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PATHOMORPHOLOGY OF CHONDROMATOUS HOMARTOMA OF THE LUNGS

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RESUME

This article provides information on the incidence, localization and pathomorphology of pulmonary chondromatous hamartoma. As a material Republican Pathological Anatomy Center of the Ministry of Health of the Republic of Uzbekistan biopsy diagnosis in the room during the last 10 from inspection won 24 hamartomas from biopsies condition separate receive. It was found that 13.4% of chondromatous hamartomas of the respiratory system were located in the walls of large bronchi, 56.2% in the front segments of the lungs, and the rest in the back cells of the lungs (30.2%). It was found that the hamartoma developed in the wall of the large bronchi consists of multifocal and irregularly located chondromatous tissue nodules, and around them, the soft tissues of the bronchial wall and the mucous membrane have grown in a disregenerative manner. It was observed that in the hamartoma developed from the bronchi in the lung tissue, chondromatous foci appeared both in the wall of the bronchi and in the alveolar tissue.

KEY WORDS : *lung, bronchus, alveolar tissue, hamartoma, chondromatosis, pathomorphology*

RELEVANCE OF THE TOPIC

Chondromatous hamartoma of the respiratory system was first recorded in 1845 by the German doctor German Lebert. Later, the macroscopic and microscopic changes of this tumor were described by Rudolph Virchow in 1863, in 1903 by A.I. Abrikosov described. Eugene Albrecht, a Nemetz pathologist, was the first to use the term "hamartoma" in 1904 when analyzing cases of organ and tissue dysembryoplasia. Today, due to the widespread practice of thoracic surgery, the detection of pulmonary hamartoma has increased[1,2,3,4]. Today, hamartomas, which are benign tumors of various organs, account for 60-64% of all benign tumors. Chondromatous hamartoma of the respiratory system is detected in 20 percent of cases, of which 2-4 times more women than men have been confirmed. Endobronchial hamartoma of large bronchi is more common, peripheral hamartoma of the lung is 3 times more common in the anterior segments than in the posterior segments.

A hamartoma actually results from the abnormal proliferation of a single mutated cell in a local tissue. A hamartoma is a benign, slow-growing tumor that proceeds by the spontaneous reproduction of certain mutated cells. Hamartoma occurs in the embryonic period due to a violation of the development of core tissues. Often, hamartoma develops from mesenchymal tissue, with a mixture of fat, fibrosis, fat and blood vessels growing together [5,6,7]. Chondromatous hamartoma of the lung can often develop from a hyaline tumor and in some cases from an elastic tumor, around which fibrous connective tissue, fat and myxoid tissue grows and surrounds it. Sometimes, smooth muscle cells, lymphoid cells can increase [8,9]. Gaps appear between the pieces of chondromatous tissue and can turn into a cyst.

The purpose of this research is to analyze the level, location, and morphological types of chondromatous hamartoma of the respiratory system.

MATERIAL AND METHODS USED

On the way to Maysad, chondromatous hamartomas of the lungs, which have been examined for the last 10 years in the Department of Biopsy Diagnostics of Republican Pathological Anatomy Center of the Ministry of Health of the Republic of Uzbekistan, were isolated. As a result of the clinical-morphological analysis, it was found that lung hamartomas were found in 24 cases in total, 79.2% (19) of them were found in women and the rest in men. It was found that the age of women with hamartoma is more than 25 years, the average is 48 years. According to location of hamartoma, it was observed that 13.4% of hamartomas were located in the wall of the bronchial tubes, 56.2% were located in the front segments of the lungs, and the rest were located in the rear segments of the lungs (30.2%). It was confirmed that lung hamartomas macroscopically look like a nodule with an average size of 3-4 cm, with a smooth outer surface, and in some cases, a lumpy structure. The 1.5x1.5 cm slices obtained from these hamartomas were fixed in a 10% solution of formalin prepared in phosphate buffer for 72 hours. Then, they were washed in running water, dehydrated in

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alcohols of increasing concentration, and embedded in paraffin with wax, and blocks were prepared. Histological sections with a thickness of 5-7 μm were taken from paraffin blocks and stained with hematoxylin and eosin dyes. The preparations were studied under a light microscope, and the necessary areas were photographed.

