MEDICAL UNIVERSITY OF VARNA, BULGARIA

SCRIPTA SCIENTIFICA MEDICA, VOL. XXXII, Supplement 1

UNIVERSITAS MEDICINAE VARNENSIS

CATHEDRA ANATOMIAE, HISTOLOGIAE ET EMBRYOLOGIAE

SYMPOSIUM INTERNATIONALE QUARTUM

ANATOMIAE CLINICAE

VARNA anno MM

diebus 6-8

mensis Octobris

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CONTENTS

LECTURES

ORAL PRESENTATIONS

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

POSTERS

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PREFACE

This proceeding book offers to the attention of the respected scientific-medical society the abstracts of the communications which will be presented at the Forth international symposium of clinical anatomy held in Varna on October 6-8, 2000. The first one was held in 1994 followed by the second in 1996 and the third one in 1998.

The symposia are organized and carried out on the initiative of the department of anatomy, histology and embryology at the Medical University - Varna under the auspices of the European Association of Clinical Anatomy (EACA) and with the Cupertino of the Bulgarian Anatomical Society (BAS), Anatomische Gesellschaft as well as with the indespensible help of all former and current management of the Medical University - Varna.

The symposia of clinical anatomy which have already became a tradition are the only scientific forums of such topic content held in south-eastern Europe. However, these events do not remain only regional due to the participation of many prominent scientists from the countries members of the EU. Among them are leading colleagues in the field including the founders and directors of EACA.

The idea for the organizing of the First symposium sprang up during the 89th Congress of Anatomische Gesellschaft in Marburg (21-23.03.1994). At that time together with professor Wassilev, chairman of BAS, we met professors Kühnel, Platzer, Putz and Fanghänel some of whom were and are in charge of the EACA and Anatomische Gesellschaft. The initiation of this meeting was cordially accepted by the Bulgarian Anatomical Society as well as the colleagues from other medical disciplines, primarily surgical and image-diagnostic.

So, in the last year of the 20 $^{Th.}$ century our department of anatomy, histology and embryology will organize and carry out the Forth international symposium of clinical anatomy. The difference this time is that it is a part of the Month of science Varna' 2000 which is organized by the Union of Scientists and the Municipality of Varna.

Prof. Dr. Spassimir Nikolov, D.Sc.
President of the Organizing Committee
of the Symposium Internationale Quartum
Anatomiae Clinicae

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PROBLEM-BASED LEARNING IN MAASTRICHT. NOTES ON THE TEACHING AND LEARNING OF ANATOMY

J. Drukker[1], H. van Mameren[1], G.M. Verwijnen[2], C.P.M. van der Vleuten[3]

Faculty of Medicine, University Maastricht, [1]Dept. Anatomy / Embryology, [2]Skillslab, [3]Dept. Educational Development and Educational Research

Problem-based learning (PBL) is the central didactic strategy in the first 4 "preclinical" years of the 6 year curriculum of the Medical Faculty of the University Maastricht (MF-UM). There are as many versions of PBL as there are faculties that claim to practice this model. In the UM students use "problems" to identify gaps in their knowledge necesssary to understand the underlying functional morphological, physiological and/or pathological mechanism. Such gaps may then be made a learning objective. Solving the problem is not a primary goal. It is important that students do not formulate their objectives in terms of just factual knowledge, this being transitory, but in terms of insight into concepts. Related problems are bundled into blocks that generally take up 6 weeks. The complexity of the problems increase with the stage of the curriculum. The tutor plays a central part in guiding the educational process. Problems are almost always multidisciplinary, whereas the tutor is an expert in maximally one of them. This implies a very thorough training of the teacher.

Working on multidisciplinary problems generally leads to the identification of mono-disciplinary learning objectives. Predominantly in the first years of the curriculum, but also later, these frequently lie in the domain of Anatomy/Embryology. Thus problem orientation implies that anatomy is not studied orderly, in a systematic and/or topographic way. Interdisciplinary integration implies disciplinary desintegration. It is important therefore to have a plan that presents the medically relevant anatomical topics in terms of learning goals to be produced by the curriculum. In practice it is more difficult to define which subjects should not be taught than which should be. Such a general plan has been produced by the Nederlandse AnatomenVereniging (Netherlands Association of Anatomists). This plan is defined by the framework offered by a document, Training of Doctors blueprint 1994, produced by the 8 medical faculties in the Netherlands with participation of the Royal Dutch Medical Association, the National Organization of Clerks and the Ministry of Health.

The staging whether the subject-matter is dealt with in the undergraduate curriculum or in postgraduate education during specialist training, is a point of considerable interest. It very much depends on local circumstances, such as (supra-)national legislation.

Besides the questions **what** to teach and **when**, there is the question **how** to teach anatomy in a PBL curriculum. In principle all types of learning resources which are at hand, lectures, practicals, dissection, prosected specimens, living anatomy, all products of imaging techniques, computer assisted instruction, are feasible. Lectures are only indicated when dealing with concepts. The gross anatomy practicals lend themselves to integration with the training of clinical skills. Generally maximal teacher independency is pursued. This has led to the development of resources maximally compatible with the PBL curriculum.

Interdisciplinary testing is the logical consequence of a curriculum built up of multidisciplinary blocks. Consequently anatomical subject-matter is outnumbered in each block by other disciplines' subject-matter. This adds to a feeling of uncertainty about the quality of anatomical knowledge among teachers and students. However anatomical subtests show that there is a constant growth of anatomical knowledge (i.e. score on these tests) from the 1st up to the 6th year, similar to the score on the clinical subtest (but unlike the score for some of the other basic sciences and the behavioral sciences, which level off in the 5th year or earlier). These findings parallel those of program evaluation among students and recently graduated doctors indicating the need for increasing their anatomical knowledge before and during the final 2 "clinical" years (clerkships) of the MF-UM curriculum.

In a changing curriculum it is obligatory to have insight in the nature of its elements, possible gaps between them and in the objectives of change. The latter are to be defined as precise as possible and evaluated professionally. This implies the recruitment of educational expertise. Such evaluations demonstrate that, under the cooperation of educationalists and anatomists, student scores compare well in several respects with the score of students in non-PBL curricula.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE CERVICOTHORACOBRACHIAL OUTLET. ANATOMY ON THE LIVING SUBJECT THROUGH MODERN IMAGING

C. Fontaine, C. Brunet, X. Demondion, M. Remy-Jardin, J. P. Francke

Dept. of Anatomy, Dept. of Radiology, Medical Faculty, University of Lille 2, Place de Verdun, F-59045 Lille cedex, France

The cervicothoracobrachial outlet (CTBO) is the succession of 4 narrowings: the intercostoscalenic passage (ICSP), the costoclavicular canal (CCC), the retropectoral canal (RPC), and the humeral block. In each of them, and sometimes in several ones in the same patient, the neurovascular pedicle of the upper limb can be compressed. Today, modern imaging can assess these narrowings. Before diagnosing pathologic conditions, one needs data about imaging and dimensions of these narrowings in asymptomatic patients. As most of the pathologic conditions are dynamic and occur in particular positions (such as anterolateral elevation of the arm between 90° and 120°), a cadaveric study is inadequate and we need studies performed on living subjects by means of virtual dissection or virtual sections. We studied the modifications of the CTBO during shoulder abduction 1) bilaterally in a reference population of 20 asymptomatic subjects (15 w, 5 m) whose mean age was 35 years (22-49), then 2) unilaterally in a series of 54 symptomatic patients (40 w, 14 m) whose mean age was 40 years (20-61). We used a 1,5 tesla MRI with a body coil ; acquisitions were performed in two positions: the upper limb along the body, then at 130° of abduction, lateral rotation of the arm, flexion of the elbow, head in neutral position. 2 sequences were used : spin echo T1 and angioMR. Measurements were done by two independent examiners. Statistic analysis used Student's and Mann-Whitney's tests. We noted the following statistically significant modifications between both positions: horizontalisation of the 1st rib, narrowing of the costoclavicular passage, compression of the subclavian v. and a., retroposition of the clavicula, close contact between the subclavius m. and the subclavian v. in 17 subjects, narrowing of the RPC, thickening of the pectoralis minor m., venous compression in 20/36 + 27/52 ICSP, 22/36 + 21/52 CCC, and 11/36 + 10/52 RPC, arterial compression in 0/36 + 7/52 ICSP and 2/36 + 8/52 CCC, nervous compression with disappearance of the fat tissue surrounding the brachial plexus in 3/52 CCC.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PLEXUS BRACHIALIS VENTRAL ROOT AVULSION AND ITS REPAIR: A STUDY IN THE CAT

E. Marani, C. Holzer, C. Hoffman, R. Thomeer

Neuroregulation group, Dept.Neurosurgery, Leiden University Medical Centre, The Netherlands

This study assesed the regenerative capacity of plexus brachialis ventral roots after avulsions in the cat. Retrograde tracers, electron microscopy and electrophysiology were applied. This study can be subdivided in: avulsion of the C7 ventral root with direct reimplantation, avulsion of the C7 ventral root followed by autologous transplantation and total brachial plexus avulsions of the ventral roots followed by autologous transplantation at the levels C6, C7 and C8 and autologous graft repair was carried out imediate or with delay of one, three or six months.

The direct reimplantation of the avulsed C7 ventral root showed: HRP labelled ventral horn motoneurons were found as early as 14 days after reimplantation and the number increased with time following surgery. From day 69 onwards, electrophysiological stimulation of the spinal cervical 7 nerve on the reimplanted side elicited an EMG response in the spinodeltoid muscle. Both the latency and the treshold intensity were initially increased but equallized the non-operated controls between 98 and 122 days after reimplantation.

Autologous saphenous nerve grafts implanted into the cord at the ventral root outlet site and coaptated to the spinal nerve showed at survival times of 7,14,30 60 and 120 days respectively that neurotization of the C7 spinal nerve started between 14 and 30 days after graft implantation.

Electrophysiology provided evidence that outgrowing axons had reestablished functional contact at 120 days after implantation. Total avulsions with grafting at C6, C7 and C8 showed BDA labelling of motoneuronal perikarya and neurofilament positive axons in the grafts.

However, neurophysiological recordings never returned to normal. Only the immediately-grafted cats used the avulsed forelimb during walking, but never regained complete normal locomotion. These results strongly favor early surgical repair.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE HUMAN OOCYTE FROM FOLLICULOGENESIS TO EARLY EMBRYOGENESIS (IN VITRO AND IN VIVO). A CLINICAL EVALUATION

P. M. Motta

Department of Anatomy, University of Rome "La Sapienza", Rome, Italy

The ultrastructure of human oocyte including its vestments (zona pellucida –ZP- and cumulus oophorus cells –CC-) was reviewed during folliculogenesis, post-ovulation, assisted reproductive technology (ART) management and early embryogenesis. Fetal ovarian tissues, adult ovarian biopsies and cumulus-enclosed oocytes obtained after the informed consent of the patients were processed for transmission and high resolution scanning electron microscopy. Some samples were submitted to ODO [osmium-dimethyl sulfoxide (DMSO)-osmium] or saponin, ruthenium red and OTO (osmium-thiocarbo-hydrazide-osmium) maceration methods. Complex relationships between cytoplasmic projections of the innermost follicular cells and the oocyte during folliculogenesis are discussed and the organellar pattern (typical for steroidogenic cells) shown by CC at ovulation and IVF is described. The cumulus-oocyte/ova complex is a dynamic system composed of an heterogeneous cell population finely co-ordinated to maintain a suitable milieu for fertilisation and early embryogenesis. Leukocytes and macrophages were found in the cumulus; they may modulate steroid secretion of neighbouring CC by producing cytokines or even co-operate with spermiophagic cells in the removal of abnormal and/or supernumerary sperms. Oocyte behaviour seems closely related to metabolic activities of neighbouring somatic cells not restricted to the follicle but extending into the extraovarian microfollicular unit (EMU) formed by the oocyte and its vestments. The presence of a fully mature, healthy oocyte remains a basic requisite for procreation. Therefore, the ultrastructural evaluation of the EMU morphology through maturation until fertilisation, including early detection of eventual atretic changes could be of clinical use.

Supported by funds of MURST 1996/1999.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

RIGHT SUPERIOR SEPTAL ARTERY WITH „NORMAL" RIGHT CORONARY AND ECTOPIC „EARLY" AORTIC ORIGIN: A CONTRIBUTION TO THE VASCULAR SUPPLY OF THE INTERVENTRICULAR SEPTUM OF THE HUMAN HEART

M. v. Lüdinghausen, N. Omachi

Anatomisches Institut, Universität Würzburg, Koellikerstr. 6 D-97070 Würzburg, Germany

The right superior septal artery (RSSA) occurs mostly as a single vessel; two RSSAs have only been found in very few cases. Out of a total of 84 cadaveric specimens and 16 corrosion casts from human coronary arteries, the RSSA was found in 27% of the cases.

The RSSA arose from three different locations: a. the proximal part of the right coronary artery (21 % of the cases), b. the right coronary ostial area (4%), and c. directly from the aortic root in the right (anterior) aortic sinus (2%).

Macroscopically, most of the RSSAs had a maximum length of only 14 mm. Nevertheless, two courses could be differentiated: an extramural course with the RSSA descending to the subvalvular fibrous tissue, and an intramural course with ramification in superior parts of the interventricular septum. In two cases the RSSAs were of more substantial appearance and up to 36 mm in length, and nourished almost the entire upper third of the septal myocardium. In two further specimens (one cadaveric specimen and one a vascular cast) the RSSA originated in the lateral wall and the floor of the right (anterior) aortic sinus respectively, and was seen with the naked eye to have a length of at least 17 mm. Such long RSSAs and ectopic RSSAs with an „early" origin have – according to our knowledge of the literature – never been described before. Given the intense clinical concern with the identification of possible bypass vessels in the myocardium we believe that the RSSA may no longer be viewed just as a vessel of negligible importance but, remarkably, have a certain potential value as a natural bypass vessel, for instance in cases where there is severe coronary heart disease and occlusion of the right coronary artery. The findings were also discussed in the light of developmental and comparative anatomy.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE STRATEGY OF THE BLOOD SUPPLY TO THE VISCERAL SYSTEM IN VERTEBRATES WITH SPECIAL REFERENCE TO THE BLOOD SUPPLY OF THE MAMMALIAN HEART. THE VASCULAR ANLAGEN IN EARLY DEVELOPMENT

M. v. Lüdinghausen, N. Omachi

Anatomisches Institut, Universität Würzburg, Koellikerstr. 6 D-97070 Würzburg, Germany

In the early stages of development of vertebrates the primitive vascular Anlagen in the trunk show axial orientation and mirror-like bilateral symmetry.
The heart appears in an approximately central location; as in the case of the associated vessels its development has been of a rather symmetrical nature."
In these stages of heart development we also note an adequate and rather regular bilateral development of the cardiac sinusoid spaces, the coronary arteries, and the cardiac veins.
Later on in development, however, the separation of the vascular system into two parts, one a right or lesser (low pressure pulmonary) part, and the other a left or greater (high pressure systemic) part, takes place.
This development influences and affects both the transformation of cardiac morphology and the distribution pattern of coronary arteries and cardiac veins. In its wake, it frequently leaves behind vestiges or remnants of the former primitive Anlagen, and in addition many variable and anomalous cardiac vessels.

Vestiges of former primitive Anlagen (VFPA)

In other words, the transformation of the architecture of the heart and its vascular system proper is characterized phylogenetically and ontogenetically by a loss of uniformity and thus an increase in variability.
It is therefore both complex and exciting.
The following features apply to both vertebrates and mammalia (including humans).
1. The primarily spongeous myocardium undergoes alteration and becomes compact. In this context we observe some VFPA of irregular size and frequency in the human heart, for instance arteriosinusoidal, arterioluminal and venosinusoidal and venoluminal (Thebesian) vessels.

2. The coronary arteries are cast adrift and migrate from preferential intramural layers of the myocardium to the external or epicardial surfaces. Shorter and longer myocardial bridges or intramural courses of coronary arteries and cardiac veins constitute VFPA; frequent and long intramural courses prevent occlusive coronary heart disease.
3. The coronary arteries (formerly three or four) deriving from the aortic bulb, and the multiple arteries arising from extracardiac sources, are reduced to the familiar number of two. These two coronary arteries supply the atrial and ventricular myocardium rather inadequately. In
10 % in our cases of human hearts, 90% of the ventricular myocardium is nourished solely by one (left) coronary artery. A dominant left coronary artery is designated as an "artery of (sudden) death".
4. The formerly numerous extracardiac sources (arterial cephalic and arterial caudal group in fishes, A. apicis cordis in amphibians and reptiles, and right and left cardiacomediastinal arteries in rodentia) are diminished in number und therefore in importance in the human and developmentally suppressed. Small branches of mediastinal or bronchial arteries and veins found at the epipericardial junction and nourishing the left atrial myocardium may remain as VFPA.
5. The three main interventricular septal arteries in the heart of rodentia are reduced to two in number in most human hearts. In humans there are occasionally some VFPA, consisting of right or left superior septal arteries.
6. The relative uniformity of the cardiac vascular distribution pattern in the early development of vertebrates contrasts with an exceptional variability in the arteries and veins of the adult human heart. This variability is only reminiscent of the VFPA in rare cases.

Variable and anomalous cardiac vessels
Variability and anomaly of the coronary arteries

A. Ostial anomalies of the coronary arteries.
B. Variations and anomalies of the atrial and ventricular distribution pattern of coronary arteries.
C. Extreme right or left coronary preponderance.
D. Irregularities of the supply of the nodes of the conduction system.
E. The numbers and function of intercoronary bypass collaterals and intracoronary anastomoses.
F. The numbers and function of non-coronary and extracardiac arterial anastomoses.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

The greater and the lesser cardiac venous system

A. Irregularities in the distribution pattern of cardiac veins and sinuses.

B. Variability of the ostial valves of the coronary veins and of the coronary sinus.

C.The venous drainage of the atrial myocardium.

Remarks

Vertebrates and mammalia are able to exist well despite their vascular variations and anomalies. Only human beings succumb to certain vascular diseases, such as obstructive atherosclerosis of the cardiac vessels. Not only genetic and environmental factors but also the variability and anomaly of cardiac vessels favour the development and severity of such a disease. Therefore, we can designate morphological factors as having both positive and negative actions and influences.

Clinically, it is well- known that the results of individual development and distribution patterns of cardiac vessels have a profound affect on health, quality of life and longevity.

Lack of knowledge of the detailed macro- and microanatomy of the human heart and its vessels may lead to the failure of an invasive diagnostic method such as catheterisation of the coronary arteries, the coronary sinus, and selectively, of the cardiac veins.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PROBLEM BASED LEARNING IN ANATOMY

R. Putz, F. Eckstein

Institute of Anatomy, Ludwig-Maximilians-Universität München, Pettenkoferstraße 11, D-80336 München

The enormous expansion of knowledge in all fields of medicine has made it necessary to question the value of traditional teaching tools in medical education. On the one hand, basic sciences have to keep their position as a key for successfull work in every speciality. On the other hand, the students have to be brought into contact with clinical applications as soon as possible with respect of an economical time approach and to enhance motivation. Furthermore, the explosion of scientific knowledge forces young people to become prepared for life-long learning.

Because of these reasons, more and more medical schools have begun to change their curriculum totally or have started to introduce new teaching methods. One of the most successfull methods is well known as "problem based learning" (PBL) which has been developed at McMasters in Canada and has been adapted and developed further in many other places. Today PBL is on a flush of victory all over the world.

This contribution tries to weigh carefully the impact of this new method with respect to the field of basic sciences. In particular, the possibility of the integration of both the advantages of the new educational approach and a systematical overview of anatomy will be outlined. This will be demonstrated, taking the neuroanatomy course as an example.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ADIPOTOPIC APPROACH FACING CELL BIOLOGY OF DISEASE

I. Stankulov*, M. Hristova, M. Fiore***, D. Toncheva*, V. Triaca***, P. Ghenev*, S. Balev*, E. Konova+, P. Petrova+, Y. Koeva++, M. Davidoff+++, S. Kovachev*, P. Pavlov*, L. Koeva*, L. Aloe***, G. Chaldakov***

**Depts of Forensic Medicine, Image Diagnosis, Pathology, and Endocrinology, Medical University, Varna,*
***Municipal Hospital Asparuhovo, Varna,*
****Institute of Neurobiology, CNR, Rome, Italy,*
+Center of Clinical Immunology, Medical University, Pleven,
++Dept of Histology, Medical University, Plovdiv, and
+++Institute of Anatomy, Hamburg University, Hamburg, Germany

This is an exciting time in the study of adipose tissue-secreted molecules (adipokines) and their implication in the cell biology of various diseases. Here results of our ongoing studies on human coronary atherosclerosis (HCA) and hypothalamic metabolic syndrome (HMS) are presented. In HCA, we examined subepicardial and pericardial adipose tissue and pericardial fluid samples obtained from autopsies, using various methods, histochemical (for mast cell counting), immunohistochemical (for nerve growth factor [NGF], p75NGF receptor, brain-derived neurotrophic factor, and neurotrophin-3 expression), and ELISA (for NGF and antiphospholipid antibody levels). In patients with HMS, visceral and subcutaneous adipose tissues were analyzed by computer axial tomography, whereas abdominal adipose tissue samples obtained from biopsies by histochemical methods; correlatively, serum levels of leptin, a multifunctional adipokine, and number/typing of blood lymphocytes were evaluated. Altogether, we aimed at elucidating a possible involvement of adipose tissue in the development of both HCA and HMS. We call this the adipose tissue-directed (adipotopic) approach in the study of cell biology of disease. Its interdisciplinary pursuit may be rewarded.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

COMPARISON OF THE MECHANICAL STIFFNESS AND MORPHOLOGY OF SELECTED HUMAN ORGANS

J. Stingl[1], J. Kovanda[2], V. Volak[3], V. Baca1, D. Kachlik[1], J. Rejmontova[1]

[1]Dept. of Anatomy, Charles University, 3rd Medical Faculty, Ruska 87, 100 00 Prague 10, Czech Republic
[2]Traffic Faculty, Czech Technical University, Konviktska 20, 110 00 Prague 1, Czech Republic
[3]Motor Vehicle Research Institute Ltd., Lihovarska 12, 180 00 Prague 9, Czech Republic

During the car crashes, the abdominal injuries belong to the most serious consequences from the point of the protection of passengers. In the frame of the EUREKA grant and that of the Research Goals of 3rd Medical Faculty of Charles University, the aim of the study was to improve some of the existing restraint systems of the passive safety of car passengers. The presented study deals with the combined research oriented on the mechanical stiffness of human liver and spleen, compared with their morphological structure.

