THE CLINICAL AND ANATOMICAL RATIONALE OF BALANCED TRANSETHMOIDAL ENDOSCOPIC AND LATERAL ORBITAL BONE DECOMPRESSION IN THE PATIENTS PRESENTING WITH OPTIC NEUROPATHY CAUSED BY THYROID EYE DISEASE

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Key words: *orbital bone, decompression, transethmoid, optic neuropathy*

Aim. Of the present study was to substantiate the use of transethmoidal endoscopic orbital decompression in combination with lateral bone orbital decompression for TED.

Material and Methods. We evaluated the possibility of surgicalaccess to orbital apex using the sectional material. The stage-by-stage dissection of the orbit and resection of the lateral and medialorbital walls were carried out. We studied the following factors: the extent (depth) of the created bony window; the degree of thecloseness of the bony window to the Zinn ring; the degree of mobility of orbital soft tissues; the probability of the damage to otheradjacent structures; the assessment of probable retraction of orbital fat and eye muscles surrounding soft tissues after resection of thebone orbital walls.

Results and Discussion. The data obtained provided a basis for the application of bilateral (lateral and medial) bone decompression in thepatient presenting with optic neuropathy. The high effectiveness of this technique was demonstrated as apparent from the improvement of the visual functions and the reduction of exophthalmos.

Conclusions. Balanced lateral and medial bony orbital decompression is shown to be the optimal method for the treatment of ON associated with TED.

AGE AND GENDER CHANGES IN THE DIAMETER OF THE HUMAN ABDOMINAL AORTA

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Key words: *«Anatomia in silico», abdominal aorta, renal arteries, arterial hypertension*

Aim. Compare the diameters of the suprarenal and infrarenal parts of the human abdominal aorta.

Material and Methods. By the method of computational anatomy «Anatomia in silico» three-dimensional models of the vascular bed of the abdominal cavity and retroperitoneal space were constructed on the basis of multispiral computed tomography. 56 men and 36 women aged 21 to 86 years who did not have a history of kidney disease and kidney vessels.

Results and Discussion. In the course of our work, we found sex and age differences. In men, the diameter of the abdominal aorta averaged 19.74±3.67 mm, and in women 17.02±2.9 mm. The minimum diameter of the abdominal aorta in men was 14.07 mm, and in women 9.89 mm. Changes in the diameters of the abdominal aorta at the level of the renal artery divergence are associated with age-related changes in the elasticity of the abdominal aorta wall and significantly increase in both men and women. Moreover, the increase in diameter in women occurs smoothly during adulthood (from 15.7 to 16.25 mm) and during the elderly and senile age (from 18.29 to 18.76 mm). In men, the diameter oscillations are more pronounced in adulthood (from 16.71 to 19.03 mm), and in the transition from the elderly to the senile (from 20.07 to 23.74 mm).

Conclusions. The change in the diameter of the abdominal aorta can become an important circumstance that affects blood circulation inside the kidney and, as a consequence, can cause arterial hypertension.

TRANSLATIONAL ANATOMY IN THE 21ST CENTURY — IS ANATOMY REALLY A «DEAD SCIENCE»?

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Key words: *nonrecurrent laryngeal nerve, migraine surgery, chronic hernia groin pain, inguinodynia, ultrasound, intraoperative neuromonitoring*

Background. Translational anatomic research concern, for example, basic surgical research in the disciplines endocrine surgery, plastic surgery with the topic migraine surgery and hernia surgery, all in combination with neuroimaging in the field of ultrasonography and of the Intraoperative Neuromonitoring (IONM). IONM is a basic requirement to avoid laryngeal nerve palsy and to recognize anatomic variants; for migraine surgery recent findings on the pathogenesis of frontal migraine headache support an alternative peripheral mechanism involving compressed peripheral nerves. These disciplines, also in hernia surgery avoiding chronic post-herniorrhaphy pain, therefore, require ultrasonography as an important preoperative neuroimaging-device.

