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Lectures

(L-01 — L-96)

Saturday, **July 10**

08.45: Opening Lecture (Syllaba´s Hall)

Moderator: Báča Václav

L-01

History of the Czech clinical anatomy

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The Prague University was founded 1348 as the 27th one in Europe. The Medical Faculty was its part from the very begin, but the medical curriculum had for several hundreds years a medieval scholastic form, without anatomy. The history of the Czech anatomy started in fact in June 1600, when professor Johannes Jessenius presented the first public anatomical dissection in Prague. But the real development of the anatomy as a full-value part of the medical curriculum began in the Bohemian Kingdom first after the reforms of the Empress Maria Theresia and Emperor Josef the Second during the second half of the 18th century. Into a real scientific discipline it was fluently changed during the 19th century, when in Prag were acting many outstanding anatomists like Prochaska, Purkinje, Ilg, Hyrtl, Gruber, Bochdalek and others. The clinical anatomy proper, substantially oriented on the needs of the clinical disciplines, started to develop first professor Karel Weigner during the thirties of the 20th century. In his tradition continued successfully several generations of Czech anatomists on all seven Czech medical faculties. The most intensive advancement the Czech clinical anatomy enjoys, as both scientific as well as pedagogic discipline, during the last 30 years, above all in connection with the intensive technological development of most clinical disciplines.

09.15: Honorary Lectures dedicated to prof. Stingl (Syllaba´s Hall)

Moderator: Báča Václav

L-02

Scanning electron microscopy of vascular corrosion casts: a means to study growth and regression of blood vessels in normal and diseased tissues and organs?

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As the transport capacity of the blood vascular system is greatly defined by the numbers, the dimensions, the hierarchical

order, and the three-dimensional arrangement of its components, i.e. arteries, arterioles, capillaries, venules, and veins, quantification of vessel diameters, vessel lengths, interbranching distances, and branching angles is of utmost importance. In 1971 the scanning electron microscope was introduced to the study of vascular corrosion casts made from a polymerizing resin and thus vascular beds could be described qualitatively from the macroscopical to the microscopical level with high spatial resolution. Since then new resins with refined physicochemical properties and improved casting protocols, together with the availability of computer-based 3D-morphometry systems, enabled comprehensive spatial measurements of the above mentioned variables from real existing vascular networks from stereopaired scanning electron micrographs. Finally, by careful observations and time course studies of growing and regression vascular beds of normal tissues and organs by SEM of vascular corrosion casts in combination with correlative light microscopy sprouting and non-sprouting angiogenesis (= intussusceptive microvascular growth; IMG) as well as vascular regression could be resolved and demonstrated with unsurpassed clarity. The lecture will give examples and discuss potentials and limitations of SEM of vascular corrosion casting.

A grant from the Fonds zur Förderung der Wissenschaftlichen Forschung, Project 19050 is greatly acknowledged.

L-03

Educational centre for mini-invasive techniques at the Department of Anatomy, Third Faculty of Medicine, Charles University in Prague: the example of clinical anatomy teaching in practice

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During last ten years a unique multimedia educational centre for topographic and clinical anatomy, endoscopy and microsurgery was developed at our Department of Anatomy. A new method of impregnation allowing a broader use of cadavers in interventional medicine has been initiated in 2002. This method was developed by Walter Thiel from Graz. One room of our dissection tract has been converted into an operating theatre with full equipment for mini-invasive techniques – rigid and flexible endoscopic towers with instruments, operative table, operative microscope, X-ray C-arm, etc. The premises of the dissection wing were interconnected by an audio-video network with a wireless connection to the Internet between 2003 and 2006. There is also a graphic studio for creation of materials for instruction. E-learning module project for the Centre started in 2008. Recently, dissection training of medical students includes demonstrations of arthroscopies, laparoscopies, bronchoscopies and gastroscopies. For young physicians the centre provides an advanced approach to the practical training in the field of mini-invasive and endoscopic methods. The Centre represents the maximum progress achievable in the clinical anatomy teaching for students and physicians. E-learning creates a possibility of distant theoretical education before practical experience with cadaver "hands-on" courses.

Grant support: MŠMT 14/71/6b/B/2010

09.45: Session 1 - Invited Lectures (Jonáš's Hall)

Moderator: Tonar Zbyněk, Kluchová Darina, Krivokuća Dragan

L-04

Quantification of microvessels in normal and tumorous organs

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In both normal and pathological histology, microvascular bed is often investigated in order to assess the quality of perfusion of various organs, to devise models of vascular network, to detect age-related changes, to assess angiogenesis and its relation to inflammation and growth of tumours. Our aim is to review stereological methods available for unbiased quantification of microscopic blood vessels in histological sections. The first step is to perform sufficient multistage systematic uniform random sampling of tissue blocks, histological sections and microscopic fields of view. The second step is to visualize the microvessels with histochemistry against basal or reticular lamina or, preferably, with endothelial markers, which are often organ- and species-specific. The third step is to find a quantitative parameter useful for relevant biological question, such as length density, tortuosity, surface density or volume fraction of the microvessels. In series of sections, the orientation and anisotropy can be statistically assessed. When quantifying the valence and numerical density of branching nodes, capillary density can be computed. Microvessels are often routinely quantified in individual histological sections as number of profiles per section area ("microvessel density"). All the steps are illustrated with examples of analysis of microvessels in human brain, in tumorous lymph nodes and quantification of vasa vaso-

rum in large blood vessels. Describing morphological properties of microvessels with use of continuous variables permits us to apply standard statistical procedures and tests to morphometric data.

The study was supported by the Project MSM4977751303, the GACR Project No. 106/09/0740 and the Project KONTAKT ME09090.

L-05

Effects of prenatal application of retinoic acid

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Important role of retinoic acid during the embryonal development is already well known. However, an excess of retinoic acid is just harmful as an insufficiency. Different doses of retinoic acid can influence on the development of rat embryo in different way. In the present study, the influence of different doses of retinoic acid and different manners of application on the rat embryo was investigated. The retinoic acid was administered by oral and intraperitoneal application in the period of gestational days (GD) 8-10 which is known to be sensitive for production of malformations. Pregnant Wistar rats received orally and intraperitoneally all-trans retinoic acid (ATRA), biologically active derivate of vitamin A. ATRA was applied daily for three consecutive days GD 8-10 in doses 50, 40, 30, 20 and 10 mg/kg. The animals were killed on the 22nd day of gestation. Rat uteri were removed, examined externally and photographed. Oral ATRA application in the dose of 10 mg during three consecutive days was followed by the survival of fetuses while after the same and higher doses applied intraperitoneally were fetuses found reabsorbed in uterine horns. Intraperitoneal application of 5 mg ATRA caused survival of malformated animals. Our results confirmed that prenatal administration of retinoic acid during gestational days 8, 9 and 10 make an influence on embryonic development. The different teratogenic effects caused by ATRA depend on the dose and application manner of ATRA to pregnant female.

This work was supported by the VEGA grant No 1/0643/08.

L-06

Exhibitions of human bodies – popular and contraversial

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Exhibition of plastinated human bodies and body parts, which has been touring around the world with constantly updated collection, shocks and fascinates people worldwide. There is a hard legal and ethical debate on somebody's right to display objects that used to be living persons, and who are (according to the author himself) »stopped somewhere between death and final decomposition« in such manner. The conservatives claim about blasphemy, mockery of the divine and the human, whereas the more liberal ones consider his work a »facing with the reality in a radical way and overcoming the death-corps taboo«. Thousands of people decided to allow plastination of their bodies in a manner presented at this exhibition. The idea of everybody's right to dedicate ones body to whatever purpose he wants poses the question, whether plastination, primarily focused on scientific benefit, will become a mass production business.

09.45: Session 2 - Invited Lectures (Burian´s Hall)

Moderator: Csillag András, Feigl Georg, Demiryürek Deniz

L-07

Relevance of diagnostic imaging methods in the teaching of sectional and topographic anatomy

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Modern diagnostic imaging methods have enabled visualization of the anatomical details of the human body with a remarkable degree of precision. The new methods have also necessitated a matching level of anatomical knowledge taught as part of the regular anatomy course or in specialized courses. Here we report on an elective course, which has been offered to students of second year or above since 2005. The aim of this course was to utilize relevant information from clinical diagnostic images in anatomic studies and to better prepare the students for the evaluation of such images with solid anatomical foundation. The program extends to one semester (2 credits), in the form of plenary lectures, overviewing the main regions of the body (cranium, neck, thorax, abdomen, pelvis, spine) as well as certain advanced imaging methods (functional MRI, PET), and the grade is based upon a test examination. Among the speakers are anatomists, radiologist and representatives of other clinical specializations (ob-gyn, oncology, neurosurgery). We present examples of the material covered and assess the potential impact of the course on the level of anatomical expertise of participants as compared to those who did not attend. As a results of positive experience with this elective course, a new preclinical subject

named „Diagnostic imaging methods" has recently been introduced as part of the revised curriculum. This will take place first time in the academic year 2010/2011 and it will include a one-semester practical course of sectional anatomy together with an evaluation of transaxial CT and MRI images.

L-08

New important role for the anatomist in regional anesthesia

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The introduction of ultrasound guided techniques shows certain advantages for clinicians to perform fast and safe regional anesthetic nerve blocks. It is said to be the most frequently used technique in near future. However, this technique is only useful if the clinician has sound anatomical knowledge and is able to interpret the images correctly. This is demonstrated by an example where the regional anaesthetist found a surprisingly structure dissociating the subclavian artery from the brachial plexus during a routine ultrasound guided supraclavicular plexus block. Conclusion of the authors of this published letter to the editor in a respected anaesthetic journal to perform further investigations concerning this variation which has allegedly never been mentioned in regional anaesthetic literature. If they had contacted an anatomist or read the regularly used anatomical textbooks they had been told to have found commonly present muscle: the scalenus minimus muscle. The presented example shows the essential role of the anatomist as the specialist to help the clinician to interpret anatomical structures in these new images and to be respected as an equal colleague. As a consequence, the "Clinical Anatomist" needs to be regarded by an additional definition which strengthens our field to remain one of the most important main columns of medicine.

L-09

Robotic prostatectomy: an anatomical point of view

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Aim: Robotic prostatectomy (RP) represents the latest advancement in surgical treatment of prostate cancer. It relies on minimally invasive surgical approach of laparoscopic prostatectomy augmented by robotic technology. During the procedure identifying delicate anatomical structures, such as nerves and blood vessels surrounding the prostate gland has great importance. The aim of this presentation is to describe the surgical operation regarding anatomical landmarks.

Methods: The *da Vinci* robotic surgical system has been used for the operation. All the critical steps of the robotic radical prostatectomy technique have been described based upon an anatomical point of view.

Results: The anatomical structures involved in the surgical procedure, including anterior abdominal wall, pelvic fascias, urinary bladder, vas deferens, seminal vesicle, prostatic gland, and their neurovascular structures have been discussed. Since the description of the anatomic approach of radical prostatectomy has been performed, it became apparent that surgical technique does matter in the preservation of both sexual and sphincteric functions.

Conclusion: Since the robotic system enhances surgeons' technical abilities it may offer the potential of precise surgical technique, and thus more precise removal of the cancer. Knowing the anatomy of the region in detail decreases the complications and aids better preservation of sexual function and urinary control.

09.45: Session 3 - Invited Lectures (Syllaba´s Hall)

Moderator: Horák Zdeněk, Putz Reinhard, Báča Václav

L-10

The influence of anatomical structures on human biomechanics

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Human body is a biological system which may, besides other things, be perceived as an optimally functioning mechanism. This biomechanical system is evolutionally set in such a way that its function has the maximum efficiency regarding the scope, variation and exactness of the movement, the magnitude of force load, all with the minimum energetic intensity for biologic tissue. This basic principle is the leading power for the anatomy and structure of all tissue, organs and structure in human body at both the micro and the macro levels. This work will present the results of analyses which evaluate the impact of the structure and anatomical arrangement of biologic tissue on

the magnitude and distribution of mechanical load. The subject of the first analysis was the evaluation of the influence of the distribution and the orientation of osteons in bone tissue of femur, with regards to its load and tension. The orientation and distribution of osteons in bone tissue allows for the optimum transfer of the force load of femur, which is from the mechanical point of view efficient to maximum extent. In the second analysis, we evaluated the influence of the size of resection of masticatory muscles while implanting a total temporomandibular joint replacement on the load on the joint on the other side. From the obtained data, it's evident that for the load on the joint on the opposite side the construction of the total replacement is not important, but the way of its implantation and the size of the resection of muscle tissue are.

L-11

Disc prostheses seen with respect to the evolution of the spine

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In Germany, every year more than 600.000 people come into consideration for receiving lumbar discs replacements. In general the single prosthesis is placed from in front into the intervertebral space. The question is how the applied procedure techniques as well as the used models of disc prostheses fit to the functional demands of the spine. During evolution there was not any principal change in respect of axial load transmission in the vertebral column. The problem however, many patients have with their spine is based on an increasing mobility of the lumbar spine. Although to the vertebral column as a unity underlies bending stress in the single motion segment bending stress is reduced to the pedicle. This is because of the strong bracing effect of the anterior longitudinal ligament. Therefore, this ligament should be conserved at least in parts. Total removal will lead to an opening of the intervertebral space during extension. Rotation is controlled by the zygapophysial joints interacting with the anterior part of the annulus fibrosus. Removing to much of this very strong ligamentous structure will provoke overstress of the lateral margins of the facet processes. Disc prostheses should not only contain on single centre of rotation. They should allow a small degree of lateral displacement at least. Finally, the anchoring technique should take into account the distribution of mineralization of the end-plates.

L-12

Pelvic fractures morphology and its importance in indications of osteosynthesis

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There are several conditions which have an influence to pelvic osteosynthesis indications: current condition of the patient, type of pelvic injury, fragments dislocations and a condition of surrounding soft tissue. For the future function the restoration of posterior structural pelvic segment is essential. The mechanism of the injury together with directions of loading forces have a large influence to pelvic injury type (fracture line courses and lesions of ligaments), dislocations of fragments, and possibility of posterior pelvic segment restoration. The main forces directions leading to injury are external rotation, lateral compression (internal rotation) and vertical forces. Recent classifications start from Pennal´s philosophy of forces directions during injury and contain therapeutic guidelines. In indications of pelvic fracture osteosynthesis we prefer two classifications - AO/ASIF classification and Bircher-Hargrove´s classification. In this work our experiences in practical usage of those two classifications in indications of conservative treatment and osteosynthesis in pelvic fractures are described.

Grant support: IGA MZ NS9971

11.00: Session 4 - Embryology, Histology and Molecular Biology (Jonáš's Hall)

Moderator: De Amicis Francesca, Gkini Maria-Angeliki

L-13

Endothelial cells as a graft surviving marker in corneal transplantations

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Introduction: The corneal transplantation belongs recently to the most often transplantation at all. For survival of the corneal graft several factors are important. One of them is amount of endothelial cells on inner surface of the donor's cornea. The aim of the study was to evaluate amount of endothelial cells in groups of donors which were divided following their cause of death.

Methods: Donors corneas of donors from the International Eye Bank of Prague, Third Faculty of Medicine, Charles University and Teaching Hospital Královské Vinohrady in Prague in the year 2009. There were three groups created following donors cause of death: sudden death, chronic ischemic changes associated with atherosclerosis and donors who died due to tumorous dissemination. Standard statistic evaluation was applied.

Results: Most of endothelial cells were found in group of donors who died by sudden death 2847.97. In the group where donors died for chronic ischemic changes associated with atherosclerosis, were found lower amount of endothelial cells 2757.69. Least amount of endothelial cells was found in group of donors who died due to tumorous dissemination 2647.79.

Conclusion: Most of endothelial cells were found in group of donors who died by sudden death – we found that in this group there were younger donors there. Lowest amount of endothelial cells were found in group of donors who died due to tumorous dissemination – maybe it is because of donor's metabolic exhaustion or immunological mechanisms.

L-14

Neural tube malformations and abdominal coalescence abnormalities in a fetus from a mother diagnosed with bicornuate uterus

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Aim: The paper presents the morphological aspects of an exencephalic fetus which associates abdominal coalescence defects. The specimen is 14 – 15 weeks old male fetus (although there is a certain discrepancy between the fetal age and the fetal length), and is obviously malformated.

Methods: An anatomical study was performed on this fetus. The clinical data from the observation chart of the mother indicates that the mother was diagnosed with bicornuate uterus.

Results: The calvaria did not develop and the brain is located outside of the skull. This condition is usually found in embryos as an early stage of anencephaly. On laparotomy, we have observed an abnormal arrangement of the jejuno-ileal loops which mainly occupied the right half, being position above the transverse mesocolon. The caecum, vermiform appendix and the ascending colon were located in the left flank, while the descending colon was situated in the right flank; the abdominal part of the esophagus and the stomach were located below the right hepatic lobe. The transverse colon is located in the hypogastric region.

Conclusions: The specimen presents numerous abnormalities, which are not life-compatible. There are no certain relations between genital tract malformations of the mother and fetal abnormalities – in this case teratogenic agents are the main etiological factors.

L-15

Hydatidiform mole in abortion

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The hydatidiform mole is a specific lesion described with chronic cancers. The purpose of the present paper is to study some specific aspects oh hydatidiform mole in abortion. A number of 255 cases of abortion from a university clinic were studied, of which a number of 17 cases with hydatidiform mole were selected. The patients presented at hospitalization as the main symptom metrorrhagia in different quantities, also abdomino-pelvic or abdominal pain, bad general state, asthenia, hypotension, pale skin. Upon hospitalization some patients had only one symptom while others had 2 or more of the above mentioned symptoms. The patients were clinically consulted, and the obtained materials after abortion were studied microscopically. The results show that the gestational age, in weeks of pregnancy, at which the mole was found was between 5 and 12 weeks of pregnancy with a peak of 58.80% of cases at 8 weeks of pregnancy, especially at patients living in an urban environment at 60% of cases, and worker patients up to 47.05% of cases. The age of the patients with hydatidiform mole is between 19 and 45 years, with peaks at 23 and 31 years at 17.34% of cases. The microscopic lesions are characterized by villositar hydroptic degeneration of some chorial villosities which can be total or partial, 3 atypical cases were found where the aspect of the mole was very similar to the normal macroscopic appearance of the placenta, so that for the diagnosis of the mole a histopathologic examination of the entire placenta

was necessary. Knowing these data is of great clinical importance, because in most cases, correctly diagnosed, treated and hospitalized cases lead to the healing of the hydatidiform mole.

L-16

Anatomical variation of branchial clefts: a retrospective study

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This retrospective study was conducted to define the relationship of between existences of the bronchial cysts and fistulas with gender of patients as well as review of literature. Data were collected from the records of total 149 patient files (63 male and 86 female) with including history of having branchial cleft anomalies (cysts and fistulas), that admitted in ENT Department of Imam Khomeini and Apadana Private Hospitals between 1998 and 2008. The analyzed characteristics include gender of patient, anatomical location and type of the anomaly. The most frequent type of branchial cleft anomalies in cyst and fistula disorders was second branchial with the values of 85.71% in 21 male patients, 37.5% in total 48 patients; 76.19% in 42 male patients, 31.68% in total 101 patients and values of 62.97% in 27 patients, 35.41% in total 48 cases; 76.27% in 59 female patients, 44.55% in total 101 cases, respectively. There was no significant difference in frequency ($p>0.05$) between male and female patients as well as the locations of anomalies in neck. The overall frequency of the second branchial cleft in different types of disorders such as cysts and fistulas in Southwest region of Iran is the highest, which was similar to international findings. In summary, anatomical location and type of congenital neck masses help narrow the differential diagnosis.

L-17

Aquaporins in kidney

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Aim: To present aquaporins (AQP) appearing in kidney.

Methods: Literature review.

Results: The discovery of protein water channels, aquaporins, unveiled the physiology of water permeability of biological membranes. From the thirteen aquaporins which are already known, at least seven are expressed in kidney. AQP1 is present in apical brush border and basolateral membranes of proximal tubules, in descending thin limbs of Henle and in descending vasa recta. It is absent from collecting ducts, making clear that AQP1 does not participate in water renal excretion regulated by vasopressin. AQP2 is expressed in principal cells of collecting duct system and has been found to be the main target through which vasopressin regulates water permeability of collecting ducts. AQP3 and AQP4 are also expressed in principal cells of collecting ducts. Both are present in basolateral membranes and are likely to represent exit pathways for water entering the cells through AQP2. AQP5 is not present in kidney. AQP6 is found in a-intercalated cells of collecting duct. It is present exclusively in intracellular location without expression in plasma membrane. Its physiological role is not yet known. AQP7 is expressed in luminal surface of the epithelial cells of proximal tubules. AQP8 resides in proximal tubules and weakly in collecting ducts. AQ9 to AQP12 have been identified recently in kidney. Their functional role remains to be determined.

Conclusion: Aquaporins are involved in numerous physiological and pathological processes of tissues, such as kidney. Further studies are needed to unveil their exact role.

L-18

Ghrelin-, somatostatine-, serotonin-, glucagon-, and histamine-containing endocrine cells in the corpus stomach mucosa during human prenatal and early postnatal development

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The aim of this study was to investigate the appearance, localization and density of endocrine cells in the human corpus stomach during prenatal and early postnatal development.

Methods: Paraffin-embedded tissue sections of corpus stomach from human embryos (2), fetuses (38) and infants (3) ranging from 8th gestational week to 3 month were assessed by immunohistochemistry using antibodies against ghrelin, somatostatin, serotonin, glucagon and histamine. The number of immunoreactive (ir) cells/mm^2 of epithelium was determined by stereological method.

Results: Our results did not show existence of immunoreactive endocrine cells during the embryonic period. Somatostatin-ir

cells were found from 10, ghrelin-ir and serotonin-ir cells from 11, and glucagon-ir cells from 12 week of gestation. In fetuses endocrine cells in the corpus were small and round shaped, located in the glandular base. The number of somatostatin-(155.4±108/mm^2), glucagon- (18.18±18/mm^2) and histamine-ir (137.9±9/mm^2) cells were especially marked in the early stage of fetal development compared to the latter period of human prenatal development. The number of serotonin-ir cells/mm^2 of epithelium was similar throughout gestation, but there were appeared increase trend with advancing age. During middle gestation, ghrelin-ir cells (75±8/mm^2) are predominant endocrine cells, and represented 34% of the total mucosa endocrine cell number. In infants, the most numerous were histamine-ir cells (44.2%), and ghrelin-ir cells (26.4%) of all endocrine cell population in the corpus.

Conclusion: Early appearance and high density of endocrine cells in the corpus during prenatal development supports the concept that their hormones play important role in the process of development human gastrointestinal tract.

L-19

Conventional Progesterone Receptor (PR) B and PRA are expressed by human sperm and may be involved in the pathophysiology of the varicocele condition

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Although it is widely accepted that varicocele is the most common cause of male infertility, scientific support for this contention is almost lacking. The physiological roles of intracellular progesterone receptors (PRs) have been studied intensively in female mammals, while their functions in male are still scarce. In human sperm conflicting data on the presence of specific PRs are reported. In our study, by western blotting and transmission electron microscopy the classical PRs were evidenced. Semen samples from normozoospermic donors of proven fertility and oligoastenoteratozoospermic (OAT) without or with varicocele were used. Interestingly, when we compared PRs expression among normal, OAT and varicocele sperm only the latter showed a drastic decrement of the receptors suggesting a role for PRs in varicocele pathophysiology. Normal sperm samples revealed the presence of the PRs in all the sperm body, on the membrane as well as in the nucleus, mitochondria and flagellum. Low levels of PRs in 'varicocele' sperm were obtained. Sperm responsiveness to PRG is related to fertilization, therefore to strengthen our observations at molecular level we examined the role of PRG/PRs on acrosin activity in both healthy and varicocele sperm. The enzymatic activity was induced by PRG in normal samples, while a weak enhancement was obtained in pathologic sperm exhibiting also a decreased basal level. The presence of PRs in human sperm is a novel finding that call attention on progesterone in male fertility. Our results showed that varicocele may lead to male infertility by a mechanism involving decreased PRs expression in human sperm. From this finding it emerges that varicocele involves detrimental effects on sperm at molecular level, going beyond the abnormal sperm morphology described to date.

L-20

Recombinant lentiviral vector transfect the cells line

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Aim: Gene transfer to different cells is a part of gene therapy process to cure different genetic deficiency. In last 2 decades, recombinant lentivirus mostly has been applied for mammalian cell transfection. Recombinant Glucocerebrosidase (Gba) gene sub cloned in lentiviral vector and transferred to cells.

Methods: The cDNA of glucocerebrosidase has been amplified by specific primers in reverse transcription and PCR reaction, cloned in pUCBM21 plasmid. Confirmed by sequencing, after digested and purified by restriction enzymes. The sequenced gene with reporter gene enhance Green fluorescence protein (eGFP) sub cloned in safe and inactivate lentiviral vector derived HIV-1. It transfers with main and regulatory lentiviral vectors to Human Embryonic Kidney (HEK) cell line in ex vivo. The enhance lentivirus transfer gene to dividing and nondividing cells.

Results: The cDNA of murine Gba gene successfully sub cloned in lentiviral. Cloning was confirmed by enzymes. Gba and reporter genes express in cell line, eGFP cells observed with fluorescence microscopy. Main and regulatory genes express in cell line and enhance recombinant lentivirus.

Conclusion: The lentivirus transfers recombinant genome to many cells. It is possible transfer and expresses for long time the repaired genes to genome of many cells, and cure genetic deficiency.

11.00: Session 5 - Vascular System 1 (Burian´s Hall)
Moderator: Kostic Nikola, Dağdeviren Attila

L-21

The microcirculation in the wall of the healthy and inflamed large intestine

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Introduction: The aim of the study was to describe vasa recta and intramural plexuses of the large intestine wall in healthy and inflammated state, especially their spatial arrangement and density of vessels.

Materials and methods: Various parts of large intestine were gained for Indian ink injections and corrosion casting from section and peroperatively gained material. The vascular system of the sample was rinsed with saline, injected, dissected or macerated and scanned.

Results: The macro- and microsystem of vessels were described. The long vasa recta run below taeniae and can meet and fuse with counterpart branch at the antimesocolic border where they form a ring. Subserous branches can be seen on the intestinal external surface. Branches of both short and long vasa recta pierce the intestinal wall and pass through the external muscular layer and end with the submucous plexus, which stretches throughout the whole intestine. Muscular layer receives most of the blood supply through centrifugal branches of submucous plexus. Mucosa is fed by thinner branches from submucous plexus, forming a mucous plexus which gives capillaries climbing and coiling on the walls of Lieberkühn crypts to form a honeycomb-shaped structure. Hexagonal arrangement of intestinal glands reflects the vascular bed. No microscopic weak points were proved. In cases of the inflamed intestine, a considerable hypervascularization of all intestinal wall layers was found. The architecture of microcirculatory bed was very irregular and a diffuse increase of abnormal vessels was apparent at all levels. Abnormally hypervascularized were also the lymph nodes.

Conclusion: Both methods have showed the immense density of capillaries under the mucosa and regular pattern of the vascular bed spread on the inner surface. The inflamed intestine featured signs of hypervascularization and loss of vascular bed pattern.

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L-22

Incidence of the mitral valve prolapse and bicuspid aortic valve detected by ultrasound

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Aim: Aim of this article was to found incidence of the mitral valve prolapse and bicuspid aortic valve, patients´ age group, gender distribution and association.

Methods: We analyze all echocardiography examined patients (with different kind of cardiology symptoms) in time period January 2009 – February 2010. All examinations were done on the ultrasound type Aloka Prosound Alpha 5 SX – Cardiac Version.

Results: Totally, we have 420 patients, aged from 18–99 years. 170 patients (40.48%) were males and 250 (59.52%) were females. From that group, 35 patients (8.33%) have mitral valve prolapse. 8 (22.86%) were males and 27 (77.14%) females. All examined persons with mitral valve prolapse, were between 18-50 years, mostly from 31-40 years (45.71%). Prolapse of the anterior mitral leaflet was diagnosed at 26 patients (74.29%), prolapse of the posterior mitral leaflet at 7 (20%), and both leaflets prolapse at 2 patients (5.71%). Resulted mitral regurgitation was mostly mild (up to 1 +) – 31 patient (88.57%). 2+ mitral regurgitation was detected at 3 patients (8.57%), and 3+ mitral regurgitation was found in 1 case (2.86%). Bicuspid aortic valve was found at 2 patients (0.48%), also connected with mild level of the aortic regurgitation, and without ultrasound signs for aortic stenosis. Bicuspid aortic valve was not associated with mitral valve prolapse.

Conclusion: Mitral valve prolapse is common in young women group, but without hemodynamic and clinical significance. Bicuspid aortic valve is rare event and not connected with mitral valve prolapse.

L-23

Evaluation of TGF-β1 expression between the coronary bypass grafts

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Background and Aims: IMA grafts have excellent long term patency rates and are superior choice for CABG. Patency rates

of RA grafts are close to the rates of IMA, the rates SV grafts are extremely low. Reason of these differences is exactly unknown. TGF-β1 is a growth factor that is thought of as playing a role in atherosclerosis and so, preexisting TGF-β1 expressions in the graft vessels may predisposed them to graft failure after CABG. So, in this study, TGF-β1 expressions of SV, IMA and RA grafts were evaluated before CABG and compared with each other.

Material and Methods: In this study, totally 44 vessels (19 SV, 18 IMA and 7 RA) were collected from 34 patients during CABG. Following standard procedures, the sections were cut and stained with Hematoxylin-Eosin. TGF-β1 antibodies were used for immunohistochemistry and TGF-β1 expressions was scored as negative (if no staining) or 1+, 2+ and 3+ according to intensity of the immunostaining from weak to strong staining and statistically evaluated between vessel grafts.

Results: The expression of TGF-β1 in SV grafts was significantly higher than in RA and IMA grafts. There was not any difference between IMA and RA grafts for expression of TGF-β1.

Conclusion: TGF-β1 expression is higher in SV grafts, but lower in IMA and RA grafts. So, TGF-β1, might play a role in long-term graft patency. Consisting of lower TGF-β1 expression in IMA and RA grafts might be preferred in excellent long term graft patency and frequently used for CABG.

L-24

A case of right coronary artery arising from the left aortic sinus

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Anomalous origin of right coronary artery (RCA) from the left sinus of Valsalva with a course between the aorta and the right ventricular outflow tract is very rare and known as a potentially life-threatening anomaly. The clinical presentation of the coronary artery anomalous varies, but the patients with those anomalous are mostly presented myocardial ischemia owing to non-atherosclerotic causes or sudden cardiac death. 65 year-old male patient was admitted to the cardiology service with the complaint of dyspnea and tachycardia. On admission, her blood pressure was 80/60 mmHg, and the heart rate was 98 beats/min. There was bilateral crepitan ralles in the lung field. The electrocardiography obtained at the admission demonstrated non-sustained VT. Diastolic dysfunction was detected with preserved ejection fraction in echocardiography. Amiodarone infusion and IV furosemid was started. After the treatment, her blood pressure was 100/60 mmHg, heart rate was 54 beats/min and her symptoms were resolved. Coronary angiography was performed and left coronary angiography was normal, but right guiding catheter could not be engaged to the right coronary ostium. Therefore, a multislice computed tomography was performed to determine the course of the RCA. RCA arising from the left sinus of Valsalva originating from separate ostium and follows an interarterial course between the aorta and pulmonary artery. It had been subjected to significant pressure in systole. As a conclusion, knowledge of coronary artery origin anomalous is essential for the interventional cardiologist and cardiovascular surgeon, providing information before cardiac intervention or surgery to prevent possible complications of the procedure.