Mechanical stiffness was studied with tearing machine on organs obtained from fresh and embalmed cadavers (three age groups, individuals of both sexes), the morphological structure of liver and spleen capsules was studied after embedding into Epon on semithin and ultrathin sections in both light and electron microscope, the results obtained were evaluated morphometrically.

The preliminary results show the dependence of the mechanical stiffness of organ capsules (5 - 15N) on their thickness, without a significant relationship between the age and sex of individuals studied. The results are compared with the values of sled tests on dummies, and with real clinical case.

Possible recommendations for improvement of future construction of restraint systems are discussed.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

NEOPTERIN – A LABORATORY DIAGNOSTIC PARAMETER TO MONITOR IMMUNE SYSTEM ACTIVATION IS ALSO AN INDICATOR OF OXIDATIVE STRESS

B. Widner, B. Wirleitner, G. Baier-Bitterlich, D. Fuchs

Institute of Medical Chemistry and Biochemistry, Leopold Franzens University, Fritz Pregl Strasse 3, A-6020 Innsbruck, Austria

Increased amounts of neopterin are released from human and primate monocytes/macrophages when activated by the cytokine interferon-g. The determination of neopterin concentrations in body fluids thus allows the monitoring of cell-mediated (= Th1-type) immune response, and it turned out to be useful (1) to predict disease progression in patients with HIV infection and in patients with malignant tumor diseases, (2) to detect allograft rejection in transplanted patients early, and (3) to monitor treatment in, e.g., autoimmune diseases. Physicochemical and in vitro experiments show that neopterin derivatives are capable of interfering with several reactive oxygen, chlorine and nitrogen species: E.g. neopterin was found to enhance nitration of tyrosine by peroxynitrite. In cell cultures neopterin derivatives can activate redox-sensitive signal transduction pathways, e.g, the translocation of nuclear factor kB, the gene expression of inducible nitric oxide synthase and tumor necrosis factor alpha. In contrast, the expression of the erythropoietin gene is suppressed by neopterin in vitro and in an animal model system. These observations are supported by associations found in various patients groups between increased neopterin concentrations and decreased hemoglobin levels. From the data we conclude that neopterin is an indicator of oxidative stress elicited during activation of cell-mediated immune reaction.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

HISTOCHEMICAL AND ULTRASTRUCTURAL EVIDENCE FOR PREADIPOCYTES PRESENCE IN THE ADIPOSE TISSUE OF THE NEWBORN BABIES

P. Atanassova, Popova L.

Dept. of Histology-Embryology, Higher Medical Institute, Plovdiv, Bulgaria

The aim of the present work was to investigate the morphology of the adipose tissue of newborn babies. Fragments of the subcutaneous adipose tissue of newborn babies were studied histochemically (Sudan III staining for lipid demonstration) and electronmicroscopically.

The specific Sudan III-hematoxyline staining showed that the adipose tissue in the subcutis of the newborn babies consisted of packets of well differentiated unilocular fat cells. Among them some multilocular cells (smaller in size, with several lipid droplets-different in size and number, and with a centrally located nucleus) could be seen. The electronmicroscopical observations revealed that the multilocular adipose cells possessed several different in size lipid droplets, a small amount of glycogen granules, well developed endoplasmathic reticulum (the smooth form prevailing) with dilated cysternae and a lot of mithochondria, most of which elongated with transversal densely packed cristae.

The results obtained suggest that among the mature unilocular adipocytes of the subcutaneous adipose tissue of the newborn babies there are preadipose cells that have not yet finished their maturation and that under some internal and external stimulation can give rise to new mature unilocular fat cells. These data may contribute to the pathogenesis of the obesity during early childhood.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ANATOMICAL AND CLINICAL PREDISPOSITIONS FOR USING OF PLASTIC MATERIAL AT GROAN HERNIA OPERATIONS

B. Belchev*, Stavrev D., Nikolov S.

Department of Anatomy, histology and embryology, Medical University of Varna, 55 M. Drinov Str., 9002 Varna, Bulgaria
**Department of Surgery, Regional Hospital, 24 P.Hitov Str., 9300 Dobrich, Bulgaria*

Direct inguinal hernias are more often occurred among males advanced in years than among females and other ages. This is because of degenerative changes of the inferior abdominal wall, which concern supporting characteristics of fascia transversalis.

With this research our purpose was to make valuation of morphological characteristics of f. transversalis among old men. Material of fascia transversalis, taken during direct hernia surgical intervention was searched. The material was evaluated macro- and microscopically. It was established unrarely density and arrangement of colagenic fibbers. Disorganization of connective tissue structure of f.transversalis makes the last one unsuitable as plastic material for supporting inferior abdominal wall.

We offer synthetic man-made fibbers–ampoxen, because of its mechanical characteristics, antimicrobical effect and good acceptation of organism.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

MUSCULAR FLAP WITH M. GLUTEUS MAXIMUS IN THE TREATMENT OF SACRAL AND TROCHANTERIC DECUBITUS WOUNDS

D. Boshnakov

Clinic of Orthopaedic and Traumatology, Medical University of Varna, 55 Marin Drinov Street, BG-9002 Varna, Bulgaria

Covering the sacral and trochanteric decubitus wounds represents a difficult task and the failure is the most common outcome. Thin skin and subcutis over the osseous prominence of the sacral bone and trochanter becomes rapidly ischemic due to the long-lasting lying patient's position. The muscular transfer of m. gluteus maximus vascularized with pedicles on proximal or distal basis is recently considered an advanced treatment of the decubitus.

The purpose of the present paper was to reveal the opportunities of the modified technique of the musculocutaneous flap incorporating splitted parts of m. gluteus maximus. This method was applied in 8 patients aged between 48 and 74 years. There were six males and two females. Five patients presented with sacral and three patients - with trochanteric defects. The method of the musculocutaneous transfer was described in detail. All the flaps survived. The advantages of this technique and some complications were discussed.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

RENAL EXCRETORY SECTORS (RES) ARE THE BASE FOR PARTIAL RESECTION

M. Burykh

Dept. of Operative Surgery and Topographic Anatomy, Kharkiv State Medical University, Av. Lenine 4, 61022, Kharkiv, Ukraine

The anatomy is the vulnerable aspect in endourological operations and partial resections. There are still such complications as haemorrhage and renal infarctions as well as an extravasation of urine through a nephrostoma and urine fistules.

1094 normal and 18 abnormal (with duplication of ureter) human kidneys were studied by the corrosion method and pyelography with the following topometric and mathematics analyses.

It was stated that in fact the renal pelvis is a calicopelvic complex (CPC) built up of renal calyces (RC), urine ducts (UD) and renal pelvis (RP). To open into the RP, RC are joined together forming UD (superior and inferior or superior, middle and inferior; or superior, middle anterior, middle posterior and inferior) which transport urine to container – RP. One can see that groups of RC with pyramids and surrounding them cortical substance form RES of the kidneys where processes of uropoesis and transportation of urine through elements of nephrone and CPC take place. These are two (superior and inferior) or three (superior, middle and inferior), or four (superior, middle anterior, middle posterior and inferior) RES. The existence of RES is proved by such congenital anomaly of CPC as duplication of ureter where UD of superior and inferior RES don't form RP but they run to the urinary bladder separately. On the basis of obtained anatomical data, RES may be distinguished as analogous to bronchopulmonary segments in lungs. The suggested data about RES will contribute to further improvement in operative technique of renal partial resections as well as to anatomical nomenclature.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

MR IMAGING DETERMINATION OF THE NORMAL LEVEL OF CONUS MEDULLARIS

D. Demiryürek, Aydýngöz U., Akþit M. D., Yener N., Geyik P. Ö., Önderoðlu S.

Depts. of Anatomy, Biostatistic and Radiology, Hacettepe University, Faculty of Medicine, 06100, Ankara, Turkey

The purpose of this study was to develop a statistical basis for determining the range of the location of the conus medullaris in a live adult population by reviewing a large series of MR images and to determine whether these locations differ from the results of previous cadaveric and living subject studies.

The location of conus medullaris according to age and sex was evaluated with a 0.5 T MR imaging system. A total of 639 subjects (296 males, 343 females) without any conspicuous spinal canal pathology on the lumbar MR imaging examination were selected. The apex of the conus was used to describe its location within the vertebral canal. A perpendicular line to long axis of spinal cord was used to locate the conus level and define the relation with the adjacent vertebrae. The vertebral body was divided into three equal parts (upper, middle, lower one-thirds, U1/3, M1/3, L1/3, respectively) and the intervertebral disc was accepted as a separate region. For statistical analysis, the anatomical level determined for each conus was given a number; two-sample Kolmogorov-Smirnov test and likelihood ratio tests were performed.

We found the conus was located mostly at L1-L2 intervertebral disc space (20.41%) for female, T12-L1 intervertebral disc space (28.04%) for male and T12-L1 intervertebral disc space (22.38%) for whole population. A total of %35.06, the conus were located between T12-L1 intervertebral disc space and L1 upper third vertebra. There was a significant statistical difference in conus medullaris level between male and female study group (Kolmogorov-Smirnov $Z=1.983$, $p<0.01$). There was no significant difference in conus medullaris level related to increasing age (Likelihood ratio=54.33, $p=0.386$) .

It is important to know the possible range for conus medullaris level while determining the pathological termination of spinal cord, when performing lumbar puncture and to avoid complications after surgical operations to the lumbar region.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

STIMULATION ELECTROMYOGRAPHY AS A METHOD FOR INTRAOPERATIVE LOCALIZATION AND IDENTIFICATION OF THE RECURRENT LARYNGEAL NERVES DURING THYROID SURGERY: REVIEW OF 21 CONSECUTIVE THYROID SURGERIES.

R. Dimov, Doikov I.*, Denitchin G., Jovchev I.*, Mitov F., Mandev **, Osman A., Ali M., Molov V., Ivanov E.

III-rd Surgical Clinic, Department of General Surgery, Higher Medical School, Plovdiv, Bulgaria
** Department of ENT Disease, Higher Medical School, Plovdiv, Bulgaria*
*** Department of Anesthetics and Intensive Care, Higher Medical School, Plovdiv, Bulgaria*

Introduction: The iatrogenic injury of the recurrent laryngeal nerves during the operations of the thyroid gland remains one of the main problems affecting postoperative treatment and costefectivenes of the thyroid surgery. Besides voice change the bilateral vocal cords paralysis leads to lifethreating status because of respiratory deficiency. According to leading authors in the medical literature this complication affects about 1 to 12 % of the patients underwent thyroid surgery and depends on kind of operation, diagnosis, surgical skills and experience.

Material and methods: The authors have analyzed localization and identification of 37 nerves in 21 patients who underwent thyroid surgery between 15.02.2000 and 15.05.2000 at III-rd Surgical Clinic, Department of General Surgery and Department of ENT, Higher Medical School, Plovdiv, Bulgaria. The nerve integrity monitor Neurosign 100 and specially designed EMG electrodes of Magstim Company Limited, Wales, UK was used. The patients were pre- and postoperatively checked for vocal fold paralysis by ENT specialist.

Results: In all patients stimulation electromyography of the recurrent laryngeal nerves was successful used to locate, identify and evaluate the integrity of the nerves during and at the end of the operations. No postoperative recurrent laryngeal nerve damage was detected clinically.

Conclusions: Results indicate that the identification of the RLN – s by electromyography is a safe, effective and simple method for electrophysiologic monitoring during thyroid surgery. This method allows the assessment of neural integrity at the end of the procedure.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

STIMULATION ELECTROMYOGRAPHY AS A METHOD FOR INTRAOPERATIVE LOCALIZATION AND IDENTIFICATION OF THE FACIAL NERVE DURING PAROTIDECTOMY: REVIEW OF 11 CONSECUTIVE PAROTID SURGERIES

I. Doikov, Jovchev I., Dimov R.*, Ivanov E.*, Batawil O.*

**III-rd Surgical Clinic, Department of General Surgery, Higher Medical School, Plovdiv, Bulgaria;*
Department of ENT Disease, Higher Medical School, Plovdiv, Bulgaria

Introduction:

It has been widely recognized that one of the major risks of operating in the parotid gland, primarily during tumor resection, is the danger of injury to the facial nerve. Facial nerve monitoring has gained wide attention for otologic and neurotologic procedures to aid in the location and preservation of the facial nerve within the temporal bone.

Material and methods:

The authors have analyzed localization and identification of 11 nerves in 11 patients who underwent parotid gland surgery between 15.11.1999 and 15.05.2000 at Department of ENT, Higher Medical School, Plovdiv, Bulgaria. The nerve integrity monitor Neurosign 100 and specially designed EMG electrodes of Magstim Company Limited, Wales, UK was used.

Results:

In all patients stimulation electromyography of the facial nerve was successful used to locate, identify and evaluate the integrity of the nerves during and at the end of the operations. No postoperative facial nerve damages was detected clinically besides two cases in which the inferior branch of the nerve was infiltrated from cancer of the gland.

Conclusions:

Results indicate that the identification of the facial nerves by electromyography is a safe, effective and simple method for electrophysiologic monitoring during parotid gland surgery. This method allows the assessment of neural integrity at the end of the procedure.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CONGENITAL ANOMALIES OF THE KIDNEYS: IN SAME FAMILY MEMBERS

H. Erdil [1], Çimen M. [1], Acemoğlu M. [2], Erdil, S. [3], Perçin F. [4]

[1] *Dept. of Anatomy, Cumhuriyet University, TR-58140, Sivas*
[2] *Dept. of Pediatry"Cumhuriyet University Hospital", TR, Sivas*
[3] *Dept. of Urology, "Cumhuriyet University Hospital", TR, Sivas*
[4] *Dept. of Genetic, Cumhuriyet University, TR-58140, Sivas*

Any anomalous organ is twenty times more prone to pathologic complications than a normal one. Congenital anomalies occur more frequently in the kidney than in any other organ.

A ten-year-old girl was admitted to hospital with complain of the frequent abdominal pain and chronic urinary tract infection. An intravenous pyelography (IVP) showed right pelvic renal ectopia. Also physical examinations were made and with getting permission of all the family, they were taken under the control. A six-year-old brother showed left crossed renal ectopia with fusion besides retractile testis and partial syndactili between 3. and 4. phalanges. Father showed only bifid renal pelvis on IVP. There were no any anomaly with mother and big brother of the family. Hence the whole family checked as the genetical evidence. It has been expressed that 10% of the normal renal pelvis is the form of as bifid renal pelvis. It has been accepted of the variant of normal. Incdences of crossed renal ectopia with fusion and simple renal ectopia has been reported to be in every 5000 IVP and 1:1004 respectively. It has been noted that children with a gross deformity of external ear associated with ipsilateral maldevelopment of the facial bones are apt to have a congenital abnormality of the kidney like ectopy. In patients with both renal ectopia and fusion, 78% have extraurologic anomalies and 65% exhibit other genitourinary defects. Congenital ectopic kidney may causes complications such as ureteral obstruction or infection develop. In addition most patients with fused kidneys in some cases may develop ureteral obstruction. Infection is apt to occur if ureteral obstruction and hydronephrosis or calculus develop. Since congenital anomalies of the kidney has a great clinical importance, especially in chidhood, it needs to investigate not only anatomically but also urologically and genetically.

We aimed in this study is to make clear exact anatomical description of the congenital anomalies of the kidney besides association anomalies with them. We also examined the family urologically and genetically to

clarify wherther it is isolated kidney anomaly or hereditary and were compared with other related articles.

PREVALENCE OF PULMONARY AND TRICUSPID VALVULAR REGURGITATION IN CLINICALLY HEALTHY YOUNGSTERS

Sv. Georgiev, Sirakova V., Yotov Y.

Department of Cardiology and Rheumatology, Medical University - Varna, 55 Marin Drinov Str, Varna 9002, Bulgaria

Aim: To explore the prevalence of the tricuspid and pulmonary valvular regurgitation in young healthy people.

Material and methods: The study population is 225 young people (87 females and 138 males) at a mean age 23,3+/-2,4 (18 - 31) years and with a mean body mass index (BMI) of 22,9+/-3,1 (17,0 - 34,1) kg.m-2. The pulmonary and the tricuspid blood flow are evaluated by the means of a transthoracic colored Doppler under a PW-Doppler and B-mode echocardiography control. When a systolic tricuspid and pulmonary blood flow are found in anatomically intact valves, these flows are evaluated using the method of the maximal area of the color coded regurgitate Doppler flow.

Results: Sixty young people - 26,7% (30 females - 34,4% and 30 males - 21,7%), have hemodynamically insignificant tricuspid valve regurgitation with a mean maximal area of the color regurgitant flow 105+/-50 mm2 while 38 participants - 16,9% (12 females - 13,8% and 26 males - 18,8%) have hemodynamically insignificant pulmonary valve regurgitation with a mean maximal area of the regurgitant blood flow 80+/-35 mm2. The physiologic hemodynamically insignificant tricuspid valve regurgitation is more prevalent in the young females (p=0.031). The partial correlation analysis shows weak but significant inverse correlations between the BMI and the physiologic tricuspid valve regurgitation (r=-0.23, p=0.012) as well as between the age of the participants and the physiologic pulmonary valve regurgitation (r=-0.17, p=0.012).

Conclusions: The physiologic pulmonary valve regurgitation is equally frequent in both sexes and is with a trend of decrease with age. The physiologic tricuspid valve regurgitation is more prevalent in people with lower BMI and in the young healthy females. Hypothetically, the higher frequency in young women may be connected with the greater elasticity of the heart structures an adaptive mechanism to the larger circulatory volumes during pregnancy.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

COLLAGEN SKELETON OF THE HUMAN PLACENTAL VILLI AT TERM

V. Goranova, Vizza E.*, Correr S. *, Motta P. M. *

*Department of Anatomy, Histology and Embryology, Medical University, 55 M. Drinov Str., BG - 9002, Varna; *Institute of Human Anatomy, University of Rome "La Sapienza", via A. Borelli 50, I - 00161, Rome*

The purpose of the present study was to describe the spatial organization of the collagen fibrillar network in normal mature human placental villi, 40th week of gestation, using a maceration technique with NaOH followed by scanning electron microscopic observation. The collagen fibrils form a continuous skeleton within the whole villous system of the placenta connected with the chorionic and basal plates. Its configuration corresponds to the general morphology of the villous trees and represents their exact model.

Stem villi (trunci chorii, rami chorii, ramuli chorii and anchoring villi) contain considerable amounts of collagen fibrils. On the villous surface they run longitudinally, whereas inside the villous stroma around the vascular lumens of fetal vessels they show a circular arrangement. The fibrils are organized in thin communicating lamellae or small bundles with parallel course. Within the collagen skeleton of stem villi little holes for paravascular capillaries are observed. The villous core of the mature intermediate and terminal villi show highly reduced amounts of collagen fibrils. They are arranged in a very thin circular layer surrounding numerous holes where dilated capillaries and sinusoids are located. Small areas deprived of collagen fibrils are present on the surface of some terminal villi, probably specialized sites of epithelial plates.

The normal appearance of the collagen skeleton in the placental villi is of great importance for the mechanical sustaining of the chorionic vessels and trophoblastic covering. The reduced amount of collagen fibrils in terminal villi contributes additionally for the effective feto-maternal exchange.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CROSSECTOMY IN CASES OF LOWER LIMBS VARICOSE VEINS. HOW TO AVOID MISTAKES AND RISKS?

V. Knyazhev

Vascular Surgery Clinic, MU – Varna, 55 Marin Drinov Str., 9002 Varna

One of the most common reasons for the Trojanov-Trendelenburg operation to not be sufficiently radical when performing varicophlebectomy are the remaining outside the v.saphena magna (VSM) ligature v. interna posterior (PIV) and v. pudenda externa profunda (DEPV), which flow into its posterointernal surface.

They are little known to surgeons although they are found in 25-40% of the cases (Dodd, Cockett).

Since 1973 we have used in over 600 cases of varicose veins a simple method, allowing us to avoid mistakes and risks when ligating VSM. After identifying VSM in the operative field it has been cut between two ligatures. By raising and pulling its proximal segment optimal visualization of the terminal part can be achieved. All branches, flowing into VSM or v.femoralis, are well exposed.

We determined PIV or DEPV in 122 patients (20.3%). The described above method permits increase of the operation radicalism and decrease of the possible lesions of major vessels in this region.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE ROLE OF ANDROGENS IN THE REGULATION OF HUMAN LEYDIG CELLS- IMMUNOCYTOCHEMICAL EVIDENCES

Y. Koeva

Dept. of Histology and Embryology, Medical University, V. Aprilov Str. 15A, BG-4000, Plovdiv

To clarify the possible participation of androgens in the regulation of human Leydig cells, immunocytochemical localization of testosterone and androgen receptor (r) was studied.

Testes taken from patients aged between 54- 86 years were obtained after orchidectomy as a consequence of treatment of prostatic cancer.

Using highly sensitive amplifying immunocytochemical technique testosterone and androgen (r) were localized in human Leydig cells. Positive for the examined antigens were also some of the Sertoli cells.

