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anatomy

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An International Journal of Experimental and Clinical Anatomy

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Anatomy, an international journal of experimental and clinical anatomy, is a peer-reviewed journal published three times a year with an objective to publish manuscripts with high scientific quality from all areas of anatomy. The journal offers a forum for anatomical investigations involving gross, histologic, developmental, neurological, radiological and clinical anatomy, and anatomy teaching methods and techniques. The journal is open to original papers covering a link between gross anatomy and areas related with clinical anatomy such as experimental and functional anatomy, neuroanatomy, comparative anatomy, modern imaging techniques, molecular biology, cell biology, embryology, morphological studies of veterinary discipline, and teaching anatomy. The journal is currently indexing and abstracting in TUBITAK ULAKBIM Turkish Medical Index, Proquest, EBSCO Host, Index Copernicus and Google Scholar.

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- ***Case Reports*** include new, noteworthy or unusual cases which could be of help for basic notions and clinical practice.
- ***Technical Note*** articles cover technical innovations and developments with a specific technique or procedure or a modification of an existing technique. They should be sectioned like an original research article but not exceed 2000 words.
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Title page

In all manuscripts the title of the manuscript should be written at the top and the full names and surnames and titles of the authors beneath. These should be followed with the affiliation of the author. Manuscripts with long titles are better accompanied underneath by a short version (maximum 80 characters) to be published as running head. In the title page the correspondence address and telephone, fax and e-mail should be written. At the bottom of this page, if present, funding sources supporting the work should be written with full names of all funding organizations and grant numbers. It should also be indicated in a separate line if the study has already been presented in a congress or likewise scientific meeting. Other information such as name and affiliation are not to be indicated in pages other than the title page.

Abstract

Abstract should be written after the title in 100–250 words. In original articles and articles prepared in IMRAD format for Teaching Anatomy category the abstract should be structured under sections Objectives, Methods, Results and Conclusion. Following the abstract at least 3 keywords should be added in alphabetical order separated by semicolumns.

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Authors should provide direct references to original research sources. References should be numbered consecutively in square brackets, according to the order in which they are first mentioned in the manuscript. They should follow the standards detailed in the NLM's Citing Medicine, 2nd edition (Citing medicine: the NLM style guide for authors, editors, and publishers [Internet]. 2nd edition. Updated content is available at www.ncbi.nlm .nih.gov/books/NBK7256). The names of all contributing authors should be listed, and should be in the order they appear in the original reference. The author is responsible for the accuracy and completeness of references. When necessary, a copy of a referred article can be requested from the author. Journal names should be abbreviated as in *Index Medicus*. Examples of main reference types are shown below:

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  - *Journal article with indication article published electronically before print:* Sengul G, Fu Y, Yu Y, Paxinos G. Spinal cord projections to the cerebellum in the mouse. Brain Struct Funct Epub 2014 Jul 10. DOI 10.1007/s00429-014-0840-7.
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    - *Contributed section with editors:* Johnson D, Ellis H, Collins P, editors. Pectoral girdle and upper limb. In: Standring S, editor. Gray's anatomy: the anatomical basis of clinical practice. 29th ed. Edinburgh (Scotland): Elsevier Churchill Livingstone; 2005. p. 799–942.
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For example: NBA: Project development, data collection; AS: Data collection, manuscript writing; STR: Manuscript writing

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11th Anatomy Winter Days

7–9 March 2024, Aydın, Türkiye

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Welcome Address of the Congress President

Anatomy 2024;18(Suppl 1):Siv

Dear Scientists, Dear Anatomists,

We, the Turkish Society of Anatomy and Clinical Anatomy (TSACA) and the Department of Anatomy at Aydın Adnan Menderes University Faculty of Medicine, are extremely proud to host the **11th Anatomy Winter Days**.

This meeting will take place at the **Pine Bay Hotel** in **Kuşadası/Aydın** between **7–9 March 2024**, with the themes of **"Postgraduate Accreditation, Competencies, and Associate Professorship"**. Aydın is special geography that encompasses the beauties of history, science, natural wonders, olives, figs, sea, and sun. We invite you to this beautiful geography for the Anatomy Winter Days.

At our meeting, which will bring together academics, researchers, and those interested in anatomy; topics related to anatomy such as postgraduate accreditation and competencies, associate professorship criteria and ethical violations, anatomy education, macroscopic and microscopic anatomy, developmental anatomy, and clinical anatomy will be evaluated in all aspects.

During our meeting; numerous panel sessions and workshops directly related to the themes of our meeting, as well as oral and poster presentations, will be held. Through these activities, participants will have the opportunity to share their current studies and research with their colleagues, benefit from the experiences and knowledge of valuable scientists, and learn the most up-to-date information about developments in the field of anatomy.

Abstracts of the papers presented at our 11th Anatomy Winter Days meeting will be published in our official publication, the **Anatomy** journal.

As the Department of Anatomy at Aydın Adnan Menderes University, Faculty of Medicine, we invite you to witness the developments in the field of anatomy in our country and to explore Kuşadası, one of the unique beauties of Aydın.

We would like to reiterate that we would be honored and delighted to see you among us at the 11th Anatomy Winter Days, and we want you to know that our team is ready to assist you with any needs you may have.

Best regard,

Prof. Dr. Ilgaz Akdoğan
Congress President

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11th Anatomy Winter Days

7–9 March 2024, Aydın, Türkiye

Scientific Program

7 March 2024, Thursday

	Session Hall A
09.00–10.00	**Registration**
10.00–10.20	**Opening Speeches** **Prof. Dr. Ilgaz Akdoğan** *Congress President* **Prof. Dr. Piraye Kervancıoğlu** *President of the Executive Board of Turkish Society of Anatomy and Clinical Anatomy* **Prof. Dr. Ayhan Aköz** *Dean of the School of Medicine, Aydın Adnan Menderes University*
10.20–10.45	History of the Department of Anatomy, Aydın Adnan Menderes University Prof. Dr. Hulki Başaloğlu, Prof. Dr. Sacide Karakaş
10.45–11.00	**Coffee Break**
11.00–12.00	Legislation Related to Competencies *(Online)* Lawyer Raziye Ünal
12.00–13.30	**Lunch Break**
13.30–15.00	**Competency and Turkey Ministry of Health Medical Expertise Board Panel** **Chairs:** Prof. Dr. Muzaffer Şeker & Prof. Dr. İbrahim Tekdemir & Prof. Dr. Ayhan Cömert Assessment of competence in anatomy: "how competent are we?" Prof. Dr. Adnan Öztürk Anatomy competence board directive studies Prof. Dr. Gülgün Şengül Laboratory conditions and competence in anatomy Prof. Dr. Zeliha Kurtoğlu Olgunus Development suggestions on "competence in anatomy" Prof. Dr. Ayla Kürkçüoğlu
15.00–15.30	**Lunch Break**

	E-Poster Area
15.00–15.30	**Session 1: Poster Presentations (PP-1 – PP-7)** **Head of Session:** Assoc. Prof. Cenk Murat Özer **Poster Presentations Session 1 will be held in the E-Poster Area during the Coffee Break.*
	Session Hall A
15.30–17.00	**Assessment and Discussion of Competence and Turkey Ministry of Health Medical Expertise Board Panel** **All Participants Are Invited to the Assessment and Discussion Session.*
	Session Hall B
15.30–17.00	**Session 1: Oral Presentations (OP-1 – OP-8)** **Head of Session:** Assoc. Prof. Bilge İpek Torun & Assoc. Prof. Burcu Erçakmak Güneş **The Evaluation and Discussion Session will be held simultaneously in Salon B.*

8 March 2024, Friday

	Session Hall A
09.00–10.30	**Accreditation Panel** **Chairs:** Prof. Dr. Esat Adıgüzel & Prof. Dr. Piraye Kervancıoğlu & Prof. Dr. Servet Çelik The importance of accreditation and the postgraduate accreditation process Asst. Prof. H. Dilek Akdoğan Roadmap for post-graduation accreditation Prof. Dr. Nadire Ünver Doğan ÖDR preparation guide Prof. Dr. Tuncay Çolak Examples from accreditation processes of other associations Prof. Dr. Halil İbrahim Açar
10.30–11.00	**Coffee Break**
	E-Poster Area
10.30–11.00	**Session 2: Poster Presentations (PP-8 – PP-14)** **Head of Session:** Prof. Dr. Zuhal Kazak Şahin **Poster Presentations Session 2 will be held in the E-Poster Area during the Coffee Break.*
	Session Hall A
11.00–12.00	**Accreditation Panel Evaluation and Discussion** **All Participants Are Invited to the Assessment and Discussion Session.*
	Session Hall B
11.00–12.30	**Session 2: Oral Presentations (OP-9 – OP-16)** **Head of Session:** Prof. Dr. Soner Albay & Assoc. Prof. Hale Öktem **The Evaluation and Discussion Session will be held simultaneously in Salon B.*
12.00–13.30	**Lunch Break**

	Session Hall A
13.30–15.00	**Associate Professorship Criteria and Ethical Violations Panel** **Chairs:** Prof. Dr. Bayram Ufuk Şakul & Prof. Dr. Behice Durgun & Prof. Dr. Erdoğan Şendemir Associate professorship criteria and facts Prof. Dr. Muzaffer Sindel Recommendations for associate professor candidates in anatomy Prof. Dr. Salih Murat Akkın What is unfair authorship, gift authorship? What is off-topic publication? Prof. Dr. Figen Gövsa Gökmen What is predatory journal? Prof. Dr. Çağatay Barut Is associate professorship obtained? Given? Prof. Dr. Burak Bilecenoğlu
15.00–15.30	**Coffee Break**
	E-Poster Area
15.00–15.30	**Session 3: Poster Presentations (PP-15 – PP-20)** **Head of Session:** Assoc. Prof. Ömer Faruk Cihan **Poster Presentations Session 3 will be held in the E-Poster Area during the Coffee Break.*
	Session Hall A
15.30–17.00	**Evaluation and Discussion of Associate Professorship Criteria and Ethical Violations Panel** **All Participants Are Invited to the Assessment and Discussion Session.*
	Session Hall B
15.30–17.00	**Session 3: Oral Presentations (OP-17 – OP-24)** **Head of Session:** Assoc. Prof. Gökşin Nilüfer Demirci & Assoc. Prof. Barış Özgür Dönmez **The Evaluation and Discussion Session will be held simultaneously in Salon B.*

9 March 2024, Saturday

	Session Hall A
09.00-10.30	**Session 4: Oral Presentations (OP-25 – OP-31)** **Head of Session:** Prof. Dr. Ilgaz Akdoğan & Doç. Dr. Ayfer Metin Tellioğlu **It will be held in the Main Hall.*
	Session Hall B
09.00-10.30	**Session 5: Oral Presentations (OP-32 – OP-39)** **Head of Session:** Prof. Dr. Zeliha Fazlıoğulları & Assoc. Prof. Nazlı Gülriz Çeri **Oral Presentations will be held simultaneously with Sessions 4-6 in Hall B.*
	Session Hall C
09.00-10.30	**Session 6: Oral Presentations (OP-40 – OP-47)** **Head of Session:** Assoc. Prof. İlke Ali Gürses & Assoc. Prof. Ceren Günenç Beşer **Oral Presentations will be held simultaneously with Sessions 4-5 in Hall C.*

10.30–11.00	**Coffee Break**
	E-Poster Area
10.30–11.00	**Session 4: Poster Presentations (PP-21 – PP-26)** **Head of Session:** Assoc. Prof. Yasemin Behram Kandemir **Poster Presentations Session 4 will be held in the E-Poster Area during the Coffee Break.*
	Session Hall A
11.00-11.15	**Closing Ceremony of the 11th Anatomy Winter Days**

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Oral Presentations

(OP-01 — OP-47)

OP-01

Interactive educational experiences at Atılım University, Department of Anatomy

Hale Öktem[1], Recep Ali Brohi[1], Sinem Nur Sever[1], Necla Tülek[2]

[1]Department of Anatomy, Faculty of Medicine, Atılım University, Ankara, Türkiye; [2]Department of Microbiology, Faculty of Medicine, Atılım University, Ankara, Türkiye

Objective: Interactive methods are applied in Anatomy theoretical education in addition to face-to-face education (FFE). Interactive methods applied at Atılım University Faculty of Medicine; flipped class (FC), team-based learning (TBL), problem-based learning, case discussion. The student is expected to study according to resources given prior to the application and be prepared for quiz to be held during class time in FC. After quiz, questions are discussed with students and topic is briefly reviewed. Students are provided resources enriched with visuals in advance so they can work in TBL. First, a quiz is administered. Then, they are randomly divided into groups of 10 and questions are discussed with groups,lecturer summarizes topic and case presentation.We aimed to evaluate effectiveness of FC, TBL and FFE models in Anatomy education for students.

Methods: Term 2 students of 2023–2024 academic year were included in the study. Three surveys, each consisting of 9 questions, were administered to students about FC, TBL and FFE theoretical lessons, applied in anatomy courses during Neuroscience Committee. In addition, students' anatomy marks in relevant exams was evaluated.

Results: The success averages of quizzes held in FC, TBL and FFE is evaluated are 90.72%, 60.38%, 53.4%, respectively. As survey results were examined, it was stated that interactive education was more interesting, effective in terms of making the subjects more memorable for students than FFE.

Conclusion: Being restrictive factors in the study, we believe that integration of interactive learning models with FFE in Anatomy education, particular attention to topic selection, would make lessons more effective.

Keywords: Anatomy education, interactive education, face to face, flipped class, team-based learning

OP-02

Evaluation of associate professor promotion criteria of the top 100 universities in the world with the thematic analysis method

Fatma Ok[1], Gkionoul Nteli Chatzioglou[2], Vildan Önal[3], Nilay Yıldız[3], Kardelen Aktaş[3]

[1]Department of Anatomy, Hamidiye Medical Faculty, University of Health Sciences, Istanbul, Türkiye; [2]Department of Anatomy, Istanbul Health and Technology University, Istanbul, Türkiye; [3]Department of Anatomy, Istanbul Medical Faculty, Istanbul University, Istanbul, Türkiye

Objective: The study aims to systematically analyze the associate professor promotion criteria of the top 100 universities considered the best academically worldwide. Another aim of the study is to provide a broad perspective by emphasizing rare and frequently encountered criteria.

Methods: Universities in the medical faculty field were ranked according to the total academic score on the website

www.topuniversities.com. The identified universities were scanned using the keywords 'university name' and 'associate professor promotion criteria' from the Google search. In the light of the obtained information, sub-themes were determined, and the main themes formed by the sub-themes were revealed.

Results: 101 universities were identified in the top 100 university rankings. This was because universities shared the same rankings. Information about the associate professorship promotion process was found on the websites of 90/101 universities. In light of the information obtained, Six main themes emerged: evaluation reports, voluntary and administrative duties, scientific activities, educational activities, activities proving recognition, and language-citizenship. Evaluation reports in 38.8% of the universities examined voluntary and administrative responsibilities in 18.8%, scientific activities in 100%, educational activities in 100%, activities proving recognition in 25.5%, and 4.44% determined criteria regarding language and citizenship.

Conclusion: The influence of scientists is of great importance in determining the positions of universities in the world rankings. Therefore, it is equally important to reveal the criteria for selecting these scientists for universities. Analyzing and presenting these criteria is essential in providing a perspective comparable to the universities in our country.