Material and Methods. Anatomic variants, such as a non-recurrent inferior laryngeal nerve (nrILN), produced possible explanations for different IONM-signals which would correlate with differences in the anatomic course of the inferior laryngeal nerve. Preoperative ultrasonography was performed to evaluate the presence of a brachiocephalic trunk and the recurrent laryngeal nerve for exclusion or

identification of a nrILN; a clear and understandable anatomic mapping of the inguinal region and the spermatic cord sheaths by means of anatomic dissection, ultrasound guided visualisation of all three inguinal nerves are presented; for migraine surgery research, the supratrochlear (STN) and supraorbital nerve (SON) were macroscopically identified and their relationship to the corrugator supercilii muscle (CSM) was investigated by dissection and ultrasonography.

Results and Discussion. IONM-signals during thyroid surgery, derived from the vagus nerve were positive if derived proximal to and negative if derived distal to the branching off a nrILN. By ultrasonographic identification of a normal brachiocephalic trunk, a nrILN could be excluded. In frontal migraine patients a new possible compression point of the STN passing through the orbital septum could be identified. Also previously described compression points of both STN and SON could be verified. Osteofibrous channels used by the STN and SON were found constantly. An algorithm for ultrasound visualization of this peripheral, supraorbital neurovascular bundle could be worked out. The anterior-superior iliac spine, pubic tubercle, Camper´s fascia, external oblique aponeurosis, superficial inguinal ring, external spermatic fascia, cremasteric fascia with cremaster muscle fibers, internal spermatic fascia, cremasteric vein (=external spermatic vein="blue line"), ductus deferens, pampiniform plexus and the inferior epigastric artery are the main surgical landmarks for an open inguinal hernia repair, likewise for ultrasound guided representation

Conclusions. IONM and preoperative ultrasonography can be reliable tests in recognizing peripheral nerves and their variants. Translational anatomic research and its application on peripheral nerves, such as IONM and ultrasonography, improves surgical outcomes and therefore individual patient quality of life — from «bench-to-bedside». This is achieved by increasing individualizing, enlightening under-investigated anatomic details and optimizing surgical procedures.

MORPHO-HISTOLOGICAL FEATURES OF OLD BRUISES: A QUALITATIVE STUDY

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Key words: *bruises, morpho-histological features, microscopic analysis*

Background. As common skin lesions bruises have important significance in forensic expert reports in determining the time of death in many cases of domestic violence or child abuse.

Aim. The purpose of this study was to note the features in old bruises, by evaluation of their morpho-histological features.

Material and Methods. The study was performed on 30 human skin samples divided into control and experimental group. The experimental group included bruised human skin with bruises aged >10 days. Paraffin sections of the skin were stained with Hematoxillin-eosin and Perl's Prussian Blue methods of staining, evaluated by light microscopy.

Results and Discussion. Morphological analysis of the skin in the experimental group featured formations with yellow to pale yellow coloration, with blurred edges, that responds to the field of bleeding. Qualitative histological analysis demonstrated presence of dilated fibrous septa in dermis and hypodermis with debri of extravasated erythrocytes due to ruptured blood vessels, infiltration with macrophages and presence of hematoidin granules in the area of bleeding.

Conclusions. Morphological results have shown changes in the skin coloration, without damage of it`s integrity. Histological findings showed hemosiderin-laden macrophage infiltration in the area of bleeding, together with tissue debris and hematoidin particles. These histological features appear in direction of healing of the bruise, as a result of phagocytosis of the erythrocytes and removing of the tissue debris.

METABOLIC PROFILES IN OBESE CHILDREN AND ADOLESCENTS WITH INSULIN RESISTANCE

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Key words: *childhood obesity, obesity in adolescents, insulin resistance, homeostatic model assessment of insulin resistance, metabolic parameters*

Aim. To investigate the frequency of insulin resistance and to evaluate the metabolic profile of insulin resistant and non-insulin resistant obese children and adolescents.

Material and Methods. The study comprised 96 (45 boys, 51 girls) obese children and adolescents aged 4–17 years (10.50±0.29 years). Only participants with Body Mass Index ≥95 percentile were included.We analyzed sera for: fasting insulin levels