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Panels

(PL1 — PL5)

Panel 1

PL1

Development of anatomy in Turkey, anatomist and clinician relations

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Clinical anatomy is the study of human anatomy that is relevant to clinical practice. Rather than being designed to allow one to gain general anatomical knowledge, clinical anatomy focuses on specific structures and issues that people may encounter in a clinical setting. Many physicians, especially surgeons, routinely study clinical anatomy and attend refresher courses to keep their anatomy skills high and to become acquainted with new techniques in their field. A general study of human anatomy can be very helpful to many people working in the medical profession because it allows them to explore body structures and how body systems interconnect. Many medical schools require their students to take a general anatomy course in their first year, and medical students are routinely tested on their anatomical knowledge. Many medical practitioners supplement general anatomy courses with specific clinical anatomy courses as they progress in their education and choose a specialty. Medical schools and research facilities also run periodic continuing education classes for qualified medical professionals who want the opportunity to work in an anatomy lab and explore anatomy considering their clinical experience. For example, surgeons specializing in knee reconstruction periodically perform cadaver dissections to remind themselves of all the structures in the knee and to recognize the variety of variations that can be seen in the human knee. Ankara Faculty of Medicine has participated in clinical anatomy studies, which it started in 1990, by accelerating until today. Our faculty of medicine, which is a pioneer in clinical anatomy studies, also continues to be the first in this field by opening a clinical anatomy research laboratory. In this presentation, where the progress of more than 30 years of work will be explained, what has been done and what is planned to be done will be shared with our audience.

Panel 2

Neuroanatomy, Anatomy and Surgical Relations

PL2-1

The role of basal ganglions in electrophysiology and treatment of movement disorders

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Major components of the basal ganglia (BG) are

- Neostriatum
  - Caudate nucleus
  - Putamen
  - Ventral striatum (nucleus accumbens)
- Paleostriatum
  - Globus pallidus externa (GPe)
  - Globus pallidus interna (GPi)

- Substantia Nigra
  - Pars compacta (SNc)
  - Pars reticulata (SNr)
- Subthalamic nucleus (STN)

The caudate nucleus and putamen have similar functions. All input to the BG comes via the striatum. The subdivides of the Caudate nucleus are the head, body, and the tail. The nucleus accumbens (Nacc) lies ventral to the anterior limb of the internal capsule. It is connected to the putamen and the caudate nucleus. Nacc receives the input from the limbic system and is involved about the processing of the emotional aspects of movement. Globus Pallidus (Gp) is located just medial to the putamen Gp separated by a sheet known as external medullary lamina. Anatomically, the putamen and Gp are shaped like a lens. For this reason, they are referred to as the lenticular nucleus. The Gp separated by a sheet known as internal medullary lamina as Globus Pallidus externa (Gpe) and interna (Gpi). Gpi contains the output neurons of the BG circuit. They project the output to ipsilateral motor thalamus. The substantia nigra composed of two distinct parts as Pars Reticulata (Snr) and Pars Compacta (Snc). Snr has sparse cell, Continuous with, and shares many histologic characteristics with the Gpi. İt receives projections from the striatum and sends its GABAergic neurons to the thalamus. The Snc is dorsal, cellular and compact part. It consists of pigmented dopaminergic neurons containing neuromelanin. Subthalamic nucleus is a component of the subthalamus, it lies lateral to the hypothalamus and medial of the internal capsule. The BG have long been considered crucial in the control of movement. But now widely accepted that the BG also play a role in nonmotor behavior, including cognition and emotion.

- Motor function
- Gating function
- Cognitive function
- Emotion and motivation function
- Spatial neglect

Briefly; The primary function of BG is likely to control and regulate activities of the motor and pre-motor cortical areas so that voluntary movements can be performed in right way. All cortical areas involved in the planning and execution of movemen

PL2-2

Cerebral bypass: the indispensable technique of brain revascularization

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The studies on understanding brain functions and protecting brain health are continuing at a dizzying pace and intensely, from past to present. The results of these studies, which continue in a wide range from studies in the molecular field to the retrospective evaluation of clinical findings, are meaningful only if the nutrition of neurons and neuroglia continues under optimum conditions. Oxygen and nutrients are transported to the brain by four main arteries; right and left carotid arteries, right and left vertebral arteries. An aneurysm, tumour or atherosclerotic plaque (carotid artery stenosis/occlusion, intracranial artery stenosis) that cannot be treated by endovascular and other methods can reduce blood flow. Cerebrovascular insufficiency results in ischemic attack, stroke and ultimately brain death due to decreased blood flow. In this case, neurosurgeons prefer cerebral bypass as an indispensable technique to restore cerebral blood supply and protect it from stroke. Neurosurgeons describe bypass surgery as a growth area that inspires innovation, creativity and expressionism. Cerebral bypass, the brain's equivalent of a coronary bypass in the heart, uses either a vascular graft (saphenous vein, radial or ulnar artery) or a healthy donor artery (superficial temporal artery, etc.). Four generations of cerebral bypass have been identified. The most common is the superficial temporal artery-middle cerebral artery bypass, developed and popularized by Yaşargil and Donaghy in the late 1960s. The aim of this presentation is to draw attention to cerebral bypass in revascularization and to share clinical cadaver studies (maxillary/middle meningeal artery to petrous internal carotid artery, maxillary/external carotid artery to proximal posterior cerebral artery, maxillary/proximal middle cerebral artery) that we have done in cooperation with neurosurgeons between 2003 and 2009.

Keywords: cerebral bypass, brain revascularization, clinical neuroanatomy

Panel 3

Second Brain, Enteric System

PL3-1

Current experimental examples of brain-gut interaction; effects of vagal stimulus on inflammation in the intestine

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The enteric nervous system (ESS) is the gastrointestinal tract's "brain" that acts independently of the central nervous system. Clinical symptoms that characterize the pathophysiological process in stress-related gastrointestinal illnesses can be caused by changes in ESS function. The vagus nerve is the first point of contact between the brain and the gastrointestinal system in neural transmission. In the field of bioelectronic medicine, electrical stimulation of the auricular branch of the vagus nerve (aVN) is a new technology. Stimulating the aVN can affect a variety of physiological processes and physical states. These

states and processes are all linked to the flow of information between the brain and the body. During perinatal developmental stages in different intestinal regions, we investigated the effects of perinatal stress on synapse formation in the ESS, and we discovered that stress decreased the levels of pre/post synaptic proteins Neuroligin-1 and Neurexin-II, which was supported by immunohistochemistry and western blot findings. In the next experiment, animals with colitis caused by trinitrobenzenesulfonic acid (TNBS) were given transauricular vagal nerve stimulation (tVNS). Through an autonomic mechanism, the tVNS inhibits pro-inflammatory cytokines (TNF-β IL-1, IL-6) and has been proven to reduce enteric inflammation and neuroinflammation by boosting the release of anti-inflammatory cytokines (IL-10). Furthermore, we noticed an improvement in rats' biological and histological outcomes. We have demonstrated the anti-inflammatory effect of tVSS for the possible treatment of colitis by showing that it inhibits the harmful sympatho-dominant processes, regulates the body's parasympathetic-activity, improves peripheral perfusion due to decreased sympathetic-activity, and reduces excessive inflammation.

PL3-2

Gut brain axis

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Bacteria colonized in different parts of our body such as the skin, mouth, genitourinary system, intestines, and lungs are called the "flora" of that region, with the new terminology, "microbiota". Microbiota includes all microorganisms such as bacteria, fungi, parasites and viruses that live with us in our body. Most of the human microbiota is in the intestines, with a lesser part found in the genitourinary system, lungs, skin, and mouth. The gut microbiota is an ecosystem that has a critical role in maintaining our physiological balance and dynamics. The gut microbiota is now considered an "organ" and hosts the most microorganisms of all microbiota. As a result of the researches, it has been understood that the intestinal microbiota functions as an "organ" responsible for the systemic and mucosal immune response in many metabolic activities. In addition to its immunological activities, the intestinal microbiota plays a role in the release of neurotransmitters into the circulation, vitamin synthesis, and has the ability to produce some metabolic substances such as bile acids, choline and short-chain fatty acids, which play an important role in our metabolism. Complex carbohydrates can be converted into short-chain fatty acids such as butyrate, acetate, propionate by being absorbed and fermented by the gut microbiota. All of these have neuroactive properties and can enter the bloodstream and act in the brain through free fatty acid receptor 2 (free fatty acid receptor 2 = FFAR2) and free fatty acid receptor 3 (free fatty acid receptor 2 = FFAR3). The neurons and neuronal communication system in our intestines are called the "enteric nervous system". Because the enteric nervous system contains a very high number of neurons (200–600 million), it communicates very closely with the immune system and the endocrine system, and because of the release of neurotransmitters from our intestines that perform important tasks in our body, our intestines are now called the "second brain". The human microbiota consists of 10–100 trillion microorganisms. This number is 10 times more than the number of cells that make up the human body. For this reason, human beings are called 'superorganisms' or 'holobionts', 10% of which are made up of our own cells and 90% of our microbiome. The total surface area of bacteria in the human body is about 400 square meters. This area is approximately the size of a tennis court. Since our gastrointestinal system has a surface area of approximately 200 square meters and contains rich nutrients, it creates an ideal living space for the microbiota. Our gastrointestinal tract hosts different types of microorganisms such as bacteria, viruses, archaea, fungi and protozoa. Microbiota; encompasses all of the special species that live with humans. Approximately 99% of our microbiota is made up of bacteria, the remaining part by viruses, fungi, archaea and numerous eukaryotic microbiota colonized in our microbiota, 80% of which is found in the gut (most often in the large intestine). In our gastrointestinal system microbiota; anaerobic, facultative anaerobic and aerobic bacteria. Our small intestines contain mainly facultative anaerobic and aerobic bacteria, while our large intestines mainly contain anaerobic bacteria. The genes of the brain and intestinal tract are quite similar, particularly associated with neuronal synapse formation, so some gene mutations can lead to abnormalities in both the brain and gut. There are 3 billion characters in each of the DNA codes in approximately 100 trillion cells, the sum of human cells and microbiota cells in the human body. If all the DNAs in the human body were added one after the other, the distance between earth and space would be covered 600 times. We do not yet know the functions of 97% of the genes in our DNA. The DNA between humans differs by only 0.2%. Human and microbial genomes (the 'hologenome') have evolved together, and host metabolism is in common with microbiota metabolism. This genetic richness enables many different metabolic activities that cannot be performed by the human genome. Under normal conditions, the microbiota prevents pathogenic microorganisms from settling in the body. Disorders in our immune system, or mutations that occur due to various factors (such as chronic diseases, immune system pathologies, misuse of antibiotics) of these pathogenic microorganisms over time, in other words, the change in the genetics of pathogenic microorganisms, cause our symbiosis, which we have established with the microbiota, and which we call "symbiosis". spoilage, the ratio of probiotic bacteria/path-

ogenic bacteria decreases, resulting in what we call "microbial dysbiosis". This dysbiosis also paves the way for inflammation, which has an important role in the etiology of most chronic diseases. Inflammation is closely related to most chronic diseases. Probiotics are involved in activities of critical importance for our organism, such as strengthening the immune system, detoxifying toxic substances, synthesis of short-chain free fatty acids, synthesis of conjugated linoleic acid, vitamin synthesis, amino acid synthesis, biotransformation of bile acids, hydrolysis of indigestible nutrients, and ammonia synthesis. The microbial dysbiosis process in which the probiotic/harmful bacteria ratio deteriorates; Scientific studies have shown that it may be associated with many diseases such as inflammatory bowel diseases, lupus, asthma, Parkinson's Disease, depressed mood, Celiac disease, allergic diseases, obesity, diabetes and cardiovascular diseases.

Panel 4
Collaboration of Radiology and Anatomy Sciences

PL4-1
The importance of radiological and sectional anatomy in education

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Although the history of anatomy starts at the age before christ, history of radiology science is dating to 1895 when Wilhelm Konrad Roentgen has discovered χ-ray. The history of radiological anatomy is as old as the history of radiology. As in every branch of medicine, anatomy has an undeniable place in radiology. 1970 was a revolution in terms of radiology an also in radiological and sectional anatomy. Thanks to the computed tomography (CT) device discovered by Sir Godfred Newbold Hounsfield, cross-sectional imaging of human body has become possible and the concept of "sectional anatomy" has emerged. With the developing cross-sectional techniques in radiology, the importance of sectional anatomy increased. For this purpose questionnaires were distributed with four questions for each radiological and sectional anatomy lecture modalities to volunteers in different classes at Gazi University, Faculty of medicine. The students considered that their understanding and perception of anatomy was improved with these two modalities. They also stated that these two modalities should be given in both preclinical and clinical classes. I think that these two modalities should be given not only to undergraduate students but also to graduate students (both for radiology and anatomy specialty training and PhD education). Because anatomy has a great importance in radiology education, it would be very useful to perform anatomy rotation for those who receive specialty training in radiology.

PL4-2
Current topics in radiology

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Since the discovery of X rays by Wilhelm Conrad Roentgen in 1895, there has been enormous development in radiology. In this presentation, a brief history about the discovery of X rays is given. As well, imaging methods, their basic physical principles and main indications are given. Normal anatomy on sectional images and examples of some frequently seen pathologies are demonstrated. Furthermore, connection of radiology to anatomy is discussed, incuding articles that have been previously published. Probable future applications of those imaging methods is also covered. Artifical intelligence is a "hot topic" in recent years. Although the concept was emerged during 1950's, it became much more popular in the last decade, due to the development of processors and therefore, high capacity computers. Nowadays, in many areas of our daily lives, artificial intelligence is implemented, such as face detection, social media programs, search algortihms, and banking. In radiology, all images are in digital format for a very long time and that allows application of artificial intelligence to imaging. More importantly, evaluation of those images is possible by machine learning and deep learning algorithms. In the second part of the presentation, examples of artificial intelligence applications in radiology is given, such as hemorrhage detection on computed tomography scans, stroke detection applications, aneurysm detection and evaluation, detection of multiple sclerosis lesions, following up and comparing the multiple sclerosis lesions. Studies and reviews about those applications in the current literature are also briefly presented.

Panel 5
Language Used by Anatomists and Clinicians: Terminology

PL5-1
Terminology gifted from Andreas Vesalius to the current age and the World Anatomy Day

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In the course of events in which our society has worked meticulously for the particular date to be celebrated as the World Anatomy Day, with the decisions of IFAA board of directors, October 15 has provided ground for celebrations all around the world. This date has been selected because of it being the day of death of Andreas Vesalius, the father of modern anatomy. The dates of October 24 – October 31 meanwhile are being

celebrated as the Anatomy Awareness Days in a national basis. As the anatomist and doctor who corrected much of the antiquity-based misinformation surrounding the human body, Vesalius had embarked on his scientific life with the sole purpose of transferring the information concerning human anatomy in a correct manner, which would be done through the examination of a healthy human body and only that. Vesalius managed to collect his anatomy works under the title of 'De Humani Corporis Fabrica' in 1543, a publication which also had illustrations. The same print of the very book which is unmistakably the most important body of work of the Western medicine, has been brought forth from our own personal archive to be exhibited in the congress building, with the purpose of its public viewing by the congress attendants. This book can be regarded as the first diagnosis and treatment of modern anatomy. To further illustrate the importance of this book, we can use the quote 'Vesalius would have been merely a ghost if this book had not existed.' My presentation deals with the situation of medieval anatomy language in the pre-Vesalian period. It also explains the necessity of terminology reform undertaken by Vesalius in his De Humani Corporis Fabrica. It describes formation principles of the scientific language of anatomy based on pure classical Latin while eliminating Arabic and Greek elements. Emphasis is laid on Vesalius effort to unify terms as far as their meaning is concerned, to record lexical items and to create a permanent nomenclature in order to eliminate discrepancies in this field of communication. My feature contains a lot of information on terminology demonstrating Vesalius; language reform and reminding us of his great achievement, for which he is considered a forerunner of anatomy nomenclature codification. This presentation highlights the personality of the founder of modern anatomy, who was able to use his knowledge and skills to change the view on the construction of the human body extending over centuries. He introduced a new scientific approach and highlighted the importance of autopsies for understanding of human body which carefully demonstrated and documented. De Humani Corporis Fabrica - the spectacular work, in which he summarized results of his theoretical and practical findings, has opened a new path for the study of anatomy. Andreas Vesalius became a pioneer in the history of medical education. In 2014 will pass 500 years since his birth. He formed the Latin specialized language, which had never been used before.

PL5-2

Language used by anatomists and clinicians terminology

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A smooth, effective and secure communication between scientists is possible by knowing the terminology of the relevant discipline. The cornerstone of medical education is anatomy, and the beginning of anatomy education is anatomical terminology. Anatomical names form the basis of medical terminology. Therefore, anatomical terminology is the official language of medical education and medical literature. Today, the number of words in medical terminology is approximately 170,000, and 90,000 of them are derived from anatomically based names. The remaining 80,000 terms consist of biochemical names and drug names. Anatomical terminology is based on two languages, Greek and Latin. The oldest of the terms we use in medical terminology today dates back to Hippocrates 2500 years ago, and the terms 'cardia', 'bronchus', 'peritoneum' were used for the first time in this period. B.C. IV. Aristotle, who lived in the 19th century, began to use the terms 'neuron', 'meninx', 'aorta' and 'arteria'. This process continued in Greek until the 1st century BC. From this date on, Latin terms began to appear in medical terminology, and over time, medical terminology became bilingual. This process XII. It continued with the modern universities that emerged in Bologna, Italy in the last quarter of the century, and the definition of the structures of the human body gained momentum. XVI. Many muscle and vascular structures, which were defined until the 19th century, were named by giving their ordinal numbers, but this method has led to many confusions. As a solution to this confusion, descriptive anatomical terms were first used by Caspar Bauhin. In order to ensure terminological unity, the Anatomische Gesellschaft society was founded by German anatomists in 1886. "Die Nomenklaturkommussion" was established under the leadership of this community in 1989 and it revealed its works as "Basiliensa Nomina Anatomica" in 1895. This process has continued under different names and today it continues as The Federative International Program for Anatomical Terminology (FIPAT).

Keywords: anatomical terminology, medical terminology, terminologia anatomica

Oral Presentations

(OP-01 — O-65)

OP-01

Brain pathway anomalies in adolescent idiopathic scoliosis

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Objective: It was thought that sensory input, motor control or sensorimotor integration problems would cause spinal and postural balance problems in individuals with adolescent idiopathic scoliosis. For this reason, tractography of tractus corticospinalis (tr.CS) and lemniscus medialise (LM) in individuals with AIS and volume calculations of gyrus precentralis and gyrus postcentralis were performed.

Methods: Brain diffusion tensor imaging was performed by including 30 right-handed Lenke Type-1 (right thoracic) female individuals with AIS and 27 healthy women (mean age 14.9 years) in the same age population. By analyzing the tr.CS and LM pathways of both groups with DSI Studio software; total fiber count, ratio to whole brain fiber count, average fiber length, fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD) and radial diffusivity (RD) values were calculated. Volume calculation was done with the mricloud program.

Results: In the data we obtained, the total fiber number, average fiber length, fiber ratio and FA values in the tr. CS and LM of individuals with AIS were lower than the control group; MD, AD and RD parameters were found to be higher. In addition, the left and right tr. We determined that there were differences in total fiber number, average fiber length, fiber ratio, FA, MD, AD and RD parameters between tr.CS, LM, pathways. In terms of volume, the volumes of the left and right gyrus presentralis regions were in the control group; Although the left and right gyrus postrenralis were larger in the group with AIS, no significant difference was found between the groups.

Conclusion: In individuals with AIS, especially the LM, which carries the proprioceptive sense, and tr, which is responsible for the somatomotor system. The low number of tr. CS fibers and low fiber ratio indicate that it may be associated with postural balance and spinal curvature problems seen in AIS.

Keywords: idiopathic scoliosis, central nervous system pathways, tractography

OP-02

Evaluation of the relationship between anatomy teaching methods and learning outcomes: opinions of young anatomists in our country

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Objective: Cadaver shortage, developing technologies and pandemic transitioned anatomy education from the laboratory to the online.The chosen method affects the student's interest in learning. While practical education rises the student's interest in the clinic, simple memory approaches only aims to passing the exams may result in the student's falling below the level of knowledge required for clinical practice. We aimed to evaluate the opinions of postgraduate students and research assistants in our country in this subject.

Methods: A survey was sent to 129 researcher and lecturer anatomists registered in the academic database, who were asked to evaluate the compatibility between anatomy teaching methods and course achievements on a scale of 0–4 (incompatible to perfectly compatible). Data of 80 respondents were evaluated with the Kruskall-Wallis test and the Benjamini-Hochberg method.

Results: Cadaveric dissection has been found to be the most compatible method in the 3D understanding of surgical sciences, anatomical variations and human anatomy. Practical teaching has been found to be the most compatible method in the comprehension of other basic medical sciences and education with living anatomy (examination/operation videos) was the most compatible method in understanding clinical sciences. Online education was found to be the least compatible method with all learning outcomes ($p<0.001$).

