CHARACTERISTICS OF PATHOMORPHOLOGICAL CHANGES IN THE LUNGS OF CHILDREN BORN WITH ESOPHAGUS ATRESION.

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Annotation. Severe preeclampsia has a negative impact on lung development in the second half of pregnancy, at 20-36 weeks. Sometimes abnormalities in the digestive, cardiovascular and other systems of the fetus also adversely affect the development of the lungs. The morphofunctional status of the lungs of infants born with esophageal atresia has been studied in medicine. The following changes were detected in the lungs during operative treatment of esophageal atresia in such infants: it can be seen that the lungs are in a state of formation, but the main component is a large accumulation of inflammatory cell infiltrates, consisting of lymphocytes . The lungs of infants who underwent operative treatment for esophageal atresia, stillbirths with esophageal anomalies, and newborns who died alive but aspirator pneumonia were comparable. morphological examination revealed that each case had its own unique features and symptoms. Respiratory diseases are the most common group of pathologies in childhood. Lung disease accounts for one in six deaths worldwide (1,5,10). At present, the problem of prevention and treatment of bronchopulmonary diseases in children, especially infants, remains topical. Following the normal development of the lungs in the fetus, their pathological formation is influenced by the following factors: acute polyhydramnios, diabetes mellitus, hyperthyroidism, and foci of chronic infection (2,5,7). Severe form of preeclampsia has a negative impact on lung development in the second half of pregnancy, at 20-36 weeks. Sometimes abnormalities of the fetal digestive, cardiovascular and other systems also adversely affect the development of the lungs (4,6,7). One of the important factors contributing to alveolar epithelial damage and the development of hyaline membrane disease (HMD) in preterm infants is intranatal hypoxia and amniotic fluid aspiration (2,3,6,8,9). Esophageal atresia and developmental disorders of the digestive system also directly affect the development of organs of the respiratory system. The aim of our study was to provide little information in the literature on morphofunctional changes in the lungs of newborns with esophageal atresia.

Key words. Pneumonia, atresia, lung, esophagus, trachea.

Research sources and methods. In the Samarkand Regional Research Center for Pediatric Surgery in 2015-2017 (64 cases) infants born with esophageal atresia and died of surgical treatment, infants born with esophageal anomalies and deaths with complications such as aspiration pneumonia infants were screened. All cases were autopsied in the Department of Pathological Anatomy of the 1st Clinic of SamMI. Of these, 42 were male (73.12%) and 22

were female (26.88%). age was 1–1.5 months. During the autopsy examination, we obtained tissue fragments from different areas of the lungs and different parts of the esophagus, as well as unaltered parts of these organs. Autopsy revealed the development of aspiration pneumonia in 12 cases in girls, 30 cases in boys, esophageal-tracheal fistula (leakage) in 10 cases in girls and 12 cases in boys. In all cases, the leading causes of death were progressive respiratory and heart failure, aspiration pneumonia, mediastinitis, pleurisy, and pericarditis.

In all groups of observations, attention was paid to the selection of materials for research to the extent that they allow a complete assessment of the morphofunctional status of the bronchi, respiratory parts of large, medium and small caliber. To do this, the lungs of the fetus and the dead baby were examined in whole or in part. Attention was paid to obtaining 5-7 pieces of tissue from different parts of the lungs of slightly older fetuses and dead infants from different areas. We used a light microscope to analyze these samples. Lung tissue fragments were treated with Buen's fluid and solidified. We took the frozen pieces in 3-4 parts, washed them in 800 alcohol, dehydrated them and then waxed them. From each block, we prepared 6-8 steps, 10 μm thick, 60-80 μm apart, and stained with hematoxylin-eosin dye. We also did morphometric studies.

Research results. Macroscopic examination of the lungs of infants who underwent esophageal atresia surgery revealed a small amount of serous fluid in the large-caliber bronchial cavity, both lungs were full, pale pink, and filled with air. On microscopic examination, the mucous membrane of the respiratory bronchioles is covered with prismatic epithelium. Epithelial cells of some areas are desquamated, subcutaneous blood vessels are full, hypersecretion of mucous glands, myocytes are swollen, sparsely formed connective tissue fibers are fibrous and inflammatory cell infiltrates accumulate. These inflammatory cell infiltrates are composed of lymphocytes. , monocytes, fibroblasts, plasmoblasts, and segmented nuclear neutrophils.

