**СПИСЪК на РЕЗЮМЕТАТА на ТРУДОВЕТЕ на Д-Р МАНОЛ КАЛНИЕВ ДМ /КАТЕДРА по ОРТОПЕДИЯ и ТРАВМАТОЛОГИЯ, МУ –СОФИЯ/ след ЗАЩИТА или БЕЗ ВРЪЗКА с ДОКТОРСКАТА ДИСЕРТАЦИЯ**

**ДИСЕРТАЦИЯ (Автореферат) за придобиване на образователната и научна степен "ДОКТОР" – „Светлинно-микроскопско и ултраструктурно проучване на менискусите от колянната става в норма и някои патологични състояния", 2008 г., 177 с.**

**РЕЗЮМЕ:** Направено е светлинно-микроскопско и ултраструктурно проучване на менискусите от колянната става в норма и различни патологични състояния: след срязване на залавните им места, на кръстосаните връзки, на колатералните връзки, след имобилизация и при хемартроза в колянната става. Ултраструктурните проучвания показаха, че менискусите са силно реактивни структури, които вземат дейно участие в осъществяване на най-ефективно и с възможно най-малко триене, движение между ставните повърхности. Установи се, че остеоартротичните промени в колянната става засягат и менискусите, като по подобие на ставния хрущял, тези изменения започват от повърхностните зони на менискуса и впоследствие засягат и по-дълбоките зони, както и, че остеоартротични промени в хрущяла на менискусите настъпват и при по-продължителна имобилизация.

**А. СПИСЪК на ТРУДОВЕТЕ на Д-Р МАНОЛ КАЛНИЕВ ДМ - Web of Science and Scopus по показател В**

**Точка 4:**

**Публикации в Web of Science без IF:**

**1**. Treatment of arterial hypertension by physical methods
Krastev D., Petcov, I., Krastev N *, **Kalniev M. *,** Apostolov A. **
Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova", **Medical University-Sofia,** Bulgaria
*Department of Anatomy and Histology, Medical University-Sofia, Bulgaria
**Department of Forensic Medicine and Deontology, Medical University-Sofia, Bulgaria
Journal of IMAB Annual Proceeding (Scientific Papers). 2013, vol. 19, book 1, pp. 402-404.

Journal of IMAB - Annual Proceeding (Scientific Papers)
Publisher: Peytchinski, Gospodin Iliev
ISSN: **1312 773X** (Online)
Issue: **2013, vol. 19, book 1;**
Subject Collection: **Medicine**
Page: 402-404

DOI: 10.5272/jimab.2013191.402
Published online: 22 May 2013
J of IMAB. 2013; 19(1):402-404;
**TREATMENT OF ARTERIAL HYPERTENSION BY PHYSICAL METHODS**
Dimo S. Krastev[1], Ivan Petcov[1], Nikolay Krastev[2, 4], Manol Kalniev[2], Alexander Apostolov[3]
*1) College of Medicine "J. Filaretova", Medical University, Sofia, 2) Department of Anatomy and Histology, Medical University, Sofia, 3) Department of Forensic Medicine and Deontology, Medical University, Sofia, 4) Specialized Hospital for Rehabilitation - „Bankya" and „Sapareva Banya", Sofia, Bulgaria.*

**ABSTRACT:**
One of the most important symptoms in many nosological units in the past and present century is the arterial hypertension. It is a widespread symptom leading to very serious consequences, making it an important medical and social issue. In adults arterial hypertension registers within 8-18%, approximately 5% of cases with arterial hypertension is possible the cause not to be found. In these cases we speak of hypertension of unknown etiology.
**Key words:** arterial hypertension, cerebrovascular disease, physical treatment.

**2.** Случай на дебелочревен субилеус причинен от гигантско апендикоцеле (A case of incomplete mechanical bowel obstruction caused by a cystic enlarged appendix).
Велчев Л., **Калниев М.*,** Тодоров Т.**
Институт по Хепатобилиарна Хирургия – Париж, Франция;*Катедра по Анатомия и Хистология, **МУ – София**; ** Катедра по Патологична Анатомия, МУ – София
Съвременна медицина. 2009, том 60, кн. 1-2, стр. 70-72.

**Съвременна Медицина 1-2/2009**

A CASE OF INCOMPLETE MECHANICAL BOWEL OBSTRUCTION CAUSED BY A CYSTIC ENLARGED APPENDIX

***L. M. Veltchev', M. A. Kalniev[2], T. A. Todorov[3]***
*'Institute of Hepatobiliar Surgery –Paris,*
*[2] Department of Anatomy and Histology- Medical University – Sofia,*
*[;i] Department of Pathology - Medical University - Sofia*

**Summary:**
A case is presented of incomplete mechanical bowel obstruction, caused by a cystic enlarged appendix,filled with mucus and designated mucocele, that presses the sigmoid colon. As an etiological factor for the occurrence of appendicocele, chronic obstruction of the appendiceal lumen is supposed to play a role. Pathologic findings consist of different degrees of mucosal hyperplasia, leading to accumulation of mucus and cystic dilatation. The histological features can be benign or malignant. In the complicated forms, one can observe infection, perforation with peritonitis and intra abdominal dissemination of the malignant form. The treatment requires surgery.
**Key words:**
Bowel obstruction, appendix, appendicocele

**3.** New techniques of resection and long-term survival for cholangiocarcinoma.
Veltchev L., **Kalniev M.***
Fellow, Department of Surgical Oncology, University of Texas M. D. Anderson Cancer Center, Houston, USA;* Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria
Journal of IMAB Annual Proceeding (Scientific Papers). 2009, vol. 15, book 1, pp. 58-61.

***Journal of IMAB - Annual Proceeding (Scientific Papers)***
***Publisher: Peytchinski, Gospodin Iliev***
***ISSN: 1312-773X (Online)***
***Issue: Volume 15, book 1, 2009***
***Subject Collection: Medicine***
***Page: 58 - 61***
***DOI: 10.5272/jimab.1512009_58***
***Online date:*** **Aug 7, 2009,**

**NEW TECHNIQUES OF RESECTION AND LONG-TERM SURVIVAL FOR CHOLANGIOCARCINOMA**
Ludmil M. Veltchev, Manol A. Kalniev*
*Fellow, Department of Surgical Oncology, The University of Texas M. D. Anderson Cancer Center,Houston, USA; *Department of Anatomy and Cytology, Medical University of Sofia, Bulgaria.*
**ABSTRACT:** Cholangiocarcinoma is uncommon cancer with an incidence 1-2/100 000 in the USA. Predisposing diseases for developing of cholangiocarcinoma include primary sclerosing cholangitis (PSC), congenital biliary cystic disease and hepatolithiasis with biliary infestations by Clonorchis siniensis, also called recurrent pyogenic cholangiohepatatis ( mainly encountered in Japan and Southwest Asia). The majority of bile duct tumors is relatively slow-growing. However, this progression can be rapid in some patients. Blood-borne metastases are uncommon, but nodal metastases, perineural and lymphatic involvement as well as subepithelial spread are very common.
**Key words:** cholangiocarcinoma, diagnostic, surgical treatment.

**4.** Accessory right hepatic artery as principal, arising from proper hepatic artery (case report)
Veltchev L., **Kalniev M.*,** Todorov T.**
Fellow, Department of Surgical Oncology, University of Texas M. D. Anderson Cancer Center, Houston, USA;* Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria; **Department of Pathology, Medical University-Sofia, Bulgaria
Journal of IMAB Annual Proceeding (Scientific Papers). 2009, vol. 15, book 1, pp. 62-63.

***Journal of IMAB - Annual Proceeding (Scientific Papers)***
***Publisher: Peytchinski, Gospodin Iliev***
***ISSN: 1312-773X (Online)***
***Issue: Volume 15, book 1, 2009***
***Subject Collection: Medicine***
***Page: 62 - 63***

***DOI: 10.5272/jimab.1512009_62***
***Online date:*****Aug. 11, 2009,**

**ACCESSORY RIGHT HEPATIC ARTERY AS PRINCIPAL, ARISING FROM PROPER HEPATIC ARTERY /CASE REPORT/**

Ludmil M. Veltchev1, Manol A. Kalniev2, Todor A. Todorov3
*1) Fellow, Master's Program in Hepatobiliary Pancreatic Surgery, Henri Bismuth Hepatobiliary Institute, 12-14, avenue Paul Vaillant-Couturier, 94804 Villejuif Cedex*; *2) Department of Anatomy, Cytology and Histology, University of Medicine, Sofia, Bulgaria; 3) Department of Pathology, University of Medicine, Sofia, Bulgaria.*

**ABSTRACT:** The good knowledge for the normal hepatic artery distribution and the possible anatomical variations is significant in liver transplantation in order for the vascularity not to be disturbed and to cause necrosis of the liver parenchyma postoperatively.
Disruption of an anatomical artery variation is uncommon in liver hilum dissection, but non establishment of continuity in time of reconstruction is an important cause for postoperative complications such as acute liver failure and augment morbidity and mortality.
The aim of this case report is to present a non published anatomical variation of accessory right hepatic artery arising from proper hepatic artery between the branching of gastroduodenal artery and bifurcation of the proper hepatic artery to right and left branches.
**Key words:**Accessory right hepatic artery, liver transplantation, anatomical variations, significance.

**5.** Bile duct system malformation – embryological and pathological association. Treatment (review article).
Veltchev L., **Kalniev M.*,** Todorov T.**
Fellow, Department of Surgical Oncology, University of Texas M. D. Anderson Cancer Center, Houston, USA;* Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria; **Department of Pathology, Medical University-Sofia, Bulgaria
Journal of IMAB Annual Proceeding (Scientific Papers). 2009, vol. 15, book 1, pp. 66-68.

***Journal of IMAB - Annual Proceeding (Scientific Papers)***
***Publisher: Peytchinski, Gospodin Iliev***
***ISSN: 1312-773X (Online)***
***Issue: Volume 15, book 1, 2009***
***Subject Collection: Medicine***
***Page: 66 - 68***
***DOI: 10.5272/jimab.1512009_66***
***Online date:*** **Aug. 11, 2009,**

**BILE DUCT SYSTEM MALFORMATION - EMBRYOLOGICAL AND PATHOLOGICAL ASSOCIATION. TREATMENT /REVIEW ARTICLE/**

Ludmil M. Veltchev1, Manol A. Kalniev2, Todor A. Todorov3
*1) Fellow, Master's Program in Hepatobiliary Pancreatic Surgery, Henri Bismuth Hepatobiliary Institute, 12-14, avenue Paul Vaillant-Couturier, 94804 Villejuif Cedex*; *2) Department of Anatomy, Cytology and Histology, University of Medicine, Sofia, Bulgaria; 3) Department of Pathology, University of Medicine, Sofia, Bulgaria.*

**ABSTRACT:** Cystic diseases of the liver which are in most cases hereditary, are related to an

embryonic disorder know as ductal plate malformation. These diseases correspond to partial or total arrest of remodeling of the ductal plate, leading to more or less complete persistence of the excess of embryonic biliary structures. The ductal plate malformation may concern different segments of the intrahepatic biliary tree (segmental bile ducts, interlobular bile ducts and the smallest bile duct ramifications) leading to various pathoclinical entities Congenital cystic lesions of bile ducts may affect intra or extrahepatic bile ducts. Intrahepatic lesions include five entities: congenital hepatic fibrosis, Caroli's syndrome, von Meyenburg complexes, simple cyst of the liver and polycystic liver disease. Congenital hepatic fibrosis and von Meyenburg complexes are secondary to ductal plate malformation affecting the smallest intrahepatic bile ducts.
Choledocal cysts, Caroli's disease and Caroli's syndrome belong to the some family of congenital malformations of the large bile ducts (1). The former affects the extrahepatic bile duct (including occasionally the left and right branch of the hepatic duct) while the latter affects segmental intrahepatic bile ducts. Both are extremely rare (in the order of 1:10.000 or 100.000 and 1:1.000.000 births respectively.
**Key words:** Caroli's disease, biliary dilation, complications.

**6.** Metachronous testicular seminoma – 16 years later: early detection and management (case report).
Veltchev L., **Kalniev M.*,** Todorov T.**
Fellow, Department of Surgical Oncology, University of Texas M. D. Anderson Cancer Center, Houston, USA;* Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria; **Department of Pathology, Medical University-Sofia, Bulgaria
Journal of IMAB Annual Proceeding (Scientific Papers). 2009, vol. 15, book 1, pp. 69-71.

***Journal of IMAB - Annual Proceeding (Scientific Papers)***
***Publisher: Peytchinski, Gospodin Iliev***
***ISSN: 1312-773X (Online)***
***Issue: Volume 15, book 1, 2009***
***Subject Collection: Medicine***
***Page: 69 - 71***
***DOI: 10.5272/jimab.1512009_69***
***Online date:*** **Sept. 01, 2009,**

**METACHRONOUS TESTICULAR SEMINOMA-16 YEARS LATER: EARLY DETECTION AND MANAGEMENT /CASE REPORT/**
Ludmil M. Veltchev1, Manol A. Kalniev2, Todor A. Todorov3
*1) Fellow, Master's Program in Hepatobiliary Pancreatic Surgery, Henri Bismuth Hepatobiliary Institute, 12-14, avenue Paul Vaillant-Couturier, 94804 Villejuif Cedex*; *2) Department of Anatomy, Cytology and Histology, University of Medicine, Sofia, Bulgaria; 3) Department of Pathology, University of Medicine, Sofia, Bulgaria.*
**ABSTRACT:** A 28-year-old male presented at a regional hospital with a pulling sensation and feeling of unusual heaviness in the right scrotum. Pain and discomfort appeared two weeks ago.
The patient had no previous medical history.
Physical examination, US and CT confirmed 26 mm mass, localized centrally in the right testis without metastatic process and patient was treated with right inguinal orchiectomy,

followed by 25 Gy radiotherapy. After 16 years and 3 months the same symptomatology started in the left side and US discovered two masses: 15 and 21 mm in left testis. Investigation included tumor marker assessment, scrotal US, CT and biopsy. Diagnosis metachronous testicular seminoma, stage T1N1M0. Biopsy, radical orchiectomy, androgen substitution and follow-up were performed.
**Key words:** seminoma, bilateral, metachronous, germ-c

**7.** Phlegmasia cerulean dolence – risk factors and prevention (case report).
Veltchev L., **Kalniev M.*,** Todorov T.**
Fellow, Department of Surgical Oncology, University of Texas M. D. Anderson Cancer Center, Houston, USA;* Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria; **Department of Pathology, Medical University-Sofia, Bulgaria
Journal of IMAB Annual Proceeding (Scientific Papers). 2009, vol. 15, book 1, pp. 89-91.

***Journal of IMAB - Annual Proceeding (Scientific Papers)***
***Publisher: Peytchinski, Gospodin Iliev***
***ISSN: 1312-773X (Online)***
***Issue: Volume 15, book 1, 2009***
***Subject Collection: Medicine***
***Page: 89 - 91***
***DOI: 10.5272/jimab.1512009_89***
***Online date:*** **Oct. 07, 2009,**

**PHLEGMASIA CERULEA DOLENCE- RISK FACTORS AND PREVENTION. /CASE REPORT/**
Ludmil M. Veltchev1, Manol A. Kalniev2, Todor A. Todorov3
*1) Fellow, Master's Program in Hepatobiliary Pancreatic Surgery, Henri Bismuth Hepatobiliary Institute*; *2) Department of Anatomy, Cytology and Histology, University of Medicine, Sofia, Bulgaria; 3) Department of Pathology, University of Medicine, Sofia, Bulgaria.*
**ABSTRACT:** Phlegmasia cerulean dolens is a severe form of deep venous thrombosis characterized by severe venous outflow obstruction, marked limb swelling, pain, bluish discoloration, and even venous gangrene, if the condition is untreated. Etiological factors include malignancy, femoral vein catheterization, heparin-induced thrombocytopenia, anti-phospholipid syndrome, surgery, heart failure, and pregnancy.
In our case, 71 year-old woman, with twenty three years treated diabetes mellitus was accepted for GI imaging study for suspicions of neoplastic process of stomach. On the third day she complained of edema, agonizing pain and cyanosis, many blisters and starting necrosis on the dorsal and lateral surface of right ankle, progressively extended to distal one third of leg. Anticoagulation with intravenous administration of heparin, and fluid resuscitation started immediately.
**Key words:**venous thrombosis, venous gangrene, anticoagulation, amputation.