Keywords: Associate professorship criteria, top 100 universities, thematic analysis

OP-03

The attitudes of intern doctors towards the anatomy course

Melike Akcaalan[1], Menekşe Karahan[2], Begümhan Turhan[1]

[1]Department of Anatomy, Faculty of Medicine, Başkent University, Ankara, Türkiye; [2]Department of Anatomy, Faculty of Medicine, Kırklareli University, Kırklareli, Türkiye

Objective: The internship is the last stage of medical education where anatomy knowledge is blended with clinical knowledge. We aimed to evaluate the attitudes and opinions of intern doctors related to anatomy.

Methods: An online survey was applied through Google Forms©. 245 intern doctors replied the questionnaire. A descriptive cross-sectional investigation was carried out among intern doctors in Türkiye between April and May 2023. The survey includes a demographic data section, Likert-type multiple-choice items and yes-or-no questions.

Results: The questionnaire was replied by 245 (124 female, 121 male) intern doctors. The majority of them (91.8%) had a negative attitude towards the abolition of anatomy courses in medical faculties. 80.8% of the participants stated that learning anatomy made them happy, and 75.92% would not call a person who did not know anatomy as a physician. 94.3% of the participants agreed with reminding the anatomy knowledge at the beginning of every internship. During the internship, they found the circulatory system to be the first system they needed most and the locomotor system to be remembered most. Most intern doctors thought anatomy knowledge should be reinforced at the beginning of each internship.

Conclusion: This study demonstrated interns' attitudes towards anatomy education. The results may contribute to curriculum design in terms of determining the distribution of systems for departments planning vertical or horizontal integration.

Keywords: Intern doctors, anatomy, attitude

OP-04

Case report: Pamukkale University Anatomy Department graduate education

Danış Aygün, Şahika Pınar Akyer

Department of Anatomy, Faculty of Medicine, Pamukkale University, Denizli, Türkiye

Objective: Pamukkale University, one of the universities with a medical faculty in our country, has been providing education in the Department of Anatomy since 1992. The aim of this study is to examine the postgraduate education of our department in the last 10 years.

Case: Pamukkale University Department of Anatomy provides undergraduate education to students of different faculties and colleges, especially the Faculty of Medicine, as well as graduate education to a large number of students. When we look at the last 10 years of postgraduate education in this process, it is seen that many students successfully completed their education, but some of them could not graduate for various reasons. Despite meeting the requirements for postgraduate education, it is seen that some of the physicians who come to the department through the medical specialty exam transfer to other departments. It is seen that the physicians who transfer generally prefer internal and surgical sciences.

Conclusion: Pamukkale University Department of Anatomy has produced many graduates in the last 10 years in the fields of master's, doctorate and medical specialty and these graduates have been successful in various universities. During this period, its also seen that there are students who could not graduate for various reasons. Its thought that this study will be a valuable source of information both for Pamukkale University and for the Anatomy Departments of other universities.

Keywords: Postgraduate education, anatomy education, medical education

OP-05

Evaluation of the efficiency of three-dimensional digital anatomy models in anatomy education without application course

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Objective: Theoretical anatomy education is mainly performed through two-dimensional images. However, learning and teaching three-dimensional (3D) structures with two-dimensional representation is difficult. For this reason, anatomy education requires practical lessons. In recent years, practical anatomy courses have used 3D digital anatomy models (3D-DAM). However, the contribution of integration to theoretical anatomy courses of these models to education has not been discussed. This study will investigate the positive and negative aspects of the theoretical anatomy education we conducted using 3D-DAM.

Methods: This study was conducted with students of Bursa Uludağ University Vocational School of Health Services. For this research, an online questionnaire of 5 Likert-type answers was prepared. Volunteers using Anatomylearning.com's 3D-DAMs were invited to the study. SPSS28.0 was used for statistical analysis.

Results: 84.1% of the volunteers in the study said that 3D-DAM made it easier for them to understand anatomy lessons. Participants stated that they understood the functional properties of muscles (81.7%) and joints (81.4%) more easily, thanks to the action feature of this software. 82.7% of the participants stated that 3D-DAM increased their interest in the course, and 80% found Anatomylearning.com software useful for studying. 58.5% of the volunteers stated that the applied anatomy course with plastic anatomy models and cadavers would contribute more to their learning process.

Conclusion: The students gave feedback that using 3D-DAMs positively affected anatomy education. Therefore, we suggest that arrangements should be made to ensure the use of 3D-DAMs in theoretical anatomy education.

Keywords: Anatomy, education, three-dimensional digital anatomy models

OP-06

Evaluation of the effectiveness of applied radiologic anatomy training for medical and dental graduate and residency students

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Objective: This study's purpose is to assess data collected during 'Applied Radiological Anatomy Training for Graduate and Specialty Students of Medicine and Dentistry' event, which was organized as part of TÜBİTAK 2237 A Scientific Education Activities Support Program.

Methods: A mixed method approach was used in study,combining both quantitative and qualitative analyses. Sample consisted of 33 participants who attended course. To determine changes in their effective learning, simple experimental design with single group pre/post-test was used. Test was classified according to success criteria as follows: 0–39 (Group 1), 40–59 (Group 2), 60–79 (Group 3), 80 and above (Group 4). Data was collected using non-parametric tests for quantitative data and in-depth interview techniques for qualitative data. Analysis of the obtained data was conducted using Kruskal-wallis test and descriptive statistical methods.

Results: The average score of participants increased from 54.09±16.036 in pre-test to 77.70±17.125 in post-test. Highest score in pre-test was between 40–59 (n=16), while in post-test, highest score was 80 or above (n=15). Mean difference between post-test and pre-test was calculated as 25.30 (19.23–31.37), and difference was found to be statistically significant ($p<0.01$). At the end of training, satisfaction score of course was an average of 60.39±8.124 out of maximum of 68 points, with 88.23% of participants giving score of 60 or higher. Open-ended questions that were evaluated qualitatively supported 95.67% of the quantitative data.

Conclusion: The study showed a significant difference between pre-and post-test scores in effective learning. Accordingly, it was observed that practical radiological anatomy education positively improved the participants. This education was found to contribute positively to the ability of trainees to read, analyze radiological images, detect pathological conditions, and most importantly, create projects in this field.

Keywords: Radiology, anatomy, education

OP-07

The effect of drawing experience on students' perception of cadavers

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Objective: The aim of this study was to determine the effect of drawing experience on students' perception of cadavers.

Methods: The study was carried out on a total of 31 students enrolled in the Artistic Anatomy elective course at our university, who had never seen a cadaver before. After administering

the Thorson-Powell Death Anxiety Scale, the students were randomly divided into three groups. Students in the first group were shown the cadaver directly. The second group was asked to imagine and draw the cadaver and then shown the cadaver. The third group was first shown a part of the cadaver and asked to draw that part, and then the whole cadaver was shown. Afterwards, the death anxiety scale and then the feedback questionnaire were administered to all students.

Results: When analysing the results of the students' death anxiety scale, it was found that the mean scores before the study were higher than after the study ($p<0.001$). It was also found that students in group 1 had higher levels of anxiety than students in groups 2 and 3 ($p=0.039$; $p=0.005$ respectively), but there was no difference between Groups 2 and 3 ($p=0.603$). In addition, students who stated that they had never seen a dead person before were found to have a higher levels of anxiety than other students ($p=0.017$).

Conclusion: Drawing may reduce anxiety and fear when encountering cadavers for the first time. We think that our results can be a guide for anatomists to reduce students' anxiety.

Keywords: Fear of cadavers, cadaver perception, anatomy, drawing

OP-08

Investigation of cadaver and dissection infrastructure and opportunities in the anatomy departments of faculty of medicine

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Objective: The infrastructure of the dissection room and the facilities it provides, as well as the sufficient level of personal protective equipment used, are important for cadaver dissection to be performed correctly and healthily. In our study, we aim to obtain information about the infrastructure and functioning of anatomy laboratories in order to investigate the educational opportunities of undergraduate and graduate students studying anatomy in medical faculties.

Methods: The 37-question survey prepared via Google Survey was sent by e-mail to the faculty members at the department of anatomy, faculty of medicine, and the 32 responses returned were evaluated statistically.

Results: In 2.9% of the faculty of medicine laboratories, there is no cadaver dissection room or cadaver at all. It was observed that 74.3% of undergraduate students and 17.1% of postgraduate and specialist students could not perform dissection. Although there are active ventilation systems in the dissection halls in 91.4%, 37.1% of them were not sufficient, 88.6% were not subject to regular formaldehyde exposure measurements, and 48.6% were reported to be subjected to periodic ventilation by the occupational safety unit of the anatomy laboratory.

Conclusion: The fact that the number of cadavers used in anatomy education is quite low, and even some medical faculties do not have cadavers is an important issue that causes functional problems in anatomy education and should be taken seriously. Expanding and re-evaluating the study will be an important step in the anatomy accreditation process.

Keywords: Anatomy, education, cadaver, accreditation

OP-09

Comparison of magnetic resonance imaging findings in Alzheimer's, lewy body, frontotemporal and vascular dementia types

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Objective: The study aimed to compare demographic data, body mass index (BMI), hemoglobin values (Hgb), accompanying diseases (DM, stroke, etc.), B12 values, and MRI findings of patients diagnosed with Alzheimer's disease (AD), Lewy body dementia (LBD), frontotemporal dementia (FTD), and vascular dementia (VD).

Methods: This retrospective study included 21 patients in each group diagnosed with Alzheimer's, lewy body, frontotemporal, and vascular dementia, totaling 84 individuals. Demographic data, BMI, accompanying diseases, hemoglobin, B12 values, and MRI findings were evaluated.

Results: Dementia patients had an average age of 81±5.57 years. BMI indicated that 58% had a BMI <20 kg/m², and 8% <18.5 kg/m². B12 <200 pg/mL was found in 90.4% of AD patients. 61.9% had low Hgb. Vascular dementia had a significantly higher DM diagnosis than other groups ($p=0.002$). LBD had significantly fewer SVO diagnoses than other groups ($p<0.001$). AD showed more frequent hippocampal atrophy and sulcal deepening than other dementia types ($p<0.001$). LBD had more subcortical atrophy and substantia nigra lesion findings than other types ($p<0.001$). VD exhibited more multifocal lesions and microhemorrhages than other types ($p<0.001$). FTD had more frequent frontal and temporoparietal lobe atrophy than other dementia types ($p<0.05$).

Conclusion: Each dementia type exhibited more frequent atrophy in specific locations; for example, AD had common hippocampal atrophy, while FTD had more frequent frontal and temporal atrophy. LBD showed more subcortical involvement, and VD exhibited multifocal lesions associated with vasculopathy.

Keywords: Dementia, Alzheimer's disease, lewy body, frontotemporal dementia, vascular dementia

OP-10

Morpometric analysis of os ethmoidale and concha nasalis inferior in computerized tomography of persons with nasal septum deviation

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Objective: Nasal septum deviation (NSD) is a condition in which the nasal septum deviates from the midplane due to congenital or acquired reasons. We aimed to evaluate whether there is a relationship between the morphometric measurements of concha nasalis inferior and os ethmoidale and septum deviation in NSD cases.

Methods: 304 paranasal sinus computed tomography images (158 men, 146 women) taken at Aydın Adnan Menderes University between June 1, 2019 and May 31, 2021 were retrospectively examined. Age ranges were 18–86, and the average was 39.19±14.24. According to the direction of deviation, groups were formed as right deviation, left deviation, no deviation. According to the severity of deviation, it was grouped as no deviation, mild, moderate and severe.

Results: Overall deviation frequency was 78% (38% right, 40% left). No deviation was detected in 15.2% of men and 27.4% of women. The right concha nasalis inferior medial mucosal thickness was found to decrease ipsilateral to deviation and increase contralaterally. Left concha nasalis inferior bone thickness was found to increase contralateral to deviation. It was found that the medial foveal angle narrowed as lamina cribrosa depth increased. The left medial foveal angle was found to be higher among women than men.

Conclusion: It was determined that NSD caused morphometric changes in the concha nasalis inferior and os ethmoidale. We think that radiological analyses of nasal region in cases with NSD will help reduce complications in clinical and surgical interventions.

Keywords: Nasal septum deviation, concha nasalis inferior, os ethmoidale, computed tomography

OP-11

Is there evidence of sexual dimorphism in the mandible's bigonial breadth and bimental length?

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Objective: Examination of bones in excavation sites or in some forensic cases (incidents) is of great importance. We aimed to emphasize the value of Bimental length and Bigonial breadth in gender discrimination since the Mandible is the most durable bone in the cranium and shows high sexual dimorphism.

Methods: A total of 102 dry adult mandibles, 47 male and 55 female, whose sexes were registered in the archive, were randomly selected in our study. Bimental length (BML), and Bigonial breadth (BGB) were measured and recorded. The BMG index was created by the ratio of bimental length (BML) to Bigonial breadth (BGB).

Results: While the highest mean values of Bigonial breadth and Bimental lengths belonged to male bones, the highest mean value of the BMG Index belonged to female bones. There was a statistically significant difference between genders with bigonial breadth and BMG index ($p<0.05$). However, Bimental length was not distinctive for the genders ($p>0.05$). The parameter with the highest sexual dimorphic trait was Bigonial breadth (3.41). In the Roc analysis, the area under the curve was found to be 0.636 for the BMG Index and 0.670 for the Bigonial breadth, while the Youden index was found to be 0.16 for the BMG Index ratio and 0.35 for the bigonial breadth.

Conclusion: Morphometric data was created by measuring Mandible's Bimental length and Bigonial breadth with high sexual dimorphism and proportioning them to each other. We consider the bigonial breadth a more discriminating measure for our society regarding gender.

Keywords: Mandibula, bimentale length, bigonial breadth, sexual dimorphism

OP-12

Morphological and morphometrical characteristics of calcaneus

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Objective: The articular surfaces of the calcaneus and talus in the subtalar joint differ morphologically. This condition can

affect the function of the subtalar joint and cause various pathologies of the foot. The aim of this study is to type the articular surfaces participating in the joint formed by the calcaneus and the talus and to determine morphometric variations.

Methods: In this study, 98 right and 95 left sided calcaneus of unknown age and sex were examined. The anteroposterior length and transverse width of the calcaneus and the width, length and depth of the sulcus calcanei were measured. The required measurements were obtained in millimeters (mm) using a digital caliper. In addition, the areas of the articular faces on the calcaneus were calculated using the Image J program. The type of articular faces on the calcaneus joining the talus and the joint was classified.

Results: The calcaneus's mean transverse width was 40.87±4.26 mm, and its mean anteroposterior length was 65.17±6.72 mm. The average dimensions of the sulcus calcanei were 3.18±1.05 mm for the breadth, 14.09±1.34 mm for the length, and 2.48±0.4 mm for the depth. Compared to the left calcaneus, the right calcaneus had a greater transverse width.

Conclusion: The fact that calcaneus transverse widths are greater on the right side can be explained by greater load transfer in this region. The treatment plan for diseases affecting the subtalar joint will benefit from knowledge of the morphology of the calcaneus' articular facets.

Keywords: Calcaneus, subtalar joint, facet, morphometry

OP-13

Investigating the anatomy of the sacral hiatus: key to successful caudal epidural block

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Objective: The caudal epidural nerve block is a commonly utilized interventional procedure for both acute and chronic pain syndromes. However, anatomical variations can lead to difficulties in locating the sacral space, potentially resulting in the ineffectiveness of the block. Therefore, a comprehensive understanding of the relevant anatomy may improve the success rate of the caudal block.

Methods: Fifty-three adult dry human sacral bones were examined for achieving proper knowledge about measured parameters of the sacrum, including length and shape of sacral hiatus, mean intercornual distance, distance between median crest and apex of hiatus, anteroposterior depth at the apex, and distance between S2 and apex.

