnancy on spermatogenesis in adult rat offspring

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This study was designed to determine the relationship between maternal excess retinoic acid and spermatogenesis in the adult rat offspring. Retinoic acid was administered to mothers

intraperitoneally in several doses (0, 10, 20 and 30 mg/kg) on days 8.5, 10.5, 12.5 and 14.5 after copulation as one control group and three experimental groups. The offspring were studied on postnatal day 70 (maturity time). Adult male offspring rats in the all groups were sacrificed under deep ether anaesthesia andorchiectomy was made. The orchiectomy materials were histopathologically evaluated under the light microscope for spermatogenesis according to parameters including spermatogenetic activity, spermatogenetic organization, seminiferous tubular diameter, interstitial Leydig cells and sperm was collected from epididymis and was prepared for analysis. Results indicated that there were significant decrease in seminiferous tubules diameter, number of spermatocyte, spermatid and leydig cells experimental groups compared with the control group especially in animals which received 30 mg/kg of retinoic acid (p?0.05). Also retinoic acid is the cause of decrease of the epididymis and deferent weight, and sperms in the epididymis, significantly (p?0.05). These results suggest that placenta could deter most of RA from passing from dams to fetuses. Maternal excess RA exposure impairs spermatogenesis in male offspring.

Keywords: Retinoic acid, pregnancy, spermatogenesis, rat

P-166

The effects of melatonin and pyrrolidine on the antioxidant system and histological structure of nephectomized rats after ischemia-reperfusion

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Our aim was to determine the effects of melatonin and pyrrolidine on oxidative stress and renal histological structure of nephrectomized rats after ischemia-reperfusion. Forty Wistar rats were divided into 5 groups (8 rats for each group). Right nephrectomy was performed to all groups. Group 1: control; group 2: I/R on the left kidney; group 3: Melatonin+I/R on the left kidney; group 4: Pyrrolidine+I/R on the left kidney; group 5: Melatonin+Pyrrolidine+I/R on the left kidney. Solutions were administered intraperitoneally for 7 days as a single dose a day (Melatonin 10 mg/kg/day, Pyrrolidine 100 mg/kg/day). 45 minutes ischemia, 24 hours reperfusion were applied to 2-5 groups for I/R. The levels of antioxidant enzymes and MDA were detected form blood samples. The renal tissues were examined under light microscopy. Melatonin and Pyrrolidine significantly decreased MDA levels and enzyme activities differed significantly compared with group 2. In addition, they improved renal histopathologic damage related to renal I/R. Melatonin and Pyrrolidine have antioxidant effect on renal I/R. Therefore, there are some differences for their effects.

Keywords: Ischemia-reperfusion, antioxidant, nephrectomy, rat

P-167

Induction of chondrogenesis in adipose stem cells by coculturing with chondrons and low intensity pulsed ultrasound

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Coculturing of articular chondrocytes with mesenchymal stem cells (MSCs) induces chondrogenic differentiation in MSCs. In this study, we investigated whether cocultures with chondrons (chondrocytes enveloped by their natural pericelluar matrix) and/or low intensity pulsed ultrasound (LIPUS) may further enhance induction of the chondrogenic phenotype in MSCs derived from adipose tissue (adipose stem cells; ASCs). Interactions between chondrons and ASCs, both cultured in a micromass configuration to facilitate chondrogenic induction, were studied in a transwell system. As a control, ASC micromasses were cultured in the absence of chondron micromasses. The cocultures and the ASC control cultures were either or not exposed to LIPUS treatment (30 mW/cm2; 20 min/day) for 4 and 14 days. Gene expression of main chondrogenic and hypertrophic markers was analyzed by real-time RT PCR. Cocultures with chondrons significantly upregulated expression of chondrogenic genes (link protein, COMP, aggrecan and collagen type II) in ASCs in comparison to ASCs cultured under control conditions after 14 days. However, LIPUS co-stimulation did not result in marked differences in chondrogenic expression profile. Soluble factors secreted by chondrons strongly upregulate differentiation of ASCs into chondrocytes which is, however, not further enhanced by low intensity pulsed ultrasound.

Keywords: Cartilage tissue engineering; low intensity pulsed ultrasound; chondrogenesis; chondron; coculture

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Dynamics of the organometric parameters of rats' axillary lymph nodes after immunosuppression

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Layering induced cytostatic immunosuppression on the immunodeficient unfavorable background leads to an increase of the frequency complications. Given that one of the first barrier after contact with the antigen in the internal environment are the lymph node that is why the aim of the study was examined their organometric features after cyclophosphamide injection. The study was conducted on 36 adults rats males with initial mass 210-250 g. The animals were injected by the single dose cyclophosphamide (200 mg/kg).The control was intact rats. Experimental animals were taken out at 7, 30, 90 days, separated right axillary lymph nodes, was determined mass, length, width and height were measured by the trammelhead. The analyses of the results were revealed a similar trend changes in all organometric parameters. The lymph node mass

is reduced from 7.94% to 11.96% (7, 30 days). The length, width and height are decreased from 10.26% to 19.71%, from 2.09% to 12.91% and from 2.33% to 3.23% (7, 30 days). At the 90 days leveling parameters with control results observed. A single injection of cyclophosphamide decreases organometric parameters of the right axillary lymph nodes at 7 and 30 days, and to 90 days parameters close to norm.

Keywords: Lymph node, cyclophosphamide, rats

P-169

Investigation of mineral content of malleus and incus at scanning electron microscopy

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There are three mobile ossicles at the middle ear cavity between eardrum and inner ear. Among these ossicles; the malleus articulates with the body of incus, the stapes articulates with the lenticular process of incus and the last one, the incus articulates with both the malleus and the stapes. Our study was performed on 10 malleuses and 10 incuses. These ossicles were examined at scanning electron microscopy and then 6 areas were determined to analyze mineral content of these ossicles. While one of the determined areas was outside of the pathway, transmitting the sound resonance to the inner ear, the other 5 areas were on the pathway of sound vibrations. Total mineral content (calcium, phosphorus, magnesium, sodium, carbon and oxygen) were %30.94, %15.43, %0.23, %0.42, %13.97, and %38.82 for the malleus; %30.29, %15.45, %0.25, %0.38, %13.93, and %39.42 for the incus, respectively. The mineral analysis of determined 6 areas was compared statistically. The calcium and phosphorus contents of the malleus and the incus were found significantly different between the parts of the pathway that are transmitting or not transmitting the sound resonance to the inner ear (p=0.05).

Keywords: Malleus, incus, mineral, scanning electron microscopy

P-170

Investigation of vascularization of human pancreas using method of selective arteriography with insight into significance to a surgical approach for this organ

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This study explored arterial vascularisation of celiac trunk and superior mesen-teric artery using method of selective arteriography in series of arteriogram which were done in 39 patients of Institute for Radiology. There were no pathological findings in a single case at pancreas or duodenum. Arteries which arise for vascu-larization of pancreas had a common spot of arising, flow and ramification. Pancreatic duodenal arteries arcade, which supply blood to the duodenum and the body of the pancreas, were shown in arteriogram. The branches which provide blood supply to the body and the tail of the pancreas were found. There was one case where lower pancreatic artery arose from gastroduodenal artery and in one case a direct anastomosis for celiac trunk and superior mescntcric arteries, better known as Tandler's anastomosis.