RESEARCH RESULTS AND THEIR DISCUSSION

The results of the microscopic examination showed that the hamartoma grown from the large bronchi was observed to be located in the endobronchial tissue structures of the bronchi. In this case, it is determined that the nodules of the chondromatous tissue of the hamartoma, which have changed in the bronchial wall, have an atypical structure, and only morphologically, the chondromatous tissue structures are composed of one, two, and many chondrocyte cells that are randomly located and are randomly located (Fig. 1). It is observed that the cytoplasm of chondrocyte cells is strongly vacuolated. Around abnormally shaped chondromatous tissue structures, it was found that smooth muscle cells characteristic of bronchial wall tissue structures, unformed connective tissue tufts, single-layer prismatic epithelium covering the mucous membrane of bronchial tubes grew. Therefore, it is determined that between the pieces of chondromatous tissue, cavities and cystic structures have appeared between the bundles of soft tissue of the bronchial wall. In the adjacent areas of chondromatous tissue nodules, it is observed that fibrocytes and fibroblasts, which have turned into stem cells and metaplasia, are surrounded in an elongated shape (Fig. 2). These fibrocytic tissue structures are found to form thin and sparse fibrous tissue in association with surrounding connective, adipose tissue. It is determined that the chondromatous hamartoma tissue developed in and around the wall of large bronchi consists of chondromatous structures of different sizes and different shapes. In most cases, it is observed that fibrous fibrous tissue grows around oblong chondromatous nodules, and myxomatosis and fat tissue grow and occupy large areas around them. Among these tissues, there are areas of myxomatous tissue that have turned into adipose tissue and, conversely, areas of adipose tissue that have turned into myxomatous tissue.\

Microscopic examination of the chondromatous hamartoma developed in the wall of the relatively small bronchi within the lung tissue revealed that the chondromatous tumor tissue formed nodules of various sizes in both the wall of the bronchioles and the alveolar tissue. It is observed that in these chondromatous tissue nodules, stem cells are randomly located and have various levels of cell concentration. Around these nodules of chondromatous tissue, pulmonary alveolar tissue is found to be morphofunctionally dense, forming airless tufts. In some places, it is observed that the alveolar tissue is concentrated and gathered in one place, forming a nodular structure, and in this focus, fibrocytes and fibroblasts of the connective tissue metaplasia into chondrocyte cells (Fig. 3). Rough fibrous connective tissue and fat cells are also found to grow around these tissue structures.

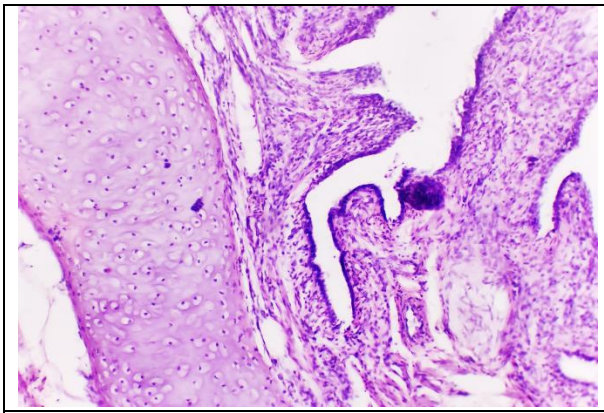

Figure 1. Chondromatous hamartoma of the wall of large bronchi, chondromatous tissue of various forms surrounded by soft tissues characteristic of the bronchial wall. Paint: G-E. Floor: 10x10.