Conclusion: Although anatomy education has become widespread in the interactive environment in recent years, cadaver dissection maintains it's importance in understanding the human anatomy. Cadavers provide a 3D understanding of complex anatomical structures. However, problems like insufficient donations in the supply of cadavers and lack of appropriate infrastructure limit education with cadavers. Based on the nature of the anatomical structure to be taught, we think

that using cadaver dissection and technology-based training together will increase the achievements of the anatomy course.

Keywords: anatomy, teaching methods, learning outcomes

OP-03

The effect of crossword puzzle activity on the achievement and attitudes of nursing students in teaching anatomical terms

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Objective: Anatomical terms constitute the terminological background that is frequently used in the introduction to vocational courses of nursing students. The aim of this study is to determine the effect of crossword puzzle activity on the achievement and attitudes of nursing students in addition to the traditional lesson in teaching anatomical terms.

Methods: The research was conducted with 99 students taking anatomy lessons at Karadeniz Technical University, Faculty of Health Sciences, Department of Nursing, in a pre-post test with an intervention group. After completing the "Descriptive Characteristics Form", "Anatomical Terms Knowledge Test" and "Anatomy Lesson Attitude Scale", the students were divided into experimental and control groups. Two digital crossword puzzles prepared in the "Crossword Labs" program for anatomy terms were sent to students'mobile phones in the experimental group (n=52). Students shared solutions on the "Padlet" platform. The students in the control group (n=47) were not given any application that they could study after the lesson and continued their education with the traditional method. One week later, all students took the "Anatomic Terms Knowledge Test" and "Anatomy Lesson Attitude Scale" again. Mann Whitney-U and Wilcoxon tests were used to evaluate the data.

Results: 20.2% of the students are male and 79.8% are female. It was determined that the median value of the pre-knowledge scores of the students in the experimental group was 11, and the post-knowledge scores were 13, and the post-knowledge scores increased statistically significantly ($p<0.05$). It was found that the median value of the pre-knowledge scores of the students in the control group was 13, the post-knowledge scores were 12, and the post-knowledge scores were statistically significantly decreased ($p<0.05$). It was determined that there was no statistically significant difference between the pre-knowledge scores of the students in the experimental and control groups, and the post-knowledge scores of the experimental group students were significantly higher than the control group. It was found that there was no statistically significant difference between the median value of the pre-attitude scores (111) and the post-attitude scores of the students in the experimental group (110), and between the pre-attitude scores (111) and the post-attitude scores (111) of the students in the control group ($p>0.05$).

Conclusion: It is recommended that teaching with crossword puzzles should be used as it facilitates the comprehension of terms and supports active learning by giving students the opportunity to study outside the classroom whenever and wherever they want.

Keywords: anatomy, crossword puzzles, learning, nursing students

OP-04

Morphological examination and clinical significance of tibialis posterior: cadaver study

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Objective: The tibialis posterior (TP) starts from the 1/3 proximal of the tibia and the interosseous membrane cruris and ends at the navicular bone.The TP has a very high functional feature in terms of protecting the medial arch of the foot,being the first muscle to be affected in pilon fractures,tendon dysfunction that can be seen after neurological diseases and traumas,and the role it plays in the walking phase.For these reasons,the primary purpose of the study is to characterize the morphology of the TP by revealing the relationship between muscle and tendon, and to determine the relationship of the muscle with the flexor digitorum longus (FDL) tendon when planning surgical procedures in the region.

Metodhs: The study was carried out by performing TP dissection in 28 lower extremities,were amputated for medical reasons with permission of the ethics committee(2013/12-5) obtained from Kahramanmaraş Sütçü İmam University, Medicine School. In the study, muscle and tendon sizes, tendon diameters, distances to medial malleolus (MM) and tibiotalar joint (TTJ), origin and insertion regions were determined by making the necessary measurements.

Results: It was observed that TP inserts onto the navicular bone in all samples.While the length of TP between origin and insertion was 40 cm in men, it was 37.7 cm in women and the difference was statistically significant ($p<0.05$).It was found that the tendon diameter was 12×5mm at the insertion, 9×4 mm at the end of muscle fibers,and 10.4×4.4 mm at the MM level.The mean distance of the beginning of the tendon to the insertion point was

20.3 cm, and the distance between the TTE and insertion of the tendon was 16.3 cm. As a result of the dissections, it was determined that TP tendon crossed with the FDL tendon approximately 5–10 cm proximal to lower end of malleolus medialis.

Conclusion: Since one of the most important causes of flatfoot is TP dysfunction,tendon transfers have become a common surgical procedure around the ankle.It is seen that TP tendon and muscle fibers can be used in various treatments in the clinic treatment.Understanding anatomical and morphological features of TP is important for solving foot and ankle problems.We believe that our cadaver study will guide clinicians.

Keywords: tibialis posterior, tendon transfer, cadaver

OP-05

Variations of the abductor pollicis longus tendon: an anatomic study

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Objective: Variations in the numbers of the abductor pollicis longus (APL) tendons distal attachment sides and the strucure of the APL can have clinical and surgical relevance. Therefore, this study was performed to determine the number of tendons and muscle bellies; to describe their insertion sides.

Methods: We dissected 16 distal upper limbs on 8 adult cadavers which were fixed in 10% formalin in the faculty of medicine, SANKO University, Turkey. Variations of APL tendon, structure and its way of insertion were observed.

Results: A single tendon of the APL was not found in all the examined upper limbs. The APL was noted to have 2–5 tendons. The accessory tendons were inserted most commonly (64%) into the base of the first metacarpal bone. The others extended to trapezium, abductor pollicis brevis, opponens pollicis, proximal phalanx of the thumb with a frequency of 12.5%, 12.5%, 9%, 2%, respectively. A double-bellied APL was found in 5 hands (3%).

Conclusion: In the literature, it has been suggested that attaching to the proximal phalanx of thumb and a double-bellied APL don't exceed by 1% and 1.5%, respectively. In our study, we encountered more frequently these variations. According to the published reports, using accessory APL tendon as grafting material for reconstruction surgery and treatment of trapeziometacarpal osteoarthritis resulted in better outcomes after operations. It is recommended in hand surgery an anatomical knowledge of the precence of accessory APL tendons would be useful to pay close attent during surgical approches such as De Quervain's relasing.

Keywords: abductor pollicis longus, anatomical variations, accessory tendons

OP-06

Lumbar stenosis

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Objective: To emphasize the importance of the diameters of the anatomically specified cavities and to show the effect on the clinic. Lumbar spinal stenosis is an acquired or congenital condition in which the neural arch is smaller than normal in diameter and ellipsoidal in shape rather than round. The anteroposterior diameter of the canal is less than 15mm in the midline, 3mm in the foramens, and the transverse interpeduncular distance is less than 25 mm.

Methods: A 65-year-old female patient was admitted to Mustafa Kemal University Tayfur Ata Sökmen medical faculty hospital with complaints of impaired gait and loss of strength. Spinal instrumentation and decompression surgery were applied to the patient who was diagnosed with spinal stenosis as a result of the examinations and BT, MRI views.

Results: Our patient's preoperative imaging measurements showed that spinal stenosis was between L3 and L4, and the anteroposterior diameter of the canal was 10.58 mm in the midline, the transverse interpedincular distance was 11.8 mm, the left foraminal distance was 1.28 mm, and the right foraminal distance was 2.07 mm. Due to this, the patient had a neurogenic claudication and walking distance was about 25 meters. We applied the recommended decompression and stabilization surgery for lumbar spinal stenosis to our patient. In the postoperative CT, the anteroposterior diameter of the canal was 15.74 mm in the midline, the transvers interpedincular distance was 26.45 mm, the left foraminal distance was 5.97 mm, and the right foraminal distance was 5.63 mm. The patient stated that she was in a clinically comfortable condition and walked for 100 meters without support and stated that she did not feel any pain.

Conclusion: In the strength examination, it was observed that the loss of strength in the lower extremities improved. At the follow-up one month later, it was observed that the patient could do her daily work unaided and walk without any distance restriction. As a result, while the reduction of the canal diameter, which is defined as anatomical, smaller than the normal limits, causes severe clinical pictures in humans, the clinical picture improves rapidly when these reductions are brought to normal anatomical limits with surgical interventions.

Keywords: spine stenosis, transvers interpedincular distance, decompression

OP-07

Soft tissue swelling in children by anatomical localization: single center experience

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Objective: Age of the child, the anatomical localization and the duration of the swelling, the growth pattern of the lesion with patients who presenting with soft tissue swelling are important for diagnosis. It was aimed to examine the cases of the children who applied to the hospital with the complaint of soft tissue swelling according to the anatomical localization.
Methods: Patients who applied with the complaint of swelling in soft tissue between April 2017–December 2021 were analyzed retrospectively. The masses were evaluated according to physical examination, ultrasonographic imaging and pathological results if surgical treatment were performed. The swellings were classified according to anatomical localization and diagnosis. Patients who were operated by another surgical branch, hernias and swellings caused by trauma were excluded from the study.

Results: 181 patients were included to the study. The mean age of the patients was 8,1 years. The patients were n=100 males and n=81 females. The most common diagnosis was found in head and neck region with 42% (n=75). Following, 8% (n=14) breast, 8% (n=14) chest wall, 7% (n=12) perianal, 7% (n=12) axilla, 6% (n=11) gluteus, 5% (n=9) groin, 5% (n=8) umbilicus, 4% (n=7) extremities, 3% (n=5) back, 3% (n=5) scalp and other regions were found respectively. In head and neck location, most common lymphadenopathies were found with 46% (n=35), following, thyroglossal cyst with 16% (n=12), lymphangioma with 12% (n=9), branchial cysts with 6% (n=5), hemangioma with 5% (n=4), epidermal cyst with 4% (n=3), thyroid masses with 4% (n=3), abscess with 2% (n=2) and torticollis with 2% (n=2) were found respectively. Conservative approach was performed in 58% (n=107) of the cases, surgical treatment in 16% (n=29), abscess drainage in 11% (n=19), medical treatment in 7% (n=13), 5% (n=8) underwent bleomycin injection and 3% (n=5) underwent biopsy.

Conclusion: There are broad-spectrum diseases that may present as soft tissue swelling during childhood period. Although most of cases are found benign disease, since malignant diseases also can be diagnosed, and some of them may require surgical and medical treatment, to plan the diagnosis and treatment without delay is so important.

Keywords: soft tissue swelling, anatomical localization, children

OP-08

Assessment of foot and ankle in female patients with rheumatoid arthritis: a morphological study

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Objective: Rheumatoid arthritis, causes cartilage and bone damage, failure, and systemic complications. The disease affects women 2 to 3 times more often than men. The foot and ankle joints are frequently affected in patients with RA. As the disease progresses, the frequency of foot involvement increases, and at any time during the course of the disease, approximately 90% of cases develop foot-related complaints. In this study, it was aimed to investigate the effects of RA disease on foot morphometry by comparing the foot and ankle morphometric measurements of female patients with RA and healthy individuals.

Methods: Necessary permissions and ethics committee approvals were obtained to measure individuals. In our study, 60 female patients with a diagnosis of RA and 60 healthy controls who were similar in age, gender, body mass index and dominant extremity of these patients were evaluated. Length (foot length, lateral foot length, toes length, etc.), height (caput ossis metatarsi I and V heights, malleolus medialis and lateralis heights, etc.), circumference measurements (bimalleolar circumference, etc.), goniometric measurements (1st and 5th metatarsophalangeal angle) and diameter measurements (foot metatarsal diameter, etc.) were performed on all individuals participating in the study. Body weight and height measurements were made with a height scale. Foot morphometric measurements were made using an inflexible tape measure, goniometer and anthropometric set. Measurements were made on individuals with the right dominant lower extremity and all measurements were taken from the right lower extremities of the subjects.

Results: Among the morphological measurements, foot length, lateral foot length, bimalleolar circumference values, caput ossis metatarsi I and V heights were statistically significantly higher in RA patients compared to healthy individuals ($p<0.05$). The lengths of the 2nd, 3rd and 5th toes, and the medial malleolus and lateralis height values were statistically significantly higher in healthy individuals than in RA patients ($p<0.05$). In goniometric measurements, the first metatarsophalangeal angle was found to be statistically significantly higher in RA patients compared to healthy individuals ($p<0.05$).

Conclusion: We think that RA disease causes changes in foot morphology, and that the anthropometric data in our study can be a reference for the design and modification of shoes, orthotics and prostheses for women with RA in our country and may provide benefits.

Keywords: anthropometric measurements, foot deformities, foot morphology, rheumatoid arthritis.

OP-09

Volumetric analysis of the cerebellum with the volBrain method in patients with migraine

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Objective: It is known that the cerebellum plays an important role in the processing of pain. In the literature, many structures of the brain have been studied volumetrically by using brain MRI images of migraine patients. Many automated methods have been used to estimate brain volume from MRI images. The functional role of the cerebellum in the pathophysiology of migraine still remains unclear. In this study we aimed to contribute to the pathophysiology of migraine by examining the cerebellum structures of migraine patients.

Methods: 19 people (9 women, 10 men) diagnosed with migraine and 14 people (7 women, 7 men) who did not have any neurological disorder were included in the study. The CERES method of volBrain was used to examine the cerebellum volumes of the study groups. With this method, gray matter volumes of each lobe of the cerebellum and cortical thickness of each lobe were obtained. To analyse the study results, we used SPSS 15.0 program and considered $p<0.05$ as statistically significant.

Results: As a result of the analysis, gray matter volumes of the right cerebellum, left cerebellum, Crus I, Crus II, VIIB, VIIIA, VIIIB and cortical thickness of these regions were found to be increased in migraine patients. CrusII, VIIB, VIIIA gray matter volumes of those with a disease duration of 5 years or more are found higher than those with a disease duration of less than 5 years. It was also found that patients who have 10 or more attacks per month have a higher cortical thickness of the CrusII region. The volume increase and cortical thickness in these regions show a statistically significant difference ($p<0.05$).

Conclusion: Crus I and crus II are areas closely connected to the prefrontal and posterior parietal cortical cortex by association fibers. Crus I and crus II are thought to contain cognitive and emotional representations and show an overlapping activity between irritating pain. Further studies are needed to elucidate the role of the cerebellum in migraine disease and to investigate its potential role in migraine treatment.

Keywords: migraine, cerebellum, volBrain

OP-10

Evaluation of cortico-limbic network brain sections in major depressive disorder patients with atlas-based parcellation

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Objective: Major depressive disorder is a disease influencing patients daily-life functionality by altering emotional and cognitive skills and its prevelance was reported as high as %21 worldwide. Aim of this study is to evaluate brain sections related to cortico-limbic network which is involved in major depressive disorder pathogenesis.

Methods: Study included 33 patients with major depressive disorder diagnosed in Balıkesir University Faculty of Medicine psychiatry department. Control group involved 33 healthy adult individual. Participants magnetic resonance images obtained from clinical arhive and cortico-limbic brain section volumes measured automatically by using atlas-based parcellation method. Participants Hamilton Depression Scale scores were obtained in clinical admission. Data were normally distributed. Measured brain volumes, parameters related to prognosis of patients and Hamilton scale scores has been statistically analized using Student's t-test and pearson correlation coefficient.

Results: Volume loss observed in evaluated areas were: %18 and %13 on right and left subgenual gyrus cinguli anterior respectively, %10 and %13 on right and left dorsal gyrus cinguli anterior respectively, %10 on right hippocampus, %11 on bilateral posterior part of gyrus frontalis superior, %14 and %11 on right and left posterior part of gyrus frontalis medius respectively and % 10 on left amygdala. All results were statistically significant. Pearson correlation analisis has shown that volume loss and Hamilton scale scores were negatively correlated.

Conclusion: The significance of this study is that it shows volume loss in specific cortical motor areas with cortico-limbic atrophy. Even though motor area atrophy in depression research is not a popular topic, there are studies which show functional relevance related to depressive disorders in motor areas which we observed atrophy in this study. Thus these results may provide insights on major depression disorder pathogenesis and contribute to neuroanatomy literature on cognitive and emotional circuits.

Keywords: major depressive disorder, MR imaging, atlas-based method, cortical volume

OP-11

Retrospective evaluation of lateral ventricular volume in Parkinson's patients and control group on magnetic resonance images

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Objective: Parkinson's disease occurs due to the degeneration of dopaminergic neurons located in the pars compacta part of the substantia nigra. It has been stated in the literature that the disease can cause changes in the cortical and subcortical areas of the brain. The lateral ventricle located in the brain has a flexible and expandable structure together with the cortical and subcortical structures forming its walls. The volume of the lateral ventricle may vary depending on age brain volume and morphology. Increased ventricular volume is an important sign of disease progression. In our study we calculated the lateral ventricular volume and the ratio of ventricular volume to cerebrum volume in Parkinson's patients and compared them with healthy individuals.

Methods: Magnetic resonance imaging of 54 Parkinson's patients (13 females; 41 males) and 26 healthy controls (8 females; 18 males) were included in the study. Magnetic resonance images were adjusted at 2 mm slice thickness in the coronal plane using the Horos program and saved in DICOM format. The recorded images were transferred to ImageJ program. Ventricular volume was calculated by the Cavalieri method. In the calculation of the cerebrum volume the images were first arranged in a format that can be transferred to the BrainSuite program in Horos and ImageJ programs. Prepared images were calculated automatically in the BrainSuite program.

Results: There was no difference in the ratio of right and left ventricular volume and ventricular volume to cerebrum volume in Parkinson's patients compared to healthy individuals. There was no difference in the ratio of right and left ventricular volumes and lateral ventricular volume to cerebrum volume in men with Parkinson's disease compared to healthy men. The ratio of right ventricular volume and right ventricular volume to cerebrum volume was found to be higher in female with Parkinson's disease than in healthy female ($p<0.05$). No difference was observed in the left ventricular volume of female with Parkinson's disease and in the ratio of left ventricular volume to cerebrum volume compared to healthy female.

Conclusion: Changes in ventricular volume are of great importance in diseases due to their relationship with anatomical structures. As seen in the results of our study, it shows that the gender factor should also be taken into account when evaluating the ventricular volume in neurodegenerative diseases.

Keywords: cerebrum volume, BrainSuite, ImageJ, Horos

OP-12

A very rare anterior abdominal wall defect: cloacal exstrophy

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Objective: In the first month of intrauterine life, the urinary (allantois), genital (mesonephric) and intestinal system (hindgut) are in a single cavity called the cloaca. After the 6th week, the cloaca becomes two separate spaces with the primitive urogenital sinus anteriorly and the anorectal canal posteriorly. Cloacal exstrophy is a severe deformity characterized by omphalocele, vesical exstrophy and anal atresia seen in 1 in 400,000. In the majority of cases, there are two half bladders and diastasis of the symphysis pubis. Until the 1960s, babies with these various anatomical deformities, which were considered fatal anomalies, were left to die. With successful surgical operations, survival rate has exceeded 50%. In this report, it is aimed to present a newborn baby with cloacal extophy.

Methods: A baby with cloacal exstrophy, whose birth week is unknown, and who was brought to the pediatric emergency department from the border, was followed up and treated.

Results: A baby weighing 1580 grams, having a female appearance with external genitalia, omphalocele and anal atresia was admitted to the neonatal intensive care unit. He was operated under elective conditions. It was seen that the patient with omphalocele, anal atresia and vesical exstrophy had two hemi vesica urinaria, didelphis uterus, unilateral renal agenesis and symphysis pubis diastasis. The omphalocele defect was repaired. The ileostomy was opened. The bladder defect was repaired. By performing an osteotomy, the symphysis pubis was brought to its normal anatomical shape.

Conclusion: Cloacal exstrophy is a very rare anomaly, and survival rates have increased significantly with the developments in neonatal intensive care and successful surgical interventions.

Keywords: cloacal exstrophy, omphalocele, anal atresia

OP-13 *[Retracted]*

OP-14

Anatomy education from the perspective of clinician: questionnaire study

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Objective: In our study, we applied a questionnaire to faculty members working in internal and surgical medicine branches

and research assistants to determine the level of their anatomy training and the need of anatomy in their clinical studies by applying a questionnaire. In addition, we aimed to determine the post-graduation perspective on anatomy education given before graduation by taking their opinions on the importance of cadaver in anatomy and the anatomy knowledge levels of interns and students practising in their clinics, and to contribute to medical education with this evaluation.

Methods: This study was conducted by applying a questionnaire consisting of 18 questions to 150 clinicians (46.7% research assistants and 53.3% faculty members; 41.4% surgical and 58.6% internal branches) working actively at Fırat University Medical Faculty Hospital.

Results: Clinicians reported that anatomy was the basis of medical education, that and cadaver was still indispensable in anatomy education, and that there should be field-based anatomy education in specialization education.

Conclusion: We think that more cadavers should be provided to medical faculties in order to train a qualified physician. In addition, we believe that it would be beneficial to add anatomy rotations to specialty training in order to make anatomy knowledge up-to-date and more permanent in surgical branches.

