At the 5th month of fetal development, the variability of the shape of the right and left maxillary sinuses can be traced and they can be represented by the following types: spherical, oval and spherical-oval. The anteroposterior size of the right maxillary sinus is 2.0-2.2 mm, transverse – 0.18-0.21 mm, vertical – 0.25-0.3 mm, and the size of the left maxillary sinus, respectively, is equal to: 1.8-2,0 mm, 0.16-0.19 mm, 0.23-0.25 mm. It should be noted that the sinus is limited by the rigid skeleton of the upper jaw. At this stage of fetal development in the mucous membrane are clearly detected blood vessels and glands.

So, based on the study, it can be concluded that the rudiment of the maxillary sinus appears in the middle of the prenatal period of development. In the fetal period there is a further formation of the maxillary sinuses, there are changes mainly quantitative in nature (increasing the size of the maxillary sinuses), and this process continues in subsequent age periods of ontogenesis.

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VARIANT ANATOMY OF THE SIGMOID COLON AND SIGMOIDORECTAL SEGMENT IN THE THIRD TRIMESTER FETUSES

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Topicality to study variant anatomy of the sigmoid colon and its sigmoid rectal segment is associated with an active use of this portion while performing reconstructive surgery followed by replacement of a part of the esophagus, urinary bladder, vagina and other organs (A.F.Makarov, 2009). The use of the distal portion of the large intestine as a functional part for transplantation in adults and children stipulates further investigation of its anatomy during the perinatal period of human ontogenesis.

Objective of the study was to investigate variant anatomy of the sigmoid colon and its sigmoid rectal segment in 7-9-month fetuses and determine macro- and microscopic structural peculiarities of the sigmoid rectal segment components in the third trimester fetuses.

The study was conducted on 31 dead 7-9-month fetuses (12 – males, 18 – females) with 305,0-420,0 mm of the parietocalcaneal length (PCL) by means of the following methods of morphological examination: somatoscopy, anthropometry, macro- and micro-dissection, morphometry, injection of the arterial vessels, histological and statistical. The shape of the sigmoid colon in the dynamics of the 3rd trimester is found to change. The specimens of a spiral shape (38,8 %) and zigzag shape (25,8%) of the sigmoid colon are found more commonly, but Ω-shaped intestine and barleycorn shape were not found. Variability of anatomical shapes of the sigmoid colon is caused by uneven development of the colon portions and body type. Short C-shaped and U-shaped sigmoid colon is peculiar for the dolichomorphic type, and the brachiomorphic type is characterized by the long spiral and zigzag sigmoid colon. Accelerated lengthwise growth of the sigmoid colon and enlargement of the diameter of the sigmoid rectal segment components occur in the dynamics of the third trimester of the intrauterine development. The most probable correlation ($r = 0,9$, $p < 0,001$) is found between the diameter of the sigmoid rectal transition and the diameter of the peritoneal portion of the rectum. Macroscopic signs of the sigmoid rectal segment in 7-9-month fetuses are considered narrowing of the intestinal tube in the pint of transition of the sigmoid colon into the rectum; availability of the mucous semicircle fold located transversally to the colon axis on the level of transition of the sigmoid colon into the rectum. Histologically the mucous membrane of the sigmoid rectal transition in 7-month fetuses appears to be thicker than that of 8-9-month fetuses. Blood vessels of the plexus are found in the submucous base. Partial penetration of the loose fibrous connective tissue of the submucous base into the muscular layer of the initial part of the peritoneal portion of the rectum is observed. The thickness of the muscular layer of the sigmoid rectal segment in 7-month fetuses is more than a half of the intestinal wall, but during 8-9 months of development the mucous layer becomes thinner.

