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I PLATFORM SESSION

I-Pl/1) Use of different volumes for stellate ganglion block; it is worth to compare

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Background: Different volumes from 5-20 mL of local anaesthetics are used for a stellate ganglion block. Therefore we delineated models of dissemination by using three different volumes and documented the reached regions for a possible reduction to 5 mL.

Materials and Method: 34 cadavers (68 halfs), fixed by Thiel's method and with the possibility of pulse simulation, were investigated. The tissue displacement method was chosen to simulate the block. Of these 68 halfs, 12 were injected with 20 mL (Group A), 30 halfs with 10 mL (Group B) and 26 halfs with 5 mL (Group C). As a solution we used a computerized tomography (CT) contrast. Immediately after injection, the cadavers were investigated by using CT-Scans and a 3D-reconstruction. In addition, 4 halfs of Group B and C were dissected and the distribution documented photographically.

Results: Group A showed a constant dissemination from C3 to Th 4-5, including a constant spread to ventral, lateral and posterior regions of the neck. In group B, a constant spread from C4 to Th 3 could be described. Ventral and lateral regions were still reached in one third of the cases. Group C showed a constant dissemination from level C4 to Th 2-3, without spreading to ventral or lateral regions.

Conclusion: High volumes, 20 mL much more than 10 mL, show a risk of extended and uncontrollable spread to other regions of the neck whereas the use of 5 mL shows an almost ideal and constant distribution.

I-Pl/2) A warm relation between brown fat areas and the spinal cord in man

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The human nervous system functions optimally at temperatures between 36 and 39 °C. This means that from the moment of birth heat supply is necessary to keep the temperature of this organ in this range, since environmental temperatures are normally far below this level. Apart from its own heat production the central nervous system is supplied with heat through its blood supply. It is known that brown fat is specialized in the production of heat. In the rat the interscapular brown fat pad delivers its heat through the vein of Sulzer to the azygos system and the internal vertebral venous plexus (IVVP). This plexus can indirectly warm up the spinal cord through the cerebrospinal fluid. Little is known about the relation of brown fat and the spinal cord in man. Here we present the results of a study about the relation between brown fat areas and the spinal cord in man. Since brown fat is replaced by white fat later during life, we focused this research on human fetuses. The fetuses were obtained from the Obstetric Department of the Tygerberg Hospital (South Africa) with written consent of the mothers. The fetuses were approximately six months old and were stillborn or died immediately after birth. The fetuses were fixed in 4% formaldehyde. In order to elucidate the veins the venous system was injected with colored latex. It appeared that direct venous connections exist between the brown fat areas located between the scapulae, in the axillary region and the suprailiac fat pads with the IVVP. In contrast to most other veins of the trunk, these veins contain valves that assure a blood flow from the brown fat areas to the IVVP. The present investigations show that also in man brown fat plays an important role in the thermoregulation of the spinal cord.

I-PI/3) Accuracy, current role and future application of highly selective us-guided techniques in pain therapy

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Introduction: Only recently, US-guidance has been recognized and partly appreciated as an attractive adjunct in Regional Anaesthesia procedures. However, its use in diagnosis and therapy of chronic pain is less accepted. After giving general aspects concerning basic sono-morphology for image interpretation, selected examples of a fruitful collaboration with different clinical Departments[2, 3, 4] over the past two years will demonstrate both, relevance and clinical impact of the addressed topic.

Material and Methods: All of the studies presented herewith have been performed in embalmed cadavers being in legal property of the Division[1] Sort and frequency of transducers (curved and linear, 4-10MHz) was chosen according to assumed depth and well known shape of targeted structures. Needles were advanced towards the target points (Lumbar facet nerves, LF, Sacro-iliac joint, SIJ, Inguinal nerves, IN) under US guidance. Correct position of tips of needles and spread of contrast material/dye was confirmed by CT control and direct dissection, respectively.

Results: All together, 109 different approaches were performed/possible in 26 cadavers. Fifty were done for LF, 22 for SIJ and 37 for IN. Over all simulated ("block"-) success rate was 93%.

Discussion and Conclusion: Despite the fact that our methodology awaits *in vivo* confirmation in a larger set of affected patients, precision as well as practicability indicates high clinical impact. According to our experience and data gained so far from various parts of the body, we may conclude: US-guidance for different targets in pain therapy as demonstrated in the cadaver model allows for excellent accuracy and specificity. Thus, both exposure to ionizing radiation and complications seen using other techniques may be significantly reduced or avoided.

I-PI/4) Microsurgical anatomy of the intralaryngeal distribution of the inferior laryngeal nerve

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Functional laryngeal surgery or laryngeal reinnervation depends upon the precise knowledge of the intra laryngeal anatomy of the inferior laryngeal nerve (ILN). Ten human larynges without known laryngeal disorders were obtained from human cadavers for ILN microdissection. Intra laryngeal ILN branching patterns were determined bilaterally. The lengths of the vertical, genu and oblique segments of the anterior division of ILN and the distance between the nerve within the paraglottic space and the cricothyroid articulation (CTA) were measured. The mean lengths of the vertical, genu and oblique segments were 11.8 mm, 6.95 mm and 10.77 mm respectively. The mean distance between the nerve in the paraglottic space and the CTA was 10.46 mm. Key anatomical landmarks of the abductor division (vertical and genu segments of ILN) were the lateral border of posterior cricoarytenoid muscle and the superior ligament of the CTA. The two-branch pattern has been the most frequent (50%). The adductor division for the thyroarytenoid muscle and the lateral cricoarytenoid muscle was the oblique segment of the nerve. We conclude that abductor and adductor divisions of the intra laryngeal ILN can be readily identified and the knowledge of key landmarks allows preservation of the ILN during functional surgery of the larynx and possibly selective reinnervation.

I-PI/5) Morphometric study of the branches of the tibial nerve to the muscles of the leg. Application to the hyponeurotization of the tibial nerve in spasticity treatment

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Introduction: One of the treatments of lower limb spasticity is the hyponeurotization of the tibial nerve, i.e. the partial section of its motor branches to the spastic muscles, to decrease their spasticity without paralysing them. The surgical procedure is performed through a popliteal approach, above the soleus tendinous arch; the

hyponeurotization is direct on the branches to both heads of the gastrocnemius and to the upper nerve to the soleus; it is indirect to the inferior nerve to the soleus, and to the nerves of the tibialis posterior TP, the flexor hallucis longus FHL and the flexor digitorum longus FDL: the neurosurgeon looks at the approximate location of the motor fascicles inside the tibial nerve. This second way is approximate and can lead to sensory disturbances. The aims of this morphometric study of the tibial nerve were to precise the level of origin of the lower branches of the tibial nerve in relation to the soleus tendinous arch and to modify the surgical procedure.

Material and Methods: We used 47 formaline-preserved legs dissected without magnification, recorded the patterns of ramification of the tibial nerve and measured the distances between the origin of the lower branches of the tibial nerve in relation to the soleus tendinous arch.

Results: In the case of separate origins (33/47) the nerves arose distal to the soleus arcade at 17 mm for the inferior nerve to the soleus, at 42 mm for the TP, at 48 mm for the FDL and at 65 mm for the FHL. In the case of common origin (14/47), the trunk arose 8 mm below the tendinous arch. The dispersion of the distances between the origin of each nerve and the soleus arcade was very important.

Conclusion: A further continuation of this work will study the possibility of preoperative imaging (sonography, MRI).

I-Pl/6) A new description of the intracisternal course of the abducent nerve

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Because of the rapid development of techniques in microneurosurgical practice such as the application of endoscopes and minimal invasive approaches through keyhole craniotomies neurosurgeons need the detailed knowledge of microneuroanatomy. Nowadays operations are frequently made deep and central on the skull base, where the surgeon frequently meets the abducent nerve. Although most anatomical data regarding the course of sixth cranial nerve are well known for more than one hundred years, the topographical relation of the nerve to the basal cisterns needs further clarification. The sixth cranial nerve is typically described to course within the prepontine cistern, together with the basilar artery and the origin of anterior inferior cerebellar artery (AICA). The present study examined the intracisternal course of the abducent nerve in 8 formaline fixed and 10 fresh cadavers. In every case (100%) the nerve was found in the lateral pontine cistern which is separated from the prepontine cistern only by a thin multiple perforated arachnoidal membrane that lies immediately on the medial side of the abducent nerve. This membrane was described by Key and Retzius as the anterior pontine membrane.

I-Pl/7) Volumetry of the normal human hippocampus. Global and sectorial study

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Introduction: Previous studies made in our department allowed us to determine the normal human hippocampus volume and its variations (interhemispherical, with age and sexes) as well as to compare it with Magnetic Resonance imaging (MRI) volumetry. These studies always concerned the global hippocampal volume. Varations in the different sectors of hippocampus (head, body) were not investigated. The objective of the present work was: 1) to enlarge the study of the normal human hippocampus in order to increase the statistical significance of the previous results; 2) to study the volume variations of the different hippocampal sectors with the age, the gender and the side.

