



The objective of the study was to investigate variant anatomy and topographic-anatomical peculiarities of the human parotid gland and surrounding structures in fetuses.

The parotid gland was examined on 25 human fetuses, 130,0-375,0 mm of the parietal-coccygeal length (PCL). The following methods were applied in the course of the study: thing section of the parotid gland and parotid-masticatory area under the control of a binocular magnifying glass; macro- and microscopy; morphometry; computed 3-D design.

The parotid gland is found to be located in fetuses with 130,0-375,0 mm of PCL in a deep depression posteriorly the branch of the lower jaw, in the posterior mandibular fossa. A greater part of the gland is located between the mandible and sternocleidomastoid muscle penetrating deeply between these structures. The skin of this particular region is thin, movable. The subcutaneous pot is thin and fused with the skin. The structure of the parotid gland of 4-10 month human fetuses is anatomically changeable which is manifested by different shape (oval, leaf-shaped, horseshoe-like, triangle, irregular tetragonal), location and syntopy. Computed 3-D design of the gland presents its volumetric description which is the most practical one – in the shape of trilateral pyramid turned to the malar arch by its base, and to the mandibular angle – by its apex. A number of structures pass through the tissue of the parotid gland including facial nerve, posterior mandibular vein, external carotid artery, auricular-temporal nerve. The parotid duct is formed due to the fusion of two extra-organ lobular branches which in their turn are formed by means of fusion of several upper and lower lobular ducts emerging from the gland tissue passing through its capsule. The direction of the parotid gland is arch-like, with upward convexity. Passing along the external surface of the mastication muscle the parotid duct touches the upper extremity of the adipose body of the cheek and penetrates through the buccal muscle into the oral vestibule where it opens in the shape of a papilla of the parotid duct. The length of the parotid duct in the fetuses of the third trimester is 8,0-26,0 mm, diameter of the lumen is within 0,8-2,5 mm. The parotid duct is projected on the skin of the face from both sides along the line from antilobium to the mouth angle. The wall of the parotid duct consists of the connective tissue rich in elastic fibers and epithelium lying the lumen of the duct. The epithelium consists of two layers – deep cubic and superficial cylindrical.

Therefore, morphogenesis and topographic formation of the human parotid gland in fetuses are influenced by a total effect of spatial-temporal factors associated with the dynamics and close syntopic correlation of organs, vascular-nervous formations and fascial-cellular structures of the parotid area. At the end of the 10th month of the prenatal development the parotid gland under the microscope demonstrates its practically definite shape, although histological processes of differentiation in it are not completed yet. A study of the specific characteristics and consistent patterns of the morphogenesis and dynamics of the spatiotemporal changes of the salivary glands will make it possible to reveal new findings, pertaining to the emergence of variants of their structure, the preconditions of the onset of the congenital malformations and acquired diseases.

Leka M.Yu.

THE STRUCTURE PECULIARITIES OF INTRAMURAL APPARATUS WITH ATRESIA OF INTESTINAL WALL IN NEWBORNS

*M.G. Turkevych Department of Human Anatomy
Bukovinian State Medical University*

In early human embryogenesis, intramural ganglia are formed along the craniocaudal gradient and the onset of hereditary factors coincides with the moment of neuroblast differentiation in some specific area of the intestinal tube.

The rudiments of the nodes of the musculointestinal plexus are the same in different parts of the digestive tract, represented by individual cells and small groups of neuroblasts, located outside the rudiment of the circular layer of the muscular membrane. Neuroblasts of intramural nodes appear along the digestive tract in the craniocaudal direction. The vascularization sources of the intramural nerve elements of the intestine are the arteries of the membranes with autonomic plexuses. The occurrence of atresia of the small intestine is associated with morphological changes in the hemomicrocirculatory system and the structure of intramural nerve plexuses. The time of intestinal



atresia refers to the period of organogenesis at the 3-4th week of fetal development, when one of the processes of formation of the intestinal wall, intestinal lumen and intestinal rotation is disrupted.