The results obtained demonstrate immunolocalization of testosterone and androgen receptor in the Leydig cells of the human testis and indicate that the androgens are involved in the auto-and/or paracrine control of their functional activity.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

LOCALIZATION OF ESTROGEN RECEPTOR-α AND β MRNAS IN THE DEVELOPING MALE AND FEMALE MOUSE FOREBRAIN AND MIDBRAIN BY NON-RADIOACTIVE IN SITU HYBRIDIZATION

N. Lazarov[1], Beyer C. [2]

[1]*Department of Anatomy, Faculty of Medicine, Thracian University, Stara Zagora, Bulgaria*
[2]*Department of Anatomy and Cell Biology, University of Ulm, Ulm, Germany*

Estrogen plays an important role during neural development by affecting cell survival and morphological/functional differentiation of neurons. Generally, estrogen transmits its effects at the cellular level through activation of nuclear estrogen receptors (ERs) which can be divided in two subtypes termed ER-α and ER-β. In the present study, we have analyzed the distribution of both ER types in the early postnatal mouse forebrain and midbrain by non-radioactive in situ hybridization (ISH). We used digoxigenin (DIG)-labeled oligonucleotides (45-mers) as probes. The labeled hybrids were detected by immunohistochemistry using an alkaline phosphatase-coupled DIG antibody. Both types of ER are expressed in the early postnatal forebrain and midbrain, albeit in different cell groups. In the forebrain, ER-α mRNA expression was found throughout the mouse cortex, striatal complex and hippocampus. Strong signals were also detected in the hypothalamus/preoptic area. In the midbrain, ER-α message was present colocalized with dopaminergic neurons of the substantia nigra and ventral tegmental area. Concerning ER-β expression, transcripts were clearly visible within the striatum with a relatively higher density in the putamen compared to the nucleus caudatus. Intense ISH signals were also evident within the hippocampal formation. Except for a faint signal in the ventrally located mesencephalic dopaminergic cell groups, ER-β appeared to be moderately expressed in the magnocellular part of the red nucleus. No significant differences in the distribution and intensity of the ER mRNA positive cells were observed. These results clearly demonstrate the widespread distribution of both ERs in the developing mammalian brain and precisely pinpoint their colocalization with dopaminergic neurons in the midbrain as well as their presence in the striatum. The data further suggest that estrogen, signaling through ER-a, can act as a potential developmental signal for midbrain dopamine neurons.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

A FOLLICULAR OR DENTIGEROUS (TOOTH CONTAINING) CYST IN THE PREMAXILLA OF AN OTHERWISE TOOTHLESS OLDER MAN

M. v. Lüdinghausen

Anatomisches Institut, Universität Würzburg, Koellikerstr. 6 D-97070 Würzburg, Germany

A unilocular follicular or dentigerous cyst (FDC) with a diameter of 12 mm was found incidentally in the premaxilla of a 65-year-old man through a midsagittal section of the head.

The linging coat was pinkish in colour and granular. The osseous walls of the cyst had a thickness of less than 1 mm. In the floor of the cyst there was a slender, complete incisor tooth, fully developed and fixed in a transverse position. The alveolar processes of the deceased were completely devoid of teeth.

Postmortem computer tomography showed the cyst in an osteolytic lesion of the premaxilla containing the tooth in its transverse position and gave an indication of how it would have appeared during his lifetime.

Postmortem histology revealed that the cyst is lined with non-keratinizing stratified squamous epithelium supported by dense connective tissue.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

WEIBEL-PALADE BODIES IN MYOCARDIAL CAPILLARY ENDOTHELIAL CELLS? THE PURPOSE OF THEIR OCCURRENCE

J. Milin[1], Stojsic Dj. [2], Benc D. [2], Sakac D. [2]

[1]*Department of Histology and Embryology, Medical Faculty, N. Krusevac bb, YU-81000, Podgorica*
[2]*Cardiology Clinic, Institute for Cardiovascular Diseases, YU-21000, Sremska Kamenica*

Weibel-Palade bodies (the storing on Willebrand factor which mediates the adhesion of platelets to an exposed subendothelium and promotes a platelet plug at the site of a vascular injury) are not common for myocardial capillary endothelial cells; therefore their occurrence in essential hypetension, as well as dilatative cardiomyopathy raises the question of their physiological/ pathophysiological significance. Since hypertension may act as a risk factor of thrombotic stroke by affecting the factor involved in the coagulation process, an increase of plasma levels of von Willebrand factor associated with a transmural myocardial infarction and a visible angiographic intracoronary thrombus, indicates that the occurrence of Weibel-Palade bodies in the endothelial cells of the capillary with a wide lumen could be understood as a sign of a treatening capillary brokedown and blood outflow, related to the rise of a blood pressure. Similarly, the occurrence of Weibel-Palade bodies in the degenerating endothelial cells of the capillary in progresive dilatative myocardiopathy could be associated with the prevention of blood ouflow second to capillary breakdown. In the light of such an interpretation, the presence of the Weibel-Palade bodies may be rather regarded as a physiological reactive event in the pathological circumstances threatening by capillary breakdown, than a generally accepted marker of capillary endothelial cells damage.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE TRANSVERSE PART OF THE CRUCIFORME LIGAMENT

R. Putz*, Moriggl B. *, Ralphs J.R. , Benjamin M. **, Milz S. ***

** Inst. of Anatomy, LMU, Pettenkoferstraße 11, D-80336 München,*
*** Anatomy Unit, School of Biosciences, University of Wales, Cardiff CF1 3UK*

The cruciforme ligament is a well known structure covering the dens axis and protecting the cervical spinal cord in extreme positions. But it is not really clear what the functional role of the transverse part of this ligament is. Is it a tensional brace for the atlas or keeps it the dens in the anterior fovea of the atlas?

For this reason 8 specimen were investigated using Immunohistochemical methods in respect of the presence of some significant macromolecules: collagen I, II, C6S, aggrecan and link protein.

It could be shown that the main part of the ligament consists from collagen I that is the characteristical expression of an adaptation to tensional stress. At the entheses and in the anterior and central part of the ligament we found a continous, sickle-shaped area containing aggrecan, link protein and collagen II. This moleculs are interpreted as indicators of local mechanical pressure.

The conclusion is, that the transverse part of the cruciforme ligament plays a twofold functional role both as a tensional brace as well as a retractor of the dens. Furthermore, the local concentration of aggrecan, link protein and collagen II which are preferred autoimunological target makes it understandable that rheumatological processes have such devastive consequences especially in this region.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ACTION SPECIFICITY OF SOME NEURULATION STIMULATORS

V. Radeva, Lalkov I.*

Department of Defectology, Sofia University "St. Kliment Ohridsky", Shipchensky prohod 69A, BG 1574, Sofia
** Department of Pathology, Medical University of Sofia*

The stimulatory effect of some embryoactive factors as NGF, Thymosin fraction five (TF5), Noradrenaline (NA), Substance P (SP) and ionizing radiation on the process of newt's neurulation is investigated. The result of the observation suggest ideas about the action speicficity of applied factors on cell differenciation during neurulation. While NGF, TF5, NA and SP provoke an morphological expression of increased apical endocytosis (great number of protrusions and invaginations of apical plasmalemma), the ionizing radiation bring about well visible glycocalix on the plasmalemmal protrusions and invaginations as well as numerous vacuoles full of reticulum like dense substance.

In cell nuclei after treatment with NGF and TF5 a pronounced hypertrophied reticular nucleoli without perinucleolar chromatin and abundant perichromatin granules including asteroid ones are observed.

The granular reticulum appear very early (before nerve tube closure) under influence of NGF, SP and ionizing radiation demonstration some peculiar forms: large delatations (NGF), parallel horse-shoe cisternae (SP).

The Golgi complex is markedly hypertrophied with short dilatated cisternae and munerous vesicles after treatment with NGF and with exclusively elongated under ionizing radiation.

The mitochondria are polymorphic, ring-shaped and with elongated cristae under action of NGF.

The intercellular contacts in neural plate superficial cell layer after treatment with TF5 increase in number, and in some cases have a form of interdigitations. NGF provoke great number of gap junctions mainly in deepest cell layers as well as early appearance of synapses (just after neuroblaste differenciation in newly formed neural tube). At the same time appear abundant non-synaptic contacts between neuroblasts and spongioblasts.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

QUANTITATIVE STUDY OF MOTOR TARGET REINNERVATION AFTER FACIAL NERVE REPAIR IN CATS

R. K. Romansky[1], Popratiloff A. S. [2], Usunoff K. G. [1], Angelov D. N. [2]

[1]Department of Anatomy, Medical University Sofia, G. Sofijski Street 1,BG-1431, Sofia
[2]Institut für Anatomie der Universität zu Köln, Joseph-Stelzmann-Str. 9, D-50931 Köln, Germany

A major reason for the poor functional recovery after motor nerve surgery is the misdirected re-innervation of targets: the regrowing axons get once misrouted along false endoneural tubes towards improper muscles. Second, each transected axon regrows supernumerary daughter branches which innervate different muscles and impair their coordinated activity. Whereas both ways of misdirection have been elucidated in rats, little is known about the post-transectional axonal regrowth in cats. 12 cats were divided in 2 groups, each of 6 animals. In group 1, the upper facial branch was transected and labeled by crystals of DiI (Molecular Probes). The lower branch was also transected and labeled by crystals of Fast Blue (FB; EMS-Chemie GmbH). In group 2, identical labeling was performed 3 months after transection and suture of the facial trunk. Perfusion fixation and sectioning followed. Digital images of DiI-labeled motoneurons were used to create "masks" which were superimposed over the FB-labeled cells. All motoneurons labeled by FB, DiI and double-labeled by FB+DiI could be identified and counted. In group 1 (intact cats), the upper facial branch contained the axons of 3457±1158 DiI-labeled motoneuons (mean±S.D., n=6) in the dorsal facial subnucleus; other 1915±657 FB-labeled motoneurons in the lateral and ventrolateral subnucleus projected into the buccal branch. No double labeled cells were ever observed. Three months after transection and suture of the facial nerve trunk (group 2), the upper facial branch contained the axons of 3083±346 DiI-labeled motoneurons and the buccal branch of 1276±338 FB-labeled cells some of which were scattered outside the typical areas of origin in the facial nucleus. The occurrence of 308±125 double-labeled perikarya (DiI+FB) showed that about 7% of the axons in the upper branch projected also in the buccal branch. Since the portion of motoneurons projecting simultaneously in two nerve branches in cats is significantly smaller than the value in rats (appr. 30%), we conclude that the axonal branching in cats (and probably also in

humans) is promoted by molecular mechanisms and guidance cues which are different from those in rats.

GEPHYRIN IMMUNOREACTIVITY IN THE FACIAL MOTONEURONS: EFFECT OF MOTOR TARGET DEPRIVATION ON IT'S EXPRESSION

R. Romansky, Kaimaktschieff V., Streppel M. *, Popratiloff A. *

*Department of Anatomy and Histology, Medical University, 1431 Sofia, *Institute of Anatomy I, University of Cologne*

Gephyrin is 93kD protein, considered so far as important for anchoring of glycine receptor beta subunit to the postsynaptic membrane. Recent direct evidences suggest its role in the anchoring of the gama subunit of the GABA A receptor as well. It appears therefore that gephyrin plays significant role in the saturation of the majority of the ionotropic inhibitory receptors at the postsynaptic site. In a previous study we have reported different modes of gephyrin expression by nuclei of the mesencephalon and rostral pons of the rat, suggestive for the different role this protein might play. In this study we characterise the expression of gephyrin by the normal facial motoneurons and by facial neurons with deprivation from their target in the rat.First we used combined immunocytochemistry (ICC) for GAD and gephyrin to prove or reject that gephyrin co-localizes with GABAergic terminals. Second we have combined retrograde labelling by fluoro gold (FG), to the proximal stump of the buccal branch of the facial nerve, subsequent to either tight ligature of the proximal stump (prevented regeneration), or suture to the distal one (allowed regeneration). The gephyrin signal revealed by Cy3 from the FG labelled motoneurons was studied 7 and 60 days after the axotomy.

Gephyrin is expressed by all motoneuronal groups as fine patchy band outlining the perikarya and the dendrites. The patches were smaller in the motoneurons, when compared to the adjacent reticular formation neurons, or the interneurons of lamina IX of the spinal cord. Combination of GAD-ICC (green fluorescence Alexa Fluor 453) and gephyrin-ICC (Cy3) revealed that most of the GAD positive terminal buttons upon the soma and proximal dendrites of the facial motoneurons colocalize with gephyrin positive patches. However some of the gephyrin patches did not match GAD

terminal buttons. Axotomy of the buccal facial branch caused reduction of the signal from the soma of the motoneurons, expressed by decreased number of gephyrin-immunoreactive patches. The staining of the neuropil seemed little or not affected. This effect was more severe in the rats with permanent target deprivation. Reinnervation of the target (60d) does not fully recover the expression of gephyrin by the perikarya. Our results suggest: (i) a possible role of gephyrin in the GABAergic synapses upon facial motoneurons, (ii) selective decline of the gephyrin expression by the soma, but relative preservation of the dendritic gephyrin-immunoreactive patches after axotomy. The former result could be the cause for the decreased inhibitory influence and increased excitability of the axotomized motoneurons.

MEDIAN AND ULNAR NERVE COMMUNICATIONS IN THE FOREARM AND HAND

L. Sarikcioglu, Sindel M.

Department of Anatomy, Akdeniz University, Faculty of Medicine 07070 Antalya-TURKEY

Median and ulnar nerve communications in forearm (Martin-Gruber anastomosis) and in hand (Riche-Cannieu anastomosis) have been reported by many authors. On the other hand, there are few reports about Turks cadavers. We aimed to investigate the frequency of the communication ratio between these nerves. In the present study, different communication types were reported. These communications should be kept in mind during electrophysiological examinations and surgical operations.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

MINOR PHYSICAL ANOMALIES AND DERMATOGLYPHIC ASYMMETRY IN SCHIZOPHRENIC PATIENTS

S. Sivkov[1], Akabaliev V. [2], Baltadjiev G. [1]

[1]Department of Anatomy, [2]Department of Psychiatry and Medical Psychology, Medical University, 15A "V. Aprilov" Blvd, BG-4002, Plovdiv

Objective: The value of dysmorphological signs as indicators of problems with fetal neurodevelopment in schizophrenic patients was tested. Two types of markers, minor physical anomalies and dermatoglyphic abnormalities were used to study the degree to which these overlap in time. Methods: Sixty two schizophrenic patients and 68 normal controls were assessed for minor physical anomalies and right-left ridge count fluctuating asymmetry. Results: The schizophrenic patients showed significantly higher scores of minor physical anomalies and greater dermatoglyphic asymmetry than the controls. Conclusions: On the basis of timing of dermatoglyphic development (weeks 14-22 of gestation), the association between minor physical anomalies and dermatoglyphic asymmetry suggests at least second trimester maldevelopment.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

SOME ANTHROPOMETRIC INDICES IN SUBJECTS WITH DWARFISM

V. Todorov, Maximova S., Tomova A.

University Hospital of Endocrinology and Gerontology, 6 D. Gruev St, 1303 Sofia, Bulgaria

Twelve men and 6 women with familial dwarfism and 11 men and 4 women with pituitary dwarfism were studied. The authors measured some major anthropometric parameters in both groups: body height and weight, BMI, chest circumference, trochanteric height, bihumeral and bitrochanteric diameters. Comparison was made with practically healthy age and sex-matched subjects. The analysis of the results demonstrated significantly lower body weight (correlating to the shorter stature) and trochanteric height in both studied groups. The ratio trochanteric height/body height was also lower in the study groups than in the control group. However there was no significant difference between the two study groups. We observed shortening of the body both as a whole and of its lower part. There were slight or no differences in the remaining measurements.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

SCIENTIFIC COMMUNICATION PATTERNS IN THE FIELD OF MEMORY AND BLOOD-BRAIN BARRIER

D. Tomov

The Library and Information Service, Medical University of Varna, 55 Marin Drinov Street, BG-9002 Varna, Bulgaria

Recently, memory research is an actual topic of rising socio-medical importance. The blood-tissue barrier structures and particularly the blood-brain barrier attract the attention of many investigators from different disciplines and countries. This paper presents some data from the scientometric investigation of.

Retrieval in MEDLINE on CD-ROM through EBSCO Publ. (USA) for the period from 1965 till 1999 was carried out to reveal the publication activity in the field of memory and blood-brain barrier in animals and man. Author's own complex methodology for analysis of international scientific communications was applied (D. Tomov, 1986). There were a total of 123 papers dealing directly with this topic. There was a sharply increasing world publication output since 1993. Some 36 review articles contained 5236 citations. In 19 reviews, there were more than 100 citations, in 6 – more than 200, and in 3 – more than 500 citations. This testified to the maturity of the research topic (D. Tomov, 2000). Authors from 26 countries had published their articles in 92 journals from 21 countries. There were 8 "international" journals from 5 countries. The USA dominated as followed: in 36 American journals there were 47 articles; the Americans had published 36 papers in 30 national and 15 - in 9 journals from 5 other countries. Next came Germany, Japan, England and the Netherlands (concerning the journals containing articles), Israel (with 5 articles in 5 journals from three foreign countries), etc. There were a total of 18 monodisciplinary and 7 interdisciplinary thematic profiles of authors' institutions but 17 mono- and 8 interdisciplinary ones of journals, respectively. Between 1988 and 1999, there was no coincidence between the profiles of institutions and journals in a 34 out of 94 papers. There were only 4 papers in German, 2 – in French in Russian each, and one - in Chinese, Japanese, and Slovak language each. There were 66 papers in own national journals but 57 ones – in foreign journals which indicated the gradual increasing internationalization of research.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

MODIFIED LARYNGOFISSURE APPROACH FOR ARYTENOID-CHORDECTOMY FOR BILATERAL ABDUCTOR PARALYSIS

Iv. Tsenev, Sapundzhiev N.

Department of Oto-rhino-laryngology, Medical University - Varna, 55 Marin Drinov str, Varna 9002, Bulgaria

Patients with an inability to lateralize both vocal folds are in a precarious position with respect to the airway, even though the voice may be minimally impaired and they often end having some kind of surgical intervention directed towards enlargement of the airway. Appart of the reinnervation, vocal cord lateralization techniques are still more widely used and popular surgical approach. They include:

1. Arytenoidopexy or arytenoidectomy by a lateral approach (King - 1939).
2. Arytenoidectomy by a laryngofissure (Scheer - 1953)
3. Endoscopic arytenoidectomy
4. Posterior cricoidotomy with cartilage grafting

We propose a modified intevention by the laringofissure approach. The techniquie was implemented in one female patient with bilateral abductor paralysis after thyroidectomy with dyspnea requiring tracheostomy. After splitting the thyroid cartilage with a midline incision the left vocal fold was extracted together with the arytenoid cartilage. The mucosa of the subglotis was subsecuently sutured to the ventricular fold and both were fixed laterally to the thyroid cartilage. A solid T-tube is placed in the larynx and the tissues were sutired. The stent was left in place for 3 months. The only complication observed meanwhile was mild aspiration. After the stent removal the patient had no dyspnea with a good preservation of the vocal function.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CHANGES IN THE FINE STRUKTURE OF THE SYNOVIAL MEMBRANE AFTER INTRAARTICULAR ADMINISTRATION OF HYDROCORTISONE

W. Wassilev

Meidcal University Sofia, Department of Anatomy, Sv. Georgi Sofiiski Blv. 1, 1431 Sofia

Local administration of corticosteroids is widely used in the therapeutic approach to degenerative articular diseases. Apart from the positive effect ot treatment, failures are ever more frequently reported. The dynamic patterns of the lesions involved are still not well enough clarified.

Water 10 mg hydrocortisone solution is injected into cat knee joints. Material from the infrapatellar part of the synovial membrane (SM) is obtained at 3 and 6 postoperative days, and subjected to processing according to routine transmission electron microscope technique.

At 3 days the SM exhibits hyperemization with an increase in the number of synovial macrophages. In the cytoplasm of the latter numerous vacuoles, congested mitochondria and phagolysosomes are noted.

At 6 days SM is thickened, presenting hemorrhagic zones with predomination of macrophages. Disorganization of the cytoplasm, associated with reduction of cell organelles, pyknosis of nuclei and abundance of heterogeneous phagolysosomes and osmiophilic lamellar bodies are observed.

Analysis of the obtained results point to the necessity of strict spesification of the indications for local corticosteroid therapy.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

AGE DYNAMICS OF LINEAR DIMENSIONS OF RENAL CALYCES OF A MAN

I. Yevtushenko

Department of Operative surgery and Topographic anatomy, Kharkiv Medical University, Av. Lenine 4, 61022 Kharkiv, Ukraine

175 corrosion preparations of pyelocaliceal complex of kidneys of a men of adult and elderly ages were used for the present research. Age dynamics and the characteristic of linear parameters of renal calyces were studied.

Proceeding from obtained data linear dimensions of "average statistical renal calyces" were characterized. It gives the certain picture of morphologic variety of renal calyces.

Obtained data can be applied in urologic clinic for diagnosis (USD, CT and NMR) and nephrourologic operations (extracorporeal lithotripsy, transcutaneous puncture).