Keywords: anatomy, cadaver, medical education, questionnaire

OP-15

The determination of nutritional model of Kayseri early Byzantine period population by elemental analysis

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Objective: Bone is the storage place of many micro and macro elements that living organisms need for their metabolic activities. In addition, most of the elements taken with food are stored in the bone. This situation reveals the relationship between diet and bone. In this study, elemental analyzes of bones belonging to ancient human societies were made and it was aimed to determine the differences between nutritional profiles and bone types.

Methods: A total of 75 bones, including femur, humerus, os frontale, mandible and os sacrum, belonging to 8 male and 7 female skeletons, were examined. In the bones of which sex was determined, the density of the elements (Ca, P, Ca/P) and reflecting the nutritional pattern (Sr, Ba, Mg, Zn, Cu) were determined by χ-ray fluorescence (XRF) device. In our study, the element density of human bones belonging to the Early Byzantine Period, which was delivered to Erciyes University Anatomy Department in 2018 in Gültepe, Kayseri, was investigated. The obtained results were analyzed using the SPSS 22 program.

Results: It was determined that the structure most affected by diagenesis with the Ca/P ratio in the bones belonging to the Early Byzantine Period community was the os sacrum ($p<0.05$). Zinc (Zn) ratio, which indicates animal origin nutrition, was found to be higher in males than females ($p<0.05$).Similarly, strontium (Sr) element, which indicates a plant-based diet, was determined at a higher rate in women. However, it was observed that the bones of the upper and lower extremities had similar element density ($p>0.05$).

Conclusion: Based on these data, it was determined that the axial skeleton was primarily affected by diagenesis in the Early Byzantine society living around Kayseri and It can be said that male and female individuals have different dietary habits.

Keywords: trace elements, Byzantine period, nutrition, XRF

OP-16

A rare case in the neonatal period: a congenital umbilical cord hernia

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Objective: The umbilical cord is an essential structure of the fetal circulatory system with a length of 50–80 cm and a thickness of 1.5–2 cm, which begins to form in the 5th week of fetal life. The umbilical cord consists of 1 vena umbilicalis carrying oxygenated blood, 2 arteriae umbilical carrying deoxygenated blood, and a mucous connective tissue surrounds them called Wharton jelly, which has a gelatinous consistency, differentiated from the mesoblast. Typically, the intestinal loops herniate physiologically into the developing umbilical cord during the 5th–6th week of gestation and return entirely to the abdominal cavity by the 12th. A congenital umbilical cord hernia is a rare midline abdominal defect that intestinal loops are located in the umbilical cord. If the umbilical cord is clamped incorrectly, it can cause iatrogenic intestinal injury or perforation. In the literatüre, there are cases presented together with ileal atresia, congenital diaphragmatic hernia, and the cause of intestinal obstruction. This report presents a prematüre newborn with a congenital umbilical cord hernia.

Case: A 1-day old male newborn was referred to the emergency department from the Syrian with the diagnosis of prematüre infant and respiratory distress. He was born at 28 weeks' gestation and 800 g birthweight. On the physical examination, there were tachypnea and intercostal retractions in the respiratory system. On the abdominal examination, there was no distention, and the umbilical cord was clamped. When the umbilical cord was cut for insertion umbilical vein catheter, there were 2 umbilical arteriae, 1 umbilical vein, and intestinal loops in the umbilical cord. A congenital umbilical cord hernia

was diagnosed in the patient with intestinal loops in the umbilical cord. No obstruction was detected in the abdominal χ-ray. The damaged intestinal loops of the patient were surgically repaired. The patient was followed up with an ostomy.

Conclusion: Abdominal examination of all newborns in the delivery room should be done carefully. Umbilical cord anomalies should be evaluated. A congenital umbilical cord hernia should be considered in the differential diagnosis.

Keywords: a congenital umbilical cord hernia, newborn

OP-17

Prevalence of ankle accessory bones and imaging findings

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Objective: Accessory bones, which are developmental skeletal variations, are usually detected incidentally and are asymptomatic. Although it is difficult to determine the symptomatic nature of these bones, radiological imaging for accompanying pathologies provides important diagnostic information that should be considered in the clinic. In our study, it was aimed to examine the incidence and imaging characteristics of accessory bones in the foot.

Methods: Foot and ankle MRI examinations, which were taken in our hospital between January and December 2021, were analyzed retrospectively. The incidence of accessory bones, their distribution by gender, the foot in which they were seen, and the presence of accompanying clinical findings were recorded.

Results: Accessory bone was detected in 54 (30%) of 180 patients included in the study. Thirty (55.6%) patients were female and 24 (44.4%) were male, with a mean age of 42.85± 13.5 years. In our evaluation; 31 accessory navicular bones (57.4%), 18 os trigonum (33.3%), 5 os peroneum (9.3%), 4 os subtibiale (7.4%), 1 os subfibulare (1.9%) and 1 os calcaneus secundarius were detected. There was no statistically significant difference in the distribution of accessory bones according to gender and side (right/left). 9 of 18 patients with os trigonum had posterior impengement syndrome ($p<0.001$) and 5 of 31 patients with accessory navicular bone had accessory navicular syndrome ($p=0.064$).

Conclusion: Accessory bones can be the cause of acute or chronic foot pain that cannot be found and can be confused with avulsion fractures and cause unnecessary treatment interventions. It should be kept in mind that accessory bones may cause clinical problems. Accessory bone syndromes should be considered in patients with pain who do not have obvious pathology on direct radiography, and patients should be referred to MRI if necessary.

Keywords: accessory ossicles, foot, MRI, radiology

OP-18

Neuroanatomical basis of breastfeeding

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Objective: Pregnancy and lactation period include neuroendocrine and neuroanatomical functions, which are ordered one after the other. During pregnancy, estrogen increases the stromal tissue in the breasts, as well as the growth and branching of the ductal system. Progesterone provides the development of lobules and alveoli in the breasts. Some neuroendocrine cells of the nucleus arcuatus in the hypothalamus secrete dopamine. Dopamine inhibits prolactin release from the adenohypophysis. Breastfeeding initiates prolactin release from the adenohypophysis by inhibiting inhibition. Prolactin ensures the lobuloalveolar development of the mammary glands during pregnancy, the initiation of milk production at birth, and the continuity of milk throughout lactation. During breastfeeding, sucking of the nipple causes activation of afferent nerves that stimulate oxytocinergic neurons in the hypothalamus. Somatic afferent sensory impulses starting from here come to the hypothalamus via fasciculus longitudinalis dorsalis. Nucleus supraopticus and nucleus paraventricularis of the hypothalamus are activated. Oxytocin released from these cells is carried along the axons of these nerves to the neurohypophysis via tractus hypothalamohypophysialis. When oxytocin comes to the breast through the blood, it causes contraction of the myoepithelial cells surrounding the outer wall of the alveoli. Thus, the flow of milk from the breast takes place.

Keywords: lactation, breastfeeding, oxytocin, prolactin, hypophy

OP-19

The relationship between ABO and Rh blood groups and second to fourth digit ratio

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Objective: It has been reported that ABO blood groups are associated with various pathological conditions such as type 2 diabetes mellitus, some cancers, and cardiovascular diseases. In healthy individuals in society second to fourth digit ratio (2D:4D) is generally low in men and high in women. It may be possible to identify high-risk groups of various diseases using the 2D:4D ratio. In this study, it was aimed to investigate the relationship of 2D:4D ratio with ABO and Rh blood groups.

Methods: A total of 1000 people, 500 women and 500 men, who did not have any chronic diseases and did not have any pathology or surgical procedures on their hand were included in the study. From their hands 2D and 4D lengths were measured and the 2D:4D ratio was calculated.

Results: It is found that in women; while the 2D:4D ratio is <0.98 in A Rh(+), O Rh(+), O Rh(-) and AB Rh(-) blood groups, this ratio is >0.98 in other blood groups, as is common among women. In men; while the 2D:4D ratio was found to be >0.98 in individuals with AB Rh (-) blood group, the 2D:4D ratio was <0.98 in other blood groups, as is common among men.

Conclusion: It is found that, the 2D:4D ratio of women with A Rh(+), O Rh(+), O Rh(-) and AB Rh(-) blood groups and men with AB Rh(-) blood groups is different from the 2D:4D ratio of most individuals in populations. These individuals may be at greater risk for diseases and measures to protect against diseases can be taken from birth for them.

Keywords: 2D:4D ratio, ABO and Rh blood groups, anthropometry

OP-20

Examination of relationship between upper extremity anthropometric measurements in motor skills in hemiplegic cerebral palsy children

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Objective: The aim of this study was to investigate the relationship between upper extremity anthropometric measurements and motor skills of children with hemiplegic cerebral palsy and compare them with the control group.

Methods: This study included 30 hemiplegic children between 5–15 years of age, who had no secondary disability such as mental retardation and control group consisting of 30 healthy children aged 5–15 years. Prior to the evaluation, the age, sex, pleural aspects of hemiplegic children and the dominant side of healthy children in the control group were recorded.

Results: As a result of anthropometric measurements, first and left hemiplegic children were compared between the right and left hemiplegic children; right hemiplegic (n=13), no significant difference was found between left hemiplegic (N17). In order to determine the motor skills of the individuals, both the upper extremities of the individuals were applied the Melbourne Unilateral Upper Limb Function tests with Bimanual Fine Motor Test. When hemiplegic children (n=30) were compared between them, a statistically significant difference was found between hand length, length of hand and wrist joint width. When hemiplegic children (n=30) and control group (n=30) were compared, a statistically significant difference was found between forearm length, triceps dkk and subscapular dkk. There was no statistically significant difference between the control groups. The Melbourne Assessment Unilateral Upper Limb Function test was applied to the right hemiplegics and a statistically significant difference was found. The same test was applied to the left hemiplegic and there was also a statistically significant difference. When hemiplegic children (n=30) were evaluated, a statistically significant difference was found. Melbourne Assessment Unilateral Upper Limb Function test was compared with the control group of children with hemiplegic and statistically significant difference was found.

Conclusion: As a result, no statistically significant relationship was found between anthropometric measurements and motor skill tests, the measurements show that the anthropometric measurements of hemiplegic children are as high as the motor skills tests if they approach the mean values of healthy children.

Keywords: anthropometry, hemiplegic cerebral palsy, motor skill

OP-21

The effect of auditory stimuli and exercise practices on sex hormones in GMO-fed rats

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Objective: The aim of this study ,the investigation of the effects of nutrition with genetically modified organisms on sex hormones and the changes of these effects with stimuli such as auditory and exercise.

Methods: In the study, the eight-week 32 female and 32 male Spraque Dawley rats. Rats randomly divided into eight groups; control, genetically modified organisms, auditory stimulation, exercise, genetically modified organism+auditory stimulus, genetically modified organism+exercise, genetically modified organism+auditory stimulus+exercise groups. Genetically modified organism (GMO) groups were fed a mixture containing 40 ml of 50% corn syrup per day, auditory stimulus (AUDI) groups were listened Segah and Huseyni maqam with a sound height of 55 decibels for 60 minutes per day, while exercise groups (EX) were swam in an 80 cm long 40 cm wide pool. After the experimental procedure, changes in the subjects' body weights and sex hormone levels were reported. While it was found that body weights showed a significant

increase in all rats subjected to GMO; and the high significant increase was observed in female rats.

Results: In the study of lactate levels, a significant increase was observed in male rats compared to the control group in the GMO, EX+AUDI and GMO+EXC groups, but a decrease was observed in the GMO+AUDI group compared to the GMO group; in female rats of EXE groups, significant increases in the blood lactate levels were observed. In the testosterone levels, a decrease was observed in the AUDI group in male rats compared to other groups; a decrease was observed in the AUDI+EXC group in female rats compared to the control group. While there was no significant difference between all groups in estrogen levels on male rats, significant decreases were observed in female rats in exercise groups and in the GMO+AUDI group compared to CONT, while there was an increased between AUDI+EXC and GMO group. Although there was no statistically significant difference among all groups in female rats.

Conclusion: All results show that GMO is highly effective in weight gain and causes changes in the hormonal levels. It auditory and exercise stimuli may be effective in hormonal changes caused by GMO nutrition. However, more work is needed to elucidate the mechanism.

Keywords: GMO, auditory stimulation, exercise, lactate, testosterone, estrogen

OP-22

Investigating the anti-tumoral effect of rhamnetin on the mice in which ehrlich ascites and solid tumor is created

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Objective: Rhamnetin is a flavonoid which contained in especially clove, such as apple, tea, onion plant. Rhamnetin has been used in cancer research due to its antitumor and antioxidant properties. In this study, effects of rhamnetin administration at different doses on ascites and solid tumors were investigated in Balb/C mice bearing Ehrlich Ascites Tumor model that originating from rat breast adenocarcinoma.

Methods: Overall, 92 Balb-c mice (10 as stock animal) were used in this study. Ehrlich ascites tumor (EAT) cells (1x106 EAT cells) that harvested from stock animals were injected to all rats via intraperitoneal and subcutaneous route. Rhamnetin (100 µg/kg and 200 µg/kg) were given intraperitonealy and subcutaneously during 10 days and 15 days to the animals bearing ascites tumor and solid tumor respectively. Throughout experiments, weight changes were recorded in all groups. The maximum weight increase was observed in the control group among all groups (ascites and solid tumor groups).

Results: In the treatment groups, the least weight increase were determined in 200 µg/kg rhamnetin applied groups. The lowest increase in tumor volume was observed in the group that received 200 µg/kg rhamnetin (2.84) when compared to tumor control group (3.67) ($p<0.05$). All animals were sacrificed at the end of experiment. The spleen, kidney, stomach, small intestine, large intestine and liver tissues were removed from animals bearing ascites tumor and tumor tissues were removed from animals bearing solid tumor for histopathological examination. Histopathological examination in ascites tumor groups revealed that number of EAT cells that invaded into capsule of tissue and serosa layer were lower in the group received 200 µg/kg rhamnetin when compared to tumor control group. In animals with solid tumor, angiogenesis and apoptosis were assessed immunohistochemically by Factor VIII expression and Tunnel method in tumor tissues respectively and the differences were assessed among all groups. In addition, in order to determine *in vitro* cytotoxic effects of rhamnetin on EAT cells, alive and death cell ratios were counted after different concentrations rhamnetin application (1 µg, 2.5 µg and 5µg).

Conclusion: At the end of experiment, it was observed that vessel intensity (1.700) was significant decreased while number of apoptotic cells (10.416) was significantly increased in the group received 200 µg/kg rhamnetin ($p<0.05$). In the in vitro experiment groups, greater number of apoptotic cells were observed in the group received 1µg/ml rhamnetin after 3 and 24 hours incubation. In conclusion, anti-tumor activity of rhamnetin in both ascites and solid tumor development that induced by EAT cells was determined in this study.

Keywords: ehrlich ascites tumor, rhamnetin, apoptosis, factor VIII

OP-23

The effect of ankle inversion and eversion in the cerebral palsy children on walking and balance performance of joint range of motion

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Objective: The aim of this study is to investigate the walking and balance performance of ankle inversion and eversion range of motion in children with cerebral palsy.

Methods: A total of 71 children, aged between 4 and 18 years, were diagnosed as 35 cerebral palsy and 36 healthy children. Twelve children were divided into 4 groups as right hemiplegia, 12 left hemiplegia, 11 diplegic cerebral palsy and 36 control group. Children; demographic information such as gender, age, weight, height is presented. Ankle joint range of motion (ROM), Foot Posture Index (FPI-6), One Minute Walking Test, Tandem Posture Test, Four Step Square Test, Thirty Second Rise Test and Berg Balance Scale (BDI) were performed. Rough Motor Function Classification System (KMFSS) was used to adjust the motor levels of children of cerebral palsy.

Results: As a result of statistical analysis, it was seen that right ankle active and passive eversion movement and left ankle passive eversion movement values of left hemiplegic cerebral palsy had an effect on static balances. And left ankle active eversion movement had an effect on walking performance ($p<0.05$). Active inversion range of motion of the right ankle of children with right hemiplegic cerebral palsy had an effect on dynamic balance ($p<0.05$). Active inversion and eversion range of motion of the left ankle had an effect on functional balance and active eversion range of motion of the right and left ankle on the dynamic balance in children with diparetic cerebral palsy ($p<0.05$). No significant relationship was found between walking and balance performance of ankle inversion and eversion range of motion of healthy children ($p>0.05$).

Conclusion: As a result; It was determined that ankle inversion and eversion range of motion may have an effect on gait and balance performance in children with cerebral palsy. Since there is a moderate correlation between the results, we think that a different study can be performed by increasing the number of individuals in the study

Keywords: cerebral palsy, inversion, eversion, foot posture index (FPI-6), gait

OP-24

Histological, immunohistochemical and biochemical investigation of the effects of melatonin on endotoxic shock induced by lipopolysaccharide (LPS) in rats

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Objective: Sepsis is seen as one of the most important problems in medicine today. There is a serious need for more effective treatment strategies to combat endotoxic shock and sepsis, and a better understanding of its pathogenesis is essential to unraveling the mystery of sepsis. In the literature, there are limited scientific studies on melatonin and endotoxemia. Therefore, in our study, we aimed to determine the effect of melatonin on lipopolysaccharide (LPS)-induced liver and kidney damage due to its high antioxidant properties.

Methods: In the study, 28 adult Sprague dawley male rats were divided into four groups; control group, 10 mg/kg melatonin group, LPS (30 mg/kg) group, LPS (30 mg/kg) + melatonin (10 mg/kg) group. Histopathological evaluation in liver and kidney tissues obtained, determination of malondialdehyde (MDA) by ELISA method and immunohistochemical analysis [Toll-like receptor 4 (TLR4)], nuclear factor kappa B (NF-κB), Tumor necrosis factor-alpha (TNF-α) immune reactivity was evaluated. Experimental data were statistically analyzed in GraphPad Prism (version 6.0, GraphPad Software Inc., San Diego, California) and presented as mean±SD. Data were analyzed using one-way ANOVA with Tukey's post hoc tests for multiple comparisons. $P<0.05$ was considered significant.

Results: As a result of the histopathological examination, it was determined that the LPS group had enlarged blood vessels and inflammatory cell infiltration in the liver and kidney tissues compared to the control group. Tissue damage was found to be significantly reduced in the LPS + melatonin group compared to the LPS group ($p<0.05$). It was determined that MDA level increased in the LPS group compared to the control group. This effect was reversed in the Melatonin-treated groups. The expression increase of TLR4, NF-κB, TNF-α observed in the LPS group was decreased in the groups treated with melatonin.

Conclusion: It is conceivable that melatonin administered to rats prevents LPS-induced liver and kidney injury by inhibiting the TLR4/NF-κB signaling pathway. However, more detailed molecular studies are needed on this subject.

Keywords: LPS, liver, kidney, sepsis, melatonin

OP-25

Biochemical and histological investigation of the effect of melatonin and cortistatin on the damage to occur in the rat nucleus accumbens after chronic cellulosic thinner inhalation

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Objective: To examine the effects of melatonin and cortistatin on the damage caused by cellulosic thinner in the rat nucleus accumbens due to chronic inhalation at the biochemical and histological level.

Methods: Research ventilation was done in special glass cages at constant temperature and pressure. In our study, 50 young male Wistar rats of Rattus norvegicus species weighing approx-

imately 400–45 g were used. The rats were divided into 5 groups. Groups; control group, thinner group, thinner and cortistatin group, thinner and melatonin group, and thinner, melatonin and vitamin C group. There were 10 rats in each group and the rats were exposed to thinner inhalation in glass cages with air ventilation for 1 hour, 2 times a day for 6 weeks. At the end of the experiment, the animals were sacrificed and tissue and blood analysis was performed.

Results: The first clinical manifestations of rats exposed to thinner inhalation were observed as subjects lying on top of each other, trying to hide their faces, and a tendency to flee to the corners of the glass cage. As the thinner application time increased, excessive licking, frequent blinking, drooling, shortness of breath, and inability to balance were observed in rats. On the eighth day of thinner inhalation, yellowing of body hair occurred in the subjects. It was determined that this yellowing continued throughout the entire experiment. We found that the body weights of the rats who inhaled thinner were significantly decreased compared to the rats who did not inhale the thinner ($p<0.05$). The histology of the nucleus accumbens tissue taken at the end of the experiment is as follows: In hematoxylin-eosin staining; The cells in the nucleus accumbens in the control group were compared with the cells of the thinner inhaled, thinner + cortistatin, thinner + melatonin and thinner + cortistatin + melatonin group. Biochemical analysis; Catalase Enzyme Activity, Glutathione Peroxidase Enzyme Activity Detection, Superoxide Dismutase Activity Detection were performed. Blood was taken from the aorto abdominalis of the subjects and liver enzyme activity determination was made ALT, AST, GGT and LDH.

Conclusion: After thinner inhalation, damage occurred in the nucleus accumbens, and it was determined that the application of melatonin and cortistatin was preventive at the biochemical and histological level against this damage.