L-25

Development of the cavernous sinus of the dural mater of human fetus

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Development of the cavernous dural sinus during fetal period (from 16 to 36 weeks) has been studied on 100 specimens by the methods of the injection, corrosion and morphometry. It is established, that cavernous sinus at the fetuses of 16 weeks of gestation is presented by the vascular venous circle, which is formed by the basic trunks of cavernous sinuses, anterior, posterior and inferior intercavernous sinuses. The basic trunks of cavernous sinus are located along lateral surface of sphenoid bone. They have lumen of triangular form, with length 3.9±0.54 and general width of lumen 1.8±0.04 mm in age 16 week, which increasing from 5.9±1,08 mm and 2.1±0,61 mm at 28 weeks to 7.55±0.92 mm and 6.28±1.49 mm at 36 weeks, respectively. The anterior and posterior intercavernous sinuses connect among themselves the trunks of cavernous sinus. During the fetal period, their length gradually increases from 3.3±0.08 in 16 weeks of development till 8.1±0.64 mm in 36 weeks. The cavernous sinus has complex internal structure, diverse intramural nervous apparatus, numerous connections with sinuses of calvaria, vertebral venous basin and extracranial veins, that defines the participation of sinus in regulation, redistribution and drainage of venous blood from the cavity of skull.

L-26

Structural and immunophenotypic implications on thymus structure and function

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Thymus is the primary lymphoid organ in which stem cells originating from bone marrow mature into immunocompetent T cells through a rather complex process. So called thymopoesis largely occur within the cortex of lobules. Thymic epithelial cells (TECs) of several types form a special microenvironment for effective thymopoetic process which is also mediated by a number of local and systemic factors including a number of hormones, cytokines, extracellular matrix element and accessory cells. Our extensive immunohistochemical and ultrastructural studies on human thymus provided new structural hints that may lead to a necessity to discuss the classical concepts on thymus.

Briefly

1. Structural evidence of thymus enlargement through childhood
2. Existence of perivascular areas as an important third compartment having unique functions
3. Presence of germinal centers in thymic medulla not in perivascular areas
4. Formation of Hassall's corpuscles indicating a mass destruction model
5. Presence of specialized vasculature for migration
6. In vivo counterparts of thymic nurse cells, etc.

We are aiming to present the data leading to above mentioned aspects of thymus structure and function to share and discuss with the researchers in the field.

L-27

Splenic clefts in 720 human autopsy cases

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Splenic clefts (SC) are common congenital anomalies of the spleen. They are a result of incomplete fusion of the splenic anlage and usually are visible under the diaphragmatic surface. The fetal spleen is lobulated, but these lobules normally disappear before birth. The clefts on the superior border of the adult spleen are remnants of the grooves that originally separated the fetal lobules. In this study, SC were investigated in 720 human autopsy cases. In 110 (15.3%) of the cases SC were determined. The most frequent localization of SC was superior border in 95.5% (105/110) cases. The number of clefts ranged between one and eight. In 50.9% (56/110) cases there was a single splenic cleft. They may be misinterpreted as splenic laceration in patients with abdominal trauma. Especially radiologists need to be aware of the various congenital variants of the spleen in order to recognize clinically important anomalies and to avoid mistaking less significant ones for an abnormality.

11.00 – Session 6 - Vascular System 2 (Syllaba´s Hall)

Moderator: Ross Richard, Sumathilatha Sakthivelavan

L-28

Axillary artery: a compact survey based on 130 limbs

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Aims: We present a compact view on the axillary artery with the large literature review. It should explain some very important points of axillary artery variability. The axillary artery belongs to the most variable arteries in the human body, the textbook patterns have been observed in 10%-60%. We presented a work based on 130 upper limbs.

Methods and Materials: 130 preparations of cadaverous material (Czech population) fixed with formaldehyde were dissected. Large literature research was performed.

Results: We found 45% of the limbs featuring some variant, it means 58 from 130. All the observed variations were classified according to the main marks to the eight groups. The most frequent variation with 23% frequency was the type 2 - the posterior circumflex humeral artery and subscapular artery stemming from a common trunk. We focused on two principal types of variations. The first group based on the variation of the superficial brachial artery (superficial brachioradial, accessory brachial) was observed in 9% of cases. The second group based on the variation of the posterior circumflex humeral artery (ACHP) passing under the tendon of latissimus dorsi muscle, ACHP passing under the tendon of latissimus dorsi muscle with a reduced proper ACHP running as in the normotype, the reduced ACHP passing under the tendon of latissimus dorsi muscle with thick proper ACHP running as normotype were observed in total in 20% of cases.

Conclusion: The work and the results should bring new knowledge about the axillary artery and its variability. It should help a surgeon if operating the axillary region, a cardiologist in case of the radial artery catheterization, and also to explain some misunderstandings during anatomy education.

L-29

Suprascapular arteries evaluation in order to use them in vascular surgery

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Aim: In surgical practice can appear the situation when the surgeon needs additional blood vessels to accomplish different anastomosis. As anatomists, we have studied the possibility of using suprascapular arteries for this purpose.

Methods: An anatomical study by dissection has pointed out the following:

Results: We dissected right and left suprascapular arteries, from origin and up to the top border of the scapula. At this point, we cut through the arteries and we reflected them in the thorax, going under the brachiocephalic veins. We performed a median sternotomy and, by using an auto-static retractor, we emphasized the pericardium. We pulled the suprascapular arteries prepericardially, showing that they reach only up to the origin of the aorta. In the second phase, we exposed the suprascapular arteries laterocervically, showing that they reach up to the mastoid tip.

Conclusions: We consider that suprascapular arteries dissection landmarks as well as the limits presented can be useful material for vascular surgeons to reduce the risk of death from coronary artery disease.

L-30

An undescribed variant branch of the subscapular arterial system and review of arterial supply of subscapular free flaps

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The subscapular artery classically gives rise to the circumflex scapular and thoracodorsal arteries with high rates of anatomical variance. These branches are crucial to parascapular, scapular osteofasciocutaneous and latissimus dorsi flaps, frequently utilised in reconstructive surgery. We describe a new variant branch supplying the anterior scapula and subscapularis and review arterial supply of related free flaps. The axillae were dissected in a male cadaver. Bilaterally, the subscapular artery emerged from the axillary artery running 2 cm inferiorly before sending a 2 mm diameter branch postero-medially. This anomalous branch bifurcated 1cm distal to its origin, with both branches running to the anterior surface of the scapula and overlying subscapularis muscle. The remaining subscapular artery gave rise to a further variant posterior circumflex humeral artery in addition to the common configuration of the thoracodorsal and circumflex scapular arteries. This specimen illustrates a previously unrecognised arterial branch supplying subscapularis and the anterior surface of the scapula, in addition to the classic circumflex scapular artery. Further, a known variant subtype of subscapular arterial system was identified, whereby the PCH and CS branches emerge from the main subscapular artery. Scapular system flaps have become widely used for reconstruction following head and neck malignancies. Specifically, osteofasciocutaneous scapular free flaps are widely used in reconstruction of mandibular and maxillary osseous defects and rely on the scapular anastomoses for arterial supply. This case provides not only a newly described arterial variant but also illustrates the importance of diligent preoperative vascular mapping for free tissue transfer. Further dissections are required to elucidate the frequency of this new variant.

L-31

Clinical anatomy of the extrahepatic arterial blood supply of the liver

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Detailed knowing of extrahepatic arterial variations is essential for the preoperative planning of liver surgeries. According to available data the incidence of extrahepatic arterial variations alters between 10.5% and 55%. We investigated the variations of the extrahepatic arterial blood supply of the liver in the Hungarian population.

Materials and methods: We analyzed 29 human organ complexes consisting of the liver, stomach, pancreas, spleen and the bowels, the abdominal aorta (AA) from the origin of the inferior phrenic artery (IPA) until below the origin of the superior mesenteric artery (SMA). Twenty organ complexes were injected with methylene blue through the SMA. If the blue color appeared under the Glisson's capsule, it indicated that an accessory liver artery exists arising from the SMA. Thereafter we injected the arteries through the AA with resin and then the

organ complex was immersed into concentrated hydrochloric acid to corrode the parenchyma. The other 9 organ complexes were corroded without the previous methylene blue injection.

Results: The cast preparations were macroscopically analyzed, and the arterial variants were categorized by using Michels' classification. We found extrahepatic arterial variations in 24.14% of cases (7/29).

Conclusions: Precise knowledge of the different types of extrahepatic arterial variations is crucial for surgeons to safely perform liver resections, organ harvesting, intestinal surgeries and particularly during living donor liver transplantation. Our data can contribute to the safer performance of surgical interventions of not only the liver, but the pancreas, the extrahepatic bile ducts and the intestines as well.

L-32

Variability in the branching pattern of internal iliac artery in Indian population

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Objective: Internal iliac artery is a terminal branch of the Common iliac artery. There are many parietal and visceral branches arising from the 2 terminal divisions namely anterior and posterior trunks. However variations are frequently noted. The larger branches namely the inferior gluteal artery, the superior gluteal artery and the internal pudendal artery show sufficient regularity in their patterns of origin to allow typing. Hence this study aims at studying the branching pattern of internal iliac artery on the basis of Adachi's classification who classified according to these three branches.

Procedure: The study was done on 116 specimens (pelvic halves) from 58 adult cadavers composed of 34 males and 24 females. Two methods were used namely direct dissection method and dye injection method.

Results: Type Ia of Adachi's classification was noted in 60.6% of specimens; Type Ib in 2.6%, Type IIa in 15.8% and Type III in 21.1% of specimens. None of the specimens showed Types IIb, IV and V.

Conclusion: Even though, the standard description of the branching of the internal iliac artery is that it ends by dividing into its 2 divisions, in significant number of specimens it ends without dividing into 2 trunks and there is considerable interchange of branches between the 2 terminal divisions. Type Ia of Adachi's classification is the most common pattern observed in this study.

L-33

Anatomical variations of vasa obturatoria

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Aim: Our attention was paid to the origin, course and topography of obturator vessels in pelvic subperitoneal region.

Methods: We performed bilateral pelvic anatomical sections on 12 cadavers. The cadavers were fixated in 10% formalin and were prepared for anatomical sections.

Results: We found different origins of the obturator vessels and divided them into four groups. In the first group the obturator artery and inferior epigastric artery came from the common arterial trunk of the external iliac artery. In the second group, the origin of obturator artery arises from the anterior trunk of the internal iliac artery. In the third group, the obturator artery came directly from the external iliac artery at the same level as inferior epigastric artery. In the fourth group the obturator artery is anterior branch of femoral artery and came out in the upper third of the femoral triangle. The obturator vein usually followed the homonymous artery except in one case when it originated from femoral vein, while obturator artery originated from internal iliac artery.

Conclusion: Anatomical variations of the obturator vessels are well documented in the literature. However, ending of the obturator vein in the femoral vein has not been described yet. All described variations of the obturator vessels have the same topographical position on the upper branch of pubic bone as corona mortis has. We believe that injury of the obturator vessels variety could cause massive hemorrhage as injury of the corona mortis causes, which should be considered during operations in abdominal surgery.

L-34

An awareness of the median sacral artery during the laparoscopic lumbosacral surgery

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Aims: Manifestations of vascular injury that occur during the lumbar disc surgery are variable. An adequate preoperative evaluation of the vasculature may help to prevent unnecessary intraoperative problems. The median sacral artery (MSA) is

often deliberately sacrificed during retroperitoneal approach to the L5/S1 disc space. The surgeons may miss the MSA until significant blood loss has occurred. The aim of this study was to determine the safety zone for the retroperitoneal approach to the lumbosacral spine.

Methods: We explored the posterior abdominal wall of 29 male and 25 female embalmed cadavers whose ages at decease ranged from 36 to 85 years to identify the common iliac and median sacral vessels. The MSA was measured from its emerging point just below the left common iliac vein to the upper border of S1. The distances of the MSA from that point to the right and left lateral borders of the spine were then measured.

Results: The mean length of the MSA measuring from the left common iliac vein to S1 was 2.73±0.97 cm. The mean distances between the MSA to the right and left borders of the spine were 3.31±0.54 and 2.39±0.51 cm, respectively.

Conclusion: An awareness of the MSA is essential prerequisite for laparoscopic lumbosacral surgery to avoid unexpected hemorrhage.

14.00: Session 7 - Nervous System (Jonáš's Hall)

Moderator: Kendir Simel, Matejčík Viktor

L-35

Volumetric assessment of cerebellum in patients with bipolar disorder by MRI: a stereological study

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Increasingly in the last decade, brain imaging has been applied to the study of psychiatric disorders. The aim of this study was to assess the cerebellar volume in bipolar disorder using stereologic techniques (Cavalieri principle) by means of MRI. The study was carried out 10 (5 females, 5 males) bipolar patients and 10 healthy adults (5 females, 5 males).The mean age (±SD) of the patients was 26.7±3.5 years and that of control subjects was 28.1±6.2 years. The mean (±SD) volume of the cerebellum in patients and in controls was 123.56±11.69 cm^3 and 115.59±10.19 cm^3, respectively. There was no significant difference between the mean cerebellar volumes of both groups ($p<0.12$). The cerebellar volumes of the same gender was also compared between the two groups and significant difference was not found ($p<0.29$ male, $p<0.24$ female). The volume ratio of the cerebellum to cerebrum was 13.97% in patients and 13.32% in controls, the difference between the ratios was not statistically significant ($p<0.34$). As a conclusion the bipolar patients did not exhibit smaller cerebellar volume compared with healthy subjects. However, there is a lot of factors contribute the cerebellar anatomy like age, number of previous episodes of depression, alcohol abuse and lithium toxicity. The age of our patients was smaller than the several previous studies so cerebellar volume may not effected.

L-36

Changes on the central nervous system and occurrence of SIDS: Serotonin role

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Sudden infant death syndrome (SIDS) is a syndrome marked by the symptoms of sudden and unexplained death of an apparently healthy infant, aged 1 month to 1 year.

Aim: In this paper we began with the assumption that not all SIDS victims were a previously apparently completely healthy, and that SIDS is a consequence of the situation in which there is an abnormality of the brain that relates to the modulation cardiopulmonary regulation mechanisms and that this abnormality occurs more intrauterine leading to sudden death during postnatal period. This assumption we tried to prove.

Materials and Methods: Here we investigated the period of six months in 2008th in the Belgrade area. For the purpose of these investigations we used 20 infants death where we suspected that the SIDS was the only reason for their death.

Results: There is the discovery that there is a fatal occurrence of SIDS-triangle, and it includes: 1) Vulnerable stage of development of central nervous system and mucous immunity, 2) Predisposing factors (astroglyosis, genetic constitution), and 3) Infection. To this was added and the influence of exogenous stress for the occurrence of SIDS-A, which is related to upper respiratory tract infection. Vulnerability newborn included: subtle CNS abnormalities and / or systemic abnormalities in a newborn child in neurological functioning or function of the autonomous nervous system, which can detect quantitative and precise methods of the autopsy, post neonatal abnormalities in tears and the state organization of circulatory-respiratory form, risks associated with factors related to the birth mother or baby delivery of itself. Also, it was determined that the baby died of SIDS, a 2X found more brain cells that produce serotonin in the brain than a normal child and that brain cells in the brain of SIDS babies dead, a much less sensitive to serotonin.

Serotonin is known as the „regulator of mood“, however it is believed that the brain stem and regulate breathing, heart rate, blood pressure, excitability, sensitivity to CO2, transmit messages between brain cells in the brain stem respond to the lack of oxygen and stimulate respiration, is „Center for alarm“ ; in the brain and prevent suffocation.

Conclusion: Based on everything to which there is great roles in the case of SIDS have a way in which brain cells respond to serotonin. In a sample of the deceased baby SIDS, brain cells were significantly less sensitive to this neurotransmitter. „Normal baby woke up, turned in bed; it began to breathe rapidly if you increase the amount of carbon dioxide. In our investigated newborns was not the case, but it was the baby with the predisposition, disorder in the takeover serotonin. Prevented a reaction of the brain and reflex awakening „centers for alarm, because the baby did not wake up and there was the choking in his sleep. Probably this disorder is genetic in nature and occurs at an early stage of fetal development.

L-37

The thickness of the Korean dura mater in posterior lumbar region by scanning confocal infrared laser microscope

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The exact anatomy of dura mater in the lumbar region is very important because of frequent procedures for vertebral surgery and lumbar puncture. In this context, there were some reports on thickness of dura mater based on mainly scanning electron microscopic (SEM) measurement, which might not reflect real value in vivo due to dehydration step during sample preparation. Here we present a new method to access real value of dura in vivo by using scanning confocal infrared laser microscope (LEXT OLS3000-IR, OLYMPUS). We studied twenty cadavers free from diseases related to vertebral or spinal cord. The lumbar dura maters from L3 to L5 were dissected and stored in the 10% neural formalin and washed in phosphate buffered saline. The small piece of the dura mater was measured by LEXT OLS3000-IR. The laser scanned the dura mater from the bottom to the top and 3-dimensional profile of the dura was acquired and the thickness of 3 locations was measured and averaged out. The average of thickness of each level dura was 259.4 μm at L3 body, 233.5 μm at disk L3/L4, 247.15 μm at L4 body, 229.4 μm at disk L4/L5, and 259.9 μm at L5 body. The same samples are preparing for SEM measurement to compare two measurement methods. These results can be applied for use of clinical approaches. And we now obtain a new technique for measuring hydrated state human tissue thickness.

L-38

Transmeatal selective approach to the superior and lateral ampullary nerve: a morphological study with clinical confirmation

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Objective: Morphological assessment of a transmeatal approach to the lateral and superior ampullary nerves simultaneous to the existing approach to the singular nerve developed by Gacek and stimulation of these nerves.

Materials and Methods: 80 halves of human heads preserved with Thiel's method were operated by an otologist. Two surgical approaches were tested on each specimen, one superior and one inferior to the tympanic segment of the facial nerve. The 80 specimens were divided in 2 groups. In the first group the osseous canal of the nerves of the lateral and superior semicircular canal were previously probed and then operated. In the second group the osseous canal of the nerves were operated prior assessment by dissection. Afterwards all 80 halves underwent CT investigation to measure the distance between the entrance point of the drill in the medial wall of the tympanic cavity and the osseous canal of the ampullary nerves. Three patients underwent this approach to stimulate the nerves.

Results: Inferior approach to the canal of the nerves could not be done without wide opening of the vestibulum in all 80 specimens. In the superior approach, the nerve could be reached directly in five cases and in 28 cases only via the osseous ampulla of the lateral semicircular canal in the first group. In 7 cases the nerves could not be reached without damage to the membranous labyrinth. In the second group the nerve could be reached directly in 2 cases, via the osseous ampulla in 36 cases and was unreachable in 2 cases. Significantly, distances longer 3mm between the surgical access and the nerve were found on the inaccessible cases. On all three patients, the approach could be performed without opening of the labyrinth and the stimulation of the lateral ampullary nerve resulted in a horizontal nystagmus.

Conclusions: A transmeatal approach is possible superiorly but not inferiorly to the facial nerve and confirmed clinically. This is the first step for a vestibular implant on humans.

L-39

Radial nerve contribution to innervation of the brachialis muscle

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It has been reported that the brachialis muscle is innervated by two sources that means by branches from the musculocutaneous nerve innervating most parts of the muscle and those from the radial nerve. However, the constancy of the radial nerve supply is controversial. Radial nerve supply to the brachialis muscle has been reported in few studies. The reported frequencies were belonged to the East Asian populations and UK Caucasian population. In the present study, we aimed to study the existence frequency of the radial nerve contribution to the brachialis muscle in anatomic and electrophysiological examination. We found higher existence frequency compared to those previously reported in the literature and found four different types of innervation of the radial nerve.

L-40

Anatomical variabilities of sacral plexus

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Introduction: The branches of the sacral plexus play an important role in the motor and sensory innervation of the lower limb. Variabilities observed during spinal operations have motivated us to start the study aimed on the determination of the sacral plexus formation from its ascension of particular roots from the sacral foramina up to the formation of the terminal branches.

Materials and methods: One hundred sacral plexuses have been examined on 50 adult cadavers for a purpose to find out an incidence of its neural variations. We have considered also the course of their branches, anatomoses and their thickness. We highlight the motor innervation particularities in relation to the diagnosis besides its anatomical complexity and variability.

Results: Commonly were observed 3 sacral roots with the share of S4 and lumbosacral trunk of L4 and L5 and 4 sacral nerves. Doubled ascending of S1 root was often observed, by the other sacral roots the doubled ascension was not so frequent. Lumbosacral trunk was thickened in 19 cases. Very high division of the sciatic nerve (in the lesser pelvis) was observed in 2 cases. The level of division of other nerves depended on the plexus type.

Conclusion: Our work revealed and described some extraordinary anatomical variations in the formation of nerve roots and branches of the sacral plexus.

L-41

Surgical anatomy of the superior gluteal nerve and landmarks for its localization during minimally invasive approaches to the hip

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Introduction: The superior gluteal nerve (SGN) is vulnerable to injury during total hip arthroplasty and various pelvic surgeries including the insertion of iliosacral screws. Recently introduced minimally invasive approaches to the hip show promise for less muscle trauma compared to conventional approaches. However, the risk of damaging the SGN has not been well documented for such alternative approaches. As there is scant information in the literature regarding the course and the anatomic relationships of the SGN, we aimed to investigate its anatomic course and to define anatomical landmarks that may be used by surgeons during minimally invasive approaches to the hip.

Methods: Twenty-eight gluteal regions of 14 formalin-fixed cadavers were dissected and the course and the distances of the SGN and its branches to the tip of the greater trochanter (GT) were measured. The landmarks for standardizing the course of the SGN included the posterior inferior iliac spine (PSIS), GT and a line (PSIS-GT) connecting these two points.

Results: The exit of the SGN was found to be at the medial one third of the PSIS-GT line and 3.4 cm from the GT. The branches of the SGN were distributed above a PSIS-GT line and the closest mean distance to the branch to the gluteus medius, gluteus minimus and tensor fascia latae from the GT was 3.1 cm, 4.4 cm, and 7.1 cm, respectively.

Conclusion: Based on our study, the safe zone for the SGN was smaller than previously reported. Posterior, lateral or anterolateral minimally invasive approaches to the hip should

take into account the point of exit of the SGN and the area of distribution of its branches. Use of a minimally invasive direct posterior or lateral approach to this region puts the branches to the gluteus medius at risk. Moreover, a minimally invasive anterolateral approach to the hip may compromise branches to the tensor fasciae latae muscle. Localization of the SGN and its branches using the anatomic landmarks defined in this study may decrease surgical morbidity.

L-42

Topography of the lumbar sympathetic trunk in normal lumbar spines and spines with spondylophytes: is there any difference?

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Introduction: Precise placement of the needle for a block of the lumbar sympathetic trunk sometimes can be difficult, especially in degenerated vertebral columns. Osteophytes may change position of the trunk which must be considered for needle placement.

Materials and Methods: The retroperitoneal spaces of 54 cadavers (22 males and 32 females; 79.18a; ±10.33) embalmed with Thiel's method were investigated by dissection. The course of the abdominal sympathetic trunk was regarded and documented all along the course caudad of the diaphragm to the linea terminalis. Topography to the vessels and other structures such as the psoas muscle were documented. In case of spondylophytes the direction of displacement was regarded with special interest.

Results: The lumbar sympathetic trunk showed a ventrally convex curved which mainly remained close to the medial border of the psoas muscle. It was often found at the lateral part of the vertebral body. 3 lumbar spines showed bilateral spondylophytes larger than 1 cm, 4 spines had spondylophytes on the right, and 3 spines on the left side. In these specimens the sympathetic trunk was dislocated to the most ventrolateral point of the spondylophyte in 11 cases. In 6 cases the sympathetic trunk was displaced to the posterolateral face and in one case the sympathetic trunk was found ventromedially to the spondylophyte.

Conclusion: To assure precise needle placement, the medial border of the psoas muscle seems to be a constant reference point in normal spines. Spondylophytes do influence the location of the sympathetic trunk which must be taken into consideration during needle placement.

14.00: Session 8 - Anthropology (Burian´s Hall)

Moderator: Barut Çağatay, Yılmaz Ali

L-43

Temporomandibular joint mobility and mandibular anthropometry

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Aim: The aim of our study was to determine the range of motion (ROM) of the temporomandibular joint (TMJ) in Turkish adults by using digital inclinometer and its correlation with the mandible anthropometry.

Methods: Seventy one volunteers who were studying at our university participated in this study. Maximum opening, right-left excursion and protraction degrees were determined with electronic digital inclinometer which was extremely sensitive but practicable. Besides, interincisial distance, mandible height, mandible length, goniomastoid distance, thyromental distance and bigonial distance were measured by using vernier caliper.

Results: The average values for our subject were found as follows: maximum mouth opening 29.01°; right excursion 4.09°; left excursion 4.28° and protraction 12.54°, respectively. The average values for anthropometric measurements were found as follows: Interincisial distances 69.87 mm, mandible height 90.04 mm; mandible length 93.57 mm; goniomastoid distance 68.70 mm, thyromental distance 78.60 mm and bigonial distance 122.78 mm respectively.

Conclusion: The estimate of ROM values for the TMJ is important in the diagnostic and treatment of the musculoskeletal and neurological diseases affecting joint movement. We conclude that interincisial distance, mandible height, mandible length, goniomastoid distance measurements may be a practical method for the evaluation of the derangements in this joint.

L-44

Strong handedness and facial asymmetry

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Aim: Two of the dominant characteristics of Homo sapiens comprise its use of complex language and its population bias

toward right-handedness. The effects of extreme functional asymmetry (i.e. handedness) on the facial symmetry poorly understood. This study was conducted in order to determine the effects of high levels of right and left-handedness on the level of facial symmetry.

Methods: For this end, 60 university students who completed their physical development (strong left-handed = 30, strong right-handed = 30) were investigated. Digital images were used to assess the degree of facial asymmetry as measured from seven paired traits and calculated as a composite score. Edinburgh Handedness Inventory (EHI) was applied to determine the handedness of the individuals. Participants with scores of 80 or higher were designated as strong right-handers, and participants with scores of -80 or below were designed as strong left-handers.

Results: According to the findings, traits in the left hemi face were found to be significantly bigger than those on the right in right-handers, while traits in the right hemi face were found to be significantly bigger than those on the left in left-handers.

Conclusion: To conclude, it could be stated that handedness has an influence on the facial symmetry, and asymmetric development in brain hemispheres may be responsible for this patterns.

L-45

Is there relation between Cormack-Lehane classification and neck anthropometry?

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Aim: Cormack-Lehane (CL) classification is commonly used to predict the difficult airway. During direct laryngoscopy, the laryngeal view was graded using CL classification. CL grades III and IV were considered difficult visualization. The purpose of study is to investigate the anthropometric measurements of head and neck in relation to the Cormack Lehane classification.

Methods: 172 adult patients (238 male, 365 female) submitted for elective surgery under general anesthesia were included in this study. Age, height, weight, thyromental distance, sternomental distance, neck circumference, neck depth and bigonial distance were recorded during preoperative evaluation. CL was used for visualization of the larynx. CL classification was made by anesthetist and the anthropometric measurements were made by anatomist who had an anthropometric measurement certification. The number and duration of attempts at each tracheal intubation were recorded.

Results: There was not any significant corelation between CL and age, height, weight, neck depth and bigonial distance ($p>0.05$). But thyromental distance, sternomental distance, neck circumference measurements showed statistical significant effect on the CL ($p=0,000$).

Conclusions: Cormack and Lehane classification is the most valuable test for predicting difficult intubation. CL is not used as preoperative bedside tests to predict a difficult airway. Therefore we need new methods easy applicable. According to our results, thyromental distance, sternomental distance and neck circumference useable instead of CL.

L-46

The evaluation of efficiency of MDCT in sex determining with sterna measurements

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The aim of this study is to evaluate the efficiency of multidetector computed tomography (MDCT) in sex determining with sternum length measurement in adult Turkish population.

Total 734 patients who underwent MDCT examination covering whole thoracic region and sternum were included retrospectively to the study (344 male, 390 female; age range, 19-89 years). The length of manubrium, mesosternum and the combined length of manubrium and mesosternum of the patients were measured. According to "the rule of 40" manubrium measuring 40 mm and above is suggestive of male sex and less then that is suggestive of female sex. Thus 68.60% male images (n=236) and 58.20% female images (n=227) were sexed accurately by MDCT. According to "the rule of 91" mesosternum measuring 91 mm and above is suggestive of male sex and less then that is suggestive of female sex. Thus 78.48 % male images (n=270) and 80% female images (n=312) were sexed accurately by MDCT. According to "the rule of 130" combined length of manubrium and mesosternum measuring 130 mm and above is suggestive of male sex and less then that is suggestive of female sex. Thus 86.91% male images (n=299) and 77.94% female images (n=304) were sexed accurately by MDCT. From these results it is concluded that measuring sternum lengths by MDCT is useful method for the sex determination.

L-47

Anatomical and anthropological aspects of infratemporal surface of greater wing of sphenoid

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Aim: The paper presents the osseous formations of the infratemporal surface of the great wing of the sphenoid, showing that these are not always ossifiactions of the ligaments in the area. Clasiccaly, ligaments that connect the posterior border of the lateral pterygoid plate with the infratemporal surface of the great wing and the spine of the sphenoid (ligaments described by Hyrtl, Henle and Civinini) are considered condensations of the pterygoid muscles fasciae and in a few cases they ossify, becoming pterygo-spinous osseous bars

Methods: In order to carry out the study, we have used the skulls collection belonging to the Anthropology Institute of Romanian Academy, from which we have selected the most representative cases.

Results: On some skulls, we have identified alar-spinous osseous bars which are not accompanied by the anterior, pterygo-alar segment and, therefore, they are not in the category of pterygo-spinous bars. In some cases, they are associated with existence of the orbito-temporal groove, which points out to primitive stapedial artery resorption.

Conclusions: The alar-spinous bar could not represent ossification of regional ligaments. Its constant existence in monkeys in Eurasia and the absence of it in the monkeys in America determine us to conclude that pterygo-alar-spinous osseous bars may be phylogenetic remnants.