Results: The height and anteroposterior depth at the apex of the hiatus ranged between 1.25 mm and 6.81 mm. Determining the minimum distance between S2 and the apex is crucial to avoid the risk of dural puncture from excessive needle insertion. According to our findings, this minimum distance varied between 30.18 mm (left) and 32.79 mm (right). Additionally, the information regarding the mean distance between S2 and the apex can be significant, measuring 41.54 mm and 42.45 mm respectively on the right and left sacral areas.

Conclusion: Significant anatomical variations associated with caudal epidural blocks may lead to the failure of the landmark-based blind technique. Therefore, a comprehensive understanding of the relevant anatomy related to the results we obtained in this study can improve the success rate and safety of caudal epidural needle placement, while also minimizing the risk of complications.

Keywords: Caudal epidural space, caudal epidural block, sacrum, sacral hiatus, sacral apex

OP-14

Neuroanatomical comparison of autism spectrum disorder patients and control group in terms of brain volume

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Objective: Autism spectrum disorder (ASD) defines a developmentally and behaviorally broad syndromic condition characterized by atypical impairment of social interaction and verbal and non-verbal communication, overly restricted relationships and repetitive behaviors. It is important in terms of being included in the etiology of mental retardation and accompanying neurological disorders. With the standardization of diagnostic criteria, its prevalence has increased in recent years. There is a consensus that neuroanatomical changes play a critical role in ASD. In this study, we aimed to investigate whether there is a volumetric difference in the brain and related structures between ASD patients and the normal group.

Methods: Using cranial magnetic resonance images of 135 patients (5 females, 130 males) aged 18–50 years, obtained from the ABIDE (Autism Brain Imaging Data Exchange) open access site, the volBrain volumetry system was used to measure the volume of multiple regions neuroradiologically and the volumes were compared between the two groups.

Results: Statistically significant differences were found between ASD patients and the control group in terms of the volumes of important macroanatomical structures such as total white matter (p=0.020), total white and gray matter (p=0.027), left temporal

lobe (p=0.025), right occipital lobe (p=0.047), nuc. accumbens (p=0.025) and many microanatomical structures.

Conclusion: Different anatomical conditions of the functional areas of the brain are associated with various clinical processes and the recognition of these regions may offer different possibilities in the diagnosis, prognosis and treatment of neuropathological conditions such as ASD.

Keywords: VolBrain, ABIDE, neuroradiology , morphometry, brain volume

OP-15

Investigation of the age-related variation of atlas for posterior cervical screw fixation surgery: a morphometric computed tomography study

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Objective: This study aims to provide a radioanatomical basis for posterior screw fixation surgery with the data obtained on the changes of the atlas according to age.

Methods: Computed Tomography images of a total of 300 individuals (150F–150M) aged 20–70 years were used in the study. The 14 determined parameters were examined in 5 groups divided into decades according to age.

Results: The height and width of the massa lateralis atlantis, the cross-sectional area of the arcus posterior atlantis in the sulcus arteria vertebralis, the sagittal length of the arcus posterior at its closest point to the massa lateralis atlantis, the distance of the massa lateralis atlantis from its closest point to the arcus posterior atlantis to the condylus occipitalis(ACL), the height of the tuberculum anterius (TAH), the foramen (for.) transversarium area, for. transversarium anteroposterior and transverse diameter were found to be significant ($p<0.05$). In females, TAY and ACU were significantly smaller in the 2nd decade compared to other decades ($p<0.05$). In males, the anteroposterior distance from the arcus anterior atlantis to the arcus posterior atlantis through the massa lateralis atlantis was significantly smaller in the 3rd decade than in the 2nd and 5th decades.

Conclusion: There were statistically significant differences in the morphometric data of the atlas according to age in both sexes. The data revealed will lead to the production of cervical region surgical sets such as screws, which are more suitable for the anatomical differences that will be caused by the sexes and age deciles of individuals.

Keywords: Atlas, Screw fixation, Gender, Age, Lateral Mass

OP-16

Morphometric relationship of transverse and sigmoid sinuses with occipital belly of occipitofrontalis muscle

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Objective: In intracranial approaches, it is important to understand relationship between superficial structures and important internal structures for meticulous planning. When locations of intracranial structures were evaluated, many external anatomical points were used. In this study, we examined relationship between insertion of occipital belly of occipitofrontalis muscle to superior nuchal line and these sinuses.

Methods: 5 cadavers with removed calvaria were dissected. After muscle insertion was observed, thin holes were opened on grooves of sinuses to check where muscle insertion line located. Measurements were made with digital caliper.

Results: Insertion of occipital belly of occipitofrontalis muscle was measured and percentage of superior nuchal line covered by this muscle was calculated. A parallel line was drawn from lowest point of mastoid process to insertion of occipital belly of occipitofrontalis muscle and section below this line was divided into 4 imaginary regions as 2×2. It was noted in which region the projections of grooves of transverse and sigmoid sinuses were located. Medial half of muscle was on average 10.76±2.88 milimeters above groove for sigmoid sinus, and lateral half coincided with sinus. Statistics of measurements and their correlation with biparietal diameter were determined.

Conclusion: Occipital belly of occipitofrontalis muscle is a superficial and prominent muscle makes it easier to use it as a sign in surgeries of region. Demonstrating relationship of muscle with dural sinuses may guide surgeons in intraoperative planning.

Keywords: Transverse sinus, sigmoid sinus, occipital belly of occipitofrontalis muscle, superior nuchal line, skull base

OP-17

Examination of zygomaticofacial foramen morphology and morphometry in cone beam computed tomography images

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Objective: In literature that may be many variations for zygomaticofaciale foramen (FZF) located, there are studies examining incidence. FZF, where nerve exits, is important such as anesthesia in this region, zygomatic implant procedures, zygoma osteotomies.This study aimed examine localization and number of FZF in cone beam computed tomography (CBCT) images.

Methods: CBCT images of 157 individuals between ages of 13–96, taken by PlanmecaProMax 3D Mid, were retrospectively examined with RadiAnt DICOMVIEWER program. The presence of any bony malformation of skull skeleton was determined exclusion criterion for study. The number of FZFs, location FZF, distances between FZF and the most lateral edge of orbit (OL), between FZF and zygomaticotemporal suture, and between FZF and the lowest point of zygomatic arch were measured on images. The analysis of data included was carried out with SPSS25.

Results: Right and left side images of a total of 157 patients (45.27±18.09 years, male: 103, female: 54) were analyzed. The number of FZF was found to be 30.5%–41.9%–12.8%–2.9% in Type 0–I–II–III, respectively. There was no statistically significant difference FZF between the right and left sides ($p>0.05$). Type I is mostly located in region c, Type II and Type III are located in region a. In measurements, statistically significant difference was found between right and left sides in the first hole FZF-OL measurement ($p=0.001$).

Conclusion: During surgical procedures, it is important know locations of neurovascular structures on zygomatic bone. For this reason, knowing number and localization of FZF in this region can give an idea in determining a safe area.

Keywords: Zygomaticofaciale foramen, cone beam computed tomography, zygomatic bone, facial surgery

OP-18

Determination of the sinus maxillaris volume and its correlation with gender in computed tomography images of patients with nasal septum deviation

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Objective: The largest paranasal sinus, the sinus maxillaris (SM), is located next to numerous facial anatomical features. The objectives of this study were to assess the SM morphometrically in cases of nasal septum deviation, determine if it is associated with nasal septum deviation, and clarify the correlation between gender and SM volume.

Methods: At Aydın Adnan Menderes University, 150 participants (90 with septal deviation and 60 without) had their paranasal sinus CT scans measured for superoinferior length, mediolateral width, and anteroposterior distance of the sinus maxillaris. Furthermore, the deviation angle (SDA) and deviation severity were computed, and the direction of septal deviation was assessed.

Results: The volume of the SM was measured on the right side at 16.88±5.69 cm3 and on the left side at 17.07±5.52 cm^3. While 40% of the subjects had no septal deviation, 30% had right septal deviation and 30% had left septal variation. There was a statistically significant difference between SM volume and septum deviation. There were statistically significant differences between men and women in all measurements of SM. In the discriminant analysis, the SM superoinferior length was found to be the most relevant. The accuracy percentage for determining gender was 65.3% for men and 74.4% for women.

Conclusion: The SM volumes were unaffected by nasal septum deviation. Men performed better on the measurements, and forensic medicine can benefit from the observation of gender differences in the process of determining patient's gender.

Keywords: Nasal septum deviation, sinus maxillaris volume, computed tomography, gender determination

OP-19

Classification of anatomical variations of the circle of Willis in the pediatric age group

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Objective: The vascular ring formed by anastomosis of the arteries of Arteria(a)carotis interna and a.basilaris is called Circulusarteriosus cerebri(circle of Willis). The arteries participating in the anastomosis are a.cerebri anterior (ACA), a.communicans anterior (AComA), a.cerebri posterior (ACP), a.carotis interna (ACI), a.communicans posterior (AComP). Our aim in this study is to determine the diameters of the arteries participating in the circle of Willis according to pediatric age groups and to obtain reference data for their morphology and variations.

Methods: In our study, Contrast Cranial Magnetic Resonance (MR) and MR Angiography images were evaluated retrospectively. Images of 107 cases were examined.The cases were examined in 3 groups: 0–2 years 11 months, 3–11 years 11 months,

12–18 years. In coronal and axial images, the diameter of each component was measured.The shape of the circle of Willis was classified as typical,atypical and variational.Because AComA was small in diameter,it was identified only as present or absent (aplastic). All data obtained from the study were analyzed using SPSS 26.0software. Descriptive statistics are shown as mean±SD.

Results: While the completed circle of Willis rate in all cases was 50.46%. No significant difference was found when the groups were compared terms of arterial variations ($p<0.05$).The artery with the most aplasia was AComA, the most hypoplasia was AComP in all age groups. Additionally, a duplicate right and left AComP, a fenestrated right ACP, left ACA forming a truncus were detected, it was seen that the diameter of the ICAs correlated with age.

Conclusion: There are few studies that include the entire polygon and classify its variations in pediatric population. Good identification and reporting of these variations is also very important for safer cerebrovascular surgical interventions.

Keywords: Circle of Willis, anatomy, contrast cranial magnetic resonance

OP-20

Examination of some variations in the bony skeleton of the nose with computed tomography: a radiological anatomical study

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Objective: Good knowledge of nasal anatomy is important for surgeries such as rhinoplasty, septoplasty, and endoscopic sinus surgery. Variations of nasal septum and turbinates are common. These variations cause chronic sinusitis, permanent headaches and various clinical conditions. We aimed to investigate radiological anatomy of these structures.

Methods: Images from 199 patients (84 women, 115 men) aged 18–79, who had paranasal sinus computed tomography for any reason, were retrospectively examined. Anatomy of nasal septum and turbinates, and prevalence of septum deviation (SD), paradoxical concha (PC) and bullous concha (BC) were evaluated.

Results: SD was detected in 93.3%, PC in 52.8%, and BC in 58.8% of cases. There was no statistically significant difference between genders in terms of prevalence of these variations ($p=0.766$, $p=0.340$, $p=0.858$, respectively), and no significant difference between sides in terms of prevalence of PC and CB ($p=0.399$, $p=0.315$, respectively). SD was most commonly S-shaped (46.7%). This was followed by deviations to right (25.6%) and to left (21.1%). PC was most frequently seen in middle nasal concha (MNC) (55.10%) followed by superior nasal concha (SNC) (26.53%) and inferior nasal concha (INC) (18.36%). CB was most frequently seen in CNM (69.43%), followed by CNS (28.38%) and CNI (2.18%).

Conclusion: Bony part of nose is variative. These variations should be kept in mind in chronic sinusitis and persistent headaches. In addition, it is important to know variations that can be seen in nasal bony skeleton, especially in surgeries such as endoscopic sinus surgery, from perspective of expanding success of surgical method.

Keywords: Nasal septum deviation, paradoxical concha, bullous choncha, endoscopic sinus surgery

OP-21

Preventing the avascular necrosis: patellar morphometry and nutrient foramina for arterial blood supply revisited

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Objective: The main purpose of the present study is to reduce the damage to arteries which give the blood supply to the patella during the lateral patellar release. The study aims to show the patellar morphometric features and distribution of nutrient foramina for the patellar implant design, especially for the Anatolian population and surgeris for placing the implants.

Methods: 120 patellae (75 right, 45 left) were measured. Patella height, width, thickness, medial and lateral facet length and width, apex patella height, apex and patellar angle, nutrient foramina numbers, and joints' surface area were evaluated.. Each patellar area was measured by drawing its borders carefully, scanning and measuring by Image J Program. Other measurements were done with Mitutoyo digital caliper. Mean standard deviation, median scores of each parameter were computed for groups using SPSS 27.0.

Results: The patella height was 38.74±3.41 mm, the width was 40.52±3.58 mm, the thickness was 19.12±2.68 mm, the medial facet length was 24.75±3.17 mm, the width was 21.85±14.75 mm; lateral facet length was 20.05±13.13 mm, the width was 17.77±11.68 mm. The patellar angle was 95.80°±9.58° ve Apex patellae angle was 117.4±18.19°. Foramen nutrition numbers

were 21±12; most were on the center (%46.38), and second place was lateral area.

Conclusion: For implant designing, the morphometry of the patella is highly important. In addition, the nutrient foramina numbers as an indicator of the place of arterial blood supply is crucial to avoid any damage to arteries during surgery.

Keywords: Patella, nutrient foramen, morphometry, implant, patellar release

OP-22

Morphometric analysis of lingula mandibulae and antilingula

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Objective: Lingula mandibulae (LM) and antilingula, corresponding to outer surface of ramus, are important landmarks used in maxillofacial surgeries to determining the inferior alveolar neurovascular bundle. This study aimed to evaluate morphometric parameters of LM and antilingula.

Methods: LM, antilingula and incisura mandibulae shape and relation LM apex with coronoid notch evaluation was performed on 32 mandibles selected from bone archive of Anatomy Department. The distances of antilingula and LM to anterior and posterior borders of ramus mandibulae, to incisura mandibulae, to premasseteric notch, to base of the mandible, and to root of second molar were measured, along with length of ramus mandibulae, distance from foramen mandibulae to anterior and posterior borders of the ramus mandibulae and to incisura mandibulae, and width and depth of incisura mandibulae using a digital caliper. Statistical analysis of data was performed.

Results: Comparison of measured parameters, only LM to anterior edge of the ramus was found 15.62±2.51, lower on the right side. Differences were observed in distances to incisura mandibulae and root of 2nd molar between LM, antilingula ($p<0.05$). In both sides same frequency (%45.5), LM was most frequently triangular shape, while antilingula was predominantly plateau. No relationship was found between antilingula and LM shape ($p=0.064$). In all samples, LM apex was detected at or above coronoid notch level.

Conclusion: We think that, in order for the antilingula to be used as a reliable landmark when LM cannot detected, it should be evaluated different components of mandible, morphological types, gender, age, and tooth loss.

Keywords: Lingula mandibulae, antilingula, ramus osteotomy, coronoid notch

OP-23

Vascular surgical anatomy of the presacral space and its relation to pelvic diameters

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Objective: Sacral colpopexy remains highly effective for repairing prolapsed vaginal apex and enterocele. Surgeons take great care to cautiously open presacral space (PSS), and expose the anterior longitudinal ligament to avoid injuring nearby vascular structures.Inthis study,vascular elongations were identified,and measurements were correlated to mitigate the risk of vascular injury and bleeding in regional surgeries.