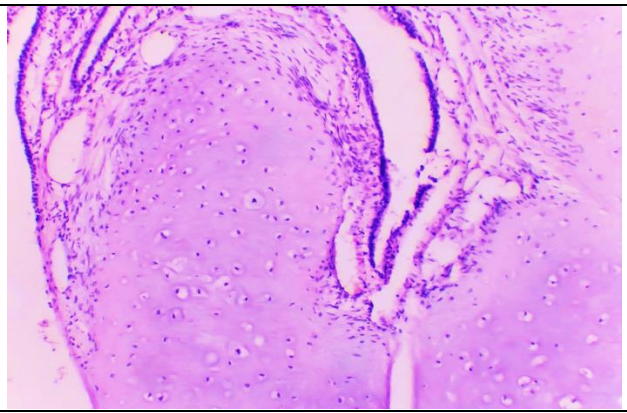

Figure 2. The chondromatous tissue of hamartoma is immediately surrounded by metaplastic fibromatous cells and sparse connective tissue. Paint: G-E. Floor: 10x40.

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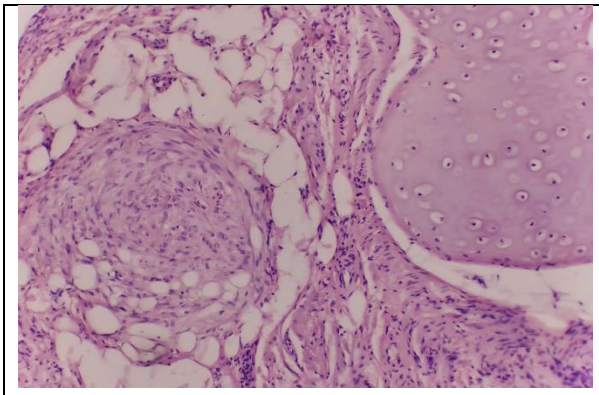

Figure 3. Chondromatous hamartoma around the bronchioles within the lung tissue, with irregular placement of alveolar tissue and metaplasia into chondromatous tissue. Paint: G-E. Floor: 10x10.

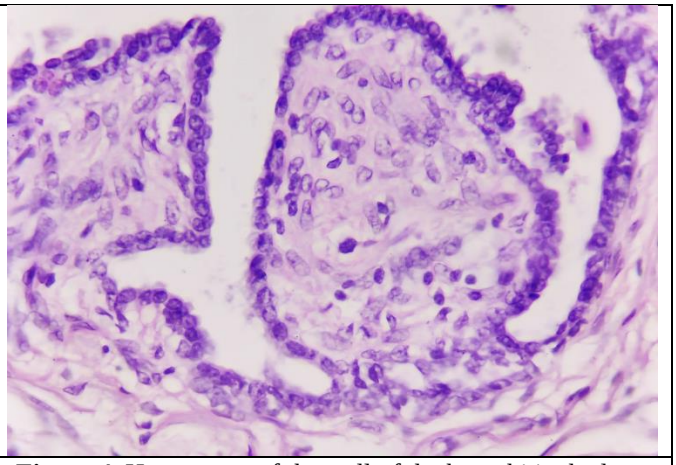

Figure 4. Hamartoma of the wall of the bronchi in the lung tissue, the appearance of suckers in the mucous membrane of the bronchi. Paint: G-E. Floor: 10x40.

It is determined that dysregenerative changes have developed in parallel in the soft tissue of the bronchial wall and the mucous membrane around the chondromatous hamartoma, which grew from the wall of the bronchioles in the lung tissue. In this case, it is observed that the nuclei of the cylindrical epithelial cells covering the mucous membrane of the bronchi become larger, the size of the cytoplasm decreases, and it becomes prismatic. A private plate of unformed connective tissue under the covering epithelium is found to grow, forming papillae of all sizes and shapes (Fig. 4) and containing young connective tissue cells and lymphoid cells. In the submucosa layer, it is determined that the fibrous tissue, the fibers of which have formed coarse tufts, and fat cells have also appeared among them.