The digestive tract in the process of development goes through stage, when the proliferation of the epithelium completely closes the intestinal lumen. The process of vacuolation ends with the restoration of the lumen of the intestinal tube, but under certain conditions the last phase is broken and the intestinal lumen remains closed. If the recanalization process is changed in a small area, and the intestinal lumen is closed by a thin membrane, then the membrane atresia occurs. In cases where the recanalization process has begun, and holes of different sizes are formed in the membrane, then membranous stenosis occurs. When closing the lumen for a long time atresia has the character of a fibrous cord.

So, the cause of this form of atresia may lie in the underdevelopment of the corresponding branch of the mesenteric vessel. Differentiation of intramural nodes continues in the postembryonic period, new neurons and a capsule around nodes are formed, the sizes of cells increase.

Marchuk F.D.

DEVELOPMENT OF MAXILLARY SINUSES FOR 3-5 MONTHS OF THE FETAL PERIOD OF HUMAN ONTOGENESIS

*M.G. Turkevych Department of Human Anatomy
Bukovinian State Medical University*

The features of development and formation of topographic and anatomical relationships of the walls of the maxillary sinuses were studied on 29 biological objects during 3-5 months of fetal ontogenesis by means of morphological research methods (histological, graphic and plastic reconstruction, preparation, morphometry).

The development of maxillary sinuses during the 9th week of the fetal period (beginning of the 3rd month, prenatal 31.0-41.0 mm TCD) was studied on 8 series of histological preparations. It is established that at the beginning of the 3rd month of the intrauterine period of development due to the insertion of the mucous membrane of the middle nasal passage above the base of the lower nasal cavity into the adjacent mesenchyme, the rudiment of the maxillary sinus is formed. In the studied fetuses, the shape of the maxillary sinus approaches oval. Its anteroposterior size is 0.3 ± 0.2 mm, transverse – 0.02 ± 0.05 mm and vertical – 0.06 ± 0.02 mm.

The development of these structures at the end of the 3rd month of development was studied on 6 prenatal subjects from 42.0 to 79.0 mm TCD. At this stage, the development of maxillary sinuses continues, their anteroposterior size increases to 1.1-1.3 mm, transverse – to 0.15-0.18 mm and vertical – 0.13-0.22 mm. Their shape, as in previous prenatal subjects remains oval.

The development of maxillary sinuses in fetuses of the 4th month (81.0-135.0 mm TCD) was studied at 7 sites. At the beginning of the fetal period of human development, the maxillary sinus on the frontal sections has an elongated oval shape, which connects with the nasal cavity through a slit-like opening located within the middle nasal passage. The lower wall of the sinus is 1.0 mm above the bottom of the nasal cavity. It is separated from the lower nasal passage by a layer of loose connective tissue 0.45-0.5 mm thick, from the middle – 0.5-0.65 mm, and from the orbit – 0.6-0.74 mm. At this stage, the process of forming the glands of the mucous membrane of the maxillary sinuses by inserting the epithelium into the subordinate mesenchyme. The height of the mucous membrane in these areas reaches 0.20-0.21 mm, and its thickness is 0.2 ± 0.3 mm. These areas are located at the base of the lower nasal cavity.

After examining 8 drugs on the fetus of the 5th month of development (17-20 weeks, 136.0-185.0 mm TCD), we found that the maxillary sinus is located in the body of the upper jaw lateral to the base of the lower nasal cavity. There is an increase in the height of the sinuses and a relative decrease in the diameter of the natural hole. The lower wall of the sinus is located 1.0-1.4 mm above the bottom of the nasal cavity. It is separated from the lower nasal passage by a layer of connective tissue 0.5-0.55 mm thick, from the middle nasal passage - 0.7-0.75 mm, and from the orbit - 0.8-0.86 mm.