L-48

Angular photogrammetric analysis of the soft tissue facial profile in a Turkish population sample

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Aim: Social acceptance, psychological well-being, and the self-esteem of an individual are related to physical appearance. It has been established that self-esteem is strongly dependent on facial appearance. Several medical specialties have the ability to change facial features. Hence, there is a need for clinicians working in the maxillofacial area to know the aesthetic standards of a face that guide the aesthetic soft tissue treatment goals in their patients. It is well known that races, ethnic groups, age, sex, etc. influence average facial traits. The aim of this cross-sectional study was to quantify average parameters that define the soft tissue facial profile of a young Turkish population sample.

Methods: Angular measurements were defined in a standardized photographic technique to analyze the profile. Lateral photographs of 100 (49 males, 51 females) healthy individuals aged 19-32 years were taken with head in Frankfort horizontal plane. Angular measurements were performed using AutoCAD 2007. Nasofrontal angle, vertical nasal angle, nasolabial angle, mentolabial angle, nasal angle, angle of the nasal dorsum, cervicomental angle, angle of the medium facial third, angle of the inferior facial third, angle of the head position, angle of facial convexity and angle of total facial convexity were measured digitally. Independent sample test was used to compare males and females.

Results: There were statistically significant differences between genders regarding several angles: nasofrontal, nasal dorsum, medium facial third, head position, facial convexity, total facial convexity ($p<0.05$).

Conclusion: These findings broaden the knowledge about soft tissue facial profile in a Turkish population and bring insight for future studies.

L-49

Evaluation of face asymmetry using linear measurements in relation to hand preference and gender

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Aim: Numerous factors such as cleft lip, hemifacial microsomia, and childhood fracture of the jaw have been reported to be associated with facial asymmetry. These conditions often result in severe and pathologic asymmetry of the face. On the other hand, minor, nonpathologic facial asymmetry, which is defined as the difference in size between the left and right hemifaces or normal

asymmetry, is relatively common. The left and right-side differences that occur in variable degrees in the population may cause interference with the normal dental function and esthetic appearance or may be so insignificant that it cannot be detected by mere observation. Asymmetry in human skull and hence face is suggested to be caused by unequal development of the cerebral hemispheres. To assess the cerebral lateralization, hand preference can be taken as an indirect index. Consequently, the facial asymmetry was re-studied in the present work considering the hand preference and gender of the subjects.

Methods: Anthropometric measurements of face were taken from 147 female and 150 male Turkish adults aged between 19 and 42 years. Facial profiles were digitally analyzed using 16 linear measurements (8 from left and 8 from right side) made with standardized photographic records, taken in Frankfort horizontal plane. The measurements were performed using AutoCAD 2007. An asymmetry index is calculated for each pair of measurement with the following formula: [(R-L)/(R+L)]x100. Independent samples test was used to compare males and females and right- and left-handers.

Results: There were no statistically significant between genders and right and left hand preference groups for all of the indices analyzed ($p>0.05$).

Conclusion: The results of the present work are not in accordance with the supporters of a right or left shift in facial asymmetry and hand preference is suggested to have no significant effect on facial profile.

L-50

Two new methods to obtain quantitative data from direct roentgenograms

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Aim: Roentgenograms show the two-dimensional reflection area of three-dimensional objects. Generally the images do not include a scale. Therefore, the size differences in certain subjects cannot be monitorized using direct roentgenograms. We described two new technique namely projection area fraction (PAF) and projection area per length squared (PAL) that could be used to obtain quantitative data from direct roentgenograms.

Methods: In the PAF method, the projection area of both the phase and the reference space that contains it are estimated. Surface fraction of the phase within the reference space is expressed in percentages. If the interested structure is not within a reference space, the PAL method is offered to solve the problem. First, the projection surface area of the interested structure is first estimated. In the second step, the length of a reference distance in the image is measured and the square of the length is recorded as the reference space. Finally, the projection area of the structure within the reference space is estimated as PAL.

Results: We applied the PAF method for the assessment of the size of mandibular cyst on ortopantomograms in dentistry. The PAL method is also applied to evaluate lumbar lordosis using direct lateral roentgenograms. The results showed that they could be used to obtain quantitative data from the printed roentgenograms and digital images.

Conclusion: The presented methods are simple and quick to obtain quantitative data from the two dimensional images even if they do not have a scale bar. The methods could be used in daily routine practice and research purposes.

L-51

Maternal and neonatal anthropometry in 212 Albanian mother-baby pairs

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Objective: To determine the relationship between anthropometry maternal and neonatal.

Material and Methods: 212 Albanian mother-baby pairs have been enrolled.

Results: Anthropometric measures were assessed in 212 Albanian mother-baby pairs. 160 appropriate -for-gestational-age [AGA] and 52 intrauterine growth–retarded [IUGR]. Mothers who delivered IUGR babies were thinner and shorter than mothers of AGA babies. IUGR mothers also tended to gain less weight in pregnancy than AGA mothers, presenting a risk 3.2 times higher for weight gain less than or=3.5kg.There were weak thought statistically significant correlation between AGA mother-baby pairs, and few weak correlation between IUGR mother-baby pairs. It seems in our study that the influence of maternal nutrition on a baby´s size at birth is more important issue and prevalence of malnutrition has decreased. Only 19 mothers were with a body mass index (BMI) less than or=20.On the other hand, 148 mothers were overweight (BMI 25-30) and obese (BMI greater than 30) mothers.

Conclusion: We suggestion to assess the diet of pregnant women and its relationship to maternal weight, weight gain and low birthweight (particularly IUGR). IUGR babies are born from thinner and shorter mothers than AGA babies.

14.00: Session 9 - Education (Syllaba´s Hall)
Moderator: Biasutto Susana, Aland R. Claire

L-52

The human being uniqueness: an anthropological concept needful for medical education

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The author notes that medical education is still dominated by a scholastic approach of both healthy and sick patient which is proved by presentations of standard morphologies, standard biochemical structures, standard physiological behaviours, standard diseases. This methodology is applied in spite of evidences showing that in nature there are not two identical individuals and a doctor treats sick patients and not diseases. Using arguments the author discusses the uniqueness of human being at the genetic, morphological, biochemical, physiological, behavioural and pathological levels. He thinks that medical education must prepare the future doctor on the basis of a random approach of the human being and not on the basis of a fixed one, taking into account that the diagnosis and treatment are specific for each patient in part. Because doctor's medical training must be based on theoretical training and, equally, on the experience gained by examining and treating patients, hence human individuals, the author considers that the new approach he proposes will grow student's interest in direct contact with the healthy patient and the sick one.

L-53

Medical assistant-student system in the chair of normal anatomy and its results

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Medical Assistant-Student System in the Chair and Institute of Normal Anatomy of the National University of Cordoba has developed during approximately 50 years, but with suitable changes. The characteristics of selection, permanence, work, and future prospects of assistant-students is presented. Every Argentine student that has passed the final examination of Normal Anatomy (first year course) with a mark higher than 7/10, is a potential candidate. Submission to the entrance examination is voluntary and only depending on personal interest. Selection is determined by this exam score, the student average score and the score obtained in Anatomy final examination. The top number of assistant-students for our Chair is 120. They will collaborate in educational activities and dissection, will take courses on didactics and research and, probably, take part or develop a research project. Assistant-students keep this condition during one year and they will have to submit to a new examination if they want to continue. Eighty per cent of assistant-students finish their first year, half of them continue for a second year, and less than 10% will be assistant-students until their graduation. Most (95%) of this ten per cent will access a residency for post-graduate specialization and some of them will go on with a teaching career. In our days, 96% of Anatomy Professors began as assistant-student. Assistant-student system has provided a channel to guide young people interest in Anatomy, evidently supported their medical and specialization training, and represents an enthusiastic source for teaching and research that renew the Chair and Institute of Normal Anatomy.

L-54

Anatomical knowledge and diagnostic images in medical education

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The importance of anatomical knowledge for the correct understanding of the diagnostic images is well known and accepted. Development of new techniques, based on computerized tomography and magnetic resonance have increased the requirements. In our Faculty, the course of Anatomy includes the identification of normal anatomical structures in diagnostic images. We intend to demonstrate the long-term results provided by this curricular change.

This study considered the following two groups: A) 274 first year students, B) 100 recently graduated physicians. Both groups were evaluated with questions on computed tomography and magnetic resonance. 13% of the students answered well all the questions in group A; while nobody did in the group B. Two per cent of the people in group A gave a wrong answer to all the questions; while this percentage rise to 26 in group B. The right answers average in group A was 60%, while it was 45% in group B. Group B was subdivided into B1) those graduates that studied anatomy with diagnostic images and B2) those who didn't. Group B1 right answers were 66% and group B2 right answers were 40%. Those results showed the significance of anatomical knowledge to identify the different structures in diagnostic images. While the students were developing, the course of Anatomy identification was easier; and it was

more difficult when time had passed. However, results were better for those graduates that had developed the course identifying the anatomical structures in the diagnostic images, than those who did not.

L-55

Learning anatomical principles of basic clinical skills

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Aim: The main aim of implementation of basic clinical procedures in our anatomy course is to demonstrate the importance of sound anatomical knowledge for confident practical work.

Methods: Anatomy seminars and practical classes are accompanied with visual presentation of particular clinical procedures using An@tomedia CD-ROM, and the same procedures are afterwards practiced and performed on cadavers. Particular attention is focused on invasive procedures affecting the integrity of skin or mucosa (e.g. intercostal catheterization or lumbar puncture). A list of indications for every particular procedure is compiled (less important) in addition to a detailed description of 'layers that are traversed' and 'anatomical structures that are endangered' during the particular procedure (more important).

Results: We are certain that the following benefits will be achieved: improvement of basic anatomical concepts and principles, improvement of body parts manipulation skills, understanding of benefits and risks of even simple clinical procedures, raising interest for clinical and applied anatomy, putting pressure on clinicians (during clinical years) to repeat basic procedures on patients, raising confidence of first year students in general.

Conclusion: We believe that implementation of basic clinical skills in anatomical courses would make anatomy classes even more interesting and enjoyable for both students and teachers. We also believe that those acquired skills would lead to much more confident students and ease the approach to real patients.

L-56

Basic medical imaging training integrated in anatomy course: an added value

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Aim: The main aim of implementation of all aspects of medical imaging (radiography, CT, MRI, ultrasound) and endoscopy in a classical anatomy course is to enable students to perform 'virtual dissection' of a living person allowing them to appreciate different anatomical perspectives.

Methods: Anatomy seminars and practical classes are accompanied with presentations of all relevant medical imaging approaches using An@tomedia CD-ROM. Particular attention is focused on endoscopy. For looking within hollow viscera (intraluminal endoscopy), attention is focused on mucosal features and specifics of the lumen. For looking within major body cavities (laparoscopy) the focus is on topographic relationships as well as on external features of organs. Endoscopies have been incorporated as both movies and selected images, where individual structures may be identified.

Results: Particular, 'from within' anatomical perspective is achieved. All peculiarities of major hollow organs can be clearly visualized from inside the organ. Anatomical features of major body spaces (peritoneal and pleural) can be appreciated; organs can be moved and 'probed', variations and individual characteristics can be distinguished.

Conclusion: The implementation of principles of medical imaging to anatomical courses makes anatomy classes more interesting and useful because this way anatomy becomes 'live' and more clinically relevant. Also, the ability to recognize various organs and interpret their relations on images other than those in classical anatomy textbooks and atlases can be a positive indicator of advanced knowledge and understanding of anatomy.

L-57

Self-assessment of teaching styles by anatomy demonstrators: useful insight or misleading?

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The teaching style of anatomy demonstrators has a profound effect on student learning. We postulated that self-awareness of teaching style is essential for effective teaching and may develop with experience. A questionnaire was developed based on a teaching styles inventory for PBL tutors (Bibace et al. 1981). This recognised four styles: Assertive, Suggestive, Collaborative and Facilitative. The questionnaire was evaluated for content validity using experienced demonstrators and was then completed by 178 anatomy demonstrators with between zero and 3 years teaching experience. Questions were scored on a five point Likert scale. Answers were summed for each domain. Thirty percent of demonstrators could not be classified, as scores for all domains

were nearly equal. When the data was subjected to internal consistency checks, the percentage of unclassifiable scores rose to 50%. There was no relationship between teaching style or the percentage of classifiable scores with experience. Many demonstrators, irrespective of experience, scored themselves similarly in all questions, with scores more commonly on the positive side of the median score. It is possible that demonstrators could not differentiate the meanings expressed by the differently worded questions, or that the inventory is insufficiently discriminating in the setting of anatomy teaching. Demonstrators may also have been unconsciously scoring their teaching behaviour in a manner believed to be desirable. We suggest that other methods may be needed for recognising and encouraging effective teaching styles in the setting of a dissection room.

L-58

Active learning in the dissecting room – helping learners to learn

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St Georges, University of London accepts two streams of medical students - graduate entry and school leavers. Previous studies have demonstrated that school leavers perceive themselves as active learners in anatomy but are perceived by lecturers as passive. To encourage active learning by the students, the format of the anatomy practical classes was altered to incorporate learning strategies. Explicit guidance for preparation, simplified instructions for participation in class and applied revision exercises were used. Movement in the practical classes was introduced by implementing a station system with time limits to complete exercises and by removing chairs. Teachers were instructed to facilitate rather than didactically teach. Student opinions were investigated by questionnaire throughout the course and after the final examination. Resources used were surveyed. Students were positive about the changes, claiming to understand more (76.3%), spend more time using cadavers (72.7%) and being more confident in related clinical skills sessions (62.7%), but noted that preparation time was increased (54.5%). A minority were negative. Some students (38%) identified lack of confidence as the reason they wanted more didactic teaching. Lack of confidence may also explain the resources students used. Over 70% used their own notes, textbooks or internal web-based resources to which they had been explicitly directed, and which were easily available. Few used resources to which they had not been explicitly directed. Students may lack confidence to approach learning independently, despite their previous academic achievements. However, over 70% said the new approach had increased their interest in and confidence about anatomy.

L-59

DVD dissection demonstration of mediastinal lymphatics from both anterior and posterior approaches

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Aim: In order for surgeons to have 3D comprehension of structural topography and minute relationships, it is important to be able to view structures from both sides. Mediastinal lymphatics are difficult to reach due to their deep location.

Methods: Cadaveric dissection is first demonstrated from the typical surgical anterior approach for orientation and to provide minute details of the structures related to the lymphatic pathways and then from the posterior approach.

Results: In the anterior approach several lymphatic pathways from the tracheobronchial lymph nodes to the venous angles are shown, as well as the relationships of these pathways with the vagus and recurrent nerves. The differences between the right and left pathways are highlighted. Also a special unique posterior approach dissection is demonstrated. In this approach, some lymphatics from the esophagus and bronchi drain into the thoracic duct. Sometimes lymphatics from the inferior tracheobronchial nodes were found to ascend between the trachea and esophagus. These unique pathways are shown.

Conclusion: These comprehensive photographic and DVD dissection views facilitate a clear understanding of many lymphatic pathways from the trachea and esophagus to the venous angles, as well as their structural relationships.

L-60

Preliminary usage reports for radiographic anatomy tutorials published in MedEdPORTAL for distribution worldwide

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Several computer-assisted instructional radiographic anatomy tutorials were developed in Adobe Flash, published in

MedEdPORTAL, and made available for gratis around the world. They were designed to serve as an introduction to normal x-rays and cross-sections of the human body for preclinical medical and dental students enrolled in the Human Structure course. The objective was to stimulate active self-directed learning by integrating introductory radiographic anatomy into a structured format that is readily accessible for local and distance learning. The publications complemented didactic and practical (dissection) activities of the beginner health care professionals by providing them with opportunities for self-assessment through repetition and immediate feedback critical to the interpretation of standard X-rays and CT- and MRI-scans. Usage report data of one project showed that it was accessed more than 100 times in less than 10 months. Users were from six continents, i.e., North and South America, Europe, Africa, Asia and Australia. Some were repeated users with many different reasons to download. Most were educators/faculty using the tutorials for teaching or training students (36%), for teaching other faculty (7%), for teaching practicing health professionals (5%) or for curriculum development (9%). Some were students (12%), educators (10%), and health care professionals (12%) that used them for self-directed learning or for self-assessment and other purposes (1-3%).

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Sunday, **July 11**

08.00: Session 10 - Animal Models 1 (Burian´s Hall)
Moderator: Cornianu Marioara, Bajek Snježana

L-61

Antioxidant defense in patients with early glycoregulation disorders

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Introduction: Early glycoregulation disorders, impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) are associated with low antioxidant defense. The aim of this study was to analyze parameters of insulin sensitivity, glycoregulation, lipid status, hypertension and antioxidant defense in patients with early glycoregulation disorders.

Material and methods: The study included 39 patients between 25 and 35 years. Oral glycosa tolerans test revealed IFG in 45.7% and IGT in 54.3% of patients. Insulin sensitivity was determined by HOMA IR. Lipid status was determined by spectrophotometry (total cholesterol, HDL-cholesterol, LDL-cholesterol, triglycerides). Activities of markers of antioxidant defense, superoxide dismutase (SOD) and glutation peroxidase (GSH-Px) were determined in erythrocytes with Randox Lab (UK) commercial kit.

Results: BMI indicated obesity in both groups (30.0±2.4; 31.6±3.6). HOMA IR (2.9±1.9, 6.6±3.7) was elevated in IGT patients, while blood pressure was increased in both groups of patients (l41/85±29/12, 143/86±13/10 mmHg).Visceral obesity, hyperlipoproteinemia type IV, hypertension and decreased antioxidant defense (I: SOD 793.1± 67.7, GSH-Px 20.7±1.8; II: SOD 801.0±107, GSH-Px 24.9±5.9U/gHb) were found in all patients, while decreased insulin sensitivity was found in IGT.

Conclusion: Results obtained indicate that low antioxidant defense exists at patients with early glycoregulation disorders and that it is associated with decreased insulin sensitivity, hypertension and hyperlipoproteinemia.

L-62

Myogenic regulatory factors expression in rat musculus masseter after injury

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Aim: Skeletal muscle is a dynamic system that responds quickly and adapts to changes in intrinsic and extrinsic stimuli. A whole repertoire of genes can be activated in response to these stimuli. The family of myogenic basic helix - loop - helix (bHLH) transcription factors (MyoD, myogenin, MRF4, Mif-5) plays a major role in coordinating the muscle developmental program, as well as the process of adaptation. These factors contribute to the transcriptional activation of muscle genes during commitment and differentiation. The aim of this study was to determinate time course expression of MyoD and myogenin during regeneration in musculus masseter.

Methods: All experiments were performed on male Sprague - Dowley rats. Histochemical, immunohistochemical and Western blot analyses were performed on masseter muscles. Regeneration process of skeletal muscles was induced by injection of bupivacain.

Results: Regeneration of masseter muscle caused a transcient upregulation of MyoD and myogenin. After reestablishment of normal muscle architecture there was no expression of MyoD and myogenin.

Conclusion: The main conclusion of our investigation is that role of MyoD and myogenin is important in repair response of muscle fibers.

L-63

Postnatal growth in the rat pineal gland: a stereological study

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The present study describes changes observed in the rat pineal gland by using stereologic techniques in the lactation period and postweaning period. We studied 30 Wistar albino rats in the postnatal day – PN day 6, 10, 21, 45, 60 and 90 using light microscopy. The pineal gland volume was estimated by point counting method and total number of pinealocytes was estimated automatically by the stereology software. The numerical density of the pinealocyte stabilized during lactation and decreased rapidly afterweaning. The postnatal development of pineal gland shows an increase in the gland volume and total pinealocyte number. It is possible that there is an increase in collagen filtration and capsule thickness or new synaptic bodies and pinealocyte nuclear inclusions are responsible for pineal gland postnatal increase.

L-64

Investigation of toxic and teratogenic effects of trimethobenzamide HCl on rat embryonic development using in vitro culture method

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Nausea and vomiting in pregnancy is a common complaint and when long-standing, pharmacological treatment is often needed. However, the toxic and teratogenic effects of antiemetic drugs on embryonic development are not clear. Therefore, we aimed of investigate the effects of trimethobenzamide HCl, an antiemetic drug, on embryonic growth and development. 9.5 day embryos were dissected and cultured for 48 hours. Whole rat serum was used as a culture medium for the control group while different concentrations of trimethobenzamide HCl (25-100 µg/ml) were added to rat serum for the experimental groups. At least 10 embryos were used for each concentration. Dose-dependent effects of this drug on embryonic developmental parameters such as total morphological score, yolk sac diameter, crown-rump length and somite number were compared using morphological method. Embryos were evaluated for the presence of any malformations. Compared with the controls, trimethobenzamide HCl caused statistically significant dose-dependent growth retardation in all developmental parameters equal to and higher than 25 µg/ml. This antiemetic also caused haematoma, maxillary deformity, open neural tube, abnormal tail torsion and vertebral deformity at significant level. In this study, dose-dependent developmental toxicity and teratogenicity of trimethobenzamide HCl on rat embryos was determined. This project was supported by Scientific Research Project Commission of Selcuk University.

L-65

Morpho-functional thyroid changes induced by amiodarone: experimental study

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The cytotoxicity induced by amiodarone (AMD) in multiple tissues represents a complication with severe potential that limits its use as an anti-arrhythmic agent, the clinical manifestations of AMD toxicity on the thyroid gland varying from myxedema to hyperthyroidism. The aim of the study was to evaluate the multisystemic (and especially thyroid) morphological and functional changes caused by AMD. The study was made on 19 Wistar rats (250-300 g; 15-20 weeks) divided into 2 groups: (A) a witness lot with 10 animals and (B) a lot with 9 rats which were injected (during 12 weeks) with an AMD solution into the peritoneum (30 mg/kg of body). Before euthanasia, blood was taken from the animals for hormonal determinations: TSH, FT3, FT4, plasma concentration of AMD. Tissue fragments obtained (after sacrifice) for the microscopic examination (thyroid, heart, lung and liver) were fixed in formalin 10%, embedded in paraffin, sectioned (at 4-5 µm) and stained HE, trichrome Masson, Pas and silver impregnation.

The evaluation and systematization of the results obtained show:

- Elevation of TSH values in lot B (5.64±1.57 mUI/ml) as compared to lot A (1.36±0.65 mUI/ml), with significant differences between the two groups ($p<0.001$);
- Mean values of thyroid hormones in normal ranges: FT4 of 1.58±0.3 ng/dl (lot B) and 1.36±0.4 ng/dl (lot A) ($p>0.5$); FT3: 1.34 ± 0.48.pg/ml (lot B) and 1.45±0.55 pg/ml (lot A), ($p>0.5$);
- Morphological thyroid lesions were: alteration of thyroid follicles with damaging of follicular epithelium, vacuoliza-

tion of apical pole with decrease/destruction of cilia; scanty colloid; small, irregular nuclei with dense nuclear chromatin; infiltration of degenerated follicles with macrophages and lymphocytes.

Morpho-functional changes are induced by the direct cytotoxic effect of AMD on thyrocytes, a contribution being also brought by the effect of iodine freed from the molecule of AMD.

L-66

Systemic morphologic changes induced by exposure to cigarette smoke: experimental study

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Aim: Assessing of morphologic alterations induced (in lungs, trachea and aorta) by exposure to cigarette smoke extract.

The material consisted of 18 mice (females, weight of 300g) divided in 3 groups: group A (6 mice) – acute exposure (in vitro) to cigarette smoke extract for an hour; group B (6 mice) – chronic exposure (in vivo) for 12 weeks and C – control group (6 non-exposed mice). The tissue fragments (after sacrifice) were fixed in 10% formalin, paraffin-embedded, sectioned at 4-5 microns and stained HE, trichrom Masson, Alcian Blue and for the elastic fibers (Verhoeff).

Results and Conclusions: Systematization and quantification of histologic lesions in terms of severity show:

1. Dysfunction of aorta endothelium, with denudation and loss of it on extended areas after acute in vitro exposure to cigarette smoke extract for an hour;
2. Significant lesions (in lungs and trachea) after chronic exposure (in vivo) for 4 weeks: panacinar emphysema (PE) in non-systematized foci and peribronchiolar and perivascular inflammatory reaction; slightly hyperplasia of tracheal mucosa epithelium, areas of denudation and loss of the epithelium, vacuolar-hydropic degeneration with disappearance of cilli; edema, hyperemia and discrete inflammation of tracheal lamina propria; focal exulcerations of aorta endothelium;
3. Severe lesions after chronic (in vivo) exposure for 12 weeks: severe, diffuse PE, foci of interstitium pneumonia and vasculitis lesions; focal fibrous thickening of the pleura with hyperthrophia and reactive hyperplasia of mesothelial cells and subpleural inflammatory cells; intraepithelial neutrophilic granulocytes with forming of microabscesses; foci of squamous metaplasia and metaplasia of secretory cells – as a response to chronic irritation; marked inflammatory reaction in tracheal lamina propria and insignificant alterations of the aorta.

L-67

Morpho-functional asymmetry of the normal and changed ovary: experimental research

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Introduction: For many years the statement about the equality of the pair organs existed and doctors, especially surgeons, considered that a twin organ remaining after one-sided ovariectomy can fully compensate for the removed one.

Aim: The aim of our research was to reveal age organ metrical and morphological differences in between the ovaries of the rats in normal condition and after one-sided ovariectomy on normal and polycystic ovary having been performed.

Material and Methods: The experiment was carried out on 90 female Wistar rats, weight 80-110 g (the age of the rats 1 month old). Eighteen rats served as a control. For solving this problem we created an experiment. We performed a one-sided ovariectomy on all of the rats who were under experiment (the rats with intact ovaries and rats with artificially created polycystic ovarian syndrome). The terms of observations were determined at a 60, 90 and 180 days interval. We counted the weight of the rats, weight of the removed ovary, volume of the ovary. Morphometrical research was used to evaluate the difference in the functional ability of the remaining organ.

Results and Conclusions: In the experiment carried out it was proved that the structural asymmetry is taking place in the ovary in control group as well as in the experimental group. In case of a one-sided ovariectomy being performed on polycystic ovaries a very clear asymmetry phenomenon was revealed (the right side predominated over the left one).

L-68

Morphological changes in cultivated thymic lobes induced by somatostatin

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Somatostatin, from circulation or locally produced, modulates thymocytes development and activity of thymic stromal cells throughout somatostatin receptors.

Material and Methods: To examine whether exogenously added SRIH-28 affects the thymic morphology, thymic lobes originated from AO male rats, 12-week-old, were cultivated in the tissue culture dish containing DMEM/F12 medium supplemented with FCS. The thymus lobes were incubated separately for 1 or 3 days, either in medium alone (control) or medium containing 10-9M somatostatin-28. Thymuses were used for analysis of histological changes by light microscopy,

Results: In the control thymus lobes, medium cultivated, the number of thymocytes was reduced after 1 day in adult thymus organ culture, especially in the outer cortex, where apoptotic cells and apoptotic bodies were observed. After 3 days in culture, the extension of interlobular space, the reduced number of thymocytes in the cortex, clusters of apoptotic cells in the inner cortex, apoptotic bodies and debris were notified. Somatostatin increased interlobular spaces and the percentage of apoptotic thymocytes in the thymic cortex at day 1 of culture. On day 3 of culture significant changes in the thymic lobes were not found. Exception was formation of apoptotic cells islands, but not apoptotic bodies and debris, in contrast to control cultures where they existed. Changes found in the thymic lobes of the experimental cultures were in the smaller degree compared with the changes described in control cultures thymic lobes.

Conclusion: Presented results suggest that discharged cortex, but preserved structure in the treated thymic lobes, could be attributed to somatostatin-28.

08.00: Session 11 - Animal Models 2 (Syllaba´s Hall)
Moderator: Soliman Mostafa Kandil, Saki Ghasem

L-69

The diaphragmatic, transabdominal surgical approach to the rat's heart is suitable for ligation of the left descending coronary artery

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Aim: Experimental surgical procedures that are mostly used to gain access to coronary vessels are either quite invasive, thus increasing mortality rate, or they have very limited access to coronary vessels, especially to the left descending coronary artery (LDCA). LDCA is positioned deeper in the myocardium, just below the vein, and cannot be seen on the surface of the heart. Thus, the aim of our study was to develop an experimental model of myocardial infarction allowing very precise manipulation of the LDCA.

Methods: In this study we used Sprague-Dawley female rats (n=12) weighing 230-260 g. Through midline incisions, first of the abdominal wall and then the diaphragm, the rat heart was visualized. We localized the LDCA by locating the corresponding vein on the surface of the heart between the left auricle and the pulmonary outflow tract. The coronary vessels were ligated (with an 8.0 nylon suture) about 3 mm from their origin.

Results: All of the animals underwent a transmural infarction, one animal died shortly after the operation while in three animals a left ventricular aneurysm developed 7 weeks after surgery.

Conclusion: Advantages of our diaphragmectomy-based approach include: minimal trauma (hence minimal bleeding), maximal visibility of the entire flow of coronary vessels allowing precise location of coronary ligation area and quick recovery of the animals.

L-70

Study of *Ruta graveolens aqueos* extract effects on the spermatogenesis of mature Wistar rat

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The world outrageous grow of population lead up to the development of various methods to prevent pregnancy. Nowadays, the men accept their role to attend in preventing pregnancy methods. Some of these methods are nonhourmonal. In nonhourmonal methods, plants are used. *Ruta graveolens* (RG) is one of these plants. This plant grows in Iran and some other countries and it was used as a contraceptive plant in our ancient medicine in both sexes. In this study, the effect of aqueous extract of this plant in a long period near the real amount of the time of rat spermatogenesis on testis tissue has been investigated.

Material and Methods: For this reason as an experimental research, animals were allocated to three groups to control which did not receive anything, vehicle which received only normal saline, and experimental which received ruta extract. Lethal dose 50 (LD50) extract was considered as 620 mg/kg. Based on this, sub LD 50 dose of aqeous extract 300mg/kg was injected intraperitoneally once every other day for 40 days. A day after last injection, the animals were deeply anesthetized

and dissected. The testis and epididymis were extruded, the epididymis extract was collected for sperm motility assay. The testis fixed for histological studies. For statistical analysis ANOVA and Tukey as a post hoc test were used.

Results: Intraperitoneal injection of 300mg/kg *Ruta graveolens* showed a significant decrease in the number of spermatogonia ($p<0.01$), primary spermatocyte ($p<0.05$), spermatid ($p<0.05$) , Leydig cell ($p<0.01$) in experimental group as compared to control and vehicle. Also there were a significant increase in thickness of tunica albugina ($p<0.01$) and decrease in seminiferous tubule diameter ($p<0.05$).

Conclusion: The aqueous extract of RG diminishes the reproductive system activity and might be a useful substance for birth control process.

