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Конференція внесена до Реєстру заходів безперервного професійного розвитку, які проводитимуться у 2023 році №5500074

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Results. Examination of the histological sections using light microscopy showed that the leaflets of the atria-ventricular valves of the heart have a layered structure. Specifically, the spongy layer, the fibrous layer and the ventricular layer were identified in the direction from the atrial surface to the ventricular surface of the valve leaflet. Staining of histological specimens with methylene blue-azure-fuchsin made it possible to establish that the spongy layer of the leaflet consists of weakly organized connective tissue. The obliquely oriented collagen fibers and numerous longitudinally oriented elastic fibers, as well as cells fibroblasts and fibrocytes, were found within the spongy layer. Many other cell types, such as a mast cell, a macrophage, a smooth muscle cell and an interstitial cell were found within the spongy layer additionally to fibroblasts and fibrosytes. All these cells were possible to identify and to differentiate them each other using the electron microscope. The fibrous layer of the leaflet consists of very densely packed thick bundles of collagen fibers that are arranged in parallel. Between bundles of collagen fibers are mature cells of the fibroblastic row. The ventricular layer of the leaflet is the thinnest one. It also contains elastic fibers, but less than in the spongy layer. Collagen fibers run in different directions: obliquely, radially, and in the form of arcs. The different direction of the collagen fibers is due to a penetration of the collagen fibers from the chordae tendinea. Collagen fibers entering the leaflet are woven into the fibrous components of the leaflet and reach the fibrous ring within the leaflet's fibrous layer. Islands of striated cardiac muscle tissue were found in the thickness of the connective tissue closer to the fibrous ring.

Conclusions. Thus, the data of this investigation determined that the fibrous connective tissue makes the basis for the leaflet of the atria-ventricular valve. Connective tissue is arranged into three clear detectible layers. They are spongy, fibrous and ventricular. Spongy layer is made up of loose connective tissue, fibrous layer – by dense regular connective tissue, ventricular layer – by dense irregular connective tissue.

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MORPHOMETRIC PARAMETERS OF THE TEMPOROMANDIBULAR JOINT IN THE SECOND TRIMESTER OF FETAL DEVELOPMENT

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Introduction. Currently, it is significant to study the anatomical variability of human, its morphometric characteristics, relationships of organs, anatomical structures, their parts at all stages of human development. However, information on the structure of the temporomandibular joint (TMJ) during fetal development remains controversial and contradictory.

The aim of the study. The study is aimed to examine the anatomical and morphometric features of the TMJ in the second trimester of fetal development.

Material and methods. The research was performed on 4 fetuses from 161.0 mm to 295.0 mm of parietal-heel length utilizing morphological methods (morphometry, craniometry, macro- and micro preparation, computed tomography).

Results. It is established that in fetuses of 4-6 months the articular fossa has a flat shape. The bone substance of the articular fossa is thin. There are no pronounced protrusions on zygomatic process of the temporal bone, which confirms the absence of the articular tubercle in this period. The formation of elements of the synovial membrane of the joint capsule is observed. The folds and twists of the connective tissue plate are determined in the lower and upper parts of the joint cavity and capillaries grow into the synovial membrane. The TMJ is adjacent to the lateral pterygoid muscle, and the parotid gland is adjacent to the outside and above. The right and left TMJs maintain the equivalent size. Morphometric parameters of the external structures of the TMJ in the dynamics of the second trimester gradually increase. The articular disc is represented by dense fibrous connective tissue. The tissue of the articular disc is penetrated by individual blood vessels. In certain areas, their number increases, yet closer to the attachment of the articular disc to the anterior part of the articular capsule the number of vessels decreases. In fetuses of 4 months the circumference at the level of Glabella, parietal humps and Inion (outer occipital hump) is 132 ±

7.63 mm, the distance between the parietal humps is 36 ± 3 mm. The distance in the sagittal plane between the Glabella and the Inion is 43.3 ± 3 mm, the distance between the most remote points of the zygomatic arch is 31.6 ± 2.08 mm. The distance between the Nazion and the Gnathion (the deepest point of the jaw in the middle plane) is 21.6 ± 1.5 mm. From the 5th month there is a more isolated differentiation of the structures of the TMJ and the actual articular sac, which clearly distinguishes the articular disc and the upper and lower gap between the articular surfaces, the size of the fissures are the same. The upper fissure is slightly insignificant than the lower. The articular disc is fused with the articular sac. Further development of the joint occurs in the upper lateral direction. In 5-month-old fetuses, the circumference through the Glabella, parietal humps and Inion is 171.5 ± 12.6 mm, the distance between the parietal humps is 45 ± 4.5 mm, the sagittal distance between the Glabella and the Inion is 55.75 ± 3, 86 mm, the distance between the most distant points of the zygomatic arch - 41.1 ± 3.1 mm, between the Nasion and Gnathion - 27.25 ± 2.21 mm. In 6-month-old fetuses, the circumference through the Glabella, parietal humps and Inion is 220.5 ± 18.8 mm, between the parietal humps - 57.5 ± 5.5 mm. The sagittal distance between the Glabella and the Inion is 73 ± 6.2 mm, the transverse distance between the most remote points of the zygomatic arch is 53 ± 5 mm, the distance between the Nazion and the Gnathion is 34.75 ± 2.2 mm.

Conclusions. In the dynamics of the second trimester of fetal development, the temporomandibular joint is characterized by the presence of a flat joint fossa and the absence of a joint tubercle. An increase in all craniometric parameters indicates the growth in total bone mass of the skull and an increase in the size of the temporomandibular joint.

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POSSIBILITIES OF USING METHODS FOR DIAGNOSING EARLY MANIFESTATIONS OF CHANGES IN BONE DENSITY IN THE PROCESSES OF THE LOWER JAW

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Introduction. The study of bone tissue of the articular and coronal processes of the lower jaw is a significant diagnostic criterion in diagnosing and treating temporomandibular disorders. After all, one of the main components is bone, as a functionally active connective tissue, a depot of micro- and macronutrients, and, at the same time, the manifestation of gradual pathological changes that are observed even in a "conditionally" healthy person. The vagueness of pathological processes occurring, at first glance, in inert tissue is interpreted by the fact that changes occur slowly without being accompanied by accentuating symptoms for a long time. Even with minimal external influence, or functional disorders caused by the loss of the masticatory teeth, it leads to long-term, difficult-to-implement rehabilitation methods.

That is, bone tissue is targeted by various factors: from lifestyle to the state of functionality of various organs and systems, but timely diagnosis, adequate prevention, and comprehensive treatment provide excellent clinical results. Also, disorders can be caused by various factors of both traumatic and non-traumatic origin, including iatrogenic. Timely detection of temporomandibular disorders can prevent the development of irreversible changes in the joint.

The aim of this research lies in defining reasonable, available, minimally invasive methods for diagnosing early manifestations of changes in bone density in the processes of the lower jaw.

Material and methods. To select minimally invasive, accessible, and ergonomic methods for using them in the densitometric examination of the bone tissue of the mandibular processes, 217 scientific papers were analyzed, 63 of them foreign, using bibliosemantic method of analysis of clinical trials on the platform ClinicalTrials.gov. In the definition of search terms, medical terminology headlines were combined with free words.

Results. Digital methods of densitometric examination of bone tissue of the articular and coronal processes of the lower jaw are much broader as a structural unit of X-ray anatomical CT examination. Compared to conventional clinical radiology, they provide accessibility and the ability to obtain a quick study result even with minor manifestations of pathological changes in the dynamic course.