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

BONE MARROW HEMATOPOIETIC CELLS FROM A MYELOID LINE INCLUDING STROMAL DENDRITIC CELLS DEVELOP AND DIFFERENTIATE IN VITRO IN RESPONSE TO EXOGENOUSLY ADDED NEOPTERIN ACTING AS STEM CELL FACTOR

E. Zvetkova, Fuchs D. *, Katzarova E., Panteva M., Svetoslavova M., Kadiysky D., Christov I., Nikolov B., Tsenov I.

Institute of Experimental Morphology & Anthropology - BAS, 1113 - Sofia, Bulgaria;
**Institute of Medical Chemistry & Biochemistry, Leopold Franzens University Innsbruck, Austria*

The in vitro response of early myeloid hematopoietic progenitors - common for GM-, Eos-, Mg-cell, and/or marrow stromal dendritic cell (SDC) series, to neopterin (Schircks Laboratories, Jona, Switzerland) - exogenously added to the liquid- and agar- mouse bone marrow cultures (at doses 12,5 - 25 μg/ml culture medium) has been studied. The results obtained show a stimulation of myeloid cell progenitors proliferation and differentiation (GM-, Eos-, Mg-, SDC) in colonies and clusters, as early as the 24^{th} h. of the in vitro experimental treatment with neopterin. On day 4 of cultivation the granulocytopoiesis and differentiation was attenuated giving place to the marrow SDCs differentiation and maturation. The engagement of NF-kB via activation of NF-kB-inducing kinase (NIK) remains to be elucidated in the light of recent data that neopterin activates NF-κB and an inhibition of NF-κB translocation blocks SDCs maturation. From the data obtained we conclude that neopterin is acting as a marrow myeloid stem cell factor.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

SURGICAL ANATOMY OF THE INTERNAL AUDITORY CANAL AND THE TRANSMASTOID APPROACH

B. Agirdir, M. Syndel*, F. B. Yildirim*, H. U. Ozcaglar****

**Akdeniz University Faculty of Medicine, Departments of Anatomy and **E.N.T, 07070 Antalya-TURKEY*

Several techniques are available to identify the internal auditory canal. This study was performed in order to review the topographic anatomy of the petrous structures and the relationships among semicircular canals, vestibule, facial nerve portions, cochlea, sigmoid sinus and jugular bulb. Detailed anatomy of these regions were photographed.

The limitations of surgical techniques were investigated on 20 cadaver temporal bone dissections.

We emphasized on the important relationships and limitations of exposure the internal auditory canal.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE ULTRASTRUCTURE AND IMMUNOHISTOCHEMISTRY OF SEPTUM PELLUCIDUM IN MAN

M. M. Aldur, M. Berker, H. H. Celik, M. F. Sargon, Y. Ugur, A. Dagdeviren

Depts. of Anatomy, Neurosurgery and Histology & Embryology, Hacettepe University, Faculty of Medicine, 06100, Ankara, Turkey

The septum pellucidum is usually described as a thin, vertical partition composed of two laminae, largely separated by a narrow cavity, an extrapial space, and therefore, not communicating with the brain's ventricular system. Seen from side, the septum pellucidum is in the shape of a triangle, its base located anteriorly and apex posteriorly.

In this study, at first, we examined the light microscopic, and electron microscopic (transmission and scanning) appearance of the septum pellucidum. Secondly, we performed immunohistochemical staining which has never been reported in the literature.

The tissue specimen was obtained from a 34 year-old male patient, who had undergone subtotal tumor excision operation by the neurosurgery department. This patient had a thalamic low grade astrocytoma and during the operation, transcortical – transventricular approach was performed. Additionally, in the operation, a fenestration was done to the septum pellucidum because of the hydrocephalus. The fenestrated part of the septum pellucidum was taken for routine light microscopic, transmission – scanning electron microscopic and immunohistochemical examinations.

In the light and transmission electron microscopic examination, myelinated axons, glia cells and blood vessels were observed. These myelinated axons were small and medium sized. In addition to these structure ependymal cells were presented in the scanning electron microscopic examination.

In the immunohistochemical examination of the cryosections of the septum pellucidum, by indirect immunoperoxidase technique, the ependymal lining cells were stained with antibodies 70110.

The septum pellucidum is very closely related with the psychiatric disorders and its antigenic structure may be important in these disorders too. This first preliminary study will be very helpful for the future studies related with the antigenic structure of the septum pellucidum.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THREE-DIMENSIONAL (3-D) RECONSTRUCTION OF THE CAPSULA EXTREMA FROM GROSS ANATOMIC SERIAL SECTIONS IN MAN

M. M. Aldur, H. H. Celik, M. Aktekin, A. Bayramoglu, S. Ilgi

Dept. of Anatomy, Hacettepe University, Faculty of Medicine, 06100, Ankara, Turkey

The aim of this study is to demonstrate the 3-D appearance of the capsula extrema, which has never been described in the literature. Capsula extrema is a thin layer of white matter, which is interposed between the medial aspect of the insular cortex and the claustrum.

The 3-D reconstruction of the human capsula extrema was obtained by the help of serial macroscopic anatomical sections taken from a cadaver.

Serial sections collected from the left hemisphere of the brain of a 50 year old normal male human cadaver. The sections taken by a special trimming system (macrotome) were about 600 μm in thickness. After each trimming procedure, the obtained sections were photographed with close-up lenses. The photographs were scanned (UMAX Astra 1200S) and transferred into a computer (Apple Power Macintosh 4400/200). The landmarks in the X-axis and the Y-axis were put into the special trimming system apparatus, in order to remove the rotation and the shifts on the serial sections. The contours of the capsula extrema were traced by a manual method (Adobe PhotoShop 3.0 for Macintosh) and the obtained traces were transformed into a 3-D reconstruction program (Adobe Dimension 2.0 for Macintosh). Firstly the wire-frame images and then the rendered forms of the serial sections were obtained.

As a result, this is the first study reporting the 3-D reconstruction of the capsula extrema of the human brain, taken from a cadaver, found in the literature.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

FINE STRUCTURAL ORGANISATION OF REGENERATING RAT LEYDIG CELLS AFTER EDS TREATMENT

M. Bakalska, M. Davidoff, I. Koeva, B. Nikolov

Inst. of Exper. Morphol.& Anthrop., Bulg. Acad. of Sci., Acad.G. Bonchev Str., Bl. 25, 1113 Sofia

Recently ethane dimethane-sulfonate (EDS) has become useful as a model for studying the development and function of Leydig cells (LCs). In the present study the cytoplasmic membranous structures (endoplasmic reticulum, Golgi apparatus and mitochondria) were examined with the purpose of providing a more detailed description of their fine structure in regenerating LC population after EDS.

Mature Wistar rats received a single, intraperitoneal injection of EDS (75 mg/kg body weight). On day 7, 14, 21, 35 after treatment animals were killed and testes were fixed for histological and electrone-microscopical investigations.

On 2-3 days after EDS all LCs were eliminated. The first morphological recognisable LCs appears by 14 days. On 21 day newly formed LCs possess characteristics of immature LCs in which complement of two types endoplasmic reticulum (rough and smooth), mitochondria with lamellar cristae were present. On 35 day the central apparatus in steroid production - smooth ER, mitochondria with tubular cristae and Golgi complex are fully formed and correspond morphologically to the mature LCs. Our results support the suggestion that regeneration of a new LC population following EDS administration shows many similarities with the formation of the adult type LCs in the pre- and pubertal mammalian testis.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CEPHALOMETRICAL AND CEPHALOSCOPICAL INVESTIGATION OF PATIENTS WITH DEFINITE FORMS OF NEUROPATHY

P. Borissova, I. Tournev, S. Tornjova, J. Jordanov

Inst. of Experim. Morphology and Anthropology, BAS, "Acad. G. Bonchev" St. 25, BG-1113, Sofia

Commonly 20 patients with clinical diagnosis – hereditary motor and sensory neuropathy syndrome (CCFDN) are studied. The AIM of the study is to analyze and compare the manifestations of some cephalometrical and cephaloscopical features in both investigated diseases. These diseases are typical only for different Gypsy populations. Features are taken by the methods of R. Martin, K. Saller (1957). Results obtained show a great degree of real facial bilateral asymmetry (over 2 mm difference). At patients with HMSNL the bilateral asymmetry is most demonstrative regarding the cephalometrical measurements from "tragion" (tr), and in patients with CCFDN those which characterize the lower part of the face. Further investigations of new patients with definite forms of neuropathy are going on.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PERFORATES SYNAPSES, PLASTICITY AND DEVELOPMENT OF SEX DIFFERENCES

A. Bozhilova-Pastirova, D. Brazitzova, N. Stefanova, W. Ovtscharoff

Department of Anatomy and Histology, Medical University Sofia, Sv. Georgi Sofiiski Blv. 1, 1431 Sofia

Neuronal plasticity, this term has been used by many neuroscientists to describe different types of changes in neurones and their connections as well as differential and clinical phenomena. Modifications of neurones and their processes are referred as neuronal plasticity and changes in their connections as synaptic plasticity. The aim of our study was to investigate neuronal and synaptic plasticity in the rat sensorimotor cortex, which is involved in the higher behaviours, such as sensation, perception and locomotion. The internal structure of the perforated and non-perforated synapses as intermediates in synaptic remodelling and turnover was studied by using thin sections and freeze-etching replicas. Sexual differences during the development as a part of neuronal plasticity was studied by immunocytochemical and histochemical stainings in 20 days old male and female rats. Sprague-Dawley rats were anaesthetised with sodium pentobarbital (40 mg/kg, i. p.) and perfused transcardially with a fixative containing 4% paraformaldehyde in 0.1M phosphate buffer at pH 7.2. Serial sections were produced for parvalbumin immunoreactivity using the avidin-biotin-peroxidase complex (ABC) method. The histochemical NADPH diaphorase (NADPH-d) activity was visualized on rat cryosections. Quantitative measurements were done using computer assisted microanalysis system Olympus CUE-2. Statistical significance of the sex differences in the number of parvalbumin-immunoreactive neurones and size of the dendritic field of the NADPHd-positive neurones was evaluated by analysis Student's t-test.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

AN UNUSUAL PRESENTATION OF URACHAL REMNANT

H. Ceylan[1], A. Sirikci[2], S. Kilicaslan[3], E. Gümüsburun [4]

[1] *Dept. of Pediatric Surgery, Faculty of Medicine, Gaziantep University, Turkey*
[2] *Dept. of Radiology, Faculty of Medicine, Gaziantep University, Turkey*
[3] *Department of Pediatric Surgery, Esrefpasa Hospital of Municipality of Izmir, Turkey*
[4] *Dept. of Anatomy, Faculty of Medicine, Gaziantep University, Turkey*

The urachus which is an allantoic remnant in fibromuscular structure, normally obliterates during months 4 to 5 of gestation. Failure of this process results in various abnormalities including patent urachus, urachal cyst, urachal sinus and urachal diverticulum. The urachus is said to be extending from the umbilicus to the dome of the bladder and abnormalities of urachal remnant are found at this site. We present a case of urachal sinus which indicates that this anatomical localization does not always exist.

A 5-year-old boy was admitted with temporary purulent discharge from the umbilicus for one year. He had been treated with different antibiotics but the symptoms recurred. Physical examination revealed periumbilical hyperemia and purulent discharge from the umbilicus. Roentgenograms that were taken after injection of contrast medium through the fistula revealed a sinus extending from the umbilicus to the right–inferior direction. After treatment of the infection with ampicillin the sinus was surgically explored and found to be extending to the right lateral wall of the bladder. It was 8 cm in length with 1,5 cm diameter. The whole tract was excised with a cuff of the bladder. The patient is doing well at ninth month postoperatively.

This anatomical variations may cause confusion in differential diagnosis of some other disease states such as omphalitis, omphalomesenteric duct remnants, acute abdomen and anterior abdominal wall mass.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

AN INVESTIGATION ON THE THIRD TROCHANTER IN THE FEMUR

M. Çimen [1], H. Baþaloðlu [2]

[1] *Dept. of Anatomy, Cumhuriyet University, TR – 58140, Sivas*
[2] *Dept. of Anatomy, Adnan Menderes University, TR, Aydýn*

Sometimes a rather long, round and conical protrusion may be observed on the upper end of gluteal tuberosity to which some fibres of m. gluteus maximus are attached in the femur. If such a condition exists, the formation located in the posterior of the lesser trochanter is called the third trochanter. It has often been made use of the incidence of the third trochanter which is a nonmetric infracranial characteristic for quantitative investigations on human relatives.

In this work, it has been attempted to investigate the third trochanter incidence and morphometric features of the femurs displaying it.

226 femurs have been used in this investigation. Of these femurs, 38 right and 52 left femurs, a total of 90, belonged to female cases and 136 (51 right and 85 left femurs) to male cases. 13 parameters were established for morphometric measurements from every femur and the results obtained were evaluated by SPSS (9.0 verssion) programme.

The third trochanter incidence in females (31.1 %) was higher than that of males (21.3 %). As for the average incidence, it was determined to be 25.2 %. As a result of morphometric evaluations, it was concluded that there is a relation in between the proximal diaphyseal antero-posterior diameter and the existence of the third trochanter.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

RARE CASE OF HIGH ORIGIN OF THE RADIAL ARTERY FROM AXILLAR ARTERY

N. Coskun, L. Sarikcioglu, O. Ozkan

Department of Anatomy, Akdeniz University, Faculty of Medicine, 07070 Antalya-TURKEY

Arterial variations in the arm are numerous and occur at the level of the axillary, brachial, radial, and ulnar arteries as well as in the palmar arches. A high branching radial artery was found in a 55-year-old male cadaver during a dissection course.

The axillary artery was divided into ulnar and radial artery under the pectoralis minor muscle. In the arm, it run superficially. In the cubital fossa, there was an arch between radial and ulnar arteries. One branch originated from this arch to reach extensor carpi radialis longus and extensor carpi radialis brevis muscles.

This high bifurcation of the axillar artery and the abnormal distributions of the radial and ulnar arteries are of interest to clinicians; in particular vascular and plastic surgeons and radiologists.

THE DEVELOPMENT OF NERVUS SURALIS AND THE VARIATIONS IN ITS PROGRESS

N. Coskun, Yýldýrým F., Sindel M.

Department of Anatomy, Akdeniz University, Faculty of Medicine, 07070 Antalya-TURKEY

N. suralis fossa is a sensitive nerve of the lateral surface of the foot and the back lateral surface of the leg in popliteal or in the middle of the back surface of the leg formed with the union of n.cutaneus surae lateralis and n. cutaneus surae medialis.

Progress of N. suralis in sural nerve biopsies, in surgery using border graft in the screw administration in metatarsus breaks with iatrogenic injuries. For this reason, in our studies of 15 knee amputations and 30 lower extremities of 15 cadavers, the development of the shape of N. suralis, its

site and progress, and in addition its distance to the Achilles tendon were measured. The outcomes of the values obtained and the variations we observed were discussed in the literature.

MACROANATOMICAL DIFFERENCES OF SELLA TURCICA BETWEEN TURKISH AND BIZANTHIAN CRANIUMS

N. Coskun*, C. Acikbas, N. Oguz***

**Department of Anatomy, **Department of Neurosurgery, Akdeniz University, Faculty of Medicine, 07070, Antalya-TURKEY*

Glandula hypophysialis embedded in fossa hypophysialis. Some hypophysial hormones have periferic effects while others control the hormone secretions of endocrine organs. During the human evolution, the hypophysial gland may have showed volume changes due to its function according to environmental factors. That's why, anatomical structure of sella turcica and its function is off important. For this reason, in this study the volume of Sella turcica is measured with its sagittal, transverse and longitudinal dimensions. The findings were compared between the two ages of the history of Bizanthian and Turkish human beings.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

TYPES OF SCAPULAR NOTCH

N. Coskun, B. O. Donmez**, M. Urguden*, N. Oguz****

***Department of Anatomy, *Department of Orthopaedics, Akdeniz University Faculty of Medicine, 07070 Antalya-TURKEY*

Types of scapular notch were classified into 6 groups in literature. The structural differences in scapular notch might be effective on suprascapular nerve syndrome. For this purpose, 100 scapular bones obtained from Akdeniz University, Faculty of Medicine, Department of Anatomy were examined. In the present study, scapular notch types were grouped according to literature. Besides, different notch types were determined.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

A MODEL OF EXPERIMENTAL ILEITIS IN RAT WITH INDOMETHACIN FOR MORPHOLOGICAL INVESTIGATION OF M CELLS IN GUT MUCOSA

E. Daskalova, G. Baltadjiev

Dept of Anatomy, Medical University, 15A "V. Aprilov" Blvd, BG-4002, Plovdiv

Intestinal M cells are known as specialized epithelial cells in the follicle-associated epithelium /FAE/. They have transport facilities for microorganisms and macromolecules. This way M cells provide the gateway between the mucosal surface and underlying lymphoid follicles in the Peyer's patches of the gut. M cells as a morphological pattern differs from the rest of the mucosal lining cells. Less than 1% of mucosal epithelial cells are M cells so their morphology studying is very difficult. The experimental model of bowel inflammation was chosen to increase the M cell number for the purpose of study. Rats were treated by subcutaneous administration of 7,5 mg/kg Indomethacin. On the 2nd day /acute inflammation/ and on the 14th day /chronic inflammation/ Peyer's patches of the small intestine were investigated by light and electron microscopy and enzymohistochemistry.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ULTRASTRUCTURAL STUDY OF YOUNG RATS MYOCARDIUM AFTER ORAL ADMINISTRATION OF GABA-ERGIC DRUG

S. Delchev, G. Baltadjiev

Dept. of Anatomy, Medical University, 15A "V. Aprilov" Blvd, BG-4002, Plovdiv

Various reports confirm that GABA participates in the regulation of gonadotropin-releasing hormone (GnRH) secretion and exerts both stimulating and inhibitory influence on the secretion of the luteinizing hormone /LH/, what reflects on the testosterone level.

We aimed to evaluate the influence of different doses of Aminalon (GABA analogue), on ultrastructure of myocardium, after per oral administration. Male Wistar rats of one month age were divided in two groups and received high 1000mg/kg and low 50mg/kg doses of Aminalon through gastric probe for 7 weeks. Samples from left cardiac muscle were taken at the end of the 7th week and routine immersion method for EM was used.

Significant differences were observed in the mitochondria of the cardiomyocites of the high-dose group. Most of the mitochondria were enlarged and vacuole-like due to a decrease in the number and density of the cristae, which were absent at places. The inner mitochondrial space was with low electron density. The mitochondria were tightly packed and occupied the whole interfibrillar space. Cadiomyocites of the low-dose group did not show differences compared with the controls (without Aminalon treatment). The mitochondria were round, with high density of the cristae. No changes were observed in the sarcoplasm and the myofibrils.

Conclusions: A well expressed dose-related effect is present in both groups of treated animals. The described changes in the myocardial cells of the high dose group are similar to the changes we have observed in the myocardial cells of rats treated with testosterone.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

DIFFERENCES IN EXTENSOR FOREARM MUSCLES AND THE POSITION OF EXTRA MUSCLES

S. Demir, N. Coskun, N. Oguz

Department of Anatomy, Akdeniz University, Faculty of Medicine, 07070 Antalya-TURKEY

The presence of extra muscles (more muscles than usual) and abnormal joining of their tendons with each may sometimes cause pain. In addition, in the surgical sciences like orthopaedics, it is important to have information about such structures. For this reason the extensor muscles of 30 forearms of 15 cadavers were examined.

While in 2 cases it was determined that M. extensor digitorum had 8 tendons, in other 2 cases they had 7 tendons, in 5 M. extensor pollicis longus there were 2 tendons. In 5 M. abductor pollicis longus there were 2-4 tendons, in 2 cases it was determined that. M. abductor pollicis longus and extensor pollicis brevis had joined tendons. Moreover, the presence of some extra muscles that go to the thumb, and M. extensor carpi radialis accessorius, and M. extensor carpi radialis intermedius were observed.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE ROLE OF ENDOTHELIN-1 IN HUMAN OVARIAN GRANULOSA CELLS DURING AGING

R. Denkova, V. Bourneva, K. Baleva, E. Yaneva, B. Nikolov, I. Christov, I. Ivanov

Institute of Experimental Morphology & Anthropology, Bulgarian Academy of Sciences, 1113 Sofia, BG

Gonadotropins are the well-known major regulators of ovarian granulosa cell (GC) functions, but recently an important modulatory role has been attributed to the peptide factors. There is some data showing that endothelin-1 (ET-1) a peptide isolated from vascular endothelial cells is synthesized and released also from ovarian GCs. The effect of ET-1 on steroid production by cultured human GCs from women at various ages was studied. In vitro treatment with ET-1 markedly reduced the FSH-stimulated secretion of progesterone (P), whereas the basal P secretion is only insignificantly diminished. ET-1 inhibitory effect on the FSH-supported secretion of P is stronger in ovarian GCs isolated from young patients than in those from premenopausal women. The peptide had only a sparse inhibitory effect on both the basal and FSH-stimulated secretion of estradiol in GCs from the two patient groups. Our results could be discussed in connection to the changed ratio ET-1 - ET-1 receptors in ageing ovary.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CD-LIKE MOLECULES ON HUMAN SPERMATOZOA FROM FERTILE DONORS AND INFERTILE PATIENTS

D. Dimitrova, Ts. Marinova

Department of Biology, Medical University, Zdrave Str. 2, Sofia, BG-1431

The objects of the present study were to investigate if there were differences in the presence of CD-like molecules on human ejaculated spermatozoa from fertile donors and infertile patients (with globozoospermia, leucozoospermia, haematozoospermia). Data from indirect and absorption enzyme-linked immunosorbent assay (ELISA), indirect immunofluorescence (IIF), indirect immunogold electron microscopy (IEM) and indirect immunogold silver staining method (IGSS) were analized. The ultrastructural and IIF findings as well as the ELISA results demonstrated the presence of CD4 and CD8 immunopositive spermatozoa in all samples studied. Normozoospermic spermatozoa were mainly CD7 (-) and CD19 immunonegative. The ELISA data showed that monoclonal anti-human CD4-antibody (Mab CD4) recognized an epitope common to the human spermatozoa with normal morphology and round-headed spermatozoa. A CD4 positive reaction was found on the sperm head both in the acrosomal and postacrosomal regions of some round-headed spermatozoa from the samples with globozoospermia. The tails of the normozoospermic spermatozoa and some round-headed spermatozoa were weakly CD4 immunopositive. Localization of the antigenic determinants, identified by Mab CD4 and Mab CD8, in the acrosomal region, as well as in the neck was defined in normozoospermic samples. In addition CD8 immunopositivity was observed on the sperm tail plasma membrane if the normozoospermic spermatozoa. Similar in localization but different in intensity CD-like sperm immunoreactivity was found in leucozoospermic and haematozoospermic sampeles in comparison to normozoospermic sampeles. During absorption experiments CD4 and CD8 Mabs were preincubated with spermatozoa and allowed to react with thymocytes. A significant decrease of the reactivity was obtained for both CD4 and CD8 Mabs by TEM and ELISA. The results of the experiments carried out proved the heterogeneity in the presence, localization and expression of CD-like antigen determinants on human spermatozoa. The presented data enlarged the information about the CD-antigen characteristic of the spermatozoa from fertile donors and infertile patients.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

MORPHOMETRIC CHARACTERISTIC OF THE DISTAL HUMERUS IN RECENT BULGARIAN POPULATION

D. Enchev, A. Katsarov, A. Siddiqui

Emergency Care Institute "Pirogov", "Totleben" Blvd. 21, Sofia, Bulgaria

From functional point of view the end of the humerus splits in a wishbone fashion to form the two columns that support the trochlea.