L-71

Study of level of inhibin B and ultra structure of Sertoli cells in contralateral testis after unilateral blunt testis trauma in rat

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This study was designed to evaluate the ultrastructure of contra lateral testis tissue and measurement of Serum inhibin B following unilateral blunt testis trauma. Twenty pre-pubertal male Wistar albino rats aged 3 weeks were divided into 4 equal groups that each containing five rats. Group I was the control group. Group II was used as a Sham group. Group III had right orchiectomy initially. Group IV was the trauma group in which the right testis was placed on a firm sterile surface and the metal rod weighting 100g was drooped on to the testis from a height of 5.5 cm. Seven weeks after initial operation 3 ml blood samples were obtained from each rat to determine inhibin B levels and contra lateral orchiectomies were performed in all groups to microscopically investigate electron. Iinhibin B levels decreased in groups 3 and 4. The difference between group 3 with groups 1 and 2 was significant ($p= 0.003$ and 0.02). Also the difference between group 4 with groups 1 and 2 was significant ($p= 0.006$ and 0.002) but the difference between group 3 and 4 was not significant ($p=0.08$). In group III (orchiectomy) TEM showed a normal sperm morphology and normal disruption of different stages of the spermatogonial maturation. Debris and vacuolar changes were seen in Sertoli cells. Morphology of Leydig cells slightly modified and the dilated cisternae of the smooth endoplasmic reticulum (SER) were observed. In group IV (trauma) mitochondria with degenerated cristae and enlarged vacuole were observed.

L-72

Temporal lobe epilepsy: role of environmental enrichment on learning and memory: a behavioural and morphological study in rats

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Objective: Present study was aimed to study the effect of environmental enrichment on learning and memory in temporal lobe epileptic rats.

Method: Adult male rats were divided into four groups (1) Control (2) Sham control (3) Lesion control (4) Kainic acid induced temporal lobe epileptic rats (L+EE) groups (n= 6 in all groups). Rats in Sham control, L+EE rats were subjected to environmental enrichment 3hr/day for 30 days. At the end of the treatment period, rats in all groups were subjected to T-maze and passive avoidance tests and then sacrificed for cresyl violet staining. Data was analyzed using one way ANOVA, followed by Bonferroni's post test.

Results: In T-maze and passive avoidance experiments L+EE rats subjected to environmental enrichment showed significantly higher number of alternations, lesser percentage bias and increase in the percentage of correct response, spent significantly less time in the small compartment when compared to the lesion control rats. Morphological data also showed significant changes in the hippocampus in L+EE group.

Conclusion: We conclude that rats with neurodegenerative disorders when subjected to environmental enrichment will improve learning and memory.

L-73

Early histological changes of stomach and liver in experimental portal hypertension in the rat

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Aim: Our study stands out the early histological changes at the stomach and liver level in experimental portal hypertension

and the clinical significance of the pathological changes which appears after diminishing of hepatic venous outflow.

Methods: An experimental model was created by obstruction of the suprahepatic veins lumen and inferior vena cava, too, at the adult Wistar rats. The animals were sacrificed in the 30 days after operation. Liver and stomach fragments were taken and were processed for optic microscopy and electronic microscopy.

Results: At the second laparotomy, the liver was increased in volume, with a little amount of ascites in peritoneal cavity and oedema of the digestive organs walls. The morphological study using usual techniques has highlighted vascular stasis in gastric submucosa. In liver it is standed out the pericentrolobular vascular stasis, inflammatory lymphoplasmocytic infiltrate around the end of hepatic vein. In the gastric submucosa there were found vascular stasis, and within the chorion mucosa, the high capillary hyperemia. There is a discreet vacuolar feature on epithelium surface of the gastric mucosal in pyloric region. In the other layers, as rats have a multistratum keratinized epitelium, in the stomach the mucosa is unchanged, but maintains the hyperemia in mucosal chorion.

Conclusions: In portal hypertension appear early histological changes in digestive organs, such as, stomach, liver, small intestine that may result in severe complications as hemorrhage.

L-74

Ultrastructure of dorsal root ganglion neurons following sciatic nerve repair with using of pizoelectric tubes (PVDF)

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In attention of reports on basis of peripheral nerve repair with using of nerve guidance channels, and effect piezoelectric materials such as polyvinilidine fluoride in increasing of regeneration of sciatic nerve, as well as inadequacy of evidences about effect of using of this channels in prevention of sensory neurons death, this research carried out in university of medical sciences of Iran on 1383. 16 adult Wistar rat with weight 200-250 g randomly divided to autograft and nerve guidance channel of PVDF (experimental groups), axotomy and sham (control groups). In autograft group 10mm of sciatic nerve in middle thigh cut and then grafted. In PVDF group 10mm of sciatic nerve removed and used PVDF tube containing collagen gel. In axotomy group, 10mm of sciatic nerve completely removed and in sham group only skin and muscle cut and without of cutting of nerve, muscle and skin were closed. After 1 and 8 weeks, rats were killed with perfusion.L5 DRG in each side were extracted and after fixation, dehydration, and embedding with Araldit resin semithin and thin section were prepared and investigated with electron microscope. After 8 weeks in axotomy group some neurons were showed chromatin condensation, nuclear cap, cellular shrinkage and so apoptosis. In autograft and PVDF groups cell death was less. After 1 week apoptosis was not showed in all groups. This study showed that sciatic nerve repair by piezoelectric tube (PVDF) can decrease neuronal cell death but cannot prevent from it completely.

L-75

Ultrastructural study of the neurons and glial microvessels in the frontal cerebral cortex of Albino rats after prolonged exposure to electromagnetic fields

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Aim: The aim of this study was to investigate the effects electromagnetic fields exposure on neurons and glial microvessels in frontal cerebral cortex of albino rats.

Material and methods: Twenty adult male albino rats divided into four groups were used. The first was control, the second exposed to electromagnetic field for one month two hours daily, the third group exposed for three months two hours daily, the fourth group exposed for four months two hours daily. Two induction coils (Helmholtz type) were used to induce electromagnetic fields. Control group animals were sham exposed in the same cages without passage of electric current. Fresh sections from frontal lobe cerebral cortex were taken. Specimens were processed for electron microscopic ultrastructure study.

Results: Frontal cerebral cortex control rats showed neurons intermingled with different types of glial cells and microvessels. The second group showed pyknotic nuclei with indented nuclear membrane with intracytoplasmic vaculation. Microvessels showed mild intimal irregularities. The third group showed very small nuclei, intracytoplasmic areas of vaculation, degenerated mitochondria and cisternae of the rough cytoplasmic reticulum. Microvessels showed erythrocyte accumulation. The fourth group showed more pyknotic nuclei. The cell organelles were scanty with swollen electron-dense mitochondria. Microvessels intimal irregularities with areas of hemorrhage were observed.

Conclusions: Prolonged exposure to electromagnetic fields leads to microvascular, cellular and subcellular changes in the frontal cerebral cortex.

L-76

Successful rate of ICSI due to parameters of semen in spinal cord injury

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Aim: One of the most important causes of infertility in men is spinal cord injury (SCI) because of poor semen quality and inability in ejaculation. This study compares the influence of physical and sperm parameters of semen in healthy and SCI men on the rate of success of Intracytoplasmic Sperm Injection (ICSI) method in both groups to find out whether it can be one of the best choices of treatment for this kind of infertile couples or not.

Methods: In this study 71 SCI men and 44 healthy men (unexplained infertile couples) treated with ICSI technique between 1997–2008 in Kowsar assisted reproductive center. Routine semen analysis was performed to evaluate physical and sperm parameters in both groups, and then the effect of each parameter on incidence of pregnancy was assessed.

Results: Our results showed that most of the physical and sperm parameters of semen do not have any influence on the rate of pregnancy (with ICSI) in both groups except viscosity), motility, count 2 and morphology of sperm ($p<0.05$).

Conclusion: We concluded that IVF – ICSI method is one of the best choices of Assisted Reproduction treatment for infertile couples with male factor (SCI).

10.15: Session 12 – Locomotion 1 (Jonáš's Hall)
Moderator: Fogg Quentin, Park Soo-An

L-77

Unilateral agenesis of the frontal sinus overlapped by expansion of the contralateral sinus: surgical and radiologic anatomical findings of a potential surgical pitfall in cadavers

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Aim: The close relationship between the frontal sinus and the anterior skull base or the orbit makes it vulnerable to surgical complications. A thorough knowledge of frontal sinus anatomy is crucial to avoid complications during frontal sinus surgery The aim of the study was to draw attention to the surgical importance of unilateral agenesis of the frontal sinus hidden by the overlapping expansion of the contralateral sinus toward the agenetic side.

Methods: Endoscopic transnasal sinus dissections of 55 human cadavers (42, formalin fixated; 13, fresh frozen) were recorded. Anatomical variations, abnormal, or interesting findings that are found during the dissections or on the CT scans and any evidence of previous sinonasal or craniofacial surgery were briefly noted.

Results: In the presence of a connection between the right and left frontal sinuses absence of right frontal sinus ostium was demonstrated in 2 (3.6%) of 55 cadavers with an absent and an incomplete septum between the frontal sinuses. In these 2 cadavers no accompanying abnormality of other sinuses was found, and no evidence of previous sinus surgery was noted. The ostia of the frontal sinuses of remaining 53 cadavers were identified during endoscopic sinus dissection.

Conclusion: If a surgeon is not aware of such variant of frontal sinus before surgery, nearby structures may be damaged while seeking the frontal sinus ostium that is actually absent. Therefore, it has been considered that hidden unilateral agenesis has an unnegligible incidence and should be kept in mind especially if frontal sinus ostia cannot be found during sinus surgery, although this sinus and its recess can be seen on the thick-sliced coronal CT scans.

L-78

Recent clinic-imagistical aspects in paranasal sinus inflammation

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Inflammatory diseases of the paranasal sinuses are sinusitis. Since these inflammations form a major factor which affect every year the health condition of a significant part of the population, the present study aims to reveal some important aspects regarding this pathology. The study was conducted by ENT specialists, on a number of 1.146 cases out of which a number of 80 represen-

tative cases were selected. The patients came at consultation with various symptoms: sensation of sinusal load, headache, otalgia or unilateral headache, rhinorrhea with mucus, puss or blood, facial oedema, anosmia or hyposmia, speech disorders. The patients were clinically and radiologically investigated. The results shot that out of the total studied cases 75 are sinusal inflammations. From these, they mostly are choric sinusitis meaning 58.54%, while 51.25% are with maxillary localisation and 35% are associated sinusitis. The results also show an increase in the incidence of sinusitis during the warm season, up to 33.25% of cases in June, especially at patients living in urban areas, up to 86.25% of cases. Depending on the localisation of the sinusal inflammatory process (extended to one or more sinuses) the radiological images were various and then related to data obtained through clinical examinations and investigations. The nature of mass disease is supported by a number of cases at patients treated both by ENT specialists and general doctors, in student collectivities and schools across the country, so that knowing as many aspects of this pathology as doctors can is necessary.

L-79

Dorsoepitrochlearis muscle: an unknown cause of shoulder motion limitation and axilla deformity

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Introduction and Aim: Dorsoepitrochlearis or latissimocondyloideus muscle is a longitudinal supernumerary muscle of the posterior wall of the axillary fossa, which arises from the latissimus dorsi muscle and may insert to the brachial and forearm fascia, to the humerus, to the lateral epicondyle and olecranon or to the long head of triceps brachii muscle. Fewer than 30 cases have been published over the past 200 years and there is no clinical or radiological presentation of this muscle in the literature. In the current study we present a patient with limitation of shoulder range of motion and deformity of the axilla due to a dorsoepitrochlearis muscle.

Case Report: The patient presented complaining of a visible and palpable mass in his right axilla, which was painless but it limited the abduction of his arm. On physical examination the mass was visible and could be palpated only when the arm was abducted over 90°. An MRI was performed in order to attain the correct diagnosis. According to the clinical and radiological morphology and topography of the muscle, we concluded that it was a dorsoepitrochlearis muscle.

Conclusion: Dorsoepitrochlearis muscle, when present, may be either asymptomatic or it can cause deformity in the axilla and limitation of shoulder range of motion. Thus, surgeons should bear in mind the possible existence of this abnormal muscle in order to suspect its presence in similar cases. Thorough knowledge of the anatomical features of the dorsoepitrochlearis muscle allows its recognition in the MRI, which may be necessary to confirm the diagnosis.

L-80

Supratrochlear foramen of the humerus: its relation to the medullary canal and clinical significance

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Aim: The supratrochlear foramen of the humerus is an anatomical feature that can be found in the septum separating the coronoid from the olecranon fossa. Beyond its anthropological interest, the trait seems to have clinical significance in retrograde intramedullary nailing. The aim of the study was to investigate the possible association of supratrochlear foramen presence and a narrow medullary canal.

Methods: The investigation was conducted in 120 pairs of macerated adult humeri. Distribution of supratrochlear foramen according to sex and side was registered. In every bone we identified the hypothetic entry site of retrograde intramedullary nailing. We measured the width of medullary canal at the entry point of the retrograde nailing at a distance of 2.5 cm from the most-proximal margin of the olecranon fossa of the humerus with the supratrochlear foramen, as well as the distance between the distal end of the medullary canal and the proximal margin of the olecranon fossa.

Results: At the entry point of a retrograde intramedullary nail the medullary canal width was found to be statistically narrower in humeri with foramen than in those without it. Furthermore, we found that the medullary canal of the humeri with foramen ends more proximally than those without.

Conclusion: In case of humeral fracture with present supratrochlear foramen, the surgeon must keep in mind that it is better to perform an antegrade medullary nailing than retrograde, as there is higher chance of a secondary fracture due to the extreme narrow canal at the distal segment of humeri with supratrochlear foramen.

L-81

Scaphotrapeziotrapezoidal joint morphology and positional differences in articular surface contact

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Movement at the scaphotrapeziotrapezoidal (STT) joint is a key indicator of variable carpal bone motion throughout the wrist. Degeneration of this joint has also been correlated with progression to a number of wrist dysfunctional syndromes. This study aims to test morphological typing of the STT joint surfaces and ligamentous support. It will also test whether the articular surfaces of the STT joint types exhibit positional differences throughout the radial deviation of the wrist. Dry carpal bone sets (n=80) and embalmed wrists (n=20) were used and separated into two test groups based on lunate type. Dry surfaces were modeled using a microscribe. Ligaments were dissected on embalmed specimens before motion testing. The wrist was loaded in a neutral position, then sequentially in 5, 10 and 15 degrees of radial deviation. Surface contact was measured with pressure film. These specimens were then dissected further to allow surface modeling. Type one wrists had larger articular surface areas, a greater percentage of surface contact, and a ligamentous array with limited scaphoid attachment, thus allowing scaphoid translation. The type two wrists had smaller articular surface areas, a smaller percentage of surface contact and a ligamentous array with prominent attachment to the scaphoid on a region that creates a pivot point for scaphoid flexion and extension. These results support previous suggestions of two distinct models of carpal motion. Further study of these structures in a functional context will facilitate the development of specific plans for type-based identification and treatment of wrist dysfunction.

L-82

Inferior and lateral projections of sternoclavicular joint: CT appearance and anatomical correlation

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Introduction: Two unidentified soft-tissue structures are observed on CT around the head of the clavicle (HC): those are inferior (soft tissue inferior to the head of the clavicle; SI) and lateral (soft tissue lateral to the head of the clavicle; SL) to the head of the clavicle (HC). Occasionally, those were misconceived as pathologic processes on CT, however, the literature yielded no satisfactory explanation for either SI or SL. Objective of this study is to anatomically define two soft tissue structures.

Methods: First, the visibility of and the connectivity between SI and SL were studied with 53 consecutive patients in the chest CT of 0.75 mm and 5 mm thickness. Second, from the cases with gas-containing sternoclavicular joint (SCJ), it was investigated whether SI and SL were part of SCJ space. Last, three sets of cryosection images were reviewed to identify the anatomical structures corresponding to SL and SI.

Results: Visibility of and connectivity between SL and SI were more clearly appreciated on CT of 0.75 mm thickness than on CT of 5mm. The visibility of SI (p=0.007) and SL (p=0.001) were more distinct in older than in younger individuals. Gas was noted within SI and SL, outlining a band-like opacity thought to be the costoclavicular ligament adjacent to SL. Cryosection images revealed that the anterior portion of SI was variably composed of joint cavity, joint capsule, articular cartilage and disc of the SCJ, while the posterior portions of both SI and SL were composed of thyroid strap muscles. In two sets of cryosection images, the joint cavity appeared to extend from the anterior portion of SI to the anterior portion of SL.

Conclusion: The anterior portions of both SI and SL represented projections of SCJ cavity, while their posterior portions were composed of strap muscles.

10.15: Session 13 - Locomotion 2 (Burian´s Hall)

Moderator: Cramer Gregory, Arıcan Ramazan Yavuz

L-83

Innervation of the iliolumbar ligament

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Aim: Histological identification of heavy innervation of the iliolumbar ligament.

Methods: The iliolumbar ligaments were dissected from the human male cadaver from the UCL dissection laboratory, tissues were processed for histological examination and were kept in 4% formaldehyde in phosphate buffer. After fixation, ligaments were embedded in paraffin wax. Serial sections were taken at various thickness ranging from 10-25 µm and sections were stained with Lindlers silver stain for nerve fibres.

Results: Microscopical examination of the serial sections revealed heavy innervation confined to the surface of the anterior and posterior parts of the iliolumbar ligament. Sporadic

nerve fibres were also detected at deeper level within the ligament, the main morphological feature of the innervation was free nerve fibres.

Conclusion: The iliolumbar ligament has played a major role in the etiology of the low back pain, our histological finding of this highly nociceptive tissue was consistent with the well known clinical fact. A wide range of supportive evidences of functional and physiological roles of the ligament were reported in stabilising the integrity and balance of the lumbosacral region, accordingly, further histological investigation is recommended to identify other types of nerve endings in the different regions of the ligament.

L-84

Accelerometry of the zygapophysial joints during spinal manipulative therapy

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Aim: Cavitations (audible sounds producing vibrations) of the zygapophysial (Z) joints are theoretically associated with therapeutic gapping of these joints during spinal manipulative therapy (SMT). This study assessed new methods to evaluate Z joint cavitations during SMT.

Methods: Twenty-two subjects received side-posture SMT and 10 subjects (control group) were positioned on their side without SMT. Subjects were first placed in the prone position and tape with strong adhesive characteristics was used to affix seven 1 cm3 accelerometers to the spinous processes of L1-L5 and the S1 and S2 sacral tubercles. In addition, two accelerometers were positioned 3 cm lateral to the spine; one to the left and one right of the L3/L4 inter-spinous space. Subjects were then placed on their right sides and recordings from the accelerometers were conducted during final positioning and SMT. Subjects and the SMT clinician (blinded to each other) were then asked if they heard or felt a cavitation during SMT. Recordings were assessed for the presence of cavitations and artifacts.

Results: Cavitations were recorded from 38 joints. The joint from which each cavitation originated could be determined by the order in which the accelerometers first recorded vibrations. Accelerometer assessments of cavitation were in agreement with the subject (96.8%, K=0.91, 95%CI=0.75-1.08) and clinician (93.7%, K=0.82, 95%CI=0.57-1.06). Several types of artifacts were identified and will be categorized; however cavitations could be clearly distinguished from artifacts. Conclusions: New methods for assessing Z joint cavitations were successfully developed and can be used in future clinical studies.

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L-85

Lateral approach to the ankle and distal leg

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Open reduction and internal fixation via anteromedial incision is usually preferred surgery technique to the ankle and distal tibia fractures. But when the fibular stabilization became a necessity, generally an addition lateral incision performed during this procedure. And also wound complications and soft tissue infections are common after this procedure. Therefore, lateral approach to the distal tibia and fibula became preferred technique recently. The aim of this study was to evaluate the risk of neurovascular complications in lateral approach. Dissections were performed at 22 feet of cadavers. Superficial fibular nerve and its branches were determined and a safe incision line was defined. Also two branches of the posterior tibial artery which pinched the interosseous membrane and reached the anterior compartment of leg were defined. The knowledge of these neurovascular structures can be important to prevent the complications during lateral approach which is an alternative technique to the anteromedial approach to the ankle and distal leg.

L-86

Stress and strain in the ankle ligament during a simulated clinical examination

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The role of the ankle capsule in joint stability has continued to be a source of controversy because of its complex geometry. Ankle stability is maintained through a complex combination of bony contact and soft-tissue restraints that include the joint capsule and muscles. The objective of this research was to predict, with a finite-element model, the stress and strain fields in

the ligament of the ankle during application of an upright load. The stress and strain in the ligament of the ankle were determined during a simulated simple translation test of a single intact ankle. For the computational analysis, the experimentally measured joint kinematics was used to prescribe the motion of the talus with respect to the gamba, whereas the material properties of the ligaments were based on published experimental data. The geometry of the ankle was acquired by use of a I.RM., which was used to define the reference configuration of the ankle. Predicted values for von Mises stress in the ligament reached 4.3 MPa at the point of contact with the talus and 6.4 MPa near the tibia insertion site. A comparison of these results to the literature suggests that the computational approach provided reasonable predictions of fiber strain in the ankle when specimen-specific geometry and kinematics with average material properties were used. These studies have suggested that the bone is the most important passive stabilizer in the anterior direction when the ankle is moved.

L-87

Doubled os trigonum: a case report and the review of the literature

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The os trigonum is one of the most common small, round accessory ossicles in the ankle and the foot region that was first described by Rosenmüller in 1804. During the examination of the radiographs obtained from Radiology Department of Akdeniz University Faculty of Medicine, a doubled os trigonum was encountered in 36 years old male subject. A particularly prominent os trigonum may cause posterior ankle impingement syndrome when forceful or repetitive plantar flexion of the foot occurs.

L-88

Morphometric analysis of the lumbar intervertebral foramina in Korean

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An intervertebral foramen (IVF) is a conduit for spinal nerves and blood vessels passing through. It is formed by two adjacent vertebrae and an intervertebral disc between those two bones. Nerve compression or degenerative diseases can cause severe pain, and a surgical approach is necessary in such cases. So, it is essential to know accurate anatomy about IVF for a safe surgery. However, there are few studies on the IVF. We used 18 Korean cadavers and dissected lumbar IVF. First, we removed all tissues covering IVF to obtain the narrowest cross section of IVF. Then, we filled IVF with silicon to mold the cross section. Using the mold, we analyzed the narrowest size, perimeter, vertical and transverse axis of the silicon mold by NIH image program. The perimeter of the IVF did not show any statistical significant pattern over different vertebral levels. However, the length of the vertical and transverse axis of IVF significantly differed along vertebral column. Correlation analysis revealed that the length of the vertical axis decreased along vertebral column whereas the length of the transverse axis increased. The overall size of IVF had no statistical difference from L1 to L5. This was a different result from previous researches finding that the size of the section were different along the vertebral level. This result can be used in surgical approaches and development of operative instruments.

10.15 : Session 14 - Digestive, Respiratory and Urogenital Systems (Syllaba´s Hall)

Moderator: Krivokuća Dragan, Şen Tülin

L-89

Clinic-anatomical base of surgical access to hernial foramina (hernial gates) of pelvic bottom

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The aim of work was to study clinic-anatomical indexes to hernial foramina of pelvic bottom in comparative aspect. Anatomical-topographic researches have been done with human corpse material. We have used the appraisal criteria of surgical approaches to internal organs, offered by A.U. Sazon-Yaroshevich (1954). The data obtained allow doing some conclusions. Under-center (or low-center) laparotomy and access through back wall of inguinal canal are universal for treatment of pelvic bottom hernias. However, laparotomy cut is not comfortable enough for hernial defect closing. Under-center laparotomy and access through back wall of inguinal canal have the following advantages: pass few layers; there is possible increase of surgical access in accidental change of operation

(integrity breaking of big vessels, nerves); allow treating neck of hernial sack and liquidating hernial gates with the help of orthopaedic material implantation (explantation). Differences of way through back wall of inguinal canal from low-center laparotomy are: the shortest distance to the object of operation that gives simplicity and speed of access fulfillment; reduce probability of damage of abdominal cavity hollow organs, peritoneal complications beginnings; appear possibility of examination of all foramina (hernial gates of pelvic bottom) not only with diagnostic purpose but when it is necessary removing hernias; appear possibility of inguinal canal examination and deep femur ring, when it is necessary carrying out plastics. Cross-cut over-inguinal access has the same technical characteristics. Thus, given access is efficient, it takes into account anatomy-topographic peculiarities of the object and surgical intervention area, corresponds to criteria of maximum accessibility, minimum traumatism and adequacy.

L-90

The study of the amount and anatomical localization in infiltration anesthesia during a prostate needle biopsy by using transrectal ultrasonography

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Objectives: Transrectal prostate biopsy is now a standard procedure in the diagnosis of prostate cancer and is also a very painful process. This study was performed to find out what should be taken into consideration in the application of the procedure with minimal pain and complication.

Methods: Our study has 70 chosen patients with prostatic symptoms. 35 of them were given periprostatic anesthesia with 2% lidocain, 1cc. The other 35 were not given lidocain. The periprostatic area was determined as the levatores prostatae, a region with the most nerve density, by cadaver dissection.

Results: The pain each patient felt during digital rectal examination, the application of the probe and the biopsy was recorded with the help of the Visual Pain Scala (VPS). It was realized that there is no statistical difference on the pain average during digital rectal examination and the insertation of the probe into the rectum ($p=0.24$, $p=0.45$) . The VPS average was 2.34 ± 1.08 in the group which was given anesthesia and 5.8 ± 1.6 in the group which was not during biopsy and it was found statistically significant ($p< 0.05$).

Conclusion: In our study, the correlation between the cadaver studies and periprostatic nerve bunch localization show that when ultrasonography probe is used in the correct angle even with minimal dose anesthesia (total 1cc).

L-91

Fredet's fascia

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Fredet Pierre (1870-1946) was a French surgeon by whom the preduodenopancreatic fascia is called. Also, operative techniques in children's surgery are known under the name Fredet-Reimstein's operations and include pyloromiotomy, which is performed by stenosis of pylorus. During the exploration of the pancreas the first should be mobilized the hepatic flexure of the colon, show the first three part of duodenum and the front surface of the pancreas. The access is easier because the front of the duodenum and the head of the pancreas is Fredet's fascia. Mobilisation of duodenopancreatic region (Kocher's or Wiart maneuver) allows the surgeon visual and palpatory (bidigital) review of the pancreatic parenchyma during the exploration. The front surface of the pancreas is Fredet's fascia, and on the back surface of the pancreas is Treitz's fascia. Knowledge of anatomy duodenopancreatic region is one of the preconditions of quality of surgical resection of the pancreas.

L-92

Bronchoscopy on cadavers: Thiel's embalming method in comparison to other embalming methods and that to the living

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Background: Bronchoscopy was performed and evaluated on cadavers embalmed according to Thiel's method. The aim of the study is to asses Thiel's method for its suitability as a training facility and research concerning both procedures.

Material and Methods: Bronchoscopy was performed on 22 cadavers. All procedures were recorded on videotapes, evaluated by board certified anatomists and anaesthetists and compared to conditions found on the living. Tissue behaviour, resistances of ligaments, palpability of anatomical structures, the colour of mucosa, the flexibility of cadavers, most notably, jaw thrust and tongue lift for inserting the bronchoscope were evaluated. Results are presented by qualitative comparisons between conditions found on the living and those of classic formalin embalming method.

Results: Bronchoscopy was feasible in all cadavers without difficulty. The cadavers showed lifelike conditions concerning all criteria which had been evaluated. Jaw thrust and tongue lift was never limited and lobar bronchi were always reached. The limitation of bronchoscopy was caused by diameter of the airways at the level of the smaller bronchus or smaller amount of liquid in half of the cases.

Conclusions: Cadavers fixed according to Thiel's method are extremely well useable for research on the topic of bronchoscopy. The positive effect of this approach is that the data are transferable to the living and therefore claim validity of scientific findings. Moreover, these procedures performed on such embalmed cadavers are useful training tools which guarantee lifelike conditions.

L-93

Thyroglossal duct cyst: More than just an embyological remnant

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Aim: Thyroglossal duct cyst (TDC) is a congenital malformation that occurs due to incomplete closure of the thyroglossal duct. Apart from being a quiescent embryological remnant, it presents itself clinically at any age and often requires surgical excision. A retrospective analysis of patients with TDC was performed at Sri Ramachandra Medical College and Research Institute (SRMC & RI) between June 2004 and June 2009, to analyze their presentation, associated complications including malignancy and the approach to management in them.

Methods: Over this five year period, twenty four patients were identified with TDC by perusal of operative notes, histopathology files and medical records. Thyroid profile and Radioisotope scan were performed on all the patients to check and document the normal positioning of the thyroid gland. Ultrasonography and Computerized Tomography neck were done to map the location of the cyst. Histopathological examination of the tissue was done to diagnose malignancy.

Results: The demographics reported 62.5% prevalence of the anomaly in males, indicating that this anomaly has a predilection for males. About 45% of them were in pediatric age group. The total number of symptomatic patients in this study was about 59%. While it is expected to find majority of the patients to be asymptomatic, the present study non-intuitively suggests otherwise. About one third of the patients (33.3%) were also found to have complications such as malignancy, infection, inflammation, rupture of cyst, fistula and recurrence. While studies reveal that only 1% of the ductal cyst is usually associated with malignancy, 8.3% of the patients of this study were found with associated malignancy namely, papillary carcinoma and follicular variant of papillary carcinoma. These patients though had a huge mass were ironically asymptomatic. One patient that was diagnosed of an ectopic thyroid with TDC was managed without surgery as it was the only functioning thyroid present.

Conclusion: Thyroglossal duct cyst is the most common congenital cervical anomaly. It was noted that maximum prevalence was present in pediatric males because this is when the adipose tissue thins out. It was also found that most of the patients were symptomatic unlike the interpretation made in various studies, thus proving that TDC is indeed more than just an embryological remnant. Association with malignancy was also well documented.

L-94

Simple renal cysts in 1472 autopsy cases

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Simple renal cysts (SRC) rarely call attention to themselves. The bulk of the literature on SRC concerns their differentiation from and coexistence with neoplastic renal masses. SRC are common in adults, especially in the elderly population. The bulks of them are asymptomatic and incidentally found by renal imaging including computed tomography (CT) and ultrasonography. A few series reported varying prevalence in other countries. The aim of the present study was to investigate SRC to understand their prevalence in Anatolian individuals and an evaluation of its localization, form and size. In this study, SRC were investigated in 1472 medicolegal autopsies performed at the Konya Branch of Forensic Medicine Council (Turkey). The ages of the cases ranged from 20 to 85 years with an average age of 62.6 years. The mean diameter of the cysts was 1.90 ± 1.31 cm. SRC were observed in 71.5% of the men and 28.5% of the women. The overall prevalence of SRC was 9.3% (137/1472), ranging from 6.9% in the 2nd to 34.7% in the 7th or later decade of life. This study demonstrates that prevalence of SRC increase with age by decade and there is a remarkable difference in incidence related with sex. If a suspicious area is present in kidneys, a thorough work-up is needed to discriminate neoplastic disease from benign cysts. Furthermore, influence of the cyst on the collecting system should be assessed.