Material and Methods: 51 normal HC specimen from 29 brains by autopsy within the 48 hours post mortem. This number included 31 hippocampus that have already been studied and 20 new hippocampus. The research method included anatomical serial cutting of the hippocampus in a cryomicrotome, perpendicular to its great axis: haematoxylin-eosin staining of the slices; digital recording of each slice image with contour tracing of the hippocampus; 2-D and 3-D variability comparison with 3-D image reconstruction.

Results and Conclusions: The global volume of the human hippocampus is 4,062 ± 0,735 these values gradually decrease with the age, more clearly on the left side. There is a greater variability of the head comparatively to the body and the tail, the left head volume having a more pronounced decline than the right one; the left body volume is relatively steady along the age whereas the right one shows a slight diminution. On the all, we could confirm a greater variability essentially of the hippocampus head that seems to atrophy more on the left side.

I-PI/8) Targetting the locus ceruleus in the human brainstem

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Introduction: The Locus Ceruleus (LC) is a well known nucleus with important functional connections in various neurochemical circuits; some studies have even demonstrated a greater cellular depletion in this nucleus than in Locus Niger in Parkinson's disease. However its precise localization within the human brainstem in stereotactic conditions is not well established. The main goal of this study was to clarny the stereotactic anatomy of the human locus ceruleus, its 3-D references and variability.

Methods and Material: Twenty LC from 10 normal adult human brainstems were studied. Using a 3-D orthogonal references system that included the midsagittal, the IV ventricle floorand the ponto-medullary junction planes, the brainstems were serially cutted in a cryomicrotome at standard levels and LC images digitized. Then, cells were marked and referenced, slice by slice; 2-D cell distribution and case to case variability was calculated and finally the 3-D contours were outned.

Results and Conclusions: The 3-D precise localization of the human LC was determined and disclosed as probability volume contours related to LC center 3-D references. The LC revealed to be a thin nucleus along the upper half dorsal pons longer than previously described with a devergent arrangement in caudal direction.

I-PI/9) Anatomical basis of knee pain during hip diseases. Or how the hip could be saved

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A 11 year old girl, limped and suffered for several months from the right knee. The clinical exam of the knee is normal, an MRI is practised: it is normal. Regrettably, the hips of this child were never examined. She suffered in fact from a slipped femoral epiphysis, diagnosis of which would have been able to be earlier. Knee pain is frequent during hip diseases. It can even he only subjective sign bringing the patient to be consulted. The authors call back by leaning on 5 anatomical dissections the constitution of the obturator nerve it is about a mixed nerve constituted with the anterior branches of 2-nd, 3-rd and 4-th lumbar rools it abandons in the pelvis a branch intended for the superior and anterior portion of the hip joint. Then after the obturating membrane, the nerve divides in a superficial branch the sensory cutaneous territory of which is situated in the internal face of the knee, and the lateral deep branch, which blooms in the hip capsule. These two different and remote sensory territories one of the other one have a cortical projection probably common, as semeiology shows. This clinical notion is classic, these anatomical bases are easily understandable have to allow the clinicians not to neglect the clinical exam of hip in case of knee pain. So, the diagnosis delay of serious hip disease as the slipped femoral epiphysis will be able to be considerably decreased and its complications too. So, the knowledge of the anatomy is indispensable to the clinical practice.

I-PI/10) Callosal arteries and their supply areas

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Callosal arteries are branches that arose from pericallosal artery and supply the corpus callosum. Pericallosal artery, a branch of anterior cerebral artery, gives its long and short branches that supply corpus callosum throughout its course. Short callosal arteries directly perforate and supply the corpus callosum however long callosal arteries perforate and supply the corpus callosum after making a course over it. Short and long callosal arteries can also supply septum pellucidum, fornix and anterior comissure. During our dissections using a surgical microscope in forty hemispheres we demonstrate normal and atypical supply areas of short and long callosal arteries and their relationships with other neighbouring anatomical structures. Knowing the course and relationship with other anatomical structures of this artery provide aid to the surgeon both for aneurism operations and other surgical procedures of this region.

I-PI/11) Congenital central nervous system malformations in India

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A study was conducted in P S medical College and six hospitals in three districts of Gujarat, India. 18075 consecutive deliveries were scanned for apparent congenital central nervous system anomalies. 46 dead fetuses of different

gestational age were collected from these hospitals. Average rate of congenital central nervous system malformations was observed as 6.5/1000 births, 3rd highest in India. Maximum rate was observed in Ahmedabad district as 7.5/1000 births, 2nd highest in India. Anencephaly was observed as the commonest congenital central nervous system malformation in all three regions. This was followed by spina bifida, hydrocephalus and meningomyelocele. In the present study 63% mothers were less than or equal to the age of 20 years. 60.67% were primigravida. 97% mothers belonged to low socioeconomic status and 86.9% belonged to rural background. None of the mother were covered by any antenatal care during any time of the pregnancy. None of the mother took folic acid. 89% were vegetarian. There was deficiency of Zn, fluoride and Ca in the water consumed by all mothers.

I-PI/12) Branching patterns and histologic structures of the deep branch of the ulnar nerve (DBUN) into the interossei and lumbricals of the hand

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The aim of this study was to clarify the branching patterns of the deep branch of the ulnar nerve (DBUN) through anatomic and histologic examinations in focused upon the structures of the motor fascicles to the interossei and lumbricals from twenty dissections of the hand. The furcation point between the DBUN and superficial branch of the ulnar nerve was distally located at 4.3 cm from the bistyloid line. After branching off the branches to the hypothenar muscles, the DBUN gave the nerve twigs to the 4th lumbrical (with the 4th palmar interosseus muscle), the 4th dorsal interosseus muscle and the 3rd lumbrical (with the 3rd palmar interosseus muscle) in order. The next branches were distributed to the 3rd, 2nd dorsal interosseous muscle, the adductor pollicis transverse had, 2nd palmar interosseous and 1st dorsal interosseous muscle along the course of the DBUN and the terminal branches of the DBUN innervated to the adductor pollicis oblique head. These cases were most frequently observed in this study (40%). In the histologic examination, in 69 of 104 nerve branches (66.35%), the motor fascicular group to the intrinsic muscles of the hand was located at the distal aspect of the DBUN at the hand and the cases the motor fascicular group located at the distal-dorsal aspect were observed in 32.2%. Only in 1.44% of the cases, the motor fascicular group was located at the dorsal aspect of the DBUN. From this motor fascicular group, the nerve twigs were originated from the dorsal aspect of the DBUN and most of these nerve twigs innervated into the metacarpal joint region. These results will provide crucial information to the immediate repair procedure of the DBUN and also give the useful reference for clinical applications and microsurgical procedures of the DBUN in case of spastic paralysis of the hand.

II PLATFORM SESSION

II-PI/1) The left portal vein in the recessus of Rex: anatomo-clinical relevance

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The recessus of Rex corresponds to an area inside the liver delineated by the left portal scissura. The Rex shunt has recently been introduced in the treatment of the extrahepatic portal hypertension. It consists in a mesenterico-left portal bypass, in which the mesenteric venous blood is redirected into the intrahepatic portal venous circulation. To perform the anastomosis a careful knowledge of the pattern of branching of the left portal veins is necessary. The aim of the present study was to evaluate the anatomy of the portal vein and of its branches through an anatomo-radiologic study. Intravenous injections of radioopaque resins were performed in 60 isolated livers. After formalin fixation, they underwent CT and MR scans and a 3D elaboration of images was performed on a workstation using Advantage Windows software. The analysis of the images and of the corrosion casts shows that the mean length of the left portal vein to the ombelical vein is 4.08 cm (range 3.5-6.2). The analysis of the modality of branching of the left portal vein shows that in 30% of cases the sectorial branches, one paramedian for segment IV and one lateral for segments II and III, were recognizable, whereas in 70% of cases the segmental branches for II, III, IV segment rise directly from the left portal vein. The knowledge of the pattern of branching of the left portal vein is useful for the surgical approach of the recessus of Rex.