Keywords: inhalation, cortistatin, nucleus accumbens, melatonin, thinner

OP26 *[Retracted]*

OP-27

Determination of taekwondo's effect on brain morphological structure by MR images

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Objective: Taekwondo is a moral sport that is based on mental and spiritual skills, provides physical and spiritual development and appeals to people of all ages, as well as a sport that requires physical strength in which all body muscles can be used. For this reason, taekwondo allows to examine the changes in the morphological structure of the brain of physical exercise. In the present study, it is aimed to determine the effect of taekwondo sport on the morphological structure of the brain by magnetic resonance imaging (MRI).

Methods: In this study, MRI was performed on 15 athletes, including sedentary individuals, amateur and elite taekwondo athletes. Acquired images using MriCloud and ROIEditor programs with substantia gricea (SG) and substantia alba (SA) and gyrus precentralis, tr.corticospinalis (TrC), nuclei basales (NB), gyrus postcentralis (GPo) volumes and the ratios of these volumes to total brain volumes (TBV) were calculated.

Results: With the obtained data, it was determined that the elite taekwondo athletes had higher right GPo and TBH and SG volumes of both groups of athletes compared to sedentary individuals. In addition, when the ratio of SG and SA volume to TBV was examined, it was determined that there were significant differences in amateur athletes compared to sedentary individuals. Considering the ratio of brain segment volume to TBV, it was determined that there was a difference between left TrC, right GPo in elite taekwondo athletes, and left GPo between both groups of athletes and sedentary individuals.

Conclusion: Our study will contribute to a growing literature on the benefits of physical exercise training on brain development. We believe that it will guide the brain imaging studies to be carried out in Taekwondo and other sports branches.

Keywords: brain parcellation, brain, diffusion tensor imaging, sports, taekwondo

OP-28

Investigation of the effects of astaxanthin administration on cell death pathways and oxidative stress in testicular torsion/detorsion modeled rats

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Objective: The aim of the study is to investigate the effects of astaxanthin (ASX) administration on oxidative damage and autophagy in testicular torsion-detorsion (T/D) modeled rats.

Methods: In the study 21 male Spraque-Dawley rats were used. The rats were divided into 3 groups as Group 1 (Sham),

Group 2 (T/D), Group 3 (ASX+T/D). For 7 days, rats in groups 1 and 2 were given astaxanthin solvent (olive oil) by gavage, and rats in group 3 were given astaxanthin (1 mg/kg) dissolved in olive oil by gavage. At the end of 7th day, rats in the groups were performed torsion for 2 hours then detorsion for 2 hours. TAS-TOS, SOD, MDA, and GSH levels were measured in the testis tissues. Testis tissues were stained with Hematoxylin-eosin method. Beclin-1 and Caspase-3 levels in testis tissues were detected by immunohistochemistry method

Results: It was observed that the TAS, SOD and GSH values significantly higher in the ASX+T/D group compared to T/D group while the TOS and MDA values significantly lower. Significant degenerative changes in the seminiferous tubules in the T/D group were significantly reduced in the ASX+T/D group. An obvious increase in the immunoreactivity of beclin-1 was observed in the T/D group compared to the sham. However, the immunoreactivity of beclin-1 was highest in the ASX+T/D group. the Caspase-3 immunoreactivity prominently higher in the T/D group when compared with sham. The caspase-3 immunoreactivity was lower in the ASX+T/D group than in the T/D group, but the difference was not statistically significant.

Conclusion: In our study, it was observed that astaxanthin has a protective effect on oxidative damage. It was determined that ASX administration prevented cells from turning to apoptosis in testicular tissue and protected the tissues against damage by increasing the level of Beclin-1, through the induction of autophagy.

Keywords: astaxanthin, testis, torsion-detorsion, oxidative damage, autophagy

OP-29

First extensor compartment morphology in Turkish population and clinical significance: a cadaver series study

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Objective: The 1st extensor compartment, which is one of the 6 extensor compartments in the wrist, is an hihgly varaible anatomical region. Various studies have reported that the presence of an osseo-fibrous septum between the musculus abductor pollicis longus (APL) and musculus extensor pollicis brevis (EPB) tendons in this compartment contributes to the development of De Quervain's disease and complicates the treatment process. With our cadaver study, we aimed to reveal the frequency of septum in Turkish population and to show the morphology of the first extensor compartment.

Methods: 71 wrists of 37 fixed cadavers were used for the study. The first extensor compartment was dissected and the presence of the septum was examined, the number of tendons and the type of septum were noted.

Results: Septum was detected in 39 wrists (54.9%). Incomplete type of septum was observed in 29.6% of the wrists, while a complete type of septum was detected in 26.3% of the wrists. Considering the number of APL tendons, only a single tendon was detected at a rate of 26.7% (19 wrists). It was observed that the remaining wrists had multiple tendons. The EPB muscle had a single tendon in all wrists.

Conclusion: Although the 1st extensor compartment of the wrist is a highly variable region, classical anatomy books describe this region as 2 muscle tendons, APL and EPB, in a single tunnel. Current studies reveal that there is often an osseo-fibrous tendon between APL and EPB, and the number of tendons is variable. If this variation and frequency are not taken into account in De Quervain's disease, especially in injection or surgical treatment, treatment failures occur. Our findings in this study show that the frequency of septum in the Turkish population is over 50 percent. Therefore, clinicians involved in the treatment of De Quervain's disease should approach by considering the variability of this region in order to have a high treatment success.

Keywords: De Quervain's disease, 1. extensor compartment

OP-30

Morphometric changes in liver and pancreas in experimental colitis model and examination of the effects of vagal stimulation on these changes in chronic period

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Objective: Inflammatory bowel disease is a chronic and idiopatic disease of the digestive tract. Studies have shown that this disease also affects the liver and pancreas. Therefore, our aim in the study was to examine the effect of transcutaneous auricular vagal nerve stimulation (TAVNS) on the healing of liver and pancreatic damage in rats induced colitis with trinitrobenzenesulfonic acid (TNBS).

Methods: 36 rats in 4 groups were included in our study. Rats were randomly divided into 4 groups of 9 rats each. The rats in group 1 were intracolically injected with saline and TAVNS was not applied. Group 2 was injected intracolicly with saline and TAVSS was applied. Group 3 was injected with TNBS intracolicly and TAVNS was not applied. In Group 4, both TNBS was injected and TAVNS was applied. Liver tissues, pancreatic tissues and adrenal glands of rats were taken and stained with Hematoxylin-Eosin and Masson Trichrome dyes. Histomorphometric and histopathological examinations were performed on sections taken from the tissues. The obtained data were analyzed by statistical methods. Whether the data were normally distributed or not was evaluated with the Shapiro Wilk test. One-way analysis of variance was performed with the Tukey test. The results were considered significant if the p value was below 0.05.

Results: In our study, final body weights of groups 3 and 4 were found to be significantly lower than groups 1 and 2 ($p<0.05$). Adrenal gland/body weight ratio of group 3 was found to be higher than group 4 ($p<0.05$). The liver and pancreas histopathological scores of the TNBS injected groups were significantly higher ($p<0.05$). In the liver hepatocytes of rats in Group 3, necrotic areas, vacuolar degeneration and sinusoidal congestion were observed in some regions (2.45±0.82). Degenerative findings in liver sections of group 4 were also partially reduced (2.05±0.60). The number and area of Langerhans islets in the pancreas of the animals in groups 3 and 4 were found to be lower than in groups 1 and 2.

Conclusion: In conclusion, in our study, it was found that TNBS-induced colitis in rats caused histopathological and histomorphometric changes in the liver and pancreas, caused weight loss, increased the stress level, and it was found that transcutaneous auricular vagal nerve stimulation had ameliorating effects on these changes.

Keywords: colitis, vagal nerve stimulation, liver, pancreas.

OP-31

Evaluation of the relationship between age and carotid bifurcation angle and level – Computed tomographic angiography study

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Objective: It is one of the most common areas of atherosclerotic plaques due to the formation of bifurcatio in the common carotid artery and the curved structures of its terminal branches. The success of the endarterectomy technique applied in the surgical treatment of these plaques can be achieved with a good anatomical knowledge of these arteries and their relationship with the surrounding structures. In this study, we aimed to examine the angle of the carotid bifurcation (CB) and its level according to the cervical vertebrae and to compare the relationship between them in terms of age, age group, and gender.

Methods: In this retrospective study, Computed Tomographic Angiography (CTA) images from the archive of Gaziantep University Medical Faculty Hospital were used. 3D reconstructions of patients' CTA images were performed in the Horos v4.0.0 program. Angles of CB were defined the first (CBA1) internal carotid artery (ICA) and external carotid artery (ECA) between the vessel center axis, and the second (BCA2) the angle between the facing vessel walls of ICA and ECA. Patients were classified according to their age as young (18–44 years), middle-aged (45–64 years), and elderly (65 and over).

Results: 247 (123F/124M) individuals were included in the study. CBA1 was 45.18°±18.8°, CBA2 43.58°±25.22° in 494 carotid bifurcation. Both angle values on the left side were found to be statistically higher in men than in women ($p<0.05$). There was a weak positive correlation ($r<0.40$) between age and CBA1 and CBA2 angles on both the right and left sides. CBA1, CBA2 were measured wider in the elderly and middle-aged group than in the younger age group ($p=0.001$). CB was seen at 15 levels in total the lowest in the upper 1/3 of the 6th cervical vertebral body (level 1, C6 upper), the highest in the lower 1/3 of the 2nd cervical vertebral body (level 15, C2 lower). The most common level in 494 CB was the lower 1/3 of the C3 with a rate of 16.19% (80 CB). There was no statistically significant relationship between right and left vertebral levels and gender and age groups ($p>0.05$). There was a weak positive correlation between right side vertebral level and age ($r<0.40$). A moderate intensity between the vertebral level and CBA1 and CBA2 ($r<0.70$) in the positive correlation on the right side; and a weak positive correlation on the left side ($r<0.40$) were detected.

Conclusion: In our study, it was determined that the CB angles tend to increase as the vertebral level rises and these angles are wider in the middle-aged and elderly group than in the younger age group. We think that the obtained data will be a reference in diagnosis and especially in surgical treatment.

Keywords: common carotid artery, internal carotid artery, external carotid artery, carotid bifurcation, computed tomography

OP-32

Evaluation of the effect of Covid-19 disease on pulmonary vessels

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Objective: The respiratory system is primarily affected in Covid-19 patients. Although its effects on the lungs have been shown in many studies, studies on how the pulmonary vessels adapt to this are limited. Therefore, in our study, it was aimed to measure the diameters of the pulmonary trunk and its branches in thorax tomography images taken in stage 1 and stage 6 of Covid-19 disease.

Methods: In our study, thorax computed tomography images of stage 1 (0–4 days) and stage 6 (>28 days) of 25 individuals (13 men, 12 women) with a mean age of 53 and diagnosed with Covid–19 were used. On the images, the diameter of the pulmonary trunk at the exit from the right ventricle, the diameter where it splits into two, and the diameters of the right pulmonary artery and left pulmonary artery were measured.

Results: According to the measurements, the mean diameter of the truncus pulmonalis at the separation site was 29.33 mm in the first day of the disease, and it was measured as 29.96 mm in the following days. The mean diameters of right and left pulmonary artery were 21.23 mm and 20.34 mm, respectively, in the first days of the disease, and 21.88 mm and 21.19 mm, respectively, in the following days. In addition, the diameters of all parameters measured in the following days of the disease were observed to increase significantly compared to the first day ($p>0.05$). No statistically significant difference was determined in terms of gender in all parameters.

Conclusion: The results showed that Covid-19 disease can cause an increase in diameter in the pulmonary trunk and its branches.

Keywords: Covid-19, pulmonary trunk, diameter

OP-33

Lung influence and pulmonary rehabilitation approaches in Covid-19 infection

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Objective: COVID-19 infection emerged in the city of Wuhan, China in December 2019 and became effective in the whole world, especially in Europe, in a short time. Named Severe Acute Respiratory Syndrome Coronavirus-2 by the World Health Organization in January 2020, the emerging disease associated with this virus has also been defined as COVID-19. Due to its rapid contagiousness, it was declared a pandemic on March 11, 2020. Coronaviruses are a large group that cause diseases ranging from the common cold to more serious clinical manifestations such as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). While the disease potentially affects many organs with a systemic effect, it is often associated with lung damage. Lung damage in COVID-19 is an important factor in causing the death of the disease. Due to the new nature of the disease, there are not many data on lung pathology associated with SARS-CoV-2 to date. The aim of the study is to examine the literature data on lung pathology of this disease and rehabilitation approaches to increase lung capacity.

Methods: Covid-19 studies between 2019–2021 were scanned from the literature and 11925 articles were reached in Pubmed. In the articles we reviewed, we found out that Covid-19 has a systemic effect affecting many organs and is mostly associated with lung damage. Based on this information, the research was carried out through clinical studies, systemic and literature reviews on what kind of damage was observed in the lungs and the effect of physiotherapy on restoring functions.

Results: Findings and changes frequently seen in the lungs during the Covid period; ground glass opacity, consolidation, cobblestone appearance, edema in the interstitium, airway changes, and thickening of the bronchial wall. The findings after Covid are shortness of breath, weakness, fatigue, decreased exercise tolerance and impaired quality of life in patients.

Conclusion: Physiotherapy-based rehabilitation program is an important component for patients during and after Covid-19 in facilitating maximum functional recovery. Chest physiotherapy applied in the form of respiratory muscle training, coughing exercise, diaphragm training, stretching exercise, active-passive assisted exercise and home exercise provided improvement in FEV1, FVC (forced vital capacity), FEV1/FVC values and reduction in symptoms of anxiety and depression demonstrated in studies.

Keywords: Covid-19, lung capacity, physiotherapy

OP-34

A nonessential examination for patients with normal neurological examination in headache: brain MRI

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Objective: Headache is amongst the most common reasons of consulting a doctor. In addition to impairing the quality of life of the individual, there are societal as well as fiscal outcomes like workforce loss along with health expenditures. MRI findings of patients with headache were examined retrospectively through the relevant literature with a view to scrutinizing the

necessity of the very procedure carried out, and the results were shared accordingly. Through our study we delved into the recent situation in our country and investigated whether MRI devices with advancing and novel technologies give dissimilar results with diffusion and sensitivity-weighted images in the MRI findings of patients who seek medical advice visiting a health institution with complaint of headache.

Methods: The study included 224 patients over the age of 18, who underwent brain MRI between January 2020 and December 2021 in our center, with normal findings on neurological examination and who had not undergone surgery. All abnormal appearances such as mass, metastasis, aneurysm, hydrocephalus, encephalitis, sinusitis, mastoiditis, otitis, which may cause secondary headache, were recorded in MR images.

Results: Of the 224 patients, 120 (53.57%) were male and 104 (46.43%) were female. The mean age was 39.45±12.55 years. None of the 224 examinations revealed mass suspicious for malignancy, aneurysm, encephalitis, or meningitis. Extraaxial mass lesion compatible with meningioma was detected in 3 patients (1.33%), arachnoid cyst in 3 patients (1.33%), and developmental venous anomaly in 2 patients (0.89%). There was paranasal sinus infection in 145 patients (64.73%), mastoiditis in 37 patients (16.52%), and otitis in 8 patients (3.57%). The remaining 66 patients had no MRI findings except ischemic-gliotic changes, enlarged perivascular distances, and physiological calcifications.

Conclusion: In studies designed according to CT and MRI examinations taken regardless of neurological examination and history, the rate of completely normal findings is quite high, as in our study. MRI scans conducted for these patients, who can indeed solely be diagnosed with examination or simpler imaging methods, lead to loss of time and money. In order to fix the said situation, we are of the opinion that the red flag practice should become widespread and nonessential examination requests should be supervised.

Keywords: headache, cranial magnetic resonance imaging, neurologic examination

OP-35

Assessment of distance and face-to-face education through the eyes of the student during Covid-19 pandemic

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Objective: During the Covid-19 pandemic period, a questionnaire was applied to the students who took anatomy courses through distance education in the Faculties of Medicine and Dentistry. With this questionnaire; it was aimed to learn whether the infrastructure of Fırat University is sufficient and ready for the distance education system, the adequacy of the anatomy theoretical and practical courses, how much of the anatomy lessons the students want to take face-to-face and how much of them as distance education if they return to the normal education process after the pandemic.

Methods: In this study, a questionnaire consisting of 35 questions was applied to 555 term 1, 2 and 3 students who were studying at Fırat University Faculty of Medicine and Faculty of Dentistry.

Results: The opinion that Fırat University was successful in implementing the distance education system and that distance education offered the opportunity to listen to the lessons repeatedly at any time and place was widely accepted among the students. In addition, it has been determined as a common opinion that anatomy lessons given via distance education matches face-to-face education in terms of duration, content and efficiency. Despite all these advantages, the lack of face-to-face interaction and memorability were reported as the negative aspects of distance education. It was emphasized by the students that anatomy practical lessons and especially cadaver education should be carried out face to face.

Conclusion: Anatomy education is very important in acquiring and developing professional skills. We believe that anatomy education given through distance education will be insufficient to provide this acquirement. The high demand for face-to-face practical lessons by students also supports this. We believe that it would be more beneficial to conduct face-to-face anatomy practical training in distance education, which is thought to be a part of the education system in the future.

Keywords: anatomy, Covid-19 pandemic, distance education, face-to-face education

OP-36

Evaluation of the relationship between depression and the volume of olfactory regions by parcellation method

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Objective: It has been demonstrated by scientific studies in the literature that individuals with major depressive disorder experience loss of smell and decrease in olfactory bulb volume in these individuals. In this study, it is aimed to evaluate the correlation between major depressive disorder and the volume of olfactory regions.

Methods: In the study, magnetic resonance (MR) images of 33 patients diagnosed with major depressive disorder and 33

healthy individuals who will constitute the control group in the Balıkesir University Training and Research Hospital, Mental Health and Diseases outpatient clinic were retrospectively analyzed. In the obtained MR series, the volume of the amygdala, fusiform gyrus, anterior commissure, olfactory radiation and entorhinal area, which have an effect on the sense of smell, were measured using the parcellation method. All data were transferred to SPSS 25 program and analyzed quantitatively.

Results: The results of the statistical analysis of the variables examined in the study revealed that the right-left amygdala tends to have smaller volumes in sick individuals. It was determined that there was a negative correlation between the parameters evaluated in the study, left amygdala, left entorhinal area, right-left fusiform gyrus volumes and Hamilton Depression Scale.

Conclusion: As a result of the researches, it was revealed in the direction of morphometric analysis that there is a negative relationship between major depressive disorder and olfactory regions. The data obtained in the light of these findings will contribute to the understanding of the cause-effect relationship between depression and loss of smell; In terms of clinicians, it is thought to be a guide in diagnosis and treatment.

Keywords: major depression, olfaction, MRI

OP-37

Analysis of anatomically description foot shape patterns in young healthy people

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Objective: To analyze comparision of geometric and podographic differences between male and female foot shape can be the decisive factor of whether well-fitting, functional, and comfortable footwear is available for both genders.

Methods: 200 female/male participants, aged 18 to 22 years, were evaluated, including different components of foot morphology as parameters such as foot number, asymmetric foot, hallux valgus (HV). Body weight, body height, shoe size, sports activities, shoe wearing habits, and handedness were recorded. Digital fotogrametric and footscan pressure measurements were taken to determine which parameters were the most significant in characterizing pedal geometry and which had the largest difference between male and female feet. Structural and functional measurements of the same foot were taken using plantar pressure measuring device.

Results: The body mass index (BMI) was classified as BMI <18 in 7.45%, BMI: 18–24.99 in 72.7%, BMI: 25–29.99 in 16.14%, BMI: 30–39.99 in 3.72%. when correlations were evaluated; parameters with positive correlation with BMI as midfoot surface and rearfoot impulse. BMI height with wide and flat feet; frequency of wearing high heels, long feet and a larger forefoot area were associated with HV. HV was detected 2 times more in women with low BMI. The foot size is between 36–38 in 49% of women and 42–44 in the middle of 28% of men. In larger feet, it resulted in an increased length-to-width ratio of the footprint and longer toe structure. It was determined that the measurement values of both the length and width of the right side were higher for women with foot measurement symmetry, and the length and width of the left side for men were wider in such a way that there was no statistical difference in the measurements of the right side. The variability of footprint asymmetry increased with BMI.

Conclusions: We examined the variation of footprint shape in a sample of young adult people using geometric and podographic methods. It was shown that men's feet were longer than women's, and women's were narrower. It was determined that women's feet were not simply reduced versions of men's feet, but differed in various shape features, especially in the arch, side of the foot, first toe and ball of the foot. Although there is no statistical difference in foot asymmetry, it is no doubt that it will affect the comfort of the shoes. It has proven to be a powerful tool for detailed analysis of footprint shape, which can be applied in a variety of scientific disciplines including geometric and podographic examination and forensics, orthopedics and shoe design

Keywords: footprint shape, foot asymmetry, shoe design, hallux valgus, body mass index

OP-38

Investigation of the effects of vagus nerve stimulation and inhibition on stomach morphology in experimentally created obese rat models

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Objective: Vagal nerve manipulations are among the most preferred treatments in the treatment of obesity because they trigger weight loss quite a lot. The effects of the vagus on obesity proceed through the hypothalamus and stomach axis. In this study, it was aimed to examine the gastric morphology of the subjects whose obesity model was created by applying a high-fat diet.

