outgrowth on the left side is smaller than the outgrowth on the right. The left-sided outgrowth goes laterally in comparison with the right-sided outgrowth, which has a course parallel to the esophagus. In the fifth week, there is a branching of the right main bronchus. So for the first time, there is a formation called the bronchus of the first order.

On the outgrowths of the bronchi of the first order (in embryos of 7.0-9.0 mm TCL), protrusions appear. The latter begins to branch intensively, lengthen and become second-order bronchi. In the future, the second-order bronchi branch out again and give rise to smaller bronchi. The lumen of the bronchial tubes of the first and second orders has a slit-like or round-oval shape. The wall of the bronchial tubes is lined with small cubic cells that are located on the basement membrane. The bronchial rudiments are surrounded by the pulmonary parenchyma, in which blood vessels are diagnosed. The mesenchyme is a source of formation of both the pulmonary parenchyma and the wall of bronchial vessels. The first blood vessels appear in embryos aged 4.5-5.0 weeks of intrauterine development. Bronchial blood vessels repeat the pattern of the bronchial tree. The wall of these vessels contains a single layer of elongated endothelial cells. Inside the bronchi, as well as in the mesenchymal network surrounding them, there are blood cells. The mesenchymal mass, into which bronchial tubes grow during lung development, thickens around them, differentiates over time, and gives rise to components of connective and muscle tissues.

Thus, in the embryonic period of human development, important processes occur that determine in the future the formation of the main bronchi and bronchi of I and II orders, the appearance of rudiments of blood vessels in the lung parenchyma, and also during this period, the initial stage of differentiation of the mesenchyme around the bronchi begins.

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DEVELOPMENTAL PECULIARITIES OF LUNGS IN HUMANS

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Studying the organogenesis of the upper respiratory tract and lungs will contribute to the development of new methods for prevention, diagnosis and treatment of congenital and acquired pathology in pulmonology and thoracic surgery.

The study was performed on human embryos of parietal-coccygeal length (PCL) of 42.0 mm, the longitudinal size of the right lung is 4.18 mm, the left - 4.40 mm, in an embryo 45.0 mm in length - 4.40 and 4.74 mm, respectively, and in 43.0 mm - 4.76 and 5.20 mm. The transverse size of the right lung, as in the earlier stages of development, is larger than the left and the embryo 42.0 mm in length is 2.86 mm (right lung) and 2.42 mm (left lung), in an embryo with a PCL size of 45.0 mm - 3.30 and 2.96 mm, respectively, in a 48.0 mm embryo - 3.52 and 3.19 mm.

There is a further branching of the bronchial tree and, starting with the embryos of 45.0 mm in length, in contrast to earlier stages of development, the branching of the bronchi occupies almost the same area of the lung bookmark as its mesenchymal part. In addition, due to the differentiation of the mesenchyme, interlobular connective tissue septa begin to form.

The length of the right main bronchus in the embryo with a PCL of 42.0 mm is 1.32 mm, in the embryo 45.0 mm -1.54 mm, in the 48.0 mm - 1.84 mm, the left - respectively 1.76, 1, 98 and 2.42 mm. The diameter of the right main bronchus increases from 594 microns (embryo 42.0 mm long) to 924 microns (embryo 43.0 mm long), the left - from 528 to 660 microns, their wall thickness - from 132 to 176 microns. The diameter of the lobular bronchi ranges from 264 to 330 microns (embryo 42.0 mm long) and from 308 to 374 (embryo 48.0 mm long). The largest diameter has the lower lobe bronchus of the right lung, the smallest - the middle lobe bronchus of the same lung.

The structure of the bronchial tree is similar to the same embryo 37.0 mm long, but the cartilage anlage, in addition to the main bronchi, is also in the wall of the lobular bronchi. In addition, the folds of the bronchial mucosa become more numerous, and their height increases, reaching 198-220 microns in the main bronchi, 88-110 microns - in the lobes, and 44-66 microns - in the segmental (embryo with PCL size 45.0 mm).

The mucous membrane of the main bronchi contains a relatively large number of smooth muscle cells. The height of the epithelial layer is 32-36 microns, the nuclei of its cells occupy mainly the apical position, and the protoplasmic part of the cells adjoins the basement membrane. As in the earlier stages of development, the bronchial tree is lined with high multilayered epithelium all the way. In the system of a pulmonary artery, its lobular, segmental and subsegmental branches are accurately recognized.

As a result, most of during this period, there is a further complication of branching of a bronchial tree owing to what epithelial tubules occupy a little bigger area of a anlage of the body than its mesenchymal part. The interlobular septa are much better expressed and are represented by a delicate fibrous connective tissue.

Komar T.V.

TOPOGRAPHIC AND ANATOMICAL FEATURES OF THE PERONEAL ARTERY IN 4-MONTH-OLD HUMAN FETUSES

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The study of the variant anatomy of the vessels of the lower extremities from the practical and theoretical point of view remains relevant and promising because the number of surgical procedures using methods of revascularization of soft tissue defects of the lower leg has recently increased. Significant importance is attached to the development of new types of transplants in the area of the branch of the peroneal artery.

The study aimed to determine the topographic and anatomical features of the peroneal artery in human fetuses at 4 months. The study was performed on 14 preparations of human fetuses 4 months 81.0-135.0 mm parietal-coccygeal length without external signs of anatomical malformation or abnormalities in the development of the lower extremities by macromicroscopic preparation and morphometry.

As a result of the study, we consider it appropriate to divide the trunk of the peroneal artery into three segments, as each of them has certain topographic and anatomical features. The first segment of the peroneal artery (proximal part) – is from the beginning to the passage of the trunk of the peroneal artery in the ankle-popliteal canal. The second segment (middle part) corresponds to the topography of the peroneal artery in the inferior muscular-peroneal canal. Moreover, the length of the second segment of the peroneal artery is directly proportional to the length of this canal. The third segment of the peroneal artery (distal part) is the segment of its trunk from the point of exit from the inferior muscular-peroneal canal to its branch to the terminal branches. Note that the length of the third segment of the peroneal artery in the studied fetuses varies, which is due to the level of branching of the peroneal artery to the terminal branches.

Variants of the topography of the proximal segment of the peroneal artery, one of the most common, are usually associated with the sources of its origin. It has been established that the peroneal artery can originate from three sources. The initial division of the posterior tibial artery, the posterior tibioperoneal trunk, or be a direct extension of the popliteal artery. In most of the studied fetuses, the peroneal artery departed from the posterior tibial artery, but there is no reason to consider it exclusively a branch of it.

Topographic and anatomical features of the second segment of the peroneal artery are determined by the number of branches that originate here and the possible variants of their anastomoses. Variants of the topography of the third segment of the peroneal artery are associated not only with the level of branching of its terminal branches but also with anastomoses between the distal parts of the posterior tibial artery and peroneal artery. Rare variants of doubling of the peroneal artery were found in fetuses of 95.0 and 110.0 mm of parietal-coccygeal length, and in both cases, the peroneal artery originated from the tibioperoneal trunk.

Data on the topographic and anatomical features of each segment of the peroneal artery will help clinicians to improve modern approaches to endovascular interventions.