Methods: In our study, 10adult cadavers were utilized. The distances between the anterior superior iliac spines (disASIS), and between the common iliac vessels, promontory and the middle sacral arter (MSA) were evaluated. The MSA's position was assessed relative to the midline of the promontory (mP). The transverse, oblique and true conjugate diameters were also assessed.

Results: The mean measurements of transverse, right-left oblique,and conjugate vera diameters were 12.58±0.54, 11.08±0.27 and 11.06±0.44, 12.26±0.62 cm respectively. The mean distances from the right-left common iliac artey-vein to mP were 21.5±2.5, 24.8±3.6 cm, and 22.2±7.4, 25.7±9.2 mm respectively. The mean disASIS was 242.29±17.10 mm. It has shown that as disASIS increases,the distance to mP also significantly increases, indicating a positive correlation. MSA was most often right lateralized, and the mean distances from mP was 3.90±0.57 mm.

Conclusion: During surgery, understanding and maintaining anatomical balance in the pelvis contribute to improving the patient's quality of life. The vascular pattern within PSS varies, with major vessels often deviating significantly from their expected positions. Surgeons should meticulously expose structures within this space before proceeding to place sutures during sacral colpopexy. Since disASIS is positively correlated with the, common iliac vessels,and MSA,it may be advisable for the surgical team to approach cases with narrow disASIS more cautiously to minimize vascular injuries.

Keywords: Pelvis, presacral space, gynecological surgery

OP-24

Classification of lateral pneumatization of the sphenoid sinus: a comparison of anatomical and surgical perspectives

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Objective: Sinus sphenoidalis (SS) provides access to midline ventral skullbase structures along with middle cranial fossa (FCM) laterally. The surgical window to FCM is bordered by for.rotundum (FR) and vidiancanal (VC). This study aims to compare two classification systems that evaluating lateral extension of SS pneumatization based on the size of surgical window to FCM and anatomical location.

Methods: A total of 200 temporal bone computed tomography images (0.5 mm) were examined (18–54 years, avg. 35±9 years). Pneumazation was classified based on anatomical location as pterygoid,ala major, and full lateral. In surgical window based classification, pneumatization was recorded as pre-vidian, pre-rotundum,and post-rotundum depending on its association with FR and VC. The depth (Pd), length (Pl), and area (Pa) of pneumatization, distance and angle between maxillary (V2) and vidian (VN) nerves were recorded. Data was analyzed by Kruskall-Wallis, Anova, and Pearson-Spearman correlation tests

Results: Pneumatization was at mostly full lateral (right: 38.5%, left: 41.5%) and post-rotundum (right: 44%, left: 46%) types. In surgical classification, smaller V2-VN angle and greater distance (right: 7.99±1.71 mm; left: 8.48±1.93 mm) were observed in post-rotundum type, in comparison with the pre-vidian (right: 3.82±1.62 mm; left: 4.23±1.59 mm) and pre-rotundum (right: 4.5±2.12 mm; left: 4.97±2 mm) types ($p<0.01$). However, in anatomical classification, V2-VN angle did not alter between sinus types ($p>0.05$). Additionally, V2-VN distance didn't alter between full lateral (right: 7.99±1.71 mm; left: 8.21±2.1 mm) and ala-major type (right: 6.5±2.3 mm; left: 6.1±1.8 mm, $p>0.05$). Pa ($r=0.85$, $p<0.001$), Pl ($r=0.816$; $p<0.001$), and Pd ($r=0.84$, $p<0.001$) were strongly correlated with surgical classification, while Pa ($r=0.658$, $p<0.001$) and Pd ($r=0.651$, $p<0.001$) had moderate and Pl ($r=0.463$, $p<0.001$) weak association with anatomical classification.

Conclusion: FR-VC based classification shows that extensive pneumatization is associated with increase in VC-V2 distance, and therefore increase in surgical window. Evaluating pneumatization relative to FR and VC may provide more insight for preoperative planning and iatrogenic injury risk.

Keywords: Vidian, for.rotundum, pneumatization

OP-25

Analysis of anatomical changes in nipples and acromioclavicular joint line by photogrammetric method in scoliosis patients

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Objective: We aimed to show the anatomical differences in nipples and acromioclavicular joint line using photogrammetric analysis method in scoliosis patients.

Methods: 51 scoliosis patients between the ages of 4–20, who were treated at Ege University Hospital Orthopedics and Traumatology Clinics were included. Images of scoliosis patients were taken from the anterior perspective using a digital camera. 8 measurements were made using the ImageJ program.

Results: Mean age of female and male patients was 10.56 and 13.8, respectively. Mean scoliosis degree of women was 19.72° and 15.96° in men. Location of the patients' nipples was classified into 6 types in terms of the ratios on the x-axis. Length between the lateral border of the right and left mammary gland and nipple, and length between the medial border of the right mammary gland and nipple were found to be higher in men than in women which is statistically significant ($p<0.05$). Length difference between the medial border of the right and left mammary gland and nipple, right and left acromioclavicular joint lines, nipple angle and acromioclavicular joint angle values were compared according to the patients' scoliosis degrees and statistically significant difference was found between groups ($p<0.05$). Between length difference right and left acromioclavicular joint lines and horizontal line, nipple angle and acromioclavicular joint angle values and patients' scoliosis degrees was found to have positive correlation moderately.

Conclusion: We suppose that these findings obtained by photogrammetric analysis method will contribute to the follow-up of scoliosis patients.

Keywords: Scoliosis, photogrammetric analysis, nipple, acromioclavicular joint

OP-26

Evaluation of walking parameters of doctors working in 24-hour shifts

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Objective: The aim of this study was to investigate how the gait parameters of intern doctors working in 24-hour shifts are affected.

Methods: Twenty eight volunteer intern doctors (18 women, 10 men) who declared that they did not sleep during the 24-hour shift participated in our study. Gait analysis was performed on the participants just before starting and at the end of the 24-hour shift. Afterwards, the participants were released for 24 hours and continued their routine lives. At the end of twenty-four hours, gait analysis was performed for the third time. Spatio-temporal and butterfly diagram parameters were obtained from gait analysis. The variation of all data over three measurements was analyzed. In addition, gait symmetry was evaluated by comparing the data obtained from the right and left sides of the participants in each measurement.

Results: When the data of the three measurements were compared, we saw that the degree of foot rotation after rest on the left side was lower than both before and after the shift. On the right side, the single support line after rest was higher than after shift. Gait was symmetrical before and after the shift. However, after rest, we found that the degree of foot rotation on the right side was higher than the left. There was no significant difference in other parameters.

Conclusion: Although there were differences in some parameters in the gait analysis performed after rest, working in shifts for twenty-four hours did not affect the walking performance of intern doctors much.

Keywords: Gait analysis, sleep deprivation, gait symmetry

OP-27

Reaction time of taekwondo and volleyball players: a comparative study

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Objective: Reaction time is an important parameter used to evaluate sports performance and to determine the developmental differences between different sports branches. Fast reaction time provides a significant advantage for speed, agility, and alertness. We think that reaction time develops differently in each sport branch.

Methods: Our study was carried out on 23 taekwondo athletes, 16 volleyball players, and 22 sedentary individuals. Reaction time was evaluated in two different categories: visual and auditory. The visual reaction time of individuals was evaluated in two stages:simple and selective. After the visual and auditory reaction time measurements were evaluated separately with equal and random time intervals, the measurements were compared between the groups.

Results: A statistically significant difference was found between only volleyball players and sedentary individuals in terms of selective visual reaction time ($p<0.05$).

Conclusion: It has been observed that the response of volleyball players to visual stimuli is faster than sedentary individuals. While playing volleyball, continuous visual tracking of the ball is required, and the result of our study supports this. As a result, we see that the visual reaction time may vary according to the sports field that the athlete is interested in.

Keywords: Reaction time, taekwondo, volleyball, visual, auditory

OP-28

Myotonometric examination of longissimus thoracis, multifidus lumborum and rectus abdominis in adolescent idiopathic scoliosis patients and clinical implications regarding load transfer to the pelvic skeleton

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Objective: This study, myotonometric properties of longissimus thoracis, multifidus lumborum, rectus abdominis in adolescent idiopathic scoliosis (AIS) patients were examined according to pelvic axial rotation (PAR) direction and convex/concave side of major curvature. As a result of study, information about biomechanical properties of muscles will be obtained and treatment will be more effective. It is aimed to be contribute to literature.

Methods: Individuals between ages of 10–18 were diagnosed with AIS were included in this prospective and descriptive study. Cobb angle and PAR were measured on radiographs. Tone, hardness, elasticity of relevant muscles were measured with MyotonePRO device. Data analysis used with SPSS25 program.

Results: A total of 38 patients (male: 11, female: 27) were examined. They were grouped according to PAR direction and the convex/concave side of major curvature, and myotonometric properties of relevant muscles were analyzed. On the concave/convex sides; A moderate positive correlation was found between tone of multifidus lumborum and longissimus thoracis, a strong positive correlation was found between tone of multifidus lumborum and rectus abdominis. A weak positive correlation

was found between hardness of multifidus lumborum and longissimus thoracis on convex/ concave sides, and moderate positive correlation was found between hardness of multifidus lumborum and rectus abdominis. A weak positive correlation was found between elasticity of multifidus lumborum and rectus abdominis on convex/concave sides.

Conclusion: In the tone, stiffness and elasticity of convex/concave side muscles of AIS patients, agonist antagonist muscle influence is more prominent than influence of synergist muscles. This effect should be taken into consideration when planning treatment programs, and it will contribute to shaping of treatment and will contribute to literature since there are not enough studies on this subject.

Keywords: Pelvic axial rotation, tone, stiffness, elasticity

OP-29

Investigation of myotonometric properties of tendo calcaneus and fascia plantaris in load transfer before and after schrothe treatment according to the direction of pelvic asymmetry in individuals with adolescent ideopathic scoliosis

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Objective: Adolescent idiopathic scoliosis(AIS) is three-dimensional deformity in columna vertebralis. It is thought that weight transfer willn't be equal in individuals with scoliosis, tendon calcaneus and fascia plantaris, play a major role in load transfer, are also affected. During walking, tension force occurs in fascia plantaris. Schrothe exercise therapy aims to provide biomechanical recovery by eliminating muscle strength inequalities. Aim of this study is to examine myotonometric changes in tendon calcaneus and fascia plantaris before and after Schrothe exercise.

Methods: Prior to study, approval was obtained from Gaziantep University Clinical Research Ethics Committee (2023/295). 32 individuals applied to Gaziantep University Orthopedics and Traumatology Department and were diagnosed with scoliosis were included. Measurements were made with MyotonPro device. MyotonePRO has shown to be reproducible and reliable device for measuring properties of myofascial structures, hardness, tone, elasticity values have been measured. Measurements were made using this device before-after Schrothe treatment.

Results: Fascia plantaris elasticity in right foot was found to be statistically higher after exercise in both pelvic asymmetries. Elasticity of right tendon calcaneus was found to be higher before exercise than after exercise in those with left pelvic asymmetry. It was observed that elasticity value before exercise was higher in those with left pelvic asymmetry in both right-left tendon calcaneus.

Conclusion: It has been observed that there are changes in soft tissue structures before and after exercise according to pelvic asymmetry. It is thought that making these changes measurable will contribute to clinic and literature in terms of patient follow-up.

Keywords: Tendo calcaneus, MyotonePro, fascia plantaris, adolescent idiopathic scoliosis

OP-30

Examination of the effect of pelvis asymmetry on myotonometric properties of ligamentum patella according to its direction in individuals with adolescent ideopathic scoliosis

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Objective: Adolescent idiopathic scoliosis(AIS) is three-dimensional spinal deformation consisting of lateral deviation and axial rotation of vertebrae that develops during body growth. It has been reported that scoliosis may cause asymmetries in upper and lower extremities and biomechanical changes in musculoskeletal system. Best indicator of this transmission is one of most important muscles of thigh ligament, which is tendon of quadriceps femoris muscle. It is thought to be patella. Aim of this study is to determine direction of pelvic asymmetry in AIS patients. It is examination of changes in patella features. Treatment plan can be shaped by evaluating effect of this change on patient's walking patterns.

Methods: Prior to study, approval was obtained from Gaziantep University Clinical Research Ethics Committee (2023/295). 36 individuals applied to Gaziantep University Department of Orthopedics and Traumatology were diagnosed with scoliosis were included. MyotonePro device, which is valid in literature and is non-invasive and doesn't cause complications in patient, was used to measure muscle tone, hardness, elasticity in myofacial tissues.

Results: It was determined that right-left ligamentum patella stiffness was statistically higher in individuals with right pelvic asymmetry than in individuals with left pelvis asymmetry. It was found that elasticity of left ligamentum patella was significantly higher in individuals with right pelvic asymmetry.

Conclusion: It has been determined that direction of pelvic asymmetry may affect biomechanical properties of lig.patella. It is thought that knowing these changes will contribute to clinic, as well as to literature, as it is first study on this subject.

Keywords: Ligamentum patella, MyotonePro, Schrothe

OP-31

Investigation of the prevalence of the "nutcracker phenomenon", a variation of the left renal vein, in Turkish population by computed tomography angiography method

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Objective: Left renal vein crosses abdominal aorta between superior and inferior mesenteric artery. It drains into inferior venae cavae. Sometimes it may be compressed between superior mesenteric artery and abdominal aorta. This variational situation is called "nutcracker phenomenon" (NP). NP can sometimes cause dysuria, abdominal pain, flank pain, micro-macrohematuria, proteinuria, varicocele, dyspareunia, dysmenorrhea. When it becomes sypmptomatic, it's called "nutcracker syndrome" (NS). We aimed to investigate prevalence of NP.

Methods: Images of 100 patients (42 women, 58 men) aged 20–97 years who underwent abdominal computerized tomography angiography for any reason were retrospectively examined. Variational conditions regarding left renal vein was investigated.

Results: In 21% of cases the left renal vein was obliterated between superior mesenteric artery and abdominal aorta. Prevalance of NP was detected in 13 (30.95%) in women and 8 (13.79%) in men. Statistically significant difference was found between genders in terms of prevalence (p=0.038). The average of aortomesenteric angle was measured as 27.02° (min 12.5°–max 37.9°). There was no statistically significant difference between genders in terms of aortomesenteric angle (p=0.428). Anterior NP was detected in 90.47% of cases and posterior NP was detected in 9.52%. In women, 84.61% anterior NP and 15.38% posterior NP were found. In men prevalance of anterior NP was 100%.

Conclusion: NP can sometimes cause symptoms in patients. NP should be kept in mind in patients presenting with symptoms such as dysuria, abdominal pain, flank pain, hematuria, proteinuria, varicocele, dyspareunia, and dysmenorrhea, and whose etiology cannot be determined by conventional methods.

Keywords: Hematuria, dysuria, vasculer anatomy

OP-32

Localization and clinical significance of landmarks in cranii externa

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Objective: The aim of this study is to evaluate the localization and morphometry of important points such as nasion, lambda, arcus superciliaris, sutura lambdoidea and sutura occipitomastoidea, by taking bregma as the reference point from the landmarks in the neurocranium. We think that these external points on the skull will help distinguish fractures from radiological imaging and guide surgical interventions.

Methods: This study was conducted on dry bones in the student laboratory of the Department of Anatomy at the Faculty of Medicine, Selçuk University. A total of 52 skulls of unknown age, gender and population were examined. During the examination, 21 damaged skulls were excluded from the study due to loss of integrity, resulting in a total of 31 skulls being evaluated. On these materials, bregma, pterion, nasion, lambda, arcus superciliaris, sutura lambdoidea and sutura occipitomastoidea points were determined, measurements were taken, and the presence of wormian bones was examined and recorded.