II-PI/2) Mesorectum surgical anatomy-fasciae and autonomic pelvic nerves

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There is an increasing number of surgeons who consider the total mesorectal excision as the most appropriate operation for rectal cancer, to decrease local recurrence and to increase survival. The AIM of this video is to describe the concept of. 1. mesorectum; 2. pelvic or perirectal endopelvic fascia with its visceral and parietal components; 3. arterial vascularisation of the rectum; 4. hypogastiic plexuses and splanchnic, sacral and pelvic nerves. The mesorectum is the cellulo-adipose tissue with vessels and ganglia that completely wrap the subperitoneal rectum. It is thick on the posterior and lateral faces of the rectum but thin on the anterior face, making surgical dissection more difficult at this level. The perirectal endopelvic fascia surrounds the mesorectmn and it is a double cellulofibrous structure with a visceral componente, the fascia propria, and a parietal one. The last one is composed by the presacral, recto-sacral, piriformis, elevator ani, internal obturator muscles fasciae and by the perineal-peritoneal fascia (ex. Denonvillier). The rectum is vascularised mainly by rectal superior artery and accessorily by middle and inferior rectal arteries. Middle rectal arteries run above elevator ani muscle and end at lateral face of the rectum. The innervation of the rectum is of a vegetative, sympathetic and parasympathetic type. Sympathetic nerves have two origins: superior and inferior hypogastric plexuses. The parasympathetic innervation is secured by the pelvic splanchnic nerves that arise from the roots of the S2, S3 and S4 sacral nerves. The perfect knowledge of a "practical anatomy" in direct coordination with clinical studies permits the performance of more rational and efficient operations. The correct identification of the pelvic planes and mesorectum provides a curative anatomical operation in rectal cancer and with the preservation of nerves, a decreased incidence of sexual and urinary dysfunction is achieved.

II-PI/3) The phrenico-oesophageal ligament: an anatomical study

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The phrenico-oesophageal ligament (POL) is accepted as an important structure by the surgeons dealing with the surgical treatment of the hiatal hernias but its anatomic structure has not been well characterized in previous studies. The aim of this study is to define the anatomical and the histological structure and to point out the clinical importance of the POL. This study has been carried out on samples taken from 2 fresh and 13 fixed cadavers. The samples were taken out as a block of tissue by cutting the oesophagus 10 cm cranial to the oesophageal hiatus and by taking out the diaphragm with diaphragmatic cruses and with the fundus of the stomach. The block sections were soon divided into four quadrisections and each of the sections were dissected under the microscope by preserving the fascial structures. In our study, the POL was observed to derive from the transversalis and the endothoracic fascia as a strong structure that attaches the oesophagus to the diaphragmatic cruses at the region of the oesophageal hiatus. The transversalis fascia was observed to divide into upper and lower leaflets while it was approaching to the oesophageal hiatus. The endothoracic fascia was observed to bend cranially and attach on to the oesophagus by uniting with the upper leaflet of the transversalis fascia in 86.7% of the specimens. In the rest of the specimens it was attaching on the oesophageus at a higher level. The histologic findings of our study reveal that the POL is a true ligamentous structure that is formed by collagen and elastic fibers. Since the POL is a strong structure that firmly attaches on the esophageal wall and surrounds the upper part of the distal esophageus like a skirt, it probably has an import role in the sphincter mechanism. The histological evidences of the decrease in the collagen fibers by age and the loose arrangement of the elastic fibers due to this decrement might demolish the resistance and the elasticity of the POL. This situation may explain the increase of predisposition to hiatal hernias by an increase in age.

II-PI/4) An anatomic study on the insertion of the zygomaticus major muscle in human focused on the muscle arrangement at the mouth corner

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Facial expression is surely reflected by emotional status. This study is concerning smiling in face, especially focused on the arrangement of the zygomaticus major (ZMj) through a topographic examination, and to evaluate the anatomical variations in the insertion of the ZMj in relation to the facial

vessels in the peri-oral region. From 70 dissections, the bifid ZMj (40%) was observed and its attachment to the other facial musculatures is described. At the peri-oral region of the dissected specimens, the anatomical aspects of the muscular arrangement and attachment of the ZMj were classified into four categories: type I, the superficial muscle band of the ZMj is blended and interlaced with the levator anguli oris (LAO), whereas the fibers of the deep muscle band blend into the buccinator and the LAO passing deep to the LAO was the most common encountered (54.3%). It was found that the insertion of the ZMj was divided into superficial and deep bands (42 cases in type I and IV, 60%), as well as into three layers of superficial, middle and deep fibers (17 cases in type II, 24.3%). The others were cases where the ZMj was inserted deep into the LAO as a single muscle band (11 cases in type III, 15.7%). It was also observed that the topographic aspect of the facial artery passed through the separate muscle bands of the ZMj in 42.9%. These anatomical variations are expected to verified individual facial expression, also it can be further implicated for how to make a smile.

II-PI/5) Clinical anatomy of central venous catheterization ultrasound-guided

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We report the results of more 200 central venous catheterization (CVC) of internal jugular vein performed with the ultrasound guide (US) from January 1998 to October 2004. The CVC US-guided is a safe procedure with short perfoming time, low rate of failures and complications and high rate of success; it is helpful in all patients with vascular anatomical variations, with not visualzed or palpable landmarks and with coagulation disorders. For the CVC of the internal jugular vein, the anatomical landmarks used were the sternum-cleidomastoid muscle, the clavicole, the angle of Louis, the cricoid ring; for the CVC of the subclavian vein, the anatomical landmarks used were the anterior scalene muscle, the angle of Louis and the clavicle. The choice of vein (subclavian or internal jugular vein) was not performed in a random way but in according to the best anatomical findings of the vein or the patient's factors of risk (bullous emphysema, coagulative deficit, anatomical variants). In all cases the method has been carried out in loco-regional anaesthesia with the patient placed in Trendeleburg (10-20°) and with his head turned toward the opposite site. The US system used was the "Prisma-Diasonics" type with linear probe at high-frequency (10 MHz). After having sterilized the operating field, the central vein is visualized along its greater longitudinal axis, performing the Valsava manoeuvre which produces an increase of the diameter of the vein and then a better visualization. In five cases, variations of the course of the internal jugular vein have been observed than resulted medialized. The correct introduction of the needle in the central vein is showed trough the easy aspiration of venous blood. A wire-guide is introduced through the needle and subsequently the venous catheter is positionated (Seldinger techinique).

III PLATFORM SESSION

III-PI/1) Morphological changes in the wall of anomalies of the extracranical internal carotid artery: histologic and anatomic features

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Introduction: Cerebrovascular insuffiency may be caused by morphological anomalies of the extracranical internal carotid artery in 10-15% of symptomatic patients. These alterations, characterized by anomalous elongation, condition particular attitudes of the ICA such as: tortuosity coiling and kinking, occurring in 10-25% of the population. Up today, natural history of morphological anomalies of the ICA is not well known. Conserning the histologic features, coiling of the ICA is ascribed to embryological causes, while tortuosity and kinking are considered due to atherosclerosis or fibromuscolar dysplasia. Different surgical techniques for revascularization of the ICA morphological anomalies are available and nearly all studies in literature report only postoperative results. A better knowledge of the histologic characteristics of these ICA anomalies could better point out their surgical technique indication.

Materials and Methods: In the last 5 years, 8 pts were surgically revascularized because an anomalous elongation of the ICA. Seven pts presented a kinking (with an angle < 60°) and 1 pt a coiling of the ICA. Five pts had an atherosclerotic plaque associated with the ICA anomalous elongation. Two pts complained of transient focal hemispheric neurological symptoms, 3 pts complained of vertebrobasilar symptoms and 3 pts had a tight asymptomatic stenosis. All the pts were treated by ICA transposition after eversion andarterectomy. Small specimens of excised carotid artery elongation were fixed in both formalin and glutaraldehyde. The former was paraffin embedded and hematoxylin-eosin stained for routinely pathological examination; moreover special stains for elastic fibers were performed. The latter was osmium post-fixed and embedded for electron microscopy analyses.

Results: None of the pts had any postoperative complication and the postoperative duplex scan showed the correct patency of the carotid reconstruction. In all the specimens, morphological analyses showed intimal plaques formed by lipid deposits and proliferating foamy and spindled cells. Moreover, a degeneration of media by fragmentation of elastic laminae was also present.

Conclusion: The morphological alterations of intima and media layers may determine a relative weakness of the arterial wall and explain the pathogenetic mechanism of the tortuosity and generalised dilatation of the vessels. Our study is still in progress and if previous histological findings are confirmed it could be a better operative choice to resect displastic arterial segment and to reconstruct a new arterial conduit employing venous or prosthetic material. Electron microscopy analyses are actually under processing and they could better explain the molecular modifications that affect the media layer.

