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THE PARTICULAR STRUCTURES FORMATION OF HUMAN EMBRYOS ORAL AREAS

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The structure formation in the oral area of human embryonic period of ontogenesis was studied on the basis of 18 biological human objects with the help of morphological methods. It is established that due to the rapid proliferation of the main parts of embryos 5,0-5,5 mm CRL the oral fossa is noticeable. The oral fossa is limited by frontal swallowing above, on the sides - by the germs of maxillary processes, and below - heart swallow. The oral entrance is supplemented by paired germs of mandibular arch directed to the midline from behind. The last iscaudally connected to the germs of the maxillary processes. The floor of the oral fossa is lined with dermal ectoderm. The germs of the maxillary and mandibular processes are seen as homogeneous clusters of mesenchymal cell mass. The germs of processes of jaws in embryos of 6,8-7,9 CRL gradually direct the midline but do not merge with each other. Due to the breakthrough of the oral plate, the oral fossa appears connected to the principal intestine. The process of differentiation of jaws' processes, especially their caudal parts starts. On the inner surface of mandibular lateral protuberances, the germs of the tongue are seen, which is located between the odd median protuberance. At the end of the embryonic period, mandibular processes fully merge with each other and the mandibular arch is formed. In the upper section of the primary oral cavity, the pared of the nasal cavity burst. The developmental processes in the region of tongue germ continue.

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THE INFLUENCE OF THE FORMATION OF PALATE ON THE DEVELOPMENT OF CRANIOFACIAL COMPLEX

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Structures of the craniofacial complex, such as the mandible, palate, temporomandibular joint, and dentition, each offer valuable paradigms for studying development, structure, and functions. Craniofacial development is clinically important since craniofacial anomalies are amongst the most common congenital anomalies found in humans.

The specimen of 18 embryos and 16 pre-fetus were selected to be the materials of the research. Following investigational methods have been used: macroscopy, microscopy of consecutive histological sections series, conventional and thin preparations

During early development (4 weeks), the primitive oral cavity is bounded by five facial swellings, produced by proliferating zones of mesenchyme lying beneath the surface ectoderm - the frontonasal, mandibular and maxillary processes. In a 5-week-old embryo, localized thickenings of ectoderm give rise to the nasal and lens placodes. These placodes will form the olfactory epithelium and the lenses of the eyes respectively. The nasal placodes sink into the underlying mesenchyme, forming two blind-ended nasal pits (the primitive nasal cavities). In the 6-week-old embryo, the two mandibular processes fuse in the midline to form the tissues of the lower jaw. The mandibular processes and maxillary processes meet at the angle of the mouth, thus defining its outline. he maxillary processes subsequently "replace" the medial nasal processes to meet in the midline and thus contribute all the tissue for the upper lip. Fusion of the facial processes ultimately produces the region known as the 'intermaxillary segment'. It is from this area that the primary palate will develop. The definitive palate (or secondary palate) appears in the human fetus between the sixth and eighth weeks of intrauterine life. Fusion of the palatal processes is complete by the twelfth week of development. Behind the secondary nasal septum, the palatal shelves fuse to form the soft palate and uvula. Once fusion is complete, the hard palate ossifies intramembranously from four centres of ossification, one in each developing maxilla and one in each developing palatine bone: a) the maxillary ossification centre lies above the developing deciduous canine tooth germ and appears in the eighth week of development b) the palatine centres of ossification are situated in the region forming the future perpendicular plate and appear in the eighth week of development.

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MACROMICROSCOPIC PECULIARITIES OF THE SPHINCTER APPARATUS OF THE SIGMOIDORECTAL SEGMENT IN NEWBORNS

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The development of new technologies in colonic surgery requires the study of morphological features of the sphincter apparatus of the sigmoid-rectal segment in newborns, since postoperative complications are still associated with disturbance of the closure or evacuation function of the sphincter structures.

The aim of the research was to determine the morphological features and structural components of the sphincter apparatus of the sigmoid-rectal segment in newborns.

The research was carried out on corpses of newborns (455,0-500,0 мм PCL) by morphological methods: anthropometry, macromicropreparation, morphometry, injection of arterial vessels, histological method, statistical analysis.