**8.** Mirrizzi syndrome – rare cause of major biliary complications (case report).
Veltchev L., **Kalniev M.*,** Todorov T.**
Fellow, Department of Surgical Oncology, University of Texas M. D. Anderson Cancer Center, Houston, USA;* Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria; **Department of Pathology, Medical University-Sofia, Bulgaria
Journal of IMAB Annual Proceeding (Scientific Papers). 2009, vol. 15, book 1, pp. 92-94.

***Journal of IMAB - Annual Proceeding (Scientific Papers)***
***Publisher: Peytchinski, Gospodin Iliev***
***ISSN: 1312-773X (Online)***
***Issue: Volume 15, book 1, 2009***
***Subject Collection: Medicine***
***Page: 92 - 94***
***DOI: 10.5272/jimab.1512009_92***
***Online date:*** **Oct. 07, 2009,**

**MIRIZZI SYNDROME - RARE CAUSE OF MAJOR BILIARY COMPLICATIONS /CASE REPORT/.**

Ludmil M. Veltchev1, Manol A. Kalniev2, Todor A. Todorov3
*1) Fellow, Master's Program in Hepatobiliary Pancreatic Surgery, Henri Bismuth Hepatobiliary Institute*; *2) Department of Anatomy, Cytology and Histology, University of Medicine, Sofia, Bulgaria; 3) Department of Pathology, University of Medicine, Sofia, Bulgaria.*

**ABSTRACT:** Mirizzi syndrome is a rarely observed complication of gallstone disease, causing major biliary problems, if not diagnosed previously. It was described in 1948 by P. L. Mirizzi and presents unusual lodged gallstone in either the cystic duct or most frequently in Hartmann pouch of the gallbladder. Impaction, acute obstruction and wall ischemia are causative for inflammation and abscess formation. External common hepatic bile duct compression and obstruction result in clinical presentation of intermittent or constant jaundice. We report 57-year-old male with extensive mechanical icter, fever, nausea and vomiting, and upper abdominal pain in epigastria from five days. Abdominal US evaluation showed 17mm stone localized in infundibulum and shrunk of gallbladder. MRCT revealed impacted stone, chronic tissue inflammation, involved common hepatic duct with stricture. Mirizzi syndrome was diagnosed.
Intraoperatively was found an impacted gallstone in the Hartmann pouch, extensive fibrosis of hepatoduodenal ligament and abscess cavity formation in the Callot's triangle with engagement of common hepatic bile duct wall. Antegrade cholecystectomy was made and T drain was placed. Second operation and Roux-Y limb anastomosis was performed after unsuccessful tentative for recanalization of distal CBD with clamping of T drain.
**Key words:** Impacted gallstone, Callot's triangle abscess, cystic duct variation, common hepatic duct stricture, T-drain.

**Публикации в Scopus без IF:**

**9.** Промени в разпределението на повърхностно клетъчният гликопротеин фибронектин през време на развитието на експериментална остеоартроза. (Changes in the distribution of the cell surface glycoprotein fibronectin during the development of experimental osteoarthrosis)
Видинов Н., Балтопулос П.*, Пападопулу Т*.**, Калниев М.**, Цветкова А.
Катедра по Анатомия и Хистология, **МУ – София**, България; *Катедра по Анатомия и Спортна Медицина, Атински Университет, Гърция
Ревматология. 2001, кн. 4, стр.47-51.
**SJR 0,132**

**ПРОМЕНИ В РАЗПРЕДЕЛЕНИЕТО НА ПОВЪРХНОСТНОКЛЕТЪЧНИЯ ГЛИКОПРОТЕИН ФИБРОНЕКТИН ПО ВРЕМЕ НА РАЗВИТИЕТО НА ЕКПЕРИМЕНТАЛНА ОСТЕОАРТРОЗА**

**CHANGES IN THE DISTRIBUTION OF THE CELL SURFACE GLYCOPROTEIN FIBRONECTIN DURING THE DEVELOPMENT OF EXPERIMENTAL OSTEOARTHROSIS**

**Н. Видинов, П. Балтопулос*, Т. Пападопулу*, М. Калниев, А. Цветкова**
**N. Vidinov, P. Baltopulos*, T. Papadopulu*, M. Kalniev, A. Tzvetkova**

Катедра по Анатомия и Хистология, МУ – София, България; *Катедра по Анатомия и Спортна Медицина, Атински Университет, Гърция
Department of Anatomy and Histology, Medical University-Sofia, Bulgaria; * Department of Anatomy and Sports Medicine, University of Athens, Greece

**Резюме:** Разпределението на фибронектина в хрущялния матрикс е от голямо значение за установяване на функционалните и патологични промени в тази структура. Ние проведохме имунохистохимични изследвания на остеоартрозен хрущял през различни стадии от развитието на това състояние. Материалът беше изследван светлинно- и електронномикроскопски. Електронограмите бяха проучвани с image analyser. Установихме, че първите изменения настъпват в повърхностния слой на хрущяла. Нативният фибронектин и изоформата ED-A нарастват в началната фаза на остеоартрозата. Във втората група се наблюдават изменения и в средните слоеве. Има малко количество нативен фибронектин, а ED-A фибронектинът изчезва. В третата група нараства по-значително ED-A и ED-B фибронектинът. Нашите резултати ни дават възможност да установим и най-малките промени в ставния хрущял и да ги намерим в най-ранните фази на остеоартрозата.
**Ключови думи:** ставен хрущял, фибронектин, изоформи, експериментална остеоартроза

**Summary:** The fibronectin distribution in the articular cartilage matrix is of great importance for the establishment of all functional and pathological changes in the structure. We made immunohistocemical investigations on osteoarthrotic articular cartilage in different stages of its development. The material was investigated by light and electron microscopy. The electron micrographs were treated with image analyser. We found out that the primal changes affect the superficial layer of the cartilage. The native fibronectin and the ED-A isoform increase in the early stage of osteoarthrosis. In the second group changes in the middle layer of the

cartilage were found. There is a small amount of native fibronectin and the ED-A fibronectin disappears. In the third group ED-A fibronectin increases and there is a small amount of ED-B fibronectin. Our results give us the opportunity to detect the slightest changes in the articular cartilage and to find them in the earliest stages of osteoarthrosis.
**Key words:** articular cartilage, fibronectin, isoforms, experimental osteoarthrosis

**10.** Компютърен анализ на агрекановото съдържание в матрикса от дълбокия слой на ставния хрущял при развитие на експериментална остеоартроза (Computer analysis of agrecan components in the matrix of the deep layer of articular cartilage during the development of experimental osteoarhrosis).
Видинов Н., Йотовски П., Исаков Б., **Калниев М**.
Катедра по Анатомия и Хистология, **МУ – София**;
Ортопедия и травматология. 1998, том 34, кн. 2, стр.61-63.

**КОМПЮТЪРЕН АНАЛИЗ НА АГРЕКАНОВОТО СЪДЪРЖИМО В МАТРИКСА ОТ ДЪЛБОКИЯ СЛОЙ НА СТАВНИЯ ХРУЩЯЛ ПРИ РАЗВИТИЕТО НА ЕКСПЕРИМЕНТАЛНА ОСТЕОАРТРОЗА**

**COMPUTER ANALYSIS OF AGRECAN COMPONENTS IN THE MATRIX OF THE DEEP LAYER OF ARTICULAR CARTILAGE DURING THE DEVELOPMENT OF EXPERIMENTAL OSTEOARTHROSIS**

Н. Видинов, Б. Исаков, П. Йотовски, М. Калниев
N. Vidinov, B. Isakov, P. Yotovski, M. Kalniev

Катедра по Анатомия и Хистология, Медицински Университет – София;
Department of Anatomy and Histology, Medical University-Sofia

**РЕЗЮМЕ**

За установяване на началните патологични промени в ставния хрущял от голямо значение е установяването на разпределението на протеогликановите комплекси (агрекан) в неговите дълбоки слоеве. За тази цел ние използвахме хистохимичен метод за определяне на агрекановото съдържание през различните етапи от развитието на експериментална остеоартроза. Електронограмите бяха подложени допълнително на компютърна обработка. Установихме, че най-значимите промени настъпват в т.н. „tide mark" на дълбокия слой. Набюдава се постепенно намаление на агрекановото съдържание и същевременно структурна дезорганизация на протеогликановите комплекси. Компютърният анализ показва увеличение на глобуларните структури от агрекана. Тези промени са причина да се прекъсне връзката между хрущяла и подлежащата кост и да възникнат невъзвратими дегенеративни промени.
**КЛЮЧОВИ ДУМИ:** агрекан, компютърен анализ, ставен хрущял, tide mark

**ABSTRACT**

In order to establish the pathological alterations in the articular cartilage, it is of great importance to determine the distribution of proteoglycan complexes (agrecan) in the deep layers. We used histochemical method to estimate the agrecan concentration during different stages of experimental osteoarhrosis. The electronogrammes were later analyzed by computer

techniques. We discovered that the most important changes take place in the so called „tide mark" zone in the deep layer. In it the agrecan concentration diminishes and the proteoglycan complexes undergo the process of disorganization. The computer analysis shows increased number of globular components of the agrecan. These alterations are the cause for the breakdown between the cartilage and bone and the appearance of irreversible degeneration processes.
**KEY WORDS:** agrecan, computer analysis, articular cartilage, tide mark

**11.** Една техника за подкожна вагинотомия при стенозиращ тендовагинит на пръстите на ръката-изследване на трупен материал (Subcutaneous vaginotomy in stenosing tendovaginitis of the fingers – A cadaver study).
Хинов В.***, Калниев М.**, Георгиев Г.
*Клиника по Травматология, Университетска Болница „Царица Йоанна" - София, Катедра по Анатомия и Хистология, **МУ – София**;
Ортопедия и травматология. 1999, том 35, кн.3, стр. 222-224.
**SJR 0,100**

**ЕДНА ТЕХНИКА ЗА ПОДКОЖНА ВАГИНОТОМИЯ ПРИ СТЕНОЗИРАЩ ТЕНДОВАГИНИТ НА ПРЪСТИТЕ НА РЪКАТА – ИЗСЛЕДВАНЕ НА ТРУПЕН МАТЕРИАЛ**

**SUBCUTANEOUS VAGINOTOMY IN STENOSING TENDOVAGINITIS OF THE FINGERS – A CADAVER STUDY**

В. Хинов***,** М. Калниев, Г. Георгиев
V. Hinov*, M. Kalniev, G. Georgiev

Катедра по Анатомия и Хистология, Медицински Университет – София;
Клиника по Травматология, Университетска Болница „Царица Йоанна" *
Department of Anatomy and Histology, Medical University-Sofia
Department of Traumatology, Queen Joanna University Hospital - Sofia

**РЕЗЮМЕ**

В настоящата работа авторите представят изследване на трупен материал на техника за подкожна инцизия на сухожилните влагалища на флексорните мускули на пръстите с помощта на 18 G игла.

Техниката е направена на 24 пръста и 6 палеца (6 ръце). Резултатите показват пълно прекъсване на A1 фибрите на сухожилните влагалища при 25 пръста и частичното им прекъсване при 5 пръста. Според авторите техниката е показана при третиране на стенозиращ тендовагинит на пръстите с изразен феномен на щракане.
**КЛЮЧОВИ ДУМИ:** щракащ пръст, подкожна вагинотомия, стенозиращ тендовагинит

**ABSTRACT**

This is a report on a cadaveric study of the technique of percutaneous release of digital flexor tendon sheaths, using an 18 G needle.

The technique was applied to 24 fingers and 6 thumbs (6 hands). As shown by the results in 25 digits there was complete release of the A1 pulley of flexor tendon sheaths, and in five digits the release was partial.

We feel that the technique described is indicated in the treatment of trigger fingers presenting a markedly expressed triggering phenomenon.
**KEY WORDS:** trigger finger, percutaneous release, stenosing tendovaginitis

**Б) СПИСЪК на ТРУДОВЕТЕ на Д-Р МАНОЛ КАЛНИЕВ ДМ - Web of Science and Scopus по показател Г**

**Точка 6:**

**Публикувана книга на базата на защитен дисертационен труд за присъждане на образователна и научна степен "доктор"**

**1. Менискуси и остеоартроза; МЕДИЦИНСКО ИЗДАТЕЛСТВО „АРСО", 2010; София, ISBN: 978-954-9301-67-0.**
**Калниев М.**

Менискуси и остеоартроза
София **2010 г.**

Работата е рецензирана от проф. Д-р Николай Костадинов Видинов, ДМН

© МЕДИЦИНСКО НЗДАТЕЛІСТВО "АРСО" - "АРСО - ИВета Петрова" ЕТ
- София, 1439, Бул."П.Славейков" 31 (срещу Първа Хирургия),
Тел.: 02 851 81 45, 0899 139 816 (за информация и поръчки)



**ISBN: 978-954-9301-67-0**

**РЕЗЮМЕ:** Менискусите на колянната става представляват морфологични структури, които играят решаваща роля за функциите на самата става.В нашата работа основно внимание е обърнато на електронно микроскопските и хистохимични изследвания, както и някои биомеханични модели за предизвикване на експериметална остеоартроза: Модел чрез срязване на кръстосаните връзки на колянната става и модел на лезия на залавните места на медиалния менискус. Резултатите от всички наши изследвания потвърждават вече установилото се схващане, че менискусите са динамични структури с интензивен обмен и изразена чувствителност към патологични въздействия. Получените резултати показаха, че промените настъпващи в менискуса при различни травматични увреждания съответстват на измененията наблюдавани в тази структура при различни модели експериментална остеоартроза. Това ни даде възможност да установим по недвусмислен начин, че измененията в менискуса обхващат първо неговата най-повърхностна част - повърхностната зона на плъзгане поради това, че тя е

метаболитно най-активна при повишени функционални изисквания, а след това останалите слоеве. Настъпващото несъответствие между повишените изисквания и намалените еластични възможности на повърхностната и преходна зона на плъзгане довежда до по-нататъшни изменения в по-дълбоките зони. Картината на оформена остеоартроза се наблюдава след 40. ден при срязване на предните кръстосани връзки и след 50. ден при срязване на менискуса. Картината на оформена остеоартроза настъпва средно с около 10 дни по-късно при експерименталното срязване на предния рог на менискуса, сравнени със срязването на предната кръстна връзка. Нашите резултати потвърждават направения извод, а именно, че при експерименталната остеоартроза, промените в медиалния менискус на молекулярно ниво, а така също и апоптозата се срещат значително по-рано отколкото в латералния менискус.