III-PI/2) Vascular anatomy of the forehead; relevance to flap planning in plastic reconstructive surgery

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The use of forehead flaps for reconstruction of the nose and earlobes dates back to 600 B.C. Temporal forehead flaps based on the frontal branch of the superficial temporal artery, were used since 1893. The blood supply of the forehead is derived from the frontal branch of the superficial temporal artery, the supratrochlear and supraorbital arteries. The aims of this study were to explore and provide landmarks of the main arteries of the forehead and to find anatomical support for new transversal forehead flaps. Eight adult cadavers were dissected and measurements were taken of the forehead arteries at comparable positions. To determine landmarks, the forehead was divided into nine zones. All data was statistically analysed using GraphPad Prism 4, and for distance correlation the Paerson rank test was used. Vessel diameters were measured, to determine the main supply to the forehead. Graphical analysis of the data reveals that there is less variance in the distances of the supratrochlear artery from the midline, than the distance between supratrochlear and supraorbital artery at the supraorbital margin, on both sides of the forehead. The course of the branches of the supraorbital artery varied in that it mostly ran deep on the periosteum. The poorly described oblique branch of the supratrochlear artery was found to have a diameter almost equal to the supratrochlear and larger than the supraorbital arteries, which would make a skin flap supplied by this artery viable. A case report shows the feasibility of using transversal forehead flaps in plastic reconstructive surgery of the nose. This study provides evidence to support transversal or oblique forehead flap designs, using the frontal branch of the superficial temporal artery and the oblique branch of the supratrochlear artery.

III-PI/3) A rare case of spontaneous lumbar hernia

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Lumbar hernias are rare and their prevalence is not known. They may appear through the superficial lumbar triangle (J.L. Petit) or the deepest superior lumbar orifice (Grynfeltt). We report a case of a 59 year, healthy, old man who presented a lumbar mass with chronic left sided pain. He was send for resection of a lumbar lipoma. He had no previous surgery or any injury. The diagnosis suspected by a meticulous clinical examination, was confirmed by a MRI: lumbar hernia with the kidney and the colon in correct position. We had no element for any etiology except a left intercostal zona which occurs previously and he presented cutaneous scars in the area. The exact limits are precised by dissections in cadaver, and compared to surgical findings. A direct surgery was performed, the fat easely reintegrated, the wall reinforced by an unabsorbable mesh and running unabsorbable sutures were done to cover the previous suture (such as in "Shouldice technique"). The follow up was good, without pain and no recurrence. Thanks to clinical and anatomic knowledge, this rare superior lumbar hernia was diagnosed and a correct surgical treatment permitted a quick recovery.

III-PI/4) The supra-auricular arterial network: anatomical bases for the use of superior pedicle retro-auricular skin flaps

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The authors present an anatomical study of vascularization of the retroauricular skin, focusing in particular on the origin, distribution and anastomoses of the Superior Auricular Artery (S.A.A.), which nourishes the retroauricular skin together with the Posterior Auriclar Artery (P.A.A.). On the basis of this anatomical study, the S.A.A. has been used as pedicle of a retroauricular flap for repair of defects in the upper third of the auricle and in the temporal region.

Materials and methods: Fresh cadaveric dissection of 25 auricles were performed after having injected the carotid artery with dyed latex 48 hours before. The S.A.A. was identified at his branching point from the Superficial Temporal Artery (S.T.A.), and origin calibre, axial length and patterns of anastomosis were evaluated.

Results: The Superior Auricular Artery was found in all specimens, with constant course and calibre, mean axial length 2,4 cm (min 1,4-max 3,5), mean calibre 0,8 cm (min 0,5-max 1,1). This branch proved a reliable vascular pedicle for the mobilization of retroauricular flaps. Retroauricular pedicled flaps were used on 28 cases: 24 lesions of the auricle and 4 epiteliomas of the temporal region. All flaps proved viable.

Conclusions: A detailed knowledge of the course of the S.A.A. and its distribution in the retroauricular skin enabled the authors to raise a superior pedicle retrouricular flap, which had not been previously described and which may be successfully used to repair auricular and temporal defects.

III-PI/5) Anatomic basis for the dorsal radial flap of the thumb

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The Author presents an anatomic study of the vascularization of the dorsal skin of the thumb focusing on the collateral of the radial artery directed towards the radial side of the finger.

Materials and methods: The pattern of the dorsal arterial supply of the thumb was studied by the dissection of 25 thumbs of fresh cadavers after injection of colored latex into the brachial artery. 48 hours after the injection the dissections were made in a proximal to distal direction. Once idenfied the radial collateral of the radial artery, its origin, calibre and course were defined, as were its relationships with the surrounding structures (nerves and tendons). Finally, the location, calibre and frequency of the anastomosis between the dorso-radial collateral and the homolateral palmar arterial plexus were observed as well as the connections with the dorso-arterial branch to the nail matrix.

Results: In every dissection an arterial branch was detectable as dorso-radial collateral digital artery, following the radial side of the thumb and constantly communicating with the palmar circuit at the level of the middle third of the proximal phalanx.

Conclusions: The constant presence of this vascular axis and its connections with the palmar circuit permits the mobilization of a dorsal metacarpal skin flap, with a distal pedicle and a reversed flow, that can be used for covering of dorsal and palmar distal defects of the thumb.

III-PI/6) Anthropometry of the eye-nose-lip complex in young adult indian population

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Background: Anthropometry means knowing the dimensions of human body. To restore normalcy out of abnormality; one must identify what is normal. Though anthropometric data on facial features of other races are available, there is no comprehensive study of relevant facial parameters of Indians. The Eye-Nose-Lip Complex being the most prominent part of the face catches the observer's attention first and hence is chosen as an area of special interest.

Aims and objectives: 1. To obtain relevant Indian data on facial anthropometry; 2. To study the relation between Indian males and females; 3. To compare the Indian data with other world races.

Materials and methods: 169 volunteers (72 males; 97 females; age: 18 to 30 yrs) were tested. 18 parameters were studied, with the help of direct measurements on living subjects. The inclinations and the profiles were determined using photographs.

Results and discussion: Statistical analysis revealed certain interesting facts. The Indian male faces presented significantly higher values than the females with the excep-

tion of palpebral fissure height, which was vice-versa. On comparison with the other world races, the Indian parameters did not conform to any of the 3 major races: Orientals, Negroid and Caucasians.

Conclusions: Quantitative analysis of data has made it possible to define a typical young Indian adult face. Differences between Indian male and female parameters and comparison with the other world races were statistically studied. Thus this study is a genuine effort to establish certain values of Indian face with the help of anthropometry, which indeed would benefit the plastic and reconstructive surgeons, forensic scientists, criminologists and the artists.

III-PI/7) Morphological features of vasa vasorum of varicose human great saphenous vein

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The architectonic arrangement and structure of the vasa vasorum were studied on the varicose human great saphenous vein. The samples were taken peroperatively from patients indicated either a) for aorto-coronary bypassing (individuals with only sligthly expressed varicose changes – 5 patients) or b) for surgical treatment of heavy varicose changes on the lower extremities (20 patients). The results obtained can be divided into three groups: 1. In patients with delicate varicosities the saphenous vasa vasorum presented no morphological changes; 2a. In one subgroup of heavily changed saphenous veins phlebosclerosis of the media was found, but not joined with apparent morphological changes of the system of vasa vasorum; 2b. In the other subgroup (patients with relapsing and heavy varicose changes) the phlebosclerotic process was joined with intravenous thrombosis and increase of the vasa vasorum vessels inside of the media.

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III-PI/8) Endocrine factors and reactivity of the connective tissue: morpho-clinical study

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The report presents a study on the way in which changes of the three components of the connective tissue occur under the action of endocrine hormones. The study has an experimental part in which a connective tissue disease is induced experimentally in rats by means of hexachlorobenzene, and a clinical part, in which the activity of the endocrine gland is observed in patients with connective tissue diseases; correlations are established between the course of the disease and the endocrine functionality. Conclusions are drawn, both with regard to the basic problem of the connective tissue reactivity and to the clinical aspect, respectively to the possibility of using an endocrine therapy in the connective tissue diseases. A worsening is recorded in the experimental group in the case of ablation of the thyroid, of the testis as well as in the case of administration of small cortisone doses. No improvement of the course is observed after the ablation of the ovary and the administration of large cortisone doses. The observation of the course of the connective tissue diseases which appeared in humans, monitored clinically and by laboratory investigation, shows hypothyroidism and male hypogonadism as aggravating factors and the hypofolliculinemia and the treatments with larger cortisone doses as favoring factors of an improvement.

IV PLATFORM SESSION

IV-PI/1) The use of plastination to teach vascular anatomy for interventional radiology

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Interventional radiographic procedures are currently used world wide, in almost any clinical specialty, for diagnosis and treatment. In angiography, which is the fundamental technique in interventional radiology, the knowledge of the anatomy of the arteries is crucial. The efficacy of a combined use of a vascular radio-opaque injection and plastination techniques was investigated. The left common carotid artery was used for arterial injection of dog cadavers with red gelatin and barium sulfate (AG12 Biodur^{TM}). The specimens were prepared and plastinated using the standard S10 Biodur^{TM} technique. The body cavities and various other regions were dissected prior to plastination. A radiographic study of the specimens was performed before, during and after plastination. The results, using high resolution fluoroscopy with digital recording and digital subtraction imaging (C-arm Digital Subtraction Angiography Philips BV 300), show that plastinated specimens are a good reference for use during clinical teaching. These images serve as an aid to study the vascular system and its relationship to surgical procedures and other anatomical structures. Visualization of plastinated specimens and digital images before and during a fluoroscopic examination aids the understanding of the organization of the arterial supply and affords a convenient, easy and accurate method for training the surgeon.