Keywords: Pancreas, arteries, arteriography

P-171

How to teach better anatomy for dental students?

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The aim of this work is to report on the results of the innovation in teaching gross anatomy and evaluate the results of students learning. Two building ideas were chosen: to use mnemonics and to increase imagination during making something. Two groups of dental students (58 in number) were evaluated in this experiment. One group was required to learn basic structures of human body by using traditional methods, while the other group learned them by using innovation. The time spent with learning and the results from assessment tests were compared and evaluated. Dental students in the first group which used only commonly offered anatomy materials showed more difficulties with learning anatomy. The most often was seen that they spent more time to learn the structures and their relationship. On the other hand, students with new methods using mnemonics and more imagination were better in their works and in-class activity by learning anatomy structures. The innovation helps students to learn the human body structures more interestingly way and facilitates their attention. Activity and creativity together with experience enforce the process of the learning ability. Supported by grant the KEGA 006UPJS-4/2011

Keywords: Learning, mnemonics, imagination

P-172

Distribution of nitrergic neurons in the rat prefrontal cortex

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This study describes the presence of nitrergic neurons in selected areas of the rat prefrontal cortex during postnatal development. We have focused on infralimbic (IL), prelimbic

(PL), anterior cingulate (AC), frontal region 2 (Fr2) and orbital areas (OA). Materials and Methods: 18 Wistar rats were used in this experiment. Areas of prefrontal cortex were investigated at postnatal days (P) 1, 7, 14 and 21. The coronal sections of each brain sample were processed for NADPH-d histochemical method. Results: Only a few differentiating nitrergic neurons were observed in all examined areas at P1. More of them were detected in all monitored areas at P7 and a week later a reduction in number was observed in IL, PL and OA at P14 in contrast with AC and Fr2 areas .The mature forms of neurons predominated at P14. At P21 the image was comparable with P14. Conclusions: Differentiating neurons produced nitric oxide in selected prefrontal areas temporarily during postnatal period. However, mature nitrergic neurons were present in remarkable number in AC and Fr2 areas, only. (Supported by the grant VEGA 1/0154/11)

Keywords: Prefrontal cortex, nitrergic neurons, development

P-173

Anatomical assessment of chest radiographs

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The aim of this study was to determine the frequency of anatomical parameters and their measurement as seen on normal posteroanterior (PA) chest radiographs in a Turkish population. We evaluated fifty normal PA chest radiographs of Turkish population adults. The frequency of anatomical parameters and their measurement with respect to the diaphragm is as follows: level (right side higher in 98%, left and right sides same level 2%), lobulation (88% absent, 12% present), eventration (98% absent, 2% present) and contour (90% smooth, 10% not smooth); level of hilum (right and left sides same level 52%, left side higher 36%, right side higher 12%); number of pairs of ribs (twelve 96%, unable to determine 4%); number of ribs superposing the lung parenchyma (seven 2%, eight 4%, nine 24%, ten 70%); distance from the lateral margin of the vertebral body to the aorta (16.44 ± 4.35 mm); angle between the vertebral body and the aorticopulmonary line (16.04 ± 3.110); the carina angle (58.46 ± 11.130) and the cardiothoracic ratio (38.75 ± 4.27). The data presented in this study may be useful in understanding normal thoracic structures. A knowledge of the normal anatomy as well as variations are significant for physicians in the assessment of chest radiographs.

Keywords: Chest radiograph, carina angle, cardiothoracic ratio, diaphragm

P-174

Pyramidal lobe of the thyroid gland, a cadaveric morphometric study

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Pyramidal lobe is an embryological remnant seen upon thyroglossal duct line which its incidence differs among the populations. Pyramidal lobe may cause complications after surgical procedures through thyroid gland. It is important to have better knowledge about this developmental anomali to prevent complications after procedures. In this study, 30 formaldehyde fixed t thyroid gland were examined by using a dissecting microscope with macroscopic and microscopic dissections to evaluate the pyramidal lobe of the thyroid gland. Digital caliper was used for measurements. Pyramidal lobe was detected in 11 of the 30 thyroid glands which examined. The average length of the pyramidal lobes and average width (in the widest point) were found to be 25.09 mm and 6.18 mm respectively. Almost all of the pyramidal lobes were arising from the isthmus of the thyroid gland and their course was following midline or just left to the midline through upward. While half of the pyramidal lobes were ending on the thyroid cartilage, two of the pyramidal lobes were reaching membrana thyrohyoidea. As a result of incomplete resection of pyramidal lobe after thyroidectomy in patients with hyperthyroidism relapses may occur. Being a focus of thyroid cancer or multifocal thyroid pathologies, having intraglanduler metastasis makes pyramidal lobe important. Since it reaches the membrana cricothyroidea especially needle cricothyroidotomies may lead to complications. Therefore it should be well-known and considered by clinicians.

Keywords: Pyramidal lobe, thyroid gland, thyroglossal duct

P-175

Oogenesis and estradiol level in mouse exposed to forced swimming at various temprature

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Strenuous exercise and temperature outside the optimum are associated with hypothalamic dysfunction and therefore disruption of fertility in females. The aim of this study was to evaluate serum Estradiol level and oogenesis in adult mice exposed to forced swimming in different temperature waters. Adult female mice were randomly divided into four groups as: A) control, without exercise B) swim group in 23°C water C) swim group in 12°C water and D) swim group in 36°C water. All animals were swimming for 6 minutes daily for 5 days/week for 14 days, except controls. The mean values of the serum Estradiol level were measured by Elisa and oogenesis was studied histogolically.

Swimming in groups of B and D caused to reduction in serum estradiol levels in compare with controls ($p<0.05$). The numbers of Primary, Secondary and Tertiary follicules were significantly reduced in all swimming groups in compare with controls ($p<0.05$). Reduced oogenesis and regression of ovary in group D (36°C) were more obvious. These data suggests that forced swimming as a physical stress disrupt HPG Axis and oogenesis. Water temperature is also affective in ovarian function.

Keywords: Oogenesis, Estradiol, forced swimming, mouse, various temperature

P-176

Profile of the theses done in the branches of the department of anatomy

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To examine the profile of the graduate theses done in Department of Anatomy (DoA). The profile those registered to the database of the Higher Education Institution (HEC) profile was examined and information related to studies was given in the study. In this study, according to the years and levels of expertise of the DoA (1969-2012) distributions of theses registered in HEC database were examined. All theses were prepared by the Institute of Health Sciences and Faculty of Medicine. As Medical Specialization, Ph.D. and M.D 378 thesis were done in DoA, which only in 35 universities in Turkey. Respectively, the top ten universities are Hacettepe 9.52% (n=36), Ankara 6.87% (n=26), Erciyes 6.34% (n=24), Selçuk 6.08% (n=23), İstanbul 5.29% (n=20), Süleyman Demirel 5.02% (n=19), Fırat 4.76% (n=18), Marmara 4.49% (n=17), Afyon Kocatepe 4.49% (n=17), KTU 3.96% (n=15). When examined, the distribution of the theses is 26.2% (n=99) Medical Specialization, 41.5% (n=157) PhD, 32.3% (n=122) MD. The thesis is examined in the years 1969-1999, PhD thesis 20.4% (n=32), M.D. theses 1.6% (n=2), while in 1999- 2011 respectively, 79.6% (n=125) and 98.4% (n=120). There is a significant increase. Studies done in the DoA have multidisciplinary area that open to the interaction of different fields and techniques rather than a narrow and limited area.