**Точка 7:**

**1.** Giant retroperitoneal abscess following necrotizing pancreatitis treated with internal drainage.
Veltchev L.*, **Kalniev M.**
*Department of Liver Diseases and Transplantation, Columbia Presbyterian Hospital, New York, USA; Department of Anatomy and Histology, **Medical University-Sofia,** Bulgaria
**Hepatobiliary Pancreas Dis Int. 2009, vol. 8 (5), pp. 551-553.**

**Общ Impact Factor -1.183; Индивидуален Impact Factor – 0.5915**

Case Report

## Giant retroperitoneal abscess following necrotizing pancreatitis treated with internal drainage

Ludmil Marinov Veltchev and Manol Anastasov Kalniev

*New York, USA*

BACKGROUND: **Retroperitoneal abscess is a dangerous complication of the inflammatory process in organs. The pancreas reacts by enzymatic autodigestion and inflammation to external and internal factors: alcohol abuse, trauma, biliary stones, and viral infections. Chronic pancreatitis and formation of pseudocysts are late complications. The diffuse spread of pancreatic inflammation may form a retroperitoneal phlegmon. A better outcome is the limitation of the process by capsule formation-retroperitoneal abscess.**

METHODS: **A 62-year-old man, with a history of alcohol abuse, was admitted for intermittent abdominal pain, fever, and significant weight loss. Previous medical consultations (laboratory tests, US, CT) confirmed chronic pancreatitis with pseudocyst formation. A new CT depicted a giant retroperitoneal abscess.**

RESULTS: **After preoperative preparation with antibiotics, laparotomy and internal drainage-longitudinal cystoje-junostomy with Roux-en-Y loop were performed. At the 8th postoperative day the patient was in good condition.**

CONCLUSIONS: **Giant retroperitoneal abscess is a dangerous pathology with significant mortality and morbidity. Diagnosis strongly necessitates operative intervention in order to evacuate and drain the space. These conditions include one internal drainage (in the GI tract) with the stomach, duodenum, or jejunum, which does not cause early and late GI discomfort and will gradually liquidate the cavity. We propose internal drainage with Roux-en-Y jejunal loop as the only method for accomplishing these conditions in cases of giant retroperitoneal abscesses.**

**[Hepatobiliary Pancreat Dis Ittt 2009; 8:551-553)**

KEY WORDS: **acute pancreatitis;**
**giant retroperitoneal abscess;**
**treatment;**
**complications**

**2.** Is total thyreoidectomy the optimal treatment for benign thyroid disease?
Vidinov K.*, **Kalniev M,** Sechanov T*.
*Department of Endocrine Surgery, Medical University-Sofia, Bulgaria.
Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria;
**Comptes Rendus de l'Academie Bulgare des Scientes. 2013, Tome 66, №7, pp. 1057-1062.**

**Общ Impact Factor - 0, 198; Индивидуален Impact Factor – 0,066**

Comptes rendus de l'Acade'mie bulgare des Sciences, Vol. 66, No7, pp.1057-1062

## Is Total Thyroidectomy the Optimal Treatment for Benign Thyroid Disease?

***Kalin Vidinov, Manol Kalniev*, Tanio Sechanov***

*(Submited by Academician D.Damyanov on March 8, 2013)*

### ABSTRACT

Benign bilateral thyroid disease is the most common indication for surgery in endemic iodine-deficiency regions. Total thyroidectomy is currently the preferred treatment for thyroid cancer, multinodular goiter and Graves disease; however, many surgeons and endocrinologists choose not to perform or recommend total thyroidectomy to treat benign thyroid diseases. We sought to assess whether the results support the hypothesis that total thyroidectomy is safe and can be considered as the optimal surgical approach for treating BTD in endemic region such as Bulgaria.

A total of 500 patients underwent thyroid operation between 2007 and 2009. We excluded patients with thyroid cancer or suspicion of thyroid malignancy. We evaluated indications for

total thyroidectomy, complication rates, local recurrence rate and long-term outcome after total thyroidectomy.

Diagnoses before surgery were multinodular goiter ( $n$ = 300), Graves disease ( $n$ = 100) and Toxic multinodular goiter ( $n$ = 100). The incidence of permanent bilateral recurrent laryngeal nerve palsy was 0% and that of permanent unilateral recurrent laryngeal nerve palsy and permanent hypocalcaemia was 1.8–5%. Haemorrhage requiring repeated surgery occurred in 4.5–13% of patients. There was no wound infection, and postoperative mortality was 0%.

Total thyroidectomy is safe and is associated with a low incidence of disabilities. Furthermore, our study showed that total thyroidectomy is the optimal procedure, when surgery is indicated, for Graves disease and toxic multinodular goiter, as total thyroidectomy has the advantages of immediate and permanent cure and no recurrences.

**Key words:** benign thyroid disease, total thyroidectomy, subtotal thyroidectomy, endemic region

Topic: MEDICINE

**3.** Primary ultastructural changes of the knee joint menisci after rupture of the collateral ligaments.
**Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria;
**Comptes Rendus de l'Academie Bulgare des Scientes. 2011, Tome 64, №12, pp. 1773-1778.**

**Общ Impact Factor - 0,210; Индивидуален Impact Factor – 0,210;**

Comptes rendus de l'Acade'mie bulgare des Sciences, Vol. 64, No12, pp.1773-1778

## Primary Ultrastructural Ghanges of the Knee Joint Menisci after Rupture of the Collateral Ligaments

## *Manol Kalniev*

*(Submited by Corresponding Member M.Vlaskovska on June 17, 2011)*

***ABSTRACT***

It is known that the rupture of the collateral ligaments is one of the most frequent traumas in footballers, skiers and sportsmen generally. After immobilization and regular treatment the results are not always good. One of the reasons is the fact that the rupture of the collateral ligaments is almost always followed by the biomechanical discomfort in the knee and after that, degenerative changes in both the articular cartilage and the menisci begin.

Our results showed that the first changes in the menisci occurred in the parameniscal zone. This is characterized by hyperemia and the presence of permanent capillaries. These changes have developed by the 10th day post operation. By the 20th day, changes in the superficial sliding zone of the medial meniscus were observed. Scanning electron microscopy revealed the presence of roughness due to bundles of collagen fibres. Transmission electron microscopy showed that the lamina splendens became thinner and it is mixed with the superficial zone. At the same time the chondroblasts of the superficial zone were activated. They had enlarged granular endoplasmic reticulum and an increase in the concentration of proteoglycans. It is important to emphasize the fact that these changes begin in the parameniscal zone of the menisci whereas the other types of soft tissue traumas in the knee begin in the superficial sliding zone.

**Key words:** meniscus, ligament, trauma

Topic: MEDICINE

**4.** Вариация на a.mediana от палмарен тип перфорираща n.interosseus anterior и ствола на n.medianus - изследване на трупен материал (Variation of the median artery of palmar type perforating the anterior interosseous nerve and the stem of the median nerve).
Кондов Н., Долапчиева С., **Калниев М.**
Катедра по Анатомия и Хистология, **МУ – София**;
Ортопедия и травматология. 2003, том 39, кн. 1-2, стр. 36-40.
**SJR 0,100**

**ВАРИАЦИЯ НА А.МЕДИАНА ОТ ПАЛМАРЕН ТИП, ПЕРФОРИРАЩА Н.ИНТЕРОСЕУС АНТЕРИОР И СТВОЛА НА Н.МЕДИАНУС – ИЗСЛЕДВАНЕ НА ТРУПЕН МАТЕРИАЛ**

**VARIATION OF THE MEDIAN ARTERY OF PALMAR TYPE PERFORATING THE ANTERIOR INTEROSSEUS NERVE AND THE STEM OF THE MEDIAN NERVE - A CADAVER STUDY**

Н. Кондов, С. Долапчиева, М. Калниев
N. Kondov, S. Dolapcheva, M. Kalniev

Катедра по Анатомия и Хистология, Медицински Университет – София;
Department of Anatomy and Histology, Medical University-Sofia

**РЕЗЮМЕ**

Честотата на появяване на палмарен тип персистираща a.mediana (a.commitans n.mediani) варира при различните популации между 4% и 27.1% (5.5% за българската популация). Перфорацията на n.medianus или негови разклонения от a.mediana се счита за рядка съдова вариация. Ние наблюдавахме случай на двукратна перфорация от палмарен тип a.mediana. A.mediana излиза от a.ulnaris, пробива n.interosseus anterior, след това ствола на n.medianus. След това a.mediana върви с n.medianus в обща съединителнотъканна обвивка на предмишницата и през карпалния канал, и се влива в arcus palmaris superficialis. Случаите на двукратна или повече от два пъти перфорция на n.medianus са изключително редки. В достъпната литература са описани само 4 случая

от подобен тип: 1) a.mediana пробива ствола на n.medianus и палмарен клон на нерва; 2) a.mediana пробива двукратно ствола на n.medianus; 3) трикратен пробив на ствола на n.medianus; 4) ) a.mediana пробива n.interosseus anterior и ствола на n.medianus. Описаният от нас случай е от 4-ти тип и се е срещал само при испанската популация т.е. той е втори в световната литература и първи, що се отнася до българската популация. Тази рядка съдова аномалия е важна за хирургията на ръката. Освен това палмарният тип a.mediana може да причини синдрома на карпалния канал.
**КЛЮЧОВИ ДУМИ:** съдова вариация, българска популация, a.mediana (a.commitans n.mediani), n.medianus

**ABSTRACT**

The frequency of appearance of the palmar type of the persisting median artery varies in the different populations between 4% and 27.1% (5.5% for the Bulgarian population). Perforation of the median nerve or its ramifications by the median artery is considered to be a rare vascular variation. We observed a case of twofold perforation caused by median artery of palmar type. The median artery originates from the ulnar artery, pierces the anterior interosseus nerve, then the stem of the median nerve. Further the median artery goes downwards in the antebrachium and the carpal tunnel in a common sheath with the median nerve and flows into the superficial palmar arch. Patterns of twofold perforation of the median nerve are exclusively rare. In the available literature only 4 different cases have been described: 1) the median artery pierces the stem of the median nerve and the palmar branch of the nerve; 2) the median artery pierces the stem of the median nerve two-fold, and 3) threefold; 4) the median artery pierces the anterior interosseus nerve and the stem of the median nerve. The pattern of perforation observed by us like the 4$^{th}$ case and has occurred in the Spanish population only. The present pattern has to be the second one in the world literature and the first one in respect to the Bulgarian population. That rare vascular anomaly is important for the surgery of the hand. Besides, the palmar median artery might cause the carpal tunnel syndrome.
**KEY WORDS:** vascular variation, Bulgarian population, median artery (artery of the median nerve), median nerve

**5.** Рядък вариетет на артериални съдове от горен крайник (Rare variety of arterial vasculature of the upper limb).
Цветкова А., **Калниев М.,** Видинов Н.
Катедра по Анатомия и Хистология, **МУ – София**;
Хирургия (Случаи от практиката). 2004, том XL, брой 1, стр. 57.

**Рядък вариетет на артериални съдове от горен крайник**
**Rare Case in the Arterial Variety of the Upper Limb**

А.Цветкова, М. Калниев, Н.Видинов
A. Tzvetkova, M. Kalniev, N Vidinov

*Катедра по Анатомия и Хистология, Медицински Университет – София*
*Department of Anatomy and Histology, Medical University - Sofia,*

**Резюме:** Различните вариетети на кръвоносните съдове, особено на венозните, са често срещано явление. Въпреки това добре се знаят разположението и разклоненията на магистралните артериални съдове и те се имат предвид при различните терапевтични интервенции. Сравнително рядко обаче се наблюдават вариетети на магистралните артериални съдове и това довежда до възникване на недоразумения и грешки, които довеждат до нежелателни, а понякога и фатални резултати. Вариететите на *a.brachialis* са сравнително рядко, като най-често се наблюдават две паралелно движещи се артерии в областта на мишницата. Още по-рядко се наблюдават повърхностно разположени артериални съдове, които да прекосяват *fossa cubiti*. Такива вариетети са довеждали до фатални грешки, които са цитирани и в материали , интерпретиращи правни въпроси. Целта на настоящето съобщение е да се опише рядко срещан вариетет на раздвоена *a.brachialis* с един повърхностно разположен клон.

Установява се разделяне на *a.brachialis* под средата на мишницата. Оформят се два клона *a.brachialis superficialis* и *a.brachialis profunda. A.brachialis superficialis* пресича подкожно *fossa cubit,* преминава под *aponeurosis m.bicipitis brachii* и продължава като *a.radialis*. *A.brachialis profunda* продължава като *a.ulnaris.*

**6.** Рядък случай на анастомоза на двата nn. Hypoglossi (Rare case of anastomosis in two nn. hypoglossi).

Цветкова А., **Калниев М.,** Дикова Ч.*, Видинов Н.
Катедра по Анатомия и Хистология, **МУ – София**; *Катедра по Неврология, Неврологична Клиника – Александровска Болница

Хирургия (Случаи от практиката). 2004, том XL, брой 3, стр. 67.

**Рядък случай на анастомоза на двата nn.hypoglossi**
**Rare Case of Anastomosis in Two nn.hypoglossi**

А.Цветкова, М. Калниев, Ч. Дикова*, Н.Видинов
A. Tzvetkova, M. Kalniev, Ch. Dikova*, N Vidinov

*Катедра по Анатомия и Хистология, Медицински Университет – София*
*Катедра по Неврология, Неврологична Клиника – Александровска Болница – София*
*Department of Anatomy and Histology, Medical University - Sofia*
*Department of Neurology, Clinic of Neurology – Aleksandrovska Hospital - Sofia*

**Резюме:** Процесите които довеждат до абнормно развитие на отделни анатомични структури, не са достатъчно изяснени. Предполага се въздействието на механични или други фактори за разместването на зародишния материал. Представяме рядко срещаща се анастомоза между двата нерва върху труп на мъж с неизвестни медицински проблеми, наблюдаван в секционната зала на Катедрата по анатомия.

*N.hypoglossus* е изключително двигателен нерв, нервиращ всички мускули на езика с изключение на *m.palatoglossus.* В нашия случай стволовата част на нерва слиза между съдовете и пред *n.vagus* в посока към *angulus mandibulae.* След това нервът минава под задното коремче на *m.digastricus* и пресича дъгата на *a.lingualis* над горното рогче на *os hyoideum.*Той се насочва към *m.hyoglossus* под *ductus submandibularis.* При задния ръб на *m.mylohyoideus* от него се отделя клон със средна големина, който върви напречно към срещуположната страна и се свързва със срещуположния едноименен нерв. Анастомозата се намира над *os hyoideum* и се разполага по предната повърхност на *m.hyoglossus* и *m.geniohyoideus.*

**Точка 8:**

**1.** Changes in the connective tissue element of the thyroid gland in normal and recurrent euthyroid goiter
Vidinov K., **Kalniev M*,** Krastev D. **
Department of Endocrine Surgery, **Medical University-Sofia**, Bulgaria;
*Department of Anatomy and Histology, Medical University-Sofia, Bulgaria;
**Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova", Medical University-Sofia, Bulgaria
**BioDiscovery Journal. 2013, Issue 9 №1, pp. 1-3.**

RESEARCH ARTICLE

# Changes in the connective tissue element of the thyroid gland in normal and recurrent euthyroid goiter

Kalin Vidinov[1]*, Nikolay Vidinov[2], Manol Kalniev[2], Dimo Krastev[2]
**'USBALE "Acad. Iv. Penchev" Hospital, Department of Endocrine surgery. Medical University - Sofia, Bulgaria**
**department Anatomy, histology and embryology. Medical University - Sofia, Bulgaria**

Abstract

Goitre recurrence is a common problem following subtotal thyroid gland resection for multinodular goiter disease. The aim of our study was to trace out the ultrastructure of the thyroid gland of man after primary and redo operations for struma nodosa.
We undertook the task to study the fine ultrastructural changes taking place in the stromal part of the gland. For ultrastructural examination we used routine transmission electron microscopy. The electron microscopy has been made on Hitachi H-500 microscope Our main goal was to compare the ultrastructural characteristics of the thyroid gland in two different groups - patients with primary disease and patients with recurrence. The results from our research showed that in the first group the stroma was presented by one or two rows of cells in the septum or in small groups in the interfolicular space. Studies by electron microscopically showed that the cells of the stroma had the ultrastructural characteristics of fibroblasts, but there was an increased number cisteme of Granular endoplasmic reticulum, well developed Goldgi complex, as well as relatively small amount of vesicles and vacuoles. The examination of the specimens from the second group showed a much thicker stroma between the follicles. There was an increased amount of stromal cells and collagen bundles in the interfolicular space. The proteoglycan complexes in the extracellular matrix were rarely situated. Qur results suggest that the connective tissue of the thyroid gland reacts faster to the changes of the structure of the gland than the epithelial cells of the follicles.