IV-PI/2) Functional anatomy in daily activities and sports actions

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The development of a series of functional anatomy visualizations was undertaken. The aim was to provide the medical education community with accurate visual reference for the function of the musculo-skeletal system during daily activities, sports actions and basic joint movements. To this end, detailed 3D anatomy models of skeleton and muscles were derived from Primal Pictures' own complete human body database. These models were originally created by manual and semi-automated segmentation of the Visible Human cryosection images. A computer graphics muscle action model was developed and implemented. A series of interactive animations of daily activities, sports actions and gym exercises were developed. In the presented muscle action model a muscle is represented by fiber-sets equipped with contractile and elastic elements. This approach enables accurate specification of muscle firing patterns and level of contraction. The model can be configured for different types of muscles, tendons and ligaments. EMG data have been recorded and used to drive the contractile element of the model. Motion capture datasets were also recorded from a volunteer performing a range of sports actions and daily activities. All gross motor movements were based on synchronized motion capture data, EMG and live video reference. Overall we researched and implemented 21 basic skeleton movements and 7 gross motor movements involving 17 joints and over 200 muscles of the human body. The results were compiled using an interactive animation format, in order to present each action from a wide range of views. All muscle/skeleton animations were evaluated and approved by a team of anatomists, physical therapists and biomechanics experts (www.primalpictures.com).

IV-PI/3) Determination and analysis of enthesial and paraenthesial bone in the wrist; are histological data relatable to computed tomographic images?

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This study initially tests the hypothesis that bone to which a specific force is directed (i.e. *via* tendon or ligament) will be thicker than bone without such specific forces directed upon it (i.e. capsule), or before which much force may have been absorbed (i.e. *via* articular cartilage). In addition, the tissue adjacent to areas of specialised attachment may

demonstrate additional adaptation to the forces transmitted through the attachment. Similarly, bone thickness in scaphoid-angle CTs was hypothesised to be thicker in regions of suspected higher force transmission (i.e. ligament attachment, pathological decrease in cartilage thickness, etc.). Ligamentous, cartilaginous and capsular attachments were measured in histologic sections of 30 cadaveric wrists. Similar measurements were made on 20 scaphoid-angle CTs of cadaveric wrists. The histological results showed that true enthesial bone (to which ligament or tendon is attached) had a greater area relative to the length of bone measured than the bone to which articular cartilage (subchondral bone) and capsule (capsular bone) were attached. The area of subchondral bone relative to the length measured was significantly greater than that of the capsular bone. Bone adjacent to areas of specialised tissue attachment demonstrated some difference from bone further from specialised attachments, suggesting some compensatory adaptation to the loading of specific regions. The CT measurements suggested that diseased joints had thicker subchondral bone than non-diseased joints. It was therefore concluded that the correlation between bone thickness and the type of tissue attached to the bone is a reliable indicator of function. Furthermore, the CT results suggest that such knowledge can be used to describe the force-bearing state of individual joints and hence determine which joints may be in more need of repair. These data confirm long-held notions of subchondral sclerosis in the degenerative joint, and provide a histologic explanation of such common observations.

IV-PI/4) Anatomical study of human temporo-mandibular joint by magnetic resonance

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This study has been carried out in 40 patients, males and females, ageing between 22 and 35 years, wit no history for any TMJ disease. We used a superconductive resonance device of 1.5 Tesla (Philips Gyroscan NT 5) with a head bobine. We used SE and FFE sequences along a sagittal plane, firstly with closed and then with open mouth, with a T2 weighted signal. The slices were 3 mm thick, and the gap 0.3 mm, with means number of 3 NSA and FOV of 140. On the coronal plane we used SE sequences, with a T1 weighted signal, thickness of the slices of 3 mm, gap of 0.3 mm, with means number of 3 NSA and FOV of 140. In the evaluation of TMJ, most commonly used planes are sagittal and coronal. On these planes many bone "repere" allow to recognize the different portions of the joint, while different intensity of the signal (due to different histological composition) allows to perfectly distinguish the articular components (and particular the articular disc, the ligaments and the capsule), otherwise not detectable. Since it is possible to evaluate the joint in different positions, also functional informations (such as the dislocation of the disc during the movements, or the different conditions of tension in ligaments and capsule) are available. The MR allows the best quality imaging of this joint, with minimal disturb for the patient and no exposition to ionizing radiation: it should be therefore considered the first chose in the evaluation of such anatomical structure.

IV-PI/5) Computed tomography of clinically significant anatomical variations of the paranasal sinuses

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Background: Anatomical variations of the paranasal sinuses are numerous and may have important clinical applications. Their role in pathogenesis of sinus disorders is still controversial, but a number of these variations must be known since they constitute high-risk areas in endoscopic sinus surgery.

Material and methods: Computed Tomography (CT) of the paranasal sinuses were performed in 50 patients (mean age 42.2) and studied in order to evaluate the incidence of anatomical variations corresponding to danger sites for the surgeon. CT were performed by using a CT scanner Somatom Plus 4 Volume Zoom, and a CT scan Sensation 16, (both Siemens, Erlangen, Germany). Helicoidal scanning was performed and axial, frontal and coronal reconstructions were obtained. Ct scans were interpreted by two radiologists, according to a protocol looking for 50 items. This protocol has been built up and validated by an ENT surgeon and a radiologist.

Results: The main results are presented. Internal carotid prolapse within the sphenoid cavity was found in 78% of cases. Difference in the height of the right and left ethmoidal labyrinth roofs was observed in 42% of cases. Asymmetry of the cribriform plate of the ethmoid was found in 20% of cases. Defects in the orbital plate were observed in 36% of cases and defects in the roof of the ethmoidal labyrinth in 3%. Variations of the optic canal were found in 16% of cases.

Conclusions: Numerous anatomical variations of the paranasal sinuses which constitute surgical danger sites are

easily depicted by CT scan. Particular attention must be drawn on these variations before endoscopic sinus surgery. CT provides an excellent tool to help the sinus surgeon operate.

IV-PI/6) Anatomo-comparative study on the bones of the shoulder joint

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The genesis of the clavicle is driven by the ample laterality movements: absent in the horse, rudimentary in the ox and the sheep, more developed in the pig, the dog, the cat and the rabbit, very well developed in the human and the bat. The augmentation of the lateral movements (abduction, elevation, rotation, circumduction, pulsion) is due to the transformation of the limb into a prehensile organ, resistant, ultimately, to traction and weight pressure. The mechanical structures must be understood as biological constructions, bio-morphoses, and in the human, as anthropo-morphoses. The difference in the function of the scapula for the two mentioned groups of mammals is shown by the scapular physiological index: greater than 100, it indicates a quadruped: 217 for the dog, 125 for the macaque; smaller than 100, it indicates the human (66) or the bat (50), setting aside the birds adapted or unadapted to flight. For the human, the scapular index, varies with age: from 90 in the 3 months embryo to 66 in the adult, a modification driven by the progressive differentiation of the arm and the ergo-motor apparatus.

V PLATFORM SESSION

V-PI/1) Immunohistochemical expression of inos and enos in the venous ulcers related to chronic venous insufficiency (CVI)

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Introduction: The pathophysiologic mechanism related to pathogenesis of cutaneous trophic disorders in chronic venous insufficiency (CVI) find different explanations. The increase in the number of capillaries and the subsequently stasis, the fibrin cuffs deposited around the capillaries and leucocytes migration associated at inflammatory phenomena in fact try to explain the etiology of venous ulceration. In this study we have evaluate the immunohistochemical presence of iNOS and eNOS in cutaneous bord of venous ulcers to evaluate the role of Nitric Oxide (NO) in pathophysiology of these trophic disorders. In addition, using the image analisys method, we have evaluate the increase of capillary numbers respect to normal skin.

Materials and methods: We have studied immunohistochemical distribution of iNOS and eNOS in human normal skin and in peripheral bord of venous ulcers in 10 subject affected by CVI. The specimens have been taken during a surgical treatment. All of these are fixed in Bouin's mixture and processed with eNOS (Transduction N30020) and iNOS (Transduction N32030) antibodies. After the immunostaining procedures all specimens are studied with Nikon microscope and Lucia M system of image analisys.