Keywords: Medical specialization thesis, Ph.D. thesis, M.D. thesis

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Profile of the theses doing in the branches of the department of anatomy

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The study aim to examine the profile of the graduate theses doing in Department of Anatomy (DoA). In this study theses's profil registered in the database of the Higher Education Institution (HEC) profile was examined and information was given related to the studies. In this study, distributions according to the years and levels of expertise of the DoA (1969-2012) theses of registered in HEC database was examined. All of theses were prepared in the Institute of Health Sciences and Faculty of Medicine. There are total 378 theses that Medical Specialization, Ph.D., M.D., doing in DoA total 35 universities in Turkey. Respectively, the top ten university is Hacettepe 9.52% (n=36), Ankara 6.87% (n=26), Erciyes 6.34% (n=24), Selcuk 6.08% (n=23), Istanbul 5.29% (n=20), Süleyman Demirel 5.02% (n=19), Fırat 4.76% (n=18), Marmara 4.49% (n=17), Afyon Kocatepe 4.49% (n=17), KTU 3.96% (n=15) universities in Turkey. The distribution of the theses is 26.2% (n=99) Medical Specialization, 41.5% (n=157) PhD, 32.3% (n=122) MD. The thesis is examined in the years 1969-1999, Ph.D. thesis 20.4% (n=32), MD theses 1.6% (n=2), while in 1999- 2011 respectively, 79.6% (n=125) and 98.4% (n=120). There is a significant increase. Studies in the DoA, rather than narrow and a limited area, the interaction of different fields and different techniques have a multidisciplinary area.

Keywords: Medical specialization thesis, Ph.D. thesis, M.D. thesis

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The learning techniques of the students in anatomy education and their modality to the cadaver

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The anatomy lectures are one of the basic areas in medical education. The anatomy education is performed by theoretical lectures, presentations and practice applications. The models, posters and cadaver are used in anatomy practical applications. The applications of the theoretical knowledge can be done by cadaver dissection. Different physical and emotional situations can occur in the first sight of the cadaver. The aim of the present study is to identify the students' point of view to the cadaver and medical education with cadaver. This study was performed in medical faculties of Akdeniz University, Istanbul University and NearEast University in 2011-2012 academic years. In the present study first results are reported. The data were collected from students in year 1. Questionnaire form consisted of 5 questions regarding learning anatomy, and 21 items regarding education on cadaver. Chi-square test was used in the assessment of data analysis. 45.7% male and 54.3%

female with an average age of 19.42 ± 0.9 students were included in this study. 65.2% of the students fear of success at the beginnings of the anatomy lectures. 35.6% students indicated that discussion after the study from visual sources like video is the best way to learn anatomy. 77% of the student did not afraid from entering the cadaver room. The importance of cadaver in anatomy education remarked by 91.,5% of the students. 28.3% of the students admitted that entering to the cadaver room and studying alone is annoying. If we compare the answers of the students according to sex, the girls answered as "I agree" to the questions below more than the boys statistically significant. “Anatomy models and computers are enough for sufficient anatomy knowledge.” and “I need to tell about cadaver to the people in my enviroment”. The students worry about the cadaver in the beginning of the anatomy lectures. They believe that the usage of cadaver has a great role in anatomy education.

Keywords: Anatomy, cadaver, medical education, medical student, learning techniques

P-179

Anomalous pattern of papillary muscles of left ventricle

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Previous authors dealt mainly surgical descriptions of papillary muscle morphology in the literature. Afterwards, with the effectiveness of open heart surgery, more knowledge of the mitral valve was gathered by countless authors. Papillary muscles were bifid, trifid, conical, mammillated, flat topped, grooved, stepped, wavy, arched, sloped or saucerized. When there were two bellies they presented a two tiered, interlinked, parallel, arched, V, Y, or H configuration. This study was performed with permission from National Forensic Institute on specimens harvested by the classical autopsies was performed in Morgue Specialization Department, Ankara Institute of Forensic Medicine. We encountered with two different cases during the investigation on the sixty human hearts between the ages of 16-44. The first case was unclassified specimens such as multi-headed. The other case was dentate-based papillary muscle. In conclusion this study differs from previous studies according to show pictures of all types of papillary muscle patterns. These datas will be helpfull for relevant cardiac surgeon performing mitral valve homograft implantation

Keywords: Left ventricle, papillary muscle, chordae tendineae, subvalvular apparatus, mitral valve, homograft implantation

P-180

Morphological and morphometrical studies on the sacculus rotundus of the growing rabbits

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The terminal portion of the ileum of the rabbit is enlarged to form the sacculus rotundus which, known as the ampulla ilei or ileocecal tonsil. It is a round, sac-like structure, possesses abundant gut associated lymphoid tissue. The aim of this study was to reveal the developmental changes of the sacculus rotundus in the balady rabbits. 30 healthy Egyptian local rabbits of both sexes of different ages (one day to 4 month old) were used. Gross, light microscopy, morphometry and scanning electron microscopy (SEM) were used to examine the morphological changes of the sacculus rotundus. Grossly and morphometrically, the scaculus rotundus increases in size, relative weight and the wall thickness rapidly after weaning. Histological, showed long villi and ill-developed dome-shape lymph follicles at one day old. The villi convert into mucosal folds up to 4nd week of age and fuse with each other forming bridges like structures over the dome shaped follicles. The lymph follicles increase in growing rabbit and become very large and occupies the most thickness of the wall. Their covering epithelium not reached to the lumen. The epithelium cover the lymph follicle are tall columnar epithelium with few goblet cells contains lymphocytes within the epithelium and on the surface. By SEM, the mucosal surface showing long villi from 1-30 days old. After then show irregular mucosal ridiges separated by deep grooves and some of them turn around itself forming silt-like opening.

The rapid growing of the dome-shape lymph nodules of sacculus rotundus after weaning means this organ plays an important role in the immunological function of the intestine.