**Received:** 23 June 2013 **Accepted**: 22 July 2013**; Available online/Published**: 27 July 2013
**Keywords:** thyroid gland, ultrastructure**,** stroma, proteoglycans

**2.** An autopsy case of suicide with three knives: a forensic and anatomical discussion
Apostolov A. **, Hristov S.**, Krastev D., **Kalniev M.*,** N. Krastev*,
Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova", **Medical University-Sofia,** Bulgaria
*Department of Anatomy and Histology, Medical University-Sofia, Bulgaria
**Department of Forensic Medicine and Deontology, Medical University-Sofia, Bulgaria
**Research and Reports in Forensic Medical Science. 2013,vol. 3, pp. 1-5, DOI: http://dx.doi.org/10.2147/RRFMS.S49768.**

**Research and Reports in Forensic Medical Science Dovepress**

open access to scientific and medical research

**Q** Open Access Full Text Article CASE REPORT

# An autopsy case of suicide with three knives: a forensic and anatomical discussion

This article was published in the following Dove Press journal: Research and Reports in Forensic Medical Science
19 September 2013
Number of times this article has been viewed

Aleksandar Apostolov[1]
Stanislav Hristov[1]
Dimo Krastev[2]
Manol Kalniev[3]
Nikolai Krastev[3]

[1]Medical University –Faculty of Medicine, Department of Forensic Medicine and Deontology, [2]Medical University – Sofia, Medical College J Filaretova, [3] Medical University – Sofia, Department of Anatomy and Histology, Sofia, Bulgaria

**Abstract:** We present a case of a 30-year-old man who committed suicide, using three knives, after a domestic disturbance in which he repeatedly stabbed his wife. During the inspection of the corpse of the man at the scene, two knives were found embedded in the neck and one in the abdomen. During the autopsy, we found two stab-incised injuries on the anterior surface of the neck in the lower section of the second segment bilaterally, one injury on the left side of the chest, and eleven injuries in the abdomen of the deceased with varying depth. Wound channels ranged from 1.5 cm to 20 cm. Despite our expectations that some of the major arterial and/or venous vessels in the neck would be cut, we found breaks in only small vessels, nervous structures, sublingual glands, and muscles in the course of the wound channels. In this case, we define such an autopsy finding as rare, or rather, as a rare accident. The inflicted stab-incised injuries as individual anatomical lesions would not lead to certain death. At the time of autopsy we revealed that the fatal injury was in the abdomen, wherein the abdominal aorta was cut. This led to the development of acute blood loss. In the genesis of death, a puncture-incised injury of the left lung was involved, leading to the development of hemopneumothorax. With regards to the possibility of murder, we did not find any cuts or puncture-incised injuries on the body of the deceased man which could be described as "defensive", or such that could have been received while trying to escape. During the police investigation, evidence for the presence of a third person at this domestic incident was not found.
**Keywords:** injuries, types of injuries and digital photography, forensic autopsy, suicide

**3.** Re-Examination of Biological Traces in Sexual Assault Case by a Fragmental DNA Profiling: a Practical Approach.

Apostolov A. **, Hristov S.**, Angelova E. **, Krastev D., **Kalniev M.*,** Krastev* N.
Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova", Medical University-Sofia Bulgaria
*Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria
**Department of Forensic Medicine and Deontology, Medical University-Sofia, Bulgaria

**Journal of Forensic Research. 2013, vol. 4, issue 3, pp 1-3, DOI: 10. 4172/2157-7145.1000184.**

*Forensic*

Research

Apostolov et al.. J Forensic Res 2013. 4:3 hltp;//dx.doi.org/l0.4172/215?'-7l45.I000184

## Re-Examination of Biological Traces in Sexual Assault Case by a Fragmental DNA Profiling: a Practical Approach

**Apostolov A[1]*, Hristov S[1], Angelova E[1], Krastev D[2], Kalniev M[3] and Krastev N[3]**

***'Medical University - Sofia, Faculty of Medicine, Department of Forensic Medicine and Deontology, Bulgaria***
***'Medical University - Sofia, Bulgaria***
***'Department of Anatomy and Histology Medical University, Sofia, Bulgaria***

### *Introduction*

The identification and proof of performed intercourse using DNA analysis of biological traces in cases of rape during forensic tests is a difficult but not unsolvable expert task [1,2].

Generally the used technical methods for collection of DNA traces by wiping with cotton or nylon swabs as well as cutting out small sections of material carriers of biological traces, are common [3]. Cotton swabs for taking vaginal and / or anal smears are routinely used in practice for examinations of women, who were the subject of a serial crime [4]. It is an undisputed fact that not detecting sperm in the vaginal or anal content of the raped person does not exclude the possibility of them having had a sexual intercourse [5] or a penetration of the penis without ejaculation. With such preliminary information, the studies of evidence gathered during the investigation are directed to a search for biological material of epithelial cells [6].

Studies on this broad scale topic have shown successful analysis of the samples taken in an interval of 48 hours to 8 days after the sexual crime, as the sperm can be found in the investigation of material from oral and anal swabs in this time interval [5,7].

Ri case of sex crimes, the collection of sufficient and suitable material for DNA analysis is complicated due to material's deposition on highly destructive environment, especially when the sperm is deposited into the rectum where it is destroyed by bacterial enzymes or in the oral cavity where it is destroyed by salivary enzymes [8].

In this study, we focused our attention on the possibilities for extraction of genetic profiles on Y chromosomal genetic markers of the sex offenders, despite the destructive effect of anal content and minimal biological material left on already tested evidence. It is exactly the collection of a maximum quantity of DNA with good quality preserved **afteAnitially** unsuccessfully examined vaginal and anal swabs, which is a serious scientific and practical challenge.

### *Material and Methods*

We present the case of a raped 65- year- old woman with subsequent killing and dismemberment of the victim. The initial studies of vaginal and anal / rectal smears conducted by serological methods were unsuccessful and could not led to the identification of the perpetrators of sexual crimes, respectively murder.

^nears from 3 vaginal and 2 anal swabs, taken during the inspection and the autopsy, and organic material from three men, suspected of committing the crime have been examined by DNA fragmental analysis. For DNA extraction from anal and vaginal swabs, we used a modified technique for collecting biological material, consistent with the presumptive deposition of organic materials (epithelial cells) on wood and plastic handles of cotton swabs, which had already been investigated. Considering the fact that a substantial part of cotton swabs was 'lost' in the previous studies by serological methods, we tried to find alternative sites for deposition of biological material and to apply different approaches for collecting of sufficient and suitable material for DNA analysis. In this case, we complied with the results of our previous experimental and expert research.

We set ourselves the goal to determine the possibility for proof of sexual contact by finding cellular material deposited on examined carriers - wood and plastic handles of the cotton swabs.

After an initial analysis and assessment of the risk, we chose the approach for direct extraction of DNA from post coital samples and refrained from the use of techniques for applying differential lysis, in which we could lose valuable quality and quantity of stored DNA. For the same reason we decided to use a comparative analysis based on Y chromosome profiling.

We applied the approach of collection of biological material from smears with swabs with wooden and plastic handles using double tampon technique as in Sweet [9] with a further scraping of material from the surface of the wooden handles, in their middle third.

We applied the legal record of the FBI, provided by LIFE TECHNOLOGIES (Debra Nickson, technical services; 29.01.97) for extraction and eventual extraction of DNA from a sample set of material evidence. We used Stain Extraction Buffer with features 0.01 M Trls, 0.01 EDTA, 0.1 M NaCl, 0.039 M DTT, 2% SDS, with which we poured the smears on the handles - carriers and the scraped fragments from the handles, and we added Proteinase K (25 mg/ml) in addition. After incubation for 18 hours at 56°C, an organic phenol extraction (phenol: chloroform: isoamyl alcohol=25:24:l) was performed. DNA precipitation was carried out by absolute alcohol cooled to -20°C. Extracted DNA was dissolved in 50 ***xl*** TE-4 Buffer at the next storage at -20°C. The extraction of DNA from the buccal mucosa smears of the examined individuals was conducted in accordance with the provisions of Promega Corporation [10].

The DNA quantity in the sample obtained from the swab handles ranged from 90 pg- 150 pg genomic DNA. DNA quantitation was performed using slot-blot procedure according to the Waye et al. [11].

Received July 02, 2013: Accepted July 15, 2013; Published July 19. 2013

**4.** The presence of an additional first lumbrical muscle starts from the body of flexor digitorum profundus muscle

Kalniev M., Krastev N., Krastev D.*, Vidinov K. **,Veltchev L. ***

Department of Anatomy and Histology, **Medical University-Sofia** - BULGARIA

*Department of Anatomy and Histology, College of Medicine “Jordanka Filaretova” ,Medical University, Sofia- BULGARIA

**Department of Endocrine Surgery, Medical University, Sofia- BULGARIA

***State Hospital, Biala Slatina, General Surgery - BULGARIA

**Academia Journal of Scientific Research. 2013, vol. 1, issue 7, pp 115-120.**

Academia Journal of Scientific Research 1(7): 115-120, August 2013

http://www.academiapublishing.org/ajsr
ISSN: 2315-7712

**Academia Publishing**
Research Paper

## The presence of an additional first lumbrical muscle starts from the body of flexor digitorum profundus muscle

*Accepted August 9th, 2013*

**ABSTRACT**

It is well known that the lumbrical muscles are intrinsic muscles of the human hand. During routine dissection in April, 2012 in the section hall of the Department of Anatomy and Histology in Medical University, Sofia, Bulgaria, we came across a very interesting variation in the presence of an additional first lumbrical muscle. We found the presence of additional first lumbrical muscle comes from the body of the flexor digitorum profundus muscle. The normal first lumbrical muscle was in their usual place without variations. The additional first lumbrical muscle beginning with the tendon, which turned into muscle belly was located in the distal part of the forearm and ended with the tendon, which merges with the tendon of the first lumbrical muscle. The additional and the normal lumbrical muscles captured together of the usual place - the dorsal aponeurosis of the index. The aim of the present work was to describe and analyze this unusual anatomical variation.

**Keywords:** Muscles of the hand, lumbricals, variations, and surgery.

Kalniev Manol[1], Krastev Nikolay[1], Krastev Dimo[2], Vidinov Kalin[3], Veltchev Ljudmil[4] and Mileva Milka[2]

[1]Department of Anatomy and Histology, Medical University, 2 Zdrave Street, 1131 Sofia, Bulgaria

[2]Department of Anatomy and Histology, College of Medicine, Jordanka Filaretova, Medical University, 3, Jordanka Filaretova,
Street, 1660 Sofia- Bulgaria.

[3] Department of Endocrine Surgery, 2,
Zdrave Street, 1131 Medical University,
Sofia, Bulgaria.

[4] State Hospital, Biala Slatina, General
Surgery - Bulgaria.

Department of Virology, Institute of Microbiology, Bulgarian Academy of Sciences, 26 Acad. G. Bonehev Street, Sofia 1113, Bulgaria

**5.** Abnormal attachments between a plantar aponeurosis and calcaneus

Kalniev M., Krastev N., Krastev D.*, Vidinov K. **,Veltchev L. ***
Department of Anatomy and Histology, **Medical University-Sofia** - BULGARIA
*Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova" ,Medical University, Sofia- BULGARIA
**Department of Endocrine Surgery, Medical University, Sofia- BULGARIA
***State Hospital, Biala Slatina, General Surgery - BULGARIA

**Clujul Medical. 2013, vol. 86, issue 3, pp 200-202.**

## ABNORMAL ATTACHMENTS BETWEEN A PLANTAR APONEUROSIS AND CALCANEUS

**MANOL ANASTASOV KALNIEV[1], DIMO KRASTEV[2], NIKOLAY KRASTEV[1], KALIN VIDINOV[3], LUDMIL VELTCHEV[4], MILKA MILEVA[2]**

[1]**Department of Anatomy and Histology, Medical University of Sofia, Bulgaria**
[2]**Medical College "Jordanka Filaretova", Medical University of Sofia, Bulgaria**
[3]**Department of Endocrine Surgery, Medical University of Sofia, Bulgaria**
[4]**State Hospital, Biala Slatina, General Surgery, Bulgaria**

**Abstract**

***Background and aims.*** *The plantar aponeurosis or fascia is a thick fascial seal located on the lower surface of the sole. It consists of three parts central, lateral and medial. The central portion is the thickest. It is narrow behind and wider in front. The central portion has two strong vertical intermuscular septa which are directed upward into the foot. The lateral and medial portions are thinner. The medial portio is thinnest. The lateral portion is thin in front and thick behind. The main function of the plantar fascia is to support the longitudinal arch of the foot.*

*In May 2013 during a routine dissection in the section hall of the Department* of *Anatomy and Histology in Medical University - Sofia, Bulgaria we came across a very interesting variation of the plantar aponeurosis.*

***Materials and methods.*** *For the present morphological study tissues from a human corpse material were used. This unusual anatomical variation was photo- graphed using a Nikon Coolpix 995 camera with a 3.34 Megapixels.*

***Results.*** *We found some fibrous strands which startedfrom the proximal portion of the plantar aponeurosis on the left foot. The fibrous strands resembled the tentacles of an octopus and started from the proximal portion of the aponeurosis. Two offibrous strands were directed laterally to adipose tissue and one was directed medially and backward. The first lateral fibrous strand was divided into several fascicles. We found very few data in literature about the varieties of the plantar fascia.*

***Conclusion.*** *It is very important to consider the occurrence of above mentioned variations in the plantar aponeurosis when surgical procedures are performed on the sole.*

**Keywords:** plantar aponeurosis, plantar muscles, variations, plantar fasciitis, surgery.

**6.** Total thyroidectomy for multinodular goiter – is it really an option in endemic region?
Vidinov K., **Kalniev M*,** Krastev D. **, Veltchev L.***,
Department of Endocrine Surgery, Medical University-Sofia, Bulgaria;
*Department of Anatomy and Histology, **Medical University-Sofia**, Bulgaria;
**Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova", Medical University-Sofia, Bulgaria
***State Hospital of Biala Slatina, Bulgaria;
**MHSJ Medical publications. 2013, vol. 14, issue 2, pp 140-143**

Volume 14, issue 2, 2013

# Total tryroidectomy for multinodular goiter - is it really an option in endemic region?

Kalin Vidinov[1], Manol Kalnev[2], Dimo Krastev[3], Ludmil Veltchev[4]

[1]Department of Endocrine Surgery, Medical University of Sofia, Bulgaria
[2]Department of Anatomy and Histology, Medical University-Sofia, Bulgaria;
[3]Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova", Medical University-Sofia, Bulgaria

[4]State Hospital of Biala Slatina, Bulgaria

**Abstract**
Bilateral multinodular goiter is the most common indications for surgery in endemic iodine-deficiency regions such as Bulgaria. Total thyroidectomy is currently the preferred treatment for thyroid cancer, for multinodular goiter. However many surgeons and endocrinologist still choose not to perform or recommend total thyroidectomy or lobectomy for bilateral or unilateral disease. We sought to assess whether the results support the hypothesis that total thyroidectomy is safe and can be considered as the optimal surgical approach for treating BMG in endemic region such as Bulgaria.
A total of 500 patients were included in this study. They underwent thyroid operation between 2004 and 2009. We excluded patients with thyroid cancer or suspicion of thyroid malignancy. We evaluated indications for total thyroidectomy, complication rates, local recurrence rate and long-term outcome after total thyroidectomy.
All patients had bilateral goiter diagnosed with ultrasound (n = 500). The incidence of permanent bilateral recurrent laryngeal nerve palsy was 0% and that of permanent unilateral recurrent laryngeal nerve palsy and permanent hypocalcaemia occurred was 0.8 - 1.2 %. Hemorrhage requiring repeat surgery occurred in 0.4-2 % of patients. There was no wound infection, and postoperative mortality was 0%. Total thyroidectomy is safe and is associated with a low incidence of disabilities. Total thyroidectomy has the advantages of immediate and permanent cure and no recurrences.
**Key words:** Bilateral multinodular goiter, total thyroidectomy, subtotal thyroidectomy, endemic region

