Pulmonary hamartoma mimicking lung tuberculoma in tuberculosis patient – a case report

Hamartoma płuc diagnozowana jako gruźliczak u chorego z gruźlicą płuc – opis przypadku

Paweł Krawczyk1, Kamila Wojas-Krawczyk1, Elżbieta Czekajska-Chehab2, Robert Kieszko1, Małgorzata Zdunek3, Marek Sawicki4, Janusz Milanowski1,5

1Department of Pneumonology, Oncology and Allergology Medical University of Lublin, Poland
2Department of Clinical Radiology Medical University of Lublin, Poland
3Department of Clinical Pathomorphology Medical University of Lublin, Poland
4Department of Thoracic Surgery Medical University of Lublin, Poland
5Institute of Agriculture Medicine Lublin, Poland

Abstract

Pulmonary hamartomas are benign tumors, which represent abnormal mixture of fibrous connective tissue, hyaline cartilage, fat and bone as well as bronchial epithelial cells. Differential diagnosis of tuberculoma, malignant neoplasms and hamartoma is necessary. We present the tuberculosis patient with pulmonary hamartoma mimicking lung tuberculoma. The uncorrected diagnosis of tuberculoma was made based on symptoms and CT imaging. However, histopathologic analysis of surgically enucleated tumor confirmed non-infectious origin of the lesion (hamartoma with hyaline cartilage predominance).

Key words: pulmonary hamartoma, tuberculoma, tuberculosis.

Case report

A 54-year-old male patient presented with a round, smooth, well-defined, 2.5 cm in diameter lesion, with calcification, located on the apex of the left lung in clavicle "shadow" (Fig. 1A). In the initial diagnosis, the X-ray in oblique projection of lung apex was done for the differentiation from clavicle osteosclerosis (Fig. 1B). Hemoptysis was an individual symptom of the disease. Positive tuberculin test was 30 mm in diameter but Mycobacterium tuberculosis was not detected in microscopic slides as well as in standard culture. Bronchofiberscopy examination and histopathologic examination of material from intrabronchial biopsy revealed chronic bronchitis. Family history of tuberculosis occurrence was negative but the tuberculosis was diagnosed and successfully treated when patient was 5 years old.

A computed tomography scan of left lung apex showed well-limited, irregular tumor (26 × 23 mm) with characteristic...
Pulmonary hamartoma mimicking lung tuberculoma in tuberculosis patient – a case report

Popcorn pattern of calcification (Fig. 2A, 2B). Density of the lesion ranged between –1 UH (small area) to 1354 UH (calcification). Inferior lobe of the left lung showed reduced volume with the presence of calcified tumor covered by fibrosis (14 × 11 mm) (Fig. 3A). This change corresponded to non-active tuberculosis. Moreover, several micronodular, intralobular changes encircled by grand glass opacities and expressing “the tree-in-bud” sign were found in inferior lobe of left lung (Fig. 3B). These lesions have been interpreted as bronchogenic tuberculosis dissemination.

Based on symptoms and CT imaging, tuberculosis and suspicion of tuberculoma was diagnosed. Patient started treatment with standard dose of rifampicin, isoniazid and pyrazinamide. In the antituberculotic drug cover, the patient was qualified to surgical resection of lesion. The tumor was enucleated. On pathologic examination the resected lesion measured 20 × 15 mm and a cut surface revealed gray and compact tissue. Surprisingly, the microscopic examination showed tumor which composed of mature hyaline cartilage. Based on these findings, pulmonary hamartoma was diagnosed and antituberculotic treatment was continued what resulted in disappearance of changes visible on X-ray.

Comment

90% of pulmonary hamartomas are located peripherally with only occasional lesions being central or endobronchial in location [4]. Parenchymal hamartoma consists of fibrous...
connective tissue, hyaline cartilage, fat and bone as well as bronchial epithelial cells arranged in disorganized fashion. Hamartomas are rarely symptomatic but in some cases are associated with hemoptysis and cough. The characteristic radiographic features of hamartoma are presence of popcorn-like calcification (seen in 10-15% of patients) but this is not diagnostic since calcifications may appear in tuberculosis as well. Therefore, differential diagnosis of tuberculosis and hamartoma is necessary, what our case report confirms [3, 5, 6]. Histopathological analysis of material from transthoracic needle aspiration biopsy (less than 85% of cases), transbronchial biopsy or surgical resection confirmed diagnosis of hamartoma [6]. Moreover, pulmonary hamartoma in our patient was predominantly cartilaginous, which only occurs in 1% of hamartomas [7]. Interestingly, there are reports that several pulmonary chondroid hamartomas had chromosome rearrangements involving the chromosomal regions 12p15 and 6p21. These regions include \textit{HMGIC} and \textit{HMG(Y)} genes, that encode DNA-binding proteins with both chromatin structural and gene regulatory roles [8, 9].

Tuberculoma is an uncommon manifestation of tuberculosis. Similarly to hamartoma, X-ray examination typically showed a well-margined round or sometimes oval opacity typically in the upper lobes. As necrosis and chronic disease occurs, calcification may be observed in the centre of tuberculosis. Generally the calcification is central but occasionally may involve most of the visible lesion. These lesions are generally stable for long periods of time demonstrating only slow growth over a period of several months or years. Cavitation is extremely rare within tuberculomas [10].

The relation between origin of tumor in lung apex and development of tuberculosis seems to be obvious, due to diagnosis of tuberculosis in our patient. In our study, we presented for the first time the pulmonary hamartoma coexisting with tuberculosis.

In the majority of hamartoma patients, the tumor is removed by wedge resection or enucleation and patients require no further treatment. However, in our patient further antituberculous treatment was necessary.

References