Keywords: Rabbit, sacculus rotundus, postnatal

P-181

Clinical anatomy of the posteromedial choroidal artery

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PMCA (posteromedial choroidal artery) is one of the main arteries that supply blood to the CP (choroid plexus). There are only a few studies investigating this artery. Previously it was described that PMCA was usually originated from P2 and sometimes from P3 and cortical branches of PCA (posterior cerebral artery). In another study it was stated that PMCA was originated from 57% P2A P2A segment of PCA), 13% from P1 (P1 segment of PCA) and P2P (P2P segment of PCA), 7% P3 (P3 segment of PCA) and the other cortical branches of PCA. Detailed information about the diameters of PMCA was not

explained in both studies. These studies were not able to comprehensively describe in details and the results were not compatible with each other. Therefore, the aim of this study was to (re) evaluate PMCA in details. Thirty adult human brains (60 hemispheres) were obtained in routine autopsies. Cerebral arteries were separately cannulated and injected with colored latex and the brains fixed in formaldehyde. The dissections were carried out using a surgical microscope (Carl-Zeiss, Opmi 99, Germany) with microdissection technique. In our study, the average diameter of PMCA was 0.85 mm. In a half of the brains, PMCA originated from P1 and P2A, and the diameters were significantly higher in these specimens. During interventions to the pathologies of proximal PCA or to the important vascular pathologies of this region as posterior communicant artery aneurysms damaging PMCA is possible. Therefore, it should be kept in mind that the territory of PMCA supplying area may be harmed not only on the CP, but also on the splenium and on pineal gland.

Keywords: Posteromedial choroidal artery, posterior cerebral artery, clinical anatomy

P-182

Morphometric evaluation of the relationship between the spine of sphenoid bone and the surrounding structures in dry skulls

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Spine of sphenoid bone (SOS) has close proximity to several structures within the middle cranial and infratemporal fossa which should be protected during surgical interventions. Thus, it is essential to know the distances between this spine and the surrounding bony structures and foramen in terms of constituting surgical pathways and preventing complications. In this study, bilateral measurements of the distances between SOS and the foramen spinosum (FS), foramen ovale (FO), external opening of carotid canal, articular tubercle (AT) and mastoid process as well as the diameters of these foramen were performed using surgical microscope, ocular micrometer and digital caliper in 20 skulls. Statistical analyses were performed. No significant differences were found between the left and right sides in terms of the distances between SOS and the surrounding structures. The longest diameter for FO was found mostly on the right side (p= 0.037). Negative correlation was detected between the SOS-FS distance and FS-FO distance (on the right, p= 0.02, on the left p=0.008). Slightly positive correlation was only found between the left side FO-SOS distance and FO-FS distance (p=0.034). Strong positive correlations were found between the SOS-AT distance and SOS-FO distance (p= 0.008) and the FS diameter and FO shortest diameter (p=0.009) while strong negative correlation was detected between the FO longest diameter and FO shortest diameter (p= 0.001). SOS is a surgical reference point due to its structure and location. Morphometric results obtained in this study will provide surgeons more reliable and safe data while operating in the middle cranial and infratemporal fossa.

Keywords: Spine of sphenoid bone, foramen spinosum, foramen ovale, external opening of carotid canal

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The relation of axillary nerve with coracoid process and its anatomical branching pattern in human fetuses

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Surgeons have long known that the axillary nerve can be damaged during open surgical procedures or arthroscopies of the shoulder. A thorough knowledge of axillary nerve anatomy is crucial to avoid complications during shoulder surgery. The aim of the study was to draw attention to the surgical importance of the axillary nerve course and to enlighten its distribution patterns in human fetuses and to provide some morphometric knowledge with related structures and especially with coracoid process. Course and branches of the axillary nerve were dissected on 15 fetuses (aged between 23. and 37. week). Closest distance between the axillary nerve and the coracoid tip was measured. This nearest point was referred as a landmark to measure the length of the axillary nerve from its origin, and the distance the branching point where it gives its first branch. All measurements were performed using digital caliper. Anatomical variations of the branching patterns were briefly noted. The axillary nerve has an oblique course in front of the subscapularis muscle. The means of the nearest distance between the axillary nerve and the coracoid tip was 11.27±1.41 mm. The nerve distance from coracoid tip to its branching point was 14.53±2.01 mm. The nerve was passing 2.76 mm under the glenoid labrum. Knowledge of the anatomical relationship of the axillary nerve and its branches in fetal period can be of benefit to understand its relations in early childhood. This can provide an improved understanding of the pattern and course of the axillary nerve in fetuses and in adults and can provide better surgical outcomes.

Keywords: Axillary nerve, fetuses, cadaver, anatomical variations

P-184

Embryonic stem cell-derived germ cells do not contribute to oogenesis in the adult chemotherapy-treated recipient female mice ovaries

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Despite of a basic dogma proposed most mammalian females lose the capacity of germ cell renewal and oogenesis during fetal

life, it has been claimed that germline stem cells preserve oogenesis in postnatal mouse ovaries. There is a doubt that postnatal oogenesis keeps producing functional and sufficient germ cells in the case of infertility caused by many reasons. On the other hand, there are many studies showing derivation of primordial germ cells (PGCs) and late germ cells from embryonic stem cells in vitro. This study was aimed to clarify the role of ESC-derived GCs in oogenesis. Mouse ESCs via embryoid body formation were differentiated into germ cell lineage by adding BMP4 and Retinoic acid (RA) to the culture medium. Expression of germ cell markers was characterized by using RT-PCR and immunohistochemistry. 6-10 week-old female mice, sterilized using chemical agents, were injected with ESCs-derived germ cells thorough their tail veins. To track the transplanted cells the ovaries were immunohistochemically stained after two months. Interestingly, there was no evidence of homing of GCs in the transplanted ovary. Our findings suggest no contribution of ESC-derived germ cells within the sterilized mouse ovaries.

Keywords: Embryonic stem cell, germ cell, ovary, chemotherapy

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Quantitative study of volumetric changes of cerebellum in male adult rat following lithium administration

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Lithium is a drug that treats bipolar disorder by correcting mania and reducing depressive mood swings. In this study, effects of Lithium on volumetric parameters of cerebellum were investigated using stereological methods. 20 sexually mature Westar male rats were selected and divided in two groups randomly (n=10). Administration and control groups received 0.1 percent Lithium carbonate solution and distilled water respectively as drinking water during a period of 12 weeks continuously. Rat's cerebellum excised and fixed in modified Lillie's solution. Then tissues were dehydrated, cleared and embedded in paraplast in random orientation, and exhaustively were sectioned. Ten to twelve sections of ~ 5Ìm were sampled and stained from each cerebellum by systematic uniform random sampling. The whole section image projected on the table, and point counting using the Cavalier's principle was employed to estimate the volumetric parameters. Data analyzed by nonparametric statistical test of Mann-Whitney, and differences between groups less than 0.05 considered significant. Results showed that there were no significant difference in terms of total volume of cerebellum, but gray matter volume of cerebellum increased and white matter decreased in administration group significantly (P<0.05). Thus 0.1% Lithium carbonate after a period of 12 weeks can affect cerebellar gray and white matter in rat.