By interconnecting with these divregent columns the terminal part of the humerus resembles a triangle. All kinds of injury, which disrupt any of the three arms of this triangle, conduct to unexpected weakness of the construction and instabillity. The ambitions of the most orthopaedic surgeons are directed precisely to excellent osteosynthesis, i.e. the so-called triangle to be effectively stabilized.

The present study is carried out because of the very difficult for interpretation clinical anatomy of the distal humerus and significant communition in fractures in this zone, which make harder everyday work of the most orthopaedic trauma surgeons.

The aim of the study is to find out the most proper zones for optimal insertion of the implants for osteosynthesis in bicondylar fractures of the distal humerus.

The study is based on the measuring of number of 73 distal humeruses took from cadavers – 30 pairs and 13 single.

The bones are cut at 15 cm proximally from the end of the distal part of the humerus.

The measurments are done by Swiss made devices – Gneupell.

We measured more than 30 linear and 10 angular signs. The results were counted by the methods of mathematical analyses.

We also made precise cuts of 17 bones in different levels and made printings of the cuts.

We used also five descriptive signs.

The most significant for the clinic are:

End of the medullary canal – 38,1 mm, (m – 38,8; f – 37,4) average.

The diameter at Fossa olecranii level – anteroposterior 16,67 mm and medio-lateral 36,67 mm; Transcondylar width – 60,65 mm; Medial column width – 10,37 mm; Lateral column width – 13,35 mm.

The angle of the trochlea towards the dyaphisis – 82,67 degrees; the angle of anteversion of the medial condyle - 171,21 degrees; the angle of anteversion of the lateral condyle - 181,26 degrees.

We consider that the best place for the insertion of the implants is the posterolateral part of the lateral column and the medial ridge of the medial column torsioned according to the anatomy of the distal humerus in the three planes.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

COMPARISON OF SOME BRAIN STRUCTURES IN SCHIZOPHRENIA GROUP AND NORMAL POPULATION BY MRI

H. Erbağcı[1], H. Yıldırım[2], H. Herken[3], K. Eski[3], E. Gümüşburun[1], G. Ortuğ[4]

[1]Dept. of Anatomy, Faculty of Medicine, Gaziantep University, Turkey, [2]Dept of Radiology, Faculty of Medicine, Fırat University, Elazığ, Turkey, [3]Dept. of Psychiatry, Gaziantep University, Gaziantep, Turkey, [4]Dept .of Anatomy, Faculty of Medicine, Osmangazi University, Eskişehir, Turkey

Objective: Many different results have been reported in previous studies about abnormalities of brain morphology in schizophrenia. We intended to deliniate structural and functional relationship of schizophrenia patients brains compared to healthy control MR brin images. Material and Method: 26 (15 female, 11 male) schizophrenic patients and 26 (15 female, 11 male) control subjects underwent magnetic resonance imaging of the brain. The diagnosis of schizophrenia was made according to DSM-IV criteria. Result: The schizophrenic patients had a significant difference; the grey matter area of right cerebral hemispher, the grey matter volume of left cerebral hemispher, the gray matter area of right superior temporal gyrus and the white matter area of left superior temporal gyrus are smaller than healthy cases, while the white matter area of right medial temporal gyrus is larger than healthy group. Conclusion: Several brain structures in schizophrenia are affected. Our findings may be helpful to explain the clinical and ethological aspect of schizophrenia.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CONGENITAL BLADDER DIVERTICULUM: A CASE REPORT

H. Erdil[1], V. Sabancýoðullarý[1], S. Erdil[2], M. Çimen[1]

[1]Dept. of Anatomy, Cumhuriyet University, TR- 58140, Sivas
[2]Dept. of Urology, SSK Hospital, TR, Sivas

Congenital bladder diverticula unassociated with posterior urethral valves or neurogenic bladder are unusual. Congenital diverticula usually occur in a smooth walled-bladder and most often solitary in addition occur without evidence of outflow obstruction. The cause of these diverticula is an inherent weakness in the bladder musculature. Diverticula can be easily diagnosed radiologically. The incidence of bladder diverticula is far greater in men than women.

In case of presence of diverticula it is necessary to determine whether or not they condition which can lead to stone formation, infection and vesico- urethral reflux.

A thirteen-year-old girl admitted to Department of Urology, SSK Hospital with complains of the abdominal pain, dysuria, frequency and nocturia. Physical and radiological (voiding cystogram) examinations showed a congenital bladder diverticulum and stone formation. There was right hydronephrosis secondary to diverticula. In addition we observed spina bifida on the level of L_5 and S_1. It has been applied diverticulectomy and right nephrectomy. Although our patient had it complains from beginning of the early stage of childhood. We learned from history she was unable to go to any doctor for any treatment because of the social reasons. It has been stated that congenital anomalies are important for prevent chronic infections, constant defect.

We aimed in this study to impress the clinical importance of the congenital bladder diverticulum to increase the communal conscious, early diagnosis, treatment, and we discussed with other related articles.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PROPORTIONS AND DEVELOPMENT OF THE FACE IN CHILDREN FROM SOFIA, AGED 7 TO 13

Z. Filcheva, N. Kondova

Inst. of Experim. Morphology and Anthropology, BAS, Acad. G. Bonchev St. 25, BG-1113, Sofia

The aim of present study is to disclose the tendencies in face growth in children at the age of 7 to 13 years. A number of 142 boys and 154 girls from three schools in Sofia have been subjected to the study. The research was carried out in the period from 1993 to 1999. Eight cephalometric features and six indices were chosen for completion of the analysis. The ratios between the breadth and height dimensions have been traced and the differing rate of change onset in the various facial part has been recorded. Both absolute sizes and indices prove the dynamic changes in face morphology during the age period between 7 to 13 years.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

NEOMUSCULARIZATION OF LUNG MICROVESSELS IN HYPEROXIC PULMONARY HYPERTENSION. AN EXPERIMENTAL STUDY

M. Gabrovska, M. Trosheva, Sp. Nikolov, R. Jones*

Department of Anatomy, Histology and Embryology, Medical University of Varna, 55 Marin Drinov Str., BG-90002, Varna
Department of Anesthesia, Mass. Gen. Hospital, Harvard Medical School

Pulmonary hypertension is a common and serious condition, either as a primary event or secondary to other injury. In its clinical form their is always a restrictive lesion caused by vascular cell proliferation. This narrows the lumen of vessels forming the microcirculation, i.e. the smallest vessels that lie adjacently to the capillaries. Contractile cells develop in segments where normally these cells are absent (neomuscularization). Ultrastructurally these cells are found to be fibroblasts recruited to the vessels wall from the interstitium, intermediate cells, a population of preexisting vascular cells (structurally between a smooth muscle cell and a pericyte) and pericytes. In this way thick-walled "newly muscularized" vessel segments form adjacent to the capillary bed.

Normobaric hypertonia is known to cause pulmonary hypertension with major restructuring of the walls of large and small pulmonary arteries.

The current study traces the development of contractile cells in the nonmuscular segments of rat lung microvessels in hyperoxic pulmonary hypertension.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ANATOMY OF LIVER IN SYSTEM OF TOPOGRAPHIC COORDINATES CONFORMABLY TO SUPERSONIC SCANNING

Gorainova G. V.

Dept. of Operative Surgery and Topographic Anatomy, Kharkov State Medical University, 4 Lenin, Avenue, Kharkov 61022, Ukraine

Interpretation of supersonic tomograms has no topographic basis and is of nonsystematic descriptive character. Solution of this problem is connected with use of the universal coordinate system of the human body (M. .P. Burykh, 1990).

The purpose of our research was to study anatomy of the liver on anatomical and supersonic sections. The study was made on 57 corpses of persons whose death at a mature age was not caused by any pathology of the hepatobiliary system. The research used the following methods: topometry of the liver, selective angiography of the portal system of the liver, supersonic scanning of the liver in accordance with topographic anatomical meridians. We have revealed that the anterior median meridian (Mo) is projected on the middle of the left hepatic lobe supersonic scanning in the sagittal plane along this meridian visualizes vascular-secretory elements of the 2^{nd} and 3^{rd} segments. The right anterior medial meridian (M_{11}) is projected on the place of fixing of the falciform ligament to the diaphragmatic surface of the liver; scanning along this meridian visualizes the left portal cleft. The right anterior lateral meridian (Mio) is projected by 1 cm right to the bed of the gallbladder; scanning along this meridian visualizes the gallbladder, the right portal cleft and vascular-secretory elements of the 5^{th} and 6^{th} segments.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

VARIATIONS OF SUPRAORBITAL TRAITS

E. Gümüsburun[1], U. Katkici[2], H. Erdil[3], A. Sevim[4], E. Güleç[4]

[1]Dept. of Anatomy, Faculty of Medicine, Gaziantep University, Gaziantep-Türkiye, [2]Dept. of Forensic Medicine, Faculty of Medicine, Adnan Menderes University, Aydın-Türkiye, [3]Dept. of Anatomy, Faculty of Medicine, Cumhuriyet University, Sivas-Türkiye, [4]Dept of Paleoanthropology, Faculty of Language-History-Geography, Ankara University, Ankara-Türkiye.

Objective: More than one notch and/or foramen may be found due to branching of the supraorbital nerves and vessels. The aim of this study was to investigate the variations of the supraorbital traits (notch and / or foramen) in the supraorbital region. Material and Method: A total of 360 adult Anatolian-Ottoman skulls (212 male, 148 female) were examined to determine the notches and/or foramina in the supraorbital region. Results: The distribution of the supraorbital traits 335 (93%) medial, 24 (6.7%) both medial and lateral, only 1 (0.3%) lateral position. Out of 360 skulls, 197 (54.7%) had one notch bilaterally, 32 (8.9%) one foramen on one side and one notch on the other side, 24 (6.7%) one foramen and notch on one side and one notch on the other side, 19 (5.3%) one foramen bilaterally and 88 (24.4%) other combinations. The distances of the notches from the midline, the distances of the foramina from the midline and the supraorbital margin were measured. Conclusion: Knowledge of the anatomy of the supraorbital region is important for those performing forehead, brow and temple lifts in plastic and maxillofacial surgery, as well as anesthesia of the supraorbital nerve.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CAN BE A RELATION BETWEEN POLYMORPHISM OF THE SEROTONIN TRANSPORTER GENE AND BRAIN MORPHOLOGY STRUCTURE

H. Herken[1], H. Yıldırım[2], E. Erdal[3] , H. Erbağcı[4], E. Gümüsburun[4]

[1]Dept. of Psychiatry, Gaziantep University, Gaziantep, Turkey, [2]Dept of Radiology, Faculty of Medicine, Fırat University, Elazığ, Turkey, [3]Dept of Medical Biology and Genetics, Faculty of Medicine, Mersin University, Mersin, Turkey, [4]Dept. of Anatomy, Faculty of Medicine, Gaziantep University, Gaziantep, Turkey

Objective: The serotonin transporter (SERT) gene is a particularly interesting in psychiatric disorders owing to its role in the regulation of serotonergic neurotransmission. In this study we aimed to evaluate the relationship between brain morphology and serotonin transporter gene polymorphism.

Method: Two different polymorphism of the SERT gene (17q 11.1-17q 12) were analyzed: a variable number of tandem repeats (VNRT) polymorphism in intron 2 and a deletion/insertion polymorphism (5-HTTLPR) in the promoter region of the gene. Diagnosis was made according to DSM-IV criteria. We took 28 schizophrenic patients in the study Patient's brain morphologic structure examined by magnetic resonance imaging. Data analyzed by using Mann Whitney U test and One Way ANOVA.

Results: When the relationship between VNTR and 5 HTTLPR variant of SERT gene and brain morphology were examined, the patients with S Tin 2. 12/12 genotype structure was seen to have significantly more lateral ventricule right and left volume and area according to the patients with S.Tin 2. 12/10 genotype structure, the patients with L/L genotype structure were seen to have significantly bigger right and left cerebral hemisphere grey substance area and left gyrus temporalis medius gry substance area according to patients with L/S genotype structure (respectively F= 5.32,df=2, p=0.013; F=3.38, df=2, p=0.038; F=3.55, df=2, p=0.047).

Conclusion: Results made us think that there may be a relationship between VNTR and 5 HTTLPR variant of SERT gene and brain morphologic structure.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

AGE-RELATED CHANGES IN THE SYNAPSES OF NUCLEUS PARAVENTRICULARIS HYPOTHALAMI IN THE RAT

D. Itzev*, S. Lolov, K. Usunoff*****

**Institute of Physiology and **Institute of Biology and Immunology of Reproduction, Bulgarian Academy of Sciences, 1113 Sofia,*
****Department of Anatomy and Histology, Preclinical University Center, Medical University, 1431 Sofia 1431*

The age-related differences in the synapses of the paraventricular hypothalamic nucleus (PHN) were studied by means of transmission electron microscopy in young (3 month old) and senescent (24 months old) Wistar rats. By means of morphometrical method were encountered the changes in the axodendritic and axospinous synapses in the PHN neuropil. The majority of the synapses were from the axodendritic type. In senescent rats the density of axospinous and axodendritic synapses was diminished. The mean surface of the presynaptic boutons, participating in axospinous synapses was more enlarged than by the boutons in the axodendritic synapses. The parameters, characterizing the synaptic vesicles were diminished in ageing rats, and only the number of synaptic vesicles per bouton the decline was not statistically significant. The changes of the length of the synaptic contact zone (SCZ) were not statistically significant, with the exception of the total SCZ length per 1000 mm^2 and the total SCZ surface in mm^2 per 1000 mm^3 by the axodendritic synapses, that declined statistically significant. The number of dendritic spines per 1000 mm^2 in the neuropil diminished with ageing statistically significant and the surface of the dendritic spines were enlarged did not reached statistical significance.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE TOPOGRAPHY AND MORPHOLOGICAL CHARACTERISTICS OF THE ACCESSORY RENAL ARTERIES

Sv. Jovevska, D. Lazarova, A. Strateska, M. Koceva, N. Matveeva, J. Zivadinovic Bogdanovska

Institute of Anatomy, Medical Faculty, Skopje, Macedonia

Introduction: First information about renal vascularization dated from 1557 y. when Eustachies described case of multiple renal artery. The aim of this study was to determine the topography and morphological characteristics of the accessory renal arteries.

Material and methods: We analyzed the renal arteries in 23 kidneys, obtained from subjects of both sexes. Case of death was not related to urinary tract.

Dissectional, injectional and injection-corrosive methods were applied what enabled preparing anatomic models from the renal vascular system of the kidney.

Results: After the inspection it was established that accessory renal artery most frequently occurs unilaterally (20 cases, 86, 95 %) and than bilaterally (3 cases, 13,04 %). One accessory renal artery was found in the 19 cases unilaterally (in the 11 cases on the left - side, and in the 8 cases on the right side) and one case bilaterally.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ULTRASTRUCTURE OF THE IMMUNOLOGICAL INTERACTIONS OF SYNGENEIC LYMPHOCYTES WITH RESIDENT BRAIN CELLS

D. Kadiysky, M. Svetoslavova, I. Christov

Dept. of Neuromorphology, Institute of Experimental Morphology & Anthropology, Bulgarian Academy of Sciences, G. Bonchev Str., bl. 25, 1113 Sofia, Bulgaria

The microenvironment of the mammalian central nervous system (CNS) has mechanisms of self-protection against injury, infection and immunologically unknown substances. The blood-brain barrier (BBB) isolates this microenvironment from the immune system in the healthy brain, but several resident cell subclasses with immune function (microglia, perivascular cells etc.) can be found in the non-altered CNS. Microglia comprise between 5-20% of the total brain glial cells and so called "brain macrophages" are considered to play an active role in a variety of neurological diseases by virtue of the fact that they express (Ia) class II antigens of the major histocompatibility complex (MHC), Fc- and complement-receptors (CR3, CR2), phago- and pinocytosis.

It was demonstrated that the microglial cells in mammalian brain exhibit functional characteristics common to cells of the monocyte/macrophage lineage including the ability to associate with T-lymphocytes.

For estimation of this ability we have proposed an in vitro model permitting free taxis of the syngeneic lymphocytes within the CNS tissue and their association with some brain parenchymal cells without the restrictions for migration existing in vivo and based on the limiting role of the BBB.

The aim of this study was the visualization by scanning electron microscopy (SEM) of the contacting cell surfaces and the ultrastructure of the three-dimentional clusters, formed by the cell-to-cell interacting lymphocytes and microglia in vitro.

Our ultrastructural investigation addresses several questions about the significance and frequency of lymphocyte entry and contacts in CNS parenchyma, and about their fate in the pathologically altered brain in vivo.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

LONG-TERM HISTOPATHOLOGIC CHANGES IN THROMBOSED ANEURYSM IN PATIENT ON HEMODIALYSIS

F. Kacarska, P. Dejanov*, V. Hadziev, G. Petrusevska, V. Janevska****

*Institute of Histology and Embryology, Faculty of Medicine, Skopje, Republic of Macedonia, *Clinic of Nephrology, Faculty of Medicine, Skopje, Republic of Macedonia, **Institute of Pathology, Faculty of Medicine, Skopje, Republic of Macedonia*

The purpose of this work was to give a qualitative evaluation of the morphological alteration in the registered aneurysm in the patient during the period of 15 years after the insertion of the arteriovenous fistula [AV-F].

The specimen were fixed in 10% formalin solution, dehydrated with alcohol and embedded in paraffin, cut in 5-6 ηm, thickness and stained by the following routine histological methods HE, Azan-Mallory, Orcein method Cossa-Goldner and Masson's trichrome method.

In order to clarify this subject, we performed a combination of morphological description with a combination of morphometrical analysis under light microscopy.

Our observation shows that solid resilient mass, the thrombus completely occluding the lumen of the registered aneurysm.

Damage of an aneurysm's wall involves damage to the endothelial lining, the development of intimal thickening and its progression, including an atheromatous lesion, which consists of aggregated myointimal cells containing lipid and different contain of intimal fibrous tissue. The light microscopic examination also discovered extensive region of mucoid degeneration, extravasations and calcification. Well-defined membrane elastica interna was found in specimens stained by Orcein method.

The results of our research suggest loss of muscle and elastic fibbers from the media, resulting with the dilatation of the venous wall. This dilatation is the basis of the formation of the atheromatous aneurysm, analysed in our investigation. This was associated with a marked fibrotic response in the tunica adventitia with signs of hyalinisation and gross extravasation.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

STENOSIS AS LATE COMPLICATION IN ARTERIOVENOUS FISTULAS IN 20 PATIENTS ON HAEMODYALISIS

F. Kacarska, A. Oncevski, V. Janevska**

*Institute of Histology and Embryology, Faculty of Medicine, Skopje, Republic of Macedonia, *Institute of Pathology, Faculty of Medicine, Skopje, Republic of Macedonia, **Clinic of Nephrology, Faculty of Medicine, Skopje, Republic of Macedonia*

The basic aim of this investigation was to study the morphology of the venous segments taken from vena cephalica 7 years after the insertion of the arteriovenous fistula, surgically induced in patients on hemodialysis, Hospitalised at the Clinic of Nephrology in Skopje, fixed in formalin, embedded in paraffin, cut in 5-6 thickness and stained by the following histological methods: HE, Azan-Mallory and Orcein. Histological analysis shows a high level of disorganisation in the vascular architecture of the analysed venous wall. The most altered part from the venous wall was tunica intima with histological signs of intense intimal fibrous proliferation, which is the major factor for causing the registered complete stenosis of the analysed venous vessels. According to the results of our investigation, our morphometric analysis shows that the width of tunica intima is 140.08, which in fact is 64,45% of the width of the whole venous wall. The well-differentiated 20 atheromatous lesions and marked neovascularization were recorded in the proximal and medial part of tunica intima. On the other hand the distal part of tunica intima is characterized by swirling bundles of collagen fibbers, myointimal cells and numerous short elastic fibbers. Many of these myointimal cells became vacuolated 20.

The thicked intima is separated from the tunica media by discrete internal elastic lamina, partly granulated. The media contains mainly fragments of smooth muscle bands separated with abundance of fibrous tissue and elastic fibbers, especially in its proximal part. Further development of fibrous incorporation of tunica adventitia, too. It is evident that these alterations lead to thickening and loss of elasticity of the venous wall and are a major cause of the arteriovenous fistula's failure.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

GASTROINTESTINAL (MALT) T-CELL LYMPHOMA: IMMUNOHISTOCHEMICAL TYPING

M. Karaivanov, V. Ivanova

Dept. of Pathology, Medical University, K. Ochridski Str. 1, BG-5800, Pleven

The concept of mucosa-associated lymphoid tissue (MALT) lymphoma is now widely accepted. In a prevailing percentage of MALT-lesions it is a matter of B-cell lymphoma with low-degree malignancy. T-cell lymphomas occur sporadically. A very rare case of anaplastic (MALT) T-cell lymphoma in the stomach of 57-year-old man is described. Immunohistochemical typing supports a definitive diagnosis.