Results: In 31 dry skulls evaluated, the bregma-nasion distance mean 108.3±7.3 mm, the bregma-lambda distance mean.107±7 mm, the bregma-pterion right distance mean 91±6 mm, the left distance mean 91±5 mm, bregma–arcus superciliaris right distance mean 98±7 mm, the left distance mean 98±7 mm, nasion-lambda distance was 215.4±12.3 mm. The most common area with presence of wormian bone was suture lambdoidea, and the least common area was bregma.

Conclusion: We believe that the measurements obtained from the study will provide up-to-date data on the anatomy of the region and can be guiding in the planning of surgical interventions.

Keywords: Bregma, cranium sutures, wormian bone

OP-33

The relationship between anthropometric measurements and dynamic/static balance in young adults

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Objective: Anthropometric characteristics, along with various mechanical and neurophysiological factors, can influence balance. This study aims to investigate the relationship between lower and upper extremity anthropometric measurements and dynamic/static balance in young adults.

Methods: The study included 100 sedentary young adults aged 18–24 (55 females, 45 males). Individuals with neurological, cardiovascular, vestibular, orthopedic, and rheumatic diseases, as well as those with lower and upper extremity amputations and prosthetics, were excluded from the study. Anthropometric measurements were taken using a stadiometer, digital scale, and the Harpenden anthropometric set, while balance tests were conducted on a flat surface, on one foot, and on a bosu ball.

Results: Anthropometric measurement results for both lower and upper extremities were higher in males compared to females. Except for the balance tests on the flat surface with the left foot and on the bosu ball with the left foot, other balance test durations were higher in males than in females and were statistically significant. In all participants, a significant negative correlation ($p<0.05$) was found between balance on the bosu ball with the right foot and anthropometric measurements of both lower and upper extremities. Additionally, a negative significant correlation ($p<0.01$) was found between body mass index (BMI) and all balance tests.

Conclusion: Balance was more influenced by anthropometric factors in males than females. BMI and total upper extremity length were the parameters that most affected balance, both for all participants and for each gender separately.

Keywords: Anthropometry, bosu ball, balance, extremity

OP-34

Evaluation of foramen spinosum morphometry in patients diagnosed with migraine

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Objective: Migraine has a very wide pathophysiology and it has been revealed by scientific studies in the literature that it involves the activation of the trigeminovascular system. This study aims to evaluate foramen spinosum morphometry in patients diagnosed with migraine and reveal its relationship with migraine pathophysiology.

Methods: In the study, brain computed tomography images of 58 patients diagnosed with migraine and 58 healthy individuals without a migraine diagnosis, who will constitute the control group, were retrospectively examined in the neurology outpatient clinic of Balıkesir University Training and Research Hospital. Foramen spinosum length and width measurements, distances of the foramen spinosum to x-y coordinates, and maximum head length and width measurements were made using Radiant DICOM Viewer 64-bit software program on computed tomography images. All data were analyzed quantitatively with the SPSS version software program.

Results: According to the statistical analysis results of the variables examined in the study; It was determined that the length and width of the foramen spinosum tended to have a narrower morphometry in patient individuals.

Conclusion: As a result of the research, it was revealed through morphometric analysis that there is a relationship between migraine and foramen spinosum. It is thought that the result obtained in the light of these data will contribute to the understanding of the cause-effect relationship between migraine pathophysiology involving the trigeminovascular system and foramen spinosum morphometry, and may be guiding for clinicians in diagnosis and treatment.

Keywords: Middle meningeal artery, foramen spinosum, migraine

OP-35

Evaluation of anthropometric measurements in obese individuals

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Objective: Anthropometric indices of obesity are measurements of general obesity (body mass index-BMI, etc.) and central obesity (waist circumference, hip circumference and waist-hip ratio). In this study; It is aimed to evaluate and compare anthropometric measurements in normal weight healthy individuals (control group) with a BMI between 18–25 and morbidly obese (obese class III) individuals without any chronic disease with a BMI over 40.

Methods: Volunteer participants' height, weight, BMI, 2P:4P ratio, waist-hip ratio (WHR), neck-waist (WC)-hip (HC)-thigh (TC)-leg (CC)-wrist circumference. (WrC) measurements were taken.

Results: 145 volunteers were included in the study (73 people with BMI over 40, 72 people with BMI between 18–25). Statistical significance ($p<0.05$) was detected in all parameters compared between the control group and morbidly obese individuals. The correlation and p value between the parameters were examined in both groups. In morbidly obese individuals, unlike the control group; The relationship between 2P:4P ratio-

TC, 2P:4P ratio-CC, WrC-TC, CC-neck circumference, CC-WHR, WC-TC was not statistically significant ($p<0.05$ in the relationship with other parameters). The WHR-TC relationship was found to be statistically significant in the morbidly obese, unlike the control group.

Conclusion: The differences obtained when anthropometric values of normal weight individuals and morbidly obese individuals are compared, and as a result of future comprehensive studies, these anthropometric measurements may be guiding in the prediction and prevention of morbid obesity.

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Keywords: Anatomy, anthropometry, obesity, body mass index (BMI), 2P:4P

OP-36

Morphometric investigation of nasal septal deviation and hard palate in patients with obstructive sleep apnoea syndrome: a preliminary study

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Objective: Upper airways are usually collapsed and obstructed in obstructive sleep apnea syndrome (OSAS) patients. Nasal septal deviation (NSD) and palatal morphology may increase the risk of OSAS by effecting the upper airways. This study aims to investigate NSD and hard palate morphometry in individuals diagnosed with OSAS.

Methods: In this descriptive-comparative study, computed tomography images of 43 patients with OSAS and 45 individuals without maxillary and nasal pathology in the Radiology archive of Zonguldak Bülent Ecevit University Faculty of Medicine Hospital were analysed retrospectively. Nasal septal deviation angle (NSDA), deviated septal length (DSL), deviated septal curve angle (DSCA), palatal arch depth (PAD), palatal interalveolar length (PIL), PAD/PIL ratio, septal vertical length (SVL), maxillopalatal arch angle (MPAA), interjugum distance (IJD) and jugum angle (JA) were measured in coronal plane using MicroDicom Viewer software.

Results: As a result of statistical analysis, it was found that NSDA, DSL, PAD/PIL values of the OSAS group were significantly higher than the control group, while MPAA, DSCA values were lower than the control group ($p<0.05$). Statistically, there were no significant differences between the two groups in terms of other parameters ($p>0.05$).

Conclusion: In this study, measurements show that NSD were higher and the hard palate was more narrow-angled in patients with OSAS than in the control group. Our study suggests a relationship between OSAS and NSD, hard palate morphometry. The results of our study may be useful in clinical practice for identifying the risk of OSAS and planning appropriate treatment procedures.

Keywords: Computed tomography, hard palate, morphometry, nasal septal deviation, obstructive sleep apnoea syndrome

OP-37

Morphometry of scaphoid bone including its nutrient foramina characteristics for scaphoid fracture surgeries

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Objective: Despite some research about the morphologic and morphometric features and lots of studies about the fractures of the scaphoid bone, the blood supply characteristics of the bone are lacking in the literature. The main purpose of the present study is not only to find the morphological characteristics of the scaphoid bone in the Anatolian population but also to show the blood supply based on its nutrient foramina and its location to the most fractured area of the bone.

Methods: 102 (51 leftand 51 right) dry scaphoid bones were morphometrically measured. The distances between the nutrient foramina and midpoint were measured. Also, the three joints' surface area were measured.

Results: The length and width of the scaphoid bone were 25.57±2.17 mm and 10.07±1.25 mm, the length of midpoint circumference was 34.85±3.92 mm, 40-second dorsal sulci were found.The lengths and widths of the main dorsal sulci were 19.43±3.14 mm and 2.17±0.67 mm, the number of nutrient foramina were 6±2, and height of the scaphoid tubercle was 12.03±1.78 mm. A total of 341 nutrient foramina (215 dorsal, 126 palmar) were measured. The distance between the proximal foramina to midportion were 3.41±2.37 mm and the distal foramina were 4.63±2.72 mm.

Conclusion: The scaphoid bone measurements and the exact localization of the nutrient foramina are highly important for preventing necrosis and making a useful graft. The present study is clinically important because it shows the arterial blood supply of the scaphoid bone to prevent arterial damage during surgery.

Keywords: Scaphoid bone, nutrient foramina, scaphoid fractures, morphometry, surface area

OP-38

The relationship between ambulation level and upper extremity anthropometric measurements in children with cerebral palsy

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Objective: The aim of the study was to reveal the relationship between ambulation level and anthropometric measurements of the upper extremities in individuals with cerebral palsy.

Methods: Ambulated (n=34) and non-ambulated (n=34) children with cerebral palsy according to the Gross Motor Function Classification System between the ages of 6–12 years were included in our study. Demographic characteristics and anthropometric measurements of the participants were evaluated.

Results: The mean age was 9±2 years in the non-ambule group and 8±2 years in the ambule group. Mean height was 1.14±0.17 m and 1.25±0.12 m, mean weight was 20.21±7.47 kg and 24.73±7.32 kg, and mean body mass index was 15.09±3.31 kg/m^2 and 15.53±2.39 kg/m^2, respectively. The results of right arm length (p=0.001) and left arm length (p=0.001) were statistically higher in the ambulatory group compared to the non-ambulatory group. In the forearm, right forearm length (p=0.001) and left arm length (p=0.001) measurements were also statistically higher in the ambulant group. In hand length, right hand length (p=0.006) and left hand length (p=0.007) were statistically higher in the ambulant group compared to the non-ambulant group. Right elbow diameter (p=0.001) and left elbow diameter (p<0.001) results were statistically higher in the ambulant group.

Conclusion: Arm, forearm and hand length measurements were found to be higher in ambulant children with cerebral palsy and both elbow diameters were found to be larger in ambulant children.

Keywords: Cerebral palsy, anthropometry, ambulation

OP-39

Examination of foramen supratrochleare and evaluation of differences in humeral osteometry

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Objective: Foramen supratrochleare (FST) is an important variation for surgeons and radiologists located in the extremitas distalis of the humerus. The aim of the study was to evaluate the FST and investigate the changes in the morphometry of the bone in its presence.

Methods: A study was carried out on a total of 256 humerus bones, 160 female and 96 male, in the Anatomy Laboratory of Aydın Adnan Menderes University. Humerus length, caput humeri circumference, circumference of the 25%–50%–75% part of the corpus humeri, epicondylar width, and the ratio of the transverse diameter of the FST to the epicondylar width were recorded. Bones with FST were classified according to their shape. Bones with and without FST were compared morphometrically.

Results: FST was detected in 18.8% (n=48) of bones. According to FST shapes, 8.6% were oval, 6.3% were round, 1.2% were kidney, and 2.7% were rectangular. It was determined that this hole was seen in 25% of female and 8.3% of male. A statistically significant difference was found with and without FST among humerus length, caput humeri circumference, circumference of 25%–50%–75% parts of the corpus humeri and epicondylar width measurements. All these measurements were found to be smaller in humerus with FST than in humerus without FST.

Conclusion: Knowing the presence of FST in the humerus; It may also change the treatment, especially when supracondylar fractures occur, as it may change the shape of the fracture in the area. Therefore, it is important for preoperative planning.

Keywords: Humerus, foramen supratrochleare, osteometry

OP-40

Chemoarchitecture of the internal basilar nucleus in the human spinal cord

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Objective: The internal basilar nucleus (IB) is located within the confines of lamina 4 of C1–C6 segments in the ventromedial region of the spinal cord's dorsal horn. IB neurons receive afferents from the median and ulnar nerves and project to the thalamus. IB has been demonstrated in cat, rat, hamster, mouse, marmoset monkey, rhesus monkey, and humans. A limited number of studies have shown the immunoreactivity of parvalbumin, calbindin, calmodulin, calretinin, and vesicular glutamate transporter one in rat IB. This study aimed to investigate the neurochemical content of IB in the human spinal cord.

Methods: To examine the neurochemical organization of the human IB, 10% formalin-fixed C1–C6 segments of the human

spinal cord were sectioned using a cryostat. Subsequently, 30-micrometer thick sections were stained using immunohistochemical markers of calcitonin gene-related peptide, choline acetyltransferase, enkephalin, glycine, glutamate, serotonin, and substance P.

Results: Immunoreactivity of calcitonin gene-related peptide, choline acetyltransferase, enkephalin, glycine, glutamate, serotonin, and substance P was observed in human IB neurons under light microscopy.

Conclusion: The findings of this study demonstrate the neurochemical organization of IB in the human spinal cord for the first time and suggest its association with pain.

Keywords: Chemoarchitecture, human internal basilar nucleus, spinal cord

OP-41

A practical cadaveric model for pterional approach of sella turcica training

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Objective: The aim of this case study is to reach the hypophysialis located in the sella turcica with the pterional approach method and to learn how to look at the surrounding organs and their neighborhood from this window and to contribute to the training of surgeons with cadavers.

Case: The cadavers were placed in the supine position. The incision curves upward behind the hairline to reach the midline.The skin and subcutaneous tissue were removed 5 to 10cm around the pterion point. Musculus temporalis was removed by scraping off the bone. The pterion point was visible to the eye. The bone tissue was removed. The dura mater was cut and fixed to the surrounding tissues so that it would not restrict the field of view. Some bone tissue was removed from the corner separating the fossa cerebri anterior and media to expand the field of view. The arachnoid mater was cut at the level of the sulcus lateralis. The sella turcica was reached by pulling the brain tissue from the anterior of the sulcus lateralis to the sides.

Conclusion: The pterional approach is a very important method in all anterolateral approaches to the skull base. There are risks of iatrogenic injury of the ramii temporales of the nervus fascialis, musculus temporalis atrophy, chewing instability, hypoanesthesia of the auricle and meatus acusticus externus. These risks can be reduced with preliminary studies on cadavers. Cadaver studies are very important in increasing the experience of physicians and preventing complications that may occur during surgery.

Keywords: Sella turcica, pterional approach, cadaver, neurosurgery, education

OP-42

Effect of silymarin on testicular morphology and sperm numbers in cisplatin damage

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Objective: This study aims to histopathologically assess the influence of silymarin (SM) on testicular size, vascularization, and sperm counts in cisplatin (CIS)-induced testicular damage.

Methods: Male Wistar albino rats, weighing around 300/350 grams, were divided into groups of 10 rats each (HADYEK 64583101/2019/122-28.11.2019). The CON group underwent no procedures, while the SM200 group received a daily oral gavage of silymarin at a dose of 200 mg/kg for three consecutive days, starting from day 0. The CIS group received a single intraperitoneal dose of cisplatin at 7mg/kg, and rats were sacrificed under anesthesia 72 hours later. The CIS+SM50 group received 25 mg/kg/day of silymarin on day 0, followed by intraperitoneal administration of 7 mg/kg/day of cisplatin 2 hours later. The CIS+SM200 group received 100 mg/kg/day of silymarin on day 0, followed by 7 mg/kg/day of cisplatin 2 hours later. Silymarin administration continued in both treatment groups until the 3rd day.