Methods: Within the scope of the study, 200–250 g Wistar albino 32 female rats were randomly divided into four groups; inhibition (INH), stimulation (STI), sham (SHAM), and control (CONT). All groups were fed a high-fat diet until obese. After nine weeks, 1 cm midline incisions were made in the left vagus nerve regions of the animals in the SHAM group. In the INH group, the left vagus nerve was reached with a 1 cm midline incision 2 cm below the neck region, then the nerve was crushed with a special clamp that could apply 58 N for 30 seconds, and the rats were allowed to heal for 4 weeks. In the STI group, a special stimulator was placed on the left vagus nerve, and vagal stimulation (30 Hz/500 ms/30 sec) was applied for 4 weeks for 5 minutes starting from the second postoperative day. After the end of the experimental process, the subjects were taken into intracardiac perfusion and the volumes of the layers were analyzed by stereological methods by taking sections after the gastric tissue follow-up procedures. In the analyzes performed, the volume measurements of the histological layers of the stomach tissue were measured by the Cavalieri method.

Results: After the analyses, there was no statistical difference in the volumetric analyzes of the mucosa and submucosa. In the volumetric analysis of the tunica muscularis, a significant difference was observed between the CONT and SHAM groups, while a decrease was observed in the STI and INH groups compared to the CONT group, but this decrease did not create a statistical difference.

Conclusion: The statistical insignificance of the results is thought to be due to the inadequacy in the number of animals and the treatment period. However, although the results are not significant due to the deviations, it is seen that both treatments cause different effects on the histological layers of the stomach, with the data obtained at the end of the analysis.

Keywords: vagal stimulation, vagal inhibition, stomach, stereology

OP-39

Evaluation of simple kidney cysts with ITK-SNAP measurement method

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Objective: Type-1 kidney cysts (simple kidney cysts) are asymptomatic, solitary, and unilateral structures that are usually located in the renal cortex. These cysts are positioned around the kidney, causing pain in the patient, and cysts close to the vascular pole press on the vessels, causing blood pressure to increase and bleeding. Ultrasound and computed tomography (CT) criteria of Type-1 kidney cyst according to Bosniak classification include round/oval shape, smooth walls, absence of septa. If the diameter of the cyst is 7–8 cm on CT and the patient is symptomatic, surgery is decided. In this study, we aimed to determine whether the 3D volume of kidney cysts, which are frequently seen in the clinic, can be effective in making the diagnostic criteria and surgical decision.

Methods: Diagnostic CT images of patients who applied to Alanya Training and Research Hospital, Urology Department between June 2018 and January 2022 were accessed from the hospital's PACS system. For volume measurements and 3D modeling, a software program called ITK-SNAP, which converts 2D images in MRI, CT, and ultrasound into 3D medical image volumes, was used. In 18 female and 20 male patients, 38 kidneys with Type 1 kidney cysts and 38 kidneys without cysts were considered as the control group. It was evaluated how much the cysts shrunk the kidney tissue, the volume difference between the kidney on the healthy side and the kidney on the cyst side, whether the healthy kidney volumes and kidney cyst volumes changed statistically in males and females patient groups.

Results: The mean volumes of 76 kidneys (40 males–36 females) included in the study were calculated as 148.38±38.4 cm^3 in the healthy group and 121.13±32.7 cm^3 in the patient group ($p<0.05$). The mean volume of kidney cysts was 83.67± 12.28 cm^3. The kidney volumes of the patients were statistically different according to gender. It was observed that the mean volume of kidney cysts did not differ according to gender. The ratio of the volume of kidney cysts to the diseased kidney was 1.04±0.5.

Conclusion: In our study, 3D modeling of kidney and kidney cyst tissue, which can be visualized in 2D with contrast-enhanced CT, was made clearer. We think that our findings will create a more realistic image and will help clinicians to determine the morphology and exact location of the cyst before the surgical operation.

Keywords: ITK-SNAP, CT, kidney, kidney cyst, surgery

OP-40

Investigation of the effect of breastfeeding on subcortical structures by volBrain method

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Objective: It is known that breastfeeding has an important in children's neurological development. There are many studies in the literature on the neurological development of breastfed

and non-breastfed children, and the volumes of their cortical and subcortical regions. Studies have shown that breastfed children have an increase in white and gray matter volume, cortical thickness, and the volume of white matter related structures. In this study, we aimed to investigate the effect of breast milk on cortical and subcortical structures.

Methods: The study included 14 (8 girls, 6 boys) breastfed children and 18 (8 girls, 10 boys) not breastfed children. The volumes of the brain cortical and subcortical structures were examined with the volBrain 1.0 method using T1-weighted magnetic resonance images of the study participants. SPSS 22.0 program was used for the statistical analysis of our study and a p value of <0.05 was considered significant.

Results: In the analysis results of our study, total thalamus, left thalamus and right hippocampus volumes were found to be smaller in those who received breast milk than those who did not. These values are statistically significant. Volumetric increase was observed in other subcortical structures of non-breastfed subjects compared to breastfed. However, this increase is not statistically significant.

Conclusion: Breast milk is a complex nutritional substrate with theoretical nutritional advantages over formula milk to support brain development. In the literature, different results were obtained when the brain structures of breastfed children were examined. It is thought that the presence of volumetric increase or decrease cannot be determined as a criterion for choosing breast milk. These differences are thought to be due to reasons such as the number of participants, method differences, and breastfeeding duration. We believe that our study will contribute to the literature.

Keywords: breastfeeding, subcortical structures, volBrain

OP-41

Morphometric research on positionings of arcuate eminence and zygomatic root

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Objective: All cranial approaches require meticulous planning for clear understanding of the superficial bone anatomy and its relationship to the critical internal structures. Reliable surgical landmarks are necessary to perform accurate and safe clinical approaches. The arcuate eminence (AE) is a bony bulge over the middle cranial fossa (MCF) plate of the temporal bone which has been used as an important landmark in the middle fossa approach. Externally, the root of the zygoma (ZR) is also often used as an anatomic bony landmark to locate structures on the temporal lobe or MCF floor. The aim of this study is to characterize the anatomical relation between the AE and ZR, and to assess its reliability as a constant reference for navigating surgical approaches.

Methods: A total of 3 cadaver heads, 8 skulls and 20 temporal bones were examined at Ankara University Faculty of Medicine, Department of Anatomy. Specimens with damaged zygomatic arch and arcuate eminence were excluded from the study. The measurements performed twice by two researchers with digital caliper and goniometer.

Results: The direct distance from ZR to the most palpable point of the AE was measured. Additionally, the anteroposterior distance between the ZR and AE and horizontal distance between these two structures were measured. The angle between AE and ZR was also measured. To compare the left and right distances at skull bones Paired T-test was used. Besides, Pearson Correlation Coefficient test was applied to check if there is a correlation between length/width of skull and AE-ZR distance/angle.

Conclusion: Identifying a significant relationship between the arcuate eminence (AE) and the root of the zygoma (ZR), may aid the surgeons during skull base surgeries, establishing the level of the skull base during drilling, lowering the risk of inner ear injury, and planning preoperative and intraoperative procedures.

Keywords: arcuate eminence, middle cranial fossa, root of zygoma, skull base

OP-42

Knowledge, attitudes and behaviors of university students' regarding organ, tissue donation and body donation

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Objective: While organ transplantation from cadaver is more prominent in many western countries, it is reported that the rate of living donors is higher in our country. There are some obstacles to organ transplantation after death, such as lack of awareness, false myths and beliefs, and ignorance. There are approximately 25,000 patients waiting for transplantation in Turkey. There is an increasing need for tissue, organ and body donations in our country over the years. Despite that; no increase was observed in the number that could meet the high demand in question. In this study, it is aimed to measure and evaluate the knowledge levels and attitudes of the students

studying at Ankara University School of Medicine and Law about tissue, organ and body donation

Methods: This cross-sectional study was conducted among students studying at Ankara University School of Law and Medicine. A total of 673 people who were selected by simple sampling method and agreed to participate in the study were included. The data were collected by a questionnaire form that included knowledge and attitudes about tissue, organ and body donation, which was created by examining the relevant literature. Chi-square test, one-way analysis of variance and Student's t test were used for comparison between groups.

Results: It has been found that as the grade level of the students increases, the level of knowledge about the subject increases, the knowledge level of the students of the School of Medicine is higher than the students of the School of Law, the tendency of the students to donate increases as the grade level of the students increases, and the tendency of the students of the School of Medicine to donate is higher than the students of the School of Law.

Conclusion: In increasing the rate of tissue, organ and body donation; It is necessary to give importance to education in schools at every stage of education from primary education to higher education, to increase organ donation campaigns and to prepare programs to raise awareness of the public through the media. Awareness programs such as organ donation campaigns for body donation are also important for university students' anatomy education.

Keywords: organ transplantation, organ-tissue donation, body donation, cadaver, transplantation from cadaver, anatomy

OP-43

Neurotization of deep fibular nerve: a cadaveric feasibility study

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Objective: Different options such as foot-leg orthosis, tendon transfer and nerve grafting are applied in patients who develop drop foot due to nerve damage. However, in recent years, nerve transfer has also been tried. In our study, it was aimed to reveal the suitability of the motor branches of the tibial nerve for the transfer of the deep fibular nerve.

Methods: The popliteal regions of 36 cadavers, that fixed with 10% formaldehyde, were dissected and examined. Length, distribution and thickness of the tibial nerve motor branches and thickness of the common fibular nerve and it's branches in the bifurcatio region was observed and recorded. It has been typed to provide convenience in terms of surgery.

Results: The motor branches of the tibial nerve that innervate the soleus muscle, medial and lateral head of gastrocnemius were examined. It has been observed that it is distributed in 3 main types. The nerve of the lateral head of gastrocnemius is generally observed as the first branch to separate and it has been noted that it emerges as a single root. the nerve of the plantaris muscle was separated from different origins. When the thickness and length of the motor branches obtained in the measurements were evaluated, the most anatomically suitable nerve for neurotization was recorded as the nerve of the soleus muscle.

Conclusion: Drop foot is seen with a high frequency in the society. Classical applications are not sufficient in its treatment. Nerve transfer is seen as an application that can both lead to better results for the patient and accelerate the return of the patient to society. In our study, it was seen that the most appropriate nerve to transfer was the nerve of the soleus muscle.

Keywords: drop foot, deep fibular nerve, nerve transfer, tibial nerve

OP-44

Clinical reflection of anatomical evaluation in coccydynia

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Objective: Coccycodynia was first described by Simpson. It is a painful clinical picture of the coccyx and its surroundings. Although factors such as trauma, malignancy and difficult birth are listed in its etiology, one third of the cases are idiopathic. There are radiological studies that the pain is caused by anatomical changes in the coccyx and adjacent ligament structures. However, there are few studies in which patient data are evaluated together with anatomical changes. Our aim in our study is to compare the measurement results made in the patient and control groups and to evaluate their relationship with the current complaints of the patients.

Methods: In our retrospective study, the number of coccyx segments, morphological typing, lumbosacral, sacrococcygeal and intercoccygeal gap measurements were made in the current coccyx Magnetic Resonance Imaging (MRI). The imaging results of those with pilonidal sinus, those who had local surgery, and those under 18 years of age were excluded from the study. Trauma history, duration of complaint, sitting time and

pain intensity records of patients with coccydynia were analyzed.

Results: A total of 84 coccyx MRI results were evaluated, 62 women and 22 men. Fifty of these MRIs were patients who presented with the diagnosis of coccydynia. Trauma history was present in 64% of patients with coccydynia. The duration of the complaint was 14.8±13.68 months, the sitting time was 16.46±13.77 minutes, and the numerical pain scale was 7.7±1.5. The number of segments was 3 in 42 patients, 4 in 19 patients, 1 in one patient, 5 in one patient, and 2 in 21 patients. Morphologically, type 1; 19 (8 patients with coccycodynia), type 2; 26 (13 patients with coccycodynia), type 3; 17 (9 patients with coccycodynia), type 4; 22 (20 patients with coccydynia) were detected in the image. There was no statistically significant difference between the patient and control groups in the evaluated lumbosacral angle. A statistically significant difference was found between the patient and control groups in sacrococcygeal and intercoccygeal angle values ($p<0.05$).

Conclusion: Coccycodynia is a painful clinical picture that negatively affects a person's daily life. The fact that the treatment options are limited and the etiology is still not fully explained has brought the evaluation of the anatomy of the region to the fore. There are studies on the static and dynamic measurements of joint angles and the angles they make with neighboring joints. Our study is also important in terms of evaluating the trauma history, duration of complaints and pain score results of the patients and revealing their relationship with current measurements.

Keywords: coccyx, pain, coccygeal angle, magnetic rezonans imaging

OP-45

Situs ambiguous and hepatic vein anomaly: a case report

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Objective: Situs ambiguous, is a condition in which the different organs in the thoracoabdominal cavity can be abnormal or malpositioned. It is is a broad definition that includes many variations. The underlying pathophysiology involves genetic mutations that have been identified in as many as 60 different genes that cause primary defect in lateralization around day 28 of gestation, which leads to a deviation from the normal position of viscera. There is duplication of the left or right-sided intrathoracic contents with associated changes below the diaphragm. Classically, there is malposition of the liver, stomach and spleen. It can also be asplenia or poly splenia. Additionally, the vascular supply above and below the diaphragm may be altered significantly.

Methods: Ultrasonography (USG), thoracic CT angiography and abdominal MRI findings of the patient were examined and literature review was performed.

Results: A 40 year-old female patient was admitted to the emergency room with chest pain and she has followed up at the cardiology service of the Çukurova University Balcalı Hospital. She had history of VSD surgery when she was 23. İt was detected that there were midline symmetric liver, the right and middle-sided hepatic vein was draining directly into the right atrium, left –sided hepatic vein was connected to right atrium through inferior vena cava (IVC). There was truncated pancreas with agenesis of uncinate process of pancreas. Multi lobulated spleen and stomach were located at the right side of abdomen and there was left-sided IVC. The lungs are bilaterally two-lobed with hyparterial bronchi. In the presence of all these radiological findings, the patient was diagnosed with situs ambiguous with left isomerism.

Conclusion: Anatomical variations of situs ambiguous can cause confusion in diagnosis and problems during invasive procedure.

Keywords: situs ambiguous, left isomerism, hepatic vein anomaly

OP-46

An Ege project from idea to commercial product: a new product in the treatment of stress urinary incontinence

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Objective: Stress urinary incontinence (SUI) is the involuntary leakage of urine during activities such as coughing, sneezing, lifting weights, laughing or exercising. The first approach in its treatment is lifestyle changes and pelvic floor muscle training. If there is no response, surgical treatment is recommended. Considering the information that approximately 0.1% of the female population in the United States is operated for SUI every year, it can be concluded that there are approximately 40 thousand candidates for surgery in our country. The main current procedures for the surgical treatment of SUI are abdominal Burch colposuspension (BACS) and vaginally administered midurethral sling (MUS). In the last 15 years, MUS operations have become the most performed operations, first retropubic and then transobturator. Considering the population data, it is estimated that MUS operations in our country are around 10 thousand per year. With a rough calculation, it can be said that

the medical device-related consumables spent for these surgeries, most of which are performed with imported midurethral sling kits, exceed 100 million dollars.

The aim of our study is to introduce a new, facilitating, less costly, domestic and national surgical instrument suitable for the midurethral sling procedure, the effectiveness of which has been proven by many long-term studies in the surgical treatment of SUI and has become the gold standard. For this purpose, the study team consisting of anatomy, histology and obstetrics specialists worked together and tested the potential surgical targets by dissecting the female cadaver pelvis and hemipelvises, evaluating the neurovascular neighborhoods, making histological and biomechanical evaluations in the determined tissue samples and documented the size and geometric properties of the instrument to be developed for surgery.

Keywords: stress urinary incontinence, midurethral sling, female pelvis

OP-47

Evaluation of the plantaris tendon in routine ankle MRI examinations (radioanatomical study)

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Objective: The plantaris muscle is a short, thin, spindle-shaped muscle with a long tendon. The course and endpoint of the plantar tendon is an important factor in Achilles middle segment tendinopathies. The plantar tendon can also be used as a graft in many parts of the body. Variations of the plantaris muscle and tendon are common. It is thought that its contribution to Achilles tendinopathy may be related to these variations. Ultrasonography and MRI are radiological methods in which the plantaris tendon can be evaluated. We aimed to evaluate this structure, which has limited studies in the literature, in routine ankle MRI examinations in detail and to contribute to the literature.

Methods: Presence of the plantar tendon in 155 ankle MR images of 139 patients, its diameter, its course separately or together with the Achilles tendon, the localization of the calcaneal attachment of the tendon, the distances between the plantar tendon and the endpoints of the Achilles tendon, the junction of the plantar tendons connecting with the Achilles tendon The distance of the achilles tendon to the calcaneal end level of the Achilles tendon was evaluated.

Results: A total of 155 individuals, 105 (67.74%) female and 50 (32.26%) male, were included in the study. The plantar tendon was visualized in 142 (91,61%) of 155 cases. In 115 (74.2%) of 142 cases in which the plantar tendon was imaged, the plantar tendon was inserted into the calcaneus separately from the Achilles tendon and was joining the Achilles tendon at various levels in 27 cases (17.41%). The mean diameter of the tendon was found to be 2.77±0.90 in all cases. In 27 cases where the plantar tendon joined with the Achilles tendon, the distance from the junction point to the calcaneal insertion was 15±9.90 cm.

Conclusion: The results we obtained in our study are compatible with the radiological and cadaveric research results in the literature. In our study, the tendon thickness was higher in men than in women, and the diameter of the tendons ending in the calcaneus was among the tendons merging with the Achilles tendon; We also revealed that the diameter of the medial terminating ones is greater than the anterior terminating ones. In conclusion, we think that the importance of the plantar tendon should be well understood by clinicians, especially radiologists and orthopedists, and this tendon should not be ignored in MRI reports.

Keywords: plantaris tendon, ankle MRI, achilles tendon

OP-48

Determination of anthropometric values of the hand in individuals aged 18–35 living in Turkey

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Objective: Anthropology, which studies everything on human basis; It contains personal information such as the size, shape and structure of every limb of human beings. Anthropometric characteristics such as the length and width of the human hand are important in understanding the differences between individuals and societies.

Methods: Our study, in which we aimed to determine the anthropometric characteristics of the hand in individuals living in Turkey; It was carried out with the participation of 200 Turkish volunteers, 100 male and 100 female, between the ages of 18–35 (average 26.78 years) who are healthy, do not have any known systemic disease and do not have any wounds on their hands. Biometric hand photographs of both sides of the right and left hands of individuals; taken on a plain white surface using a horizontal tripod with a millimeter rigid tape measure. The photographs were transferred to the Image J program and converted into numerical data. Anthropometric pivot points were used on measurements. The measurements were made twice by the same researcher, with an interval of two months, and the averages were taken.

Results: The results showed that the right hand was higher than the left, and the men's values were higher than the women's.

Hand length is 200.2±10.7 in men, 182.3±10.2 in women; palm length was 118.5±6.3 in males, 106.4±5.9 in females; wrist width was 71.3±5.9 mm in men, 63.5±4.1 mm in women, and hand width was 94.5±5.7 mm in men and 84.5±5.1 mm in women. Finger length averages were 3>4>2>1>5, respectively, from long to short. However, when each hand was evaluated individually, the middle finger was the longest finger in 95.75% of 400 hands and the thumb in 4.25%; Little finger was the shortest finger in 78% and thumb in 22%. When the finger length relationships of the volunteers (digital formula) were examined, 11 groups in this study were different from the 3 groups (3>4>2>5>1, 3>2>4>5>1 and 3>2=4>5>1) reported in studies in the literature. The three most common rankings are; 3>4>2>1>5 (42%), 3>4>2>5>1 (18%) and 3>2>4>1>5 (10%). The ratio of the length of the second finger to the length of the fourth finger was 0.96 in the right hand and 0.97 in the left hand; in women, it was found to be 0.98 in the right hand and 0.97 in the left hand.

Conclusion: The findings were generally compatible with the literature. We think that this study will contribute to the literature since it also includes subjects with limited literature.

Keywords: anthropometry, hand, finger, length, image J

OP-49

The surgical anatomy of the insular lobe

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Objective: We aim to make the surgical procedures in the insular lobe based on the lateral sulcus safer by investigating the gyri and sulci of the insular lobe.

Methods: Lateral sulcus dissection was performed on 20 brains (40 cerebral hemispheres). The insular lobe was reached by preserving the middle cerebral artery and its branches. The depth of the insular lobe to the lateral surface of the brain, the lengths of the gyri and sulci on the insular lobe, the location of the accessory and transverse insular gyrus concerning the insular apex were examined.

