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ANATOMICAL TRANSFORMATIONS OF THE NASAL SEPTUM IN CHILDHOOD

Abstract. *Methods of preparation, morphometry, radiography, and photodocumentation were used to study 20 preparations of the nasal region of childhood, the formation and morphological transformations of the nasal septum of a human.*

Key words: *nasal septum, childhood, ontogenesis, human.*

Introduction. Morphological studies of the nasal region, at whatever structural level they are not conducted, are aimed at revealing the mechanisms and pathogenesis of diseases and searching for effective methods of treatment. The study of the nasal septum is of practical value, since developmental defects that require surgical correction, elimination of polyposis growths of its mucous membrane, treatment of chronic bleeding, posttraumatic lesions are often encountered here. One of the conditions for the successful resolution of these problems is a thorough study of the anatomical features of the nasal septum at each stage of development [1-3]. The question of the causes of deflection of the nasal septum now is the point of wide discussions among scientists in the pages of the scientific literature. But all the published interpretations remain fragmented, scattered and incomplete. [4].

The objective of the study. To study the morphological features of the nasal septum in childhood and to investigate possible variants of its structural organization.

Materials and methods. 20 biological preparations and organocomplexes of the nasal area of childhood were investigated by methods of regular and fine preparation with the help of the MBS-10 microscope, the topographic anatomical sections, X-ray and morphometry.

Results and discussion. During the early childhood, the forming processes of the nasal septum continue. In the perpendicular plate of the latticed bone, the gradual replacement of the cartilaginous tissue by the bone begins. In the process of growth, the anteroposterior size of the vomer exceeds the vertical one. The thickness of

the vomer is almost unchanged.

During the study of preparations of young children (the period from one to three years) it was established that the cartilaginous part of the nasal septum forms a homogeneous cartilaginous tissue, it is not possible to macroscopically distinguish the cartilage of the nasal septum from the perpendicular plate of the latticed bone in this age period. The bony part of the nasal septum is formed by the vomer, which is represented by a homogeneous plate. At the posterior margin of the plate the wings are more pronounced, which adhere to the body of the sphenoid bone. Anteroposterior size of the vomer exceeds 30.2 ± 0.6 mm, vertical 11.2 ± 0.13 mm.

Anteroposterior size of nasal septum in infants is 39.0 ± 0.5 mm, maximum vertical dimension is 24.0 ± 0.4 mm. The thickness of the cartilaginous plate of the nasal septum is 2.4 ± 0.05 mm, and together with the mucosa it is 3.2 ± 0.13 mm. On 8 preparations (30%) in the anterior section of the nasal septum a blind canal was found, which is the organ of Jacobson.

During early childhood (4-7 years), the vomer of the cartilage of the nasal septum approaches the quadrangular. The perpendicular plate of the latticed bone is already 85-90% represented by bone tissue. The cartilaginous tissue (growth site) is located at the junction of the lower edge of the perpendicular plate of the latticed bone and the cartilage of the nasal septum with the upper edge of the vomer.

In the period of late childhood (8-12 years) there is a complete ossification of the perpendicular plate of the latticed bone. At the junction of the perpendicular plate and cartilage of the nasal septum with the upper edge of the

couch, a segment of growth still remains. There are more intensive changes in the shape and size of the nasal septum as a whole. Its cartilage already has an irregular quadrangular shape.

The mucous membrane that lines the nasal cavity is covered with a high, multi-rowed cylindrical epithelium, in which cilia are well expressed. In the respiratory region of the nucleus its cells form 3-4 rows, and in the olfactory region 4-5. The thickness of the epithelium, in comparison with the previous age period, does not change.

The contours of the glands become more distinct. The diameter of the vessels of the anterior and posterior trellis arteries ranges from 0.28 to 0.38 mm. The number of branches of the second order is 2 (lateral and medial), branches of the third order - from 5 to 7. The diameter of the latter is 0,08 - 0,1 mm. The pterigo-palatine artery in 6 cases (20%) had 4, in two (5%) - 3 and in 5 (15%) - 2 posterior lateral nasal branches. Their diameter varies from 0.36 to 0.4 mm. They branch, mainly in the area of the lower and middle nasal conchaes and the corresponding nasal passages, where they form loops of various shapes and sizes.