Keywords: Lithium, cerebellum, stereology, rat

P-186

Comparison between 2-vessel and 4- vessel occlusion techniques on number of dentate gyrus neurons following ischemia and reperfusion

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In according to some controversies about dentate gyrus neurons loss in ischemia and reperfusion models, this study carried out with objective of comparison of cell loss of dentate gyrus neurons in two vessel and four vessel occlusion techniques following brain ischemia and reperfusion in adult rat. Ischemia was induced with the use of the two common carotid arteries and two common carotids arteries + two vertebral arteries occlusions rat model with 3 and 24 hours survival and brain samples were collected as well as from sham-operated control. Histopathological examination on the dentate gyrus done with the use of Nissle staining method. Number of total and dead cells in each group counted and compared. Following 10-minute ischemia and 24 hours reperfusion average number of neurons in 2-vessel and 4-vessel groups were 1001 and 787 respectively. This number in sham group was 918. Percentage of dead cells in 2-vessel and 4-vessel groups after 24 hours were 11.5% and 19.4% (P< 0.001) respectively. This percentage in sham group was 5.42%. After 24 hours reperfusion, common carotids occlusion without vertebral arteries occlusion cannot reduces number of neurons in dentate gyrus.

Keywords: Ischemia/reperfusion, hippocampus, cell death, dentate gyrus

P-187

Stereological evaluation of the volume of the lumbar vertebral bodies on computed tomography images

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Quantitative information about the volume of the vertebral body is very important for treatment and surgical repair. In the present study the volume of the lumbar vertebral bodies estimated using the Cavalieri principle of the stereological techniques on computed tomography (CT) images. Abdominal CT images in axial plain of consecutive sections with 3mm thickness from 30 females and 30 males were converted to sagittal images to obtain section in 1 mm using OsiriX software. Projections of the lumbar vertebrae were measured by manual planimetri in ImageJ. The vertebral volumes estimated stereologically. The data were evaluated statistically. The mean volumes of the vertebrae were estimated as 56.12, 61.29, 64.68, 65.28 and 61.13 cm^3 for the males. They were 41.53, 46.56, 50.48, 52.77 and 50.70 cm^3 for

the females. The volumes of vertebrae were larger in males ($p<0.001$). While the males were longer then the females ($p<0.001$) there were not differences for the age and weight. High correlation between the vertebral body volume and age and length was observed ($p<0.001$). The weight and age did not differ among sexes. Despite of this observation the women have smaller vertebrae. This may explain why the occurrence of the vertebral body fractures prevalence is higher in the females.

Keywords: Lumbar vertebra, stereology, Cavalieri principle, volume, computed tomography

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Historical aspects of the macroscopic anatomy of the lymphatic system: from antiquity to the renaissance

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Documentation of the lymphatic system exists in the literature before identification of the "lactiferous vessels" by Aselli in 17th century. The history starts in Ancient Greece in 5th B.C. century, where Hippocrates makes reference to "inguinal, axillary and jugular lymph nodes", "glands existing within the intestines" and vessels carrying "white blood", without being aware of the significance of his observations. Hippocrates also notices that tonsils enlarge after infection, while Aristotle mentions the presence of vessels containing "colorless liquid" and Platon seems to acknowledge the contribution of spleen to the immune system. 1800 years before Aselli's writings, Herophilus is proved more accurate in his descriptions, as he refers to "white vessels" and "glandular mesenteric structures". Hereafter, Fallopius observes the existence of veins "coursing over intestines full of yellow matter", whereas the thoracic duct is demonstrated by Vesalius as a "vena alba thoracis" before its documentation by Pecquet. Eustachius describes the thoracic duct too, although he hypothesizes that it is responsible for the thorax drainage. Since then, several physicians have contributed to the description of the lymphatic system; the present study aims to present the documented anatomical knowledge of the topography, morphology and function of the lymphatic system over the centuries.

Keywords: Lymphatic system, history

P-189

Significance of anatomic variations in peripheral nerve block in anesthesia practice

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Nowadays, peripheral nerve blocks have gained popularity especially in ambulatory surgery. This application is based mainly on anatomical structures; therefore anatomical variations can lead to decrease in block's success rate. Variation of the four peripheral nerves concerning this subject is presented. Case Series: During our routine educational dissection practices, we observed musculocutaneous nerve variations in two adult cadavers and sural nerve variations in two newborn cadavers. Case 1: The musculocutaneous nerve was giving a thick connecting branch to the median nerve after penetrating the coracobrachialis muscle. Case 2: The musculocutaneous nerve did not penetrate the coracobrachialis muscle and it was giving a tiny short branch to the median nerve. Case 3: Medial and lateral sural cutaneous nerves were coursing separately, but having a tiny short connecting branch. Case 4: Medial and lateral sural cutaneous nerves were coursing separately without any connection. Although both classical technique with nerve stimulator and ultrasound guided technique were used to facilitate and increase success rate of peripheral nerve block; there is still failure in peripheral blocks. Mostly this failure seems to result from ignoring anatomic variations. In order to improve the quality of daily anesthesia practice, multidisciplinary approach is essential.

Keywords: Anatomical variation, nerve block, sural nerve, musculocutaneous nerve, anesthesia

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A comparative study of measurements of the soft orbits in young women and men

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The aim of the study was to determine and compare the average of the basic measurements of the soft orbits in young Turkish women and men. The basic measurements of the soft orbits were performed on 115 (59 women and 56 men) young Turkish people whose mean age 21.22 years (range, 18-30 years). All subjects were students in Yasar Dogu School of Physical Education and Sport of University of Ondokuz Mayis. The means height of right and left orbital in women and men were 35.14 mm and 35.79 mm; 35.37 mm and 35.12 mm, respectively. The means length of right and left palpebral fissure in women and men were 35.01 mm and 34.66 mm; 36.02 mm and 35.62 mm, respectively. The means distance of inner and outer canthal in women and men were 27.80 mm and 95.08 mm; 28.67 mm and 96.42 mm, respectively. Average values of the soft orbits in the women and men may be used as a landmark for guidance to plan corrective and aesthetics surgery of the soft orbits.

Keywords: Eye, men, women, anthropometry

P-191

Anatomical and sex variations of human foot bones in accordance with osteometry

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The major bones that are used to determine the sex of human remains - bones of the pelvis and skull. However, the foot bones of the dead are the most preserved in contrast to the bones of other body parts, as they are protected by shoes from the effects of environmental factors. The aim of this study was to investigate the osteometric parameters of the foot bones complex for discrimination on these parameters the sex. All data were obtained by direct measurements on the bones after the standard procedures of anatomical techniques. With the help of an electronic caliper we measured osteometric parameters of 57 bones complexes of the foot (16 female and 41 male). In addition, we measured the weight of dry bones, also of their volume and densitometry. Osteometric parameters, including weight, volume and density of the bones belong to each other by certain correlations, cluster analysis and clustering character of the osteometric indicators allows distinguishing between their sexual identities. We have first shown that the physical (but not the densitometric) female bone density is higher than men's. Our data show that the complex osteometric study, including weight, volume and density of the bones of the human foot best reflect the anatomical variability and of their results allow more precise produce the sexual identification.