Results: Results indicated no significant differences between groups in longitudinal (CON: 20.98±1.01 mm, CIS: 19.87±2.8 mm) and transverse diameter measurements (CON: 11.36±0.5 mm, CIS: 11.24±0.5 mm). Basal lamina thickness decreased from CON: 6.71±0.7 mm to CIS: 3.72±1.11 mm ($p<0.01$), increasing to 4.88±0.98 mm in CIS+SM50 and 5.51±0.8 mm in CIS+SM200 ($p<0.01$). Tunica albuginea thickness was CON: 35.23±3.28 µm, CIS: 24.37±4.76 µm ($p<0.01$), with CIS+SM200 showing a significant increase to 30.19±7.25 µm compared to CIS ($p<0.01$). Arterial diameter was CON: 21.4±2.21 µm, CIS: 18.26±2.97 µm ($p<0.01$), and CIS+SM200 had a significant value of 20.31±2.89 µm compared to CIS. Peritubular atrophy rate was CON: 6.7%, increased to CIS: 74.1%, and decreased to CIS+SM200: 32%. Sperm count was CON: 1.61×108. CIS: 1.07×108 ($p<0.01$), and CIS+SM200 was 1.26×108, indicating a significant difference compared to CIS ($p=0.0062$).

Conclusion: In conclusion, silymarin administration exhibited dose-dependent positive effects on cisplatin-induced testicular damage.

Keywords: Cisplatin, silymarin, rat, testis, morphology

OP-43

Experience with cost-effective modified plastination technique

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Objective: The shortage of cadaver donations in many countries has encouraged the development of new tissue preservation techniques. The plastination technique increases the durability and efficiency of cadaver materials. However, the process is expensive due to the required special laboratory equipment and patented chemicals. This study presents the experience of the modified plastination technique. The technique can be applied using tools that are readily available in standard anatomy laboratories, along with cheap and easily obtainable chemicals.

Methods: Five fresh lamb hearts and two formalin-fixed bovine brains were used. In the fixation step, the hearts were immersed in solutions containing 5% and 10% formalin for 1–2 weeks. For the dehydration, the hearts gradually immersed in an acetone bath with increasing concentrations of 80%–90%–100% and directly 100% acetone. And then, the samples were placed in a glycerin pool for three weeks before being embedded in cornstarch for the curing process. The same steps were applied to the bovine brains, except for the fixation process. The study evaluated the impact of various fixation and dehydration methods on putrefaction-odour-flexibility and softness.

Results: It was determined that the samples obtained were soft-flexible,and durable. No putrefaction was observed samples which in a 5% formalin solution. It was found that the samples placed in increasing concentrations of acetone were more flexible.

Conclusion: The samples obtained with this method can be safely used in anatomy education due to reduced formaldehyde exposure. It will enable the development of clinical skills and the planning of surgical simulation models by preserving anatomy and tissue flexibility.

Keywords: Fixation, tissue preservation, plastination

OP-44

Jugular diverticulum in the pars basilaris of the occipital bone: a rare case report

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Objective: Surgeons performing temporal bone-related procedures must be aware of vascular canal variations. These variations include high-rising jugular bulb,dehiscent jugular bulb, jugular bulb diverticulum and sigmoid sinus bulging. Jugular bulb is where lateral dural venous sinuses meet as they pass through jugular foramen. Two most common abnormalities of jugular bulb are a high-rising jugular bulb and a jugular bulb diverticulum. Etiology of these abnormalities is not fully understood. Jugular bulb diverticulum is an irregular extension of jugular bulb that extends into upper surface of petros part of temporal bone, tympanic cavity, endolymphatic duct, or tvestibular aqueduct. Abnormalities in this area may affect vestibular aqueduct, facial nerve, and posterior semicircular canal,which are located near jugular bulb.

Case: 72-year-old woman presented to ENT outpatient clinic with complaints of dizziness that had persisted for one month. Upon examination, right geotropic horizontal nystagmus was detected. MRI of brain revealed bony defect in left pars basilaris of occipital bone, which was continuous with jugular bulb. Patient underwent brain CT angiography and brain CT venography examinations as specialists were still skeptical about mass. Findings supported jugular diverticulum. Clinical symptoms were determined to be unrelated to diverticula, and appearance was deemed incidental. Therefore, surgical intervention was not necessary. Patient's complaints improved after undergoing right apogeotropic gufoni application.

Conclusion: We wanted to share this extremely rare variation that may be missed in MRI and CT reporting or confused with other pathologic conditions such as masses. Preoperative knowledge of the variations of vascular structures in temporal bone will guide physicians to prevent serious complications.

Keywords: Jugular bulb, jugular bulb diverticulum, temporal bone

OP-45

Morphometric measurements of embryo organs obtained from curettage material

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Objective: In this study, it was aimed to obtain embriyonic tissues from curretage material and to measure the obtained tissues morphometrically. This study was determined as preliminary study that would be conducted with a large number of cases and evaluated according to medical history of pregnant women.

Case: From the material taken from a 32-year-old pregnant women at 8 weeks and 4 days of age, 2 upper, 2 lower extremiti-

es, lung and brain tissue were detected. For upper extremities, measurements included length and width of the hand. Hand length was 0.25 cm for both right and left extremities, while hand width was 0.40 cm for the right hand and 0.45 cm for the left hand. For lower extremities, foot length and width were measured, both recording 0.20 cm and 0.30 cm, respectively. Lung measurements involved medial edge length, lateral edge length, and width at the widest area, measuring 0.60 cm, 0.70 cm, and 0.25 cm, respectively. Central nervous system measurements included horizontal and vertical lengths of the brain tissue, measuring 0.75 cm and 0.65 cm, respectively. The CNS length, including the medulla spinalis line, was 1.20 cm.

Conclusion: The study successfully conducted morphological and morphometric analyses on the embryonic tissues obtained from curettage material, aligning with Carnegie Stages. However, comprehensive literature for comparison of measurements was lacking.

Keywords: Morphometric measurement, limb development, lung development, central nervous system development

OP-46

Morphology and typing of the peroneus brevis tendon

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Objective: The peroneus brevis muscle (MPB) is still in the process of evolution, and it is suggested that it tends to develop the peroneus digiti quinti. This insertional tendon attaches to the proximal or middle phalanx of the little toe, found in monkeys. However, when tendon variations of MPB are observed, it may result in ankle pain, especially radiating from the ankle to the base of the fifth metatarsal bone. In this study, it was aimed to reveal relationship of MPB with peroneal tubercle and insertion sides.

Methods: In our study, peroneal region dissections were performed on 25 fixed lower extremities (15 males, 10 females) (mean age 69.48±14.39 years) in the inventory of Mersin University Anatomy Department. The tendons of the MPB, peroneal retinaculum and tubercles were revealed. MPB was classified according to adjacent formations, its relationship with the tubercle and its bone adhesion pattern.

Results: According to adhesion pattern, it was determined that MPB had a thin additional tendon extending to the distal phalanx of the fifth toe in 14 (56%) feet. In 11 (44%) feet, it was the MPB was attached to the base of the fifth metatarsal bone as a single tendon. In all feet, the MPB passed through the upper and anterior surface of the peroneal tubercle without exception.

Conclusion: Our study recorded that MPB showed different attachment site patterns and extended to the base of the fifth finger. Revealing and illuminating this diversity, especially through dissection studies, will contribute to invasive procedures in the region.

Keywords: Musculus peroneus brevis; peroneal tubercle; cadaver

OP-47

The importance of anatomy in the specialty training of general surgery assistants: a preliminary study

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Objective: The aim of this study is to evaluate the pre-graduation anatomy training of general surgery residents and to reveal their views and needs regarding anatomy during the specialty training process.

Methods: After obtaining the necessary institutional permissions, the questionnaire form prepared using the Google survey application was shared online with physicians from different stages of general surgery speciality training. Participants were asked questions about their demographic characteristics and anatomy training during their undergraduate and specialist training, and all results were statistically analysed.

Results: A total of 45 general surgery residents from four different provinces and six different hospitals participated in the research. 77.8% of the participants are male and the mean age is 28.8±2.5. Of the 36 people who stated that cadavers were used in anatomy practice courses, 86.11% stated that only prosection, 8.33% said only dissection, and 5.56% stated that both dissection and prosection methods were used. Anatomy integration should be included in specialty training according to 66.7% of residents. It was determined that senior residents who had completed two years of specialty training found it more necessary to include anatomy integration in this process than those who had not completed it (p=0.044). In addition, it was determined that those who had just started their specialty training needed anatomy-related books and atlases more often than senior residents (p=0.034).

Conclusion: This study identifies the importance of anatomy knowledge in general surgery training and also highlights the importance of anatomy knowledge and experience in the integration of training.

Keywords: General surgery, specialty training, anatomy, integration

Poster Presentations

(PP-01 — PP-26)

PP-01

Effect of 3,3'-diindolylmethane (DIM) treatment on rat heart tissue

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Objective: In this study, we attempted to investigate the morphological effects of 3,3'-diindolylmethane (DIM) on heart tissue.

Methods: 36 male Wistar rats (8 weeks-old, weighing between 220–260 g) were divided into 4 groups as control (sweetcorn oil treatment), DIM-10 (DIM treatment at 10 mg/kg dosage), DIM-50 (DIM treatment at 50 mg/kg dosage) and DIM-100 (DIM treatment at 100 mg/kg dosage). DIM was resolved in sweetcorn oil and all treatments were applied via oral gavage for 53 days. Rats were euthanized at the end of the experiments by intraperitoneal application of Xylazin (4 mg/kg) and ketamin (40 mg/kg) anesthesia following 12 hours long night starvation. Hearts were fixed in 10% buffered formaldehyde solution. After the fixation, tissue processing was applied. Later, 4 mm thick tissue sectioning from paraffin blocks was done. Following the sectioning Masson&Trichrome stainings were performed. Finally microscopic examination was done.

Results: Control group heart tissue had a normal histological structure. Cardiac muscle fibers (myocytes) with pyknotic nuclei and eosinophilic cytoplasm were observed in the DIM-10 treatment group heart tissues. In addition to the findings of the DIM-10 group, karyorrhexis and cytoplasmic granulations were detected in DIM-50 heart tissue myocytes. Besides the findings of DIM 10 and 50 groups, an increase in endomysium gaps, capillary dilatations and fibrinization in capillaries were observed in the heart tissues of the DIM-100 group.

Conclusion: It was determined that DIM had toxic effects on the heart tissue in all treatment groups, in direct proportion to the dose administered.

Keywords: 3,3'-diindolylmethane, heart tissue, morphology

PP-02

Complex variation of the lateral and medial circumflex femoral arteries

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Objective: The purpose of this study is to report origin characteristics of the branches of lateral circumflex femoral artery (LCFA) and medial circumflex femoral artery (MCFA) to contribute to literature and guide relevant physicians.

Case: We observed that the LCFA originated posterolaterally as a common root with the deep femoral artery (DFA), and MCFA originated distal to DFA at a distance of 5.5 cm from the common root. The LCFA gives two ascending branches and proceeds inferiorly to the lateral side. It then gives a root branch towards the lateral side and continues as a descending branch. This branch directs laterally and trifurcates, giving transverse and descending branches. According to classical anatomy books, MCFA arises more distally and divides into transverse and descending branches. The upper part of the thigh did not have an ascending branch and diameter of MCFA at its origin was 0.45 cm.

Conclusion: The branches of the LCFA can be utilized in vascularized iliac transplantation, an anterolateral pedicled tissue flap, or a graft in various bypass surgeries. The branches of the MCFA can also be used as flap tissue, may be at risk during surgical interventions on the hip joint. It is important to know the variations of both arteries for clinical practice,

Keywords: Femoral artery, cadaver, variation

PP-03

Morphometric examination of abductor digiti minimi and palmaris brevis muscles in human fetuses

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Objective: Palmaris brevis (PB) and abductor digiti minimi (ADM), located on the ulnar side of the hand, are the muscles of the hypothenar region.In this study,it was aimed to type PB and ADM according to their origin and insertion and to examine morphometric features of these muscles.

Methods: 16 sides of 8 fetuses (mean age: 25.50±4.629 weeks, 2 boys, 6 girls) in the Anatomy Department, were dissected. Dissection was performed using a surgical microscope (Carl Zeiss Meditec AG, OpmiPico Model S100, Germany) at×10 magnification and photographed. PB and ADM origin and insertion were determined. The length, width and area of the muscles were measured. Descriptive statistics of the findings were made. The study was conducted in accordance with the Declaration of Helsinki.

Results: In the classification according to the origin and insertion, it was detected PB was 1 type and ADM was 3 types. It was found that PB was not present in 6 (37.5%) sides. In the 10 (62.5%) sides, it was found that PB originate from the retinaculum flexorum and palmar aponeurosis and inserted in the skin of ulnar side.It was detected that the origin of ADM was frequently (13 sides, 81.25%) tendon of flexor carpi ulnaris muscle and its insertion was frequently (14 sides, 87.5%) proximal phalanx of fifth finger. The mean length, width, area of PB and ADM were respectively 4.86±1.3mm, 3.31±1.06 mm, 15.6±6.46 mm^2, 15.25±3.74 mm, 2.7±1.08 mm, 29.17±14.82 mm^2.

Conclusion: PB can be used as vascular pedicle flap in surgeries in hypothenar region. ADM is important for common wrist and hand surgical procedures.Knowing the variations and anatomical features of PB and ADM is important in surgeries to hypothenar region.

Keywords: Dissection, fetus, hypothenar region, abductor digiti minimi muscle, palmaris brevis muscle

PP-04

Examination of pretendinous bands in the distal connections of musculus gracilis and musculus semitendinosus muscle tendons

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Objective: In surgeries requiring tendon grafts such as anterior cruciate ligament reconstruction, the tendons of the muscles Gracilis and Semitendinosus are frequently used. By utilizing the technique of peeling the tendons' fibers from the pes anserinus region where they attach distally to the tibia and extending proximally into the muscle, it is possible to expose the tendon's fibers in a long line. During this peeling process, the pretendon bands in the distal section of the tendon may cause fragmentation. Our goal is to examine the tendons and bands at the disattachment site of the musculus Gracilis and Semitendinosus.

Methods: Total of six cadavers from Anatomy Department of Ankara University. Starting from medial proximal tibia, the sartorius was lifted, revealing the tendons of the muscles gracilis, semitendinosus underneath. During dissection, the structure of the tendon, presence, number,direction of pretendinous bands, length of limbs were recorded.

Results: Twelve extremities from six cadavers, pretendenous bands attaching from the inferolateral side to the tendon and starting from medial sight were identified. The distance of this bands to the tibial insertion site ranged from 62 mm–75 mm. Alongside the thick band, the presence of bands between tendons was observed, ranging lateral to medial from 14–39 mm.

Conclusion: Understanding the approximate location, direction of bands during the extraction of tendons from muscles is crucial. Careful dissection of the region up to 7 cm during the separation of the tendon from surrounding tissues allows for obtaining longer and thicker tendon grafts.

Keywords: Dissection, pretendinous bands, tendon graft

PP-05

Origin variation of the inferior phrenic artery in an adult cadaver

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Objective: Inferior phrenic artery is an important artery supplying the lower surface of the diaphragm. The origin variations of the inferior phrenic artery are quite diverse. In this study, it was aimed to describe the origin variation of the inferior phrenic artery in an adult cadaver.

Case: An origin variation of the inferior phrenic artery was identified in a 65-year-old male cadaver dissected for educational purposes. In this case, it was determined that the inferior phrenic artery started with a common trunk from the abdominal aorta just below the diaphragm. This common trunk was observed to be the first branch of the abdominal aorta. After travelling 17 mm, the common trunk was divided into right inferior phrenic artery and left inferior phrenic artery. It was determined that the left and right inferior phrenic artery which

separated from this trunk travelled upwards, backwards and laterally just in front of the right and left crus of the diaphragm.

