

A 37-Year-Old Asymptomatic Male Case of Mass Lesion in the Right Upper Zone detected on Chest x-Ray: What is your Diagnosis?

Fatih Alaşan¹, Elif Nisa Ünlü², Ali Nihat Annakkaya¹

¹Department of Chest Diseases, Düzce University Faculty of Medicine, Düzce

²Department of Radiology, Düzce University Faculty of Medicine, Düzce

A 34-year-old male patient was admitted to our polyclinic after detecting anomalous findings on chest radiography that was taken at his workplace as a control. The patient who was asymptomatic had no known chronic diseases. He worked in various factories that produce polyester from fiberglass. An anamnesis of 15 packs of cigarettes per year was present, and he was still an active smoker. In his physical examination, inspection was natural and secretory rough rales were heard in the right infrascapular region. His pulmonary function tests were within normal ranges. No pathological findings were detected in his routine blood tests. In his background, he reported that he survived a horse-drawn vehicle accident at age 5, in which the wheel of the vehicle went over his abdominal region and he therefore underwent a liver operation. No history of tuberculosis or of contact with tuberculosis was present. The tuberculin skin test was measured as 14 millimeters. On his chest radiography, in the right lung upper zone, in the subclavicular area, a parahilar mass with a diameter of 3–4 cm with smooth margins and lobulation was observed (Figure 1). Because a hyperlucent area surrounding the mass stood out, an expiration film was performed. On the expiratory radiography, the area surrounding the mass with local hyperinflation was monitored more carefully (Figure 2).

For the case that had various occupational exposures and cigarette anamnesis, local air trapping secondary to bronchial obstruction was suspected and a contrast-enhanced computed tomography was performed, revealing in the right upper lobe anterior, a lesion that appeared to be a mass and peripheral local air trapping in the anterior of this lesion (Figure 3). Thus, examinations were continued with the decision of bronchoscopy.

In the video-bronchoscopic examination, no anomaly was found, except that the right upper lobe anterior segment entry was atretic (Figure 4).



Figure 1. A 3-4 cm mass opacity with parahilar localization and smooth and lobulated margins in the region below the clavicle in the right lung upper zone



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Address for correspondence
Ali Nihat Annakkaya, Department of Chest
Diseases, Düzce University Faculty of Medicine,
Düzce, Turkey
E-mail: annakkaya@gmail.com



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Figure 2. In expiratory radiography, the increased local ventilation region was monitored more carefully



Figure 3. In the anterior region of the right upper lobe, peripheral local air trapping in the anterior region of the lesion and dilated bronchus that is full of mucus and in the appearance of mass was observed



Figure 4. Open apical and posterior regions of the right upper lobe and atretic entry of the anterior segment

What is your diagnosis in this case?

Congenital bronchial atresia

The nodules and masses seen on chest radiography should be evaluated in terms of malignancy risk, even if the patient is asymptomatic. In the young/middle-aged patient, in addition to smoking history, the existence of certain occupational exposures increases the risk of early lung cancer. The patient did not present symptoms of coughing, dyspnea, or hemoptysis. However, the local air trapping findings seen on the chest radiography led the suspicion of an endobronchial lesion that caused the check-valve mechanism. At this stage, it is an important option to compare, if possible, with old chest radiographies. When the chest computed tomography (CT) image is interpreted along with the atretic appearance of the orifice of the right upper lobe anterior segment determined by bronchoscopy, the appearance of the mass in this case is thought to belong to the dilated bronchus filled with mucus. Along with the local air trapping peripheral to the lesion, the findings on CT was typical for congenital bronchial atresia.

Bronchial atresia is characterized by the interruption, and blindly ending, of lobar, segmental, or subsegmental bronchia. It is accompanied by peripheral mucus impaction (bronchocel, mucosal) and hyperinflation in the obstructed lung segment and is a congenital anomaly, first identified in 1953 (1).

It is most commonly observed in the left upper lobe apicoposterior segment bronchus. This is followed by right upper, middle, and lower lobe segmental bronchia (2, 3). It is usually asymptomatic and is incidentally detected. When it is symptomatic, clinical findings vary in a wide spectrum, from mild dyspnea and wheezing to recurring pulmonary infections. The diagnosis is established, on average, near age 17 and occurs more commonly in men (4).

A typical radiographic image of bronchial atresia shows tubular or nodular opacity extending from the hilus to hyperlucen parenchyma and displaying branches. Mucus impactions can form the finger-in-glove sign. CT is a more sensitive method for diagnosis and it is diagnostic when the findings are typical. The lesion can be shown to not be vascular on CT and MR, and vascular pathologies can be excluded (5, 6).

Differential diagnosis includes diseases such as allergic bronchopulmonary aspergillosis or cystic fibrosis in which mucus impaction can be seen as well as bronchocel, congenital lobar emphysema, congenital cystic adenomatoid malformation, bronchogenic cyst, bronchopulmonary sequestration, and Swyer-James-Macleod syndrome that may cause the hyperlucent appearance of the relevant segment or lobe (4).

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