Keywords: Bones, foot, sexual dimorphism

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Evaluation of patellar morphology on tangential patella and lateral knee radiographs

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The aim of this study was to determine the morphometry of the patella on 180 (90 left, 90 right) tangential patella and lateral knee radiographs in a Turkish population. Each patella was classified according to its shape, using the descriptions of Wiberg and Baumgartle as a type I, type II, type III, and patellofemoral sulcus angle was measured on tangential patella radiographs. The length of the patella and of patellar tendon was measured on lateral knee radiographs. From these measurements an Insall-Salvati index was calculated and classified as a patella norma, patella alta, patella baja. Type I patella was observed in 12.2%, type II in 52.2% and type III in 35.6% of patella radiographs. The patellofemoral sulcus angles were 126.17 ± 7.290 on the left and 126.71 ± 7.400 on the right. The patella lengths were 4.05 ± 0.43mm on the left and 3.91± 0,50mm on the right, while the lengths of patellar tendon were 4.63 ± 0.58 mm on the left and 4.56 ± 0.81 mm on the right. According to the Insall-Salvati index patella norma were 79.5% and 71.2%, patella alta 1.3% and 5.5%, and patella baja 19.2% and 23.3% on the left and right sides respectively. We believe that these radiological measurements may be valuable in understanding patella and knee morphology on tangential patella radiographs and lateral knee radiographs.

Keywords: Types of patella, sulcus angle, patella norma, patella alta, patella baja

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Lateralization and gender differences in somatosensory processing and pain perception in the trigeminal system

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This study aims to better characterize sensory processing in the trigeminal system by studying processing of painful and non-painful somatosensory information in the trigeminal system and the thumb in right-handed and left-handed individuals in the male and female individuals. Twenty-eight subjects participated in this study; 14 subjects were right-handed and 14 were left-handed. Electrical stimulation was applied to the ophthalmic, maxillary and mandibular regions of the face and to the thumb. Perception threshold and pain thresholds were measured in terms of milliamps twice for each individual. For the detection of stimulus threshold measurements, we have found statistically significant difference in the right maxillary region, left ophthalmic region and left thumb when the right-handed and left-handed males were compared ($p<0.05$, each). For females, the detection threshold was significantly different for right and left-handeds for the right ophthalmic region. For pain threshold and medium-threshold pain parameters, there are significant differences in left mandibular and left ophthalmic regions when the right-handed and left-handed males were compared. This is the first study that analyses hemispheric lateralization (by hand dominance) in the trigeminal system, and our provide new insights for understanding the pathophysiology of trigeminal neuralgia for which several theories exist to explain the possible causes, and yet there is no clear understanding.

Keywords: Sensory system, trigeminal system, pain, lateralization, gender differences

P-194

Assimilation of the atlas: case report

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Aim of the study is to evaluate the assimilation of atlases in two human skulls. Two human dry skulls, used as anatomy education material were investigated in the study. The right parietal bone was partially broken in the one of the skulls. The other skull had completely broken maxilla and zygomatic bone in the left side. The bases of the both skulls were intact. The mandibles and vertebrae were not obtained. Results: The bottom side of the foramen magnum was completely covered by the synostosed atlas vertebra in one skull. The lateral masses and anterior arch of the atlases were totally fused with the condylar parts of the occipital bone in the both of the skulls. In two skulls, even the line of union was not demarcated between atlases and occipital bones in the anterior side of foramen magnum; only inferior articular facets and facets for dens were visible; holes for vertebral arteries were bilaterally present behind the lateral massae; the lateral processes of the atlases protruded on the inner side of the mastoid processes. In one skull, right half of posterior arch of the atlas was incomplete. Incidence of congenital bony fusion of the atlas to the base of the occipital is from 0.5% to 1% of the population. This can compress spinal cord and medulla oblongata. So it is clinically important congenital condition.

Keywords: Occipitalization, atlas, fusion

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Kartagener syndrome: a case report

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Kartagener syndrome is the triad of situs inversus, bronchiectasis and chronic sinusitis. It is a genetic disease inherited as an autosomal recessive trait. Specifically, it is a defect in dynein protein arms within the ciliary structure. This syndrome was observed in computed tomography images of a 23-year-old woman at Department of Radiology. In this case, bilateral extensive bronchiectasis in the lungs in thorax CT and situs inversus totalis in thorax and abdomen CT were determined. Superior vena cava and inferior vena cava were at left; apex of the heart, aortic arch and descending aorta were at right; right lung had two lobes, left lung had three lobes and dextrocardia was observed. In the abdomen CT, liver was on the left side, stomach and spleen were on the right side. Situs inversus totalis may cause wrong interpretations during radiologic imaging and surgical procedures. In addition, the diagnosis of acute appendicitis may delay if the appendix is on the left.

Keywords: Kartagener syndrome, situs inversus totalis, variation, anatomy

P-196

Incidence of zygomaticofacial, zygomaticoorbital and zygomaticotemporal foramina

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The aim of this study was to determine incidence of zygomaticofacial, zygomaticoorbital and zygomaticotemporal foramina for safe orbitozygomatic craniotomy. Fifty-seven adult dry Anatolian skulls of unknown age and sex from the collections of the Departments of Anatomy, Faculty of Medicine of Cukurova University and Ankara University were examined. The distribution and incidence of zygomaticofacial (ZF), zygomaticoorbital (ZO), and zygomaticotemporal (ZT) foramina were noted on the right and left sides. The ZF foramen was absent in 1.9% and 6%, there was one foramen in 58.5% and 56% sides, two foramina in 28.3% and 26%, and three foramina in 9.4% and 12% on the right and left sides respectively, while in 1.9% of skulls there were five foramina on the right side. The ZO foramen was absent in 7.5% and 8%, there was one foramen in 69.8% and 64%, two foramina in 20.8% and 26%, and three foramina in 1.9% and 2% on the right and left sides, respectively. The ZT foramen was absent in 3.8% and 4%, there was one foramen in 62.3% and 66%, two foramina in 30.2% and 22%, and three foramina in 3.8% and 4% on the right and left sides respectively. In 4% of skulls there were four ZT foramina on the left side. In this anatomic study the distribution and incidence of ZF, ZO and ZT foramina were determined: this information will aid surgeons planning and undertaking orbitozygomatic craniotomy.

Keywords: Zygomaticofacial foramen, zygomaticoorbital foramen, zygomaticotemporal foramen, orbitozygomatic craniotomy

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Serum levels of adrenomedullin and inflammatory cytokines in women with term idiopathic intrauterine growth restriction

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This study aimed to determine the concentrations of adrenomedullin (AM), tumor necrosis factor (TNF)-α and interleukin (IL)-6 in the maternal circulation of full term idiopathic

intrauterine growth restriction (IUGR) in relation to appropriate for gestational age (AGA) and the possible correlation of AM to these cytokines. 50 idiopathic IUGR mothers and 25 AGA were evaluated regarding their serum levels of AM, TNF-α and IL-6. We found that women with idiopathic IUGR have significantly higher serum levels of AM, TNF-α and IL-6 (p=0.008; 0.016; 0.029) respectively and that serum level of AM was significantly correlated to serum level of TNF-α (r=0.417, p=0.003) but not significantly correlated to serum level of IL-6 compared with AGA group. The significant increase in the maternal serum levels of AM, TNF-α and IL-6 in idiopathic IUGR might contribute to the uteroplacental hemodynamic alterations and can be serving as useful biochemical markers for idiopathic IUGR. Significant correlation between AM and TNF-α could hypothesize the existence of a complex interaction between AM and this inflammatory cytokine.