Conclusion: The inferior phrenic artery is clinically important because it is the main artery supplying the diaphragm and provides collateral circulation after hepatic artery ligation which is one of the methods used in the treatment of liver cancer. Therefore, it is important to know the origin and course variations of the inferior phrenic artery.

Keywords: Inferior phrenic artery, diaphragm, variation

PP-06

Morphometric and morphological evaluation of the superior articular facet of the atlas

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Objective: Understanding the detailed anatomy of the atlantooccipital joint is crucial in diagnosis and surgical treatment of craniovertebral junction anomalies. Changes in the morphology of the superior articular facet (SAF) of the atlas, one of the surfaces that forms the joint, can lead to instability, restricted movement, hypermobility, and vascular and neurological symptoms. This study aims to investigate the morphology and morphometry of SAF of the atlas, which is one of the surfaces that forms the joint.

Methods: Seventy atlases from the bone collection of Department of Anatomy, Faculty of Medicine, Dokuz Eylül University, with unknown age and gender, were examined. Measurements were taken using digital caliper and macroscopic examination and digital calipers.

Results: The anteroposterior length of the SAF was measured as 23.08±2.61 mm on the right side and 23.29±2.54 mm on the left side. The transverse length of SAF was measured as 11.06±1.20 mm on the right side and 11.09±1.03 mm on the left side. The shape of the SAFs were evaluated macroscopically and classified in three types. The types and frequencies were as followinfg: 50 (39.1%) were eight-shaped, 29 (22.7%) were kidney-shaped, and 19 (14.8%) were oval-shaped.

Conclusion: Successful surgical treatment of craniovertebral joint requires a detailed understanding of the anatomy of the atlas. The data obtained from our study is important in terms of our large number of bone collection from a spesific geographic region and may be helpful for clinicians, who perform surgical treatments of craniovertebral joint.

Keywords: Superior articular facet, atlas, morphometry, morphology

PP-07

Effect of nicotinamide riboside application on sepsis induced rats' hearts

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Objective: In this study, we tried to examine the effect of nicotinamide riboside (NR) heart tissues of sepsis applied rats.

Methods: 21 Sprague Dawley rats (200–250 g, 6–8 weeks old) were randomly divided into 3 groups. No experiment was applied on control group rats. Sepsis was formed via cecal ligation and puncture (CLP) on second and third groups rats. Third group rats were exposed to intraperitoneal nicotinamide riboside (NR) (200 mg/kg) application before CLP procedure and 12 hours after CLP procedure. After 24 hours following CLP application rats were euthanized and organs were removed for further analysis. Heart tissues were stained with stainings with hematoxylen&eosin following tissue processing.

Results: Heart tissues of control group rats were normal histologically. Heart tissues of sepsis induced group rats exhibited degenerated cardiomyocytes and disrupted tisse architecture. Also, Edema-related swelling and detachment were detected in cardiomyocytes. Interstitial edema and enhanced endomycium spaces were observed. Cardiomyocytes showed strong eosinophilic staining and pyknotic nuclei. Third group rat (sepsis induced and NR applied) tissues showed greater histological structure in contrast to second group rats' heart tissues (only sepsis induced). NR application caused decline in cellular and interstitial edema. This application also induced lymphocyte infiltration. Additionally, thin reticular fibrillar structures and small calcified regions were available in the same group.

Conclusion: NR application exerts positive effects on hearts of sepsis induced rats

Keywords: Sepsis, nicotinamide riboside, heart tissue

PP-08

The unusual ligament of the temporomandibular joint: ligamentum retinaculare

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Objective: The ligamentum retinaculare (LR), which attaches above to the capsula articularis of the temporomandibular joint

(TMJ) and extends along the vicinity of the ramus mandibulae, continuing with the fascia masseterica, has been demonstrated in a study in the literature. The aim of our study is to focus on the anatomical characteristics of this rarely seen ligament, aiming to understand the anatomical and functional connection between the TMJ and the musculus masseter.

Case: During macroscopic studies at Kırıkkale University Faculty of Dentistry's Department of Basic Medical Sciences Laboratory, dissection of a 91-year-old cadaver was performed. The superficial structures were removed starting from the front edge of the auricle on bilateral of the face. On the left side, the glandula parotidea was not present; however, in the expected region of this gland, the LR was observed on the back-side of the face. The ligament, connecting with the capsula articularis above, was seen to extend downward and continue with the fascia masseterica. The posterior border of the ligament terminated freely, forming a concave opening facing backward. On the right side, the glandula parotidea was found to be hypoplastic, and there was no LR deep within.

Conclusion: Orthodontic problems, bruxism, traumas, and stress, along with accessory anatomical structures in the region, can generate asymmetric forces on the TMJ. Our case, demonstrating a unilateral instance of the rarely observed LR, defines an accessory ligament contributing to stability and function in the joint.

Keywords: Temporomandibular joint, ligament, variation

PP-09

Musculus psoas quartus: possible effects of such a unusual muscle presence in daily life

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Objective: M. psoas major, m.iliacus and m.guadratus lumborum are the muscles responsible for spinal flexion, rotation and pelvic tilt. The presence of anusual muscles in this area may cause symptoms such as movement limitation and pain.

Methods: Pelvis dissection was performed during training dissections in the anatomy laboratory of Ege University, Faculty of Medicine. Variation was observed in the iliacus muscle.

Results: It was determined that the medial half of the m.iliacus started at a higher level, from the anterior surface of the deep fascia of the quadratus lumborum muscle, and joined the m. iliacus distally. Tubbs describes the psoas quartus variation lateral to the psoas major muscle. He described it as originating from the proc. transversus and the medial aspect of the quadratus lumborum muscle. Few variations of the psoas major muscles have been reported in the literature. Tubbs et all reported a variation of the psoas called the "psoas quartus muscle". Perhaps aggressive femoral nerve growth during the fourth or fifth week of development may have been the cause of disruption of the undifferentiated iliacus-psoas muscles, leading to "redirection" of the development of the typical iliopsoas musculature into multiple variations.

Conclusion: In anterior pelvic tilt, m.quadratus lumborum is stretched. Such a muscle band associated with it will have a negative impact on this physiological situation. In the pelvic rotation that occurs during walking, muscle variations in the pelvis or accessory muscle fibers may also affect the n.femoralis.

Keywords: Psoas major muscle, iliac muscle, anatomy, variation

PP-10

A case of left vertebral artery hypoplasia

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Objective: Many variations can be seen in the vertebral artery (VA) and basilar artery (BA) and their branches, which form the vertebrobasilar system. Variations in VA branching have an important place in radiological and surgical anatomy. Classically, the VA arteria is examined in 4 sections after emerging from the first section of the subclavia (Pars prevertebralis V1 / Pars transversaria V2 / Pars atlantica V3 / Pars intracranialis V4).

Case: During the dissection of the head and neck region of a 64-year-old male cadaver in our anatomy department in the 2022–2023 dissection period, hypoplasia was observed in the left side vertebral artery. The diameter of the left vertebral artery in the V4 section was measured as 1.7 mm. The diameter of the right side vertebral artery was measured as 5.2 mm.

Conclusion: Evaluation of VA arteriograms, radiological definitions before surgical or endovascular interventions, and knowledge of anatomical variations will minimize possible complications. Knowing these variations will increase the success rate of operational and interventional medicine practices and will also help prevent complications.

Keywords: Vertebral artery, anatomy, variation

PP-11

A rare variation on the dorsum of the hand: musculus extensor medii brevis

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Objective: Variations of muscles on the dorsum of hand are seen very common. However most anatomic variation is incidentally recognized during hand surgery. The musculus extensor medii brevis is a rare anatomical variation of the musculus extensor digitorum brevis of insertion to the metacarpophalangeal joint of the third finger.

Case: During routine dissection of the extensor compartment of the forearm for anatomy education, variant muscle was observed inserting on the ulnar side of the metacarpophalangeal joint of the third finger on the dorsum of the left hand of an adult male cadaver. The muscle originated from the radiocarpal ligaments within the 4th extensor canal of the distal radius. It has a wide body with oblique extension between 2nd-3rd tendons of the extensor digitorum muscles.

Conclusion: The understanding and correct identification of rare variations of muscles and tendons on the dorsum of the hand, such as the variational muscle we observed, will contribute to the success of hand reconstruction surgery.

Keywords: Musculus extensor medii brevis, dorsum manus, anatomic variations

PP-12

Evaluation of morphometry and morphology of zygomatic arch on cone-beam computed tomography images

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Objective: To evaluate the morphometric and morphological features of zygomatic arch on cone beam computed tomography (CBCT) images and evaluate the usability of zygomatic arch instead of Frankfort horizontal plane.

Methods: In this retrospective study, CBCT images of 130 adults (mean age: 38.43±16.20 years, 60 males, 70 females) were analyzed with Planmeca Romexis Viewer program. Approval was received from the Clinical Research Ethics Committee (2023/317). The length, angle, height of zygomatic arch, angle between line passing through superior border of zygomatic arch and Frankfort horizontal plane, distance between jugale and inferior border of zygomatic arch, jugale angle were measured. Typing was made according to the shape of zygomatic arch. Statistical analyses were performed with SPSS 22.0 package program.

Results: A statistically significant difference was found between genders in length of zygomatic arch and jugale angle ($p<0.001$ and $p=0.037$, respectively). In zygomatic arch angle, the left side (134.53±6.69°) had statistically higher values than the right side (129.78±8.06°) ($p<0.001$). Zygomatic arch types were 29.6% flat, 40.4% curved and 30% wavy. There was no statistically significant difference in angle between line passing through superior border of zygomatic arch and Frankfort horizontal plane between the sides and between genders.

Conclusion: Considering morphometric variables related to zygomatic arch length and jugale angle, the significant difference between genders may contribute to clinical or forensic medical evaluations. The line passing through superior border of zygomatic arch can be used as an alternative to Frankfort horizontal plane as a reference line in clinical applications and anthropological studies.

Keywords: Zygomatic arch, cone beam computed tomography, anatomy, morphometry, morphology

PP-13

Examination of the changes in the myotonometric properties of some head, neck and back muscles before and after exercise according to axial trunk rotation in patients with adolescent idiopathic scoliosis

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Objective: Adolescent idiopathic scoliosis (AIS) is a 3D spinal deformity consisting of lateral deviation and axial rotation of spine that develops during growth. Spinal musculus is closely related to head and neck muscles, such as sternocleidomastoi-

deus muscle. In this study, according to axial trunk rotation in AIS patients, We aimed to contribute to literature by examining changes in biomechanical properties of sternocleidomastoideus muscle.

Methods: This study was planned as prospective and descriptive. Study included 46 individuals (34 females, 12 males) who applied to Gaziantep University Department of Orthopedics and Traumatology, were between ages of 10–18, were diagnosed with AIS by relevant physician, and hadn't spinal deformity on all spine radiographs. Individuals who had undergone spine surgery, didn't have idiopathic scoliosis, had orthopedic, muscular, neurological diseases accompanying their scoliosis weren't included in study. Cobb angle was measured on AP radiographs. MyotonePro device, which is valid in literature was used to measure tone, hardness and elasticity of m. sternocleidomastoideus.

Results: There is a statistically significant difference between pre-post-exercise D measurements of left m.sternocleidomastoideus in the participants. Left m. sternocleidomastoideus D measurement increased in second measurement. A statistically significant positive relationship was found between right sternocleidomastoideus S measurement and thoracic Cobb angle (p=0.045). A statistically significant negative relationship was found between left m.sternocleidomastoideus D measurement and lumbar Cobb angle (p=0.045).

Conclusion: It has been determined that hardness and elasticity of m. sternocleidomastoideus may affect thoracic and lumbar Cobb angles. It is thought that knowing these changes may contribute to clinic.

Keywords: Adolescent idiopathic scoliosis, myotonepro, musculus sternocleidomastoideus

PP-14

Evaluation of "sexist" and "racist" approaches in anatomy education

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Objective: As in all areas of life, there are inequalities between individuals in the field of medical education. The way to eliminate these inequalities is to eliminate those who produce inequalities, but questioning inequalities is also an important step. The aim of this study is to reveal what extent sexist and racist approaches are used in anatomy education with or without awareness.

Methods: In order to reveal sexist and racist approaches in anatomy education, the figures in 3 anatomy atlases and 3 textbooks written in English, which are widely used, were evaluated. The figures in these textbooks whose sex and skin color were evident, were examined by 2 observers and the phenotypic characteristics of the people in these figures were evaluated.

Results: Within the scope of this study, more than 1500 figures and drawings were analyzed in terms of "sex" and "race". Most of the figures in these books and atlases had the phenotypic characteristics of "western", "white" and "male". The number of "non-white" and "non-male" figures was less than 3%.

Conclusion: According to the observed data, it was found that the most frequently used sources in anatomy education were overwhelmingly dominated by "western", "white" and "male" figures. We think that this situation may lead to the problem of misinterpretation of "norms" in the education of individuals, and that it is important to creating awareness with public resources to change this situation.

Keywords: Anatomy education, anatomy atlas, sex, race

PP-15

Evaluation of the lesser wing of the sphenoid bone on cone-beam computed tomography images

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Objective: Lesser wing of sphenoid bone participates in formation of many anatomical transition zones (e.g.,optic canal or superior orbital fissure) containing important neurovascular structures. During approaching lesions arising from superior orbital fissure with pterional technique, lesser wing may be removed. Additionally, surgical interventions can be performed on cavernous sinus by following lesser wing from lateral to medial. This study aimed to examine morphometric features of lesser wing of sphenoid bone radiologically.

Methods: Ethic approval was obtained from Gaziantep University Clinical Research Ethics Committee (2023/319). Cone-beam computed tomography images of 100 adults (mean age: 38.20±18.40, 50 males, 50 females) in Gaziantep University Faculty of Dentistry, Department of Oral and Maxillofacial Radiology were analyzed retrospectively with Planmeca Romexis Viewer program. In the study, length, angle, midpoint width of lesser wing were measured. Using

Pearson correlation tests, direction of relationship between parameters identified.

Results: Length, angle and midpoint width of lesser wing were measured as 40.56±2.96 mm, 114.81±7.98° and 12.20±2.69 mm, respectively. Its length was greater in males (41.32±3.33 mm) than that in females (39.80±2.30 mm) (p<0.001). Its midpoint width was greater in left side (12.71±2.56 mm) than that in right side (11.69±2.75 mm) (p=0.008). A weak positive correlation was found between the angle and length of lesser wing (r=0.147, p=0.038).

Conclusion: Our data related to the length and angle of lesser wing of the sphenoid bone may be useful in terms of surgical planning during interventions in which this wing needs to be removed.

Keywords: Sphenoid bone, lesser wing, cone-beam computed tomography

PP-16

Examination of morphometry and morphology of the frontal sinus on cone-beam computed tomography images

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Objective: Determining morphometric and morphological features of the frontal sinus (FS) may help clinicians in frontal bone traumas, cranioplasty applications, inflammatory sinus diseases and endoscopic sinus surgeries. This study aims to present a comprehensive anatomical data set for surgical procedures to be performed in around FS.

Methods: Ethic approval was obtained from Gaziantep University Clinical Research Ethics Committee (2023/320). Cone-beam computed tomography images of 40 adults (mean age: 42.43±17.27 years, 17 males, 23 females) in Gaziantep University Faculty of Dentistry, Department of Oral and Maxillofacial Radiology were analyzed retrospectively with the PlanmecaRomexisViewer program. Firstly, the incidence of FS (unilateral/bilateral) was noted. The width, length, height, and also the thickness of anterior and posterior walls of SF were measured. Finally, pneumatization of FS was examined. Statistical analyses were performed with SPSS for Windows version 22.0 package program and p<0.05 was considered statistically significant.