**7.** A rare variation of the digastric muscle
Kalniev M., Krastev N., Krastev D.*, Vidinov K. **,Veltchev L***. , Apostolov A. ****
, Mileva M. *
Department of Anatomy and Histology, **Medical University, Sofia** - BULGARIA
*Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova" ,Medical University, Sofia- BULGARIA
**Department of Endocrine Surgery, Medical University, Sofia- BULGARIA
***State Hospital, Biala Slatina, General Surgery – BULGARIA
****Department of Forensic Medicine and Deontology, Medical University-Sofia, Bulgaria
**Clujul Medical. 2013, vol.86, issue 4, pp. 327-329.**

# A rare variation of the digastric muscle

MANOL KALNIEV,[1] DIMO KRASTEV,[2] NIKOLAY KRASTEV,[1] KALIN VIDINOV,[3] LUDMIL VELTCHEV,[4] ALEXANDER APOSTOLOV,[5] and MILKA MILEVA[2]

Abstract

The digastric muscle is composed by two muscle bellies: an anterior and a posterior, joined by an intermediate tendon. This muscle is situated in the anterior region of the neck. The region between the hyoid bone and the mandible is divided by an anterior belly into two triangles: the submandibular situated laterally and the submental triangle which is located medially. We found that the anatomical variations described in the literature relate mainly to the anterior belly and consist of differences in shape and attachment of the muscle. During routine dissection in February 2013 in the section hall of the Department of Anatomy and Histology in Medical University – Sofia we came across a very interesting variation of the digastric muscle. The digastric muscles that presented anatomical variations were photographed using a Sony Cyber-shot DSC-T1 camera, with a Carl Zeiss Vario-Tessar lens. We found out bilateral variation of the digastric muscle in one cadaver. The anterior bellies were very thin and insert to the hyoid bone. Two anterior bellies connect each other and thus they formed a loop. The anatomical variations observed of our study related only to the anterior belly, as previously described by other authors. It is very important to consider the occurrence of the above mentioned variations in the digastric muscle when surgical procedures are performed on the anterior region of the neck.

**Keywords:** neck muscles, variations, digastric muscle, hyoid bone

**8.** An unusual variation of an additional plantaris muscle originating from the soleus

Kalniev M., Krastev N., Krastev D*, Mileva M**.
Department of Anatomy and Histology, **Medical University, Sofia** - BULGARIA
*Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova" ,Medical University, Sofia- BULGARIA
** Department of Virology The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia- BULGARIA

**International Journal of Anatomical Variations. 2014, vol. 7, pp. 93-95.**

**An unusual variation of an additional plantaris originating from the soleus**

Manol Anastasov KALNIEV [1] Nikolay Stoyanov KRASTEV [1] Dimo Stoyanov KRASTEV [2] Milka Milcheva MILEVA [2, 3]
Department of Anatomy and Histology, Medical University, Sofia [1],
Department of Anatomy and Histology, College of Medicine "Jordanka Filaretova", Medical University, Sofia [2],
Department of Virology, The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences [3], Sofia, BULGARIA.
Dr. Milka Milcheva Mileva Department of Virology The Stephan Angeloff Institute of Microbiology Bulgarian Academy of Sciences 26 Acad. G. Bonchev Str. 1113 Sofia, BULGARIA. +359 899 151 159 milkamileva@gmail.com
Received July 31st, 2013; accepted April 7th, 2014

**Abstract**
The plantaris muscle belongs to the posterior superficial crural muscles, placed between the gastrocnemius and soleus. Its origin usually is from the inferior part of the lateral

supracondylar line of the femur at a position a little superior to the origin of the lateral head of gastrocnemius. During routine dissection we came across a very interesting variation of the additional plantaris originating from the soleus. We observed that the additional muscle belly of the plantaris (actually a tendon) merged with the tendon of the main belly and inserted into the calcaneal tendon. This variation was observed in the left lower limb from a cadaver. The aim of this paper was to analyze and describe this rare and interesting finding. We suppose that it is very important to consider the occurrence of above variation of the plantaris originating from the soleus. It would be helpful in cases of patients with an unexplained pain in lower leg and when surgical procedures are performed on this area.
**© Int J Anat Var (IJAV). 2014; 7: 93–95.**
**Key words** [muscles of the lower leg] [plantaris muscle] [variations] [tennis leg] [surgery]

**9.** Клинико-анатомичен аспект на рядко срещана анастомоза между двата подезични нерва.
Георгиев Г., **Калниев М.**,.Узунов К., Велинов Н.
Катедра по Анатомия и Хистология, **МУ – София**;
Neurologia Balcanica. 1999, vol.3, № 3-4, pp. 48-51.

**КЛИНИКО-АНАТОМИЧЕН АСПЕКТ НА РЯДКО СРЕЩАНА АНАСТОМОЗА МЕЖДУ ДВАТА ПОДЕЗИЧНИ НЕРВА**

**CLINICO ANATOMICAL ASPECT OF A RARE ANASTOMOSIS OF THE HYPOGLOSSAL NERVES**

**Г. Георгиев, М.Калниев, К. Узунов, Н. Велинов**
**Georgiev G., M. Kalniev, K. Uzunoff, N. Velinov**

Катедра по Анатомия, Хистология и Ембриология, Медицински Университет – София
Department of Anatomy, Histology and Embriology, Medical Univerity - Sofia

**Резюме:** Описваме рядък случай на вродена анастомоза на двата подезични нерва. Казуистичността се поражда от липсата на ембриогенетична предиспозиция за съществуването ѝ и от малкия брой автори, които я описват – в последните четири десетилетия само един. Макар че е изключително рядка, тя е най-добрият морфологичен субстрат, позволяващ осъществяването на фацио-хипоглосална анастомоза при реконструктивни интервеции с периферните клончета на n.facialis.
**Ключови думи:** хипоглосо-хипоглосална анастомоза, фацио- хипоглосална анастомоза, невропластична интервенция

**Summary:** The present work describes a rare congenital anastomosis of two hypoglossal nerves. The lack of embryogenetic predisposition leads to a very rare occurrence, existence and to the small number of authors who have described this anastomosis (in the last four decades only one). Even if extremely rare it is the best morphological substrate allowing the realization of anastomosis between the hypoglossal nerve and the peripherial branches of the facial nerve in reconstructive interventions.
**Key words:** Hypoglossal-hypoglossal anastomosis, facial-hypoglossal anastomosis, neuroplastic intervention

**10.** Changes in the character of the intercellular matrix of the articular cartilage during experimental osteoarthrosis.
Vidinov N., **Kalniev M.,** Vidinov K.,Marinova R*.
Department of Anatomy and Histology, Medical University-Sofia, *Department of Biology, **Medical University-Sofia**
Journal of Anthropology. 2000, vol.3, pp. 152-158.

**CHANGES IN THE CHARACTER OF THE INTERCELLULAR MATRIX OF THE ARTICULAR CARTILAGE DURING EXPERIMENTAL OSTEARTHROSIS**

*N. Vidinov, M. Kalniev, K. Vidinov, R.Marinova*
Department of Anatomy and Histology, Medical University-Sofia

**Abstract**

The agrecan (protein-polysaccharide) complexes' distribution in the articular cartilage matrix is of great importance for the establishment of all functional or pathological changes in the structure. The previous researches were based only on the qualitative changes in the articular cartilage structure. Knee instability ensuring osteoarthrosis development in the right knee joint was induced by closed division the cruciate ligaments in it. We made ultrastructural histochemical researches to locate the protein-polysaccharide complexes and the resulting electronogrammes were analyzed with an image analyzer. We found out that the primal changes affect the globular part of proteoglycan complexes in the territorial matrix. This is mainly confirmed by the computer analyzes of electronogrammes. It gives us the opportunity to detect the slightest changes in the articular cartilage and to find them in the earliest stages of osteoarthrosis.

**Key words:** osteoarthrosis, intercellular matrix, articular cartilage

**This investigation is sponsored by Medical University – Sofia**
Department of Anatomy
Medical University
Sofia 1431

**11.** Distribution and morphology of Renaut bodies in median and ulnar nerves at sites of potential compression.
**Kalniev M.,** Christova T., Kirov Z*.
Department of Anatomy and Histology, **Medical University-Sofia**;
*Department of Hand Surgery and Microsurgery, University Hospital of Orthopaedics and Traumatology-Sofia
85th Anniversary of the Department of Anatomy and Histology. Anatomical Collection. 2003, pp. 45-46.

**DISTRIBUTION AND MORPHOLOGY OF RENAUT BODIES IN MEDIAN AND ULNAR NERVES AT SITES OF POTENTIAL COMPRESSION**

***M. Kalniev, T. Christova, Z. Kirov****

*Department of Anatomy and Histology, Medical University-Sofia; *Department of Hand Surgery and Microsurgery, University Hospital of Orthopaedics and Traumatology, Sofia*

**Abstract**

The reasons causing for the compression neuropathies, especially in the upper limbs are not yet revealed completely. A broad aspect of pathological conditions causing heavy neurological changes was discussed. Concerning the most frequent syndrome of the carpal tunnel, the supposed diseases are endocrine disorders – diabetes mellitus, myxedema, hyperthyroidism, acromegaly as well as endocrine disorder during the pregnancy and then.

The great mass of authors is unanimously, that the local persistent trauma is the most important factor causing for the neuropathies. It was demonstrated that the chronic mechanical irritation at the places of investigated anatomical localization leaded to endoneural hypoxia, worse cellular metabolism and a reduced axonal potential.

In this way it was concluded that a clearly expressed dominant factor causing for the above mentioned syndromes is absent.

Already in 1881 Renaut described for the first time the cellular structures situated in the endoneurium, called later - Renaut bodies. Their aetiopathogenesis and morphology remain uncertain. It has been suggested that they represent degenerate endoneurial capillaries. The aim of the present report was to examine the presence, distribution, and morphology of the Renaut bodies (RB) at the site of potential compression in the nerves.

**12.** A rare variant of the vertebral artery directly arises from the arch of the aorta in connection with a vertebro-basilar syndrome.

Tzvetkova A., **Kalniev M.,** Vidinov N., Karadzhova L*.

Department of Anatomy and Histology, **Medical University-Sofia**; *Emergency Center - Elin Pelin

85th Anniversary of the Department of Anatomy and Histology. Anatomical Collection. 2003, p. 91.

**A RARE VARIANT OF THE VERTEBRAL ARTERY DIRECTLY ARISES FROM THE ARCH OF THE AORTA IN CONNECTION WITH A VERTEBRO-BASILAR SYNDROME**

***A. Tzvetkova, M. Kalniev, N. Vidinov, L. Karadzhova***

*Department of Anatomy and Histology, Medical University-Sofia*

**Abstract**

It is accepted that the directly beginning of the vertebral artery from the arch of the aorta is variable and very rare in man.

In the present report it is presented a case of the left vertebral artery arises from the arch of the aorta before the separation of the left subclavian artery and then entering at the fifth cervical transverse foramen.

The variant is observed at a cadaver in the dissecting hall at the Department of Anatomy and Histology, Medical University-Sofia. Clinical data could not be established.

The vertebral artery separates from the upper side of the arch of the aorta, between the left common carotid artery and the left subclavian artery. Then the left vertebral artery passes between the scalenus anterior muscle and the longus coli muscle, in the scalenovertebral

triangle, behind the arch of the left inferior thyroid artery. Finally the left vertebral artery reaches the fifth cervical vertebra to enter its foramen trasversarium.

Such situation of the vertebral artery, before the entering at the cervical transverse foramina, at the side of the common carotid artery and in front of the recurrent laryngeal nerve is very important in case of surgical interventions on the thyroid gland and the parathyroid glands, as well can be injured the prevertebral portion of the recurrent laryngeal nerve.

In addition it has to mention that by reason of folded course of the vertebral artery it is possible in the presence of extreme motions of the head it can set in a temporary pressure. These motions are mainly backward and at rotation, especially in individuals with atherosclerotic changes. Because of that a temporary compression with a lose of consciousness may also take place.

**В. СПИСЪК на ПУБЛИКУВАНИ УНИВЕРСИТЕТСКИ УЧЕБНИЦИ И УНИВЕРСИТЕТСКИ УЧЕБНИ ПОСОБИЯ на Д-Р МАНОЛ КАЛНИЕВ ДМ по показател Е**

**Точка:20**

**1. Анатомия на човека. „Учебник-атлас за професионален бакалавър”, “СИМЕЛ ПРЕС”, 2011; София, ISBN: 978-954-2918-34-9; глави „Горен крайник” и „Долен крайник”. Кръстев Д., Видинов К., Нанова Б., Калниев М.**

В настоящия учебник, който е с обем 214 страници се съдържат 84 черно- бели фигури по (Р. Д. СИНЕЛЬНИКОВ, 1980).

Издателска къща "СИМЕЛПРЕС”

ISBN: 978-954-2918-34-9



**РЕЗЮМЕ:** Написани са главите **„Горен крайник” и „Долен крайник”.** Последователно са описани костите, ставите, фасциите и мускулите, кръвоснабдяването и инервацията на раменния пояс, свободния горен крайник, тазовия пояс, свободния долен крайник. Спазен е принципа на топографската анатомия като се започне с границите на гореописаните области и последователно са разгледани кожата,линиите на цепливост, подкожната мастна тъкан за да се стигне до фасциите, мускулите, кръвоснабдяването и инервацията, а костите и ставите са описани отделно.

**2. Учебник-атлас с тестове „Анатомия на опорно-двигателния апарат с основи на биомеханиката” за специалност рехабилитатор, “СИМЕЛ ПРЕС” 2012; София, ISBN: 978-954-2918-60-8 (81-162 стр.), (214-233 стр.).**
**Кръстев Д., Калниев М., Кръстев Н.**

**Издателство „СИМЕЛПРЕС”**
**1463 София, ул. „Орфано” 4, тел. 9523012**
**ISBN: 978-954-2918-60-8**


**РЕЗЮМЕ:** Написани са главите **„Свързвания между костите „Athrologia” и „Мускули”.** Последователно са описани всички свързвания в човешкото тяло, всички фасции и мускули с тяхната инервация. И в този учебник е спазен принципа на топографската анатомия. Последователно са разгледани кожата, линиите на цепливост, подкожната мастна тъкан за да се стигне до фасциите, мускулите и тяхната инервация. След това в отделно приложение са написани тестове с въпроси и отговори към настоящия учебник, като въпросите от 192 до 300 касаят артрологията, миологията и механиката на опорно-двигателния апарат.

**Точка:21**

**1. Тестове към учебника по „Анатомия на човека за професионален бакалавър”, “СИМЕЛ ПРЕС” 2012; София, ISBN: 978-954-2918-65-3. Кръстев Д., Калниев М., Кръстев Н.**

**Издателска къща: „СИМЕЛ ПРЕС”**

ISBN: 978-954-2918-65-3



**РЕЗЮМЕ:** В настоящия сборник от тестове, който е с обем 116 страници се съдържат 556 въпроса за всички раздели. Отговорите на тези въпроси са представени в края на сборника.