CARCINOSARCOMA (MALIGNANT MESODERMAL MIXED TUMOR) OF THE URETER

M. Karaivanov, V. Ivanova

Dept. Of Pathology, Medical University, K. Ochridski Str. 1, BG-5800, Pleven

Carcinosarcoma of the ureter is an extremely rare malignant neoplasm that consists of both carcinomatous and sarcomatous elements. Only 7 cases of malignant mesodermal mixed tumor of the ureter have previously been reported in the literature. We present a case of carcinosarcoma of the ureter with chondroid differentiation and transitional cell carcinoma (mixed type) of the urinary bladder and renal pelvis. In order to elucidate the origin of the tumors immunohistochemical examination, using a panel of antibodies and AgNOR staining was performed.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

REAKTIVE CHANGES IN THYROID GLAND OF YOUNG WISTAR RATS AFTER APPLICATION OF CORDARONE

G. Kiroska, Z. Gerasimovska, E. Mitevska

Institute of Histology and Embryology, Medikal Fasility "Ss.Cyril and Methodius", Skopje, R. Makedonoa

We made an experiment by which we assessed the effects of the therapeute doses of cardiotonic and antiarrhythmic drug Amiodarone (Cordarone) on the histological structures of thyroid gland in young Wistar rats. This medicine besides other components, contains certain persentage of iodine and this has its effect on thyroid gland,too.

Thyroid gland of young Wistar rats manifested more intensive histo-toxical reactions in comparison with the thyroid gland in adult rats, which we hed examined in a previous investigation.

In 30% of the experimental animals, there was a common histological picture, except for the follicular epithelium that was papillary infolding into the colloid. Most of the papillae were with connective tissue stroma, coated with folicular epithelium.

In another 40% of the young Wistar rats follicles with surface degenerative follicular epithelium were found and epithelial particles or cells were desquamated into the colloid. These destructive changes were either local - they were found on a definite site of the follicular wall where there was desquamation of the follicular epithelium, or they were diffuse, whitch meant they were found in several follicles and several places in the same follicle. In certain parts of some follicles, necroses of follicular epithelium were presens.

Glandular interstitium was infiltrated with plasma cells.

Connective tissue with its septa separated nodulary the glandular parenchyma.

There were regions of the thyroid gland with degenerative and destructive follicular lesions with associated fibrotic lesions.

In the preserved regions of the gland, there was distincty increased vascularization whict was more present in the central regions of the thyroid gland.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE INFLUENCE OF GLUCOCORTICOIDS ON THE DIFFERENTIAION OF RAT ADRENAL CORTEX, TESTIS AND ADIPOSE TISSUE

Y. Koeva, P. Atanassova, E. Petrova, L. Popova

Dept. of Histology and Embryology, Higher Medical Institute, V. Aprilov Blvd. 15A, Plovdiv, BG

The aim of the present work was to study the influence of glucocorticoids on the differentiation of the cells of the adrenal cortex zona fasciculata, the Leidig cells and the subcutaneous adipose cells during rat embryonal development. Pregnant Wistar rats were injected intraperitoneally with 400 mg Dexamethasone from 17^{th} day of pregnancy till birth. Pregnant Wistar rats treated with serum physiologicum in the same way were used as controls. On the 20^{th} day of gestation and on the 2th day after birth the adrenal cortex, the testis and the adipose tissue of the rat embryos and the newborns were investigated histochemically (Sudan III staining for lipid demonstration), enzymohistochemically ($NADH_2$-cytochrome-C-reductase, glucose-6-phosphate dehydrogenase, $\Delta^5 3\beta$HSDH and lipoprotein lipase) and electronmicroscopically. The results showed that there was an increase in the volume of the lipid droplets and a decrease in the activity of the investigated enzymes, especially for $\Delta^5 3\beta$HSDH in the adrenal and Leidig cells. There was a decrease in the number and size of the lipid droplets and the intensity of the enzymehistochemical reactions for the key enzyme of lipidogenesis – lipoprotein lipase in the differentiating adipose. The ultrastructural data confermed the catabolic effect of glucocorticoids on embryonal rat steroidogenesis and adipogenesis.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ULTRASTRUCTURAL RESEARCH INTO THE INFLUENCE OF STEROID HORMONES ON THE DIFFERENTIATION OF RAT LEYDIG CELLS

Y. Koeva, L. Popova

Dept. of Histology and Embryology, Medical University, V. Aprilov Str. 15A, BG-4000, Plovdiv

The aim of the present study was to demonstrate the testosterone's effect on rat Leydig cells during postnatal development.

As material were used testes of rats on 5, 10, 15, 20, 24 and 27 postnatal days. One group of the animals had been injected once with testosterone intramuscular before the experiment. Fragments of the testes were fixed in 5,5% buffered glutaraldehyde, postfixed in 2% OsO_4 and embedded in Durcopan. For electron microscopy, ultrathin sections were contrasted with 5% uranyl acetate and lead citrate. On the fifth and the tenth day were observed more fetal type Leydig cells with many lipids and tubulovesicular type smooth endoplasmatic reticulum (SER). Leydig cells with progenitor's characteristics (elongated or spindle shaped cells, containing low developed SER and without lipids) were found before all on the 20^{th} and 24^{th} day, while on the 27^{th} day were observed single immature Leydig cells. After using testosterone, was observed increasing the quantity of the immature Leydig cells with numerous lipid droplets, steroidogenic type mytochondria and SER, and decreasing the progenitors on the 24^{th}, and especially on the 27^{th} day after birth.

In conclusion, our results showing the appearance of more immature Leydig cells after using testosterone suggest possible role of androgens in the differentiation of rat Leydig cells.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

INFORMATIONAL POTENTIAL OF SOME CRITERIA FOR ASSESSMENT OF OBESITY

M. Koleva

Department of Hygiene, Ecology & Occupational Health, MU-Sofia

Purpose: To investigate the particularities of the relationships among body weight, BMI and conicity index (CI) using a set of anthropometric measurements bearing information about the amount and distribution of subcutaneous fat tissue, fatty mass, lean (fat free) body mass, somatotype and blood pressure.

Material and Methods: 702 men and women, divided into gender and age groups, underwent anthropometrical and other clinical analyses. The anthropometrical measurements were carried out using classical methods; somatotype was determined by Heath&Carter method; the indices were calculated based on well-known and universally accepted formulae. Correlation analysis was used at $p<0.05$.

Results: According to the established correlational coefficients, a statistically significant relationships exists between body weight, BMI and CI on the one hand and almost all the investigated anthropometrical measurements on the other hand. The highest significant correlational coefficients ($p<0.001$) for whole excerpt relate body weight to lean body mass ($r=0.938$), BMI to hip circumference ($r=0.918$) and CI to waist circumference ($r=0.851$). The differences in the investigated correlational coefficients reflect actual age-related changes in the accumulation, fat tissue distribution and somatotype. Both genders exhibit a common, unevenly manifested tendency towards weakening the relationships among the investigated indices and criteria for obesity assessment. The comparative analysis whose purpose is to find out the assessment and prognostic value of the investigated indices shows that BMI is and remains a criterion for the assessment of the nutritional status and obesity degree. CI correlates in a statistically significant manner only with certain criteria characterizing the type of obesity and with blood pressure. The body weight exhibits a most significant correlation to blood pressure and the indicators of obesity.

Conclusion: These results show that the most important factors for the prognosis of arterial hypertension are the individual annual weight gain and the body shape or the centripetal obesity.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

A RARE MANDIBULAR ACCESSORY CANAL (CASE REPORT)

C. Kopuz*, A. Acikgoz, G. Keles****

**University of Ondokuz Mayıs Faculty of Medicine Department of Anatomy*
***University of Ondokuz Mayıs Faculty of Dentistry*

Accessory mandibular canals are found to be very rare occasion in the confirmed population. It is being presented multiple canals in the inferior ramus which have ended at the angulus of the mandible. This case was found during the course of routine dissections evalution in cadaver. Mandibular accessory canals were branched parallel to the ramus in which superiorly external medial surface whereas accompained by a second major and with an other minor accessory canal. This subject has monitored with histologic, radiographic and with gross anatomic interpretation. In main canal neurovascular tissues were existent. In accessory canal, adipose tissue and neurovascular tissues except arteries were observed (HeX100). Lateral oblique radiograph was taken and the canals were showed with wires. Wyatt in 1996 reported occurance of this canals were found to be less than 1% whereas different ratios may be seen in different populations. In 1977 Nortje found 2 cases among 3612 subjects which has studied retrospectively in radiograph. As far as we are concerned this is the first case found during dissections and presented histologically.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CLINICAL - ANATOMIC BASIS OF RATIONAL TECHNIQUE OF OPERATING AT EVENTRATION

Zh. Logvinova

Dept. of Operative Surgery and Topographic Anatomy, Kharkov State Medical University, 4 Lenin Avenue, Kharkov 61022, Ukraine

On the basis of the analysis of 186 neuro-vasicular-muscular preparations of abdominolateral wall of abdomen rational parts for string-shock-mount transtissue adaptive-shock-proof apparatus were grounded. Under conditions of operations on corpses of children (30 operations) the technique and procedures of operating were developed. They guarantee the maximum protection of nerves, vessels and structure of muscles of the given region and reliable fixation of edges of a wound at median, trans and pararectal accesses that are potential dangerous for appearance of eventration.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ALTERED EPITHELIAL COMPONENTS IN MYASTHENIC THYMUS

Ts. Marinova*, A. Atanassov, I. Goranova*****

**Dept. of Biology, Medical University, Zdrave Str. 2, BG-1431, Sofia*
***Dept. of Surgery, Thracian University, Armeiska Str. 11, BG-6003, Stara Zagora*
****Dept. of Pathology, Medical University, Zdrave Str. 2, BG-1431, Sofia*

Some recent observations suggested that in Thymoma-associated Myasthenia gravis (MG) thymic neoplastic epithelial cells (EC) and their intermediate filaments (IF) proteins were in stark contrast with those in normal thymus. We investigated comparatively both myasthenic and normal thymuses, respectively their epithelial components. Myasthenic thymuses were obtained from patients with MG (clinical findings): Thymic hyperplasia (pathological findings). Routine light microscopy, indirect immunofluorescence (IIF) and immunoperoxidase (IIP) method, transmission electron microscopy (TEM) and immunogold EM as well as some primary antibodies (Ab): Anti-Keratin Ab, Anti-Cytokeratin type II (CK) Ab, Anti-S100 Ab, Anti-Lysozyme Ab were used.The majority of MG thymuses demonstrated various degrees of CK immunoreactivity in hyperplastic epithelium. Strongly keratin and CK immunopositive medullar EC with focal aggregation of CK-binding gold granules were found. In addition drastic IF accumulation, IF bundles enlargement and disorganization were observed. Formation of rosettes from T cell and stromal cells (EC, leukocytes and interdigitating-like cells) was investigated. Hassall's corpuscles (HC) with an atypical localization were created from several kinds of cells: CK, S100 and lysozyme immunopositive cells. Giant HC with concentric arrangement of keratinizing EC or with hyaline homogenate in the center were detected. The results obtained showed that thymic epithelial microenvironment undergoes specific reorganization during MG transformation.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PRESENCE OF HLA-DR IMMUNOPOSITIVE CELLS IN HUMAN FETAL THYMUS

Ts. Marinova*, I. Altankova, D. Dimitrova* , Y. Pomakov****

Dept. of Biology, Medical University, Zdrave Str. 2, BG-1431, Sofia**Dept. of Clinical Laboratory and Clinical Immunology, Lab. of Clinical Immunology, Medical University, D. Nestorov 15, BG-1431, Sofia

Several kinds of thymic cells expressing MHC class II antigens (including HLA-DR) during postnatal development and having a key role in thymic selection processes were demonstrated up to now. The present study was focused on the detection and analysis of HLA-DR immunoreactivity in human fetal thymuses (6-7th month of gestation) using tissue sections as well as separated lymphoid and non-lymphoid cells. Conventional light microscopy, indirect immunofluorescence (IIF) and immunoperoxidase (IIP) staining, transmission electron microscopy (TEM), immunogold EM, flow cytometry and enzyme-linked immunosorbent assay (ELISA) were applied.

The IIF, IIP and IGEM demonstrated the presence of HLA-DR immunopositive non-lymphoid cells (epithelial cells and interdigitating-like cells) as well as some lymphoid cells (large lymphocytes) in all thymic regions. HLA-DR immunoreactivity was more prominent in the medullary stromal cells than in the cortical thymic cells. Flow cytometric analysis and ELISA results were in accordance with the immunocytochemical assays. Immunoenzyme data and representative fluorescence histogram profiles about the detection of HLA-DR immunopositive and CD3/HLA-DR double positive cells were analyzed.

Taken together, these new ontogenetical data about some quantitative and qualitative features of HLA-DR immunopositive fetal thymic cells suggested their essential significance for the generation of the complete T-cell repertoire.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ASYMMETRIC VIMENTIN DISTRIBUTION IN HUMAN SPERMATOZOA

M. Markova, Ts. Marinova, I. Vatev

Department of Biology, Medical Faculty, Medical University of Sofia, 2 Zdrave Str., 1431 Sofia, Bulgaria

Presence and cellular localization of cytoskeletal components such as the intermediate filament protein vimentin in the sperm head has been suggested to be important in fertilization. We studied vimentin distribution in spermatozoa from normozoospermic and asthenozoospermic ejaculates by immunofluorescence and immunogold electron microscopy.

In accordance with earlier reports, vimentin was found in the sperm head. It was localized mainly in the equatorial segment region in both normal and abnormal spermatozoa, with broader and more intensive staining in the latter. However, electron microscopic observations revealed an additional intriguing detail: vimentin-associated gold granules showed asymmetric distribution. This asymmetry was more pronounced in heads with cytoplasmic droplets and other structural defects. Abnormal cells were also characterized by positive reaction for vimentin in the neck and the initial segment of the middle piece, but in these domains gold granules distribution was apparently uniform.

These findings seem to support the hypothesis that the surfaces of the mammalian sperm head are functionally non-equivalent, although morphological basis for such a phenomenon is easily observed only in rodents. It is also interesting that asymmetry in vimentin distribution correlates with distinct sperm structural defects.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

CYTOMORPHOLOGYCAL AND CYTOGENETICAL INVESTIGATION ON NORMAL MOUSE CELLS AFTER TREATMENT WITH DIFFERENT CYTOSTATIC DRUGS

J. Martinova*, M. Topashka, M. Karaivanova***, S. Konstantinov***, M. Berger******

**Institute of morphology and anthropology, BAS, **Institute of Zoology, BAS, ***Dept. of Pharmacology and Toxicology, Faculty of Pharmacy, MU, Sofia, ****Unit of Toxicology and Chemotherapy, German Cancer Research Center, Heidelberg, Germany*

The current study presents our data on the influence of independently or combined administrated Miltefosine Hexadecylphosphocholine (HPC) from Asta Pharma (Frankfurt, Germany), Cyclophosphamide (CP), (Endoxan) Asta Pharma, Germany fl. 200 mg and Epirubicine (FB), (Farmorubicin, Farmitalia Carlo Erba, Italy) fl. 50 mg for clinical use. Clastogenic activity, morphological and proliferative alteration in spermatogenic and thymic cells were studied. Inbred C57BL16 mice were treated. Treatment of mice with HPC (20mg/kg) and CP (70 mg/kg) on 1st, 5th and 9th day after tumor transplantation resulted in a significant decrease of spermatogonal cells in the testis. Some spermatocytes and Sertoli cells have shown prominent vacuolisation of the cytoplasm, but the majority of cell population in the testis was with normal appearance. In the thimus advanced degenerative changes were visible in some thymocytes, expressed as membranous mieline-like formations and phagosomes. The testicular and thimic morphology did not change considerably after treatment with Farmorubicine (2n5 mg/kg). It is important to note the appearance of a number of plasmocytes with typical strongly extended cysternae of endoplasmic reticulum as a sign of active protein (antibody) synthesis. After the independent administration of Farmorubicin according too therapeutic doses about 20% aberrant mitoses in mouse bone marrow cells were scored and only 3‰ mitotic index. Combined injection of FR and HPC resulted in higher proliferative activity and significant reduction of the percentage of metaphases with aberrant chromosomes. CP treatment causes strong reduction of bone marrow cell mitotic activity and till to 94% of analyzed mitoses possess aberrant chromosomes. Combined administration with HPC does not reduce clastogenecity of CP.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

MAGNETIC RESONANCE IMAGING OF LUMBAR INTERVERTEBRAL DISCS IN PEOPLE WITH LOW BACK PAIN

N. Matveeva, A. Strateska, M. Vrcakovski, D. Lazarova, S. Jovevska

Institute of Anatomy, Medical Faculty, Skopje, R. of Macedonia

The purpose of the study is to determine morphostructural changes in lumbar intervertebral discs in adults with magnetic resonance imaging. MRI examinations (sagittal and axial T1 weighted and T2 weighted spin echo images) on 40 adults (40 years and older) were performed. The prevalence of degenerative disc abnormalities at one or more levels was high (76%). 62% of the participants had a bulging disc at one or more levels. Using a well-defined morphologic nomenclature the prevalence of disc herniation was examined. Disc protrusions were most frequent findings at one or more levels (55%), while the prevalence of extruded disc herniation was 24%. The most common findings on MRI examination of the lumbar spine in people with low back pain were disc bulges and protrusions. MR imaging has become the imaging modality of choice for evaluation of morphostructural spine disorders.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

SCANNING AND TRANSMISSION ELECTRONMICROSCOPIC CHANGES OF THE DIAPHRAGMATIC STOMATA AFTER EXPERIMENTAL PERITONITIS

K. N. Michailova

Department of Anatomy and Histology, Medical University, BG-1431, Sofia

Stomata of the diaphragm are the main structure for transport of serous fluid from peritoneal cavity to the lymphatic lacunae (LL). The changes of stomata in experimental and pathological conditions remain unclear. The present study demonstrates the fine structure of muscular portion of the peritoneal side of the diaphragm. Adult Wistar rats was investigated by scanning and transmission electron microscopy (SEM, TEM) in a control group and after Pseudomonas aeruginosa instillation (PI) in the peritoneal cavity. SEM in the control group shows parallel shallow furrows and ridges with flat cell covering and large areas of cubic cells in vicinity of openings - stomata. The large LL is located near the muscular layer and only single LL is in direct contact with the mesothelium. By TEM no typical stomata are to be found. SEM after PI shows deep furrows and ridges with irregular course. Round, oval, canal-like or tunnel clefts forms of stomata are arranged in clusters in vicinity of blood cells and voluminous coagulated material. The LL is larger in size and form groups, seen by TEM. The cubic mesothelial cells build openings and are connected with underlying lymphatic endothelium over common basal lamina, as typical stomata. There are numerous types of mesothelial and lymphatic endothelial connections, different forms of lymphatic septae between neighbouring LL, and various valve-like structures in them. The observation after PI suggests that there is parallel, corresponding changes of mesothelial cells and underlying LL: the rapid drainage structures in experimental conditions.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PLACENTAL FETAL COTYLEDON IN EPH GESTOSIS

N. Mihic, J. Milin

Department of Anatomy, Medical Faculty, H. Veljkova Str. YU-21000, Novi Sad
Department of Histology and Embryologi, Medical Faculty, N. Krusevac bb, YU-81000, Podgorica

The purpose of present scanning electron microscopic stady was to visualize the changes of the morphological characteristics of placental fetal cotyledons in EPH gestosis. That is important for a better undersanding of the haemodynamic changes in this complication of pregnancy. The placentas of women with normal pregnancy and the placentas of women suffering from EPH gestosis, delivered at term, were examined. The cotyledon from central part of placenta was excised and routinely processed for scanning electron microscopy. The findings of placentas from glavidas with EPH gestosis revealed that numerous fetal cotyledons had a changed shape. Some parts of the cotyledon have showed a decreased number of the terminal villi and mature intermediate villi. Some parts showed a increased number of the immature intermediate villi and their decreased branching. Immature intermediate villi were mostly long-shaped, with individual spouts and without lateral villous branches. Intervillous space around them was dilated. The tips of some immature intermediate villi branched richly into preterminal villi or continuated with mesenchymal villi. We also observed fetal cotyledons which have the same morphological characteristics as weii as those in normal placentas. The result of present investigation inducate that the development of fetal cotyledons of placental from gravidas with EPH gestosis was disordered. Locally decreased ramification and dilated intervillous space led to disturbance of intervillous blood flow and increase of mother's blood pressure.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE RESULTS OF THE SEMEN ANALYSIS CAN LEAD TO DIAGNOSTIFYING AFUNCTION OF SEMINAL VESICLES

L. Milenkova, N. Kostovska

Institute of MEA Histology & Embryology, Medical faculty of Skopje, 50 Divizija b.b.Macedonia

Purpose: To show that the routine semen analysis could offer datas, which may specifically direct the further diagnostic, procedures toward discover the cause of male infertility.

Materials and methods: Routine semen analysis, which includes differential analysis of vitality, motility and morphology of the spermatozoal population, determination of physical and chemical properties of the seminal plasma and bovine cervical mucus penetration test (BCMPT).

Findings: By detailed interpretation of values of all determined parameters we successfully discovered few cases of a function of vesicule seminales which is extremely rare condition (1 in 1000). Five specific parameters when found together with extremely changed values are indicative for a function of seminal vesicles reflecting absence of its participation in seminal plasma. These parameters are complete absence of coagulation; high acidity (from 6.2 to 6.4); extremely low volume of the sample (from 0.1 to 0.4 cm); extremely low fructose concentration (from 0.2 to 0.9 mmol/L); and 100% immotility besides a high percentage of vital and morphologically normal spermatozoa. BCMP test is also always negative but not crucial for postulating the diagnosis.