L-95

Pathogenetic substantiation approaches at treatment of inflammatory diseases of appendages of a uterus

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My research is devoted to the treatment of sharp and chronic inflammatory diseases of appendages of a uterus and application possibility intravaginalis treatments by bloodsuckers at groups of patients. It is carried out the complex analysis of features of a current of inflammatory diseases of appendages of a uterus, studying of clinical, biochemical and local haemodynamic changes, and also working out and introduction in Clinic Patogeneticheski a substantiation techniques of treatment with treatments by bloodsuckers that has allowed to avoid considerable medicamentous loading on an organism and promoted improvement of local haemodynamics. On a basis, treatments has occurred: normalisation of local blood circulation (increase pulses filling by blood in 1.8-3 times, strengthening of venous outflow in 2.5-3 times, resistance reduction uterus arteries in 1.2-1.3 times); Reduction of activity of an inflammation (maintenance decrease seromucoids in 1.6-2.4 times); at a chronic current. Strengthening fntioxydants protection (maintenance increase ceruloplasmins in 1.5 times) and reduction of the general endotoxycoses (decrease leicocits an intoxication index in 2 times) that promoted fast elimination of a painful syndrome and reduction bed-days for 3 days.

L-96

Is safe triangle really safe?

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In this study, it was aimed to determine safe triangle area and to prevent complications by measuring mean distances to the important anatomical structures around. Five adult (age of 32-67) cadavers were used for the study. Lumbar regions of all cadavers were dissected bilaterally and spinal needles were placed into safe triangles with an angle of 30° to the sagittal plane. The distances between spinal needle and ascending lumbar vein, spinal needle and superior pedicle were measured. Vertical and transverse lengths between spinal nerve and spinal needle were also evaluated. The distance between spinal needle and ascending lumbar vein differed from 1.05 to 3.65 mm, spinal needle and superior pedicle ranged from 0.33 to 2.92 mm. Spinal needle's interval to spinal nerve differed from 0 to 2.81 mm transversely and ranged from 0 to 3.1 mm vertically. In recent years, transforaminal epidural injections have emerged as an alternative to interlaminar and caudal epidural injections for the patients with chronic back pain. This study emphasizes to consider mean distances to the anatomic structures for avoiding neurovascular complications, especially to ascending lumbar vein which was not described anatomically previously.

Poster Presentations

(P-01 — P-98)

Poster Session 1
Embryology, Histology and Molecular Biology

P-01

Hypoxia and metabolic phenotypes during breast carcinogenesis: expression of HIF-1 alpha, GLUT1 and CAIX

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Carcinogenesis is a complex, multistep and multipath progression of cellular populations through increasingly disordered phenotypes culminating in the emergence of an invasive cancer. Hypoxia and acidosis are microenvironmental selection forces during somatic evolution in breast carcinogenesis. Hypoxia-inducible factor-1 alpha (HIF-1 alpha) transactivates genes whose proteins modulate oxygen availability or metabolic adaptation to hypoxia, including glucose transporter 1 (GLUT1) and carbonic anhydrase IX (CAIX). GLUT1 is a high-affinity glucose transporter that regulates glucose uptake. CAIX regulates pH by reversible hydration of carbonic dioxide to carbonic acid. We analyzed these proteins expression in tissue samples from normal breast tissue, usual ductal hyperplasia (DH), atypical ductal hyperplasia (ADH), ductal carcinoma in situ (DCIS), and invasive ductal carcinoma (IDC) using immunohistochemistry. HIF-1 alpha was not expressed in benign breast tissue < During breast carcinogenesis, the role of HIF-1 alpha changes from response to proliferation to tumor progression. GLUT1 expression (glycolytic phenotype) and CAIX expression (acid-resistant phenotype) may result in a powerful adaptive advantage and represent an aggressive phenotype. 0.001). GLUT1 and CAIX were expressed only in DCIS (56.8% and 25.0%) and IDC (44.1% and 30.5%), with higher expression in high grade DCIS than low/intermediate grade DCIS (79.2% vs. 30.0%, p = 0.001 and 37.5% vs. 10.0%, p = 0.036, respectively). High CAIX expression was significantly associated with poor histological grade of IDC (p = 0.005). During breast carcinogenesis, the role of HIF-1 alpha changes from response to proliferation to tumor progression. GLUT1 expression (glycolytic phenotype) and CAIX expression (acid-resistant phenotype) may result in a powerful adaptive advantage and represent an aggressive phenotype.

P-02

Effect of bone morphogenetic protein-2 on normal and osteoarthritic human articular chondrocytes

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In this study, we investigated whether Bone Morphogenetic Protein-2 (BMP-2) could modulate dedifferentiation, apoptosis and proliferation capacity in the normal and OA cultured chondrocytes. The articular chondrocytes from normal (n=4) and OA (n=4) cartilages were harvested separately. The chondrocytes were cultured in monolayer in the presence of 100 ng/ml BMP-2 and 1% FBS as a test group and 1% FBS alone as a control group. Then, the chondrocytes were harvested and assessed for morphology with invert microscopy, proliferation by using MTT-assay and apoptosis with caspase-3 immunocytochemistry. The results indicated that the normal and the most OA chondrocytes showed round and polygonal appearance with chondrocyte-like morphology in BMP-2 treated groups after 6 days. The MTT proliferation test did not show significant difference between test and control groups. The OA cells showed proliferation rate higher than the normal cells and significant difference in the presence of BMP-2 was observed (P<0.05). Positive immunostaining of caspase-3 in test and control groups was 1 and %20 in normal and 30 and %43 in OA groups, respectively. The percentage of apoptosis was reduced in the presence of BMP-2. In conclusion, it appears that BMP-2 involves in suppression of dedifferentiation and apoptosis processes of cultured human chondrocytes.

P-03

Evidence based assessment of an ancient herb *Cissus quadrangularis* (Linn.) on bone marrow mesenchymal stem cells proliferation and osteoblastogenesis

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Aim: The role of petroleum ether extract of *Cissus quadrangularis* (CQ) on cell proliferation rate of bone mesenchymal stem cells (MSCs) and differentiation (osteoblastogenesis) of MSCs and extracellular matrix calcification was evaluated in this study. Additionally, it was also aimed to study the combined action of osteogenic media and CQ on above parameters.

Materials and methods: To study the role CQ on differentiation of MSCs into osteoblasts, MSCs were cultured in different media for 4 weeks and then stained for expression of alkaline phosphatase (ALP) by histochemical method. The confirmation of osteogenesis was done by Von Kossa staining. To test the role of Petroleum ether extract of CQ on proliferation of MSCs, MSCs cultures in control media and osteogenic media supplemented with CQ extract (100, 200, 300 µg/ml) were subjected to cell proliferation assay (MTT assay).

Results: Treating the MSCs with 100, 200, 300 µg/ml of petroleum ether extract of CQ enhanced the differentiation into osteoblasts. In addition, MSCs grown in media with CQ showed extracellular matrix calcification. Treating the MSCs with 300 µg/ml of petroleum ether extract of CQ enhanced the proliferation rate. Cells grown in osteogenic media with CQ showed better proliferation, differentiation and calcification.

Conclusion: The results suggest that CQ stimulates the osteoblastogenesis and can be used as preventive/ alternative natural medicine for bone diseases such as osteoporosis.

P-04

Estrogen Receptor beta induces both authofagy and apoptosis in TCAM2 human seminoma cell line

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Testicular germ cell tumors of adults and adolescents (TGCTs) are the most common tumor in male Caucasian patients aged 15–34 years and account for 60% of all male malignancies between the ages 20–40 years. TGCTs can be classified into two main histological subtypes, seminoma (SE) and nonseminoma (NS). Here the focus is on SE, by using the TCam-2 cell lines, containing typical features of human seminoma. This cell line originated from a primary testicular seminoma of a 35-year-old patient. Testicular cancer research continues to modify current therapies aimed to induce cancer cell apoptosis. Estradiol (E2) appears to be a germ cell survival factor in the human testis at low concentrations, conversely it was also shown that E2 is able to inhibit human seminoma cell proliferation. One important cell survival signalling is mediated by phosphoinositide 3-OH kinase (PI3K) and its downstream targets. To gain more insight in the biology of testicular tumors we studied the effect of increasing E2 concentration on the PI3K pathway evidencing that it was able to decrease the expression of Akt, FHKR, BAD and caspase9 suggesting an apoptotic role of the hormone throught the ERbeta, since our cells do not express the ERalpha. Apoptosis was confirmed by DNA fragmentation assay. The PI3K signalling is also common to the autophagy that mediates cell death under specific circumstances. By using MDC assay, E2 was also able to induce authofagy. Although further work is required to clarify the mechanism through which E2 induces both apoptosis and authofagy in human seminoma our study suggests a tumor suppressor role for the ERbeta.

P-05

The predictive value of liver histological lesions in the diagnosis of viral hepatitis C as compared to viral hepatitis B

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Aim: The liver histological lesions described in the chronic infection with hepatitis C virus (HCV) include: portal lymphoid follicles and/or lymphoid aggregates (LF/LA), bile duct lesions (BDL), micro- macrovesicular hepatocyte steatosis (HS), Mallory body-like material, activation of sinusoid inflammatory cells, liver cell dysplasia and multinucleation. The specificity of these lesions in viral hepatitis C (VHC) infection is still controversial.

Materials and Methods: In order to quantify the histological lesions and to establish the set of features that differentiate VHC from viral hepatitis B (VHB) infection, we examined (using the Knodell grading score) 189 consecutive liver biopsies obtained before therapy from 2 groups of patients: group A included 125 cases (79 women and 46 men) with positive Ac anti-VHC and a mean serum ALT value of 91.42 U/l; and group B – 64 patients (29 females and 35 males) AgHBs+, with a mean serum ALT value of 184.5 U/l. The dates were statistically analyzed using the chi square test.

Results and Conclusions: From the individual lesions, HS was the most frequent feature associated with VHC (77% in VHC vs. 64% in VHB; p=0.0635), followed by portal LF/LA (68% vs. 20.31%; p<0.001) and BDL (44% vs. 21.85%; p=0.00279). Combining the lesions, the association between LF/LA and HS, and LF/LA and BDL had a predictive value in the diagnosis of VHC (55% vs. 17.8%; p=0.000001 and 39.2%

vs. 9.37%, respectively; p=0.000019). The association between all 3 histological lesions, LF/LA+HS+BDL, observed in 32% of VHC cases and 9.37% of VHB (p=0.000603), confirms their value in the diagnosis of VHC. The set of the analyzed lesions represent useful morphological parameters in the diagnosis of chronic hepatitis with C virus.

P-06

Expression of galactin-3 and galactin-8 on human endometrium

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Aim: Expression of galactin-3 and galactin-8 on human endometrium has been examined in this study to propose a role for them during implantation.

Methods: Endometrial biopsies were obtained from 20 fertile women with regular menstrual cycles. Biopsies after fixation were examined under light and scanning electron microscopy for dating of endometrium. Expression of galactin-3 and galactin-8 were studied with using immunohistochemical staining, western blotting and immunogold electron microscope throughout menstrual cycle.

Results: Our findings demonstrated that galactin-3 and galactin-8 expressed in some cells that we can indicate to luminal epithelial cells, glandular epithelial cells and stromal cells of endometrium. Our results had shown strong positive immunoreactivity for galactin-3 and galactin-8 in mid luteal phase.

Conclusion: Expression of galactin-3 and galactin-8 on human endometrium propose multifunctional roles, e.g. cell growth, differentiation, adhesion and migration, for them in different phase of menstrual cycle.

Poster Session 1
Vascular System

P-07

A combined variation of the axillary artery: the superficial brachioradial artery combined with the aberrant posterior circumflex humeral artery passing under the tendon of latissimus dorsi

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Aims: A case of anomalous terminal branching of the axillary artery, concerning the variant called the brachioradial artery (arteria brachioradialis) including an aberrant posterior circumflex humeral artery was encountered and described.

Method: A left upper limb of a male cadaver was dissected from axillary fossa distally to the palmar region.

Results: A variant artery, stemming from the very end of the third segment of the axillary artery followed a superficial course distally. It skipped the cubital fossa, ran on the lateral side, crossed ventrally to the palm and terminated in the deep palmar arch. This vessel is a case of the so-called superficial brachioradial artery (incorrectly called the radial artery with high origin). The origin of the superficial brachioradial artery directly from the axillary artery belongs to rare variations of the arterial pattern of the upper limb arteries. Its incidence is approximately 3% of cases. Moreover, this vascular variant was associated with another variation, concerning the aberrant posterior circumflex humeral artery passing under the tendon of latissimus dorsi muscle.

Conclusion: The anatomical knowledge of the axillary region is crucial for radiodiagnostic and surgical procedures, especially in case of traumatic injuries. The superficially located artery brings an elevated danger of heavy bleeding in all unexpected situations.

P-08

Omental supply – anatomical study

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Introduction: The greater omentum is a peritoneal duplicature, hanged between the greater stomach curvature and omental taenia of transverse colon. It can be used in the abdominal and reconstruction surgery and it is part of operation specimen probed by the pathologist at surgeries of colorectal and stomach and carcinomas for tumour staging. A thorough description of the blood supply and lymph draining is necessary both for the surgeon and the pathologist

Greater omenta were injected with India ink, fixed, cleared and dissected. The blood supply of the omentum is provided by the arteria gastroomentalis dextra et sinistra, from the network of the truncus coeliacus. The dominant artery was the arteria gastroomentalis dextra. The arcus gastroomentalis was found in

75% of cases in a form a variable arch between both arteriae gastroomentales, the arch sent more smaller branches (rami omentales anteriores) and three larger ones (arteria omentalis dextra, media et sinistra). The arteria omentalis media bifurcated into the left and right branches which joined with the left and right ones to form another arch, called arcus omentalis, present in 50% of cases. Veins followed the arterial vessels as well as lymph vessels did. All the samples suspected as lymph nodes were histologically proved as adipose tissue or a dilated blood vessel. No typical lymph node has been found. All lymph nodes of the greater omentum are situated along the greater stomach curvature or within the transverse mesocolon.

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P-09

An anatomical contribution to the paraaortal lymphadenectomy

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Aim: The paraaortal lymphadenectomy is a widely used surgical technique in the treatment of ovarian and uterine cancer. Especially during the laparoscopic approach, the venous drainage of the retroperitoneal lymph nodes, encompassing the vena cava inferior and aorta abdominalis and can become a site of possible dangerous bleeding.

Method: We injected and dissected 25 samples of the retroperitoneal large vessels and their surrounding tissues, including the retroperitoneal lymph nodes. Thin sections of the terminal portions of the venous tributaries were examined by light microscope.

Results: The retroperitoneal lymph nodes are supplied by direct branches from the aorta abdominalis, featuring a segmental arrangement, or from its renal, lumbar, ovarian/testicular branches. The venous drainage is assured directly to the vena cava inferior or via its tributaries. The distribution of the arteries is quite regular unlike the venous arrangement – they were observed prevailingly within the lower third of the vena cava inferior. The histology revealed a sleeve-shaped arrangement of veins estuaries into the vena cava inferior.

Conclusion: These constant small veins can cause bleeding complications during laparoscopic paraaortal lymphadenectomy.

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P-10

Branching pattern of fetal internal iliac artery

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Aim: To study the branching pattern of fetal internal iliac artery and to correlate with the arrangement of the internal iliac branches in adults.

Methods: Twenty four pelvic halves were used as specimens. They were obtained from the dead born fetuses of 5 to 9 months of gestational age.

Results: Internal iliac artery was in line with the common iliac artery and larger than the external iliac artery. Three types of branching were observed based on the large branches namely inferior gluteal artery, internal pudendal artery and superior gluteal artery. The findings were correlated with the patterns of branching described by Piersol.

Conclusion: The most common arrangement had two large trunks originating from internal iliac artery, the posterior one being superior gluteal artery and the anterior one divided into internal pudendal and inferior gluteal arteries. The other patterns lead to variable branching patterns in adults that are of embryological and surgical significance.

P-11

Structural disorders of pulmonary arteries in patients with secondary pulmonary arterial hypertension due to chronic obstructive pulmonary disease

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Aim: To adjust the early diagnosis, adequate preventive maintenance and treatment of cor pulmonale (CP), it is necessary the factors aggravating its current. We searched the relationship between lung function parameters, pulmonary artery systolic pressure (PAPsys) and structural disorders of pulmonary arteries in patients with secondary pulmonary arterial hypertension (PAH) due to chronic obstructive pulmonary disease (COPD) complicated with CP.

Materials and Methods: The 11 patients (2 female, 9 males, the mean age 57.1±8.4 yrs) with CP were surveyed. Morphometry of pulmonary arteries was performed in resected lung tissue samples of patients underwent lung volume reduction surgery. Preoperative examination included spirometry, pulsoximetry, lung diffusive capacity test, Doppler echocardiography with non-invasive measurement of parameters PAPsys.

Results: All the patients had severe bronchial obstruction, severe lung hyperinflation, significant reduction in the lung infusing capacity and alveolar-capillary blockage. PAPsys was 35.1±5.2 mmHg in average. There was a reduction in the vascular diameter and lumen area, 2.5-fold increase in propotional area of the muscular layer and 7.2-fold increase in propotional area of intima in the structure of the vascular walls in COPD patients compared to controls. The structural changes of pulmonary arteries reliably correlated both to PAPsys and functional parameters of lung hyperinflation. PAH was moderate and did occur in all cases of severe bronchial obstruction with significant structural alteration of the lung vessels. We concluded that PAH in severe COPD is caused by the structural disorders pulmonary artery branches due to lung emphysema.

P-12

Arterial anatomic variants at the hilum of the spleen and kidney important to surgical techniques

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The aim of our study was to demonstrate different types of anatomic variants of splenic and renal artery at the splenic hilum and, respectively, at the renal hilum, and to point out their importance to spleen and kidney surgery. Using the method of arterial corrosion casting we managed to demonstrate two types of splenic artery branching at the hilum of the spleen (the "Y" shaped type and the "T" shaped type) which are important to splenectomy and partial splenectomy. The same method allowed us to obtain corrosion casts of the renal artery showing anatomic variants at the hilum of the kidney (origin , number and branching variants of the renal segmental arteries) which may influence renal surgical procedures (nephrectomy, partial nephrectomy, pyelotomy). Detailed knowledge of the splenic and renal artery anatomic variants at the hilum of the spleen and kidney is mandatory for the surgeon in order to choose the most appropriate surgical tactics and technique and, consequently, to perform safe open and laparoscopic procedures on these parenchymatous organs.

P-13

Morphometry of basilar artery and its clinical importance

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The basilar artery and its branches are quite important for the posterior circulation of the brain. In our study, we measured the length and the diameter of the basilar artery, its course in basilar sulcus and especially evaluated the level of the bifurcation of the basilar artery and the vertebrobasilar junction which are important to determine the operation approaches for the aneurysms. The study was performed on 80 human brain stems. The basilar arterial system was injected with the coloured latex. Then these specimens were fixed in 10% formaldehyde solution. The basilar arteries were examined under a stereoscopic microscope and photographed. The length of basilar artery varied from 20 to 37 mm (mean of 29.13 mm±3.2), and its diameter was greater at its origin from the vertebral arteries, varied from 2 to 6 mm (mean of 4.09 mm±0,6) than at its apex (range, 2–5 mm; mean, 3.37 mm±0.5). In 14 hemispheres, basilar artery was curvaceous and in the rest it was straight. The level of the bifurcation of the basilar artery was observed as normal in 48 specimens, as low in 18 specimens, as high in 14 specimens. With increasing age the basilar artery becomes more tortuous and the level of the bifurcation may change. And also it is known that approximately 15% of saccular aneurysms occur in the vertebrobasilar system, more than half of which (63%) occur at the basilar bifurcation. So the neurosurgeons must be aware of the vascular structures and their anatomical variations in this area.

P-14

Individual and age differences of the structure of the middle third of the dural upper sagittal sinus

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Aim: The middle third of the upper sagittal sinus takes active part in regulation of both cerebral blood and cerebrospinal liquid circulation and consequently requires detailed studying.

Methods of the intravascular plastic injection and corrosion were used for making of 186 specimens of sinuses of the dura mater of the human fetuses, of children and adults which were studied applying the method of stereomorphometry.

Results of research have shown that in ontogenesis middle third of the upper sagittal sinus develops as complex structure that includes the sinus trunk, lateral and inferior parasinuses, largest lateral lacunas, entering of the largest superficial cerebral, dural and cerebral falx veins, the opening of emissary veins, and intralumen apparatus which is presented by semilunar and longitudinal folds, partitions, chords or strings. Trunk of the upper sagittal sinus is formed from the primary dural venous network due its reduction during early fetal period. Differences in rates of reduction of the primary venous structures lead to wide diapason of individual variability of the upper sagittal sinus and especially its middle department. The most variable are localization, quantity and diameter of parasinuses, the opening of the cerebral, dural and emissary veins, and also the form and the sizes of lateral lacunas and expressiveness of intrasinus structures; in few cases the sinus middle part was presented by two channels.

Conclusion: Morphological features of the middle third of the upper sagittal sinus should be considered at interpretation of the results of angiographic investigation and planning of surgical intervention.

P-15

Mapping of the epigastric arteries

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Aim: The aim of this study was to map the epigastric arteries to determine a safety zone for anterior abdominal wall laparotomy and laparoscopy.

Methods: All epigastric arteries we have dissected on the 30 in formalin preserved cadavers. The locations of the superior and inferior epigastric arteries from the midline were determined at five levels, and the superficial epigastric artery at three levels.

Results: At the xiphoid process level, the superior epigastric artery (SEA) was 20.13±6.45 mm from the midline on the right and 21.87±6.26 mm on the left. At the midway between xiphoid and umbilicus, the SEA was 48.70±13.31 mm on the right of the midline and 49.83±16.10 mm on the left. At the umbilicus, the epigastric arteries were 44.08±14.53 mm on the right and 44.70±17.88 mm on the left of the midline. At the midway between the umbilicus and symphysis pubica, the inferior epigastric artery (IEA) were 50.86±12.32 mm on the right and 52.21±10.36 mm on the left. At the symphysis pubica, the IEA were 60.66±9.59 mm on the right and 63.45±12.01 mm away from the midline on the left side. At the inguinal ligament level, the superficial epigastric artery was 72.96±16.98 mm from the midline on the right and 76.63±5.90 mm on the left. At the symphysis pubica, the superficial epigastric artery was 71.44±15.91 mm on the right and 72.70±14.68 mm away from the midline on the left side. At the midway between the umbilicus and symphysis pubica, the superficial epigastric artery were 72.04±18.04 mm on right and 72.48±17.43 mm on the left side.

Conclusion: Superior and inferior epigastric arteries were usually located in the area between 20 and 65 mm from the midline. Superficial epigastric artery was usually located in the area between 70 and 80 mm from the midline. Staying away from this area will determine the safe zone to surgical approach through the anterior abdominal wall.

P-16

Anterior inferior cerebellar artery and its relationship with the abducens nerve

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Vascular disorders, infections, tumors, diabetes mellitus and traumas are the most common causes of the abducens nerve palsy. These situations occasionally cause other cranial nerve disorders such as facial and trigeminal nerves. Isolated abducens nerve palsy occasionally results from vascular disorders such as aneurysms or vascular compression in root exit zone. Anterior inferior cerebellar artery (AICA) has a close relationship with the abducens nerve. In this study, we aimed description this relationship and the possible clinical significance. Twenty-two human cadaveric brains were investigated in this study. Basilar and internal carotid arteries were separately cannuled and injected with colored latex. The AICA was present each of the 44 hemispheres and originated as a single artery in 32, duplicate in 11 and triplicate in one of them. All of the AICA originated from basilar artery (BA), usually its lower part. The length between the initial point of the BA and originating point of the AICA was measured. We believe that these findings can be useful for description of the abducens nerve palsy. We believe that the knowledge of the arterial relationship of the abducens nerve reported in this study may be helpful for the diagnosis and the treatment of the abducens nerve palsies.

P-17

Absence of thyrocervical trunk

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The thyrocervical trunk most commonly arises from the upper portion of the first segment of the subclavian artery, close to the medial edge of the scalenus anterior muscle and after short distance is divided to the inferior thyroid, transverse cervical and suprascapular artery. This study reports important variations in branches of the thyrocervical trunk in a singular female cadaver. On the right side, no thyrocervical trunk was found. The two branches which normally originate from the thyrocervical trunk had a different origin. The superficial cervical, suprascapular and internal thoracic arteries arose directly from the common trunk artery. An awareness of this rare variation is important because this area is used for diagnostic and surgical procedures.

P-18

A retrospective study on multiple renal arteries in Turkish population

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Objectives: Since the urogenital system has a complicated embryological development, the congenital anomalies and variations in these structures are common, and their incidence shows social, ethnic and racial difference. Especially the variations in the vascular structure of the kidneys gain importance because of the widespread development in transplantation surgery. This preliminary study is a retrospective archive study on multiple renal arteries, and represents the central Anatolia population. Our main purpose is to determine the incidence of multiple renal arteries in the central Anatolia region, and to evaluate their types.

Methods: Angiographic images of 150 individuals were examined for the study.

Results: The incidence of multiple renal arteries was observed as 42%. This result was a little higher when compared with the other studies on Turkish population, but correlated with general literature.

Conclusion: These results indicate the need of a detailed radiological examination before the surgical approaches.

P-19

Anomalous relation of axillary artery

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Aim: The increasing use of invasive diagnostic and interventional procedures in cardiovascular disease makes it important that the type and frequency of vascular variation are well documented and understood. The purpose of the study was to define the vessels supplying the nerves and, as a second step, to determine the pattern of vascularization of particular structures within the thorax wall.

Materials and Methods: During routine dissection of cadaver for medical student, we found an unusual variation in the branching pattern of axillary's artery on the left side of 60 years old female was observed. In the present case the course and distribution of the axillary artery was normal but a rare case of unusual branch of axillary artery that accompanied with intercostobrachial nerve in third part was seen.

Results: The third part of the axillary artery gives sub scapular, anterior and posterior circumflex humeral brunches. There is additional thin collateral artery which is associated with the intercostobrachial nerve. This clearly becomes of clinical significance during injury of the axillary artery. The shape of this branching pattern of artery with nerve has been known to complicate dissection during mastectomy surgery or removing axillary's lymph node &other procedure involving axilla. Except the subscapular artery have additional branch, the posterior circumflex humeral artery arise from subscapular the other axillary artery branches are as usual.

Conclusion: Although there are numerous references to the main axillary artery variant, but the branches with the regard to intercostobrachial nerve are scant.

P-20

Variations of accessory pudendal arteries in laparoscopic anatomic dissection of fresh cadavers

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During the laparoscopic anatomy dissection courses performed by Akdeniz University Faculty of Medicine Prof. Dr. Yasar Ucar Clinic Anatomy Education and Research Unit, we encountered two accessory pudendal arteries in two male

cadavers. The term accessory pudendal artery refers to any artery that arises from a source above the levator ani and travels toward the penis infrapubically. They typically originate from the obturator, vesical and femoral arteries, among others. Those originating from extrapelvic arteries, such as the femoral arteries, have been described in cadaveric dissection studies. The prevalence of accessory pudendal artery varies from 4% to 75%. Such knowledge of these arteries is important for the surgeon for prostatectomy.

P-21

Abdominal aneurysm rupture with fistula between aorta and confluence of left renal vein into vena cava

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Rupture of abdominal aortic aneurysm into vena cava is extremely rare but not as rare as rupture into retroaortically positioned left renal vein. We report a case of 62-year old man who had abdominal aortic aneurysm that ruptured into confluence of vena cava and left renal vein. The patient presented to the emergency department with 2-hour history of abdominal pain. Computed tomography assessment showed a rupture of aneurysm with fistula between aortic aneurysm and confluence of left renal vein and vena cava. During diagnostic procedure the patient developed shock and he was urgently transferred to surgery. Through standard transperitoneal access vena cava was reconstructed and left renal vein was ligated because the defect was too large and irregularly shaped. Aorta was reconstructed with prosthesis. The patient had a full postoperative recovery with normal renal function. Our case report emphasizes the importance of diagnosis prior to the surgery because it reduces the possibility of severe complications due to unexpected and bizarre conditions.

P-22

Ultrastructural aspects of popliteal vein aneurysm

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Venous aneurysm is an uncommon vascular abnormality rarely regarded as a definite clinical entity; because of its location, it may be sometimes misdiagnosed as inguinal hernia, cystic mass or soft tissue tumor. To date, its pathogenesis remains uncertain, although a number of etiologies have been proposed. Due to the rarity of the lesions there are only a few investigations dealing with the histological appearance of venous aneurysms and to our knowledge, there are no studies specifically describing ultrastructural details of popliteal vein aneurysm. By using both scanning and transmission electron microscopy we evidenced the ultrastructural morphology of popliteal vein aneurysm. Aneurysmatic tissues exhibited an abnormal layered architecture with extensive mural damage and several structural abnormalities including degeneration of smooth muscle fibers, disorganization and fragmentation of the surrounding extracellular matrix. Ultrastructural changes included erosion and desquamation of the endothelial layer and intramural migration of blood components. Smooth muscle cells displayed a general disruption of ultrastructure with prominent cytoplasmic fragmentation. Collagen matrix disorganization and thrombi were present within the adventitia layer. No inflammatory process was noted. Besides, the popliteal valve retained a normal morphology: endothelial cells covering both parietal and luminal sides of valve leaflets were regularly arranged. The stroma of the valve consisted of organized arrays of collagen bundles and elastic fibers. Our data indicate that popliteal vein aneurysm is strongly associated with endothelial damage, structural alterations of matrix elements and smooth muscle cells degeneration but not with valvular damage.

P-23

Gastrinoma localization in a patient with variation in the celiomesenteric axis

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Selective mesenteric arterial catheterization, calcium infusion, and hepatic venous sampling at 0, 30, 60, 90, and 120 seconds is a standard method of localization neuroendocrine tumors and plotting operative strategy. As this case demonstrates, there are multiple variations in the gastrointestinal blood supply.

Materials and Methods: A 52-year-old patient presented to the GI oncology service with a history of abdominal pain, nausea, vomiting and dyspepsia. Her gastrin level was 9020 units. Computed tomography of the abdomen showed a three centimeter mass at the head of the pancreas with enhancement in the arterial and venous phase. Octreotide scan was also posi-

tive at the pancreatic head. Serum calcium levels were normal and but PTH level was elevated at 384 Units. Endoscopy with duodenal biopsy revealed chronic duodenitis. Past medical history was significant for hemodialysis for 3 years, hypertension, partial nephrectomy, parathyroidectomy, and appendectomy. Patient was sent for surgical evaluation and a calcium stimulation testing with hepatic venous sampling was requested.

Results: Simultaneous venous and arterial access was obtained. Venous blood samples were obtained from the hepatic vein at intervals as indicated. Celiac axis angiogram demonstrated an absent GDA, a direct pancreatic branch from the celiac artery, a tumor blush at head of pancreas, and a replaced left hepatic artery. On injecting calcium into the pancreatic branch, gastrin levels rose from 23800 to 44000 units confirmed location to head of pancreas.

Conclusion: As this case clearly illustrates, complete mesenteric angiography is essential to determine the exact tissue supplied by these branches.