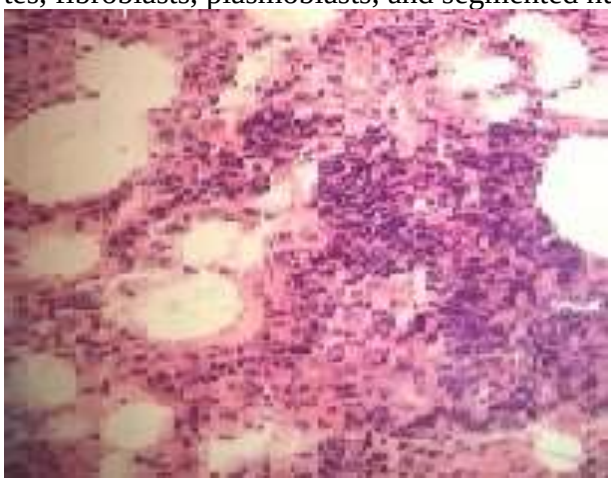

Figure 1. Infiltration of lymphocytes, plasma cells, and macrophages in the lungs of an infant who died of esophageal atresia (postoperative condition). Stained with hematoxylin-eosin, ob. 40, ok. 10.

Small amounts of lymphohistiocytic infiltrates are detected in the muscle layer of the terminal bronchioles. Microscopic examination of the lungs of infants shows that they have a canalicular structure. The alveoli are covered with flat and cuboidal epithelium. A small amount of clear fluid, fibrin fibers and macrophages are found in the alveolar cavity. Lymphocytes and fibroblasts accumulate in the walls of the aerohematic barrier, and in the capillaries appear fullness and hemostasis. Transudate is detected in the alveolar cavity and aerogematic barriers due to increased permeability of capillary endothelial cells. substance, migrating mucous

membranes and amniotic fluid, meconium residues are detected. The lung parenchyma is dark brown, airless, gives a positive result when tested with water, has a soft-elastic consistency when cut. On microscopic examination, the bronchial mucosa is covered with prismatic epithelium, and in most areas desquamation encountered, prismatic epithelial cells appear to be attached to the lashes and covered with an adhesive substance. The mucous membrane is sparsely formed connective tissue, myocytes are swollen, covered with lymphocytes, plasmoblasts, monocytes and fibroblasts. In small blood vessels we can see fullness and hemostasis. Uncle fibrosis and the adventitial layers are unchanged. The small and terminal bronchial cavities are covered with a mucous mass. Microscopically, most of the cubic epithelial cells are found to be desquamated in the mucosa. The alveoli of most segments of the lung are not open.

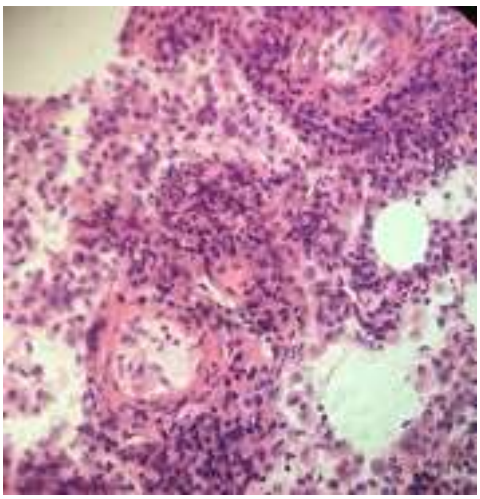

Figure 2. Infiltration of lymphocytes, plasma cells, and macrophages in the lungs of an infant who died of esophageal atresia (postoperative condition). At the same time sclerotic changes of terminal bronchioles are revealed. Stained with hematoxylin-eosin, ob. 40, ok. 10.