Significance of findings: Diagnostifying a functional seminal vesicles by a simple semen analysis means strictly pointing out the location of the disorder, which serves as a valuable start point in the further clinical examination of these patients.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

AMPA RECEPTOR SUBUNIT GLUR4 IS PREDOMINANTLY ENRICHED AT CORTICAL SYNAPSES IN SOMATOSENSORY THALAMUS

E. Mineff, K. Usunoff

Dept. of Anatomy and Histology, Medical University - Sofia, 1431

The mechanism by which the cortex exerts its massive feedback in somatosensory thalamus is still unknown. Glutamatergic terminals from layer VI of somatic sensory cortex (SI) are dense in the ventrobasal (VB) and reticular (RT) thalamic nuclei. To identify which AMPA subunits are prevalent at these synapses in the two structurally and functionally entirely different nuclei, rats were perfused few days after biotinylated dextran was injected into deep layers of SI and 50 μm thick sections through thalamus were processed for visualization of the tracer with peroxidase, then embedded and processed for postembedding immunogold (Phend et al., 1995), using antibodies against AMPA receptor subunits. Of these, GluR4 gave the highest counts of gold particles per identified cortical synapse. GluR4 was infrequently detected at synapses of ascending lemniscal fibbers in VB, or of intrathalamic projections to RT. These results demonstrate selective expression for GluR4 at terminals of cortical descending projections. The density of GluR4 at cortical synapses in the two nuclei was not uniform: GluR4 was expressed at four time's higher levels in RT than in VB. Since RT contains only GABAergic neurones, which are virtually absent from VB, these results also suggest a target selectivity for GluR4 subunit of the AMPA receptor.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THICKNESS AND SUBCUTANEOUS FAT TISSUE DISTRIBUTION – GENDER AND AGE DIFFERENCES IN ADULTS

A. Nacheva, M. Koleva*, M. Boev*

Institute of Experimental Morphology and Anthropology, BAS
**Department of Hygiene, Ecology &Occupational Health, MU-Sofia*

Purpose: To study and assess the gender and age particularities relating to the amount (thickness) and subcutaneous fat tissue (SFT) distribution in adults.

Material and Methods: 529 adult men and 254 adult women from the region of Northwestern Bulgaria, divided into age groups (below and over 40 y) were examined by calliperometria by Brozek & Keys.

Results: We analyzed the data pertaining to nine standard skin folds and assessed the gender and age differences in the absolute values of these skin folds. In addition, we compared and assessed the differences in the distribution of SFT in different parts of the body (the trunk and extremities), quantified using the relative value of each skin fold (%) against the total value.

The results of the study show that the total amount of SFT in men over 40 does not change but only gets redistributed. There is a statistically significant increase in the thickness of SFT in the back, chest, and abdomen. There is no change in the SFT thickness in the upper extremities, while there is a statistically significant decrease in the SFT thickness of the lower extremities. Women over 40 continue to accumulate SFT. In contrast to men, women exhibit a statistically significant increase in the thickness skin folds in the upper part of the body, the upper extremities, and abdomen. The increase of SFT thickness in the lower extremities is not significant. The gender comparison shows that women have a substantially greater amount of SFT both before and after the age of 40. As far as the distribution of SFT in different parts of the body and the extremities, both age groups preserve two types of obesity: men have a greater relative amount of SFT in the back, chest, and abdomen, while women have it in around the forearm and the lower extremities. The gender differences stay the same with the increase in age.

Conclusion: This investigation is significant in risk assessment for arterial hypertension and other cardiovascular diseases.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE SPECIFIC DIMENSION OF THE BODY IN THE MACEDONIAN POPULATION

N. Nakeva-Janevska, N. Georgevik, D. Lazarova, A. Strateska, M. Papazova, B. Trpkovska

Institute of Anatomy, Medical Faculty, "St.Ciryl and Methody" University, MAK-91000 Skopje

The aim of the experiment is to confirm and determine the morphological body structure in Macedonians at the age of 14. With factor analysis of manifest antropometric variables, we got the latent factors, which define the antropometric space at this age in Macedonian youngsters.

A transversal section was given on 22 antropometric variables of fourth dimension in 200 examiners of both sexes, with methodology of IBP.

The results show that in male examiners - group M_{14} persist four latent factors: F_1, F_2, F_3, F_4, which defined anthropomorphological space, and in female examiners - group F_{14} three: F_1, F_2, F_3.

At this age of 14 in male examiners the body differentiation is expressed i.e. the low of differentiation which in female is manifested two years earlier.

At the age of 14, in both sexes, are defined undermechanisam for specific LDS, responsible for longitudinal arm growth. Medial statistic values of variables from TDS are higher in males, than in females. They grow with high intensity annual growth, till the age of 14, and than the curve of prognostic model are been stabilised.

Up to the age of 14 morphological body structure in males is simple than in females.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

MORPHOLOGICAL AND IMMUNOHISTOCHEMICAL STUDIES ON SOME OF THE ELEMENTS OF TESTICULAR PERITUBULAR MATRIX (FIBRONECTIN AND LAMININ) OF FERTILE AND INFERTILE MEN

B. Nanova

Dept. of Anatomy, Histology & Embryology, Medical University of Varna, 55, Marin Drinov Str., BG- 9002, Varna

Fibronectin (Fn) as glycoprotein of the peritubular matrix (PTM) contributes cell adhezion, forming big units in testicular PTM. Pure Fn contributes cell-junctions, also. Laminin (L) is highly-specific, tissue-specific and cell-specific factor that is localized mainly in basal membranes, as in capillaries of the interstitial tissue and Leydig cells, also. We aim: morphological study on alterations in basal membranes, peritubular and interstitial tissues; immunohistochemical investigation on localization and distribution of Fn and L in testicular PTM of fertile and infertile men. A biopsical and semenological investigation was performed on 16 men (20-35 years old). 5 of them were with oligoastenozoospermia III dg. and 9 with azoospermia. In two of them normozoospermia was observed. Biopsical material for light microscopy and immunohistochemistry was fixed in Buen and was followed by routine histological technique. For immunohistochemistry we used monoclonal anti-cellular fibronectin, clone Fn-3E2, monoclonal anti-laminin clone Lam-89. Classic immunohistochemical enzyme method according to M. Davidoff and W. Schulze (1982) was applied. In cases with oligoastenozoospermia-III dg. and azoospermia inspite of etiological factors in interstitium and peritubular tissue we observed destructive processes. Dislocation and proliferation of myofibroblasts were established. Results received from immunohistochemistry showed localization of Fn in fibroblasts, myofibroblasts and in Sertoli cells, also. Strong positive immune reaction showed localization of L in basal membranes of seminiferous tubules, in interstitial tissue and around blood vessels in interstitium. Conclusions: The complex Sertoli cells-peritubular myoid cells have a great importance in production and localization of the components of PTM. It is playing an important role for differentiation and development of germ cells, forming of haemato-testicular barrier. As an element of haemato-testicular barrier the basal membrane is vulnerable in pathological processes: an expression is its

fragmentation and folding that is observed in patients with oligoastenozoospermia III dg. and azoospermia. Laminin plays an important role in morphogenesis and structural stability of seminiferous tubules. Myoid cells produce Fn and it has importance in forming basal membranes of Sertoli cells, thus cell to cell and cell to matrix interactions are essential in testicular morphogenesis.

EXPOSITION OF THE INFERIOR ALVEOLAR NERVE AND VESSELS IN ATROPHIC MANDIBLE. ANATOMICAL AND CLINICAL STUDY

K. Natsis, D. Karanikola, P. Xepoulias, A. Tsirlis, P. Gigis

Dept. of Anatomy, Medical School, Aristotle University of Thessaloniki, Greece

The mandible with the ageing process is susceptible to alterations is shape and size. At the stage of senility after the collapse of teeth, the alveolar process is absorpted and as the result the mandibular canal and the mental foramen are found close to the superior margin.

The body of mandible resembles to the basic part of the mandible. There is a reference of a case with an evident atrophic mandible and an exposition of the inferior alveolar nerve and vessels on an 81 year-old-male corpse who carried a total denture of the mandible. The above case is also remarked on a 70 years old male patient who could not accept the denture for ten years. The patient accepted a special restorative procedure with an implantation of two pieces. The final result was functional and aesthetical as access.

The exposition of the inferior alveolar nerve and vessels in atrophic mandible is almost scarce but it appears an anatomical and clinical interest.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE RELATIONSHIP OF FABELLA WITH THE OSTEOARTHRITIS OF THE KNEE JOINT

K. Natsis, A. Beletsiotis, G. Panidis

Dept. of Anatomy, Medical School, Aristotle University of Thessaloniki, B' Orthopaedic Clinic G. Papageorgiou Hospital, Greece

The presence of the fabella in the knee x-rays sometime, presents a problem, especially in differential diagnosis with looses bodies. The goal of our present study was to find the relationship of the fabella with the osteoarthritis and specifically with its type. From anatomical point of view the fabella is an accessory bone that is found in the tendon of the lateral head of gastrognemius muscle. Statistically its presence in normal population is about 12.3 to 16.5%.

We studied retrospectively the radiographs of 100 patients with primary osteoartrhitis who underwent total replacement arthroplasty. Sixty-eight knees were found to be of the hypertrophic type and 32 of the atrophic type. Eighty-four were women and 16 men, with a mean age 67.2 years (55-77). The fabella was found in 43 knees out of 68 (63.2%) with the hypertrophic type and only in 6 out of 32 (12.5%) with atrophic type.

Our results indicate:

1. The presence of the fabella has a higher incidence in ostearthritis knees (49%).
2. Higher incidence in hypertrophic type than in the atrophic one.
3. The presence of the fabella (from the age of 12th year) may have prognostic value in evaluation of the natural history of osteoarthritis of the knee joint.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PERSISTENT MEDIAN ARTERY IN THE CARPAL TUNNEL. A CASE REPORT

K. Natsis, A. Beletsiotis, P. Gigis

Dept. of Anatomy, Medical School, Aristotelian University of Thessaloniki, Thessaloniki, Greece.

During the dissection of a female cadaver aged 58, we found an unusual anatomical variation, which was a persistent median artery into the carpal tunnel. The artery originated by the trunk of the ulnar artery, it passed through the carpal tunnel and finally it gave off the first and the second palmar metacarpal artery.

There are many different opinions about the frequency of the persistent median artery but all the authors agree that the presence of the artery into the carpal tunnel is of great clinical value. The Carpal Tunnel Syndrome (C.T.S) may be caused by a large persistent median artery, aneurysm, thrombosis and traumatic rupture of the median artery.

The persistent median artery may cause a damage to the median nerve in two different ways: 1) Compression and 2) Ischemia. As treatment of the C.T.S the authors always recommend the decompression of the carpal tunnel and the dissection of the persistent median artery; on the other side, they consider the excision of the vessel possible only when a sufficient anastomotic blood-supply is ensured.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

RARE VARIATION OF THE MEDIAN NERVE AT THE CARPAL TUNNEL. A CADAVER FINDING

K. Natsis, A. Beletsiotis, P. Gigis

Dept. of Anatomy, Medical School, Aristotle University of Thessaloniki, GREECE

In this study, we describe in the right hand of a woman cadaver, an abnormal origin and course of the 3rd common palmar digital nerve, which is a branch of the median nerve.

The 3rd common palmar digital nerve derived from the median nerve 7.3 cm higher from the upper margin of the transverse carpal ligament and pierced the superficial digital flexor muscle and then passed the flexor tunnel medial to the median nerve.

We believe that this variation is of high importance not only for the anatomists but also for the hand surgeons, due to: a) the relation of the 3rd common palmar digital nerve with the superficial digital flexor muscle, b) its course as separate nerve in the carpal tunnel and c) especially for the decompression of the carpal tunnel with endoscope technique.

ANOMALY OF THE SUPERFICIAL ULNAR ARTERY ARISING FROM THE BRACHIAL ARTERY

K. Natsis, A. Beletsiotis, P. Gigis

Dept. of Anatomy, Medical School, Aristotle University of Thessaloniki, Greece

During anatomical dissection of a man cadaver 72 years old we found anomally origin of the superficial ulnar artery in the left side. This artery was originated from the brachial artery at a site 25 cm proximal to the superior border of the teres major muscle. It was thinner than brachial and radial artery. It was running medial to the median nerve and brachial artery, also superficial to the teres major muscle and ulnar carpal flexor muscle. The long palmar muscle was absent. It formed superficial palmar arch with a thin superficial palmar branch of radial artery. The deep palmar arch was

formed only by the radial artery. The embryology and the clinical importance of the anomalous artery are discussed.

PREAORTIC ILIAC VENOUS CONFLUENCE (MARSUPIAL CAVA). CASE REPORT

K. Natsis, A. Beletsiotis, P. Gigis

Dept. of Anatomy, Medical School, Aristotle University of Thessaloniki, Greece

During the dissection of a female cadaver aged 67 years, we found an uncommon anatomical variation, in which there was a preaortic confluence of the two common iliac veins. This variation has been called "the marsupial cava", by D.M. Panicek et al (1992). Studying the relevant international literature we found only a few similar cases, which all have been discovered with the help of computer tomography (CT). Our case is an anatomical finding. The appearance of this variation is due to the abnormal alternation of the venous system's formation during fetal life.

During the stage of venous system's formation, there is a progressive asymmetry of the longitudinal channels with a right-sided dominance in which some "channels" develop and others disappear. The knowledge of such a variation is very important especially for a surgeon, because it may cause some problems in the differential diagnosis from adenopathy.

Also it may cause some problems during the surgical treatment of abdominal aortic aneurysms.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

INSULOMA CELL PROLIFERATION AND INSULIN ACCUMULATION ON ALGINATE BEADS

V. Ogneva, A. Neronov, I. Ivanov*

IEMA, BAS, IEPP, BAS G. Bonchev Str., 25 BG-1113, Sofia*

OBJECTIVE: Even with intensive insulin therapy it is impossible to reach physiological blood glucose levels in insulin dependent diabetes mellitus.

Because of the high costs and technical problems involved in islet cell transplantation broad applicability of this therapy seems uncertain. An alternative approach is the development of molecular engineered insulin - producing colonel call lines.

The main interests in rodent insuloma cell lines.

This study examines the growth and insulin secretion from microencapsulated RIN cells in vitro, and to asses the in vivo function of microencapsulated cells transplanted in rats with streptozotocin /STZ/ induced diabetes. METHOD: Alginate-poly-L-lysine encapsulated RIN cells were exposed to glucose /11m*/ in a static in vitro challenge. Cells function was evaluated by monitoring insulin concentration. In vivo 2,5-3,5 x 10(7) encapsulated cells was implanted into diabetic rats. Graft function was evaluated by monitoring blood glucose concentration.

RESULTS: The cell density (number of cells per capsule) of cultured micro capsulated cells increased almost 25 fold over a 30 day observation period to reach a plateau of approximately 2500 cells capsule. The cell formed islet - like clusters in the capsule. Intraperitoneal transplantation of 3.5 x 10 (7) encapsulated cells into diabetic rats resulted, within 24 hours, in reversal of hyperglycaemia for up to 60 days. Post-transplantation blood glucose concentrations varied between 3-5 m*.

CONCLUSION: The observation suggests that insuloma cell lines represent potential sours of transplantable tissue.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

A SCANNING ELECTRON MICROSCOPIC (SEM) STUDY ON JOINT SURFACES OF MEDIAN ATLANTOAXIAL JOINT OF DOGS

G. Ortuð

Dept. of Anatomy, School of Medicine, Osmangazi University, TR-Eskiþehir, Turkey

Median atlantoaxial joint is one of the joints in which calcium dehydrate deposition disease and degenerative arthritis occurs frequently in human. On the other hand, this joint is subjected to some degenerative changes due to its situation and function. Of course, these degenerative changes in the joint may cause neck pain too.

In spite of many CT scan findings are present; there is no morphological study, which shows the morphological changes in this, joint. In the present study, the articular surfaces of the median atlantoaxial joint of dogs were examined by SEM. The animals were sacrificed under complete ketamine anaesthesia. After some tissue samples were taken from facet for dens, transverse ligament of atlas, anterior and posterior articulare facets of dens, these samples were processed for SEM.

The appearance of the articular surfaces of atlanto-odontoit joint reveals characteristic collagen fibber bundles. Some of the bundles were fine, but some of these bundles were seen as prominent undulated ridges. Among the crossed collagen fibbers some dome-shaped structures were present. It was interesting that in the some area of the articular surfaces, these undulated ridges have disappeared and at that places there were some rough configurations. Occurrence of these differences on the articular surfaces can be interpreted that these areas have subjected to some different forces and maybe these differences play a vital role in this joint mechanics too.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

NEURONAL PLASTISITY AND DEVELOPMENT OF SEX DIFFERENCES IN THE RAT BRAIN

W. Ovtscharoff , D. Brazitzova, N. Stefanova, A. Bozhilova-Pastirova

Department of Anatomy and Histology, Medical University, 1431 Sofia

The neuronal plasticity as the adaptive property of the central nerve system appears to be much interesting in the current neuroscience. The sexual differentiation of the brain is a part of neural plasticity during development. There are many examples for sex differences in brain structure, which are related to gender specific functions. The morphological differences between sexes can be seen in the density of neurones and transmitter systems of the regions not related to the gender specific functions. Our study is directed to the immunocytochemical sex differences in the rat amygdala - a limbic structure that is considered to play a key role in the control of reproductive behavior. It is accepted that GABA levels in the neurones are regulated by gonadal steroids, so we have studied GABA-immunoreactive neurones in the rat amygdala to detect sex differences and possible mechanisms of sexual differentiation. Four experimental groups of Sprague-Dawley rats were examined: males, castrated on the first day of life; males, castrated at puberty (35^{th} day of life); males, injected with estrogen antagonist during the first 10 postnatal days; males, injected with aromatase inhibitor during the first 10 postnatal days. Intact males and females were used for controls. All animals were sacrificed at the 3rd month of life. The second purpose of this study is to identify also existence of sex-differences in the density of the parvalbumin-immunoreactive and size of the dendritic fields of NADPH diaphorase (NADPHd)-reactive neurones in the rat striatum, which is not related with reproductive behavior. The experimental group of Sprague-Dawley males, castrated on the first day of life was used. Intact males and females were used for comparison. Quantitative measurements were done using computer assisted microanalysis system Olympus CUE-2. Statistical significance of the sex differences was evaluated by analysis of variance (ANOVA) or Student's t-test.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ARTERIAL SUPPLY OF CORPUS CALLOSUM

Ozer M. A., Saylam C.*, Dalbasti, T.**, Ozgur, T.*, Ozdamar, N.****

**Department of Anatomy, Medical Faculty, Ege University, Izmir, TR*
***Department of Neurosurgery, Medical Faculty, Ege University, Izmir, TR*

Arterial supply of corpus callosum is studied in fifty cerebral hemispheres. All dissections were carried out under surgical microscope. Dissections showed that corpus callosum blood is supplied by both anterior and posterior cerebral arteries. Callosal artery was found in 21 % of the specimens with a diameter ranging from 0.2 to 0.1 mm, whereas cingulocallosal artery was seen in all cases with a diameter of 0.2-0.5 mm. Callosal and cingulocallosal arteries originate from an artery in sulcus of corpus callosum. This artery is sometimes pericallosal artery itself or medical callosal artery, a branch of anterior communicating artery, or long callosal artery branching off from pericallosal artery. Pericallosal artery stayed in sulcus of the corpus callosum along its course in 52 % and in 34 % remained partially in this sulcus. In these cases, supplied corpus callosum by giving branches of callosal and cingulocallosal arteries. In the remaining 14 % this artery did not give branches supplying corpus callosum.

In cases which pericallosal artery remained partially in the callosal sulcus, the other parts of the corpus callosum was supplied by long callosal artery. This was seen as a single artery in 58 % with a diameter of 0.2 to 0.8 mm and supplied corpus callosum by giving branches of callosal and cingulocallosal arteries. Medial callosal artery gave callosal and cingulocallosal branches in cases which pericallosal artery never stayed in callosal sulcus. This artery was seen in 10 %, diameter of 0.7-2.0 mm and single in all cases. Posterior cerebral artery is a terminal branch of basilar artery and gives a branch named r.corporis callosi dorsalis to the splenium of the corpus callosum. We have this artery in all cases with diameters ranging from 0.1 to 1.2 mm.

Our findings were compared with previous studies and variations of arterial supple of corpus callosum were discussed.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ULTRASTRUCTURAL STUDY OF GASTRIC AND DUODENAL MUCOSA IN PATIENTS WITH CHRONIC GASTRITIS AND PEPTIC ULCER DISEASE

N. Penkova, V. Berbenkova, V. Trichkova, V. Penkov*, S. Hadjieva, P. Dimova

Dept. of Histology and Embryology, Higher Medical Institute, V. Aprilov Blvd. 15A,
South District Community Hospital, N. Vapzarov Blvd. 9, BG-4002, Plovdiv

The authors present the ultrastructural changes in gastric and duodenal mucosa in biopsy specimens from 25 patients with chronic gastritis, gastric and duodenal ulcer, with or without Helicobacter infections. The ultrastructural studies reveal epithelial cell alterations, including loss of microvilli, degradation of the mucosal layer and glycocalix. Highly expanded intercellular space, lack of intercellular contacts, highly distended rough endoplasmic reticulum, reduction of the mitochondrial cristae and increased density of the mitochondrial matrix are observed. Severe destructive process - expanded endoplasmic reticulum, autophagolysosomes at intact secretion granules, are established in the cytoplasm of single exocrine cells. Elongated macrophages, rich in multilamellar structures are present below the intact basal lamina. The endothelial cells of the capillaries in the lamina propria exhibit very high pinocytotic activity. No significant differences are found in the ultrastructural changes between the non-infected cases and those with Helicobacter infection but without direct contact of Helicobacter pylori with the epithelial cells. Such differences in endocrine cells have been found in our previous studies. These comprise decreased number and density of the secretion granules and widened halo and are significantly more expressed in the cases with Helicobacter infections.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

A BICUSPID CONSTRUCTION OF THE PULMONARY VALVE OF THE HEART

A. Petrova

Department of Anatomy, Medical University, M. Drinov Str. 55, BG-9002, Varna

Pulmonary valve of the heart consisting of two cusps found in a cadaver of a man in the age of about 70 years. The valve was found closed and the valve sinuses were filled with blood. So, the heart had been fixed in the phase of diastolic closure of the pulmonary valve.