Keywords: Adrenomedullin, inflammatory cytokines, idiopathic fetal growth restriction

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Comparison of synapse-to-neuron ratios in the cerebellar granular layer of prenatally stressed rats reared in diverse environmental conditions

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Previously, we have shown that intrauterine stress reduces synapse-to-neuron ratio in the cerebellar granular layer and causes long-lasting deficits in the synaptophysin expression. In the present study, we aimed to investigate whether these alterations on interneuronal connectivity are affected by diverse environmental rearing conditions. Wistar rats exposed to stress by keeping dams immobile for 3 hours between gestational days 14-21. After weaning, offspring from different dams were grouped according to rearing conditions (Enriched-EC, Standard-SC and Isolated-IC). Animals (n=6 for each group and gender) were perfused at the end of 7th week. The numerical densities of granule cells (Nvg) were estimated by using semi-thin sections. Same blocks were used for electron microscopic stereological analyses to estimate the numerical density of synapses (Nvs) within the neuropil area. Synapse-to-neuron ratios were obtained by dividing Nvs with Nvg, and compared by one-way analysis of variance test. Synapse-to-neuron ratios of animals reared in SC, EC or IC were comparable in both females and males. Similarly, no gender-dependent difference was observed in EC or SC groups. However, in IC group, synapse-to-neuron ratio was significantly lower in males (279.15±16.11) than those of females (371.11±24.34). Rearing of prenatally stressed animals in diverse environmental conditions does not alter the interneuronal connectivity in the cerebellar granular layer. However, social isolation condition seems to affect male offspring more profoundly than females.

Keywords: Cerebellum, synapse, prenatal stress, enrichment, social isolation, stereology

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Morphometric and ultrastructural analysis of corpus luteum granulosa cells after repeated gonadotropin administration

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Granulosa cells play an important role for oocyte growth and maturation. After ovulation granulosa cells of ovulated follicle differentiates to corpus luteum which is a transient endocrine unit. Appropriate function of corpus luteum is important for the maintenance of early pregnancy. The exogenous gonadotropins and repeated ovarian stimulation (OS) may induce adverse effects on granulosa cell differentiation that leads to corpus luteum dysfunction. In this study we aimed to evaluate the morphometric and ultrastructural characteristics of granulosa cells after repeated ovarian stimulation. Wistar albino female adult rats (n: 21) were separated randomly to group1: control, group2: 2 cycle OS and group3: 8 cycle OS. Control group injected with %0.9 NaCl. Two and eight cycle OS groups received injections of 15IU/0.2ml/rat rFSH and after 48hours 5IU/0.1ml/rat HCG for ovulation. Ovarian tissue samples fixed in 2.5 % gluteraldehyde were processed and embedded in araldite. Semithin sections were stained with Toluidine Blue-AzurII and observed under a light microscope. Ultrathin sections were observed under LEO 906 E TEM. Control group granulosa cells showed distinct round euchromatin nuclei and lipid droplets in cytoplasm. In the group2 large pale staining granulosa cells have numerous lipid droplets that filled the cytoplasm. Granulosa cells of group3 have less lipid droplets in cytoplasm than group2 and showed granulosa cell degeneration and apoptosis. These findings observed in 2 cycle repeated OS group were suggestive of an active steroidogenesis and a good response to stimulation than 8 cycle OS and control group.

Keywords: Granulosa cell, ovarian stimulation, ultrastructure

P-200

Comparison of podoscope and podograph devices for examination of foot deformities in mentally retarded individuals

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Feet are very important organs which give moving ability for human-being and for every creature that can walk. By some aspects, they can be considered as the symbol of independence for giving moving freedom. For this reason, feet should be well examined and necessary interventions with appropriate meth-

ods have to be made in case of deformities at early stages of walking. As a consequence of foot examination importance, several devices and methods were developed. Our study involves feet examination of 43 subjects, who can get commands, out of 53 mild mentally retarded people who are recruited from Trabzon Rehabilitation Center. Podograph is a device between two plastic dampers and this device has a 2 mm-wide rough rubber which can absorb ink on one of its surfaces. A white paper is put under rubber which was previously treated with ink. The subject puts his/her foot on the other surface and by this way the pressure field of the foot can be reflected on to the white paper. The figure on the paper is evaluated with a variety of criteria. Podoscope is a device with 25-30 cm height, obliquely positioned mirror on its base, and this device also has internal lightening. Inside the device there is a computer connected camera which can observe foot from bottom. The subject is mounted on the podoscope and the view of feet is sended to computer by using camera. Foot analysis data on the podoscope and podograph are collected and compared. Chippaux-Smirak Index is used for comparison with modification. Chippaux-Smirak Index includes the ratioof the most narrow part of foot arcus shadow (a) and the most wide part of metatarsal region (b) (the first and fifth metatarsus regions) which are obtained by computer measures (a/b). These ratios are measured for each foot and classified as pes kavus (a/b<0.299), normal (a/b=0.3-0.399), pes planus (a/b> 0.4). Comparison is made between these ratios. In our study group, positive correlations were obtained between podograph and podoscope measures of left feet. This correlation is highly meaningful ($p<0.01$). Likewise the correlation between the two measures of right feet is also highly meaningful ($p<0.01$). Podoscope and podograph measures between right and left feet didn't show any meaningful difference ($p>0.05$). In general, the results of both types of device measures are consistent with each other. Due to observations during experiment procedure, it can be mentioned that measuring with podoscope is more practical and also less time consuming. Procedure of podograph requires standing on top of single foot and no motion when contacting foot on to the surface with ink. When we consider our target invalid population and children, it would be even more difficult to use podograph. For our experiments, there were some difficulties during measurements for keeping participants on devices without motion and loading the total weight on single foot even though they were individuals who can get commands. As a consequence, measurements had to be repeated for several times. But for podoscope measurement it is enough just to stand on podoscope with two feet for a short time. Measurements were done well even though some subjects were afraid of standing on a glass surface. In sum, by results of our study; it can be said that podoscope is a more appropriate device with its simple usage and security for evaluating feet deformities.

