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TOPOGRAPHY OF PHARYNX IN THE FETUSES IN THE 11-12TH WEEKS OF HUMAN ONTOGENESIS

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At the second half of the eleventh week of prenatal ontogenesis in prenatal 64-66 mm PCL lumens of the pharyngeal tab in different parts are not the same, decreasing in the craniocaudal region from 2.62 ± 0.12 mm to 0.56 ± 0.06 mm. The thickness of the walls of the pharyngeal tab also varies – the dorsal and lateral walls of the pharyngeal tab reach 141-152 μm, and the thickness of the ventral wall – 171-181 μm.

In the caudal part of the pharyngeal tab, namely, in the area of the transition of the pharynx into the esophagus, there are four to five folds of the mucous membrane, which are localized on the ventral and dorsal walls, 19-20 μm high. In areas of localization of the folds of the mucous membrane there is a more pronounced than in other parts of the submucosal layer thickening of mesenchymal cells, the nuclei of which are clearly arranged according to the height of the folds.

The epithelium lining the pharyngeal tab is still not the same as the predominance of the three-layered cylindrical, with its inherent cell structure and the location of their nuclei. In the extreme caudal part of the pharynx, in some places there is also a bilayer cylindrical epithelium, the thickness of which is 19-21 microns. The nuclei of its cells, 3.7-4.4 μm in size, occupy the basal position in the outer layer, and mainly the apical position in the inner layer. In the area of the root of the tongue, the epithelium is multilayered cylindrical.

A distinctive feature of the end of the eleventh week of embryogenesis is a change in the structure of the epithelial lining of the pharynx. In the cranial part of the dorsal wall and in the area of the pharyngeal arch, the three-layered cylindrical epithelium changes into a multinucleated ciliated epithelium. The nuclei of the ciliated epithelial cells occupy a predominantly apical position.

Changes also occur in the muscular membrane of the caudal part of the pharyngeal tab, muscle fibers appear in the form of a symplastic formation, which consists of an inseparable protoplasm with numerous nuclei. At one time with the formation of muscle fibers, namely, with the formation of myoblasts-symplasts, they are quite active in the differentiation of myofibrils, which are sequentially connected, gradually turning into long homogeneous myofibrils.

At the twelfth week of prenatal ontogenesis, i. e. at the end of the prenatal period in preterm 68.0-80.0 mm PCL significant structural changes are not observed, but there is an increase in previous sizes.

As a result of intensive growth, the craniocaudal size of the pharyngeal tab in the prenatal 72.0-78.0 mm PCL reaches 4.46 ± 0.04 mm, in the oral part – 1.82 ± 0.26 mm. At the level of the epiglottis, the width of the lumen of the pharynx is 242-251 μm, and in the laryngeal part of the latter narrows markedly and, at the point of direct transition to the esophagus, is 56-61 μm.

In the middle of the twelfth week of embryonic development, the process of formation of choanae continues in parallel, through which the connection of the secondary oral cavity with the pharynx takes place. In preterm infants 74.0-80.0 mm PCL choanae have an oval shape. Their vertical size is 0.88 ± 0.24 mm, and the transverse size is 1.04 ± 0.26 mm. The wall thickness of the pharyngeal tab is also not the same everywhere - in the cranial section of the dorsal wall it is larger (121-161 μm) than in its cranial section (92-121 μm). The pharyngeal tab consists of mucous, muscular, and connective tissue membranes. In the area of the transition of the pharynx into the esophagus, there are three or four folds of the mucous membrane, located on the ventral and dorsal walls. The height of the folds is almost the same and ranges from 22.3 to 23.4 μm. In areas of localization of folds, as before, there is a more pronounced thickening of mesenchymal cells than in other parts of the submucosal layer. The muscular membrane of the pharyngeal tab is represented by two layers of transversely striated fibers.