Results: Moderate eNOS immunoreactivity are expressed in the same way both in the endothelium of a dermic capillaries and in the spinous epithelium of the normal skin such as in the pathological specimens. iNOS immunopositivity is more expressed in the spinous epithelium and in the capillaries endothelium of a bord of venous ulcer than in a normal skin. At the image analisys the capillary numbers in the venous ulcers is remarkably higher respect the normal skin.

Conclusion: These data provide a morphological basis to explain a possible pathogenesis in the cutaneous trophic disorders in CVI. In fact the strong iNOS immunoreactivity, expressed in this inflammatory phenomenon, may be implicated in microcirculatory stasis.

V-PI/2) The use of "anaglyph" technique in the scanning electron microscopic investigation of biological specimens

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Scanning Electron Microscope (SEM) are scientific instrument that use a beam of highly energetic electrons to examine objects on a very fine scale. The combination of

higher magnification, larger depth of focus, greater resolution, and ease of sample observation makes the SEM one of the most heavily used instruments in research areas today. But it has limitations for image viewing. What can we do if we want to see two dimensional objects such as SEM micrographs with three dimensional (3D) perception. The anaglyph images could be a solution. Anaglyph is a type of stereo 3D image created from two photographs called stereopairs taken approximately 2.5 inches apart, the central distance typically between human eyes. In the routine SEM pursuit, the specimens were fixed in 2.5% gluteraldehyde for 24 hours, washed in phosphate buffer (pH: 7.4), post-fixed in 1% osmium tetroxide in phosphate buffer (pH: 7.4) and dehydrated in incresing concentrations of alcohol. We were studied on images which are taken from JEOL SEM ACID10 (Japan) electron microscope. From the stereopair images done by us, we gained 3D anaglyphic images which could be seen by using special glasses. We investigated circumventricular organs of rats that have hydrocephalus and subarachnoidal hemorrhage carried out experimentally, nylon flock material that forming occupational interstitial lung disease, air ventilation tubes that were used in treatment of otitis media, laryngeal mask airways, mucosa of deviated nasal septum, implant materials that using in the dentistry, carotid artery stent material that using in the interventional radiology and many hair specimens of syndromes involving Systemic Lupus Eritematosus, Schwartz-Jampel, Gricelli, Giant Axonal Neuropathy, Hereditary Trichodysplasia, Trichorrhexis nodosa (trichoclasis), etc. The contribution of this study as methodological and as originally will be reported is to investigate by a tecnique which is able to watch scanning electron microscopic images of biological specimens that named anaglyph, first recorded as three dimensional stereopairs then converted as a red-blue image in three dimensional by special glasses.

V-PI/3) Investigation and clinical follow-up comparison of different ventilation tube surfaces by using scanning electron microscopy

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Like all biomaterials, a ventilation tube is subject to formation of bacterial biofilm on its surface. Furthermore, there might be surface deformations due to use. This increases the risk of complications associated with ventilation tubes. In this study, we examined two groups of ventilation tubes using a scanning electron microscope to investigate biofilm growth and surface deformations. The tube samples included those that were either removed after treatment or those that displaced themselves into the ear canal. The first group consisted of thirty silicon tubes and the second group consisted of sixteen ionized, processed silicone tubes. We investigated the relation between scanning electron microscope findings and the complications that developed due to the application of ventilation tubes. As a result of our study, we saw that the ionized, processed silicone tubes are superior to other silicon ventilation tubes in regard to biofilm growth and surface deformations. Furthermore, we observed that as the duration of the ventilation tube application increases, bacterial biofilm growth and surface deformations increase. We also observed that biofilm growth and occurrence frequency were, but surface deformations were not related to "otorrhea" and "plugging" complications. In this study, we show that ionized, processed silicone ventilation tubes are more robust to bacterial biofilm growth compared to other silicone ventilation tubes used in this study and that the "otorrhea" and "plugging" complications are reduced with the decrease of bacterial biofilm growth.

V-PI/4) The osteon directions in compact bone of proximal part of the human femur

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The primary bone is intensively transformed to the haversian system and vascular canals follow directions either of the main stress and strain, or deformations of the bone. Primary bone persists in the region of greater trochanter where the bone is minimally stressed from the tensile and pressurized point of view. Systems of osteons running along the center line were documented on the neck of femur. The tilt from the central line neck – diaphysis is not more notably in the cortical bone along ventromedial base of lesser trochanter, in its dorsolateral area osteons make a system of fan-out radii running from the apex. In frontal and anterolateral part of the upper end of femur below the base of trochanter major the deviation of osteons to laterodorsal direction was observed, in anteromedial part the mediodorsal deflection from the central line of femur was observed. On the ventral surface of femur in linea intertrochanterica systems of osteons are fluently roundly crossing from neck of the femur to diaphysis. From the biomechanical point of view the upper end of the femur can be imagined as flexed hollow beam stressed dominantly by pressure force – mass of the one's

body, but moreover by forces of muscles which insert nearby. Course of osteons is the resultant of forces in each region. The course of osteons is influenced just by the tension of iliopsoas muscle in dorsolateral part of lesser trochanter. The explanation appears to be the intramedullar accumulation of spongious beams, called calcar femoris in clinical practice, which bypasses local attenuation of cortical bone and acts as an internal brace.

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V-Pl/5) Reduced hippocampal volume in drug-free depressed patients

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A number of studies have used magnetic resonance imaging to examine the volumetric differences in temporal lobe structures especially hippocampus in patients suffering from major depressive disorder. Although some studies reported lower hippocampal volume, others did not. It is proposed that inconsistency among studies may be due to heterogeneity of patients and antidepressant treatment during scanning. In this study, we aimed to evaluate the hippocampus in drug-free patients. Twenty-four patients (6 male and 18 female) diagnosed as major depressive disorder according to DSM-IV criteria and 24 healthy controls (6 male and 18 female) were included in the study. Eleven of the patients had their first mood episode and were drug-naïve. Other patients were drug-free for at least 4 weeks. The severity of depression was assessed by Hamilton Depression Rating Scale (HAM-D). Magnetic resonance imaging was performed on a 1.5 Tesla MR unit. The Cavalieri method of modern design stereology in conjunction with point counting was used to estimate hippocampal volume. The data were evaluated by repeated measure of ANOVA and intracranial volume was taken as a covariate. A significant hippocampal volume difference was observed between the patients and healthy controls ($F = 4.43$, $df = 1,45$, $P < 0.05$) however laterality had no effect on the volumes ($F = 0.03$, $df = 1,45$, $P > 0.05$). Left hippocampus of patients was significantly lower than those of controls ($t = 1.98$, $df = 46$, $P < 0.05$). Correlation analysis showed a correlation between HAM-D scores and right hippocampal volume. The results of this study indicate that hippocampus volume is reduced in depressed patients especially in the left side. This finding in the drug-free depressed outpatients without a history of alcohol dependence supports the previous studies reported lower hippocampal volume.

V-Pl/6) Electron and light microscopic study of lead induced morphological changes in endothelial cells of aorta and coronary arteries in rabbits

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Introduction: The endothelial cells covers the luminal surface of the vascular system. Cardiovascular diseases especially atherosclerosis, has been found to cause changes or damages to them. Lead is one of elements which may cause damage leading to endothelial dysfunction. The purpose of this study was to determine the effect of lead on morphologic features of endothelium which may induce the endothelial dysfunction.

Materials and Methods: Twenty white male rabbits ($W = 1.89$) were weighted and then divided randomly into two groups. For 40 days group A ($n = 11$) were given regular diet with leaded water (547 ppm) and group B ($n = 9$) were fed with regular diet and unlead water. After weighting the animals were sacrificed and their aorta and left coronary arteries were dissected and morphological changes of endothelial cells studied by SEM and light microscopy.

Results: Rabbits that received lead showed decrease in their mean weight ($W1 = 1.96 \pm 0.31$, $W2 = 1.94 \pm 0.24$, $P = 0.138$). Light and scanning electron microscopic study of morphological changes of endothelial cells in aorta and left coronary arteries showed adhesion of red blood cells, leukocytes and platelets on surface of endothelium, irregular orientation of endothelial cells disruption and denuation of endothelial cells, exposure of the subendothelial layer. The endothelial cells changes and damage in aorta was observed to be more extensive

Conclusions: The difference of weights between the two groups may be related to effect of lead on basal metabolism. Morphologic changes of endothelial cells of aorta and coronary artery has revealed the effect of lead on the endothelial dysfunction. The people who are exposed to lead must take necessary steps in order to prevent cardiovascular diseases.