P-24

Abnormal origin of suprascapular and internal thoracic arteries: a rare anatomic variant

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A rare variation in the arterial patterns was found in the left arm of a 65-year-old male cadaver in a student dissection practice. In this case, variation of the suprascapular artery and internal thoracic artery coexisted. Internal thoracic artery arose from the thyrocervical trunk which divided into two main trunks (inferior thyroid artery and cervical transverse artery). Distance between bifurcation point and origin of internal thoracic artery was 0.8 cm. The suprascapular artery originated from the third part of subclavian artery 4.5 cm lateral to the origin of the thyrocervical trunk. The morphological and clinical significance of this variant are discussed. This kind of anomaly may cause clinical confusions for vascular grafts and direct surgical repairs in vascular surgery. It is important to consider the anomaly of coexistence of these two branches of subclavian artery together at a stage of evaluating the angiograms of neck, root of neck and thorax.

Poster Session 1
Nervous System

P-25

Unusual combination of cranial nerves lesions: a case report

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Cranial nerve lesions are of different etiology and can be caused by extracranial process as well. We present a case of a 54-years-old male patient without any interesting and important note within his anamnesis. His only personal subjective problem was the diplopia, cured half a year ago by the vasoactive treatment, which now has returned. His current personal state features the nasal deviation of the right eye-ball, hypaesthesia of the right half of face, complete peripheral palsy of right facial nerve, hypacusis on the right side, asymetry of palatoglossal and palatopharyngeal arches and prominent atrophy of the right half of tongue. These symptoms refer to the lesion of the fourth to twelfth cranial nerve on the right side. Moreover, the patient features the mild palsy of the abducent nerve on the left side (contralaterally). Objectively, MRI shows vast changes within the right mastoid process and apex of petrosal bone. The filled mastoid cells do not rather enhance in post-contrast in T1, nevertheless, the covers of the vestibulocochlear nerve on the right side are filled as well as widened and filled covers of the trigeminal nerve, accompanied by filled and striking area of the cavernous sinus and a filled mass on the inferior surface of the temporal lobe. The pathological changes stretch as far as pontine cistern. The affliction of the dura mater in the vicinity of the Dorello´s canal of both sides can explain the bilateral lesion of the abducent nerve. Histologically, it is caused by spreading of the nasopharyngeal carcinoma, obviously via the foramen lacerum.

P-26

Volumetric analysis of pons, cerebellum and hippocampi in older patients with Alzheimer disease

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We have performed manual volumetric MRI analysis of pons, cerebellum and hippocampi in 20 healthy controls and 20 patients with Alzheimer disease (both groups' average age was above 70 years). Our goal was to find out whether decrease of hippocampal volume was accompanied by similar volume decrease of pons and cerebellum. Interestingly, we have not found at all statistically significant volume decrease dependence of selected brain structures in Alzheimer disease patients compared to age matched healthy group. Also, we have not found statistically significant right/left laterality in both groups as well as laterality differences between groups. This is in contrast with many studies, reporting generally hippocampal volume loss. The explanation of our finding could be in relatively higher age of control group, where shrinkage of brain tissue may take place for many other reasons. This study may indicate that volume loss of brain areas in Alzheimer disease may be diagnostically attributable to only certain age interval of patients and can not be used without age limitation.

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P-27

MRI study of the gyrus temporalis superior in bipolar patients: a stereological study

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Previous anatomical MRI studies have suggested abnormalities in gyrus temporalis superior (GTS) volumes in bipolar disorder. The aim of this study was to estimate the volume and volume fraction data related to the cerebrum and GTS. We used stereological method based on the Cavalieri principle on the MRI slides, a new method to measure GTS. Ten DSM-IV bipolar patients with the mean age 26.7±3.5 years and ten healthy controls with the mean age 28.1±6.2 years were studied. The mean left and right STG volumes were 11.60±2.20 cm^3, 11.83±2.39 cm^3 in control group and 11.68±2.21 cm^3, 12.30±2.25 cm^3 in bipolar patients, respectively. No significant differences were found between the bipolar patients and controls in measures of left or right STG volumes. The volume ratio of the left and right STG to total cerebrum were 13.32%, 13.97% in controls and 13.82%, 13.47% in bipolar patients, respectively. In conclusion, STG may not be implicated in pathophysiology of bipolar disorder. No evidence in support of anatomical involvement of GTS in bipolar disorder was identified in this study.

P-28

Morphometric characteristics of double bouquet neuropeptide Y immunoreactive neurons in cortex of human inferior parietal lobule

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The aim of this study was to demonstrate and precisely define the morphology of double bouquet neurons immunoreactive to neuropeptide Y (NPY) in cortex of human inferior parietal lobule (IPL). Five human brains were used for immunohistochemical investigation of the shape and laminar distribution of NPY neurons in serial section in the supramarginal and angular gyrus. "Double bouquet" (bitufted) NPY immunoreactive neurons were present in all IPL cortical layers, except layer I. Ovoid cell bodies belonged from small (13.05±1.71 μm) to large neuronal groups (26.82±3.88 μm). Dendritic field are vertically oriented and traversing into the other IPL cortical layers. Two to three main dendrites are divided into a "bouquet" and bear a few spines, so they belong in the sparsely spinous cells group. Bitufted neurons in the layers II and VI possessed all features these type cells based on the Golgi impregnated cells morphology: bitufted dendritic tree, axon which emerged from the perikaryon or from the lower main dendritic shaft, and after short way branch into vertical ascending and descending smooth collaterals. Diameter of the dendritic arborization of the bitufted cells in layer III and VI were significantly longer (217.42±68.35 μm to 389.25±38.32; O-ANOVA p=0.009, respectively) in comparison to other NPY immunoreactive cell types. Information about morphometric characteristics of NPY immunoreactive neurons in cortical layers may contribute to better understanding of patogenesis of some neurological diseases.

P-29

Anatomical variations of neurovascular structures adjacent sphenoid sinus by using CT scan

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The aim of this research was to study of the relationship between anatomical variations of neurovascular structures adja-

cent sphenoid sinus with sex and position of appearance by using CT scan. In this retrospective study paranasal sinuses CT scan has been taken from 399 patients (210 male, 189 female) that referred to Imam Khomeini and Apadana Hospitals, Ahwaz, Iran. Furthermore, protrusion and dehiscence of Internal Carotid Artery (ICA), Maxillary Nerve (MN), Vidian Nerve (VN) and Optic Nerve (ON) into the sphenoid sinuses cavity have been investigated by using CT scan results. In 210 male patients the protrusion of interested variables were noticed as: ICA in 102 (48.5%) cases, ON in 80(38%) cases, MN in 74 (35.5%) cases, and VN in 60 (28.5%) cases, respectively. Also in 189 female patients group the protrusion of ICA, ON, MN, VN were noticed in 65 (34.3%), 66 (34.9%), 62 (32.8%) and 43 (22.7%) cases, respectively. The statistical analysis shows significant difference (p=0.001) of protrusion of ICA between male and female groups. In 210 male patients, the dehiscence of ICA, ON, MN, VN were noticed in 82 (39%), 60 (28.5%), 60 (28.5%) and 66 (31.4%) cases, respectively. Also in 189 female patients the dehiscence of interested variables were noticed as: ICA in 85 (44.9%), ON in 87 (46%), MN in 69 (36.5%), VN in 71 (37.5%) cases, respectively. The statistical analysis shows significant difference (p=0.03) of dehiscence of on variable in male and female groups. In order to increase the risk of intra-operative complications, detailed preoperative investigation of neurovascular structures in sphenoid sinuses by use of CT scan images should be done properly.

P-30

Morphometry of the olfactory bulb, tract and trigonum olfactorium: an anatomical study

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Aim: Most common sites of injury in patients with posttraumatic olfactory dysfunction are the olfactory bulbs and tracts followed by the inferior frontal lobes and volumes of bulb and tract were smaller in these patients. Also the frontal lesion resections are common and important procedures where there is increased injury risk for olfactory structures in this region. In order to prevent the damage of the olfactory structures in anterior cranial fossa detailed anatomical data required. This study aimed to provide direct normal morphometrical information regarding dimensions of olfactory bulb, tract, sulcus and trigonum olfactorium.

Methods: Eighty cerebral hemispheres from 40 adult cadaveric brains were evaluated. The dissections were performed using microsurgical instruments and a surgical microscope. The following parameters were measured using digital caliper: olfactory bulb length and width, olfactory tract height and width, distance between anterior border of the olfactory bulb and posterior border of the trigonum olfactorium, the olfactory sulcus depth and the overall length of olfactory tract.

Results: Means of the distance between anterior border of the olfactory bulb and posterior border of the trigonum olfactorium and overall length of olfactory tract were measured as 42.5 mm and 25.53 mm, consequently. Also means of olfactory bulb length and width, olfactory tract height and width were 13.22 mm, 4.87 mm, 1.97 mm and 2.87 mm, consequently. The mean of the olfactory sulcus depth was obtained as 9.91 mm.

Conclusion: Precise knowledge regarding the normal anatomic features of the olfactory bulb, tract, sulcus and trigonum olfactorium and their morphometrical relations is important during treatment of frontotemporal lesions and during pterional approaches. Normal anatomical features of the olfactory bulb and tract are also helpful during decision about damage of these structures.

P-31

The relationships between the superior cerebellar artery and trochlear nerve

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Trochlear nerve palsy has been based on head trauma, various inflammatory and infectious disorders, vascular diseases and neoplasms. In many cases, the reason of the nerve palsy is unclear. We examined the relationship between the superior cerebellar artery (SCA) and the trochlear nerve in 35 cadaveric brains. The basilar artery was injected with the coloured latex before fixation. Dissections were performed under a stereoscopic microscope. The trochlear nerve has a contact point with the SCA or its rostral or caudal trunks in all hemispheres. The distance between from the origin of the SCA to contact point was measured. The trochlear nerve coursed laterally over the SCA or its trunks almost all cases except 4 hemispheres (5.7%). In these 4 hemispheres, trochlear nerve passed between the rostral and caudal trunks of the SCA. One of these hemispheres, trochlear nerve passed between the main branches of the rostral trunk of the SCA and contacted both of them. These close relationship must be keep in mind while comprehending the compression syndromes of the trochlear nerve.

P-32

Endoscopic anatomy of the neural anatomical structures in pterygopalatine fossa

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Aim: In recent years endonasal endoscopic approach to the pterygopalatine fossa (PPF) becomes an alternative to the conventional open approaches. The maxillary division of the trigeminal nerve (V2) passes through the foramen rotundum and crosses the upper part of the PPF, where it can be injured during endoscopic surgery. The aim of this study was to obtain anatomical topographical features of the neural structures in pterygopalatine fossa.

Methods: Five adult cadaveric heads, 10 pterygopalatine fossas, were examined. Endoscopic dissections were performed by 0°, 30° and 45° rigid endoscopes used for standard endoscopic sinus surgery. Sphenopalatine foramen (SF) was identified and was followed into the PPF for safe dissection of all anatomical structures inside. The V2 was followed from foramen rotundum toward the infraorbital canal. Vidian nerve was identified and distances from SF to point where Vidian nerve enters pterygoid canal, foramen rotundum and pterygopalatine ganglion were measured. Measurements were performed by directly applying standard millimetric paper scale.

Results: Means of the distances from SF to point where Vidian nerve enters pterygoid canal, foramen rotundum and pterygopalatine ganglion were 11.1 mm, 14.6 mm and 8.6 mm respectively. Using endoscopic approach, 0° endoscopes were sufficient for the dissection of SF and medial part of the anterior wall of PPF. Endoscopic anatomical positions of V2, Vidian and infraorbital nerves and pterygopalatine ganglion were identified and their relationships were documented.

Conclusion: Detailed endoscopic anatomical knowledge may reduce intraoperative complications and concomitant morbidity. Cadaveric dissections are essential for increasing anatomical knowledge and improve surgical performance. Aiming minimally invasive procedures we tried to improve the surgeon's orientation during the exposure of this area through its anterior aspect, as well as the evaluation of the topography and relative positions to anatomical landmarks.

P-33

Morphologic variants of the origin of some nerves in the flexor system of the upper limb

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Aim: The median and musculocutaneous nerves belonging to the flexor system of the upper limb can form a unique nervous trunk from which muscular rami arise for the corresponding muscles of the arm and forearm. In this paper we study the frequency of this and other variants and the consequencies on the possible brachial anastomosis between this two nerves.

Materials and Methods: This study has been performed on 125 bodies in the dissection rooms during the last ten years. The origin and distribution of the two nerves and the possible anastomosis between them were pointed out by anatomic dissection and then statistically analyzed.

Results: In 30 cases (24%) have been pointed out:

- Common nervous trunk: 13 cases of which 4 bilateral;
- Double side root of the median nerve: 12 unilateral cases;
- Perforating side root of coracobrachial muscle, together with musculocutaneous nerve: 3 unilateral cases;
- Musculocutaneous nerve with classical origin, without perforating the coracobrachial muscle, but precociously joining the median nerve in a common trunk: 2 unilateral cases;
- Brachial anastomosis between the two nerves: 55 cases (44%) of which 45 with classical disposal.

Conclusions: The most frequent origin variants of the median and musculocutaneous nerves are represented by a common trunk (as in ruminants and carnivores) and doubling of the side root of the median nerve. The common trunk excludes the brachial anastomosis between these two nerves which is related, in cases of classical morphological aspects, with the redistribution of nervous fibers between these two nerves.

P-34

The branching pattern of the musculocutaneous nerve in human fetuses

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Aim: The purpose of this morphologic study was to investigate the characteristics of the ramification of musculocutaneous

nerve in human fetuses. The course and patterns of motor branches to the biceps and brachialis and the communicating branches between the musculocutaneous and median nerve were investigated.

Methods: This study was performed with 20 arms (10 left, 10 right) from 10 formalin fixed fetuses and musculocutaneous nerve were dissected under a microscope.

Results: The musculocutaneous nerve entered the proximal and middle part of coracobrachialis in 13/20 and 5/20 of arms, respectively, and the remaining 2/20 did not pierce coracobrachialis. The communication between musculocutaneous and median nerve was only detected distal to the coracobrachialis in 5/20 of arms. The most frequently observed innervation type of biceps brachii was a single branch which bifurcated for supplying the short and long heads (12/20). For the innervation of brachialis, the most frequent type was a single branch from the main trunk of the musculocutaneous nerve (15/20).

Conclusion: The ramification and entry point into the coracobrachialis of the musculocutaneous nerve is surgically important. The data of the musculocutaneous nerve variations in the human fetus may be useful for the surgeons in the reconstruction of brachial plexus palsy in newborns.

P-35

Variabilities of median nerve course at our Institute of Anatomy in Bratislava

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Aims and Methods: The median nerve from the brachial plexus innervates the majority of ventral forearm muscles, passes through the carpal canal and gives also the sensory innervation to the medial part of the palm of the hand. Several variations of its course and formation are described in the literature and still some new are found. In our work we present and describe two variations of the median nerve course found on necroptic material of our Institute in years 2000- 2009:

1. In the right upper limb the median nerve was formed by union of its 2 roots behind the axillary artery, in the left upper arm the union of the median nerve was just below the division of brachial artery and branching deep brachial artery,
2. In the right upper limb the lateral root of the median nerve passed through the short head of the biceps brachii muscle, in the left upper limb we observed standard course.

Results and Conclusion: These variabilities in median nerve course are compared with a standard course described in the anatomical literature and atlases, and confronted with the found variations of the median nerve course described in the available literature. We give some clinical implications of such peripheral nerve variabilities: understanding of such anomalies is clinically important for the diagnosis of unexplained clinical signs and symptoms as well as during nerve blocks and certain surgical procedures on peripheral nerves around the neck and proximal arm. We are trying to give also embryological explanation.

P-36

Anatomical variabilities of lumbar plexus

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Introduction: The branches of the lumbar plexus provide the great part of the motor and sensory innervation of the lower limb. Variabilities observed during spinal operations have motivated us to start a study aimed on the determination of lumbar plexus formation from its ascension of particular roots from the intervertebral foramina up to the formation of the terminal branches.

Materials and Methods: One hundred lumbar plexuses have been examined on 50 adult cadavers for a purpose to find out an incidence of its neural variations. We have considered also the course of their branches, anatomoses and their thickness. We highlight the motor innervation particularities in relation to the diagnosis besides the anatomical complexity and variability.

Results: A participation of T12 root was commonly observed. Formation of 4 nerve roots into 6 nerve branches was also common. L1 root was the thinnest, L4 the thickest, L3 was thickest in six cases. L5 root usually completely filled the intervertebral foramen. Some lumbar roots showed double or plexiform ascension. Iliohypogastric nerve was the longest, ilioinguinal nerve was the thinnest and femoral nerve was the thickest.

Conclusion: Our work revealed and described some extraordinary anatomical variations in the formation of nerve roots and branches of the lumbar plexus.

P-37

Genitofemoral nerve injuries: anatomical and clinical consideration

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The nerves of the inguinal region can be damaged very often and very easily during routine surgical interventions. During endoscopic approach to the inguinal region, the femoral branch of the genitofemoral nerve and the lateral cutaneous nerve of thigh are most often in jeopardy. In 20 laparoscopies on cadavers, the femoral branch of the genitofemoral nerve has been identified in 19 cases. In a series of 125 laparoscopically treated inguinal herniae, one patient showed the symptoms of the lesion of the femoral branch of the genitofemoral nerve and lateral cutaneous nerve of thigh. The irritation of the genital branch of the genitofemoral nerve is possible in the region of the deep inguinal ring.

P-38

Variabilities of sciatic nerve course at our Institute of Anatomy in Bratislava

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Aim and Methods: Sciatic nerve (from sacral plexus), the broadest nerve of human body, leaves pelvis through greater sciatic foramen, usually below the piriformis, innervates muscles of back of thigh, muscles of leg, foot, contributes to sensitive innervation of anterior and dorsolateral aspect of leg and nearly to whole foot. Several variations in sciatic nerve formation are described in literature. We want to contribute with 2 variations in sciatic nerve formation found on necroptic material of our Institute of Anatomy.

Results: In years 2006- 2009 we noticed 2 variations in formation of sciatic nerve:

1. In the gluteal region of right lower limb the sciatic nerve was dividing piriformis muscle by its superior root and below the muscle it unites again with inferior root and continues in its usual course down on back of thigh; the comparison with left side was already impossible because of cut piriformis.
2. On both lower limbs was observed the high division of nerve (inside the pelvis); whereas the common fibular nerve passed through the piriformis and tibialis nerve descended below the muscle.

Discussion and Conclusion: A special feature of first found variation is union of both roots after a separated exit through divided piriformis muscle and its further descend as a common trunk of sciatic nerve. The second observed variation is relatively frequent. Anatomical variations of sciatic nerve may contribute to piriformis syndrome, coccygodynia and muscle atrophy. Some other clinical implications are also discussed and we also try for a probable embryologic explanation.

Poster Session 1
Anthropology

P-39

Evaluation of child nutrition status using the new WHO growth standards

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Objectives: The WHO growth standards were released in 2006. The Czech Republic has a long history of nationwide anthropological surveys used as a reference for the Czech pediatric population. The objectives of our study were:

- To compare both growth references and
- To determine the prevalence of wasting among Czech children using the 1991 Czech growth reference and the 2006 WHO growth standards. We estimated the consequences of national implementation of the new WHO standards, especially the growth and development of children with low weight-for-length values.

Methods: We compared the current Czech national reference data for weight, length and weight-for-length with the new WHO standards, especially the values of their 3rd percentile.

Results: Higher weight-for-length values in the first months of life according to the WHO standards compared to the Czech reference data were detected. On account of the new WHO standards implementation, children with weight-for-length values between the 3rd and 25th percentile according to the Czech growth references would be classified below the critical 3rd percentile of the WHO growth references.

Conclusions: Detected differences may influence the assessment of child nutrition adequacy and lead to premature introduction of complementary foods. At present, we do not recommend adoption of the WHO standards for growth assessment of Czech children. The application of the WHO growth standards may result in a significant increase in the prevalence of wasting among Czech children, especially among infants aged 0-5 months. The WHO child growth standards should be further evaluated prior to their adoption in the Czech Republic.

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P-40

Anthropometry and laboratory parameters in newborns with Intrauterine growth retardation

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Intrauterine fetal growth is represented by complex metabolic processes, including metabolism of folic acid, cyanocobalamin and homocystein (Hcy). The goal of our study is a mapping of metabolism markers of homocystein in newborn age related to maternal levels and delivery weight. We have observed physiological group (group A, n=91) and hypotrophic group (group B, n=99) referring to newborns of the same gestational age and their mothers. Our observations include somatic (antropometry), laboratory (plasma levels of the Hcy, vitamine B6, B12 and folic acid), enriched by anamnesis data. Genetic part of the study is focused on analysis of 2 regular variants of gene necessary for synthesis of methylentetrahydrofolate reductase (MTHFR) in Hcy metabolic cascades. Both groups are comparable in terms of basic characteristics. Based on particular results we have not found any significant difference of the plasma levels of the Hcy in group B compared to group A. We have observed increased levels of cyanocobalamine of either mothers and newborns from group B. This data, together with sonography of kidney size and adipose tissue, could be considered as preliminary data of hypotrophy kids longitudinal study. Differences could be explained partially by different deposition styles of cyanocobalamin. DNA analysis still does not prove genes variants association with fetal hypotrophy. Another study would be needed in order to test hypothesis of Hcy metabolism influence (by means of vascular placentar dysfunction and preeclampsia) on the origin of fetal growth retardation.

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P-41

Evaluation of the changes with the sex and the age in manubriosternal angle values measured by MDCT

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The aim of this study was to evaluate the changes with the sex and the age in manubrosternal angle values measured by MDCT. The manubriosternal angle of the 796 patient (382 men and 414 women; 13–87-years-old) were measured by thorax MDCT. The images of the patients were separated into five year age groups (13-17 years, 18-22 years…and 83-87years). And the measured values were analyzed according to these groups. All MDCT examinations were performed with a 64-channel MDCT scanner (Somatom Sensation 64, Siemens, Germany). The obtained images were transferred to a workstation (Leonardo, inspace program, siemens) for further processing. In women, the average manubriosternal angle is 165±2.4 degrees; and in men the average manubriosternal angle is 164±2.3 degrees. The widest average angle in men was measured in 13-17 age groups while the widest average angle in women was measured in 18-22 age group. The narrowest average angle in man was measured in 78-82 age groups while the narrowest average angle in women was measured in 68-72 age group. According to these results there is no difference between men and women in manubriosternal angle measurements by MDCT. On the other hand, the value of the measurements decreases by the age in both sexes.

P-42

Effect of living conditions on somatotype components of young individuals belonging to different socioeconomic strata: a preliminary study

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Aim: Morphological characteristics of the human body are known to alter among different populations. Genetic factors are undoubtedly not the only cause of these variations. Independent of sex and age, environmental factors, nutritional habits, physical activity, and the socioeconomic status of an individual could cause differences in human body structure. In most anthropological studies, body structure has been determined by body mass index or somatotype components. Studies

on the proportional values of the human body are limited. The main aim of the present study is to evaluate the influence of socioeconomic and cultural status on somatotypes of young adults.

Methods: The study included 100 adult male subjects with a mean age of 19.54±2.44 years.

Results: Thirteen anthropometric measurements were taken from all the individuals, and depending on these measurements body mass index and somatotype values were calculated for each subject. Monthly income of the family and the education level of the parents were taken into consideration in order to determine the socioeconomic and cultural status. The results of the study indicate that parental education levels are more influential on body structure when compared with the economic status of the family.

Conclusion: Differences between the groups were marked in lower limb measurements, skinfold thicknesses and somatotype values of the subjects, especially in endomorphy component.

P-43

An anthropometric study of facial height among four endogamous communities of Sunsari district of Nepal

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Aim: Facial anthropometry has well known implications in health related fields and has also been utilized for forensic purposes in the past. It gives an indication about the variation in facial shapes in a population. Facial anthropometric profile of a population can characterize the distinctive features of a likely face in that population. The present study is aimed to study the differences in facial height proportion and facial growth pattern in different communities of Sunsari District of Nepal.

Methods: Upper and lower facial height proportions were calculated for 857 subjects (429 males and 428 females) aged between 3 and 18 years from the four communities (Brahmin, Chhetri, Rai and Limbu) of Sunsari district of Nepal and compared.

Results: A significant difference (P less than 0.05) in UFH percent and LFH percent is observed between Brahmins and Rai, Brahmins and Limbu, Chhetri and Rai, and Chhetri and Limbu communities.

Conclusion: The study concludes that statistically significant differences are evident for upper and lower face height proportions in different racial groups. A change in facial height proportion in the various age groups is evident. However, differences in facial height proportions between males and females are not significant.

P-44

Histological study of larynx in Iranian pre- and after-puberty

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This study investigates the differences in proportion and structure of the larynx in both children and adults, as well as changes which the larynx undergoes during puberty and adolescence. 20 cases of cadaver from 8-20 years included 10 boys before and after adolescence and 10 girls pre- and post-puberty for evaluation of historic changes of larynx were selected . The aim was to know histological changes during pubertal and the relation between vocal cord with three different dimensions in whole structure of larynx. Four characteristics comprised of height, thickness, layers of stratified squamous epithelium on vocal cord and lamina propria thickness have been specified for histological study of vocal cord. All cuts have been taken vertically on the parallel surface of coronal plate over vocal cord. No significant differences have been seen on comparison between male and female in pubertal. The most differences in all characteristic between males and females in pubertal and prepubertal were clear. Historical study of vocal cord shows the significant changes in height and cell layers of epithelium and thickness of lamina propria in comparison of male between prepubertal and pubertal and also between male and female in pubertal.

Poster Session 1
Varia

P-45

Different morphological patterns of diabetic macular edema using spectral-domain optical coherence tomography

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Aim: To analyze prospectively the retinal morphology of different patterns of diabetic macular edema (DME) using spectral-domain optical coherence tomography (SD-OCT) and

understand pathogenesis of subretinal detachment associated with DME.

Methods: The study included 50 patients (64 eyes). The patients underwent complete ophthalmic examination including Goldmann fundus contact lens. SD-OCT was done to all of them. All OCT scans were examined for the presence of diffuse retinal thickening (DRT), cystoid macular edema (CME), subretinal detachment (SRD), posterior hyaloids traction (PHT), and tractional retinal detachment (TRD).

Results: The most frequent pattern was DRT seen in 38 eyes (59.4%) followed by CME seen in 36 eyes (56.3%). Both DRT and CME were seen in 10 eyes (15.6%). SRD was seen in 18 eyes (28.1%). PHT was seen in 11 eyes (17.1%). PVD was seen in 14 eyes (21.9%).

Conclusion: SD-OCT provides us with valuable information on the retinal morphologic changes associated with DME. It is helpful to clarify the pathogenesis of DME and optimize the treatment for each type.

P-46

Giant orbital cavernous hemangioma: a case report

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Our patient was a 67-year-old male from north-west of Albania who referred from ophthalmology clinic with an orbital mass extending to the left nasal passage and causing destruction of the orbital wall. He had a history of painless progressive proptosis and gradual decrease in visual acuity for more than 25 years. In the past 2 years, he experienced a step-wise decrease in visual acuity that progressed to complete blindness. On physical examination, the left globe protruded severely with limited eye movements and periorbital edema. Bulbar conjunctiva was vascularized and keratotic and total visual loss with no light perception was present on ophthalmologic exanimation. Anterior rhinoscopic examination revealed that the left lateral nasal wall was medially displaced. Radiologic imaging studies with high-resolution CT scan of the orbits and parasellar region revealed a large, well-defined and enhancing retrobulbar mass of 4x4 cm in diameter causing a forward shift of the ocular bulb. Bony destruction of the orbital roof, frontal sinus floor and lamina orbitalis of ethmoidal bone was observed. The optic nerve was displaced superiorly and laterally with partially atrophied appearance.

Conclusion: The cavernous hemangiomas is an expansive lesion of the orbit presenting with proptosis and severe visual impairment. En bloc removal is necessary to avoid the risk of residue and recurrence. This unusual case shows how a histopathology benign can cause significant morbidity if not evaluated and managed early.

P-47

Reaction of morfh-functional components of children's organism on ecological factors

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In order to study the influence of unfavourable ecological factors on changeability of morph-functional indexes of children's organism we have done complex research of anthropometric indexes at about 900 newborns, and children of 3-10 age, born and living in Belgorod region (Russia) with different level of anthropogenic pollution. We used complex of morph-functional research of VV Bunak, J Mateigka and P Deurenberg with the following statistic processing of material obtained. Analysis of newborns' morph-functional characteristics on their individual signs, taking into consideration ecological situation, has revealed higher mean values relatively to indexes of body mass, dimensions of head and chest at boys and girls from regions with critical ecological situations in comparison to newborns from regions with satisfactory ecological situations. On the contrary, the results of investigations in level of physical development of pre-school and younger school age children have shown that boys and girls from regions with higher level of ecological pollution have reliably lower values practically in all anthropometric indexes. Besides that comparative analysis of component body structure has determined the increasing of percent contents in lipid body mass both at boys and girls, living in regions with critical ecological situations. Thus, the changeability character of individual signs in children's organism depends on the ecological situation in region of his/her birth and living, and its intensity is connected with the age and genital organism peculiarities, and also with manifestation of urbanistic factor, social component and accumulation degree of impact effect of anthropogenic burden gradually.

P-48

Empowering mothers of under five children on prevention of worm infestation

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Background: Worm infestations contribute significantly to global burden of diseases in children. Health education remains the most affordable and effective strategy for controlling helminthic infestations.

Objectives: To assess the knowledge and effectiveness of awareness programme on worm infestation and find the association between pretest knowledge scores and selected variables.

Methods: Evaluative study was conducted among 60 mothers of under five children in rural areas of Udupi district, Karnataka. Data was collected by structured and pre-tested questionnaire using purposive sampling. On day one, pretest and awareness programme was administered and on day eight, posttest was conducted.

Results: Mean posttest knowledge score (31.22±5.21) was apparently higher than the mean of pretest scoring (16.65±7.17). Significant difference was found between the mean pretest and posttest knowledge scores, $t=20.35$, $t(59)=2$, $p<0.05$. The pretest knowledge score was associated with the educational level of the mothers.

Conclusion: Awareness programme contributed significantly to the improvement in the knowledge and was accepted by mothers as an effective learning strategy.

P-49

Prediction effects of first permanent molars teeth extraction during late childhood

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Background: Patients with mixed dentitions where extraction of one or more first permanent molars is being considered as part of an orthodontic treatment plan, while taking into account different patterns of malocclusions.

Aims: The purpose of this clinical paper is to give young dental practitioners the best advice on appropriate treatment of grossly carious first permanent molars for child patients, particularly where the patient may never be expected to consult an orthodontist.

Conclusion: Practicing orthodontists are frequently faced with adverse consequences for development of the occlusion from uncontrolled extraction of first permanent molars in children. It is impossible to offer advice that will fit all situations. More universal methods for control or prevention of dental caries in newly erupted first permanent molars would greatly reduce the many dilemmas of practitioner in the clinical management of gross caries. The analysis with advice on management is based on experiences of being confronted with such problems.