Results: The closest distance from the insular lobe to the lateral surface of the brain was the opercular part of the inferior frontal gyrus (21.58±3.60 mm). The longest border of the insular lobe was the superior periinsular sulcus (59.58±6.48 mm) and the shortest border was the anterior periinsular sulcus (23.38±4.61 mm). The width of limen insulae was 16,19±2,98 mm. The height of the insular apex concerning the limen insulae was 13.09±2.88 mm. The shortest gyrus of the insular lobe was the middle short insular gyrus (17.01±3.89 mm), and the longest gyrus was the posterior long insular gyrus (27.72±5.69 mm). According to the insular apex, the accessory insular gyrus was most frequently at 9 o'clock (left) and 3 o'clock (right), while the transverse insular gyrus was most frequently located at 6 o'clock.

Conclusion: Since insular lobe surgery is a difficult surgical field to reach, its anatomy is important. Surgical approaches for the transverse and accessory insular gyri are more difficult. Because these two gyri are located on a different plane and deeper than the plane where the apex of the insular lobe is located. The accessory and transverse insular gyri located anteroinferior to the insular lobe are less prominent than other gyri. Our study provides convenience to clinical approaches by determining the position of these two anatomical structures according to the insular apex. In addition, the depth of the insular lobe concerning the surface of the lateral sulcus was evaluated on the different points to guide surgeons, especially in case of bleeding the middle cerebral artery.

Keywords: insular lobe, insular apex, accessory insular gyrus, transverse insular gyrus

OP-50

Evaluation of anatomical variations of sphenoid sinus with computed tomography

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Objective: Sinus sphenoidalis (SS) is a highly variable structure. Knowing these variations is important in terms of preventing complications that may occur during interventions such as endoscopic sinus surgery. Therefore, we aimed to examine the anatomical variations of the SS in paranasal sinus computed tomography (CT) images.

Methods: Our study was performed on CT images of 63 (32 males, 31 females) patients aged 20–89 years. Pneumatization variations of the SS were classified as presellar, incomplete sellar and complete sellar according to their relationship with the anterior and posterior walls of the sella turcica in sagittal sections. The complete sellar type was evaluated in 3 groups as subdorsal, dorsal and occipital, depending on whether there was pneumatization into the dorsum sella and clivus. In addition, other pneumatization situation were noted and structures protrusion into the SS were detected.

Results: As a result of the evaluation of SS pneumatization according to sella turcica, it was observed of the individuals had 15.8% presellar, 36.5% incomplete sellar and 47.6% complete sellar type. It was determined that the complete sellar type was 39.6% subdorsal, 6.3% dorsal and 1.5% occipital type. Pneumatization of the SS was detected into 46% of the individuals, greater wings, 28.5% lesser wings, and 36.5% into the pterygoid process. When the structures protrusion into the SS were evaluated, 25.3% of the individuals had carotid canal, 11.1% foramen rotundum, 20.6% vidian canal and 11.1% optic canal protrusion. In addition, onodi cells were detected in 49.2% of individuals.

Conclusion: This study, it was determined that the anatomical variations of SS differ considerably between individuals. Protrusions in this sinus may increase the possibility of complication during surgical implications and vital structures inside the protrusions may be adversely affected. Therefore, knowing the SS variations is important to reduce the possibility of complication in surgical practice.

Keywords: onodi, protrusion, pneumatization, paranasal sinüs

OP-51

Osseous changes and morphometric measurments in the temporomandibular joint and its surrounding structures in different types of malocclusion

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Objective: The temporomandibular joint (TMJ) is one of the complex joints of the body formed by the mandibular condyle, mandibular fossa, and articular tubercle of the temporal bone. There are several factors that affect TMJ morphology and location, including age, gender, pathological processes, functional changes, and occlusal forces. Growth differences in mandibular condyle can affect the occlusion of the teeth and, accordingly, the growth and development of the craniofacial skeleton. Therefore, the temporomandibular joint is an anatomically and biomechanically complex structure whose growth and development affects the mandible, and then the craniofacial complex. Radiographic examination of TMJ structures is very important for the evaluation of bone changes and morphological anomalies affecting the TMJ. Cone-beam computed tomography (CBCT) is the most widely used imaging and examination method for TMJ. The aim of this study is to evaluate the osseous changes in the TMJ and surrounding bone structures and to make morphometric measurements in different types of maocclusion using three-dimensional CBCT images.

Methods: 90 cases included in the study were divided into three groups according to sagittal skeletal classification. Morphology of TMJ bone components and condylar osseous changes were evaluated using cone-beam computerized tomography in patients with different sagittal skeletal relationships, gender, and age.

Results: Sagittal skeletal relationships have a significant effect on osteophyte formation, inclination angle (best-fit), height, and anteroposterior diameter. Pole depression, mediolateral diameter, sagittal joint space measurements were affected by gender; flattening, inclination angle, anteroposterior diameter, coronal joint space measurements were affected by age. Inclination angle, articular tubercle height, sagittal joint space measurements showed significant differences between right and left TMJ.

Conclusion: In conclusion, more studies with larger sample groups are needed to better understand TMJ morphology. A better understanding of TMJ morphology and the evaluation of its relationship with orthodontic malocclusions and age and gender groups may contribute to the diagnosis and treatment of temporomandibular joint disorders for orthodontic specialists in the treatment planning and during orthognathic surgical procedures

Keywords: articular tubercle, cephalometry, cone beam computed tomography, mandibular condyle, temporomandibular joint morphology

OP-52

Teknofest experience with medical faculty students

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Objective: Teknofest is an aviation, technology and space technology festival held in Turkey. It is a festival organized by the Turkish Technology Team Foundation and the Ministry of Industry and Technology and aims to develop Turkey's national technologies. The competitions of Teknofest organized in 14 different categories, the first of which was held in 2018, were increased to 35 categories in 2021. Primary, secondary, high school, university level students and graduates compete in separate categories in the competitions. At the university level, students of engineering and technology faculties generally participate in competitions in many categories such as medical faculty students, Biotechnology-Innovation, Unhindered Living Technologies, Artificial Intelligence in Health, University

Students Research Projects, Technology for the Benefit of Humanity, Educational Technologies. Teknofest competition is organized together with important institutions and organizations of our country. Selçuk University is one of the organizing institutions of this competition. As Selçuk University Faculty of Medicine, we participated in the 2021 TEKNOFEST competition as four teams. 3 of them made it to the final. One of our teams won the first prize in the category of Technologies for the Benefit of Humanity, and the other was the second in the field of Educational Technologies. Purpose: In this study, we aimed to convey the Teknofest experience we had with the students of our faculty.

Methods: Our faculty started the competition process with an online project information meeting attended by all students. Artificial intelligence and software courses were given to the students of our faculty who volunteered to do the project. Project teams were established. Counselors have been identified. Project ideas were evaluated at regular meetings. Project reports were prepared. Competition presentations of the finalist projects were prepared. Our students were supported at every stage of the process.

Conclusion: The students of our faculty prepare projects within the scope of Evidence-Based Medicine and Community-Based Medicine practices. However, during the Teknofest competition process, they prepared creative projects and discovered the common areas of different disciplines such as medicine and technology, sociology and software. They learned to find different solutions to problems and to work multidisciplinary. Faculty members also had the experience of competing with students. For these reasons, we think that the participation of medical faculty students in such competitions where medicine and technology meet will contribute to both their individual and professional development.

Keywords: Teknofest, competition, student

OP-53

Comparison of transvermian and telovelar methods in fourth ventricular surgical approaches: a surgical neuroanatomy study

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Objective: The traditional approach in fourth ventricular surgery is the transvermian approach, which involves reaching the ventricle with a vertical incision over the vermis of cerebellum. However, encountering mutism-like findings in patients who underwent this method has led to the search for a new surgical method. Among these methods, the telovelar approach uses the method of reaching the fourth ventricle by dissecting the velum medullare inferius structures, which are reached using fissure lines. With the difference in complications, both methods provide the opportunity to reach different parts within the fourth ventricle. Our study aims to reveal the differences in the applications of both methods by making angle and morphometric measurements in cerebellum materials.

Methods: In our study, 10 cerebellum materials obtained from heads fixed with formalin were used. Length measurements on the dissected materials were recorded in millimeters (mm) by using a caliper. Angle measurements were recorded in degrees (°). The area reached in the ventricle with both methods was measured and compared with the ImageJ program. Fossa rhomboidea dimensions and area were used as fourth ventricular measurement parameters. In the study method, firstly, transvermian and telovelar standard intervention points were determined. The line on the sulcus medianus was divided into 10 equal points between the obex and aquaductus mesencephali. For each intervention, the points on the sulcus medianus were targeted separately and the angles of intervention were measured.

Results: Compared to the transvermian intervention, lower intervention angles were detected in the telovelar intervention trials. Considering the catheter distances applied in the interventions, longer distance and longer fourth ventricular height / catheter distance ratio were determined in transvermian interventions compared to the telovelar interventions.

Conclusion: When the telovelar approach is applied with different planes and different application angles, it can reach the points determined at the base of the fourth ventricle. The difference in the transportation distances of the surgical methods supports the view that the telovelar method causes less tissue damage compared to the transvermian approach.

Keywords: cerebellum, fourth ventricle, transvermian approach, telovelar approach

OP-54

The effect of printing material on model quality in 3-D modeling

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Objective: The widespread use of 3-D printers has brought a new perspective to the field of anatomy. Although many different resins are used in anatomical printing and modeling, the most preferred materials are white, transparent, gray and elas-

tic resins. The purposes of use of each of these resins are different from each other. The aim of this study; was to reveal the usage areas more specifically by testing the white resin and transparent resin known as hard resins on different tissues.

Methods: The study was carried out on parts of the central nervous system and bones of the skull. Serial CT and MR sections taken from the head with a section thickness of 1 mm were converted into STL images by using the MIMICS Innovation Suite software. While STL images of bone structures are obtained from CT serial sections; STL images of the CNS were produced from MR serial sections. Anatomical prints and models of the obtained images in STL format were obtained with the Form 3B+ brand 3D printer. After the anatomical models produced were kept in isopropyl alcohol for 15 minutes, the supports on the anatomical models were removed. Following this process, UV curing was performed at 60 degrees for 15 minutes. Anatomical models obtained with two different resins were compared in the study. Results :All anatomical models produced with white and transparent resins are not flexible and have a rigid structure. It was determined that the transparent resin was superior in anatomical prints and models, the inner surface of which was desired to be revealed. White resin is more suitable for use in models where the outer surface is desired to be shown in more detail and to be colored and detailed. Both resins are suitable for coloring, but when the outer surface of the structure is wanted to be examined, it has been observed that a higher quality image is revealed when white resins are painted.

Conclusion: 3-D anatomical printings and models have brought a new perspective in the visualization of educational materials in the field of anatomy. It is certain that these anatomical 3-D models increase the quality of education. When looking at the materials produced with a 3-D printer, when it is desired to observe the veins, cavities or pathological formations in the structure; it is appropriate to use transparent resins because of the advantage that the interior is suitable for painting. If the outer surface of the anatomical structure is to be emphasized and other important structures on its outer surface are desired to be colored, the use of white resin will be more appropriate

Keywords: anatomy, white resin, clear resin, MIMICS Inovation Suit, Form 3B+

OP-55

Morphometric evaluation of proximal end of radius

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Objective: Fractures of head of the radius constitute for one-third of all elbow fractures. Application of prosthesis is required in cases where radial head fractures are comminuted and cannot be stabilized with internal and external fixation. Due to the roles of the radial head in the stabilization and movement of the elbow and forearm, prosthesis alignment is important so that extremity movements are not restricted. Knowing the morphometric features of the head and neck of radius is important for construction of proximal radius prostheses. Aim of this study is to describe the morphometric features of head, neck and radial tuberosity of dry radius.

Methods: In this study 88 dry radius (47 right, 41 left) with undetermined age and gender were examined. 8 radius with structural deformity was excluded from study. Length of radius, transverse and anteroposterior diameter of head, height of anterior, posterior, medial and lateral sides of head, circumference of head and radial tuberosity, length of radial neck, proximal and distal diameters of neck, depth of articular facet, length and width of radial tuberosity were measured. All measurements were repeated three times with a digital caliper and tape measure and averaged. Descriptive statistical analyzes were performed using the SPSS v23 software.

Results: The mean length of radius, anteroposterior and transverse diameters of radial head, length of the neck, depth of articular facet were measured as 225.5±16.0 mm, 20.14±2.14 mm, 19.64±2.19 mm, 12.75±2.23 mm and 1.85±0.37 mm, respectively.

Conclusion: Accurate implant size is an important factor to prevent radial head dislocation. This study could be useful in prosthesis design and application for proximal fractures of radius.

Keywords: radius, head of radius, morphometry

OP-56

Mapping of the superficial temporal artery according to certain anatomical landmarks

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Objective: The superficial temporal artery is a terminal branch of the external carotid artery and its morphology is important for clinics. It supplies the parietooccipital, preauricular and temporoparietal fascial flaps. Planning the craniofacial reconstructive surgery and success is related to the morphology of the artery. It is also preferred for the revascularization of cerebral ischemia in extracranial-intracranial bypass surgery. Knowing the anatomy is important to prevent complications of dermal filler injections of lateral side of the orbit and during the biopsy for giant cell arteritis. The aim of this study is to examine the detailed anatomy of the artery.

Methods: This retrospective study was carried out by evaluating the head and neck CT Angiograms at the Department of Radiology, Gazi University. Patients with significant pathologies, history of trauma and craniotomy were excluded and 129 arteries were evaluated. The zygomatic processes, marginal tubercle, tragus, uppermost of the superior and lowermost of the inferior rims of the orbit were determined. The region of the artery was divided into 4 zones according to the landmarks. Significant measurements were evaluated and the variations were classified. Statistical analyzes were performed by using the SPSS program.

Results: The frontal branch was determined in all and the parietal one was found in 89.15%. The angulation of the artery and frontal-parietal branches according to the vertical axis was 17.04±9.61°, 45.08±13.13°, 23.50±11.26°, respectively. The bifurcation was located 29.21±12.92 mm superior and 12.21±6.65 mm anterior to the tragus. The nearest distance between the frontal branch and the angle of the zygomatic processes and superior orbital rim was measured as 32.83±9.89 mm, 19.72±8.17 mm, respectively.

Conclusion: Anatomical variations of the superficial temporal artery and its branches are rare. Therefore, evaluation of the artery according to certain landmarks will help to reduce the risk of complications in significant procedures.

Keywords: superficial temporal artery, temporoparietal fascial flap, reconstructive surgery

OP-57

Micro anatomical features of fundus of internal acoustic meatus

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Objective: The Fundus of Internal Acustic Meatus is a small cavity in the petrous part of the temporal bone through which important anatomical structures pass. Many complications can develop in surgical procedures performed in this region. The aim of this study is to examine the microanatomical features of the fundus meatus acustici interni and to minimize the complications that may arise in surgical procedures to be performed in this region.

Methods: The 21 craniums in Bezmialem Vakıf University, Faculty of Medicine and Istanbul University Cerrahpaşa, Cerrahpaşa Medical Faculty Anatomy Departments were prenumbered, and each fundus meatus acustici interni was examined 3 times endoscopically and their averages were recorded. In our study; crest lengths, the widths and heights of cochlear area, superior and inferior vestibular area were measured.

Results: On average, the data obtained from the measurements are: The length of vertical crest (Bill's bar) is 1.41mm, the length of transverse crest is 5.61mm, the distance between the most distant points of area nervi facialis and superior vestibular area is 2.21 mm, the height of superior vestibular area is 0.88 mm, the width of superior vestibular area is 0.84mm, the width of area nervi facialis is 0.91 mm, the height of area nervi facialis is 0.96 mm, the width of cochlear area is 1.14 mm, the height of cochlear area is 1.48 mm, the width of inferior vestibular area is 0.76 mm, the height of inferior vestibular area is 0.76 mm.

Conclusion: It is thought that knowing the microanatomical features and related structures of the fundus meatus acustici interni for surgical procedures to be performed in clinical situations like vestibular schwannoma, cranial nerve decompression or cochlear implantation will guide the prevention of complications in these clinical applications and will contribute to the literature studies on this subject.

Keywords: fundus, cochlear area, vestibular area, fundus of internal acustic meatus

OP-58

Micro anatomical features of superior orbital fissure

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Objective: Superior orbital fissure is the opening through which many important structures pass from the middle cranial fossa to the orbit. The aim of our study is to investigate the anatomy of the superior orbital fissure and to determine its morphological features.

Methods: The 28 craniums in Bezmialem Vakıf University Faculty of Medicine and Istanbul University Cerrahpaşa, Cerrahpaşa Medical Faculty Anatomy Departments were prenumbered, and the photographs were taken from a stable position and distance. The lengths from the photographs, which were calibrated according to the reference lengths with a computer program, were measured 3 times and averaged. In our study, the length between the optic canal and the upper and lower border of the superior orbital fissure, the distance between the most medial and most lateral points of the superior orbital fissure, the distance between the uppermost and the lowest points of the superior orbital fissure, the distance between the supraorbital foramen and the uppermost point of

the superior orbital fissure, the distance between infraorbital foramen and the lowest point of the superior orbital fissure was measured by taking certain reference points.

Results: On average, the data obtained from the measurements; The distance between the optic canal and the lower and upper border of the superior orbital fissure is 6.964 mm and 4.125 mm respectively, the distance (width) between the most medial and most lateral points of the superior orbital fissure is 3,421 mm, the distance between the uppermost and lowest point of the superior orbital fissure is 6.193 mm, the distance between the supraorbital foramen and the uppermost point of the superior orbital fissure is 13,366 mm, and the distance between the lowest point of the superior orbital fissure and infraorbital foramen is 15,568 mm.

Conclusion: It is important to know the anatomical and morphometric features of the superior orbital fissure in pterional or lateral orbital approaches to be performed in clinical situations such as superior orbital fissure syndrome and orbital apex syndrome. It is thought that knowing the anatomical features and morphometric values of the superior orbital fissure will contribute to the literature studies on this subject and will guide the prevention of complications in clinical applications.

Keywords: superior orbital fissure, orbit, morphometry

OP-59

The 100 most cited articles on the subiculum: a bibliometric analysis

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Objective: The subiculum is an important part of the hippocampus responsible for learning and memory. This part of the hippocampus, one of the most researched brain parts in recent years, awaits further investigation due to these special network mechanisms it contains. Especially the functional features of the subiculum are not fully defined. However, there is no research in the literature that collects and analyzes the studies on Subiculum. Bibliometric analysis is a method that shows the productivity of researches, their effects and the performance of the authors. The aim of this study is to determine which publications about Subiculum are most cited, who contributed to them and what subjects they are dealing with and to guide scientists who do research on this subject.

Results: Our study resulted in 1792 articles in the web of Science (WOS) database.The top 100 most cited articles according to the number of citations are listed in the table we prepared.

Conclusion: As a result of this bibliometric analysis study, studies showing that the structure of the Subiculum can be effective in many neurological and psychological diseases have been increasing over the years, and it is seen that more attention is paid to this issue, especially in some countries. The bibliometric examination of these studies is important in terms of providing an understanding of the importance of the structure of the subiculum and the studies that can be done about this structure.

Keywords: bibliometry, subiculum, neuroscience, anatomy, analysis

OP-60

The importance of section thickness in 3-D anatomical prints and models

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Objective: In recent years, 3-D printing technology has been the subject of interest due to its numerous applications in medicine. The ability to produce accurate 3-D models has attracted the attention of anatomists. The aim of the study was to provide information about the ideal section thickness in order to produce the best anatomical prints and models.

Methods: CT and MR images with different section thicknesses were used in the study. STL images of the skull bones were created from the obtained serial CT sections. STL images of the central nervous system structures were obtained from MR serial sections. The differences of the section thickness in the obtained STL images were evaluated comparatively in order to show the details of the anatomical formations in both soft tissues and bones. 3-D printing was done by using the Form 3B+ device.

Results: The thickness of serial sections is crucial in anatomical printing and modeling. In anatomical prints and models from both CT images and MR images, the thickness of each of the serial sections must be 1 mm or less in order to show the anatomical formations in details. In our study, it was determined that the bone anatomical models produced from serial sections of 1 mm thickness were exactly compatible with real bone images. However, in the imaging of soft tissues of the central nervous system, it was noticed that the details of some anatomical structures could not be revealed even at 1 mm serial section thickness. For this reason, in 3-D anatomical printing and modeling, it is extremely important to decide on the section thickness by considering the details of the produced anatomical structure especially in soft tissues. CT and MR images with a section thickness of 1 mm or less should be used

to produce the most accurate anatomical print. The use of section thicknesses greater than 1 mm affects the quality of the produced model.

Conclusion: In anatomical printing and modeling of hard tissues such as bone, the use of CT images with 1 mm serial section thickness enables us to obtain very perfect anatomical 3-D models. However, it is important to decide on the ideal section thickness by evaluating the anatomical structure of the relevant region in soft tissue anatomical models.

Keywords: anatomy, 3-D model, 3-D printing, section thickness in serial sections

OP-61

Fourth dimension in 3-D models: coloring

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Objective: 3-D anatomical models have brought a new perspective to anatomy education. Thanks to 3-D models, it is possible to model many regions that cannot be understood in anatomical plastic models. By working on serial sections; it makes great contribution to student education as a good alternative to anatomy plastic models. The aim of the study was to make the models more interesting & understandable; colouring of the 3-D printed models were done in order to reinforce the theoretical education of anatomy.

