ANATOMICAL VARIATIONS AND DIMENSIONS OF ARTERIES IN THE POSTERIOR PART OF THE CIRCLE OF WILLIS

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Key words: *the circle of Willis, variations of posterior part, diameters of arteries, length of arteries*

Background. The circle of Willis (COW) as an anastomotic polygon at the base of the brain, forms an important collateral network to maintain cerebral blood perfusion. Most of the variations have been reported on posterior cerebral and posterior communicating arteries.

Aim. The aim of this study was to investigate different anatomic variations and dimensions of posterior part of the COW and their prevalence.

Material and Methods. This is an observative descriptive study performed at the University Clinical Center, Clinic of Radiology. A randomized sample of 513 angiographic examinations in adult patients of both sexes without clinical manifestations for cerebrovascular disease who were instructed to exploration is included.

Results and Discussion. The complete anterior part of COW is common with 77.7% of the all subjects, while the posterior part had a complete structure in 27.6% of the cases. The prevalence of unilateral FTPcomA was 14.7% and bilateral FTPcomA was found in 12.9%, while hypoplasia or absence of both PCoA in 45.8%. All dimensions of the arteries are larger in male than female, except the diameter of PCoA that is larger in female ($p<0.05$). Significant differences were found in diameters of arteries between the younger and the older age groups.

Conclusions. Similar to other studies, most variations are related to the posterior part of the circle of Willis. Thus, knowledge of the variations, diameter and the length of the arteries of the circle of Willis has a great importance in interventional radiology for various endovascular interventions as well as during anatomy lessons.

POSSIBLE USE OF DERMATOGLYPHICS AS A MARKER FOR PREDICTING THE DEVELOPMENT OF SOME DISEASES

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Key words: *dermatoglyphics, prints, palms, diseases*

Aim. The term of dermatoglyphics, as defined by Cummins, refers to the study of naturally occurring dermal patterns on the surface of the hands and feet. Skin patterns functions are to increase resistance and decrease slipping of hand and feet on different surfaces. Dermal ridges are formed early in intrauterine life (6–7th week), in which period hereditary and environmental factors leading to health disorders may also cause peculiarities in patterns. Once formed, they remain unchanged through life. They can easily be detected and give us some information's about inherited characteristics and possible connection with genetic disorders and other diseases.

Material and Methods. Palm prints were taken using Cummin's and Midlo method. The study consists of 60 patients with schizophrenia, 60 patients with psoriasis and healthy individuals randomly chosen without history of medical disorders as a control group.

Results and Discussion. In this study we have shown results concerning the dermatoglyphics present in patients with schizophrenia and patients with psoriasis. Lower A-B ridge count, TRC and ATRC, more fibular loops and less whorls compared with healthy population have been found in patients with schizophrenia. In patients with psoriasis there are less connectivity and differences in the skin patterns compared to the healthy examinees. Higher A-B ridge count, TRC and ATRC are with lower values, more fibular loops and less whorls and arches were found in patients with psoriasis.

Conclusions. In conclusion, the importance of the dermatoglyphic investigation lies in their practical application. The relevance of dermatoglyphics is not to diagnosis, but to prognosis, they can point to individuals at risks of developing symptoms later in life so they can be included in preventive procedures.

ANATOMICAL VARIABILITY OF THE LEFT LOWER PHRENIC VEIN AND CORONARY SINUS IN THE APPLICATION VALVES OF INTERVENTIONAL ARRHYTHMOLOGY

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Key words: *coronary sinus flap, lower diaphragmatic vein*

Aim. Study of variants of the structure of the coronary sinus valves and the left inferior phrenic vein in the aspect of interventional arrhythmology.

Material and Methods. We studied 30 preparations of hearts, 120 preparations of veins of the diaphragm of people, died at the age of 22 to 75 years and phlebograms of the left lower phrenic vein in 30 patients of both sexes of the same age. Sectional,

injection, angiographic and statistical methods of investigation were used.