During fetal development, most alveocytes have uncorrected, displaced, airless, distillate areas. The alveolar barrier is thickened; infiltration of lymphocytes, monocytes, as well as hemosiderin granules are noted. an increase in the number of endothelial cells in the blood vessels, thickening of the middle membrane and the outer wall of the walls, stasis in the blood vessels were noted. The alveoli are covered with cubic and flat epithelium. In some cases, the lungs have a structure typical of the alveolar stage, the alveolar compartments are wide, the general capillaries of the lungs are not formed, the endothelium of the capillaries is swollen.

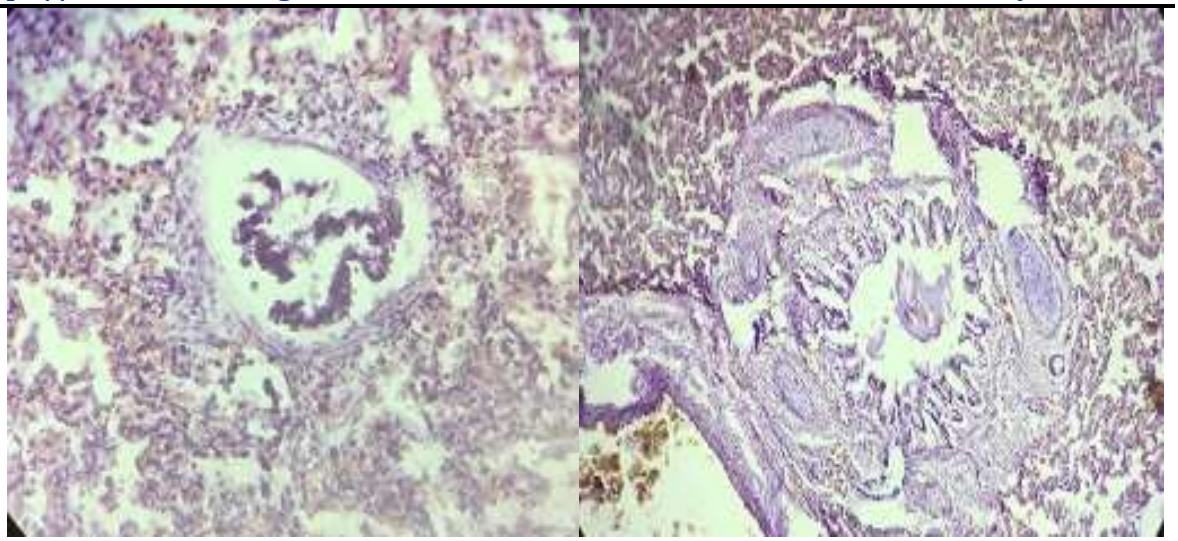

Figure 3. In the lungs of a stillborn baby, desquamative changes in the terminal bronchioles, accumulation of aspiration fluid in the lungs, and autolysis of the lung parenchyma can be seen. Stained with hematoxylin-eosin, ob. 40, ok. 10.

In premature infants (1000-1200 g) the alveoli are small in size and covered with a cubic epithelium. The walls of the alveolar barrier are wide, and the network of capillaries in them is not located directly under the epithelium in all areas. Insufficient development of elastic fibers in interstitial tissues.

Lung tissue in the state of atelectasis appears to be partially flattened in some places.

Conclusion. Histological examination of the internal organs of infants who underwent surgery for respiratory pathology and esophageal atresia revealed that the morphological structure of the lungs was preserved. However, the morphological picture was found to be polymorphic, which in turn indicates the depth of the changes in the lungs: exudate and fibrin, segmented leukocytes in the cavity of the deformed bronchi and alveoli in a number of dead infants fallen alveocytes, fragmented and whole erythrocytes, hemosiderin granules were detected. The walls of the bronchioles are often intact, the cavity of the preserved terminal bronchioles contains dense exudate, numerous segmented nuclear leukocytes, migrated bronchiolar epithelial elements. In the peribronchial areas and in the walls of the alveolar barrier, a large number of tumors, mixed cell infiltrates: segmented leukocytes, macrophages and lymphocytes were identified. and depending on the course.

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