performed with the above-mentioned antibodies and antigenic recovery was conducted according to the manufacturer.

IHC panel that is proposed for diagnostic aims, includes markers that can characterize proliferation features of a tumor, its hormonal reaction and degree of malignancy. Positive reaction is evaluated within cancer cells either within a nucleus (for nuclear markers) or a cell membrane, respectively. Besides a specific color of positive reaction, it is important to evaluate insensitivity of one, excluding a "false-positive" regions. That is why, the first step in conducting IHC method was evaluation of a histological slide stained with haematoxylin and eosin, and then slides, stained by IHC method as recommended by the manufacturer with the help of specific equipment. Anti-Ki-67 antibody is a nuclear marker that indicates proliferation degree of a tumor and thus can be considered, while estimating high or low proliferating cells within biopsy tissue. Positive reaction with Ki-67 visualizes active cancer cells and shows moderate expression within Luminal type A BC and a high level within Luminal type B BC. It can be assumed, that proliferation rate of Luminal A BC is significantly lower comparing to the Luminal B. This marker is often detected with a moderate intensity of staining. Moreover, it can be used as an additional IHC clue in differentiation Luminal A and B subtypes. Antibodies to progesterone receptors (YR85 clone) show positive reaction in Luminal A BC, accompanied by progesterone (YR85) positive and negative c-erB-2/Her-2/neu. A tumor, considered positive for estrogen or progesterone, is defined as having 10% or more of tumor cells with nuclear staining with varying intensity. Luminal B BC shows positive hormonal markers and can be either c-erB-2/Her-2/neu negative or positive, according to molecular classification of the BC. Expression of c-erB-2/Her-2/neu is evaluated by intensive total stain of cancer cell membranes that is seen in c-erB-2/Her-2/neu positive subtype of BC, often high-graded. Sometimes its expression can be amplified, while progesterone and estrogen can be negative. In case when none of the IHC markers are expressed, a triple negative BC can be diagnosed. The Allred D. C. scale is used to detect progesterone and estrogen expression, that includes proportion score and intensity score. A total of two scores is an index of malignancy that is subdivided into three degrees and used further, being taken into consideration by a clinical oncologist in treatment strategy.

As a result, it is shown that IHC panel helps to categorize BC and improves prognostic and predictive value of a pathological evaluation of biopsy or postsurgical BC material. IHC conclusions provide clinicians with data that is useful for further clinical management of oncological patients, prescribing a target therapy and ensure better survival rate.

Semeniuk T.A.

COMPARATIVE MACRO- AND MICROSCOPIC CHARACTERISTICS OF THE HEART VALVE CUSPS IN INFANTS

Department of Histology, Cytology and Embryology
Bukovinian State Medical University

Nowadays, early neonatal infant mortality, among which congenital heart defects play an important role, poses significant challenges for cardiac surgeons. In turn, the results of morphological studies can significantly improve the quality and the outcome of surgical treatments.

The aim of the study was to determine and compare the macro- and microscopic structure of heart valve cusps in infants.

The study was performed on 15 heart valves of infants using macroscopic, microscopic and immunohistochemical methods.

Macroscopic examination showed the cusps of the atrioventricular valves of infants having the appearance of thin translucent plates with shiny surfaces, with the atrial smoothness and roughness of the ventricular surfaces. The mitral valve cusps have much smoother edges, whereas the tricuspid valve cusps are scalloped. The cusps of the aorta and pulmonary trunk have the form of pockets with signs of ribbed surface on the aortic and pulmonary sides. The rib is more evident in the cusps of the aortic valve.

Microscopic examination of the cusps of the atrioventricular valves of infants found that their surfaces are covered with endothelium. A thin layer of loose connective tissue is visualized under the endothelium from the atrial surface. Fibroblastic cells and thin disordered elastic fibers are identified within. Disordered thick collagen fibers and fibroblastic cells are visualized in the deeper layer. Collagen fibers are better expressed in the area of the valve cusps, where the chordae tendinea are attached to the ventricular surface. Islets of striated cardiac muscle tissue were detected within the cusps using the picro-Mallory stain. Blood vessels were found in the cusps of the atrioventricular valves, both at their base and in the areas next to the free edge. In most cases there are vessels of the macrocirculatory bed at the base of the cusp. Vessels of the microcirculatory bed were found in the areas next to the free edge of the cusp.

In the valves of the aorta and pulmonary trunk, the connective tissue is arranged into three layers: fibrous, spongy and ventricular. The fibrous and ventricular layers are denser and occupy the boundary position. Collagen fibers are tightly packed, forming bundles and running in one direction within them. There are fibroblasts and fibrocytes in small quantities between the bundles of collagen fibers. In the ventricular layer of the valve cusps between the bundles of collagen fibers there are elastic fibers in significant quantities. The spongy layer is loose and it is located between the fibrous and ventricular layers and formed by loose connective tissue. In isolated cases, the cardiac muscle tissue forming small islands is found in the places where the cusps are attached to the vessel wall. Blood vessels are found in the cusps of the aorta and pulmonary trunk. Arterioles and venules are observed in the places where the cusp is attached to the vessel wall, and blood capillaries are observed directly in the spongy layer of the cusp.

Thus, the cusps of the heart valves in infants look like plates/pockets, respectively in atrioventricular valves and valves of aorta and pulmonary trunk, and are covered with endothelium. The cusps of the atrioventricular valves of the heart are formed by loose connective tissue. The islets of striated cardiac muscle tissue are in the base of them. They are supplied with blood through blood vessels in both the macro- and microcirculatory bed. The valves of the aorta and pulmonary trunk are formed by loose and dense connective tissues, which determine their layered structure. Islets of striated cardiac muscle tissue are identified at the sites of cusps attached to the walls of large blood vessels. Blood vessels of the microcirculatory bed are located at the places of the attachment of the cusp to the vessel wall and in the spongy layer of the cusp itself.

Stoliar D.B.

TOPOGRAPHICAL AND ANATOMICAL PECULIARITIES OF THE TEMPOROMANDIBULAR JOINT IN THE THIRD TRIMESTER OF THE INTRAUTERINE DEVELOPMENT

Department of Histology, Cytology and Embryology
Bukovinian State Medical University

In spite of certain progress and intensive development of dental technologies, there is a number of unsolved issues concerning the dentoalveolar system structures. One of its important structures is the temporomandibular joint (TMJ). Impaired development of the TMJ provokes changes of the facial contour and defects, degeneration or hypertrophy of the masticatory and mimic muscles; occlusion and disorders of swallowing and chewing. The aim of the study was to determine anatomical peculiarities of the TMJ in the third trimester of the intrauterine development. The study was conducted on 4 samples of fetuses 301,0-450,0 mm of the parietal and calcaneal length by means of the following methods: morphometry and craniometry, macro- and micropreparation, computed tomography and statistical analysis.

During the third trimester of the intrauterine development the head circumference (the line through the glabella, parietal tubercles and external occipital tubercle) is 291,83±28,07 mm; biparietal diameter (between the parietal tubercles) is 77,91±7,08 mm; cranial length (sagittal distance between glabella and external occipital tubercle) is 95,91±8,77 mm; facial breadth (transverse distance between the proximal points of the zygomatic arch) is 68,58±6,14 mm; facial height (distance between nasal point and the lowest point of the mandible) is 45,16±4,48 mm. In