**СПИСЪК на РЕЗЮМЕТА с IF ПУБЛИКУВАНИ в СПИСАНИЯ и на УЧАСТИЯТА на Д-Р МАНОЛ КАЛНИЕВ ДМ в НАУЧНИ ФОРУМИ (КОНГРЕСИ, КОНФЕРЕНЦИИ и СИМПОЗИУМИ) в ЧУЖБИНА и в БЪЛГАРИЯ:**

## I. РЕЗЮМЕТА ПУБЛИКУВАНИ в МЕЖДУНАРОДНИ СПИСАНИЯ с IMPACT FACTOR ВСИЧКИТЕ СЛЕД ДИСЕРТАЦИЯТА или НЕСВЪРЗАНИ С ДИСЕРТАЦИЯТА

1.Changes in the temporo-mandibular joint articular disk after treatment with corticosteroids.
Krastev D., Krastev N., Vidinov N., Vidinov K., **Kalniev M.**
Department of Anatomy and Histology, **Medical University, Sofia**, Bulgaria;
**Verhandlungen der Anatomischen Gesellschaft. Anatomischer Anzeiger - Annals of Anatomy. 100. Versammlung in Leipzig vom 11. bis 14. Marz 2005, S. 124.**

**Общ Impact Factor - 0,427; Индивидуален Impact Factor – 0,085**

**Changes in the temporo-mandibular joint articular disk after treatment with corticosteroids**

Krastev D, Krastev N, Vidinov N, Vidinov K, Kalniev M.
Department of Anatomy, Medical University, G. Sofijski 1, BG 1431 Sofia

Corticosteroids are very often used as stimulators or as the therapeutics in the dentist practice. As there are not ultrastructural data about their influence on the articular apparatus of the temporo-mandibular joint we made an experiment on the animals-Vistar rats. It was our aim to follow the ultrastructural and cytochemical changes in the articular disk of experimental animals after treatment with Diprophos. For this purpose we used two groups of animals-treated and antreated with Diprophos. It was established that in the beginning, an activation of the chondroblasts from the tangential layer of he disk. They are with well developed GER and intensive territorial matrix. The production of proteoglycans was increased 2 hours after the administration of the medicine. Parts of erythrocytes were incorporated into the cells of the superficial layer. T he ultrastructural changes in the $20^{th}$ day of treatment were connected with the disappearing of lamina splendens and the appearance of roughness on the articular surface in the form of clefts. They are usually situated parallel to the direction of movement. In the last stage of investigation the cells from the surface layer begin degeneration processes. In support of this fact are the degenerated chondroblasts, the diminished concentration of of proteoglycans in the territorial matrix and the high concentration of big globular proteoglycan subunits. The severe differences in the proteoglycan concentration in the territorial matrix lead to the accumulation of large amounts of calcium ions on the plasmalemma. This is the hallmark of osteoarthrosis.

## II. УЧАСТИЯ в МЕЖДУНАРОДНИ НАУЧНИ ФОРУМИ НЕСВЪРЗАНИ с ДИСЕРТАЦИЯТА:

**1.** Atypical Laparoscopic Right Anterieur Bisegmentectomy for Single Tumor.
Veltchev L*., **Kalniev M**.**
*Department of Abdominal surgery, Biala Slatina, BULGARIA
**Department of Anatomy and Histology, Medical Faculty, **Medical University of Sofia**, BULGARIA
SAGES 2012 Annual Meeting, Abstracts
San Diego, the USA 7-10 March 2012.

Abstracts 2014 SAGES U SAGES.TV IMAGES Wiki SAGESPAGES MyCME

SAGES
**Society of American Gastrointestinal and Endoscopic Surgeons**

**SAGES 2012**


Download the SAGES 2012 Program

*SAGES 2012 Final Program*

SAGES 2012 Abstracts and Posters

*View all SAGES 2012 Abstracts and Posters*

Surgical Spring Week

Location

The San Diego Convention Center
111 W. Harbor Drive, San Diego, CA 92101

Society of American Gastrointestinal
and Endoscopic Surgeons (SAGES)
11300 W. Olympic Blvd., Suite 600, Los Angeles, CA 90064
Phone:310-437-0544 Fax:310-437-0585
Email: sagesweb@sages.org Website: www.sages.org
On-Site Office: 619-S25-6325

SAGES is managed by BSC Management, 11300 W. Olympic Blvd, Suite 600, Los Angeles, CA 90064 infQ@bscmanage.com
http://www.bscmanage.com

**Surgical Spring Week - SAGES 2012**

***Atypical Laparoscopic Right Anterieur Bisegmentectomy for Single Tumor***

Ludmil M Veltchev, MD PhD, Manol A Kalniev, MD PhD. Department of Abdominal surgery, Medical University – Sofia, BULGARIA

Anterior right sectorial resection or bisegmentectomy 5-8 is an indication for primary malign liver tumors or single metastasis. Anatomical disposition of this sector between hilar portal arterial inflow and venous outflow is making its resection very difficult without the sacrifice of the intact blood flow to right posterior segments. Gold standard procedure is wedge liver resection under intraoperative ultrasound and blood control by clamping of the right hepatic artery.
Introduction of laparoscopic manipulations on the liver permits performance of typical major liver resections under Pringle maneuver and in selected cases hilar plate dissection and blood control proximally to divergence of hepatic artery. It is difficult in this antegrad methodology to find exact borders between right anterior sector and right posterior sector.
Our method for save laparoscopic bisegmentoctomy 5-8 includes the following steps:
1. Pneumoperitoine
2. 30º camera insertion
3. Laparoscopic cholecystectomy
4. The hepatoduodenale ligament dissection and insertion of elastic tape for Pringle maneuver, exteriorized by 5 mm hard tube for security.
5. Determination of the place for minimal liver dissection of the gall bladder bed to find and clipping of the right anterior artery branch. Avascularization of the anterior sector. We found the right anterior branch at the point where projection of right hepatic artery crosses the sagital line of the gallbladder bed and 1.5-2 cm superior-posterior intrahepataly.
6. Wedge resection of unvascularized area of segments 5-8 using bipolar instrument and clips.
7. Minilaparotomy for evacuation of specimen.

Advantages:
- No rick for blood lost
- Absolutely demarcation of resection lines
- No rick for damage of right and middle hepatic veins if follow demarcation.

Disadvantages:
- Difficult to find right anterior branch using gallbladder bed: need to follow the right hepatic artery from liver hilar just to division to anterior and posterior branch and clipping. It my have parenchymal phase.

---

Session Number: Poster – Poster Presentations
Program Number: P398

**2.** Major hepatectomy for Hilar Cholangiocarcinoma Type Bismuth-Corlette II and III-is it the best choice?
**Veltchev L.,** Kalniev M*****., Krastev D**.
Department of Abdominal surgery, Biala Slatina, BULGARIA
*Department of Anatomy and Histology, Medical Faculty, **Medical University of Sofia**, BULGARIA

**Department of Anatomy and Histology Medical College „Yordanka Filaretova", Medical University-Sofia, BULGARIA
Book of Abstracts p.30, 4th World Congress for the Advancement of Surgery Tel-Aviv, Israel 28-30 October 2013



**POSTER PRESENTATIONS**

## MAJOR HEPATECTOMY FOR HILAR CHOLANGIOCARCINOMA TYPE BISMUTH - CORLETTE II AND HI-IS IT THE BEST CHOICE?

**Veltchev LM[1],** Kalniev MA[2], Krastev DS[2]
[1]*Surgery, Hospital " Shterev", Sofia, Bulgaria*
[2]*Department of Anatomy and Histology, Medical University, Sofia, Bulgaria*

**Introduction:** Hilar cholangiocarcinoma still presents challenging diagnosis. HCC is a small, slowly growing, but aggressive tumor which spreads longitudinally along the bile ducts with neural, perineural and sub epithelial extensions. Intra operative examination is mandatory and includes revision of the hepatoduodenal ligament, portal triad and liver surface. Intra operatively, the distal margin line needs to be sent for frozen section for search of invasive carcinoma or in situ carcinoma or intraepithelial dysplasia.

**Methods:** It was used retrospective analysis of collected data for all patients with extrahepatic bile duct cancer. HCC was classified as the next characteristics: Anatomical location- according to Bismuth-Corlette classification Macroscopic - mass forming, intraductal and infiltrating Microscopic - Gl-well differentiated; G2-moderate and G3 poor Lymph node invasion.

**Results:** 29 patients were admitted with primary diagnosis Hilar Cholangiocarcinoma. From them: Bismuth -Corlette II. Six patients (21%) with tumor involved convergence and proximal part of proper hepatic duct were found. Single lesion was discovered in 3 patients.

At other 3 it was palpated smaller than 1 cm non formed mass with total hilum fibrosis, simulating block tumor infiltration. Three techniques were performed:
- right hepatectomy
- one right extended hepatectomy
- single bile duct excision
Bismuth -Corlette IIIA
A number of 6 patients (21%) were macro- and microscopic diagnosed with tumor infiltration involving terminal part of right proper hepatic bile duct, confluence and beginning of common hepatic bile duct. xtended right hepatectomy with left portal vein partial resection and reconstruction was performed one ime. Right hepatectomy with total bile duct was performed 4 times.
Bismuth -Corlette IIIA
In 5 (83%) cases infiltration process was advanced - T3-T4 with local propagation to inferior surface of left hemi liver S4B, infiltration of head of the pancreas and one case with infiltration of right portal vein. Three left hepatectomy were taken.
Three patients obtained bile duct excision.
**Conclusions:** Radical surgery for Hilar cholangiocarcinoma Type B-C II-IIA remains the only method that may propose long term survival. Extended liver resection proposes better survival. RO resection provides cceptable five years survival. Hilar cholangiocarcinoma can be treated successfully by well trained hepatobiliary surgical team.

**3.** Multinodular bilateral goiter – is it indication for total thyroidectomy?
Vidinov K., Veltchev L*., **Kalniev M****., Krastev D.*****.
Department of Endocrine Surgery, **Medical University-Sofia**, BULGARIA
*Department of Abdominal surgery, Biala Slatina, BULGARIA
**Department of Anatomy and Histology, Medical Faculty, Medical University of Sofia, BULGARIA
*** Department of Anatomy and Histology Medical College „Yordanka Filaretova", **Medical University-Sofia**, BULGARIA
Book of Abstracts p.37, 4th World Congress for the Advancement of Surgery Tel-Aviv, Israel 28-30 October 2013

## POSTER PRESENTATIONS

### MULTINODULAR BILATERAL GOITER -IS IT INDICATION FOR TOTAL THYROIDECTOMY

**Marinov Veltchev L[2],** Vidinov K[1], Kalniev M[3], Krastev D[4]
[1]*Department of Endocrine Surgery, USHATE"Ac. Iv Penchev", Medical University of Sofia, Sofia,Bulgaria*
[2]*General Surgery, Hospital "Shterev", Sofia, Bulgaria*
[3]*Anatomy and Histology, Medical University of Sofia, Sofia, Bulgaria*
[4]*Anatomy and Histology, Medical College "Yordanka Filaretova", Medical University of Sofia, Sofia, Bulgaria*

**Introduction:** Bilateral multinodular goiter is the most common indications for surgery in endemic iodine-deficiency regions such as Bulgaria. Total thyroidectomy is currently the preferred treatment for thyroid cancer, for multinodular goiter. The method Koher used involved sparing enough thyroid tissue bilaterally to ensure euthyroid state. The main problem with this approach was that every patient needed different size of spared thyroid tissue to ensure euthyroid state.

**Method:** This study was conducted in the endocrine surgery department, USBALE- Sofia. All patients who underwent total thyroidectomy between January 2004 and March 2009 were enrolled in this retrospective study. By doing so the selected population for this study represents a select group with preoperative clinical diagnosis bilateral multinodular goiter (BMNG) who understood the need and agreed preoperatively to total thyroidectomy. Total thyroidectomy was performed by a standard technique of capsular dissection. The parathyroid glands with compromised blood supply were excised, diced and reimplanted in the sternocleidomastoid muscle. In the absence of any complication the patients were discharged on the third day.Postoperative serum calcium levels were estimated twice for 24 hours after surgery. Calcium supplementation was given if serum calcium levels dropped below 2.0 mmol/1. If the patient could be weaned from calcium supplement within six months, hypoparathyroidism was considered transient.

**Results:** The majority of patients enrolled in this series were women 447 (89,4%) and only 53 (10.6%) men with mean age of 44.8 years. The post-operative follow-up for every patient in this study was 3 years. Half of the patient underwent Subtotal thyroidectomy -250 patients with BMNG (group I) and the other half total thyroidectomy- 250 (Group 2). There was recurrence of thyroid disease as follows: BMNG was recorded in 72 (28.8 %) patients in the group with subtotal thyroidectomy while there was no recurrence in the group with total thyroidectomy (p 0,01 ).

**Discussion:** There is increasing recognition that total thyroidectomy is appropriate for patients with benign thyroid disease when there is significant nodular disease involving both lobes.

## III. УЧАСТИЯ в НАУЧНИ ФОРУМИ в БЪЛГАРИЯ НЕСВЪРЗАНИ с ДИСЕРТАЦИЯТА:

**4.**Структура на ивицата tide mark в ставния хрущял в норма и при някои абнормни състояния.
**Калниев М.**, Видинов Н., Михайлова К., Keller K*.
Катедра по Анатомия и Хистология, **МУ – София**, *Department of Anatomy, Leipzig
Национална конференция по Анатомия,хистология и ембриология, Варна 1-3 октомври 1992.

**Structure of Articular Cartilage Tidemark in Norm and Some Abnormal Conditions.**
M. Kalniev, N.Vidinov, K. Michailova, F. Keller
Dept. of Anatomy, Histology and Embryology, Sofia
Dept. of Anatomy, Leipzig.

Tidemark of articular cartilage from normal rabbits and from animals with biomechanical experimental osteoarthrosis have been investigated light and electron microskopically. The concentration of proteglycans in the articular matrix have been examined by the method of Chepar and Mitchel /1971/. Light microscopical data about thickness and tear to pieces of the tidemark have been complited with electron microscopic information of the cellular organizaton during the different periods of osteoartrotical development. At the same time some new facts about the role of the matrix vesicles in the process of calcification have been established.

**5.** Changes in the content and distribution of matrix fibronectin from articular cartilage of patients with osteoarthrosis.
Vidinov N., Michailova K., Isakov B., Jotovsky P., **Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**
13 Конгрес на анатоми, хистолози и ембриолози, Варна 19-21 септември 1997,
Scripta Scientifica Medica, vol. 2, Suppl.1(1997) p.59-60.

**CHANGES IN THE CONTENT AND DISTRIBUTION OF MATRIX FIBRONECTIN FROM ARTICULAR CARTILAGE OF PATIENTS WITH OSTEOARTHROSIS**

**N. Vidinov, K. Michailova, B. Isakov, P. Jotovsky, M. Kalniev**
*Department of Anatomy, Histology and Embryology, Medical University, 1 G. Sofijski Str, BG-1431, Sofia*

Fibronectin plays an important role in the matrix organization, not only in terms of cells-matrix relationships but also in terms of connecting different types of proteins. However it is still unknown what type of fibronectin can be found in the cartilage and whether in the pathologically changed cartilage a specific isoform of fibronectin is found. In samples of patients with slight osteoarthrotic changes an average number of fibronectin is found and its isoform EDA + Fn is found in reduced quantity only in the surface layer. It is absent in the other layers. In the cartilage of patients with mild osteoarthrotic changes a diffuse distribution of native fibronectin in all layers of the cartilage is established. The EDA + Fn isoform is seen

as a thin surface layer and small amount of it is scattered diffusely under the surface. The investigation of cartilage of patients with severe osteoarthrotic changes shows reduction or lack of staining for natural fibronectin, while the isoform EDA + Fn varies in distribution in the different layers of the cartilage. In some places it is reduced while in others is higher. It is especially well stained in the territorial matrix. These phenomena show that during the time of developing of osteoarthrosis EDA + Fn plays an exceptional part in the process of remodelation of osteoarthrotic articular cartilage.

**Конгресни участия № 6 и № 7 са представени в Scripta Scientifica Medica, vol.30, Suppl. 3 (1998):**

**6.** Anastomotic abnormality of nervus hypoglosus in adult human.
Georgiev G., **Kalniev M.**, Yotovski P., Isakov B.
Department of Anatomy and Histology, **Medical University-Sofia**
Scripta Scientifica Medica, vol.30, Suppl.3 (1998) p.64.