Poster Session 2
Animal Models

P-50

Endocrine function and duration time of estrous cyclicity of the ovariectomized recipiented neonate vitrified ovarian grafts mice after treatment with melatonin

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The effect of melatonin on estrous period of ovariectomized mice which received neonate vitrified ovarian grafts was studied. Vitrified ovaries from neonate F1 hybrid mice, candidates for transplantation to treated or non-treated groups, were thawed under standard conditions with or without the addition of 100 µM melatonin, respectively. Following transplantation, melatonin (20 mg/kg/day) or saline solution was injected i.p. to treated and non-treated groups respectively. Melatonin, gonadotropins and steroids concentrations, together with vaginal cytology to monitor estrogenic activity of ovariectomized recipient mice were carried out. Studies showed that the restoration of fertile estrous was similar between treated and control groups. However, the estrous cyclicity duration as well as estrous time of fertile period in the treated group was shorter than non-treated group. Plasma LH and FSH levels were higher in the ovariectomized host at before restoring ovary graft cyclicity than intact mice. However, the melatonin administration reduced these high levels into nearly similar concentrations to those in intact mice. The correlation coefficients between gonadothropins and melatonin concentrations at the different stages of the estrous cycle were significantly different from zero. Indeed, progesterone secretion in spite of estradiol was adversely affected by melatonin treatment. Meanwhile, the correlation coefficients were significantly different from zero. These results suggest that melatonin could be having positive effects on the deficient activity of hypothalamic–pituitary–ovarian axis especially on the progesterone drive of the recipient.

P-51

Histopathological and biochemical evidences for hepatoprotective role of an Indian medicinal plant *Caesalpenia bonduc*

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Liver is a primary organ for processing the ingested food and drugs, therefore is a prime target for many toxicity. Even though liver exhibits efficient detoxification and regeneration capacity, prolonged hepatotoxicity leads to impaired life and can be fatal. Therefore, the effective hepatoprotector is necessary to maintain the normal functional homeostasis in the liver during many drug therapies and infections. One such Indian herbal medicine, *Caesalpenia bonduc* (CB) a shrub that grows in hotter places of India used to treat various types of liver diseases including the hepatitis. However, the exact mechanism of action is not known. Therefore, this present study is designed to evaluate the mechanisms of hepatoprotective action of CB using an animal model. Hepattoxicity was induced in healthy Wistar rats by carbon tetrachloride (CCl4) and then treated with aquous extract of CB. The hepatotoxicity was confirmed by the elevated levels of liver enzymes such as aspartate aminotransferase, alanine aminotransferase, alkaline phosphatase and by the histopathological alteration in the normal architecture of the hepatic chords, sinuses, portal system, necrosis and fatty infiltration. Our results show that, the toxic changes in the liver were much lesser when CB is administered along with the toxicity inducer, CCl4. However, the severity of the cellular and biochemical changes in the liver was reduced in animals treated with CB after the induction of chronic hepatotoxicity. Therefore, our preliminary experiments show an encouraging results indicating that, the *Caesalpenia bonduc* can be used to prevent and to treat the hepatotoxicity effectively.

P-52

Distribution of some of the small proteoglycans in the different ID's components of guinea pig

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The intervertebral discs (IVD) are made up of three connective tissue components: anulus fibrosus (AF), nucleus pulposus (NP) and cartilage end plate (CEP), performing the support and shock-absorbing functions of the spinal column. The function of the discs is an expression both of their structure and of the chemical composition of their components. The present study demonstrated the distribution of biglican and fibromodulin, often referred to as the "small interstitial proteoglycans" in the guinea pig IVD components, using the immunohistochemical analysis of six lumbar IVD. The variable distribution of the proteoglycans (PG) is intimately related to the function of the discs, should not be considered as a homogeneous and static structures.

P-53

Age-related changes in cardiac spinal afferent neurons

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Aim: The aim of this study was to explore the effect of aging on the number of spinal afferent neurons projecting to different chambers of the rat heart.

Methods: The experiment included 24 female Sprague-Dawley rats divided into two groups-12 young (2 months old) and 12 old (24 months old) rats. We performed an operation using transabdominal approach and applied a patch loaded with retrograde tracer Fast Blue. Each group was divided into four sub-groups according to the chamber of the heart where the patch was placed. The application was made to only one chamber of the heart (left atrium or ventricle, right atrium or ventricle) in all animals belonging to a specific sub-group. Seven days after the surgery animals were sacrificed and the total number of labeled cardiac spinal afferents was counted in dorsal root ganglia bilaterally.

Results: The number of neurons projecting to the different chambers of the rat heart decreased significantly (1036 vs. 212) in old rats. However, the relative decrease varied depending on the heart chambers that neurons were projecting to. The smallest decrease was in the population projecting to the right atrium (218 vs. 104), followed by the left atrium (276 vs. 61), the left ventricle (339 vs. 41) and the highest decrease was noticed in neurons projecting to the right ventricle (203 vs. 6).

Conclusion: The significant decrease of neuronal number might be one of the factors contributing to the explanation of silent myocardial infarction that occurs in senescence.

P-54

Morphometric characteristics of corticotropin releasing factor immunoreactive neurons in the central nucleus of the rat amygdaloid complex

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The aim of our study was morphometric analysis of corticotropin releasing factor (CRF) immunoreactive (ir) neurons in the central nucleus (Ce) of the rat amygdaloid complex by using immunohistochemical method. The research was performed on 5 adult male Wistar rats kept in standard conditions. Animals were perfused 48 hours after application of colhicin. Brains were removed, postfixed and cut. Coronal sections were treated with rabbit antibodies against the CRF. Subsequently, the sections were incubated in biotinylated anti-rabbit secondary antibody followed by incubation in avidin-biotin-horseradish peroxidase complex. Finally, the sections were treated with DAB. The neurons were drawn with a camera lucida and measured. Our results demonstrate uniform distribution of CRF-ir neurons in the Ce of the rat amygdaloid complex. Maximal diameter of neuronal body was 30.06±6.64 μm, and minimal diameter of neuronal body was 16.25±3.86 μm. The most of the CRF immunoreactive neurons had 2-5 primary dendrites. According to morphological type dominant were triangular (50%), while bipolar (25%) and multipolar (25%) types were also present. Morphometric studies of CRF immunoreactive cells in Ce of the amygdala are significant because together with the findings about the function of this peptide, they represent a basis for further research. We expect that potential changes of density, of types and of distribution of CRF immunoreactive neurons in Ce in different animal models of disorders may contribute to understanding of different diseases.

P-55

Distribution and morphology of cocaine- and amphetamine-regulated transcript (CART) peptide immunoreactive neurons in rat amygdala

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The aim of this study was mapping and description of CART immunoreactive (ir) neurons in rat amygdala by using immunohistochemical method. Adult male Wistar rats were perfused, and brains were removed, postfixed and cut. Coronal sections were treated with rabbit antibodies against the CART, then were incubated in biotinylated anti-rabbit secondary antibody followed by incubation in avidin-biotin-horseradish peroxidase complex. The tissue bound peroxidase was visualized with DAB. The neurons were drawn with a camera lucida and measured. The greatest density of CART-ir neurons was in lateral (La) and basolateral (Bl) nucleus, moderate was in central nucleus, while the smaller number of these cells was present in posterior cortical nucleus. Analyzing morphology of CART-ir neurons, we found that the greatest number of these neurons (43.75%) has a bipolar shape. About 15% of investigated CART-ir neurons are ''bitufted'' neurons, while the nearly same is the presence of multipolar (12.5%) and of ovoid neurons (12.5%). CART-ir neurons of pyramidal shape are present in about 9%, while the smallest number is of triangular neurons (6.25%). The largest CART-ir neurons are in La (longer diameter: 25.32 μm), and the smallest ones are present in Bl (longer diameter: 14.73 μm). Even if there is not any morphologically distinct CART–ir neuron type in rat amygdala, these neurons mainly are small and oval in most of amygdaloid nuclei. This suggests the functional role of majority of CART-ir neurons in rat amygdala, especially in Bl, as small interneurons. Only small number of them could be large projection neurons.

P-56

Effect of Zingiber on leads detoxification in kidney of neonatal rat

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Background: In this investigation, it was determined that the effect of ginger alcoholic-water extract in kidney poisoning treatment was induced by lead in neonatal rat and this study was determined to assess imported loss on cared rat kidney by lead and to investigate the protective effect of ginger alcoholic-water extract phenolic combination, the rat of serum concentration uric acid, urea, creatinine, sodium and potassium.

Methods: Rats were divided into 7 groups, as each group is 10. First group (control group) received no material, second group (evidence group) received 1 ml distilled water, third group received lead with dose /6 gram in liter, fourth group just received 2 gr/kg ginger alcoholic-water extract, fifth, sixth, seventh group first received lead /6 gr in liter and then received

with doses /5,1,2 gr/kg ginger alcoholic-water extract. Presenting compound was performed orally in consecutive 10 days and 24 hours after the last day of injection bleeder to blood was performed directly and its serum was separated and mentioned elements were measured.

Results: Based on obtained results of serum uric acid, urea, creatinine, potassium concentration in 1, 2 gram on kilogram, experimental groups show significant decrease as compared with lead group and serum sodium concentration in /5, 1 and 2 gram on kilogram, experimental groups show significant increase as compared with lead group. Serum uric acid, urea, creatinine, sodium, potassium concentration in group just extract, shows no significant difference as compared with control group. Serum uric acid , urea, creatinine, sodium, potassium concentration in lead group shows significant increasing as compared with control group, but about serum sodium concentration shows significant decrease as compared with control group.

Conclusions: Ginger alcoholic- water extract on cared neonatal Rat kidney cells with lead meaningfully, has protective effect and its protective effect and its protective effect is related to available phenolic combination and these combinations have antioxidant properties.

P-57

Effect of cholesterol on cryopreserved mouse spermatozoa

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Aim: Cryopreservation induces damage to mouse sperm especially C57BL/6 mouse strain and results in a loss of motile and viable cells. Part of this damage occurs due to membrane alterations induced by the membrane changing from the fluid to the gel-state as the temperature decreased. Adding cholesterol to the membrane may increase the membrane fluidity during cryopreservation. Cholesterol-loaded-cyclodextrin (CLC) which leads to increase plasma membrane fluidity in low temperatures was examined for its ability to increase the cryosurvival of C57BL/6 mouse sperm, the main strain of genetically engineered mice. The intactness of acrosome, motility and fertilizing ability of frozen/thawed spermatozoa were used to monitor cryosurvival.

Methods: In this experimental study, male mice were randomly divided into three groups: control, experimental 1 and experimental 2. In experimental groups spermatozoa were exposed to two different concentrations of CLC (1&2 mg/ml) over a period of 1 hour and were subsequently cryopreserved. Spermatozoa in control group were frozen without any exposure to CLC. The post-thaw sperms were evaluated for their motility, acrosomal status and fertilizing ability.

Results: The values of the intact acrosome, motility and fertilizing ability increased significantly with concentration of CLC compared to control group ($P<0.05$).

Conclusion: These results indicate that cryosurvival of C57BL/6 mouse spermatozoon is enhanced by exposure to CLC before freezing.

P-58

Vincristine toxicity effect on cerebellum formation of mice at during pregnancy

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Introduction: Vincristine is alkaloid that was administered for inhibition of division of malignant tumor cells. Occurring of malformation in embryos was proved in pregnant mothers. However, there was no adequate information about its toxic effect in newborns cerebellum structures. Will considering to Blood Brain Barrier passing and cytotoxic effect, rate of destructive effects to formation of cerebellum in newborns was demonstrated.

Methods: In this study 20 female Mice were pregnant divided as two groups (control and experimental) accidentally. The experimental group received 3 mg/kg in days 10 and 15 pregnancy (I.P). In the end of pregnancy duration 48 newborns (control and experimental groups) were selected for histotechnique process and H&E staining then in continues considered under light microscope. It was used from T-test and SPSS software for analyzing data obtaining from quantities parameters.

Results: In base of morphologic observations performing, it was obtained significant decrease in weight, skull size and newborn growth ($P<0.001$). In base of microscopic observations, cerebellum is seen such as primary formation. White matter of cerebellum was seen with decreasing in compaction of neuralgia cells accompany with deficiency in dismyelination of nervous fibers. Occurring of apoptosis was seen in epithelial cells of choroid plexus and in white matter neuralgia cells.

Conclusions: In base of obtaining resultants we can conclude that effects of anti-mitosis drugs can include inhibitive activity of drug to difference and proliferation of cortical cells of cerebellum and its formation ultimately and it causes to support of apoptosis induction in choroid plexus cells and cerebellum.

P-59

Microscopic study of the histogenesis of testis in goat fetus

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The aim of this study is determination pattern of development of testis structure in goat fetus. The samples in this study included the pregnant slaughtered goats in industrial slaughtered house in autumn season and unit of sampling was including 100 separated fetuses from uterus of pregnant mothers. The method of sampling was accidental .The age of collected fetuses were calculated according to Gall et al. (1994) as X=2.74 Y+30.15. After dissection of fetuses from different ages, the testis samples for histological study and performing histotechnique procedures were put in 10% buffered formalin and stained by methods of H&E, periodic shift acid and Masson´s trichrome and studied under light microscope. Data were analyzed by ANOVA and Tukey test and SPSS software. The results of microscopic studies, Showed that gonads in 35 days of pregnancy were as a mass connected to mesonephrosis. Primary sign of differentiation of testis in 35 days of pregnancy was observed that it was built of white membrane and in 42.5 days of pregnancy primary genital cords were formed. In 50 days of pregnancy, we observed myoid cells that surround the genital cords and a few days after that Leydig cells in internal space of testis observed. Genital cords until to birth surrounded with Sertoli cells and gonocytes were in the center of cords so that it seems as solid tubule until birth. According to the results it was obtained that the time of differentiation of testis in ruminants is different. The amount of biometry increased with growth of fetus gradually. So a significant difference between the age of groups was observed ($p<0.05$).

P-60

Microscopic study of differentiation of the facial skin in Ghezel sheep

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The aim of this study is the determination of histogenesis of the facial skin in Ghezel sheep. The study was in the form of descriptive observation conducted on 100 male sheep fetuses which were collected randomly. The length of the collected fetuses were measured and their age calculated by the formula X=2.1(Y+17). Following fixation of the fetuses in 10% buffered formalin samples were separated from the face region. They were studied histological after the histotechnique and H&E staining procedures. In initial development of fetus, epidermal layer of skin exists from a row of cuboids cells (basal layer) that are covered by a row of squamous cells (periderm) at the 7th week gestation. At the 8th week gestation epidermis makes an intermediate layer by multiplication of germinal layer that at the 14th week gestation it converts to spinosus cells. Formation of hair follicles, sebaceous and sweat glands begin at the 9th week gestation. Sweat and sebaceous glands formed from primary hair follicles and appearance of myoepithelial cells is at the same time with appearance of sweat glands. Against other mammals that their hair follicles grow not vertically, we sow vertical growth of them in sheep skin. Resulted that sheep fetal skin development at the 13th week gestation is a susceptible period, because the formation of the most structures of skin such as melanocytes, myoepithelial cells, sweat and sebaceous glands occur at this week. Tactile hair follicles are the last structures that form at the 15th week gestation and develop until the end of pregnancy period. So, developmental pattern of sheep embryonic skin is similar to other mammals that studied.

P-61

Macroscopic study of the larynx in male ostrich

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Introduction: The larynx is protruded from the floor of the pharyngeal cavity in the birds. It has two parts cranial larynx and caudal larynx. The cranial larynx opens from the pharynx by a long, slit-shaped opening, the aditus laryngis. The foundation of the larynx consists of a cartilaginous ring composed of the cricoid and arytenoids cartilages. These cartilages tend to become ossified. There are many papillae on the dorsal surface of the larynx aid in swallowing of the food.

Methods: The main purpose is a macroscopic study about the larynx of the ostrich, so this study was carried to determine the anatomical detail of the larynx. At the present study, thirteen larynges of 1.5 years old male ostriches were fixed in buffer for-

malin 10% for 72 hours. To open the mouth cavity wider, the beak´s angles were incised. Then anatomical position and shape of the larynx were studied, finally, measurements were carried out on larynx by ruler.

Result: The result revealed that the larynx protrudes from the floor of the pharyngeal cavity. It lies caudal to the tongue with a gap. This gap with 1.9±0.17 cm length is occupied by some irregular mucosal plica. There are many mucosal laminae on floor of oropharynx near to lateral wall of larynx. The skeleton of larynx is composed of the unpaired cricoid cartilage and the paired arytenoids cartilages. A wide triangular slit as glottis is formed between two arytenoids cartilages.

Discussions: The shape, position of the larynx, number of the cartilages is different from the other birds.

P-62

The frequence of hypertension, hyperlipidemias and pre-diabetes among the patients with hyperhomocysteinemia

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Introduction: Persons with increased levels of homocysteine in are often diseased of stroke, Alzheimer's disease, nephropathias, ophtalmopathias, erectile's dysfunction and especially, cardiologic diseases.

Aim: To analyze the presence of hypertension, hyperlipidemias (HLP) and pre-diabetes among the patients with hyperhomocysteinemia.

Method: The patients with hyperhomocysteinemia were examined. The criteria for inclusion were the absences of neurological diseases demanded the anticonvulsive's therapy and alcohol's abuse. The diagnosis of hypertension was based on measurements of arterial tension. Lipid status was determined by spectrophotometry (total cholesterol, HDL-cholesterol, LDL-cholesterol, triglycerides). Pre-diabetes was diagnosed by fasting glycaemy and oral glycose tolerans test with 75 g glycose. The results were presented by proportions and percents.

Results: The study included 19 patients (11 men and 8 women) with hyperhomocysteinemia, the age of 42.5±2.5 years. Hypertension was diagnosed in 78.95% patients (15 patients-9 men and 6 women). Pathological lipidogramme was found among in 52.63% of patients (10 patients-7 men and 3 women), with the frequence of HLP: type IIa - 21.05% (4 patients-3 men and 1 woman), type IIb-10.53% (2 patients: a man and a woman), type IV- 21.05% (4 patients-3 men and a woman). Prediabetes was diagnosed in 36.84% of patients (7 patients - 6 men and a woman).

Conclusion: According to the results, it could be concluded that more than three quarters patients with hyperhomocysteinemia have also hypertension, more than a half have also the lipid's disorders and more than the third have a glycoregulation disorders. The conclusion about the distribution according to the gender should be made after inclusion increased number of patients.

P-63

Protective effect of melatonin on proliferative activity of small intestinal epithelial cells in mouse treated with busulfan

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Aim: The aim of this study was to investigate the possible protective role of melatonin on the proliferative activity of epithelial cells in mouse small intestine damaged by chemotherapy.

Methods: Adult mice were divided into four groups. Group 1 (control) received vehicle, group 2 was treated with 10 mg/kg melatonin for five consecutive days. Group 3 was treated with a single dose of 10 mg/kg busulfan and group 4 was treated with 10 mg/kg busulfan + 10 mg/kg melatonin. All mice were dissected after 1 week and evaluations were made by histochemistry, morphometry and bromodeoxyuridine (BrdU) labeling index assay. Statistical analysis were performed using ANOVA test.

Results: Busulfan caused to histological damage and atrophy in mucosal layer in compare to control. However melatonin alone had no atrophic or trophic effect. Treatment with busulfan significantly reduced villous height (422.11±7.15 Vs 438.33± 12.66 µm) and goblet cells numbers (6.1±0.6 Vs 9.19±1.08) compared to control. A significant decrease in (BrdU) labeling index were observed in mice treated with busulfan ($p<0.01$) or melatonin alone treated groups ($p<0.01$). Treatment with busulfan+melatonin provided significant amelioration of those changes.

Conclusion: This study indicates that busulfan impaired mucosal layer of intestine and combined treatment with melatonin protected much of the toxicity in mice partly through reduction of proliferative activity of intestinal epithelial cells.

P-64

Effect of melatonin on spermatogenesis status and apoptosis of male germ cells in mouse under chemotherapy

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Aim: The aim of this study was to investigate the possible protective role of melatonin on the spermatogenesis status and apoptosis of germ cells in busulfan-induced spermiotoxicity using Johnsen's score and in situ TUNEL assay.

Methods: Male adult NMRI mice were divided into four groups. The control group received vehicle (ethanol 1%); Group 2 received a single dose of busulfan (20 mg/kg) intraperitoneally. Group 3 was administered melatonin (10 mg/kg) intraperitoneally for 5 days. Group 4 received a 5-day course of melatonin (10 mg/kg) following an initial dose of busulfan (20 mg/kg). Half of animals were sacrificed on 5 days (short-term group) and the others on 35 days after treatment (long-term group).

Results: Johnsen's score in busulfan treated group reduced in compare with the control (7.02±0.41 VS 9.48±0.36) in short- and in long-term (4.10±0.64 VS 9.51±0.42) groups. However, it significantly increased in 4th group in compare to 2nd group ($p<0.01$). Busulfan-treated mice both in short- (42.3±6.40 VS 2.5±0.05) and long- (14.6±2.20 VS 2.1±0.02) term groups, showed a significant increase in the numbers of apoptotic cells ($p<0.01$) in compare to control. Melatonin in group 4 significantly reduced rate of apoptosis compared to group 2 in short-term animals ($p<0.01$).

Conclusion: These results indicated that melatonin may have a protective effect against busulfan-induced testicular damage, partly by decreasing of apoptosis.

P-65

Anatomical comparison of hand innervations in human and dog

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Recognizing and comparison of innervations of hand in human and dog are very important. In this study, we surveyed 5 fixed human body and 10 fixed dog. At first we were dissected the skin of distal of the carpus and studied it after denoting the nerves. Results showed that the forelimb in dog is innervated with three nerves: “radial, ulnar and median”. The ulnar nerve is divided into superficial and deep branch. The superficial branch is divided into two branches, too. One of them innervates the 5th digit and another one in 4th and 5th metacarpal space join the deep branch. Larger branches go down in 2nd, 3rd and 4th metacarpal space and join with median nerve. The median nerve is divided into three branch in the 1st, 2nd and 3rd metacarpal space in palmar region. The Radial nerve innervates the dorsal region of hand. Hand in human is innervated with three nerves: ”radial, ulnar and median”. The palmar region of 5th and half of 4th digit and metacarpal region of them innervate with ulnar nerve. The palmar region of 1st, 2nd, 3rd and half of 4th digit and metacarpal region of them innervate with median nerve. The lateral and distal region of 1st metacarpi is innervating with radial nerve. The dorsal region of 1st digit and metacarpal region of 1st, 2nd and 3rd one innervate with radial nerve but 2nd, 3rd and half of 4th digit innervate with median nerve.

P-66

Atrio-ventricular node in the ostrich heart: light and electron microscopy

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Introduction: The electrical impulse for cardiac contraction in generated in sinuatrial node (SA node), subsequently spreads to the atrioventricular node (AV node) and continues in the atrioventricular bundle (AV bundle).

Methods: The anatomy and histology of the AV node was studied in the heart of 5 ostriches (Stuthio Camelus). Routine paraffin sectioning with special staining method and transmission electron microscopic method was done.

Result: Our result manifested that in the ostrich the AV node is located in the endocardium of one-third of the left side of atrial surface of the right atrioventricular valve adjacent to the fibrous ring. The parenchyma of the AV node is formed of the small specialized muscle fibers which lie spread in loose connective tissue network. The AV node is not covered by connective tissue sheath and there are some arterioles in the node. Nerve fibers are seen related to the node. Ultrastructurally, the cells of the AV node are slender and smaller than ordinary myocardial cells. They have less number of organized myofib-

rils than myocardial cells and stain lighter. The myofibrils are arranged in parallel pattern and the mitochondria with distinct crista are placed between them. They have a large euchromatic nucleous with a perinuclear clear area. They connect with each other by desmosomes.

Discussion: The AV node is said to be present in some avian species but absent in the others. The position and constitute cells are different in avian species.

P-67

Histological characterization of the special venom secretory cells in the stinger of rays in the northern waters of Persian Gulf and Oman Sea

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Rays are common elasmobranches in the northern waters of Persian Gulf and Oman Sea that may have one or more mineralized serrated stingers on the whip-like tail. The stingers are covered by epidermal cells among which some can produce venom. When these animals are dorsally touched, the stinger can be introduced into the aggressor by a whip reflex mechanism of the tail when the pectoral fins are touched, causing severe mechanical injuries and inoculating the venom. The exact localization of the venom secretory cells in the stinger of different species is controversial, but it is known that the cells are preferentially located in the ventro-lateral grooves in marine stingrays. A comparative morphological characterization of the stinger epidermal tissue of different ray species in the northern part of Persian Gulf and Oman Sea was carried out in this study. EDTA was used for decalcification of stings and conventional histological processes were subsequently employed. The results indicated that structure of dermis and epidermis layers of stings in all species are similar to the structure of corresponding layers in other parts of fish's body. The results of the present study have shown that all examined species of *Dasyatidae* family, but not *Myliobatidae* and *Mnuridae* families, had venom secretory cells. Distribution of venom secretory cells varies in each species and is often located around or inside the stinger ventro-lateral grooves. These differences among the stingers of various species may explain the envenomation severity in these species.

P-68

Morphological and histological study of kidney in juvenile great sturgeon (*Huso huso*) and Persian sturgeon (*Acipenser persicus*)

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Sturgeons are ancient and commercial fishes which possess primitive characteristics and due to their great inflections are able to live in both freshwater and marine environments. So their kidney has great ability for adaptation process. In order to find the structure and distribution of kidney nephrons in juvenile *Huso huso* and *Acipensr persicus*, sampling of head, body and caudal parts of kidney in fishes were carried out. Histological samples were dehydrated by routine methods and embedded in paraffin wax. They were sectioned by microtome and stained with H & E and PAS stain. The results revealed that the kidney of sturgeons was paired that consisted of glomeruls, Bowman´s capsule, proximal (I&II), distal and collecting tubule. The kidney of *H. huso* and *A. persicus* was Y shape, long and slender and distribution of different cells was not homogene in all sections of kidney. The head of the kidney composed exclusively of hematopoetic tissue and islets of interrenal tissue. But, in the body and caudal part the amount of hematopoetic tissue and interregnal glands were decreased and substituted by renal tubules and glomeruli. So, there is not any difference in kidney structure and nephrons morphology between *A. persicus* and *H. huso*.

P-69

Protective effects of silymarin on adenocortical structure following administration of dexamethazone

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In this study, 20 young adult male golden hamsters were randomly allocated to four group, which received no drug; group two which received 7 mg/kg dexamethasone; group received 100 mg/kg silymarin; group four which received 7 mg/kg dexamethasone and silymarin. All animals were injected IP for seven consecutive days and conducted in acc humane care and ethical animal welfare. At the eighth day, the adrenal glands were quickly removed, weighed and fixed in buffered formalin. The sample processed by routine and standard paraffin embed-

ding and serially sectioned adrenal cortex and cortical zone were estimated by Cavalieri' principle using Weibel's multipurpose test grid M42. Total number of adrenocortical cell was estimated by stereological methods. At least, statistical analysis was performed by test to evaluate the means. The results showed that the adrenal gland mass of dexamethasone treated hamsters was decreased in comparison to animals that received dexamethasone with silymarin. It was that there is no significant difference in the zona glumerulosa volume and cell number examined groups. The volume of the cortex, zona fasciculata, zona reticularis and cell regions were significantly reduced in dexamethasone treated hamsters compared to COl whereas in group four, this reduction was not observed. Finally it can be concluded to be a suitable protective drug for side effect of glucocorticoid therapy in adrenal gland.

P-70

Altered dendritic arborization of hippocampal CA3 neurons by *Bacopa monniera* extract treatment in adult rats

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Introduction: *Bacopa monniera* (BM), a traditional ayurvedic medicine is reported to improve learning and memory in animals and humans. But there is no study on its effect on morphology of brain regions like amygdala and hippocampus, which are known to play a role in learning and memory.

Aim: To find out the effects of different doses of BM on hippocampal CA3 neurons.

Materials and Methods: Adult Wistar rats were divided into 3 groups: normal control (n=8), *Gum acacia* control (n=8), BM treated groups. The BM treatment groups received orally BM extracts 20 mg/kg/day, 40 mg/kg/day and 80 mg/kg/day for 6 weeks. After 6 weeks the rats were sacrificed for dendritic morphological analysis of hippocampal CA3 neurons.

Results: All the rats treated with BM extract (20 mg/kg/day, 40 mg/kg/day and 80 mg/kg/day) showed significant increase in hippocampal CA3 neuronal apical and basal dendritic intersections and branching points compared to normal control rats.

Conclusions: These morphological changes in the hippocampal CA3 neurons may be the neuronal basis for improved learning and memory.

Poster Session 2
Locomotion

P-71

The distribution of phrenic nerve in diaphragm processed with Sihler's staining

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Introduction: The aim of this study was to demonstrate the branching pattern and map the detailed phrenic nerve distribution in diaphragm for better understanding of their anatomy and function. Compared with the method of dissection, Sihler's staining can demonstrate the entire phrenic nerve course and branches in diaphragm without inflicting any injury.

Methods: Fifteen human diaphragm specimens were processed with modified Sihler's staining.

Results: The end result was an almost transparent muscle with its intramuscular nerve branches stained clearly deep blue. We found that: (1) On both sides of all diaphragms, there must be a single anterior and a single posterior primary branch. Only the number of the lateral primary branches was variable while this number was one or two. (2) The distribution of intramuscular branches from each kind of primary branch confined to localized subvolumes and three such kind of localized subvolumes existed in diaphragm. (3) Each primary branch subdivided into multiple smaller branches and filaments and they anastomosed widely with each other, and formed characteristic "neural net". (4) We did not find any obvious nerve branch in the periphery of the diaphragm. Only occasionally we found very small and fine nerve filaments, which were likely of intercostal nerve origination and always accompanied the peripheral vessels of the diaphragm. (5) On the left side, the nerve branches supplying the hiatal diaphragm ran in a more vertical direction and located more closely to the edge of esophageal hiatus than the corresponding branches on the right.

Conclusions: Results of this research could provide useful information for anatomists, surgeons and physiologists.

P-72

A muscle as an organ

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The aim of the study is to create and present a comprehensive view of the muscle as organ and its function in a complex way.

The muscle cannot be considered as a mere „muscular tissue“ but as an organ with composed structure, appropriate receptors and complex hierarchy of management and control. The summary of principal and elementary knowledge on the muscle and its function is completed with current familiarities with the motor control and muscle tone. This basis is accompanied with the knowledge on possibilities of the muscle examination. Finally, a necessary part is the proposal of adequate therapy, especially at the level of the muscles tone. Another important point is to refer to the up-to-date apprehension of the muscle function. It is supposed that the function of the muscle is not limited to the nearest movement segments it can essentially influence the function of the whole human organism. The affliction of the muscle and its function by trauma or surgical procedure can issue in negative impact in the localization which are not well predictable. As an inevitable part of the work, a list of terms (used mainly in the clinical practice, misused or wrongly exposed) with their interpretation is added.