It has been established that macroscopically on the internal surface of the sigmoid-rectal junction the fold of the mucous membrane is differentiated. In our opinion, this is due to the presence of O'Beirne-Pyrohov-Moutier's muscle locks at the level of the rectal-sigmoid angle. Therefore, the fold is of a semi-circle shape, located transversely to the axis of the intestine. The semi-ring can be located on any wall of the sigmoid-rectal junction, depending on the plane the curved sigmoid-rectal segment is.

Histologic investigations of the sigmoid-rectal junction determined that its wall is formed by mucous membrane, submucos, muscular and serous layers. The mucous membrane of this part opens into the lumen of the intestine. In the folds of the sigmoid-rectal junction crypt is determined, which is surrounded by lymphocytic aggregates and relief muscle layer. The mucous membrane of the sigmoid-rectal junction is covered by a single-layer prismatic epithelium.

Among the cryptic cell structure, columnar epitheliocytes with rim are visualized, although goblet cells predominate, with the number decreasing towards the rectum. A characteristic morphological feature of columnar epitheliocytes with a rim is a thinned brush border on their apical surface, formed by a large number of microvilli. With the approach to the estuary of the crypt, the microvilli of the apical surface lengthen and become more numerous. The own plate of the mucous membrane is formed by the loose fibrous connective tissue in which fibroblasts, macrophages, collagen and elastic fibers are located.

The muscular plate of the mucous membrane is represented by thinned circular and longitudinal layers, which are formed by smooth muscle cells. The submucosal basis of the sigmoid-rectal junction formed by the loose fibrous connective tissue contains a large number of vascular plexus. The muscular membrane of the sigmoid-rectal junction in newborns acquires a sphincter structure. It is formed by two layers of smooth muscle tissue, between which the layers of loose fibrous connective tissue are visualized. The thickness of the circular layer of the muscular tunic considerably predominates overs the thickness of the longitudinal one. The serous membrane of the sigmoid-rectal junction is represented by the loose fibrous connective tissue with blood vessels covered with mesothelium.

Therefore, the macroscopic signs of the sigmoid-rectal segment in newborns should be considered as the presence of muscle O'Beirne-Pyrohov-Moutier's lock at the level of the rectal-sigmoid angle and transverse semicircular fold of the mucous membrane. The histological signs of the sphincter apparatus of the sigmoid-rectal junction are the presence of the concentration of blood vessels and thickening of the circular layer of the muscle membrane in the submucous and serous envelope.

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FIXATION OF FETUS OR NEWBORN CORPSES IN THE NORMAL ANATOMICAL POSITION FOR MORPHOLOGICAL STUDIES

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Ensuring the qualitative fixation of fetuses or newborns during embalming in the normal anatomical position is one of the urgent problems of applied morphology. This task is important for improving the process of manufacturing gross specimens of organ complexes, facilitating further description of their structure and topography. To be as informative as possible and to look natural, the specimen has to be straightened and secured properly at the preparatory stage.

Therefore, our aim was to create a model that can be used to preserve the sustainability of the specimen's shape during the fixation. The basis of our proposed utility model is the task of improving the existing fixations of fetus or newborn corpses in the normal anatomical position for their morphological study.

The prototype of the utility model that we proposed is the corpse fixator (Picaliuk V.P., Moroz H.A., Kutia S.A. Methodical manual on the manufacture of anatomical specimens.-Simferopol, 2004. - 76 pp.), which is a wooden board to which an anatomical specimen is attached in an horizontal position by means of metal pins and immersed in the embalming solution. However, in the process of practical application of the mentioned prototype, some drawbacks were found, in particular the impossibility to preserve the sustainability of the gross specimen's shape during the intermediate and final fixation, which impairs greatly its visibility and informativity. It should be also noted that the corrosion of metal pins used for attachment may result in the undesirable coloring phenomenon of the fixing solution and tissues of the preparation.

The common features of the utility model and prototype we are offering are the material of which the fixative is made: it is wood. However, the fundamental difference between them lies in the design of the fixator, which ensures the preservation of the constancy of the normal anatomical position of the specimen during the fixation and during the embalming. Thus, the fixator of fetus and newborn corpses in the normal anatomical position for the morphological study is characterized by the fact that the wooden frame is made in the form of a rectangular frame and a transverse bar, which is fastened in the middle to the side walls. The holes for the fixation system are located on the upper, lower and