Thus, during the third trimester of gestation the shape of the sigmoid colon and its sigmoid rectal segment is characterized by individual variability due to accelerated lengthwise growth of the colon and enlargement of the diameter of the sigmoid rectal segment components. Short C-shaped

and U-shaped sigmoid colon is peculiar for the dolichomorphic type, and the brachiomorphic type is characterized by the long spiral and zigzag sigmoid colon. Macro- and microscopic signs are indicative of the location of the sphincter apparatus within the borders of the sigmoid rectal transition.

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THE IMPORTANCE OF COBALT (Co) AND SULFUR (S) FOR THE DEVELOPMENT AND CONSTRUCTION OF UPPER JAW BONE TISSUE IN HUMAN PRENATAL ONTOGENESIS

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Published scientific works (SlobodyanO.M.et al., 2018; Smith S.L. et al., 2017; OshurkoA.P., 2019) explain the peculiarities of the formation of the structure and topography of the maxilla in the fetal and early neonatal periods of ontogenesis, as well as the study of anatomical, histological structures and mineral composition of bone tissue of different areas in the age dynamics. At the same time, basic data on the study of the features of the structure and mineral composition of the human maxilla bone tissue in the dynamics of prenatal ontogenesis still lack.

The aim of the study **is** to determine the interdependent role of cobalt (Co) and trace elements of sulphur (S) as a building material of the human upper jaw, their participation in the development and mineralization of bone tissue in prenatal ontogenesis. Methods of macroscopy, morphometry of research objects, turbidimetric method, the method of flame atomic absorption determination of metal ions and statistical method with the use of statistical groupings have been used in the study. The upper jaw germs of 131 human fetuses aged 11-40 weeks of intrauterine development have been investigated. All studies have been conducted following "Procedure for extracting biological objects from the dead, whose bodies are subject to forensic examination and pathoanatomical study, for scientific purposes" (MishalovV.D., Voichenko V.V., MalyshevaT.A. et al., 2018).

Cobalt (Co) is known to belong to biogenic trace elements since its content in the human body does not exceed 1.5 mg. The bulk of the element is in the bone and fatty tissues. Considering the scientific sources, the participation of sulphur (S) in oxidation-reduction has been established, which has proved that it plays the same role of tissue respiration as hemoglobin, provide the transfer of energy since its ions are electrons carriers, as well as involve in the transport and fixation of methyl groups. Sulphur (S) contributes to the process of replication of DNA and RNA and is a part of the vitamins of group B (thiamine, biotin). And that is why there is a close interconnection between sulphur (S) and cobalt (Co). In other words, sulphur (S) is a biogenic macroelement that is an integral part of amino acids, in particular, cysteine and methionine, which are the constituents of proteins that form their spatial structure for further collagen synthesis. The highest concentration of sulphur is in blood, nerve tissue, and bones.

The results obtained in the study in the form of the mean value of the investigated parameter (M), the standard deviation (m), with probability of the error-free prediction $p < 0{,}001$ of the trace element of cobalt (Co), in the studied fragments of bone tissue samples weighing 0,15-0,55g in the first age group are (mg / g) - 0,086 ± 0,006; in the second - 0,081 ± 0,015; in the third - 0,119 ± 0,014; in the fourth - 0,059 ± 0,008, which at the same time provide a complete basis of mineralization, and qualitative characteristics of the development of bone tissue in prenatal ontogenesis. The results for sulphur (S) have shown the following indices: in the first age group (mg / g) - 1,143 ± 0,138; in the second - 1,835 ± 0,042; in the third - 1,989 ± 0,051; in the fourth - 1,636 ± 0.047.

The macroelementsulphur (S) and the trace element cobalt (Co) belong to biogenic macro- and microelements, which are mainly deposited in the bone and fatty tissues. The primary importance of sulphur (S) and cobalt (Co) is due to the fact that they are embedded in the chemical structure of cyanocobalamin and their main biological function is the participation in the process of hematopoiesis. They participate in oxidation-reduction, providing the role of continuity of tissue respiration. The maximum growth rate (%) is set for both sulphur (S) and cobalt (Co) in the middle