VI PLATFORM SESSION

VI-Pl/1) Development of the anterior chordal canal

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The intraosseous pathway of the chorda tympani was studied again by anatomists at the end of the last century and they stated that the nerve never enters the mandibular fossa and it exits the skull base in the sphenopetrosal fissure. In our report fifty-eight temporal bones were investigated after maceration and formalin fixation in order to understand the development of the anterior chordal canal. Our study revealed that the chorda tympani leaves the tympanic cavity through the tympanosquamosal fissure before formation of the anterior chordal canal of Huguier. This canal runs parallel to and in front of the musculotubal canal and it is built up by the processus inferior tegminis tympani and the sphenoid bone between the second and fifth years of age. Berfore the second year of age only the exit of the bony canal exists which is gradually followed by the appearance of a groove in the growing processus inferior tegminis tympani. Both borders of the groove elevate and develop to upper and lower plates which is lengthened with similar plates of the sphenoid bone, completing the anterior chordal canal by the fifth postnatal year. The exit of the canal developes above the Glaserian fissure and similar to the canal itself it completes in the fifth year. If the anterior chordal canal fails to develop completely, it can remain partially opened laterally which might allow the head of mandibule effect on the chorda tympani mechanically causing Costen syndrom.

VI-Pl/2) Histological study of the ovarian atretic follicle in Caspian miniature horse

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Ovarian atretic follicles in five adult Caspian miniature horses were studied histologically. Both ovaries of each animal at the beginning of breeding season (at May) were used and were fixed with 10% buffered formalin. Routine histological laboratory method was used and 6 Um sections were cut and stained with hematoxilin-eosin and PAS and studied under the light microscope. The atretic follicles showed a hyaloronized layer at the basal lamina of granulosa cell layer with moderate thickness. It was general in all atretic follicles, and caused the deformation of granulosa cells to a flattened cells and finally degeneration of them. The theca interna changed its shape and endocrine cells diminished or completely destroyed. Instead of that the smooth muscle cells and fibroblasts enhanced.

VI-Pl/3) Anatomical studies of the ovarian and uterine arteries of Caspian miniature horse

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The anatomy of the ovary, oviduct and uterus arteries of Caspian Miniature Horses was studied for the first time. In this research five female Caspian Miniature Horses with 4 years old were used. The courses and branches of ovarian and uterine arteries were detected by injecting latex and colored resins into the main arteries. Result showed that ovaries supply blood through ovarian artery direct from Aorta. Uterine tubes also receiving blood by ovarian artery. Uterus supply through three different ways. Cranial uterine artery from ovarian artery. Middle uterine artery from external iliac artery. Caudal uterine artery from urogenital artery. There were not any differences between courses and branches of ovarian and uterine arteries of Caspian miniature horses and other horses.

VI-Pl/4) Topographic study of the heart and its valves in Caspian miniature horse

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This small breed of the horse with maximum height of 120 cm is found at the south shore of Caspian Sea. It is believed, to be the ancestor of many recent breeds. This

investigation was conducted on three embalmed animals. The thoraxes of the animals were carefully dissected in standing position. Topographic position of the heart and its valves were carefully studied and recorded. The base of the heart on the right side extended from 2nd to 5th intercostals spaces. On the left side it extended from the caudal border of 2nd rib to 5th or 6th intercostals spaces. The apex of the heart was opposite to the costochondreal junction of the 5thrib. Regarding the position of the heart, generally, resembled to that of the horse. The pulmonary, aortic and bicuspid valves were dissected from the left side of the thorax. Position of these valves were as fallows: Pulmonary valve extended from 3rd rib up to the 1/2 width of the 4th rib. Comparing with the horse it is extended a little more caudal. Aortic valve was situated deep to the pulmonary artery between cranial border of the 4th rib to cranial border of the 5th rib which differs with the reports on the horse. Bicuspid valve was extended from 5th rib to the 3rd rib which is similar to the horse. The tricuspid valve was dissected on the right side of the thorax. It extended from the caudal border of 3rd rib to 1/2 width of the 5th rib, which is different with that of the horse.

VI-PI/5) The adrenal responsiveness to the action of cetraria islandica, after manganese exposure

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Cetraria islandica is well known for its antioxidative and protective effects on liver. Our experiment intends to reveal a possible modulatory effect of Cetraria extract on adrenal gland, after manganese exposure.

Materials and methods: The experiment was carried out on 3 distinct groups of Wistar rats of 150-180 g equal number of both sexes. The substances were administered intraperitonally, at 8:00 am, in unique daily dose for 12 days, after the following schedule: group 1 – witness (control) group, group 2 – Mg acetate 0,5 mEq/kg/day; group 3 – Mg acetate, 0,5 mEq/kg/day and extract of Cetraria Islandica 86,5 mg/kg/day. At the end of this experiment, after we proceeded to euthanasise the animals, we prelevated the adrenals and we prepared the tisular fragments for the specific microscopic exam.

Results and discussions: The first group of rats revealed a normal adrenal structure: the second group, after Mg acetate administration, reveal small magnesium deposits, especially located around the cells of zona fasciculata; the vascular system lost its integrity and the red blood cells are penetrating through the altered vascular wall into the adrenal parenchyma; the third group revealed only a small number of very attenuated tisular alterations, blood vessels keeping their own integrity.

Conclusions: we appreciate that the extract of Certraria islandica is able to produce a visible reduction of adrenal tisular damage after a toxic manganese exposure, suggesting that this lichen can be regarded as a possible therapeutic resource.

VI-PI/6) European association of clinical anatomy – past, present, future

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The actual European Association of Clinical Anatomy was founded in 1988, in France, by the initiative of Pr. J.P. Chevrel, also designated as Secretary General of the Association up to 1999. In 1991 was held the First Congress of the Association. Members of the Board were professors: Ruano Gil, Assistant Secretary General, A. Gouazé, President and Mc. Grouther, Vice-president, and members of the Scientific Committee were professors R. Putz, M. Caix, N.R. Grande, U. Piepgras, H. Salvolini, F. Anderhuber, P. Sprumont. The EACA also possess a publication, "Surgical and Radiologic Anatomy", with Pr. J.P. Chevrel as Editor in Chief, very appreciated since first volume of the Journal in 1991. The Association Congresses are every two years; after Brussels, the Congresses were held in 1993 in Munich (President Prof. R. Putz), 1995 in Innsbruck (President W. Platzer), 1997 in Lille (Co-Presidents J.P. Francke and C. Fontaine), 1999 in Constanta (President P. Bordei), 2001 in Montpellier (President F. Bonnel), 2003 in Graz (President F. Anderhuber), and finally this year in Palermo, under the Presidency of Professor G. Peri.

Starting with 1999, Secretary general of the Association is Professor C. Fontaine and from 2001 up to today, Professor F. Anderhuber. For me, the EACA, which I am a permanent member since 1991, represents the first contact with a Scientific Meeting outside my country, considering the Romanian political reality up to 1989. As an active participant to all the Meetings, in 1992 I was elected member of the Scientific Board of the Association and, in 1999, I received the honor to organize the 5th Congress of EACA in Constanţa, Romania, were 120 anatomists from all over the world were present. What about the future? Nobody knows, even Nostradamus could not predict it! I like to believe that everything will be better and better.

VI-PI/7) My friends in the european association of clinical anatomy

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Within the past 15 years since I am a member of the European Association of Clinical Anatomy (E.A.C.A.) and attending all the Congresses of the Association, I had the wonderful opportunity to make new and valuable friends, which I am certain I will keep them in the future. I was also aware about their achievements within the Anatomy, there laboratories and departments, their books and research. With some of them, we also developed strong relations within the Faculties, in programs such Tempus, Erasmus or Socrates. First, I want to speak about Pr. J.P. Chevrel, the first Secretary General of the Association, which, together with Prof. A. Dhem, invited me at the First Congress of the E.A.C.A. in Brussels. With both of them I established a strong and true friendship, visiting several times their laboratories and clinics. At their turn, they visited Constanţa, meeting our professors and students were we had the honor to award them with the title of Doctor Honoris Causa. I also meet prof. Reinhard Putz in 1993 in Munich. Since that, I visited him together with some of my colleagues at the Anatomical Institute, being impressed by the kindness and cordiality of his reception; he also visited us in Constanţa twice. Prof. Jean-Paul Francke is my friend before becoming a Dean of the Faculty in Lille. He came to Romania several times, being advantaged by his specialty in Radiology and attending the meetings of both Societies, Anatomy and Radiology. They are just a small part of my friends within the E.A.C.A., many of them being also mentioned in my presentation at the meeting.

VII PLATFORM SESSION

VII-PI/1) Embryonal and foetal liver: morphology and morphometry from ductal plate to interlobular bile duct for a better understanding of the intrahepatic biliary development

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Aims: The understanding of the development of the biliary system is a crucial step to interpret categories of neonatal and infantile cholangiopathies. Quantification of primitive biliary structures (ductal plate, remodeling ductal plate) and their maturity (remodeled bile ducts) may be useful in the evaluation of the maturation of the intrahepatic biliary tree. Aim was to study the remodeling of the intrahepatic biliary tree using a computer-based image-analysis.