Keywords: Podoscope, podograph, pes planus, pes kavus

P-201

Effect of different times of ischemia/reperfusion on pyramidal cells of hippocampus in Wistar rat

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Stroke due to cerebral ischemia is the third cause of death. Blood reperfusion and oxygen flow through tissues can cause severe damages. This process can lead to apoptosis. Pyramidal cells of hippocampus are sensitive to ischemia. Whatever the time of ischemia gets longer and reperfusion starts with delay, cell protection from oxidative damage and apoptosis will be less efficient. Since the percentage of tissue damage plays an important role in the study of neuroprotective drugs, determination of damage's level is necessary. For determining the extent of pyramidal cells of hippocampus, 30 male Wistar rat were evaluated in 5 groups (5, 10, 15, 20 and 30 minutes of ischemia), then compared with the control group. The ischemia was induced by ligation of bilateral common carotid arteries. After 4 days, brains were removed and prepared for hematoxilin-eosin and nissl stainings. Compacted pyramidal cells with pyknotic nuclei were seen in CA1 region in 20 and 30 minutes of ischemia. The number of intact pyramidal cells was significantly reduced, especially in the 30 minutes of ischemia. It seems that 20 minutes ischemia is an appropriate time to examine the effects of drugs after ischemia.

Keywords: ischemia/reperfusion, apoptosis, hippocampus

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Prussack's space anatomy

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Cholesteatoma is an important disease which causes impairment in recovery at middle ear, wound recovery and control of epidermal reproduction. Cholesteatoma locates to different parts of middle ear cavity and behaves varied according to its location. Pouches related with tympanic membrane such as Prussack's space, anterior and posterior Von Troeltsch and interior incudal space is important in occurrence of Cholesteatomas. These mucosal folds may limit the infection to one or several of the compartments in the middle ear and if the disease is thus limited it may be possible to control it in the affected compartment while preserving the integrity and function of the adjacent structures. The aim of the present study is to describe the basic anatomy of these pouches. We evaluated the anatomy of these pouches by CT and cadaveric dissections. Knowledge of anatomy obtained by surgical cadaveric training is essential for surgeons in order to reduce the complications

during middle ear surgery. Such cadaveric studies may provide the fundament for understanding the disease progression and concepts for surgical management.

Keywords: Prussack's space, anterior Von Troeltsch space, posterior Von Troeltsch space, cholesteatoma

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A comparative study of the auricle measurements in young women and men

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The aim of the study was to determine and compare the average of the basic measurements of the auricle in young Turkish women and men. The basic measurements of the auricle were performed on 115 (59 women and 56 men) young Turkish people whose mean age 21.22 years old (range, 18-30 years). All subjects were students in Yasar Dogu School of Physical Education and Sport of University of Ondokuz Mayis. The means length of right and left the auricle in women and men were 58.30 mm and 58.52 mm; 62.33 mm and 61.96 mm, respectively. The means width of right and left the auricle in women and men were 30.44 mm and 29.73 mm; 34.13 mm and 33.96 mm, respectively. The means that inclination angles of right and left the auricle in women and men were 23.31° and 23.26°; 25.31° and 25.25°, respectively. The results of this study were generated metric data for young Turkish female-male auricles, which will be useful to plastic surgeons as a guideline for correcting auricular deformity. It also will furnish information to the hearing aid instrument industries for the production of anatomically correct products for the populations they serve.

Keywords: Auricle measurements, young Turkish female and male

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Cardioprotective effects of fish omega-3 fatty acids on doxorubicin-induced cardiotoxicity in rats

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Doxorubicin (DOX) has been used in cancer treatment. However, its clinical use became restricted because of the dose-dependent cardiomyopathy. The aim of this study was to investigate the anti-apoptotic effects of fish omega-3 fatty acids on DOX-induced cardiotoxicity. 24 male rats were divided into three experimental groups: control, DOX treated and DOX treated with fish omega-3 fatty acids. Control group received 0.4 ml/kg of saline by intra-gastric intubation. The rats in the fish omega-3 fatty acids-pretreated group were given 400 mg/kg/day fish omega-3 fatty acids for 30 days by intra-gastric intubation. To induce cardiotoxicity, DOX (30 mg/kg) was injected intraperitoneally by a single dose and the rats were sacrificed after 48 hours. DOX treatment caused severe damage in the heart tissues. Disorganization of myocardial muscle fibers, myofibrillar loss and cardiotoxic myocardial fibers with cytoplasmic vacuoles were seen. Fish omega-3 fatty acids-treated rats showed an improved histological appearance in the DOX-treated group. Our data indicate a significant reduction in the activity of TUNEL in cardiomyocytes of the DOX-treated group with fish omega-3 fatty acids therapy. The present study showed that fish omega-3 fatty acids may be a suitable cardioprotector against toxic effects of DOX.

Keywords: Doxorubicin, fish omega-3 fatty acids, heart, apoptosis

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Effect of ferrous and vitamin e on male rabbit serum lipoproteins

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Fatty streaks are the primary lesions to form atherosclerosis. Lipid per oxidation by free- radicals, plays an important role in plaque formation. Vitamin E, as a lipid in soluble vitamin, is an important antioxidant and may prevent or delay the coronary heart disease by limiting LDL oxidation.Our goal was to evaluate the effect of vitamin E and iron on blood serum lipids in male rabbits fed high- cholestrol diet. This research was a experimental study carried out in the department of anatomy, Isfahan university of medical sciences Thirty white male rabbits were weighed and blood serum samples were taken for analysis of serum lipoproteins. They were randomly divided into five groups each containing 6 rabbits and given diets for six weeks as follows: Group1 was given normal diet. Group 2 fed with high cholesterol (2%) diet. Group 3 fed with high cholesterol diet with iron (50 mg/kg). Group 4 fed with high cholesterol diet with vitamin E (50 mg/kg).Group 5 fed with high cholesterol diet with iron (50 mg/kg) and vitamin E (50 mg/kg). These groups were again weighed and blood samples were taken for analysis of serum lipoproteins after 42 days. . Data analysis of this study was evaluated with software SPSS and one way variance test for comparing serum lipoproteins before and after experiments. Significant difference in cholesterol, LDL, HDL, TG, and VLDL were seen before and after

the experiment in all 5 groups (P<0.001).The significant difference was observed between all groups in relation to the effect of iron and vitamin E on lipid metabolism. While vitamin E can play a protective role in preventing atherosclerosis, it seems that use of iron has a provocation role in serum lipids.

Keywords: Iron, Vitamin E, lipoproteins, atherosclerosis

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Expression Pattern of Extracellular regulated kinases1/2(ERK1/2) and its active form in osteogenesis of superior sutures of skull during different stages of embryonic and neonatal of mice

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After decalcification, formalin fixed and paraffin embedded upper parts mice of skulls were processed during embryonic days 12, 15 and 18(E12,E15, E18) and neonatal days (N1,N7). Immunohistochemistry was applied and scaled by using HSCORE. Strong expression pattern of ERK1/2 was observed in E12and E15. The expression pattern showed significant decrease in E18, F1and F7. P- ERK1/2 showed a moderate expression pattern in E12 in both sutures. Upregulation of ERK1/2 during embryonic stages in ossification of sutures may be responsible for proliferation and differentiation of mesenchymal cells to osteoblasts. Down regulation of ERK1/2 during neonatal stage may be facilitate apoptosis and calcification of bone. Downregulation of P-ERK1/2 seems an important process in proliferation of sutural mesenchymal cells. It appears that ERK1/2 as key kinase involve in ossification and is a time-dependent cellular process.

Keywords: ERK1/2, skull, coronal suture, lambdoid suture, ossification