The valve described shows a normal position of an outflow valve of the right ventricle. As regard the construction, it differs greatly from normal tricuspid pulmonary valve. The cusps are right and left, intercuspid commissures are anterior et posterior. The cusps are attached by their convex margins to double-scalloped fibrous thickening in the wall of pulmonary trunk at its junction with the ventricle. Along the free border of the cusps there is no local thickening like a nodule. The free border of the cusps is concave; in the normal tricuspid pulmonary valve it is approximately horizontal. In the region of the valve there are two prominent dilatations of the vessel wall (sinuses), corresponding of the cusps. The upper margin of each sinus is limited by well-defined supravalval ridge, situated considerably beyong the level of the free border of the cusps. The construction of the bicuspid pulmonary valve described shows that during the ejection phase of the right ventricular sistole both cusps are moved to the wall by the ejected blood; during the diastolic closure both valvular pockets are filled with blood and the free borders of the cusps are tightly apposed to each other. The biophysical analysis shows that in this moment both cusps are overloaded - the pressure on them is to be 50% more than that on the cusps of the normal tricuspid pulmonary valve. Evidently, this is the reason for strongly manifested fibrosis of the cusps. In spite of that, there is no evidence for valve incompetence; the size of the right ventricle and the thickness of its wall are approximately normal.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

PALAEODEMOGRAPHIC ANALYSIS OF THE ANTHROPOLOGICAL MATERIAL FROM THE NECROPOLIS OF EARLY OSMAN TIME IN KAVARNA

V. Russeva

Inst. of Experim. Morphology and Anthropology, BAS, Acad. G. Bonchev St. 25, BG-1113, Sofia

In the material from necropolis in Kavarna from XV-XVII century are recognized skeletons belonging to 420 children, 20 juveniles, 158 men and 155 women (55%, 3%, 21%, 21% respectively). This material has been distributed in 5-years age groups and of both sexes and life tables are constructed calculating demographic indices according to the method of palaeodemographic analysis of Acsadi and Nemeskeri. The highest level of mortality appears in the age group of 0-4 years and remains high in the age group of 5-9 years too. The lowest mortality is established in the age groups between 25-39 years. After this age group mortality rises and remains at a relatively constant level to the age of 65 years, than it falls down because of the small number of survived. Significant differences between both sexes are observed in the age group of 20-25 years. Mortality by women is four times bigger than that by men. Life expectancy is the highest in the age groups between 10 and 19 years. Similarly to the mortality, life expectancy by the 20-25 years old women is lower than by men in the same age group. Accordingly to the palaeodemographic analysis the population, which had left the necropolis in Kavarna in XV-XVII century appears to be demographically primitive with very high children mortality, high mortality by young women and small number of old people.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

IMMUNOCYTOCHEMICAL CHARACRERIZATION OF ATRIAL NATRIURETIC FACTOR DURING FOLLICULAR ATRESIA

A. Russinova, M. Mourdjeva, S. Kyurkchiev, I. Kehayov

Institute of Experimental Morphology & Anthropology
Institute of Biology and Immunology of Reproduction, Bulgarian Academy of Sciences, Sofia 1113

The peptide hormone atrial natriuretic factor (ANF) exerts its effects in a receptor-mediated fashion and the membrane bound form of guanylate cycles represents a biologically active ANF receptor. Recent studies suggest potentially important roles of ANF on ovarian functions. To gain further inside into the biology of ANF in female gonads we focused our studies of ANF expression during follicular atresia. We used immunocytochemistry and an animal model in which follicular atresia was induced by gonadotropin. Strong ANF staining was detected in all atretic follicles. The reaction was observed in the cytoplasm of granulosa, thecal and interstitial cells. The strength of the reaction varied with the degree of atresia with more prominent staining in late stage. These data provide the basis of future studies to elucidate the molecular mechanisms by which ANF and c GMP-dependent signalling pathways influence follicular development.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

THE DISTRIBUTION OF FIBRONECTIN, LAMININ AND COLLAGEN TYPE IV IN THE MATERNO-FETAL BOUNDARY ZONE OF THE DEVELOPING MOUSE PLACENTA: AN EXPERIMENTAL STUDY

Saylam C.*, Ozdemir N., Terek C.*****

**Department of Anatomy, Medical Faculty, Ege University, Izmir, Turkey*
***Department of Pathology, Medical Faculty, Ege University, Izmir,Turkey*
****Department of Obstetrics and Gynaecology, Medical Faculty, Ege University, Izmir, Turkey*

Objective: The objective of this study is to demonstrate the distribution of extracellular matrix components of fibronectin, laminin and collagen type IV in the materno-fetal boundary zone of the developing mouse placenta.

Institution: Ege University Faculty of Medicine, Department of Anatomy, Izmir, Turkey

Materials and Methods: Mice fetuses and placentae were removed serially every day until the 19th gestational day. Implantation sites were processed and stained by an immunohistochemical method by specific antiserums to fibronectin, laminin and collagen type IV. The distribution of the extracellular matrix components in cytotrophoblasts and giant cells of the developing mouse placenta was determined under light microscope.

Results: Fibronectin, laminin and collagen type IV immunostaining demonstrated a dynamic relationship changing day by day after the conception. At the 16th day cytotrophoblasts and giant cells were all positively stained by the extracellular matrix components.

Conclusion: this study demonstrates that the regions of the developing mouse placenta produce specialized extracellular matrices, which may contain different rations of these polypeptides.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

TYPES OF OSSA SUTURARUM

M. Sindel, S. Demir

Department of Anatomy, Akdeniz University, Faculty of Medicine, 07070 Antalya-TURKEY

During the maturation of the skull the ossification centers in the occipital bone, and apart from the separately localized bones related to this, separate bones in different forms occur between the skull bones along the sutures. These bones are called sutural bones, Ossa triquetra or Wormian bones. These types of bones, which are most commonly seen, especially on Sutura lambdoidea, are called Os incae.

This study was performed on 107 skulls in our department. 2 different types of Os triquetrum, 2 different types of Os incae, 1 type of Os sutura, 1 type of Os incae + Os triquetrum case, and 1 Sutura sagittalis and Sutura lambdoidea completely joined together were observed.

Since these variations are important in radiology for diagnosis and for surgical work we believe that they should be better known. We did this study especially on the accessorys bones that are in the occipital region of the skull because they may cause an error in diagnosis.

ANATOMIC LOCALISATION OF FORAMEN MENTALE

M. Sindel, S. Demir, F.B. Yýldýrým

Department of Anatomy, Akdeniz University, Faculty of Medicine, 07070 Antalya-TURKEY

Correct anatomical localization of the foramen mentale is important for lower jaw anaesthesia and regional surgery. In 72 causes of foramen mentale on 36 mandibles with teeth, it was found that 65 % were on the 2 nd premolar teeth line 15 % were between the 1 st and 2 nd premolar teeth, 3% were on the 1 st molar teeth level, 17% were on the 2 nd premolar and 1 st molar teeth line. In 15 teethless mandibles foramen mentale localization could not be determined due to alveolar resorption. 51 mandibles with teeth or without teeth (on the right and left 102 for. mentale) on the mouth side

were determined at back-up position (78%). In two mandibles a bone partition was found on foramen mentale and this partition formed a barrier that separated the canal.

COMPUTER ANALYSIS OF THE RESULTS FROM MEDICAL TREATMENT WITH HYPERBARIC OXYGEN THERAPY (HBO) OF BRAIN OEDEMA AT INTOXICATED WITH CARBON MONOXYDE (CO) RATS

D. Stavrev, Bozov H.*

Department of Anatomy, Histology and Embryology, Medical University of Varna, 55 Marin Drinov Str.
**Clinic of Hyperbaric and Diving Medicine – Naval Hospital of Varna, BG-9002, Varna*

124 Wistar white rats were intoxicated at three degrees - light, everage and high. They were under HBO at special tables, which we created. Brain material was taken from every group of laboratory rats (healthy, intoxicated and treated by HBO) and the material was coloured by haematoxylin eosin.

For valuation of the results, a software program product – MicroAnalyze 1.1 of Chris Soft Co. was created. The analysing part of the program includes key for calculating the surface and proportions at multi-coloured or black and white coloured regimes. This program gives the opportunity for reporting per cent of perineural and perivascular brain oedema surface to the general surface of light microscopic image. That gives us the opportunity to report objectively different regimes of HBO in the process of reducing brain oedema.

The results prove the remarkable effect of HBO.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

DOUBLE VENA CAVA TOGETHER WITH COMPLEX VARIATION OF THE RETROPERITONEAL VEINS

H. S. Surucu, M. Erbýl, C. Denk, N. Yener

Dept. of Anatomy, Hacettepe University, Faculty of Medicine, Sýhhýye, 06100 Ankara, TURKEY

Vascular anomalies of the inferior vena cava are uncommon, with an incidence rate of 0.5 percent to 3 percent. An understanding of the various types and the embryology which give rise to them is important for the surgeon who operates in the retroperitoneum.

Here, we report a case of complex variations of the veins of a 57 year old male cadaver of the retroperitoneal region: a) double vena cava b) the left suprarenal vein drained into the left vena cava c) right testicular vein drained into the right renal vein d) no left common iliac vein e) the left external iliac vein drained into the left vena cava f) the left internal iliac vein drained into the right common iliac vein.

In addition to its anatomical and embryological implications, this case is of interest with regard to retroperitoneal surgery. To reduce the hazards of significant venous hemorrage during retroperitoneal surgery, it is necessary for the surgeon to be aware of the embryogenesis and to be able readily to recognize and identify the major venous anomalies occurring within this area. Also the presence of a double IVC will dilute the left renal vein sampling for renin in hypertensive patient because of the blood flow carried by the left. Major venous anomalies as double IVC also has a further problem in lymph node dissection because the lymphatic drainage generally tends to follow the vascular pattern. Patients having abnormal venous anatomy may have unusual patterns of lymphatic drainage and lymph node metastases. An understanding of the anatomical variations of the IVC is especially significant in the cross-sectional images, radionuclide venography or catheterization and opacification of the IVC. Venous anomalies should be taken into account anatomically and embryologically, suspected and searched for during all retroperitoneal surgical dissections. Thus we present this complex variation of retroperitoneal veins and its anatomical and embryological significance.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

METACARPOPHALANGEAL JOINT OF THE THUMB- GEOMETRY ANALYSIS OF THE JOINT SURFACES

St. Terzieva

Department of Anatomy, Histology and Embryology, Medical University - Varna, 55 Marin Drinov Str., 9002 Varna

In the course of investigating the models of the subchondral bone density of the metacarpophalangeal joint of the thumb the necessity of analyzing the geometry of the joint surfaces occurred.

It was to contribute to a clearer explanation of these models.

Employing certain mathematic methods it was determined that the curves on the parallels are mainly ellipses and the ones on the meridians- hyperbolas i.e. they are curves of second degree. A cone with a large radius at the top (around 175°) could be discussed as a possible geometric body.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ТРАНСКУТАННО БИДИМЕНСИОНАЛНО ХИДРОГАСТРИЧНО ИЗМЕРВАНЕ НА ДИСТАЛНИЯ СТОМАХ

Т. Траев

Катедра по гастроентерология, Медицински Университет Варна, ул. "Марин Дринов" 55, 9002 Варна

Безвредната хидрогастрична ехография на дисталния стомах с 500 ml течност позволява прецизно измерване на неговите размери и обем, периодите на възникване и преминаване на перисталтичните вълни и времето на стомашното изпразване.

Приложена е формула на Bolondi et al, 1985 0,65 xhx (2ab+4cd+2ef+cb+ad+ed+cf), където h е дължината на пилорния отвор до стомашния ъгъл, а с буквите в скоби са означени размерите на срезовете на антралната тръба до стомашния ъгъл, на пилора и на срединен срез между тях и формула, предложена у нас от инж. доц. Т. Коларов от Технически Университет – Варна за измерване а целия обем на дисталния стомах.

Измерването е осъществено по очертанието на външния мускулен слой от среза на стомашната стена.

Статистическата обработка на интраиндивидуалните различия е осъществена с програмата Excel vers. 7.0 for Windows 95.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

EFFECTS OF NEUROTROPHINS ON EMBRYONIC TRIGEMINAL AXON MORPHOLOGIES

E. Ulupinar

Department of Anatomy, Osmangazi University Faculty of Medicine, Eskisehir, Turkey

NGF family of neuronal growth factors comprises at least four structurally related proteins playing role in regulation of neurone number and differentiation. However, the involvement of neurotrophins in mediating axon collateralization and branching is not known. In this study, effects of exogenous neurotrophin applications on embryonic trigeminal neurone morphologies were examined in dissociated cell cultures. Trigeminal ganglia from embryonic day 15 embryos were dissected and connective tissues were removed with electrolytically sharpened tungsten needles. After rinsing with calcium-magnesium free Hank's balanced salt solution, ganglia were treated with 0.05% trypsin at 37C for 20 minutes. The ganglia were resuspended in 5 ml serum free medium and gently triturated with a flame-polished Pasteur pipette. For morphologic documentation of individual neurones, 35-mm tissue culture dishes were coated with polyornithine and laminin and neurones were plated at a density of approximately 1000 cells per well. In experimental conditions growth factors NGF, NT-3 or a mixture of NGF and NT-3 were added to culture medium at a final concentration of 50 ng/ml. In neurotrophin switch experiments, the neurones were first grown at low concentrations of NGF or NT-3 and next day shifted from one neurotrophin to the other at a higher concentration. At the end of the three-day culture period, camera lucida drawings of cellular and axonal elements were analyzed with phase contrast microscopy. Neurones emit long, unbranched neurites in the presence of NGF and develop short primary neurites with arbors in the presence of NT-3. When both neurotrophins are present, or following neurotrophin switch, primary neurite length and branching of neurites increased. These results suggest that growth patterns of developing axons can be differentially modulated by exogenous neurotrophin treatments.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

A MACROANOTOMICAL STUDY ON DISTANCE BETWEEN SCAPULAR NOTCH AND SUPRAGLENOIDAL TUBERCLE

M. Urguden*, B. O. Donmez, N. Coskun**, N. Oguz****

***Department of Anatomy, *Department of Orthopaedics, Akdeniz University, Faculty of Medicine, 07070 Antalya-TURKEY*

Relaxation of the supraspinatus muscle is important during the massive rotator cuff tears operations. In order not to damage suprascapular nerve, dimension between scapular notch and supraglenoidal tubercle is crucial. For this reason, in 100 scapula bones, dimension between scapular notch and supraglenoidal tubercle was measured with compass. Results were compared with the literature.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

A MORPHOMETRIC EXAMINATION OF THE OLFACTORY EPITHELIAL THICKNESS OF PREGNANT RATS

F. Yücel, G. Güven, G. Ortuð

Department of Anatomy, Faculty of Medicine, Osmangazi University, Eskiþehir-TURKEY

Smell function is very important in many groups of animals for distance environmental evaluation and survival. Even in man, olfactory dysfunction cause some serious problems. In humans, it has been reported that there are many reasons (head injury, severe head colds and/or sinus infections, congenital anosmics, etc.) for smell disorders. On the other hand, pregnancy is another factor for changing the smell sensitivity. It was assumed that the alterations of the level of some hormones during the pregnancy cause these changes. But unfortunately, there is no study on this topic, which have examined the structural changes of the olfactory epithelia in pregnancy. In the present study, we examined the olfactory epithelia of the 14-day-pregnant rats using some simple morphometric procedures. A total of 12 adult female Sprague-Dawley rats (6 control and 6 pregnant) were used. Groups of control and experimental rats were anaesthetised with ketamine and killed by cardiac perfusion of 2.5 % glutaraldehyde solution in 0.1M sodium-potassium phosphate buffer, pH 7.4. After removing olfactory epithelia they were processed with routine histological procedure, and embedded in Araldite. For measuring the epithelial thickness, and counting the olfactory vesicles, semi-thin (0.5 mm) sections were cut and stained with toluidine-blue. The morphometric procedure was performed by using a Nikon Eclipse E400 light microscope attached a drawing tube. The mean epithelial thickness of the pregnant rats showed statistically significant increase ($P < 0.05$) than the value of controls which is 0.0868 ± 0.006 and 0.1032 ± 0.003 mm, respectively. But the mean number of olfactory vesicles per unit length of epithelium (NB) showed no statistical difference between the 14-day-pregnant and control rats. These values were 98.80 ± 10.03 /mm and 111.35 ± 12.17 /mm in control and pregnant rats, respectively. In conclusion, present findings show us at least in pregnancy there are some changes in olfactory epithelium which cause increase in the epithelial thickness.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ANATOMIC VARIATIONS OF THE MEDIAN NERVE IN THE CARPAL TUNNEL

F. B. Yýldýrým, S. Demir, O. Ozkan

Department of Anatomy, Akdeniz University, Faculty of Medicine, 07070 Antalya-TURKEY

Muscular branch of median nerve is short and thick, and is from the nerves lateral side it may be a first palmar or a terminal branch arising level with the digital branches. It runs laterally, just distal to the flexor retinaculum with a slight recurrent curve beneath the part of the palmar aponeurosis covering the thenar muscles. It turns round the distal border of the retinaculum to lie superficial to the flexor pollicis brevis, usually supplying it and either continuing superficial to it or traversing it. It gives a branch to the abductor pollicis brevis, which enters the medial edge of the muscle and then passes deep to it to supply the opponent's pollicis, entering its medial edge. The muscular branch may arise in the carpal canal tunnel and pierce the flexor retinaculum, a point of surgical importance.

Twenty cadavers total in 40 cadaver upper extremitиec were studied. To inspect the anatomic variations and relationships with surrounding structures we observed carefully the median nerve from the distal wrist crease proximally to the branching of the nerve distally. To observe anatomic variations of the motor branch, we studied the nerve from its origin to its entrance into the thenar muscle. The anatomic variations of the median nerve were studied based on Lanz's classification.

Increases the pressure in the carpal canal, which injuries the motor branch that courses into the thenar muscle. This is the reason that thenar atrophy is seen so often.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

NEOPTERIN AS A REGULATOR OF HUMAN OVARIAN GRANULOSA CELLS AND FOLLICLES MACROPHAGES PROLIFERATION

E. Zvetkova, D. Fuchs*, R. Denkova, E. Katzarova, K. Baleva, E. Yaneva, I. Christov, B. Nikolov, I. Tsenov

Institute of Experimental Morphology & Anthropology - BAS, 1113 -Sofia;
**Institute of Medical Chemistry and Biochemistry, Leopold Franzens University, Fritz Pregl Str., 3, A-6020 Innsbruck, Austria*

Recently it has been demonstrated (K. Kasuya, M. Kawabuchi, 2000), that within healthy growing ovarian follicles a small number of macrophages were found among the granulosa cells. The modulatory action of Neopterin (Schircks Laboratories, Jona, Switzerland) on the proliferation of the two types of phagocytic cells - follicle granulosa cells and/or macrophages has been studied having in view the importance of these cells in follicle dynamics - its development and atresia. A monolayer culture has been used to study granulosa cell proliferation and differentiation in vitro (R. Denkova et al., 1998) in the presence of Neopterin at doses 10 - 25 mg/ml culture medium. From the data obtained we concluded that Neopterin acts as follicle granulosa cells' and macrophages' colony stimulating and proliferative factor, probably through activation of the nuclear proliferative factor NF-kB.

SYMPOSIUM INTERNATIONALE QUARTUM ANATOMIAE CLINICAE
Scripta Scientifica Medica, vol.XXXII, Suppl. 1 (2000)

ULTRASTRUCTURAL AND IMMUNOHISTOCHEMICAL INVESTIGATIONS OF THE ARTICULAR CARTILAGE DURING THE TIME OF ITS AUTOTRANSPLANTATION

N. Vidinov, K. Natzis*, Th. Papadopoulou*

Department of Anatomy, Medical University-Sofia Bg 1431;
** Department of Orthopedy, Thesoloniky, Greece*

The transplantation of articular cartilage is one of the most advanced methods of treatment used in the orthopaedics and traumatology. However it is still associated the several difficulties and failures, due to the incompletely clarified biological mechanism of recovery of cartilage tissue.

Having al this in mind, we started an experimental study carried out with autotransplantants on Wistar rats. The material was taken from femoral condil of the experimental animals. The cartilage was stored for 24 hours under minus temperatures and was subsequently transplanted. The experimental animals were killed respectively on the 5, 15,25 and 40th days after the transplantation. Ultrastructural and specific immunohistochemical researches were carried out. We established that rapid degenerative changes took place in the deep layer (in the place of incision) of the transplants. The surface and middle layer kept their ultrastructural characteristics till the 5-th day after transplantation, but increased the reaction for fibronectin.

Gradually, the layer cartilage organisation of the transplant altered and on the 40-th day the typical cartilage mingled and formed a structure, having the electron microscopic characteristics of fibrous cartilage. The cyto and matrix architectonics were completely different from that of normal articular cartilage.

Autor's Index

SCRIPTA SCIENTIFICA MEDICA, VOL. XXXII, Supplement 1

Editor-in-Chief: Prof. Dr. *T. Temelkov*
Supplement Editor: Prof. Dr. *Sp. Nikolov*
Translation Editor: Assoc. Prof. *M. Gabrovska*, Dr. *V. Goranova*, *E. Jordanova*
Technical editor: *E. Jordanova*

Publ. Lit. group: III - 3
Sent to printers: September, 2000
Print sheets: 8,25
Format 70/100/16
Aproved to printing: October, 2000
Total print: 150
Varna Print Printing House, Varna