Results: Bilateral FS was detected in 36 (90%) of the patients, while unilateral FS in 4 (10%). The width, length, height and anterior and posterior wall thicknesses of FS were measured as 19.69±8.27 mm, 9.79±3.18 mm, 19.92±7.21 mm, 3.91±1.54 mm, and 3.23±1.57 mm, respectively. FS was observed as follows: aplastic in 8 cases (10%), hypoplastic in 3 cases (%3.8), normal in 65 cases (81.2%) and hyperplastic in 4 cases (5%). The average length of FS was lesser in females (9.13±3.07 mm) than in males (10.75± 3.15 mm) (p=0.028). No statistically significant difference was found between the right and left sides in terms of measurements.

Conclusion: Knowledge about FS variations before surgical procedures is important to reduce complications that may occur during surgical procedures.

Keywords: Frontal sinus, conical beam computed tomography, pneumatization

PP-17

Morphometric and morpholojik evaluation of the proximal tibia

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Objective: The aim of present study is to obtain the proximal tibia dimensions to be used in the design of total knee prostheses suitable for Turkish population.

Methods: Fifty dry human tibia bones (36 right, 14 left sides) of unknown ageand sex were examined from the bone collections in Laboratory of the Anatomy Department of Dokuz Eylul University Medical School. Official. The study parameters measured with caliper in milimeters were established as follows: minimum, maximum and mean antero-posterior(AP), transverse diameters and areas of the medial and lateral condyles of dry tibia bones, transverse length of total tibial condyles.

Results: The mean AP length of medial condyle (MC) was 45.39±3.62 mm and mean AP length of LC was 39.02±3.35 mm. The mean TL of MC was 29.99±2.65 mm and the mean TL of LC was 29.32±2.87 mm. The study found that the MC area was 1093.75±148.61 mm^2 on the right, 1137.50±205.40 mm^2 on the left, and 1106.00±165.41 mm^2 on average. The LC area was 990.28±146.05 mm^2 on the right, 1058.93±207.69 mm^2 on the left, with a mean of 1009.50±166.28 mm^2.

Conclusion: We hope that the results of the present study will provide useful information about the anatomic and morpholo-

gic features of the tibia in the design of the tibial component of the knee prostheses used in Türkiye.

Keywords: Tibia, condyle, area

PP-18

Unilateral linguo-facial trunk

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Objective: The main artery in the blood supply of the head and neck region is the external carotid artery (ECA), and it's branches are superior thyroid artery, ascending pharyngeal artery, lingual artery (LA), facial artery (FA), occipital artery, posterior auricular artery, superficial temporal artery maxillary artery. Variations are observed in the origin of these arteries from the ECA. This study aims to present the unilateral linguofacial trunk (LFT) case.

Case: During the routine neck dissections performed in the Anatomy Laboratory of Dokuz Eylul University Faculty of Medicine, it was observed that the LA and FA originating from the ECA on the right side in a 67-year-old male cadaver fixed with formaldehyde, originated from a common trunk. The length of this trunk was measured as 9.19 mm. The distance of the point where the LFT originated from the ECA to the carotid bifurcation was 21.44 mm, and the vertical distance to the horizontal plane passing over the carotid bifurcation was 16.23 mm. The vertical distances of the point where the LFT originated from the ECA and divided into LA and FA to the horizontal plane passing over the hyoid bone were 13.15 mm and 24.30 mm, respectively.

Conclusion: Variations in the branching of the ECA are important in terms of surgery and radiology. Previous studies have reported that LFT occurs in a wide range, between 6% and 20%. Clinicians must be aware of these variations when performing head and neck surgery, maxillofacial surgery, radiological and diagnostic procedures.

Keywords: Facial artery, lingual artery, linguo-facial trunk, external carotid artery

PP-19

Anthropometric evaluation of the orbital region in children aged between 4–18 years

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Objective: This study aimed to examine the orbital region in healthy children between the ages of 4–18 using two-dimensional photogrammetry.

Methods: This study is a master's thesis project supported by Gaziantep University Scientific Research Projects Unit (TF.YLT.22.81). Before starting the study, ethical approval was obtained from Gaziantep University Clinical Research Ethics Committee (2022/277). Photographs were taken of 150 children (75 girls and 75 boys) between the ages of 4–18, who applied to Pazarcık State Hospital for routine controls and did not have any known diseases. On these photographs, five anthropometric measurements (p-p) were performed with the ImageJ program as follows: endocanthion-endocanthion (en-en), excocanthion-excocanthion (ex-ex), right endocanthion-excocanthion (right en-en), left endocanthion-excocanthion (left en-en), and pupil-pupil. Statistical analyses were performed with SPSS for Windows version 22.0 package program and $p<0.05$ was considered statistically significant.

Results: Right en-ex, left en-ex, en-en, ex-ex and p-p were measured as 35.54±3.01 mm, 35.41±2.98 mm, 45.09±4.33 mm, 114.90±9.15 mm and 80.79±6.85 mm, respectively. No statistically significant difference was detected between genders in all parameters ($p>0.05$). All parameters increased with age ($p<0.001$).

Conclusion: There are limited studies focusing on the anthropometric characteristics of the orbital region in children. Our data may be useful in estimating age-specific orbital-related parameters in children.

Keywords: Eye, orbit, child, anthropometry

PP-20

Evaluation of tibialis anterior tendon attachment site variations in terms of regional surgeries

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Objective: Paralysis or weakness of ankle dorsiflexors, particularly the tibialis anterior muscle (MTA), causes stepping gait, characterized by a plantarflexed ankle (foot drop) during the swing phase of gait and initial ground contact. Initial treatment of foot drop includes using orthotics and muscle and tendon strengthening. However, when there is no improvement, tendon transfer is generally preferred to obtain a stable foot. MTA's insertion fields are important for the procedures. This study aimed to reveal tendon morphometry and insertion patterns of MTA.

Methods: In our study, dissections were performed on dorsal and medial surface of 25 (15 men, 10 women) fixed lower ext-

remities (average age 69.48±14.39 years) in the Mersin University Anatomy Department inventory. Bone structures were revealed along with tendon and extensions of MTA. MTA was classified according to its attachment pattern to bones.

Results: It was recorded that MTA passed in front of the medial malleolus on all feet without exception and inserted into the basis of medial cuneiform bone. Tendon pattern determined three types according to their attachment to the medial cuneiform bone, the first metatarsal bone, and the joint capsule. There was only one tendon in three feet (12%), two tendons in fourteen feet (56%), and three tendons in eight feet (32%).

Conclusion: To prevent possible complications such as damage to tendon of MTA during the preparation of tarsometatarsal arthrodeses, surgeons' awareness of variations in attachment pattern of the MTA tendon in surgery involving the foot and ankle should be taken into consideration for safe surgery.

Keywords: Musculus tibialis anterior, variation, cadaver

PP-21

Aydın Adnan Menderes University Faculty of Medicine vertical integration practice example in the clinical education period of the anatomy course

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Objective: Vertical integration of basic medical sciences courses in the clinical period is important to improve the quality of medical education. The aim of this study is to explain vertical integration studies of Aydın Adnan Menderes University Faculty of Medicine (AAMUFM) anatomy courses in the clinical period.

Methods: Learner-centered education models have reversed the traditional learning flow in recent years, based on the need for students to take an active part in the learning process instead of being passive learners, and have brought to the agenda the practice of students learning the subject that should be explained by the instructor in the classroom, from material recorded electronically, either in the classroom or outside the classroom. In order to ensure vertical integration in the clinical period (Terms 4 and 5) of AAMUFM, anatomy course training videos were prepared at the beginning of some clinical internships. These internships are Chest diseases, Cardiology, Pediatric Neurology and Physical Therapy and Rehabilitation.

Results: At the beginning of their internship at the clinic, students prepare for the internship by watching anatomy course video recordings that are compatible with their internship goals and vertical integration, and they can watch the relevant topic whenever and as often as they want throughout the internship.

Conclusion: We think that vertical integration in the clinical period, especially anatomy, which is one of the basic medical courses, can be diversified with alternative education models and the quality of medical education can be increased by evaluating the feedback received from students.

Keywords: Anatomy, vertical integration, clinical internship, medical education

PP-22

A case of bilateral high-level carotid bifurcation

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Objective: The common carotid arteries (CCAs) are the primary blood supply sources for the head and neck region. These arteries ascend bilaterally from the base of the neck to reach the level of the 4th cervical vertebra (C4). At this level, they align with the upper border of the thyoid cartilage (TC). The region where the CCA branches into its terminal vessels is known as the carotid bifurcation (CB). The purpose of this presentation is to draw attention to the challenges of potential surgeries in the presence of a high-level CB.

Case: During the general studies conducted in the macroscopic laboratory of the Department of Basic Medical Sciences at Kırıkkale University Faculty of Dentistry, dissection was performed on a 91-year-old cadaver. For the purpose of the study, dissection was carried out on the cadaver, starting from the midline of the neck. In our case, the placement of the CB in relation to Gonion, the posterior lower border of the greater horns of the hyoid bone (GH), and the upper edge of the thyroid cartilage (TC) was determined, along with the distances between these structures. Accordingly, on the right side, it was observed that the CB was positioned above all three structures. On the left side, the CB was located below Gonion, and above GH and TC.

Conclusion: Understanding the characteristics, locations, and variations of anatomical structures in the neck region, which are vital, holds significant importance in determining the course of planned surgical operations in the region.

Keywords: Carotid artery bifurcation, high-level location, variation

PP-23

Eponym terms used in gastrointestinal system anatomy

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Objective: Eponym originates from the Greek word "eponumos" meaning to give. The name given by a person to a thing or person; It consists of the words "epi" (on) and "onoma/onyma" (name). In medical terminology, eponym is defined as the name of the person making the description. As a way of scientists who have contributed to scientific progress, anatomical structures, organs and organ parts, diseases, syndromes, medical methods, processes in diagnosis and treatment, operational techniques or substances used in treatment can be used as eponyms. In addition to respected scientists, mythological (atlas bone, etc.) or fictional characters (Rapunzel syndrome, etc.) can also be used as eponyms. Anatomically, the gastrointestinal system (digestive system) is a system where eponymous terms are frequently used. This study aimed to investigate eponymous terms in gastrointestinal system anatomy.

Methods: Eponymous terms in gastrointestinal system anatomy have been identified.

Results: A total of 44 terms were identified in the study. For each term; information about the eponymous term (for example, Bartholin's duct), the anatomical structure corresponding to the eponymous term (ductus sublingualis major) and the scientist named after the eponymous term (Caspar Thomeson Bartholin, Danish anatomist, 1655–1738) are given. In addition, some important examination points related to the gastrointestinal system, which are referred to with eponymous terms (such as Murphy point), are also explained.

Conclusion: According to the findings obtained from this review, we think that knowing the eponymous terms of anatomical structures is important for anatomy education and the use of anatomy information in the clinic.

Keywords: Eponym, terminology, gastrointestinal system anatomy

PP-24

Evaluation of morphometric features of iliopsoas notch

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Objective: The iliopsoas notch is a structure that is located on the anterior acetabular margin and is also known as the anterior acetabular ridge, psoas valley and anterosuperior acetabular depression. This notch is associated with tendon of the iliopsoas muscle. Compression of tendon of the iliopsoas muscle at this notch and related symptoms may occur due to the acetabular component of hip prosthesis that is not suitable for the morphology of the acetabulum. Additionally, there is a negative correlation between the anteversion of the acetabulum and the depth of the iliopsoas notch. The aim of this study is to define the morphometric features of the iliopsoas notch.

Methods: This study was performed with 55 hip bones (29 right, 26 left) in Department of Anatomy, Faculty of Medicine, Hacettepe University. The length and depth of iliopsoas notch were measured.

Results: The mean value of length of iliopsoas notch was measured 26.67±3.39 mm on the right side, 24.10±4.88 mm on the left side, 25.45±4.32 mm in total. The mean value of depth of iliopsoas notch was measured 3.78±1.24 mm on the right side, 3.17±0.99 mm on the left side, 3.49±1.16 mm in total.

Conclusion: We think that knowledge of the morphometric features of the iliopsoas notch will contribute to orthopedists in hip replacement surgery.

Keywords: Iliopsoas notch, morphometry, anatomy, hip replacement

PP-25

Morphological and morphometric evaluation of the scaphoid bone for internal fixation: a preliminary study

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Objective: The scaphoid bone is the most frequently fractured carpal bone following wrist injuries.Although fractures are often treated conservatively, internal fixation is increasingly being used because it allows early physical activity and is associated with high satisfaction of patient. In addition, avascular necrosis of bone is common after fracture and surgical treatment.Knowledge of the location of vascular foramina is important for understanding bone nutrition and assessing the risk of avascular necrosis.The aim of this study was to define various morphological and morphometric features of the scaphoid for appropriate implant selection and to evaluate the risk of avascular necrosis.

Methods: This study evaluated eighteen scaphoids using twenty-three parameters. The scaphoid's maximum length,

longitudinal axis length, and narrowest part of the neck width were measured. The number of vascular foramina was also recorded. The distances of the closest and farthest foramina to the tubercle were recorded. The safe angle range for screwing and the thickness of the proximal and distal part of the tubercle were measured.

Results: The maximum length, longitudinal axis length, and neck width of scaphoids were 26.12±2.78 mm, 11.07±1.65 mm and 24.16±2.6 mm, respectively.The numbers of vascular foramina on the palmar and dorsal surface were 0–9 and 2–25, respectively. No vascular foramen was found on the palmar surface of five bones. In addition, foramen located proximal to the neck was not detected in six of the bones.

Conclusion: Location of fracture is thought to be associated with the development of avascular necrosis and nonunion. Understanding the features of the scaphoid is crucial for accurate screw selection and placement.

Keywords: Scaphoid bone, morphology, morphometry

PP-26

Evaluation of ChatGPT performance in Turkish and English anatomy exams

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Objective: ChatGPT (Chat Generative Pre-trained Transformer) is a highly effective natural language processing application. It is built using deep learning algorithms and trained with a large amount of data. This multipurpose chatbot reads commands placed into it and responds in real time using artificial intelligence. It has various purposes, including answering questions, creating content and summaries, and generating ideas. It has the potential to be used frequently by students and instructors in the field of education. To predict the future impact of ChatGPT on education, it is important to consider both its potential benefits and the risks it may pose.

Methods: This study evaluates the examination performance of the ChatGPT application through face-to-face and online exams administered to students enrolled in the Faculty of Medicine. The questions were presented in a text-only, multiple-choice format on four new accounts. Student performance in face-to-face and online exams and ChatGPT performance were analyzed.

Results: The mean marks of the face-to-face and online multiple-choice exams conducted in Turkish were 59.64 and 84.14, respectively. ChatGPT scored 28.57% and 30.77% in these exams, respectively.

Conclusion: According to our results, it appears that medical students perform better than ChatGPT in anatomy exams. The study's findings indicate that ChatGPT is currently a natural language processing robot rather than artificial intelligence. However, technological developments and feedback can help to ensure that incorrect information is eliminated and the system is optimized.

Keywords: ChatGPT, artificial intelligence, anatomy education

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Table of Contents

Volume **18** / Supplement **1** / March **2024**

Editorial

11th Anatomy Winter Days

Abstracts

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