Methods: STL images were obtained from radiological anatomical serial sections using software such as MIMICS Innovation Suit, Slicer 3D, Inobitec Dicom Viewer, Synopsys Simpleware. By the help of three-dimensional printers, models of anatomical formations in the cranium bones and central nervous system were produced. After production, the products were washed by using isopropyl alcohol and then ended by curing. By painting the produced 3-D models, anatomical structures that cannot be fully understood in cadavers and cannot be displayed in anatomy models are presented to student education with a rich visuality.

Results: As a result of many paint experiments on anatomical prints and models, it was observed that acrylic paints remained on the material and gave the best results. In order for 3-D printing and models to contribute more to education and to be understandable, dyeing was carried out by keeping the color scale wide in the study. One of the most important advantages of acrylic paints is that, after purchasing a few basic colors, these colors can be mixed with each other in different ratios to obtain many color options. This method provides a great economic advantage to the production of 3-D materials and increases the visual richness presented to the student.

Conclusion: It is an indisputable fact that 3-D printing and models make great contributions to anatomy education. Coloring these models by painting makes the subjects that are more difficult to understand in theoretical education easy to understand and memorize. Acrylic paints should be preferred for coloring 3D printed models due to their advantages compared to other paints. It is certain that prints and models painted with acrylic paints are needed in practical training so that students can better grasp the subjects that are difficult to understand and imagine.

Keywords: anatomy, 3-D printing, acrylic paint, painting

OP-62

Morphometric and morphologic evaluation of sella turcica on cone beam computerized tomographic

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Objective: Sella turcica is an important anatomical formation that contains glandula pituitaria in corpus ossis sphenoidale. It is important to know the morphometry and morphology of sella turcica as it has many vital structures around it and it is a transit point during the surgical interventions to this area. The aim of this study is to contribute to literature by determining morphometric reference values of bone structures belonging to sella turcica in cone beam computed tomography (CBCT) images of individuals who do not have pathology in the sellar region between the ages of 18–65.

Methods: CBCT images of 400 individuals, 200 female and 200 male, who applied to Gaziantep University Faculty of Dentistry, Department of Oral, Dental and Maxillofacial Radiology and did not have any craniofacial pathology, were evaluated retrospectively. A total of 8 parameters were examined, 6 in sagittal section and 2 in transverse section and sella turcica morphology was evaluated in two different categories.

Results: As a result of the examination of CBCT images of 200 male (mean age: 40.60±15.57) and 200 female (mean age: 40.74±15.73) individuals aged 18–65 years, the length of the sella turcica in the sagittal plane is 10.19±1.77 mm, the diameter of the sella turcica is 11.6 ±1.69 mm, anterior height of sella turcica 7.88±1.56 mm, median height of sella turcica 8.18±1.42 mm, posterior height of sella turcica 6.98±1.31 mm, width of sella turcica 11.10±1.6 mm. The most common shape in sella turcica morphologies in the sagittal plane was 'normal sella tur-

cica' (59%), while in another category it was 'circular' (48.75%).

Conclusion: It is thought that the findings will contribute to the literature in the examination of sella turcica and surrounding structures and in surgical interventions to be made in this region.

Keywords: sella turcica, morphometry, morphology, cone beam computed tomography

OP-63

Investigation of the anatomical features of sternocleidomastoid muscle in the fetuses

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Objective: In this study, it was aimed to examine the variations and morphometric features of the sternocleidomastoid muscle (SCM).

Methods: The neck region of 27 fetuses (11 boy, 16 girl) with an average age of 23.30±3.40 (19–30) weeks and fixed with 10% formalin in the laboratory of Gaziantep University Faculty of Medicine, Department of Anatomy were dissected bilaterally. Photographs of the dissected fetuses were taken in the standard position. Morphometric measurements such as length, width and angle on these photographs were measured using the ImageJ 1.53k software. In addition, the origo and insertio of the SCM were detected. Considering the previous studies in the literature, a classification related to the origo of the SCM was made. The analysis of the data was made with the SPSS 25 software and $p<0.05$ was considered statistically significant.

Results: It was observed that there was no statistically significant difference according to side and gender in all numerical data measured ($p>0.05$). The linear function for the midline width of the SCM was calculated as $y=-5.438+0.568 \times$ weeks ($p<0.001$). The linear function for medial and lateral margin lengths was calculated as $y=-2.266+1.669 \times$ weeks ($p<0.001$) and $y=-4.545+1.567 \times$ weeks ($p<0.001$), respectively. According to the classification made for the origo of the SCM, a total of 11 types were determined under 6 main headings. Classical type of the SCM was detected in 42 of 54 sides. Two-headed pars clavicularis was detected on nine sides and three-headed on one side. A two-headed pars sternalis was detected on one side. A single-headed SCM was also detected on one side.

Conclusion: Knowing the variations and sizes of the SCM is thought to be important for the prevention of complications during early childhood surgeries. Therefore, the data obtained in our study may be beneficial to clinicians in terms of the treatment of pathologies such as congenital muscular torticollis.

Keywords: sternocleidomastoid muscle, fetus, dissection, variation, classification

OP-64

Investigation of the course of superficial peroneal nerve in the legs in fetuses

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Objective: The aim is to investigate the morphometric and morphological features of the sensory branches of the superficial peroneal nerve (NPS) in fetuses leg.

Methods: Fifty-two lower extremities of 26 fetuses (gestational ages 19–36 weeks, 15 females and 11 males) were dissected in Gaziantep University Medical Faculty Anatomy Laboratory. The course of the NPS from the point where it pierces the crural fascia to the ankle was revealed, branching pattern of the nerve was typed and morphometric measurements were made. Statistical analysis was performed.

Results: Crural fascia was punctured by a single nerve (NPS) in 67.31% and by two nerves, medial dorsal cutaneous nerve (NCDM) and intermediate dorsal cutaneous nerve (NCDI), in 32.69%. While NPS was divided into NCDM and NCDI at a rate of 80.77%, it was found that NCDI did not develop in 19.23%. It was determined that NPS showed 3 types of branching patterns: Type A (48.08%), Type B (32.69%) and Type C (19.23%). It was determined that 73.08% of these types were bilateral and 26.92% were unilateral. The localization of NPS or terminal branches pierced the crural fascia was examined. NPS pierced the crural fascia in the distal and middle third of the leg in 96.15% and 3.85% respectively. It was determined that NCDM and NCDI pierced the crural fascia in the distal third of the leg at a rate of 100%.

Conclusion: The findings of the study will contribute to the prevention of NPS damage in surgical procedures that can be applied around the leg and ankle such as ankle arthroscopy, fibula osteosynthesis, fasciotomy, fasciocutaneous flap and graft applications. It is also thought that it will increase the success of NPS anesthesia in ankle blocks.

Keywords: fetus, variaton, superficial peroneal nerve

OP-65

MRI characteristics of infrapatellar cysts

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Objective: The infrapatellar fat pad is one of the fat pads of the knee and is particularly important for knee movements. The volume and shape of this fat pad varies individually and can be affected by a variety of tumor and tumor-like pathologies. Cystic structures, which are extremely common in and around the knee joint, can cause various symptoms, especially pain.

Methods: 69 knee MRI examinations performed in our center between October 2021 and December 2021 were included in the study. Presence, localization, contours and intensities of infrapatellar cysts and whether there is a compression effect on neighboring structures were investigated in MR images.

Results: The mean age of 69 subjects (41 females, 29 males) included in the study was 53.471±15.23 (52.08±17.375 in females, 58±3.367 in males). Findings of infrapatellar cysts were found in 17 (24.64%) of 69 patients. Of the detected infrapatellar cysts, 13 (76.5%) were in the posterior position and 4 (23.5%) were in the anterior position. While the cyst was in the lateral position in 14 (82.4%) patients, it was medial in 3 (17.6%) patients. While 16 (94.1%) patients with cysts in the inferior position were detected, 1 (5.9%) patient was observed in the superior position. According to the analysis results of spatial data, infrapatellar cysts are most commonly located posterior, lateral and inferior. The mean volume of the detected cysts was found to be 773.91±700.73 mm^3. Cysts with smooth surface were observed in 12 (70.59%) patients and with lobulated contours in 5 (29.41%) patients. None of the cystic structures showed a compression effect. Finally, when the intensity structure of the cyst is examined, it has a homogeneous cystic appearance in 16 (94.12%) patients, while it has soft tissue intensity in 1 (5.88%) patient.

Conclusion: Cystic structures within the infrapatellar fat pad are not as rare as previously reported in the literature. Infrapatellar cysts, which are usually located posteriorly and laterally, should be carefully evaluated during MRI reporting, in terms of both its close relationship with anterior cruciate ligament lesions and the clinical symptoms it may cause alone.

Keywords: infrapatellar cyst, ankle magnetic resonans imaging

Poster Presentations

(PP-01 — PP-21)

PP-01

Two anatomical variations of the craniovertebral region: paracondylar process and epitransvers process

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Objective: Congenital anomalies of different characteristics with common embryological origin can be seen at the craniovertebral junction. Paracondylar process and epitransvers process are two of them. Paracondylar process is a bony exostosis that is located lateral to the occipital condyle and develops in the form of a cone towards the transvers process of the atlas. The mirror image of this, the bony prominence rising from the transvers process of the atlas to the skull base is called the epitransvers process. The incidence of these variations is between 0.077%–0.29% according to the literature. However, the incidence of paracondylar process is reported to be 1–2%.

Methods: Left unilateral paracondylar process was detected in these patients after computed tomography, one of which was taken to a 40-year-old female patient who came with the reason of falling, and the other to a 56-year-old male patient who applied to the emergency department with the diagnosis of stroke. Bilateral epitransvers process was detected after computerized tomography in a 38-year-old female patient who presented with the complaint of vertigo. In this study, variations of these three cases will be presented.

Results: These rare anatomical variations are usually asymptomatic, as in the cases in our study, and are usually detected incidentally. However, rarely, the wide paracondylar process may fuse or articulate with the processus transversus of the atlas, restricting the atlanto-occipital movement, and the variation may become symptomatic. This may cause occipitocervical pain, functional limitations in head and neck movement, and even torticollis.

Conclusion: Determining these variations before planned surgeries in the craniocervical region is important for safe and distant lateral approaches.

Keywords: anatomy, variation, paracondylar process, epitransvers process

PP-02

Morphometry of fovea for ligament

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Objective: The fovea for ligament is a shallow pit located slightly below the center of the caput femoris. In our study, it was aimed to determine the localization of the fovea for ligament relative to the caput humeri on dry bones and to evaluate it morphometrically.

Methods: In our study, 18 left-sided and 21 right-sided adult femurs of unknown gender, belonging to Süleyman Demirel University Medical Faculty Anatomy Department Laboratory, were used. The fovea for ligament longitudinal length, fovea capitis femoris transverse length and fovea for ligament depth were measured with a digital caliper (BTS-12044, China). The fovea for ligament was typed according to its geometric shape and femoral head localization on the medio-lateral view. Data were analyzed using SPSS 20.0 for Windows program. Independent Samples T-Test was used because our data showed normal distribution. Statistical significance value was taken as $p<0.05$.

Results: The mean longitudinal length of the fovea for ligament is 12.73±2.64 mm on the right, 11.51±3.48 mm on the left, the mean transverse length 8.59±2.34 mm on the right, 7.63±2.3 mm on the left, and the mean depth 2.74±1.21 mm on the right and 2.48±0.88 mm on the left side. There was no statistically significant difference between the sides in the length and depth parameters of the bones. 16 (41.02%) of the bones were oval, 13 (33.33%) triangular, 4 (10.35%) round, and 6 (5.3%) piriform. The location of the fovea for ligament was typed by dividing the caput humeri into four regions. In our typing related to localization, 10 cases (25.6%) type 1, 16 (%41) type 2, 2 (5.12%) type 3, 6 (15.38%) type 4 and 5 (12.8%) bones detected type 5.

Conclusion: Knowing the morphology and localization of the fovea for ligament is very important in radiological examination, surgical interventions and anatomical studies of the region in terms of the risk of avascular necrosis of the femoral head and the development of dysplasia and osteoarthrosis in the hip joint.

Keywords: femur, dysplasia, osteoarthrosis, hip joint, avascular necrosis

PP-03

Agenesis of unilateral piriformis muscle: a rare case report

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Objective: The piriformis muscle is the external rotator muscle of the hip joint, starting from the sacrum, the gluteal sur-

face of the ilium, and the capsule of the sacroiliac joint and ending in the greater trochanter of the femur. Agenesis of the piriformis muscle, which is generally classified according to the course and adjacence of the sciatic nerve, is very rare. It was aimed to evaluate the imaging results of this case, whose functional and clinical effects are uncertain.

Methods: The sacroiliac joint magnetic resonance imaging of a 27-year-old female patient taken at the Selçuk University Faculty of Medicine Hospital was examined.

Results: Chronic sacroiliitis were evaluated in the sacroiliac joints, more prominent on the right, in the coronal oblique and axial planes. On the left, the piriformis muscle was not observed on one side, and unilateral agenesis of the musculus piriformis was detected. Apart from these, no variation or pathology was observed in other anatomical structures.

Conclusion: The piriformis muscle, which is examined in six groups according to its relationship with the sciatic nerve, has variations such as being bipartite, dividing into several fascicles, merging with the gluteus medius/minimus muscles, the gemellus superior, or obturator internus muscles. Changes in the piriformis muscle may cause clinical effects due to its proximity to the surrounding neurovascular structures. Because this case was detected in very few numbers, it is not clear whether it is an incidental finding on imaging or whether there is a biomechanical change affected by this variation. For clinicians investigating low back and hip pain and surgeons dealing with the gluteal region, consideration of such variations is helpful to evaluate possible prediagnoses and avoid complications.

Keywords: piriformis muscle, magnetic resonance imaging, agenesis, variation

PP-04

A rare variation: duplication of inferior vena cava

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Objective: The inferior vena cava is one of the largest single veins that carries the venous blood of most of the structures below the diaphragm to the heart. This vein is formed by the union of three different embryological origins and four pairs of embryological veins. Changes that occur at any stage of this complex development process can lead to the emergence of variations. Duplication of the inferior vena cava is one of these rare congenital vascular variations. According to the literature, its incidence is between 0.2% and 3% and it is usually asymptomatic.

Methods: Here, we will present the duplicated inferior vena cava, which was seen incidentally on computerized tomography images of two male patients, one 32 years old with lumbar vertebral fracture and the other 50 years old with lumbar disc herniation.

Results: Today, this variation can be detected better with the development of non-invasive imaging techniques. However, it has been reported that the variation is overlooked and evaluated as a mass lesion or lymphadenopathy, which may lead to misdiagnosis, and therefore, there are cases where unnecessary surgical intervention was performed.

Conclusion: Knowledge of vascular anatomical variations is very important in preventing vital complications after retroperitoneal surgeries, venous interventional radiological procedures, deep vein thrombosis management and incomplete lymph node dissection.

Keywords: duplication, inferior vena cava, congenital vascular anomaly, rare variation

PP-05

Height estimation and sex determination from upper extremity bones

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Objective: It is crucial to know the height and gender when identifying from skeletal parts known to belong to humans or corpses that do not show complete integrity. Although it is possible to estimate height and gender by using the length of bone fragments and skeletal fragments, these values vary between societies and even between different sexes of the same society.

Methods: This study was planned with Harran University Faculty of Medicine 2nd year students. A total of 60 volunteer students, 30 male and 30 female, participated in the study. Humerus, ulna, radius and hand lengths were measured for use in estimating height. All measurements were made by the same people in order to eliminate measurement errors that may arise from researchers. Obtained results were compared with independent sample t-test. Regression analysis was performed for height estimation.

Results: As a result of the comparative statistical analyzes, it was determined that the height, humerus, ulna, radius and hand lengths showed a statistically significant difference between men and women ($p<0.05$). For this reason, formulas that predict height separately for women and men have been developed. For men; Height= 69.070 + (1.310 × humerus length + (0.887 × radius length) + (0.324 x ulna length) + (1.461 × manus length)

Adjusted R2= 0.713, standard error of estimate = 3.94, p<0.001 For woman; Height= 65.439 + (1.593 × humerus length) + (0.695 × radius length) + (0.399 × ulna length) + (1.086 × manus length) Adjusted R2= 0.726, standard error of estimate = 3.08, p<0.001.

Conclusion: This study, by trying to give the closest true result, especially in cases where there is no skeletal integrity, has shown to scientists that the sex and height of individuals can be predicted from the upper extremity bones for forensic science in whatever form. In this respect, it will contribute to the scientific literature.

PP-06

Gender determination from lip print morphometry via discriminant function analysis method

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Objective: In forensic sciences, forensic clinical anatomy has an important place in determining identity based on individual unique anatomical features. It is important in forensic identification to determine the height, gender, and age of an unknown person by taking into account many unique anatomical structures such as fingerprints, palm prints, lip prints, bite prints, ear prints, footprints, anatomical features, anatomical variations/anomalies. The aim of the study is to determine gender by using the morphometric features of the lip print.

Methods: In the study, lip prints were taken from 60 (30 males, 30 females) volunteer participants consisting of Harran University Faculty of Medicine students. Thirteen parameters related to lip morphometry were measured with the Image J software. The data obtained as a result of the measurements were evaluated in SPSS 20.0.

Results: The obtained data were evaluated with discriminant function analysis and formulas were developed to determine gender. Male= -38,788 – (0.140 × P1) – (0.277 × P3) + (0.936 × P4) – (1.566 × P5) – (1.016 × P6) – (2.298 × P8) + (3.002 × P9), Female= -34.637 + (0.251 × P1) + (0.334 × P3) + (0.634 × P4) + (0.679 × P5) + (0.039 × P6) – (0.520 × P8) + (1.399 × P9), Canonical correlation coefficient= 0.737 Wilk's Lambda= 0.458, p<0.001.

Conclusion: Identification can be made in forensic sciences by using the unique anatomical features of the human body. In addition to the studies on the classification technique using the morphological features of the lip print, we developed the gender determination technique by using the morphometric features of the lip print using the discriminant function analysis method. We believe that the technique we have developed will contribute to forensic sciences.

Keywords: forensic clinical anatomy, lip print, gender determination

PP-07

Morphologic ve morphometric anaysis of the transvers sinus

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Objective: The drainage of the dural vein sinuses, and therefore, the traces caused on the bone are highly variable. Knowing the transvers sinus variations and related morphometric features is extremely important in surgical interventions in the area. The purpose of the present study was to determine the variations of sulcus of the transvers sinus and its relations with adjacent structures.

Methods: In the present study, 34 skulls of unknown gender and age of Çukurova University, Faculty of Medicine, Department of Anatomy were used. After the types of sulcus of the transvers sinus (ST), the distance of the uppermost (STU) and lowestmost (STA) point of the sulcus of the transvers sinus on the right and left to the foramen magnum (FM), the superior nuchal line (LNS) of the foramen magnum were identified, the distance between inferior nuchal line (LNI) and superior nuchal line- inferior nuchal line was measured by using digital caliper nearest 0.1 mm. The SPSS Statistics 20 program was used for statistical analyses, and descriptive statistical methods were used in the evaluation of the data. Categorical measurements are summarized as numbers and percentages, and continuous measurements as mean and standard deviation. The conformity of the variables to the normal distribution was evaluated with the Shapiro Wilks Test, and the comparisons were made with the Paired Samples t-Test.

Results: Transvers sinus types was detected by 61.77% as bifurcate type, 17.64% as confluens type, 11.77% as left dominant type, and 8.82% as right dominant type. The following measurements were made; STU(right)-FM 51.08±4.92 mm; STU (left)-FM 49.35±4.54 mm; STA (right)-FM 37.93±4.14 mm, STA (left)-FM 37.22±4.33 mm; FM-LNS 41.92±5.3 mm; FM-LNI 22.10±3.93 mm; LNS-LNI was measured as 21.28± 3.74 mm. No significant differences were detected between right and left side measurements (p>0.05).

Conclusion: It is considered that identifying the variations and localization of the transvers sinus will contribute to the prevention of undesirable outcomes such as bleeding and throm-

bosis and to increase the surgical success in interventions such as the infratentorial supracerebellar approach to the skull.

Keywords: transvers sinus, sulcus of the transvers sinus, infratentorial approach

PP-08

Morphometric analysis of coracoid process and its importance in clinical practices

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Objective: Coracoid process, which is used as a graft in surgical procedures, is an important anatomical structure due to its proximity to the main neurovascular structures. Fractures often occur in conjunction with other injuries. Isolated coracoid fractures, which are rarely seen, can be easily missed on routine shoulder radiographs due to their location and transposed bone structures. In addition, knowing the anatomy of this structure is also necessary in the radiological practice of the musculoskeletal system. The aim of this study is to describe the clinical anatomy of the coracoid process as a whole.