**ANASTOMOTIC ABNORMALITY OF NERVUS HYPOGLOSSUS IN ADULT HUMAN**
**G. Georgiev, M. Kalniev, P. Yotovski, B. Isakov**
*Department of Anatomy and Histology, Medical University-Sofia*

The data available concerning abnormality and anastomosis of two nn.hypoglossi are not suuficient in recent decades /Weinstein et al. 1990, Gonzales et al 1996/.

This study indicates unusual anastomosis between the two nerves, the initial extracranial part of n.hypoglosus follows its usual path. The inervation area is preserving intact. The two nerves, penetrating into connective tissue space between mm.mylohyoideus and geniohyoideus, are connecting with thick bridge /1,5 mm/ of nerval fibers, forming an opened to the back arch. The anastomosis is founding approximately in the middle of the distant between spina mentalis and of hyoideum.

The recent study throws light on the opportunity of surgical anastomosis between n.facialis and n.hypoglosus in a number of tutor processes.

**7.** Intervertebral discal hernia in humans-electron microscopic investigation.
Yotovski P., Georgiev G., Isakov B., **Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**
Scripta Scientifica Medica vol.30, Suppl.3 (1998) p.99.

**INTERVERTEBRAL DISCAL HERNIA IN HUMANS – ELECTRON-MICROSCOPIC INVESTIGATION**
**P. Yotovski, G. Georgiev, B. Isakov, M. Kalniev,**
*Department of Anatomy and Histology, Medical University-Sofia*

Intervertebral disks /IVD/ are formed from different anatomic structures, assisting in dynamics of spinal column and functioning like shock absorber under mechanical loading.

The current study demonstrates the variaton concerning IVD hernia in humans operating materials. Lamelar disorganisation can be see in annulus fibrosus at the site of hernia, manifested in setting at a distance of different lamellas and disconnecting parts of them. Considerable difference in the thickness of collagen fibrils also can be visible. Sections will significant deformation of normal structure can be see. Disorganization of cell elements and matrix are founding in nucleus pulposus. The cells include vacuoles, different in size and form. The net of citoplasmatic branches is lacerating, parts of branches, folded separate membranes are visible in some sections.

The present alterations are explaining with extremal mechanical loading in the presence of pre-existing ultrastructural local variations.

**8.** Структурни промени в ставния хрущял през време на автотрансплантация.
**Калниев М.**, Видинов Н., Пападопулу Т.*, Игов С., Гекас Хр.**
Катедра по Анатомия и Хистология, **МУ – София**, *Department of Anatomy and Sports Medicine, Athen University - Greece; **Department of Anatomy and Histology, Medical University – Thesaloniki, Greece
Книжка с резюмета стр. 12, Конгрес на анатоми ,хистолози и ембриолози, Плевен 17-19 септември 1999.

## STRUCTURAL CHANGES IN THE ARTICULAR CARTILAGE DURING THE TIME OF ITS AUTOTRANSPLANTATION

M. Kalniev, N. Vidinov, Th. Papadopoulou, S. Igov, Chr. Gekac
*Department of Anatomy and Histology, Medical University-Sofia*

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 all this is mind, we started an experimenta study carried out with autotransplantants on Wistar rats. The material was taken from femoral condil of the experimental 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 $40^{th}$ days after the transplantation. Ultrastructural and specific histochemical 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 ultrastuctural characteristics till the $5^{th}$ day after transplantation. Gradually, the layer cartilage organization 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.

**9.** Промени в характера на междуклетъчния матрикс от ставния хрущял при развитие на остеоартроза.
**Калниев М.,**Видинов Н.
Катедра по Анатомия и Хистология, **МУ – София**,
3 Национална конференция по Антропология, София 12 април 2000.

**CHANGES IN THE CHARACTER OF THE INTERCELLULAR MATRIX OF THE ARTICULAR CARTILAGE DURING EXPERIMENTAL OSTEARTHROSIS**

*N. Vidinov, M. Kalniev, K. Vidinov, R.Marinova*
Department of Anatomy and Histology, Medical University-Sofia

The agrecan (protein-polysaccharide) complexes' distribution in the articular cartilage matrix is of great importance for the establishment of all functional or pathological changes in the structure. The previous researches were based only on the qualitative changes in the articular cartilage structure. Knee instability ensuring osteoarthrosis development in the right knee joint was induced by closed division the cruciate ligaments in it. We made ultrastructural histochemical researches to locate the protein-polysaccharide complexes and the resulting electronogrammes were analyzed with an image analyzer. We found out that the primal changes affect the globular part of proteoglycan complexes in the territorial matrix. This is mainly confirmed by the computer analyzes of electronogrammes. It gives us the opportunity to detect the slightest changes in the articular cartilage and to find them in the earliest stages of osteoarthrosis.

**10.** Телца на Renaut: възможна проява на компресивни синдроми в периферните нерви. Светлинномикроскопско проучване.
Киров З.,*** Калниев М.**, Христова Т.
*Клиника Горен Крайник - СБАЛО , **МУ - София**; Катедра по Анатомия и Хистология, МУ - София
Доклади от 8 Национален конгрес на Българското дружество по Ортопедия и Травматология стр. 36-37, Албена 27-29 септември 2001.

**ТЕЛЦА НА RENAUT: ВЪЗМОЖНА ПРОЯВА НА КОМРЕСИВНИ СИНДРОМИ В ПЕРИФЕРНИТЕ НЕРВИ. СВЕТЛИННОМИКРОСКОПСКО ПРОУЧВАНЕ**

З. Киров*, М. Калниев, Т. Христова
*Клиника Горен Крайник - СБАЛО , МУ - София; Катедра по Анатомия и Хистология, МУ - София

В световната практика все още е актуална дискусията по въпроса за причинните фактори, довеждащи до тъй наречените невропатии, особено тези с локализация в горните крайници. Обсъждани са широк аспект патологични състояния, често причиняващи сериозни неврологични изменения. Конкретно за най-често срещания синдром на карпалния канал предполагаемите заболявания са обикновено ендокринни дисфункции, най-често захарен диабет, микседем на фона на хипотиреодизъм, хипертиреодизъм, акромегалия и др.

Мнозинството от авторите са единодушни, че от етиопатогенетичните фактори приоритетен е локалната персистираща травма.

През 1881 г. Renaut за първи път описва клетъчни ендоневрални образувания, по-късно обозначени като телца на Renaut. Морфологичната им структура и механизъм остават неизяснени. Нашата цел бе: да установим тяхната локализация, разпостраението на телцата на Renaut и евентуалното им отношение към болестен процес.

По случаен принцип бяха избрани за дисекция пет кадавъра на възраст от 17 до 80 год. (средно 48 год.). За дисекция бяха избрани n.ulnaris и n.medianus. След щателна хирургична подготовка пр всеки отделен случай се отпрепарира и резецира сегмент от 3.5 см на ниво кубитален канал от n.ulnaris непосредствено до навлизане на нерва под m.flexor carpi ulnaris, а n.medianus след разкритие на карпалния канал. Така взетите образци бяха допълнително нарязани на сегменти от по 1 см и фиксирани в 10% разтвор на формалин. След дехидратация бяха включени в парафин, нарязани на срезове – 8 микрометра и оцветени с хематоксилинеозин.

Светлинномикроскопски при контролните образци от двата нерва взети от зони без компресия не се откриха дегенеративни промени и телца на Renaut. Светлинномикроскопското изследване на зоните с компресия показа наличие на телца на Renaut, които се откриха при всички образци на двата нерва, взети от потенциално компресивни зони без изключение и независимо от възрастта. Те представляват елипсовидни или овални структури, съставени от концентрично наредени удължени клетки. Ценралните зони са с хомогенна оксифилна структура с белези на дегенерация. Разположението им е предимно периферно субпериневрално, но отделни телца на Renaut се наблюдаваха и в ендоневриума.

**Конгресни участия № 11 и № 12 са представени в Scripta Scientifica Medica, vol. 34, Suppl. 1 (2002):**

**11.**Variations in digital nerve anatomy.
Georgiev G., **Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**
Fifth International Symposium of Clinical Anatomy, Varna 11-13 October 2002
Scripta Scientifica Medica vol. 34, Suppl 1(2002) p.58.

**VARIATIONS IN DIGITAL NERVE ANATOMY**

**Georgiev G., Kalniev M.**
Department of Anatomy, Histology and Cytology, Sofia, Medical University

This study was undertaken to delineate digital nerve anatomy in all the digits and to characterize terminal nerve branching at the distal interphalangeal crease.

Fifty digital nerves from five cadaver hands were dissected, and branching patterns were analyzed. Contrary to the traditional belief that the digital nerve predictably trifurcates at the distal interphalangeal crease much variations exists. Terminal branching occurred distal to the crease in 64% of the thumb digital nerves and 83% of the digital nerves supplying the other four digits. The number of terminal branches also varied from one to six in thumb and from two to five in the other four digits. No significant differences were seen in branching

patterns between digits or between radial and ulnar sides. These findings are clinically relevant to the surgeon who is contemplating digital nerve repair.

**12.** Exceptional variant of the arteries of the upper limb.
Tzvetkova A.**, Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**
Fifth International Symposium of Clinical Anatomy, Varna 11-13 October 2002,
Scripta Scientifica Medica vol.34, Suppl 1(2002) p.103.

**EXCEPTIONAL VARIANT OF THE ARTERIES OF THE UPPER LIMB**

**A. Tzvetkova, M. Kalniev**
Department of Anatomy, Histology and Cytology, Sofia, Medical University

The aim of our announcement is to pay attention to the possibility to inject substances in arteries, because of the fact that some of them are situated superficially. Our variant was found in sectional halls.

We found out that the brachial artery divided into two arteries on a level of biceps brachii muscle: brachial superficial and brachial profound artery. The brachial superficial artery was situated under the aponeurosis of the brachial biceps muscle and continued as a radial artery.

Approximately 13% of the people have two brachial arteries. There is a possibility in surgical treatments and traumas such additional blood vessel to be damaged. His possible damage can leave to fatal consequences to the patient. Every fifth patient has such superficial artery in the cubital fossa. Von Perret (1965) cleared up his and the medical point of view concerning law treating these medical faults. Discussion was carried out about the meaning of these variations concerning the surgical faults as a result of ignorance probable variations.

**Конгресни участия № 13, № 14 и № 15 са представени в книжка: Abstracts от XVI National Congress of Anatomy with International Participation, Sofia 5-7 June 2003:**

**13.** Distribution and morphology of Renaut bodies in the median and ulnar nerves at sites of potential compression.
**Kalniev M.,** Christova T., Kirov Z*.
Department of Anatomy and Histology, **Medical University-Sofia**; *Department of Hand Surgery and Microsurgery, University Hospital of Orthopaedics and Traumatology, Sofia
Book of abstracts p. 44-45, Sixteenth National Congress of Anatomy with International Participation, Sofia 5-7 June 2003.

**Distribution and morphology of Renaut bodies in the median and ulnar nerves at sites of potential compression**

M. Kalniev, T. Christova, Z. Kirov*
Department of Anatomy and Histology, Medical University-Sofia; *Department of Hand Surgery and Microsurgery, University Hospital of Orthopaedics and Traumatology, Sofia

The reasons causing for the compression neuropathies, especially in the upper limbs are not yet revealed completely. Already in 1881 Renaut described for the first time the cellular structures situated in the endoneurium, called later - Renaut bodies. The aim of the present report was to examine the presence, distribution, and morphology of the Renaut bodies (RB) at the site of potential compression in the nerves.

Five cadavers, routinely prepared for dissection, were selected at randomat the age from 17 to 80 years. The material for the median nerve was taken from the carpal tunnel and for the ulnar nerve – from the cubital canal. As controls served sections from the same nerves, taken from anatomically comfortable parts. Paraffin sections were stained with Hematoxylin-Eosin, Orcein and Azan.

RB were seen as round and/or irregular in shape structures, located bellow the perineurim, in the region of the endoneurium of the median and the ulnar nerves at the site of potential compression irrespective of the age. RB was not observed in the control sections.

Discussion was carried out about the origin of the RB. We consider that probably their presence in the nerves is result from chronic mechanical compression and probable first symptom of initial degeneration of the Schwann cells.

**14.** A rare variant of the vertebral artery directly arises from the arch of the aorta in connection with a vertebro-basilar syndrome.
Tzvetkova A., **Kalniev M.,** Vidinov N., Karadzhova L*.
Department of Anatomy and Histology, **Medical University-Sofia**; *Emergency Center - Elin Pelin
Book of abstracts p. 106-107, Sixteenth National Congress of Anatomy with International Participation, Sofia 5-7 June 2003.

**A rare variant of the vertebral artery directly arises from the arch of the aorta in connection with a vertebro-basilar syndrome**

A. Tzvetkova, M. Kalniev, N. Vidinov, L*. Karadzhova
Department of Anatomy and Histology, Medical University-Sofia; *Emergency Center - Elin Pelin

It is accepted that the directly beginning of the vertebral artery from the arch of the aorta is variable and very rare in man.

In the present report it is presented a case of the left vertebral artery arises from the arch of the aorta before the separation of the left subclavian artery and then entering at the fifth cervical transverse formen.

The variant is observed at an unknown cadaver in the dissecting hall at the Department of Anatomy and Histology, Medical University-Sofia. Clinical data could not be established.

Such situation of the vertebral artery, before the entering at the cervical transverse foramina, at the side of the common carotid artery and in front of the recurrent laryngeal nerve is very important in case of surgical interventions on the thyroid gland and the parathyroid glands. Likewise there is a danger in case of surgical interferences in the pper mediastinum in connection with tumours, situated here ad in case of a stenosis or an aneurysm of the large vessels, the vertebral artery to be damaged.

In addition it has to mention that by reason of folded course of the vertebral artery it is possible in the presence of extreme motions of the head it can set in a temporary pressure. By that reason the person can lose consciousness. These are the simptoms of the vertebra-basilar syndrome.

**15.** A case report of an anomalous numbers of pulmonary veins- a cadaver study.
Tzvetkova A., **Kalniev M.,** Vidinov N., Karadzhova L*.
Department of Anatomy and Histology, **Medical University-Sofia**; *Emergency Center - Elin Pelin
Book of abstracts p.107, Sixteenth National Congress of Anatomy with International Participation, Sofia 5-7 June 2003.

**A case report of an anomalous numbers of pulmonary veins- a cadaver study**

A. Tzvetkova, M. Kalniev, N. Vidinov, L*. Karadzhova
Department of Anatomy and Histology, Medical University-Sofia; *Emergency Center - Elin Pelin

Usually the pulmonary veins are four: two left and two right. Occasionally the two right or left veins unite in a common stem. By repeated junctions tributary veins finally form a single trunk in each lobe, i.e. three in the right lung and two in the left. The right superior and middle lobar veins usually join so that two veins, superior and inferior, leave each lung, but sometimes the three right lobar veins remain separate.

In our report we describe a case of four right veins leaving from the pulmonary hilum, which is undescribed up to now.

The concrete example attains a clinical significance in connection with possible surgical intervetions in the region of the left atrium in the cardio-vascular and the pulmonary surgery.

**16.** Сравнителни ултраструктурни проучвания на ставния хрущял при свръхнатоварване и при големи температурни разлики.
Видинов Н., **Калниев М.,** Кръстев Д., Кръстев Н., Цветкова А.
Катедра по Анатомия и Хистология, **МУ – София**,
Коприщенски морфологични дни.
5 Национална конференция по Антропология с международно участие, Копривщица 4-6 юни 2004.