The diameter of the posterior artery of the nasal septum is 0.3 - 0.6 mm. It is divided into branches of the second order (lower and upper).

In the study of nerves, it was found that the medial superior posterior nasal branches penetrate into the posterior sections of the nasal septum, which begin from the wing-palatal node and manifest in its mucosa. The nasopharyngeal nerve passes in the descending direction, branches into large branches in the mucosa of the nasal septum. All the main nerve trunks 0.46-0.5 mm in diameter are located in the deep layer of

the mucous membrane, where they are distributed into the secondary and tertiary branches. In places of thickening of the mucous membrane, the nerve fibers almost perpendicularly pass through the epithelial lining.

Topographically, the most superficial are the glands and a small mesh of vessels, then the nerves and vessels of the middle caliber and the deepest are the large trunks of nerves and vessels.

Conclusion. Formation of the nasal septum begins in the early period. At the end of early childhood, it is a homogeneous cartilaginous tissue, which is supplemented by a bone shaving. The ossification of the perpendicular plate of the latticed bone ends in the period of late childhood.

The mucous membrane is lined with a high cylindrical ciliated epithelium.

During development, the greatest concentration of blood vessels is in the anterior part of the nasal septum.

Perspectives for further research. It is planned to investigate the features of the nasal septum in mature and elderly periods of a human.

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MORPHOGENESIS OF THE HEPATIC-DUODENUM LIGAMENT IN EARLY ONTOGENESIS OF THE HUMAN

Abstract. *With the help of a set of morphological methods, the sources of hepatic-duodenal ligament formation (HDL) have been determined. It has been established that the formation of HDL occurs through the process of gradual transformation of the ventral mesentery of the embryo, namely, its transition from the sagittal plane to the frontal one, starting from the sixth week of intrauterine development and until the end of the embryonic period. The dynamics of morphological changes in the structure of the aforementioned ligament and its components (bile ducts, arteries and veins) in the embryonic and pre-fetal period of human ontogenesis was also studied. With the help of a complex of modern morphological techniques, their correlation relationships have been established with the purpose of determining the time and morphological prerequisites for the occurrence of structural variants and developmental defects of the above-mentioned formations.*

Key words: *hepatic-duodenal ligament, bile ducts, hepatic artery, portal vein of the liver.*

Introduction. Morphological studies of the nasal region, at whatever structural level they are not conducted, are aimed at revealing the mechanisms and pathogenesis of diseases and searching for effective methods of treatment. The study of the nasal septum is of practical value, since developmental defects that require surgical correction, elimination of polyposis growths of its mucous membrane, treatment of chronic bleeding, posttraumatic lesions are often encountered here. One of the conditions for the successful resolution of these problems is a thorough study of the anatomical features of the nasal septum at each stage of development [1-3]. The question of the causes of deflection of the nasal septum now is the point of wide discussions among scientists in the pages of the scientific literature. But all the published interpretations remain fragmented, scattered and incomplete. [4].

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Results and discussion. During the early childhood, the forming processes of the nasal septum continue. In the perpendicular plate of the latticed bone, the gradual replacement of the cartilaginous tissue by the bone begins. In the process of growth, the anteroposterior size of the vomer exceeds the vertical one. The thickness of the vomer is almost unchanged.

During the study of preparations of young children (the period from one to three years) it was established that the cartilaginous part of the nasal septum forms a homogeneous cartilaginous tissue, it is not possible to macroscopically distinguish the cartilage of the nasal septum from the perpendicular plate of the latticed bone in this age period. The bony part of the nasal septum is formed by the vomer, which is represented by a homogeneous plate. At the posterior margin of the plate the wings are more pronounced, which adhere to the body of the sphenoid bone. Anteroposterior size of the vomer exceeds 30.2 ± 0.6 mm, vertical 11.2 ± 0.13 mm.

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