P-73

Maxillary sinus and nearby structures – contribution to dental investigation

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Broad morphological and functional knowledge of the head anatomy is essential for the maxillofacial surgery and implantology practice. The knowledge of nerve and blood supply to the maxillary sinus is important to understand the indications and expectations associated with a possible surgery in this region. The area of maxillary sinus represents the anatomically complex region where a number of neoplastic, inflammatory and vascular diseases can develop. Therefore, the aim of this study was to investigate the location of molar and premolar teeth's roots and the distribution of neurovascular structures situated close to the maxillary sinus. In 2 halves of human cadaver heads, the maxillary sinus was uncovered by transmaxillary approach. Anatomical relationships of teeth and neurovascular structures were revealed. The medial wall of maxillary sinus is the nasal wall, which forms the base of sinus. The lateral wall is formed by the infratemporal surface of maxilla. The anterior wall holds the branches of infraorbital artery and nerve and posterior wall contains the posterior superior alveolar artery and nerves. The superior wall is formed by very thin bony plate of orbital floor. The anterior limit of maxillary sinus is located in the first premolar area and the posterior limit is at the level of the maxillary third molar. This work depicts a simple anatomical preparative technique to access the central part and the floor of maxillary sinus. From clinical point of view, detailed picture and high resolution imaging techniques are required to evaluate the topography of this region.

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P-74

Normal range of motion of hip joint at Turks

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Aim: In our study, the measurement of hip joint motion capacity at adults not having any medical problem was aimed.

Methods: Measurements were carried out on the subjects whose ages range from 17-22 in 40 men and 40 women by using electronic inclinometer. Hip joints were measured in left-right sides, abduction-adduction, Flexion, internal-external rotation.

Results: According to measurement averages of abduction-adduction range of motions, statistically significant difference was not detected between the results of left-right side ($p>0.05$). In the second position (while knee and hip at flexion), abduction range of motion was found 10 degrees more than the other positions (1st position- 54.2±2.1, 2nd 64.1±2.42; 3rd 54.3±2.9, 4th 54.8± 2.2). It was understood that this difference with regard to abduction motion was highly significant statistically for both men and women ($p<0.05$). Hip flexion and extension were measured, difference of left-right between them was not detected statistically significant ($p>0.05$). Difference between men-women and left-right were not found statistically significant ($p>0.05$).

Conclusions: It has been seen according to these results that extension of knee and hip at 2nd position decrease muscle tone, loose joint capsule and ligaments and pelvis becomes destabilized. This tends to explain the abduction difference (around 10 degree) at other positions. Finally, we think that average motion capacity values we have found will form a standard for healthy and young Turkish people.

P-75

Different approaches in optimization of muscle tension

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The main aim of this research is to display results of different approaches to stretching/elongation exercises in four weeks period of time. Research was conducted with participation of 18 female students of University of Applied Sciences Lavoslav Ruzicka. Participants were divided into two groups, age 21±2. To test flexibility, a standing toe-touch test was used, that determines flexibility of lumbar spine. Low back muscles, posterior pelvic muscles and lower extremities were being stretched during exercises. All of the participants were tested before and after training process. In overall, 16 trainings were held. In the first group, the training was based on ballistic stretching, while in the second group the training consisted of relaxation exercises. After 4 weeks, measured results showed improvement in both groups. Group in which training is based on the ballistic stretching is achieved in an average improvement of 2.1 cm., while the group that had relaxation exercises improved 3.05 cm in average. When reviewing the results, it can be assumed than in certain period of time, using relatively small number of trainings, relaxation exercises can lead to a considerable improvement, without the risk of injuries.

P-76

Anatomical examination of the foramens of the middle cranial fossa

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It is important to recognize the variations of the foramens in middle cranial fossa and its significant implications for neurosurgery. To establish some preliminary data on the dimensions and anatomical variation of these foramens in 44 dry human skulls and 18 sides of the adult human cadaver we conducted the present study. Maximum diameter values for foramen ovale, foramen rotundum and foramen spinosum and the distances between these foramens were measured for each specimen. In addition, the distances between these foramens and the petrous apex, posterior clinoid process, anterior clinoid process and midline were measured. The diameter values of foramens on both the right and the left side were observed to be almost symmetrical. Foramen rotundum's distance from the midline on the left side was greater than the right side. Also, the distance between foramen ovale and the petrous apex and the distance between foramen spinosum and the petrous apex were greater on the left side. On the right side, the distance between foramen ovale and foramen rotundum, and the distance between foramen ovale and foramen spinosum were greater. Also, the distance between foramen rotundum and the petrous apex was greater on the right side. This knowledge about the anatomy of foramens in the middle cranial fossa may improve the identification and preservation of the neurovascular structures when using approaches to the middle cranial fossa.

P-77

The morphological investigation of acetabular labrum and transverse acetabular ligament of hip joint on newborns

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The potential effects of transverse acetabular ligament or the acetabular labrum to stabilization, support duty against any luxation or distribution of forces on articular surface is still unknown. In addition, there is no enough knowledge about the size, shape and vascularity of acetabular labrum and transverse acetabular ligament on newborns. In this study we tried to define the morphology of labrum acetabulare and transverse acetabular ligament with its size, shape and with their histological structure. The macroscopic dissections and the morphometric measurements were made on 69 hip joints of 35 newborns bilaterally. The anatomical shape and measurement values of labrum acetabulare and transverse acetabular ligament and histological structures of transverse acetabular ligament were investigated. We thought that the knowledge of anatomical structures of hip joint, especially the acetabular labrum with transverse acetabular ligament on newborns will be definitive for the correctly understand of growth disturbances and developmental dysplasias and dislocations of the hip joint.

P-78

The angle of inclination and torsion angle of the femur

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Angle of Inclination (AOI) is the angle between the longitudinal axis of femoral neck and the medial side of the femoral shaft in the frontal plane. Femoral Torsion Angle (TA) is the relative rotation (twist) between the shaft and neck of the femur. The present measurements were taken from 24 femurs (12 left and 12 right) from Osteology Collection of the Anatomy Department, School of Medicine, University of Novi Sad. The

results showed that the average AOI, for the left and right femurs was 134.67° and 137.83° respectively; the smallest measured AOI for the left femurs was 125°, and the biggest was 142°; the smallest measured AOI for right femurs was 115 and the biggest was 152°. Average TA for the left and right femurs was 28.16° and 30.75° respectively; the smallest measured TA for the left femurs was 13° and the biggest was 44°; the smallest for the right femurs was 14°, the biggest 43°. The AOI is clinically relevant because of a predisposition for femoral dysplasia. The Abnormal AOI conditions increase stress at the hip joint and affect gait. The TA is relevant because of possible torsion deformities of the hip, pain, osteoarthritis of the knee and patellar instability as well as reducing range of mobility.

P-79

Fibrodysplasia (myositis) ossificans progressiva (stone man): a rare disease

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Fibrodysplasia (myositis) ossificans progressiva is a rare autosomal dominantly inherited disorder, in which defects in skeletal patterning particularly affecting the big toes, are associated with progressive endochondral ossification of the large striated muscles in a specific order leading to prolonged disability with a poor prognosis. The diagnosis is based on clinical and radiological findings and demonstration of skeletal malformations. We report a singular case of advanced myositis ossificans progressiva in a 23 year old woman and analyse the natural history, etiopathology, treatment alternatives and prognosis of this crippling disorder. Treatment with disodium etidronate (EHDP), proposed by some authors, had no clear benefit. Management of patients must concentrate on avoidance of exacerbating factors-muscle traumas-, physiotherapy and adequate psychotherapy.

P-80

Genu recurvatum congenitum – malformation or malposition: a case report

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Congenital genu recurvatum (CGR) is an extremely rare condition observed at birth. It is characterized by an exaggerated hyperextension of the knee, sometimes to such an extent that the angle of the forward bend is less than 100 degrees, whereas flexion is almost impossible. It is associated with, among other malformations, genetic entities such as the Larsen syndrome. We report a 20-year-old woman with a marked oligohydramnion at 36 weeks gestation in her first pregnancy. Her infant is a case of isolated CGR diagnosed at birth and suspected to be a consequence of reduced amniotic fluid volume. Lower limb deformities are produced by muscle imbalance, the postural effects of gravity. Pathogenesis, clinical pictures and therapy are described. Newborn patient was treated with kinesitherapy, rigid splint followed by serial plaster of Paris casts. A good result was obtained with this conservative treatment started at birth. At any point in time, the management of the lower extremities will depend on the child's general development. Persistent malposition in utero is suggested as the cause in those cases which run a short benign course. The orthopedist has a significant role in helping a child to achieve a pattern of development as near normal as possible.

P-81

Treatment of juxta-articular tumors of the tibia and femur with en bloc resections, bone graft and arthrodesis using a Juvara-Merle D"Aubigne technique

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This article reviews resection arthrodeses Juvara-Merle D"Aubigne about the knee. A retrospective study was conducted to evaluate the arthrodesis in the management of bone tumor around the knee (the giant cell tumor, osteosarcoma). Bone defect following en bloc resection of primary bone tumor around the knee can be reconstructed by local bone grafts or prosthesis or combination of both. Wide resection and mobile joint reconstruction are preferable for treating a tumor around the knee. Resection-arthrodesis is an alternative option for patients facing circumstances of financial constrain or limited supply of allograft. We describe our results after resection arthrodesis of such tumours using the technique Juvara-Merle D"Aubigne over a long intramedullary nail. This study was undertaken to determine the outcome and complications associated with resection-arthrodesis of 5 primary bone tumors: 2 giant cell tumors and 3 osteosarcomas (according to the Musculoskeletal Tumor Society staging system, 1 patient was stage IIB and 2 were stage IIIB at presentation) around the knee treated between 1990 and 1999 at the Hospital: Sf. Ap. Andrei" – University "Dunarea de jos" Galati. Evaluations were based on the oncologic results, non-oncologic results and complications. The surgical technique, complications and functional out-

comes of these procedures are presented. The mean follow-up was 11 years (range, 1-19 years). Major complications were found in 5 patients receiving resection arthrodesis included nonunion and graft and nail fracture. Resection-arthrodesis of the knee is a viable treatment option for selected patients with primary bone tumor around the knee. We found graft fracture to be the most common complication. Resection arthrodesis offers a durable reconstruction alternative to amputation in a special group of patients when extensive resection precludes mobile joint reconstruction.

P-82

Distribution of cavitations during spinal manipulation as measured by accelerometry

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Aim: To assess the specific zygapophysial (Z) joints producing audible sounds (cavitations) during lumbar side-posture spinal manipulation (SMT).

Methods: Nine accelerometers were affixed to the lumbar region using previously described methods, which allowed for specific identification of cavitating joints. Side-posture lumbar SMT (up-side=left) directed at the L3/L4–L5/S1 region was performed on 22 subjects, and side-posture positioning without SMT was performed on 10 control subjects. Recording from the accelerometers was conducted during positioning and SMT.

Results: Thirty-eight cavitations were recorded. Two cavitations from the same joint were recorded in 4 instances. Zero to three cavitations were recorded from individual subjects. Average cavitations/subject in the SMT group was 1.6 (range= 0–3) and in the control group was 0.3 (range=0–1). Distribution of cavitations was as follows: left L1/L2=3 (7.9% of cavitations), right L1/L2=0, left L2/L3=3 (7.9%), right L2/L3=0, left L3/L4=19 (50%), right L3/L4=0, left L4/L5=5 (13.2%), right L4/L5=1 (2.6%), left L5/S1=4 (10.5%), right L5/S1=1 (2.6%), left sacroiliac joint (SIJ)=1 (2.6%), right SIJ= 1 (2.6%).

Conclusions: The methods were effective in assessing cavitations. The finding of two cavitations from the same joint has not been previously reported. Most cavitations (92.1%) occurred on the up-side of SMT and in the targeted segments (L3/L4, L4L5, L5/S1=79.0%). The new methods can be used in future clinical studies evaluating SMT.

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P-83

Definition of a safe-zone in open carpal tunnel surgery: a cadaver study

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Carpal tunnel decompression is one of the most common surgical procedures in hand surgery. Cutaneous innervation of the palm by median and ulnar nerves was evaluated to Wnd a suitable incision preserving cutaneous nerves. A morphometric study was designed to define the safe-zone for mini-open carpal tunnel release. Sixteen fresh-frozen (8 right, 8 left) and 14 formalin-fixed (8 right, 6 left) cadaveric hands were dissected. Anatomy of the palmar cutaneous branch of the median and the ulnar nerve, motor branch of the median nerve, superficial palmar arch were evaluated relative to the surgical incision. We also identified the motor branch of the median nerve. Detailed measurements of the whole palmar region are reported in this study. The motor branch of the median nerve was extraligamentous as 60%, subligamentous as 34%, transligamentous as 6%. The palmar cutaneous branches of the median and the ulnar nerves in the palmar region were classified as Type A (34%), Type B (13%), Type C (13%), Type D (none), Type E (40%) according to forms of palmar cutaneous innervation originating from the ulnar and median nerves. Injury to the palmar cutaneous branch of the median nerve (PCBMN) is the most common complication of the carpal tunnel surgery. Various techniques were described to decrease post-operative morbidity. Based on these anatomic Wndings mini incision between the superficial palmar arch and the most distal part of the PCBMN in the palmar region is the safe-zone for carpal tunnel surgery.

P-84

The glenoid notch and variations of the shape of glenoid cavity of scapula in newborns: clinical and embryological implications

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The glenoid notch is rarely mentioned in the standard anatomical textbooks. The glenoid notch is located at the anterior margin of the glenoid cavity in adults. In 1882 Van Langer termed glenoid notch. Labral tears and avulsions (Bankart lesions) usually occur at the anterior margin of the glenoid cavity. Glenoid

labrum in the area of the notch is not fixed to the bony magrin. Henceforth, the shoulder joint is less resistant to dislocating forces. Normal nonattachment at the glenoid notch may be mistaken for a Bankart lesion. The purpose of the present work is to determine the glenoid notch and its relation to variations of the shape of the glenoid cavity of the scapula in newborns. Twenty formaline-preserved shoulder specimens of neonatal cadavers were dissected. Glenoid cavity and labrum were identified. We could not find the notch in some of the specimens. When the notch presented, the glenoid labrum was not attached to the anterior margin of the glenoid cavity. 10 scapulas (50%) did not include the notch and they showed oval form. In five cases a small recess of the articular cavity was found at the glenoid notch. In 10 cases (50%), glenoid cavity had the notch and because of this they were pear-shaped. Our findings were discussed under the light embryological and clinical knowledge. In the newborns, differences between developments of coracoid and scapular parts of glenoid may provoke the notch.

Poster Session 2
Digestive, Respiratory and Urogenital Systems

P-85

Anatomical variations in the extra-hepatic biliary apparatus

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Aim: The extra hepatic biliary apparatus, its normal and variations are forming an interesting field of study and has gained importance anatomically and surgically. The biliary tract surgeries have drawn the attraction of surgeons because of lots of interesting and numerous variations of the extra hepatic biliary apparatus.

Materials and Methods: In the present study, 100 specimens of human livers and biliary apparatus were taken. The chemicals used were absolute alcohol, xylene and formalin. The specimens were preserved in 10% formalin. Bile duct, hepatic artery and portal vein were identified and dissected using scalpel, blades, forceps, scissors, measuring tape and artery forceps etc. The gallbladder was separated from the fossa of gallbladder and cystic duct was identified.

Results: It showed various anatomical variations pertaining to it. The variations were in relation to length and breadth of gallbladder, relation of gallbladder to inferior margin of liver, length and diameter of cystic duct, hepatic duct and bile duct - presence of Hartman's pouch, hour-glass constriction, bilobed gall bladder and gallbladder with mesentery. Some other variations related to cystic artery and hepatic arteries were also seen.

Conclusion: These variations are to be taken into account for radiological studies, investigative procedures, surgical interventions, clinical implications, embryological explanations and comparative anatomy. Refinements in operative and diagnostic techniques demand a detailed knowledge of these anomalies. Therefore, there should be a closer co-operation between the operating room, anatomy laboratory and pathology labs.

P-86

A different segmentation causing an abnormal lobe of liver: a case report

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The anomalies of hepatic morphology depending on the anatomic variations are rare and the knowledge of such anomalies is important because they do not always remain silent clinically. The abnormal lobes of liver are commonly seen anatomic variations and may be the cause of defective development or excessive development of the liver. During routine dissections, in a case, we found a different lobe on visceral surface of liver between the left and the right parts of the liver and between the caudate and quadrate lobes. This lobe is attached to the liver by means of a short fibrous tissue such as a pedinculated lob forming an accessory lobe close to the liver and approximately in the same size with the caudate lobe. The histological dissection was made for consideration of formation of vessels and bile ducts of this lobe. The radiological imaging techniques do not reveal the diagnosis for this kind of segmentation anomalies of liver. This kind of lobe variations may sometimes associated with malformations of other structures and sometimes may be the origin of a torsion, tumor and any other clinical implications. The knowledge of existence and morphological structure of this kind of different lobes of liver will be helpful for the decision of pathological situations.

P-87

Total mesorectal excision

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Total mesorectal excision (TME) is the "gold standard" for cancer surgery resection of middle and lower thirds of the rectum.

TME has an advantage over other methods of surgical treatment due to low rates of local recurrence, a larger number of patients who have a functional anal sphincter, and because of the possibility of preserving pelvic nerves. TME is an example of complete excision mesorectum as predictive places of local recurrence, which has great influence on the length of survival. TME provides perhaps the best example of how to apply the precision of surgical dissection, the new technology during the anastomosis and formation of an alternative approach to the classical approach in the treatment of rectal cancer. TME includes "en bloc" resection rectum, corresponding mesorectum, intact fascia of the mesorectum, the corresponding lymph glands around the superior rectal artery and lower mesenteric artery. Proximal bowel resection lines should be at least 5 cm from the border cancer. Distal bowel resection line is above the distal border mesorectum and borders mesorectum is at least 2 cm distal resection lines of hose. Rectal cancer surgery in different institutions has different results in terms of local recurrence and distant metastases after surgical treatment. TME provides better results.

P-88

ENT and the role of anatomical eponyms

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The ear-nose-throat field (otorhinolaryngology) is both internal and operative branch of medicine. Although eponyms have been excluded from the Latin anatomical nomenclature since 1955 – Parisiensia Nomina Anatomica – which has been supported in the latest issue of the anatomical nomenclature – Terminologia Anatomica (by Federative International Committee on Anatomical Terminology) in 1998 – they have not been fully replaced with proper Latin valid terms. Some terms even do not posses their corresponding valid counterpart. The eponyms, due to their shortness and specificity are still widely used in the clinical practice, although some names can described more anatomical structures (Bötcher, Corti, Morgagni). Many clinicians are not capable of allocation of proper valid Latin term to the eponym. We have collected 189 eponyms, denominated after 103 personalities. They can be classified as necessary for general education medicine (class 1A), necessary for ENT specialists (1B), important as a passive knowledge (class 2) and useless, just as a reminiscence of history of medicine (class 3). Class 1A comprises 9 eponyms (e.g. Eustachio, Killian, Kiesselbach, Steno), the class 1B 11 terms (e.g. Haller, Citelli, Onodi, Shrapnell). This contribution should clarify all the within ENT field used and applied eponyms to enable an easier communication among anatomists, otorhinolaryngologists and also between teachers and students.

Poster Session 2
History of Medicine

P-89

Jean Louis Petit and his priority in the use of famous anatomical eponym

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Our research group was engaged during several last years in the clinical anatomical study of the retrocalcaneal bursa. By this occasion, we discovered in the literary search the fact that in some recent clinical publications the data about the historically first use of the famous eponym „Achilles tendon“ are not correct and univocal. Therefore, we decided to provide a detailed study of the older literary sources to make clear this problem. It was found out that the first designation of this tendon comes from Hippocrates (460-377 B.C.) as „neura megala“. During the Middle Ages, this term was continuously changed several times. The Flemish anatomist Philip Verheyen for the first time used the name of the ancient hero in the expression „chorda Achillis“ (1693). The first use of the Latin term „tendo Achillis“ is adjudged the German surgeon Lorenz Heister (1717). By the study of the French literature we have found out that the famous surgeon Jean-Louis Petit used in year 1705 in his monograph „L´art de guerir des maladies des os“ an expression „tendon d´Achille“, it means 12 years earlier than the first Latin version of this eponym appeared. A complete chronology of the development of this anatomical term is also a part of this presentation.

P-90

The German obstetrician and gynaecologist Christian Gerhard Leopold (1846-1911)

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One of the most outstanding obstetricians and gynaecologists of the 19th century was Christian Gerhard Leopold. He was born in Meerane (Saxony) in 1846, taught midwifery at the Female Clinic in Leipzig, and was appointed as an associate

professor at Leipzig. Then he moved to the Royal Gynecological Infirmary in Dresden to become the head. He died in Bärenburg in 1912. He is worldwide known due to his "*Leopold's grips*" (*Leopold-Handgriffe*) which are used to state the position of the fetus within the uterus as well as for the *Czerny-Leopold´s technique* of uterus fixation to the anterior abdominal wall. He published 192 monographies and articles. His main field was the prevention of the puerperal fever and he was oriented strictly on the external examination of the pregnant to reduce the danger of infection.

P-91

Forgotten morphological monograph of A.S.D. Synnestvedt

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We present an analysis of the forgotten monograph of A.S.D. Synnestvedt „En anatomisk beskrivelse af de paa over- og underestremiteterne forekommende Bursae mucosae", issued in 1869. The analysis was completed using anatomical information which, historically speaking, is the oldest book dealing with the bursae of the extremities (*B. Albinus*, *A. Monro jun.*, *J. Rosenmüller*) and comparing this data with official anatomical terminologies (B.N.A, I.N.A., P.N.A., T.A.). We, in terms of anatomical description of the bursae, are of the opinion that Synnestvedt´s publication is extraordinarily significant, not only historically but also as a source of information for modern day medical practitioners. The publication is a wealth of literary citations, unambiguous opinions of seasoned anatomists regarding the structure and function of the synovial membrane and detailed descriptions of dissections performed by Synnestvedt on fetal and adult cadavers. The information contained within this publication bares a great deal of relevance in relation to modern medicine and an improved understanding of its contents would further help enhance the diagnosis of bursopathies and enthesopathies of the extremities.

P-92

Václav Treitz: His legacy to modern medicine

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One of the most important Czech pathologists, Václav Treitz (or Wenzel Treitz) belongs to the most outstanding persons of the Czech science in the nineteenth century. He was born in 1819, in Hostomice (not far from Praha), studied medicine and graduated in 1846 in Prague. At once he started to work at the Department of Pathological Anatomy but then he was called to Kraków (Poland) where he worked from 1851 as prosector and later as full professor of pathological anatomy. After five years he returned back to Prague and continued the research and education in the field of the pathological anatomy in Praha. He founded the first building of the Department of Pathological Anatomy. Unfortunately, he committed suicide in 1872. His name is reflected as eponym until present in the denomination of several both anatomical and pathological structures, the most common being the ligamentum or musculus suspensorius duodeni, recessus duodenalis inferior and angulus of Treitz.

P-93

Karel Pawlík: His legacy to modern medicine

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One of the most important Czech gynaecologists and obstetricians, Karel Pawlík, belongs to the most outstanding persons of the Czech science in the nineteenth century. He was born on 12 March, 1849, in Klatovy (Southern Bohemia), he studied medicine and graduated in Vienna in 1873. He stayed to work there, later as the head of the Gynaecological Department of Vienna Policlinic. In 1887, he returned back to Bohmeia to be appointed the full professor and head of the Gynaecological and Obstetrical Clinic of the Medical Faculty of the Czech Charles-Ferdinand University in Praha. He worked there until 1913, struggling to build a new Czech Gynaecologic Clinic, but he failed in this efforts. In 1910, he was elected the rector of the Czech Charles-Ferdinand University; however, he refused to accept this function. He was a pioneer in urological gynaecology: he invented the catheterization of ureter "from the free hand", direct endoscopy of the urinary bladder filled with air, extirpation of the uterus and parametrium due to the cancer of cervix uteri, total extirpation of urinary bladder, new surgical approach of vesicovaginal fistula correction, implantation of ureters into vagina, etc. He died in 1914 in Praha. His name is reflected as eponym until present in the denomination of area trigonalis vaginae, plicae laterales areae trigonalis vaginae and of the original method of palpation of pregnant uterus through the anterior abdominal wall.

P-94

Joseph Hyrtl (1810-1894) in Prague: 1837-1845

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Joseph Hyrtl (1810 -1894), a famous Austrian anatomist of the 19th century spent the first 8 years of his career in Prague as the head of Anatomy Department of Charles-Ferdinand University. The migration of university students and teachers between Prague and Vienna in both directions was very typical for the 19th century. Hyrtl decided definitely for anatomy also in Prague, where he failed in the tender for surgeon. He wrote and published in Prague (1846) six different works and as a climax the first edition of his famous textbook *Lehrbuch der Anatomie mit Rücksicht auf Physiologische Begründung und praktische Anwendung*, which became notable and was republished for 22 times. Hyrtl's book had no pictures, comprised a very comprehensive introduction with concern on the history of anatomy, study methods, clinical consequences of anatomical knowledge and many references. To Hyrtl's students in Prague belonged Gruber, Treitz, Bamberger, and others. In his memories he remembered his time in Prague as best years of his professional time. Although not very famous, several anatomical structures bear his name as eponyms, e.g. canal, anastomosis, opening, mucles, sinus or vein.

P-95

Joseph Hyrtl and his extra-Vienna activities

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Joseph Hyrtl, the greatest Austrian anatomist, was born on December 7, 1810, in Eisenstadt (Kismártóm), now in Hungary. In 1833, still as a medical student, he was named prosector in anatomy. On graduation, he became the assistant of Prof. Czermak and later the curator of the museum. He was an excellent preparator and injector and added valuable treasures to the museum by the preparations which he made for it. In 1837, aged twenty-six, Hyrtl was offered the professorship of Anatomy Department at the University of Prague, and he laid the foundation of his great reputation as a teacher of anatomy by his work there. He completed his well known textbook of anatomy (having twenty re-editions and has several translations in foreign languages). In 1845, when the chair of anatomy at Vienna fell vacant in, he moved from Prague for ever. There he issued the Handbook of Topographic Anatomy, the first applied anatomy textbook ever, in 1850. As a result of westernization in the Ottoman Empire, it was established good relations with Austria-Hungary Empire which was another powerful Empire of Europe in the nineteenth century and especially, in the second half of this century provided remarkable transformation in different fields such as science, culture, military and education system. He sent the histological slides to Istanbul, recommended Czech medical student Kašpar Jindřich Wankel as anatomical assistant (he unfortunately refused and became the founder of modern Czech archeology), examined first successful graduates of the Galatasaray Medical Schools in 1843. Hyrtl´s effort played an important role in modernization of Ottoman-Turkish medical education. Therefore, he was awarded with outstanding service award and medallion by Sultan Abdulmecid in 1851. He was an excellent speaker in Latin. He resigned his chair on account of failing sight and he lived in retirement at Berchtoldsdorf, near Vienna. He died on July 17, 1894. His wife, a lady of English extraction, has won for herself a name among the poets of Austria. Josef Hyrtl played an important role in the development of modern anatomy both in the Czech and Turkish history.

P-96

Anatomist Carl Gustav Carus (1789-1869) and anatomists with the award of "Carus": Ernst Wilhelm Theodor Gaupp (1865-1916), Wilhelm Lubosch (1875-1938) and Andotto Grosser (1873-1951)

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Carl Gustav Carus (1789–1869) was a many-sided German scientist, studying medicine, natural sciences, and philosophy in Leipzig University during 1804-1806. He did a number of experimental studies, published several papers, and described "Carus curve". Moreover, he also served as 13th chairman of the Academia of Leopold-Caroline Natural Sciences. His friends established a foundation for the sake of his name in 1864 to endorse the scientific researches and to offer various prizes for scientific works. In this context, the first award was handed in 1896 and this has been bestowed up today. In 1909, Ernst Gaupp, Wilhelm Lubosch in 1912, and Otto Grosser in 1939 were the anatomists receiving this award for their studies

in anatomy. Ernst Wilhelm Theodor Gaupp (1865, Beuthen - 1916, Wroclaw), born in Poland, was a German anatomist. His works on the anatomy of the ear and the comparative anatomy of reptilians and mammalians are important. Wilhelm Lubosch (1875, Berlin - 1938, Würzburg) studied Comparative Anatomy, performed studies on fish and described anatomic terms. In this framework, he observed and defined a new mastication muscle in bony fish "Aalmutter" (*Zoarces viviparus*). Otto Grosser (1873, Vienna -1951, Thummersbach b. Zell) is an Austrian anatomist from Vienna ecole. Then he was appointed as a professor at German University in Prague in 1907 and worked here till 1945. Most of his works are about embryology. He has research methods and anatomic descriptions known with his name.

P-97

A laryngologist in anatomy platform: Ludwig Türck (Tuerck) (1810- 1868)

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Ludwig Türck was not only a prominent clinician of otorhinolaryngology and neurology sciences, but also was a pioneer investigator of anatomy, describing several anatomical entities. He was born in Vienna in 1810 and died in the same city in 1868. Ludwig Türck obtained his medical doctorate degree from the University of Vienna in 1830 and thereafter he received his PhD at the same university in 1836, where in 1861 he became an associate professor and a full professor in 1864. He is remembered for his pioneering works on the hearing and speech impairments, the anatomy of the larynx and its relevant diseases. Moreover, he was the first mentioning about "Laryngitis sicca", developing and using the laryngeal mirror for the purpose of diagnosing laryngeal disorders in clinical settings. He also created the first prototype of laryngoscope in 1857 and popularized the use of it. However, nearly at the same time physiologist Johann Nepomuk Czermak (1828-1873) developed a similar device using electrical light for laryngoscopy. This ignited a dispute between the parties regarding the preemptive right of the device in Vienna, a fight known as "Turck Argument". Furthermore, Ludwig Türck performed several prominent searches, described several anatomical entities (eponyms), and published several papers in the filed of neuroanatomy. His research focused on the anatomy of the brain and spinal cord, and the topographical arrangement of nerve fibers in them. In 1849, he predefined the presence and course of "Tractus corticospinalis anterior"; his descriptions and findings still constitute the indispensable principals of neuroanatomy and related experimental searches.

P-98

Anatomy before the times of Hippocrates

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Anatomy history is old as history of medicine and has been showed a parallel improvement to medicine. But this improvement was very slow until the Hippocrates time. Our purpose in this study was to search the anatomy history until the Hippocrates time. For this purpose, the literature about the medicine history was investigated. Medicine in the ancient times mostly depended on metaphysical, religious events and incantation. There is some anatomy knowledge in these non-objective methods. This knowledge mostly depends on myths and some animal dissections. As a result, before the Hippocrates time the anatomic knowledge was subjective, exaggerated and not scientific.