CHARACTERISTICS OF THE TRANSGENERATIONAL EFFECT OF THE TOXIC DOSE OF SYNESTROL ON THE MORPHOLOGY OF OVARIES IN THE EXPERIMENT

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Key words: *ovaries, synestrol, transgenerational effect, pro-cancerogenic effect*

Background. The generality of the molecular genetic mechanisms of tissue development and the maintenance of the physiological balance of cell proliferation and apoptosis for embryonic histogenesis and carcinogenesis, as shown in numerous experimental studies and clinical observations, is the basis of the transgenerational prenatal programming effect of high concentrations of estrogens and their metabolites on the incidence of tumors in offspring.

Aim. The aim of the study was to analyze the morphological and immunohistochemical changes in the ovaries under the influence of the experimental prenatal toxic level of steroid hormones during the critical period of their germinating and development.

Material and Methods. The studies were carried out on pregnant mature males of laboratory mice, divided into control and experimental groups. To females mice of the experimental group were administered synestrol at a toxic dose of 50 μg per animal intramuscularly at stage E11.5. On the 90th day of postnatal life, ovaries were isolated and a some of general morpho-functional indices were assessed. In addition, the immunohistochemical activity of the reaction was evaluated for bcl2, PCNA and p53 receptors.

Results and Discussion. As a result of the study, it was established that the histological pattern of the ovaries of the offspring of the experimental group, in contrast to the ovaries of the animals in the control group, is characterized by the presence of multiple foci of hemorrhage and the fullness of the vessels of the medulla layer of ovaries. The parenchyma of the ovarian cortex is represented by a large number of yellow bodies, the follicles with ovules are shifted to the periphery of the organ, the stroma of the cortex is significantly reduced and is represented by thin connective tissue interlayers between the follicles. In the organ was reduced the number of primary (unilateral) follicles, secondary (multilaminar) and tertiary follicles. In single cells of yellow bodies, a positive expression of the pro-oncogene marker p53 is observed. In the stroma of the organ, the high expression of this marker is up to 8%, in individual follicles the high expression of p53 is up to 15–20%, there is a proportional increase in the number of stained cell elements according to the stage of maturation of the follicles.

Conclusions. The obtained data testify to the presence of a reliable positive transgenerational effect of injection a toxic dose of synestrol during the period of germinating and beginning of the morphogenesis of the ovaries of the offspring with the features of their structural and functional organization in late postnatal ontogenesis.

ANATOMIC LANDMARKS FOR SAFE MEDIASTINAL ENDOVIDEOSURGICAL NAVIGATION

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Key words: *endovideosurgical navigation, thoracic esophageal cancer, thoracoscopic access*

Aim. Adequate lymphadenectomy is one of the main factors for a favorable long-term prognosis of surgical treatment of thoracic esophageal cancer.

Material and Methods. Superior mediastinal lymph node dissection causes some difficulties. The paratracheal lymph nodes removal increases the risk of injury to the recurrent laryngeal nerves. Using the thoracoscopic extirpation of esophagus requires clear visualization of anatomic landmarks which allows safe and accurate orientating in close proximity to major vascular and neural structures, trachea and bronchi.

Results and Discussion. The most important anatomic landmarks for thoracoscopic access to the esophagus from the right pleural cavity are azygos vein and arch of the azygos vein. They are used for subsequent locatingthe bifurcation of the trachea and near lying lymph nodes. Ligation of the azygos vein at the beginning of the operation provides adequate access to the bifurcation of the trachea, the main groups of lymph nodes and the aortic arch. Incision of the pleura in the groove between the azygos vein and the aorta is an important stage of esophageal dissection which permits performing a ligation of the thoracic duct. Clipping of the thoracic duct near the thoracic diaphragm helps to avoid the lymphorrhea

in postoperative period. Transaction of the esophagus and the vagus nerves is most preferably performed under the bifurcation of the trachea, after the vagus nerves give off bronchial branches. This prevents impairing lung function. Transection of the esophagus at this level simplifies identification of lymph nodes lying near the recurrent nerves without damaging them. The right recurrent laryngeal nerve is rarely injured during the esophageal mobilization because of its location in the region of the cervical pleura on the lower surface of the right subclavian artery, and because the nerve is well visualized under the pleura. Injury to the left recurrent laryngeal nerve which loops under the aortic arch often occurs in the groove at the junction of the trachea and esophagus.

Conclusions. We believe that dissection of the esophagus along its posterior wall, between it and the spine is the least injuring.

ANATOMICAL STUDY OF THE SUPERIOR HYPOGASTRIC PLEXUS FOR THE NERVE-SPARING SURGICAL PROCEDURES IN FEMALE PELVIS

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Key words: *superior hypogastric plexus, nerve-sparing, lymphadenectomy, pelvis, anatomy*

Background. Para-aortic and presacral lymphadenectomy is frequently performed in the surgical procedures of various gynecologic pelvic malignancies. Postoperative complications such as urinary, anorectal, and sexual dysfunction related to the injury of the superior hypogastric plexus (SHP) during lymphadenectomy have been reported.

Aim. The aim of this study was to document the frequency and positional variability of the SHP through gross dissection of fresh cadavers.

Material and Methods. Seven female cadavers were transected superior to the origin of the celiac trunk to prevent the SHP from pulling down with overlying peritoneum. The peritoneum in the lumbopelvic region was carefully removed to expose the SHP. A microscope with X2.5 magnification lenses was used during dissections. The degree of deviation and appearance of the SHP were observed and the distances of origin from aortic bifurcation and length with maximal width of the SHP were measured.

Results and Discussion. The plexiform-like SHP was found more frequently than single-cord appearance. The SHP extended from the level of intervertebral disc between L4 and L5 below the aortic bifurcation through the sacral promontory in the lesser pelvis. The measurements of the SHP documented in this study are expected to be available in nerve-sparing gynecologic surgeries with minimal complications.

CLINICAL AND APPLIED ANATOMY OF THE LEFT CORONARY ARTERY VARIATION

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Key words: *left coronary artery (lca), left anterior descending artery, clinical anatomy*

Background. Coronary arteries play an important role in perfusion of the heart tissues. Variations or anomalies of coronary arteries may be asymptomatic, while some can be symptomatic and may even cause sudden death. Knowledge of coronary artery variations is important in diagnosing and treating cardiovascular diseases.

Aim. The aim is to describe variations of the LCA and its branching patterns.

Material and Methods. A total of 78 human hearts were dissected, examined and measured using 0.01 mm sensitive digital calipers.

Results and Discussion. The mean outer diameter of left coronary artery (LCA), left anterior descending (LAD) and circumflex artery (CA) was 4.34±2.01, 4.21±0.28 and 2.73±0.6 mm respectively. Whereas the mean length of LCA, LAD and CA was 10.2±3.5, 83.4±17.8 and 44.6±17.9 mm respectively. The main trunk of LCA bifurcated in 63 specimens (80.76%), trifurcated in 8 specimens (10.25%), quadrifurcated in 6 specimens (7.69%) and pentafurcated in 1 specimens (1.28%). Variation in the origin of coronary arteries and their branching pattern can pose difficulties in imaging by conventional catheters, and in the management of congenital and acquired heart diseases. Short LCA explains some failures of adequate coronary perfusion from aortic valve surgery, and it is also a risk factor in developing coronary atherosclerosis. In conclusion, the high degree of variability of the LCA and its branching patterns has anatomical, pathophysiological diagnostic and therapeutic implications.

Conclusions. Adequate knowledge of these variations is important for the interpretation of coronary angiography, stenting procedures and surgical myocardial revascularization.