It is determined that other mesenchymal tissues have grown simultaneously in and around the chondromatous hamartoma developed in the lung tissue. In particular, it is determined that formed and unformed connective tissue, fat tissue, myxomatous tissue and blood vessels grow from mesenchymal tissue. It was found that more myxomatous tissue grew around the hamartoma within the lung tissue we studied. It was observed that this myxomatous tissue grew in the bronchial wall, between the lung segments and in the alveolar tissue, and the presence of myxomatous tissue foci consisting of round foci of various sizes and scattered tissue tufts. Myxomatous tissue is found to consist of a histotopographically arranged, stellate-shaped reticular tissue surrounded by areas of edema and myxomatosis (Figure 5). In the center of myxomatous tissue nodules, it is determined that myxoid cells metaplasia into chondrocyte cells.

When the chondromatous hamartoma tissue was studied under a microscope, the following information was revealed, that is, in the structure of the chondromatous tumor tissue, the tumor cells are normally arranged in pairs, while in the tumor tissue, individual chondrocytes were randomly located. The nuclei of these chondrocytes are irregularly shaped, and the cytoplasm is found to be highly swollen . It is determined that chondrocytes are relatively small and densely located in the peripheral parts of chondromatous tendon tissue, and adjacent to them, elongated fibrocytes and fibroblasts are densely located. In another case, it is observed that poorly developed chondrocytes are densely and randomly located in the peripheral parts of chondromatous ankle tissue, and some of them have become dense with each other and become multinucleated giant cells (Fig. 6). It is determined that the nuclei of giant cells are elongated and densely located. It is observed that they are surrounded by bundles of coarse fibrous connective tissue. If the chondromatous tissue in the chondromatous hamartoma is well-differentiated, it is determined that it is surrounded by dense fibrous fibrous tissue and blood vessels. The presence of hyperchromic connective tissue cells and lymphoid cells in the fibrous tissue is determined. It is observed that blood vessels consist of thin-walled veins.

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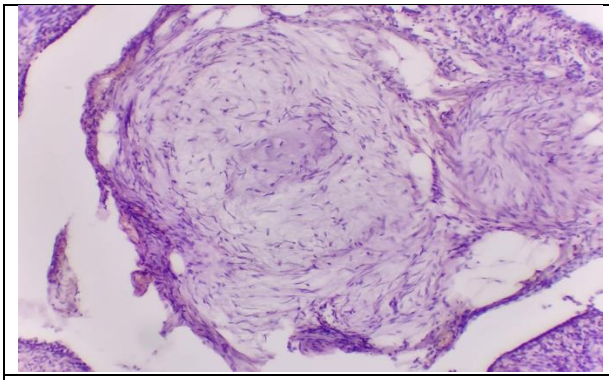

Figure 5. Foci of myxomatous tissue around intrapulmonary hamartoma. Paint: G-E. Floor: 10x40.

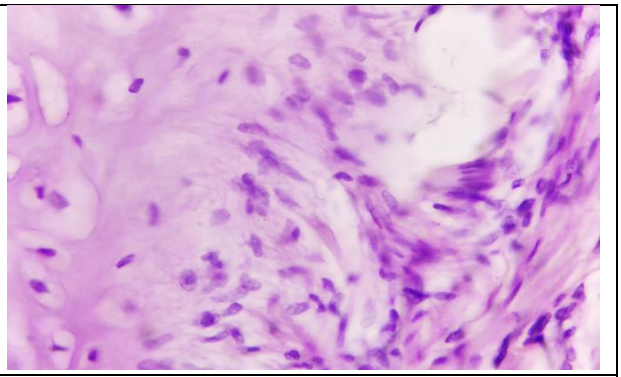

Figure 6. Placement of young chondrocytes and appearance of multinucleated giant cells in the peripheral parts of chondromatous tissue of hamartoma. Paint: G-E. Floor: 10x40.

CONCLUSIONS

It was found that 13.4% of chondromatous hamartomas of the respiratory system were located in the walls of large bronchi, 56.2% in the front segments of the lungs, and the rest in the back cells of the lungs (30.2%).

It was found that the hamartoma developed in the wall of the large bronchi consists of multifocal and irregularly located chondromatous tissue nodules, and around them, the soft tissues of the bronchial wall and the mucous membrane have grown in a disregenerative manner.

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