Results and Discussion. The valve of the coronary sinus was revealed in 70% of cases (21/30), in 30% (9/30) the flap was absent. Catheterized coronary sinus valves were found in 80% (17/21) or 57% (17/30) of all observations. Thus, in 87% (26/30) cases, catheterization is possible, and for 13% (4/30), an alternative route is needed for the left ventricular electrode. As an alternative, the left lower phrenic vein flowing into the inferior vena cava in 60% of cases (72/120) are considered. Free are catheterized with a diameter of 5 mm or more — in 36.6% of cases (44/72) and conditionally catheterized with a diameter of less than 5 mm — in 23.3% of cases (28/72). Venous sinus as the main way of implantation of the left ventricular electrode with cardiac resynchronization therapy can be suitable for catheterization in 87% of patients, and for 13% of patients an alternative way of its implementation is needed. The left inferior phrenic vein, which flows into the lower vena cava, freely or conditionally catheterized, can serve as such an alternative pathway.

TOPOGRAPHO-ANATOMICAL CHANGES IN ABDOMINAL CAVITY AND RETROPERITONEAL SPACE AFTER NEPHRECTOMY

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Key words: *nephrectomy, topography of the abdomen and retroperitoneum*

Aim. Purpose of research — obtaining new data on changes in the topography of the abdomen and retroperitoneum after nephrectomy.

Material and Methods. In 105 patients with kidney cancer, the topography of the abdomen (liver, ascending and descending colon, spleen, duodenum) and retroperitoneum (pancreas, aorta, inferior vena cava) were studied depending on the location of the tumors and their size. A group of 25 patients was studied as a control without the pathology of the kidneys. Computed tomography on the device «LightSpeed RT16» (General Electric, USA) and morphometry for the analysis of abdominal and retroperitoneal displacement after operation were used. The examinations were performed before and after 6–8 days, 3–4 months and 6–8 months after nephrectomy.

Results and Discussion. After right-sided nephrectomy, the surgical bed is replaced by the ascending colon (level L_I–L_V), the head of the pancreas (level Th_{XII}–L_{II}), the inferior vena cava (level Th_{XII}–L_I), the descending part of the duodenum (level Th_{XII}–L_I) moving backwards; ascending colon (up to Th_{XII} level) moving upwards; the right lobe of the liver (level Th_{XI}–L_I) moving medially. After left-sided nephrectomy, the remaining part of the retroperitoneum is filled with the descending colon (level Th_{XII}–L_{IV}) displacing posteriorly, the body and tail of the pancreas (level Th_{XII}–L_{II}) displacing posteriorly and medially, spleen (level Th_{XI}) displacing medially.

Conclusions. On the basis of morphometry data, a quantitative description of the displacement of organs and structures of the abdomen and retroperitoneum towards the postoperative bed to the place of the removed kidney with a malignant tumor is given.

A STUDY OF THE ANATOMY OF THE LEVATOR ANI MUSCLE IN VIVO THROUGH THE CREATION OF THREE-DIMENSIONAL IMAGES

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Key words: *perineum, segmentation, m. pubococygeus, m. iliococygeus m. cocygeus, m. levator ani*

Aim. The aim of the study was to study the basic forms of the muscle structure that lifts the anus in men and women of the first and second adult periods and the older age group according to CT and MRI data.

Material and Methods. in our work we used data from computer and magnetic resonance tomograms of 57 patients aged 20 to 70 years. In the «Autoplan» system using a precision technique in semi-automatic mode, three-dimensional models of the muscle that lifts the anus are created.

Results and Discussion. The results of the research: three-dimensional models of the muscle that lifts the anus are created and described: for young women and men of all ages, the keel-shaped and funnel-like shape of the muscle that raises the anus is characteristic; and for women of advanced age — horseshoe.

Conclusions. The creation of three-dimensional models of a muscle that lifts the anus using the Autoplan system allows not only studying the anatomy of the investigated area in vivo, but also planning the course of operations, especially with the use of reticular implants, using the non-exhaustive methods of surgical correction of the pelvic floor. The disadvantages of this method include the inability to conduct research in an upright position (modern computer and magnetic resonance tomographs in Russia are designed for examining patients only in a horizontal position), as well as the impossibility of automatic segmentation in view of the low contrast