



neonates the head circumference is  $358,75 \pm 5,37$  mm; biparietal diameter is  $92,75 \pm 1,7$  mm; cranial length is  $117,25 \pm 2,75$  mm; facial breadth is  $87,5 \pm 3,1$  mm and facial height is  $52 \pm 0,816$  mm. The majority of morphometric parameters increase evenly in the dynamics of the third trimester. More intensive increase can be detected concerning head circumference, mainly at the 28<sup>th</sup>, 29<sup>th</sup> and 30<sup>th</sup> weeks; cranial length occurring at the 28<sup>th</sup>, 29<sup>th</sup> and 35<sup>th</sup> weeks; biparietal diameter happening at the 30-31<sup>st</sup> and 35-36<sup>th</sup> weeks.

The majority of craniometric parameters in neonates increase evenly. At the 38<sup>th</sup> week the head circumference increases more intensively. During early neonatal period all the craniometric parameters increase which is indicative of enlargement of general osseous cranial mass, mandible and increase in the size of the temporomandibular joint.

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### **BLOOD SUPPLY OF THE SPHINCTER SEGMENTS OF THE EXTRAHEPATIC BILE DUCTS IN THE PRENATAL PERIOD OF HUMAN ONTOGENESIS**

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The blood supply of the extrahepatic bile ducts in a human being is notable for variability which is important to take into account during surgical interferences on the organs of the hepatobiliary system. The publications of recent years adduce only insufficient data pertaining to the formation of the blood channel of the intestinal tube derivatives during the intrauterine development in a human. At the same time, ascertaining the specific characteristics of the blood vessels formation of the common bile duct at an early stage of human ontogenesis will enable to understand more profoundly the consistent patterns of the biliary tract vascularization. The aim of the research is to study the specific features of the blood stream organization of the common bile duct during the prenatal period of human ontogenesis.

The objective is to study the structural features and anatomical variability of the bloodstream of extrahepatic bile ducts, the peculiarities of blood supply of its locking devices during prenatal period of human ontogenesis. 104 specimens of human embryos, prefetuses, fetuses and newborns measuring from 4,5 to 370,0 mm parietococcygeal length (PCL) (5-40 weeks of development) were examined by means of the combination of morphological methods (anthropometry, morphometry, vascular injections, macroscopy, microscopy, graphical and 3D-reconstructions, statistical analysis).

The study established that the arterial vessels were found in the embryo of 4.5 mm PCL (beginning of the IV<sup>th</sup> week of intrauterine development) that branched from the aorta to abdominal organs. At the VII<sup>th</sup> week of development the centers formation of blood vessels were found. At the end of prefetus period of human development all branches of celiac trunk and superior mesenteric artery were well traced. The definitive structure of the arterial system of extrahepatic bile ducts has been found typical from beginning of fetus period of human ontogenesis. Three types of arterial anastomosis were detected on the surface of the extrahepatic bile ducts, namely: 1) the arterial network; 2) a chain of longitudinal anastomoses; 3) the arterial circle. The peculiarities of spatial structure of the arterial anastomosis around the coiled part of the cystic duct proved the existence of the locking device (sphincter) between neck of the gallbladder and the cystic duct, thus playing an important role in functioning of vascular (arterial) component.

Thus, the derivates of the blood vessels of extrahepatic bile ducts come from the extra- and intra-organ sources at the IV<sup>th</sup> week of prenatal development. There were detected three types of arterial anastomosis on the surface of the extrahepatic bile ducts: 1) the arterial network; 2) a chain of longitudinal anastomoses; 3) the arterial circle. The arterial circle and circular anastomosis between neck of the gallbladder and the cystic duct may provide unobstructed blood supply, regardless of the phase of the sphincter motility and functional state of the cystic duct lock device. The arterial component of the sphincter of Oddi is presented as the anastomoses that resemble arterial circles along the medial border of the duodenum, furthermore, branching out in its muscle layer and submucosa.