Methods: Liver specimens of the right lobe from 57 human foetuses and infants of gestational age of 15 through 40 weeks were obtained from the files of the Institute of Pathology, University of Heidelberg, following ethical approval. Anti-Bile duct cytokeratin epithelial markers (7 and 19) were used to detect the development of the intrahepatic biliary tree by immunohistochemistry. We used a computer image analysis technique to quantify the remodelling of the ductal plate to the formation of an interlobular bile duct.

Results: We found that the surface and the perimeter of the portal tracts, the longest axis of the structures belonging to the ductal plate, and the maturation of bile ducts follow a process continuous and active up to term. However, a slow down was identified between the 20th and the 32nd week of gestation.

VII-PI/2) Accessory pancreatico-colic artery: anatomy and clinical implications

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Introduction: Many variations in both origin and distribution of the arteries of the digestive system have been reported. Their clinical significance has been recently

stressed because they can complicate intraoperative maneuvers and thus underline the importance of performing vascular studies before abdominal surgery [1, 2].

Observations. We detected singular variations of the hepatic artery branches during the dissection of the abdominal cavity of a 59-year-old male cadaver. This vessel gave rise to an accessory artery that showed a proximal (pancreatic) and a distal (mesocolic) part. The accessory "pancreatico-colic" artery was 13 cm in length and 4 mm in diameter at the origin. The mesocolic part was 2.5 mm in diameter. No middle colic artery from the superior mesenteric artery was observed. Due to the absence of the right gastric artery, the pyloric part of the stomach was supplied by well developed branches of the gastroduodenal artery.

Discussion: The occurrence of this artery is clinically relevant in case of pancreatic and intraperitoneal surgery. As middle colic artery it takes place in the formation of the "Riolan's arcade". Due to its intramesocolic course, it ran through the serosa in a usually poorly vascularized zone. Therefore, risk of vascular damage with consequent colic wall necrosis should be considered in case of transmesocolic by-pass. Embryologically, this artery might be regarded as a remnant of the longitudinal anastomosis that joins the ventral segmental arteries which normally regresses during development. This vessel might have replaced in the dorsal mesentery a branch commonly arising from the superior mesenteric artery during midgut rotation.

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VII-PI/3) Subconjunctival nodular lesions, glaucoma and intracranial mass in a patient with polyarteritis nodosa and familial mediterranean fever

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We report a case of familial Mediterranean fever (FMF) and polyarteritis nodosa (PAN) with glaucoma, subconjunctival nodules, and cerebral lesions. 18 year-old male patient underwent a detailed ophthalmological examination. Insicional biopsies of his ocular lesions were performed and examined under light microscope. Cerebral Magnetic Resonans Imaging (MRI) was performed. The visual acuities were 20/20 in both eyes. He had bilateral subconjunctival nodular lesions. Incisional biopsy of these lesions showed lypocytes, vascular structures and plasma cell infiltration in fibrous tissue samples. He was diagnosed as open-angle glaucoma depending on the high intraocular pressures and high cup to disc ratios in both eyes. His perimetric examination showed generalized visual field depression in both eyes. MRI revealed a supracellar mass invading optic chiasm, multiple cystic lesions in thalamus, globus pallidus and anterior fossa, and lipomas in the pontocerebellar systern. FMF and PAN coexistance may be accompanied by various ocular and cerebral lesions. A careful ophthalmological examination and MRI are mandatory to detect those pathologies in such patients.

VII-PI/4) Infundibulosinus partition, a new structure of the right ventricle

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Apical ventricular septal defects (AVSD) are difficult to visualize and even more difficult to treat. We present a new understanding of the anatomic morphology and location of the infundibular apical recess or infundibular apex with the purpose of better understanding the position of apical septal defects. Furthermore, better understanding of the position of these defects may provide the option for new surgical treatments. Human hearts (160) were collected and dissected inorder to visualize the right ventricular outflow and inflow sinus, as well as the moderator band and the papillary muscles. We were able to show that in all hearts the apex of the right ventricular inflow is proximal to the outflow tract (infundibulum). There was a muscular partition (infundibulosinus partition), including the moderator band, between the inflow and the outflow apices. The outflow or inflow apex was typically further to the left and closer to the left ventricular apex, and inferior and to the right of the infundibular apex. The apex of the

infundibular recess was anterior and to the left of the moderator band. The two apices were separated by the infundibulosinus partition, and 80 cases (50%) exhibited some intertrabecular spaces. This new understanding of the existence of two apices in the right ventricle could be a basis for the closure of AVSD with a limited right ventricular apical infundibulotomy.

VII-PI/5) Topography of the pelvic plexus at the level of the cervix and lateral vaginal wall

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A histotopographic study of the female pelvic viscera with the surrounding connective tissue has been performed to evaluate the position of the pelvic plexus (PP) with respect to the cervix and lateral vaginal wall. The specimens were obtained from 10 female cadavers 48 to 62 years old. Six specimens were embedded in paraffin and cut into coronal sections at the level of the vagina and uterus. The sections were stained with HE and AM, and with immunohistochemical staining by anti-tyrosine hydroxylase, anti-VIP and anti-substance P. Four specimens were frozen, cut into coronal slices (2-3 mm thick) and plastinated with epoxy resin E12. The inferior hypogastric nerve runs at the level of the sacro-uterine "ligament" and in the parametrium between the uterine artery and ureter. The nervous ramifications, directed to the vagina and bladder, pass through the surrounding connective tissue following the visceral arterial ramifications. Laterally to the cervix and vaginal fornix, the inferior hypogastric nerve receives the parasimpatic nerves forming the PP which exhibits two main pattern of ramification:

- a compact one, made up of three or four branches, with small ganglia, in vertical sequence, corresponding to the Lee-Frankenhäuser ganglion;
- a diffuse one, made up of thin and slender nerves separeted by fibroadipose lobules.

In both cases the morphology of the plexus could be idealized as a sagittal lamina, located at a distance ranging 1 to 1.5 cm medially to the ureter, close to the uterine artery which crosses its branches. In the coronal plane, the plexus corresponds to the lateral aspect of the supravaginal cervix. At the level of the lateral wall of the vagina and the bladder base only the small anterior nerve fibres can be found. Thus, the PP can be located 5 to 10 mm laterally to the supravaginal portion of the cervix.

VII-PI/6) Anatomical evaluation of the relationship between the coracoid process and the musculocutaneous nerve

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The surgical reconstructions of the brachial plexus are performed using nerve grafting or neurotization techniques. Cervical roots and the musculocutaneous nerve (MCN) are often grafted to restore the flexion of the arm. Moreover, in rotator cuff repair the knowledge of the topography and characteristic of MCN with respect to the coracoid process is important for the margin of safety during dissection. Previous studies have reported contradictory results with respect to measurements. The aim of the present study was to evaluate the course of the MCN, the number, the type of distribution and the length of the motor branches to the biceps brachii and brachialis muscles. Ten fresh cadaveric shoulders were dissected and the minimal distances from the coracoid to the lateral cord, to the point of origin of the MCN from the lateral cord of the brachial plexus, and to the point of piercing of the MCN into the coracobrachialis were evaluated. The superficial projection of the point of piercing has been analized. The distances from the coracoid to the lateral cord was 36.4 mm (range: 25-45mm), to the point of entrance of the MCN into the coracobrachialis was noted to be a mean of 49 mm (range: 32-91). From the surgical point of view the MCN and its branches should be identified and protected, keeping in mind the variations in anatomy and the level of penetration.

VII-PI/7) A software system to support the description and the explanation of medical images based on medical diagnosis criteria

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We present an experimental software system to support teaching methodologies in the domain of Medical Diagnosis based on the analysis of medical images. The system is based on expandable series of functionalities and a programming language. At the root of it there is a paradigm

to generate automatically graphical user interfaces from a formal description of the data model following the well-known model-view-control paradigm. This paradigm provide complete separation between data model and interface description, setting the programmer free of the low-level aspects of programming interfaces letting him take care of higher level aspects. In this way he can concentrate on data and relationships between contents to show, rather than take care of layout and graphical aspects of data's presentations.

The interface along with the data model is described by means of a formal language, the Set Description Language. We also describe the infrastructure based on this paradigm we implemented to generate graphical user interfaces for generic applications useful to show and explain every kind of data related to Medical Images and Medical Diagnosis based on them. Moreover, it can adapt the user interface from the type of data managed by the user from time to time.

The system, giving a support in the presentations of graphical data and images, helps to show and explain subjects, which need the use of images to be fully described, as diagnosis criteria applied in the analysis of Medical Images. In this way the system may be useful in the fields of medical research and computer-based teaching.

In this work we used the application to show Multiple Sclerosis diagnosis criteria based on MR images analysis, a typical topic of study and research in the field of Pathological Anatomy.