**Comparative Ultrastructural Analysis of the Articular Cartilage in Overloading and in Big Temperature Deviations**

*N. Vidinov, K. Vidinov, M. Kalniev, D. Krastev, N. Krastev*
*Department of Anatomy, Medical Uiversity, Sofia*

We had compared the results from our experiments on Wistar rats undergoing overloading on the tredbahn and experiments on other Wistar rats whose limbs had been subsequently put into cold water 1-2 degrees and then into hot water 60 degrees. We played special attention to the articular cartilage as this is a particular structure with a specific metabolism and the chondrocytes comprising it are not connected with a vascular system. From the results of the light and electron micrscopy of the two animal groups it becomes clear that the wave-like undulating bordering line between the articular cartilage and the bone – the so called tide mark, is significantly thinner, the proteoglycans in the territorial matrix were significantly and evidently different from those in the interterritorial matrix. The computer analysis of the globular subunits in the extracellular matrix of the articular cartilage of th first group showed that in cases of overloading an increase of the big subunits in contrast to the small and average once was found. The same thing was observed with the globular subunits in the extracellular matrix of the articular cartilage in animals converged to sharp temperature changes.

**Конгресни участия № 17 и № 18 са представени в Scripta Scientifica Medica, vol. 36, Suppl. 1 (2004):**

**17.** Musculus extensor indicis and musculus extensor digiti medii proprius- a case report of a rare variation.
Kondov N., Georgiev G., **Kalniev M.,** Isakov B., Krastev N., Krastev D.
Department of Anatomy and Histology, **Medical University-Sofia**
Sixth International Symposium of Clinical Anatomy, Varna 8-10 October 2004
Scripta Scientifica Medica vol. 36, Suppl. 1 (2004) p.75.

**MUSCULUS EXTENSOR INDICIS AND MUSCULUS EXTENSOR DIGITI MEDII PROPPRIUS – A CASE REPORT OF A RARE VARIATION**

**Kondov N., Georgiev G., Kalniev M., Isakov B., Krastev N., Krastev D.**
Department of Anatomy, Medical University - Sofia

During the routine dissection of a female cadaver a musculus extensor indicis and musculus extensor digiti medii proprius was seen on right hand. Muscles originate with a common muscular body from the distal third of ulna. The distal part of the muscular body divorce into the bigger body of musculus extensor indicis and the body of musculus extensor digiti medii proprius. Its tendon is inserted into the dorsal aponeurosis of the middle finger. The tendon of musculus extensor indicis is a normal size and it is inserted into the aponeurosis of the second finger.

The knowledge of these variations could be useful during operations of the vicinity of the muscle and when repairing a muscular injury or forecasting the location of lesion.

**18.** Changes in the character of the proteoglycans in the matrix of the articular cartilage during the high temperature differences.
Vidinov N., Vidinov K., **Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**
Sixth International Symposium of Clinical Anatomy, Varna 8-10 October 2004
Scripta Scientifica Medica vol. 36, Suppl. 1 (2004) p.106.

**CHANGES IN THE CHARACTER OF THE PROTEOGLYCANS IN THE MATRIX OF THE ARTICULAR CARTILAGE DURING THE HIGH TEMPERATURE DIFFERENCES**

**Vidinov. N., Vidinov. K., Kalniev M**
Department of Anatomy, Medical University – Sofia

The agrecan (protein polsaccharide) complexes' distribution in the articular cartilage Matrix is of great importance for the establishment of all functional or pathological changes in the structure. Comparative ultrastructural and histochemical investigations on the articular cartilage of knee joints have been made during the changes in temperature (1 to 60grade C). The study has been carried out on Wistar rats.

We established a process of activation of the cells from all goups up to the 5-th day after the procedures. We found out that the primal changes affect the globular part of proteoglycan complexes in the territorial matrix. The big globular structures are greater in number in all layers. This is mainly confirmed by the compute analyzes of electronogrammes. It gives us the opportunity to detect the slightest changes in the articular cartilage and to find them in the earliest stages of osteoarthrosis. Our investigations show that the changes in the articular cartilage from high temperature difference are connected with production of abnormal proteoglycans with different size of their globular subunits and concentration in territorial and interterritorial matrix.

**19.** Conference of Sports Medicine Medical Problems in Modern Sport
Sofia, BULGARIA 3-5 December 2004.

**Конгресни участия № 20 и № 21 са представени като постери на 6 Национална Конференция по Антропология с международно участие, Копривщица 2-4 юни 2006:**

**20.** Ултраструктурни особености на стромата на щитовидната жлеза при struma nodosa.
Видинов К*., Видинов Н., **Калниев М.**
Ultrastructural peculiarities in the stroma of the thyroid gland with struma nodoza.
Vidinov K., Vidinov N., **Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**;
*Department of Endocrine Surgery, Medical University-Sofia
II Копривщенски морфологични дни
6 Национална Конференция по Антропология с международно участие, Копривщица 2-4 юни 2006.

**Ultrastructural Peculiarities in the Stroma of the Thyroid Gland with Struma Nodosa**

K. Vidinov*, N. Vidinov, M. Kalniev
Department of Endocrinilogy and Gerontology, Medical University
Department of Anatomy, Medical University, Sofia

The follicules of the thyroid gland are suurounded by connective tissue strom, which is not well investigated. To fulfill our aim we studied ultrastructurally the operative tissue from Struma nodosa patients. We compared fibroblasts next to active thyrocytes and those near epithelial cells with low activity. Our results point out in stages of thyroid activity the follicular cells show hypertrophy endocytosis complex lysosome activities. The fine basal lamina can be seen. In the fibroblasts from the septum larger and deformed GER, bigger Golgy apparatus, and number of primary lysosomes can be seen. In the extracellular matrix we found an increased amount of collagen bundles type I as well as proteoglycans. The connective tissue of II group was larger in the septums and in the interglobular space. The number of hypertrophical cells enlargement. The fibroblasts from these group were activated with large GER, inormaly large Golgy complex and lysosomes.

**21.** Ранни промени в мезотела след инжектиране на азбестоподобни влакна
Михайлова К., Видинов Н., **Калниев М.**
Early mesothelia alterations after the injection of azbest-like fibers
Michailova K., Vidinov N., **Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**
II Копривщенски морфологични дни
6 Национална Конференция по Антропология с международно участие, Копривщица 2-4 юни 2006.

**Конгресни участия от №22 до №25 са представени на XIX National Congress of the Bulgarian Anatomical Society with International Participation, Pleven, 29-31 May 2009:**

**22.** Changes in the connective tissue elements of the thyroid gland, after operation of the tumours.
Vidinov K*., Vidinov N., **Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**;
*Department of Endocrine Surgery, Medical University-Sofia
Book of abstracts p. 51, XIX National Congress of the Bulgarian Anatomical Society with International Participation, Pleven, 29-31 May 2009.

**CHANGES IN THE CONNECTIVE TISSUE ELEMENTS OF THE THYROID GLAND, AFTER OPERATION OF THE TUMORS**

**K.Vidinov, N.Vidinov, M.Kalniev**

*Department of Endocrine surgery, Department of Anatomy and Histology MU-Sofia*

The aim of our study was to trace out the ultrastructure of the thyroid gland of man after the operation of the struma nodosa. We undertook the task to study the fine ultrastructural changes taking place in the stromal part of the gland. Our main goal was to compare the ultrastructural characteristics of the thyroid gland in two different groups - I group material from patients with tumors: II group material from patients with reoperation. The results from our research showed that in the first group the stroma was presented by one or two rows of cells in the septum or in small groups in the interfolicul space. Electron microscopically the cells of the stroma had the ultrastructural characteristics of fibroblasts, but there was an increased number cisterne of Granular endoplasmic reticulum, well developed Goldgi complex, as well as relatively small amount vesicles and vacuoles. The examination of the specimens from the second group showed a much thicker stroma between the follicles. There was an increased amount of stromal cells and collagen bundles in the interfolicular space. The proteoglican complexes in the extracellular matrix are rare situated. Our results suggest the presence of significant morphological proof for disturbance in retardation of turnover of the thyroid gland.

**23.** New type in the insertion of the medial meniscus in the knee joints in the Bulgarian population.

**Kalniev M.,** Vidinov N.
Department of Anatomy and Histology, **Medical University-Sofia**
Book of abstracts p.70, XIX National Congress of the Bulgarian Anatomical Society with International Participation, Pleven, 29-31 May 2009.

## NEW TYPE IN THE INSERTION OF THE MEDIAL MENISCUS IN THE KNEE JOINTS IN THE BULGARIAN POPULATION

**M.Kalniev, N.Vidinov**

*Medical Faculty, Medical University - Sofia, Dept, of Anatomy*

The insertion sites of the menisci are of significant biomechanical and clinical importance. There are four basic types of varieties in the insertion of cornu anterior of the medial meniscus to the tibia, as well as there are some rare variations. These rare varieties were mentioned in our previous investigations in the Bulgarian population. We established that in the classical type I cornu anterior inserted to anterior intercondylar area, medial and in front of the insertion of the anterior cruciate ligament was found in 124 preparations. Type II - cornu anterior is inserted a little bit laterally - to the scope of the medial tibial condyle towards anterior intercondylar area was found in 36 preparations. Type III amounted to 29 preparations. Type IV was comparatively a few. Types V and VI were fewer than type IV. In our long term experience it was the first time for us to find a variety which was not described by the other authors till now. It was not firmly insertion of the cornu anterior to the tibia in that type like the types IV and VI. Our investigations showed that there are considerable varieties in the insertion sites of the menisci. That must be always taken into account when clarifying the causes for obscure pain in the knee joint, as well in surgical interventions on the menisci, especially at the arthroscopic interventions.

**24.** Ultrastuctural investigations of the central zone of the menisci in the knee joint.**Kalniev M.,** Vidinov K*.Department of Anatomy and Histology, **Medical University-Sofia**; *Department of Endocrine Surgery, Medical University-Sofia,Book of abstracts p.70, XIX National Congress of the Bulgarian Anatomical Society with International Participation, Pleven, 29-31 May 2009.

## ULTRASTRUCTURAL INVESTIGATIONS OF THE CENTRAL ZONE OF THE MENISCI IN THE KNEE JOINT

**M.Kalniev, K.Vidinov**

*Medical Faculty, Medical University - Sofia, Dept, of Anatomy*

In our long time experience of the morphology of the menisci we adopted a new division of the zones of the meniscus: 1. A Superficial sliding zone (SSZ). 2. A Transitional sliding zone (TSZ). 3. A Superficial pressure zone (SPZ). 4. A Transitional pressure zone (TPZ). 5. A Central zone (CZ). 6. A Zone of fusion (ZF). 7. A Parameniscal zone (PZ). These zones are the most visible in the most wide part of the cross sectioned meniscus. The CZ is situated in the inmost part of the meniscus and it is surrounded by the PZ, the TSZ and the TPZ.

The CZ is built on rare situated large, blistered cells. These cells have cytoplasm with few organelles (mainly separately cisterns GER). The intercellular space is filled with fine collagen network type II and proteoglycan complexes. They are more in the interterritorial matrix than the territorial matrix. There are matrix vesicles in the matrix of the CZ without clear marks of calcification. These vesicles are single or fill considerable part of the intercellular space.

**25.** Ultrastuctural changes of the knee joint menisci after damage on their sites of insertion.
**Kalniev M.,** Vidinov N.
Department of Anatomy and Histology, **Medical University-Sofia**
Book of abstracts p.95, XIX National Congress of the Bulgarian Anatomical Society with International Participation, Pleven, 29-31 May 2009.

## ULTRASTRUCTURAL CHANGES OF THE KNEE JOINT MENISI AFTER DAMAGE ON THEIR SITES OF INSERTION

**M.Kalniev, N.Vidinov**

*Medical Faculty, Medical University - Sofia, Dept, of Anatomy*

The damages of the menisci are the most frequently traumas of the knee joint soft tissues. We cut the cornu anterior of the medial meniscus and then traced out the changes of the meniscus. We established that 24 hours after the operation there are erythrocytes on the surface of the SSZ (there are parts of the erythrocytes incorporated in the surface situated cells). On the $5^{th}$ day after the operation most of the surface situated cells have erythrocytes' particles. They are situated in digestive vacuoles. On the $10^{th}$ day after the operation there are not free erythrocytes on the surface of the SSZ. In the central part of the SSZ and the TSZ there is dismemberment of the connection between separate components of the matrix of the meniscus cartilage - oddments of the cells and teared to pieces collagen fibers. On rare occasions there are matrix vesicles and multilamellar bodies. The histochemi- cal investigation shows an increase of proteoglycans in the territorial matrix of the SSZ and in

part in the territorial matrix of the TSZ. On the 30th day after the operation there are signs of an increased calcification of the cells of the superficial and the transitional zones of sliding. The restoration processes in the meniscus begin in the period 30-50 day after the operation. It can be seen an alignment of the concentrations of the proteoglycans in the matrix of the SSZ and the TSZ. In the next period the calcium precipitations on the surface of the cells gradually disappeared.

**Конгресни участия № 26 и № 27 са представени като постери на 8 Национална Конференция по Антропология с международно участие, Копривщица 4-6 юни 2010:**

**26.** Ултраструктурни изследвания върху парамениковата зона на менискусите на колянната става.
**Калниев М.**
Utrastructural investigations of the paramenisal zone of the menisci in the knee joint.
**Kalniev M.**
Department of Anatomy and Histology, **Medical University-Sofia**
IV Копривщенски морфологични дни
8 Национална Конференция по Антропология с международно участие, Копривщица 4-6 юни 2010.

**Ultrastructural investigations of the paramenisal zone of the menisci in the knee joint**

**M.Kalniev**

Department of Anatomy and Histology, Medical University-Sofia

A parameniscal zone is the largest zone of the meniscus which is situated in its outer part. It is consisted of loose connective tissue. The cells of the zone are typical fibroblasts. The intercellular matrix is established by collagen type I and contains few proteoglycan complexes. The fibroblasts are continuous type and have different size. When there is a damage of the meniscus this zone usually is not removed where the partial meniscectomy is done. It is considered that the presence of blood vessels in this zone may help recovering processes in the meniscus after meniscectomy and probably might use as a matrix for the future regeneration of he meniscus.

**27.** Ултраструктурни промени в менискусите на колянната става при имобилизация.
**Калниев М.,** Видинов К*.
Utrastructural changes of the menisci in the knee joint after immobilization.
**Kalniev M.,** K.Vidinov K*.
Department of Anatomy and Histology, **Medical University-Sofia**;
*Department of Endocrine Surgery, Medical University-Sofia
IV Копривщенски морфологични дни
8 Национална Конференция по Антропология с международно участие, Копривщица 4-6 юни 2010.

**Utrastructural changes of the menisci in the knee joint after immobilization**

**M.Kalniev, K.Vidinov***

Department of Anatomy and Histology, Medical University-Sofia
*Clinical Center of Endocrinology, Medical University-Sofia

The damages of the menisci are the most frequently traumas of the knee joint soft tissues. Immobilization of the joints is one of the frequently used methods for treating many and various disorders of the musculoskeletal system. When applied for a long period, it may lead to changes in the knee joint cartilage, which resemble the picture of osteoarthrosis. It is established that the ultrastructure of the menisci can be changed depending on the load upon the joints. The structural organization of the menisci can be linked with the biomechanics of the joint. Existing studies deal mainly with the occurring changes in the menisci as a result of intensive motion. We undertook this study to find out what are the structural changes in different layers after immobilization.

The result from our study showed that significant ultrastructural changes occur in the menisci after immobilization of the knee oint. These changes refer to the layer organization of these structures as well as the characteristics o thecells and the intercellular matrix. They begin from the Superficial Sliding Zone. Initially lamina splendens covered the zone began to get thickened. After that there is an activation of the superficial cells with increased proteoglycan synthesis. However these cells wear out soon and their secretion rapidly reduces. These data confirmed the significance of the “biologic pump” mechanism which can explain how these changes occur. Finally there can be seen layer disorganization of the meniscus and formation of well-defined osteophytes.

**Съставил д-р М. Калниев:**