Methods: In our study, 60 (30 right and 30 left) scapulae of unknown gender, taken from Ankara University Anatomy Department, were examined. Scapulae with broken or damaged coracoid process were excluded from the study. All measurements were made by two different researchers using digital caliper. As in the classification of coracoid process fractures, it was examined in three sections as base, middle and tip. The entire length of the coracoid process, as well as the length and width of each segment, were recorded separately. The width of the junction of the coracoid process with the supraglenoid tubercle was measured. The angle between this area and the vertical line passing through the center of the glenoid cavity was calculated. The distance between acromion and coracoid process was recorded. Its slope was calculated by measuring the angle between the horizontal line passing through the infraglenoid tubercle and the coracoid process.

Results: It is important to know the anatomical features of the coracoid process for many surgical procedures around the shoulder joint.

Conclusion: The results of our study will guide surgeons in many preoperative planning, such as determining the size and position of the screws used in the stabilization of coracoid process fractures, and estimating the length of the coracoid process graft used in transfer procedures.

Keywords: coracoid process, shoulder joint, fracture, screw

PP-09

The relationship of anthropometric characteristics of Trabzon Fatih State Hospital intensive care unit nurses with musculoskeletal disorders

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Objective: MSD (musculoskeletal system disorders) is common in nurses, who are the most crowded occupational group in the health sector. Although anthropometry is closely related to the musculoskeletal system, few studies have been found on this subject. It is thought that our study will contribute to this gap in the literature.

Methods: All intensive care unit nurses (42 people) in Trabzon Fatih State Hospital were included in the study. Sociodemographic questionnaire and Nordic questionnaire were filled in by the employees. The anthropometric measurements of the participants were recorded by the researcher. SPSS 26.0 statistical program was used in the analysis of the descriptive and cross-sectional study, and the significance value was accepted as $p<0.05$.

Results: When we questioned the relationship between employee characteristics and MSD; No significant relationship was found between height, working style, rest interval and regular exercise status and MSD. Statistically significant correlations were found between weight, gender, smoking status, previous diagnosis of MSD, working year and age, and MSD. In our research on the relationship between anthropometric measurements and MSD; No significant results were found between eye height, shoulder height, maximum reach point, elbow height, reach point and hip height in standing position and MSD. Significant relationships were found between fist height, shoulder width, hip width and MSD. No significant correlation was found between the eye height, knee height, shoulder height, hip-knee length measured in sitting position and MSD. A highly significant relationship was found between height and elbow height and MSD. Close relationships were found between elbow-hand-tip distance and hip width and MSD.

Conclusion: In our study, significant relationships were found between many anthropometric features and MSD. As in all workplaces, the work should be adapted to people by designing the measurements of the tools and equipment used in the working environment in accordance with the employee's measurements, in hospitals as well. For this, we think that the anthropometric measurements of the people of the country should be measured at regular intervals, standards should be determined and the design of the goods used should be developed in accordance with these standards.

Keywords: anthropometry, physical ergonomics, nursing, intensive care

PP-10

Evaluating the morphometric–topographic features of the occipital condyle and clinical significance

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Objective: In order to reduce morbidity and mortality in surgical operations to be applied to the craniovertebral junction, it is important to know the anatomical structures in the skull base and the topographical relationship between these structures. Lateral suboccipital craniotomy and occipital condyle resection are among the preferred methods. Surrounding neurovascular structures may be damaged during occipital condyle resection. The aim of the study was to develop regression formulas that will determine the precise location of the occipital condyle and estimate the distances to the surrounding anatomical structures, based on the skull morphometry of the person.

Methods: The study was carried out on 22 condylus occipitalis (11 skulls) in Harran University Medical Faculty Anatomy Laboratory. The determined 27 parameters were measured via Image J program on the inferior, anterior, lateral and posterior aspect photographs of the skulls. Regression formulas were developed using SPSS 20.0.

Results: To determine the morphometric and topographic features of the occipital condyle, the equations have been developed such as; Occipital condyle length= -4.512 + (0.590 × P18) – (0.427 × P19) – (0.531 × P20) + (0.712 × P21) + (0.047 × P23) – (0.099 × P26) + (0.094 × P27) Adjusted R2= 0.964, standard error of the estimation= 0.595

Conclusion: Considering the difference between the minimum and the maximum values observed in descriptive statistics, and the distribution between these values, and the different findings in the studies in the literature, there may be erroneous applications in the attempts to be made over the mean values. We believe that the formulas we have developed will be beneficial in personal-specific approaches.

Keywords: occipital condyle, skull base, lateral suboccipital craniectomy

PP-11

Correlation of sellar region measurements on cone-beam computed tomography images

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Objective: The aim of study is to examine correlations between the morphometric characteristics of the anatomical structures of the sellar region.

Methods: Ethic approval was obtained from Gaziantep University Clinical Research Ethics Committee (decision no: 2020/377). Cone-beam computed tomography images of 50 adults (mean age: 38.44±13.08, 25 males, 25 females) in Gaziantep University Faculty of Dentistry, Department of Oral and Maxillofacial Radiology were analyzed retrospectively with the Planmeca Romexis Viewer program. In the study, the basal angle of the skull base, the interoptic distance, and the sulcal angle and length were measured. In addition, the optic canal angle was measured on the sagittal and axial plane. Using Pearson correlation tests, direction of relationship between parameters identified. Statistical analyses were performed with SPSS for Windows version 22.0 package program and $p<0.05$ was considered statistically significant.

Results: The mean sulcal angle and length were measured as 35.15±6.48° and 6.75±1.65 mm, respectively. The mean angle of the optic canal was 11.35±1.63° in the sagittal plane and 40.32±5.02° in the axial plane. The mean basal angle and interoptic distance were measured as 128.75±4.94° and 15.73±3.39 mm, respectively. A weak positive correlation was found between the angle of the optic canal in the axial plane and the interoptic distance (r=0.305, p=0.031), the sulcal length (r=0.316, p=0.025), and the basal angle (r=0.356, p=0.011). In addition, a strong negative correlation was found between the sulcal angle and the basal angle (r=0.376, p=0.007).

Conclusion: Our data set examining the relationship between sellar region structures, may be useful for understanding the complex anatomy of the region.

Keywords: sellar region, cone beam computed tomography, correlation, basal angle

PP-12

Which nerve does innervate tensor tympani and tensor veli palatini?

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Objective: It is aimed to compare the data obtained from dissection studies and the information in anatomy textbooks related to branches of nerve to medial pterygoid (MPN).

Methods: Anatomy textbooks and studies in the literature were examined and compared.

Results: Gray's Anatomy and Anatomi 2 books state that the mandibular nerve (MN) divides into anterior and posterior roots after a short course called the main root, immediately

after passing through the foramen ovale. It is stated that meningeal branch and MPN emerge from the main root, and two branches; nerve to tensor tympani (TTN) and nerve to tensor veli palatini (TVPN), emerge from the NPM. In anatomy textbooks we learned that TTN and TVPN are branches of MPN. In cadaveric studies on this subject, it has been reported that TTN and TVPN directly originate from the main root of MN and innervate these muscles. In addition, Terminologia Anatomica states that four nerve branches depart from the main root of MN in accordance with the article studies.

Conclusion: Our literature review highlights the confusion of information in books and publications about the origins of TTN and TVPN. Our recommendation is to define TTN and TVPN as a branch of MN and correcting incorrect information, taking into account the studies.

Keywords: mandibular nerve, nerve to medial pterygoid, nerve to tensor tympani, nerve to tensor veli palatini

PP-13

Use of depth sensors in the analysis of shoulder joint movements

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Objective: Clinicians need accurate, reproducible, and cost-effective analysis systems in analyzing movements. Although marker-based motion analysis systems have been accepted as gold-standard methods, they are difficult to access due to high costs. In addition, placing the markers is time-consuming and disadvantageous in patient comfort. With the developing technology, motion analysis systems that do not need a marker are widespread. Our study is to test the usability of Microsoft's new motion sensor in analyzing shoulder movements.

Methods: In our study, we tested the dominant side shoulder flexion movements of 10 healthy individuals (5 females and five males) using the Microsoft Azure Kinect sensor. We used iPisoft 3D analysis software for the study. We calculated the range of motion of the shoulder joint

Results: As a result of the analysis, we determined the range of motion during shoulder flexion to be 160±5°.

Conclusion: The results we found are close to the range of motion of healthy individuals. We think Microsoft's new version sensor can be used in the shoulder range of motion. Future studies that will include more participants and different joint movements will better understand. Our study was financially supported by Akdeniz University Scientific Research Projects Unit (TSA-2020-5373).

Keywords: shoulder joint, range of motion, depth sensor, 3D motion analysis

PP-14

Ozone therapy

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Objective: Ozone (O_3) can be translated from the Greek as "smelly". The gas form was discovered in 1839 and its first medical use dates back to the First World War.

Methods: Medical O_3 treatment was discussed in the "Traditional and Complementary Medicine (GETAT) Practices Regulation" published in the Official Gazette in 2014 by the ministry of health in our country; indications, contraindications and routes of administration are reported in this regulation. O_3 therapy; according to the current regulation, should be done by medical doctors, in appropriate therapeutic dose and with appropriate methods. Many studies have been conducted to investigate the primary or complementary therapy efficacy of O_3, and these studies continue to be conducted in more detail today.

Results: According to studies, although O_3 treatment may cause negative results in healthy tissues without oxidative stress, its use either alone or in combination with other therapeutic agents in cases of oxidative stress has an antioxidant effect and corrects the damage.

Conclusion: These results show that the complementary therapy feature of O_3 is at an effective level; but; there is a need for more healthy tissue studies on O_3 and for more studies applied as a primary treatment protocol.

Keywords: ozone, traditional and complementary medicine, indication, contraindication, treatment

PP-15

Facial artery and lingual artery originating from a common trunk: a case report

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Objective: In this study, the separation of facial artery and lingual artery from external carotid artery with a common trunk was observed during a routine dissection and it was aimed to define this.

Methods: Our study was carried out in the Cadaver Dissection laboratory of İnönü University, Department of Anatomy.

During routine dissection, a right sided variation was detected in an 80 year old female cadaver fixed with formaldehyde.

Results: In this study, length measurements of the variation on the right side were made. In our study, facial artery and lingual artery, which usually come out separately from external carotid artery, were seen to emerge as roots. The length of this root, called the faciolingual truncus, was measured as 11 mm. The distance between the point where the faciolingual truncus separates from the external carotid artery and the bifurcation of the carotis communis artery was measured as 9 mm. The distance of thyroidea superior artery, another branch of external carotid artery, to the faciolingual truncus was measured as 7.5 mm. Also facial artery was observed to have an unusually curved course during its course.

Conclusion: As a result, knowing the existence of these variations well will reduce the part of error in surgical procedures to be performed in that region.

Keywords: facial artery, lingual artey, cadaver, variation

PP-16

The effect of mummy substance on cultured adipose-derived stem cells and fibroblasts and their co-culture in wound healing

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Objective: Wound healing remains a challenged clinical problem due to increase of the prevalence of non-healing wounds; therefore, efficient wound management is essential. Traditional healers can be considered as alternative strategies for treatment of wounds. In traditional Persian medicine, Mummy has been advised for arthritis and wound healing. Regarding to evaluate the potential effects of this material, the purpose of this study is evaluating the effect of mummy on proliferation, migration, matrix protein synthesis of human adipose-derived stem cells (ASCs) and fibroblasts in separate or coculture system.

Methods: For this purpose, ASCs were isolated and expanded. Human fetal foreskin fibroblast cell line (HFFF-2) was purchased. The effective concentration of mummy on fibroblasts and ASCs was determined. Two different cell types separately or in co-culture system were treated with Mummy for 24h and 96h. Cell migration was evaluated by scratch assay technique, and proliferation rate by Ki67 method. The levels of collagen I, III and fibronectin mRNA were assessed using real time RT-PCR.

Results: Mummy material at concentration of 1000Ìg/ml led to the highest proliferation rate in fibroblasts and ASCs. Migration rate of fibroblasts in treated group was enhanced significantly ($p<0.0001$), furthermore, treatment of co-cultivated cells with Mummy resulted in a significant increase of cell migration. Proliferation rate was higher in treated ASCs but not in fibroblasts. In co-cultured groups, cellular proliferation was unchanged. The results of Real time RTPCR suggested that treatment of fibroblasts with Mummy up-regulate the level of mRNA expression of fibronectin but in ASCs the expression level of Col I and III increased. Additionally, treatment of co-cultivated cells with Mummy resulted in a significant increase in Col I, III and fibronectin.

Conclusion: Obtained data revealed that Mummy can be introduced as potential factor for wound healing through increasing the proliferation and migration of fibroblasts and ASCs and also enhancing the ECM components synthesis.

Keywords: mummy substance, wound healing, adipose-derived stem cell (ASCs), human foreskin fibroblast (HFFF)

PP-17

The effect of the elbow carrying angle on the hand grip strength

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Objective: In the literature,there are studies on many parameters that affect hand grip strength.However,no specific study was found on the relationship between hand grip strength and elbow bearing angle.The aim of our study is to contribute to the emergence of this relationship.

Methods: The study was conducted in Maçka Ömer Burhanoğlu Physical Therapy and Rehabilitation Hospital with 60 (30M, 30F) volunteer participants between the ages of 18–65. Those with pathology,previous trauma, neurological disease that may affect these regions,or congenital anomalies related to the elbow ,wrist or hand were not included in the study.Elbow carrying angles of all individuals were measured based on the medial contours of the arm and forearm.The grip strenght was measured with a camry digital hand dynamometer at the position determined by the American Society of Hand Therapists. Statistical analyzes of the study were made using (SPSS) version 22.0 program. A correlation analysis was performed and $p<0.05$ was accepted as significant.

Results: Hand grip strength and elbow carrying angle values were compared seperately in both upper extremities in men and woman. There was no correlation between the two param-

eters on the right side in women (p=0.724), no statistically significant correlation was observed in the same parameters on the left side (p=0.075) There was also no correlation between the two parameters on the right side (p=0.201) and on the left side (p=0.322) in men

Conclusion: Although it was seen that the hand grip strength increased as the elbow carrying angle increased, the data were not statistically significant.The small number of participants in the study may have caused this.We think that studies in larger series and in which radiological data will be included will yield more useful results.

Keywords: elbow, elbow carrying angle, hand grip strength

PP-18

Evaluation of synchondrosis spheno-occipitalis according to reference points in the cranium

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Objective: Synchondrosis spheno-occipitalis is a cartilaginous junction between the corpus sphenoidale and the pars basilaris os occipitalis. Infantile idiopathic scoliosis occurs as a result of the asymmetric developmental deformity of synchondrosis spheno-occipitalis. Our aim in this study is to show the clinical reflection of these distances, which we used to describe the morphology of synchondrosis spheno-occipitalis.

Methods: 20 craniums were used. The distance between the midpoint of the synchondrosis spheno-occipitalis and the right and left condylus occipitalis, the distance between the anterior midpoint of the foramen magnum, the distance between both sides proc. mastoideus, the distance between both sides proc. styloideus, the distance between both sides proc. pterygoideus lamina medialis was measured.

Results: When the measurements are evaluated, the average distance between the synchondrosis spheno-occipitalis and the anterior midpoint of the foramen magnum is 2.84 cm, the average distance between the right condylus occipitalis is 2.8 cm, the average distance between the left condylus occipitalis is 2.89 cm, the average distance between the right processus pterygoideus lamina medialis is 1.285 cm, the average distance between the left pterygoideus lamina medialis is 1.205 cm, the average distance between the right processus styloideus is 4.635 cm, the average distance between the left processus styloideus is 4.825 cm, the average distance between left processus mastoideus was found as 6.515 cm and the average distance between left processus mastoideus was found as 6.555 cm.

Conclusion: In the literature, all of the studies on synchondrosis spheno-occipitalis were obtained from radiological images. Our study is the first to rely on cranium measurements. We think that the asymmetric values obtained as a result of the measurements support our hypothesis. However, further studies with more cranium measurements and radiological imaging evaluations are needed to support this.

Keywords: synchondrosis spheno-occipitalis, cranium, foramen magnum, processus mastoidus, processus stylohyoideus, condylus occipitalis

PP-19

Important landmarks and distances of middle cranial fossa

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Objective: The middle cranial fossa is the depression bordered anteriorly by the lesser wing of the sphenoidal bone, posteriorly by the upper edges of the petrous part of temporal bone, and posteriorly by the dorsum sellae. The aim of this study is to determine the important anatomical structures for the surgery of the middle cranial fossa and the distances between these structures.

Methods: The 18 craniums in Bezmialem Vakıf University Faculty of Medicine and Istanbul University-Cerrahpaşa, Cerrahpaşa Medical Faculty Anatomy Departments were prenumbered, and the photographs were taken from a stable position and distance. The lengths of the photographs, which were calibrated according to the reference lengths with a computer program, were measured 3 times and averaged. In the study, the distance from the intersection of the petrous part of temporal bone and the wall of the middle cranial fossa to the upper and lower border of the superior orbital fissure, foramen rotundum, foramen ovale, foramen spinosum, hypophysial fossa and apex of petrous part was measured.

Results: The distance from the intersection of the petrous part of temporal bone and the wall of the middle cranial fossa to the upper and lower border of the superior orbiral fissure is 3,660 cm and 3.366 cm, respectively. The distance of the intersection point from foramen rotundum is 2.935 cm, the distance from foramen ovale is 2.137 cm, the distance from foramen spinosum is 1.690 cm, the distance from the hypophysial fossa is 4.063 cm, and the distance from the apex of petrous part is 3.377 cm.

Conclusion: It is important to know the anatomical and morphometric features of the middle cranial fossa in lateral approaches such as subtemporal extradural, subtemporal-transzygomatic extradural. It is thought that our study will contribute to the literature on this subject and will guide the prevention of possible complications in clinical applications.

Keywords: the middle cranial fossa, temporal bone, hypophysial fossa

PP-20

Comparison of conventional MRI, MR arthrography, MR arthrography with traction and MR arthrography with pressure in the evaluation of articular distension in patients with ACL injury

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Objective: To evaluate the performance of conventional MRI, standard MR arthrography, MR arthrography with traction and MR arthrography with pressure in articular distension in patients with ACL injury.

Methods: The consecutive patients (7 female, 21 male; mean age 33.4 years) with acute ACL injured conventional MRI, MR arthrography, MR arthrography with traction and MR arthrography with pressure were evaluated.

Results: In this study, which was performed with different MRI methods, measurements were made separately by two observers, and it was found that there was agreement between observers for all parameters ($p<0.05$). The amount of distension in the joint was evaluated in the posterior, femorotibial and anterior (infrapatellar) compartments. In the measurements made medially, between the meniscus posterior horn and the tibial corner, MRA with pressure was found to be more effective in showing this distance than MRA with traction ($p<0.05$). Laterally, in measurements made between the posterior horn of the meniscus and the capsule, MRA with traction and MRA with pressure are more effective in showing this distance than conventional MRI and standard MRA ($p<0.05$). In measurements made medially, between the posterior horn of the meniscus and the capsule, MRA with traction is more effective in showing this distance than standard MRA ($p<0.05$). In all three different MRA modalities, the lateral femorotibial joint distance was found to be statistically higher than conventional MRI ($p<0.05$). Medial femorotibial joint distance was found to be statistically higher in MRA with pressure than in conventional MRI and standard MRA ($p<0.05$). The medial infrapatellar distance was found to be statistically higher in MRA with pressure than standard MRA and MRA with traction ($p<0.05$). The lateral infrapatellar distance is higher in MRA with pressure than in MRA with traction, and this height is statistically significant ($p<0.05$).

Conclusion: Optimal distension is desired in arthrographic examinations. Traction and pressure applications added to MRA will increase the effectiveness of the method by creating more distention.

Keywords: MR arthrography, MR arthrography with traction, MR arthrography with pressure, Articular distension

PP-21

Investigation of medical faculty students' views on cadaver and cadaver teaching in anatomy

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Objective: Cadaver in anatomy; one of the cornerstones of medical school education is the essence of medicine. For a medical student, 'cadaver' means not just being a dead person, but starting the profession by knowing yourself first. To achieve these goals, you can examine your target to learn the anatomy of the cadaver. In our research, the 2nd year education of the faculty of education, which has received anatomy with cadavers, will be discussed from the perspective of cadavers.

Methods: The research was carried out with 66 female and 50 male students in the 2nd semester of the Faculty of Medicine. The research consists of 2 groups. I. Group (n=56) students who took anatomy lessons with cadavers, II. The group (n=60) consisted of students who had never seen a cadaver and learned the anatomy lesson through atlas and models.

Results: As a result of the research, it was determined that the students in both groups thought that cadavers should be used in Anatomy education and they thought that education with cadavers would accelerate and facilitate the Anatomy learning process. Students studying anatomy with cadavers; It was determined that they were psychologically affected by the cadaver and thought that they were less effective in gaining the identity of a physician compared to those who did not receive the cadaver ($p<0.05$).

Conclusion: When the answers received from the students are evaluated, it is revealed that the anatomy course is difficult, but the education given on the cadaver greatly facilitates learning and makes it more interesting.

Keywords: anatomy education, cadaver, student