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A Case of Endobronchial Tuberculosis in Atypical Localization Mimicking Tumor in an Asymptomatic Patient

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Abstract

Tuberculosis is a disease that can be encountered clinically and radiologically in many different ways. With this feature, it can be confused with many diseases. Endobronchial tuberculosis is defined as a specific inflammation of the tracheobronchial tree caused by the tuberculosis bacillus. Endobronchial tuberculosis can mimic malignancy because of its bronchoscopic and radiological features very similar to bronchial neoplasms. In this article, the approaches followed in the diagnosis of an asymptomatic smoker patient with multifocal mass appearances in the lung were discussed. It was emphasized that endobronchial tuberculosis can mimic lung malignancy in bronchoscopic and radiological aspects and the importance of histopathological diagnosis in case of doubt.

Keywords: Endobronchial tuberculosis, malignancy, asymptomatic tuberculosis

Introduction

Tuberculosis is a disease that can show a wide variety of radiological involvement. It should be included in the differential diagnosis, especially in countries where tuberculosis is common. Endobronchial tuberculosis (ET) is tuberculosis of the tracheobronchial tree. In bronchoscopy and radiological imaging in cases accompanied by parenchymal involvement, tumor-like findings may be seen. In this report, we present an atypical localized ET case mimicking a tumor bronchoscopically and radiologically in an asymptomatic patient.

Case Presentation

Written informed consent was obtained from the patient for the case report. A 66-year-old female patient presented with dyspnea. There was no cough, sputum, chest pain, hemoptysis, and weight loss. She had hypertension for 15 years, diabetes mellitus for 12 years, and Graves' disease for 10 years. She was an active smoker (50 pack-years). She had been followed for 1 year for dyspnea due to left heart failure and type 2 pulmonary hypertension.

The patient's thorax computed tomography (CT) taken 9 months ago revealed bilateral multiple masses. It was learned that the patient did not apply to any chest clinic during this period. In thorax CT performed after hospitalization, in the anterior and apicoposterior segment of the left lung upper lobe, a mass consolidation area obliterating the bronchus and budding tree landscapes and acinar nodules evaluated in favor of endobronchial extension were observed. It is progressive compared to the examination dated November 2019. Some of the other mass lesions persisted, while some regressed (Figure 1 and Figure 2).

Treatment was started with ceftriaxone 1 g/day and clarithromycin 1 g/day. Rheumatologic markers and tumor markers were negative. C-reactive protein was 10.7 mg/L and erythrocyte sedimentation rate was 32 mm. HbA1c was 7.6% and she did not use her diabetic drug. In positron emission tomography (PET)-CT, standardized uptake value (SUV) of the lesion in the upper lobe of the left lung was 17.7, and multiple lymph nodes with the largest of 15 mm were detected in the mediastinum and SUV_{max} was 7.9.

In sputum microbiologic examination, acido-resistant bacilli (ARB) was found positive for 2 times, the standard antituberculosis treatment was started as isoniazid 300 mg/day, rifampicin 600 mg/day, ethambutol 1500 mg/day, and pyrazinamide 2000 mg/day. No drug-related adverse effect was observed.

Malignancy could not be ruled out because of the patient's smoking history, progressive lesions, and atypical localization for tuberculosis, and so bronchoscopy was planned. In bronchoscopy, edematous, hyperemic, ulcerated bronchial mucosa narrowing the entrance to the left upper lobe anterior segment was observed (Figure 3 and Figure 4). In the pathology of mucosal biopsy, focal squamous metaplasia and infiltration of mixed inflammatory cells, rich in lymphocytes, histiocytes, and dense neutrophils, were observed (Figure 5). Her treatment was continued with the diagnosis of endobronchial and parenchymal tuberculosis.

Discussion

Tuberculosis is a disease that can cause all kinds of radiological involvement in the lung. When presenting with the appearance of

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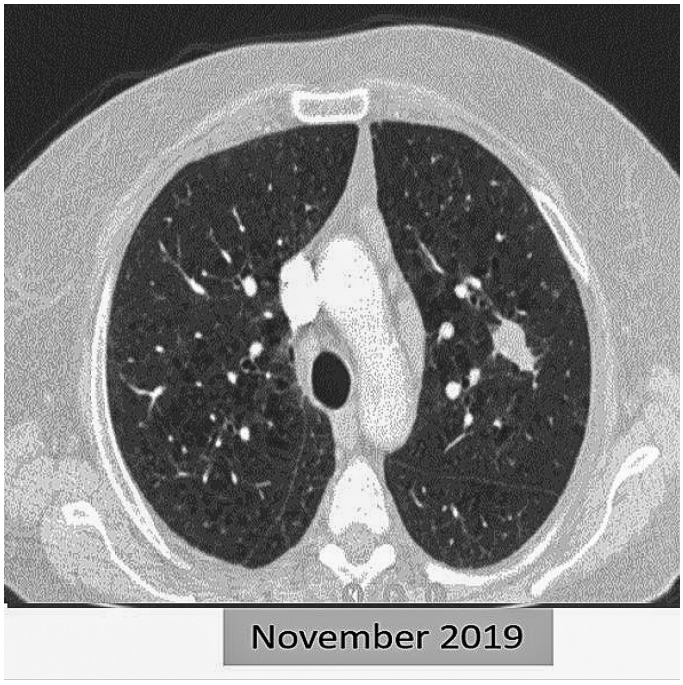

Figure 1. Thorax computed tomography images and first thorax computed tomography image.

a nodule or mass, it may show a similar course to lung malignancies radiologically and clinically.[1]

Endobronchial tuberculosis may show very similar features with bronchial neoplasms bronchoscopically and radiologically, and it is the pulmonary tuberculosis that most often mimics cancer.[2,3]

Endobronchial tuberculosis is defined as a specific inflammation of the tracheobronchial tree caused by the tuberculosis bacillus.[4] The exact pathogenesis of ET is not yet clear, and possible mechanisms include a direct extension from an adjacent parenchymal focus, implantation of organisms from infected sputum, hematogenous spread, lymph node erosion into the bronchus, and spread of infection via lymphatics.[5] It is more common in the female sex.[6] The incidence of endobronchial involvement among patients with active pulmonary tuberculosis has been

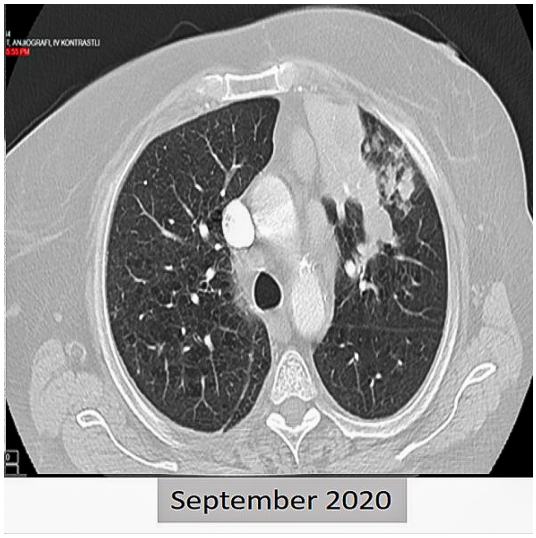

Figure 2. Positron emission tomography images and thorax computed tomography image at the time of diagnosis.

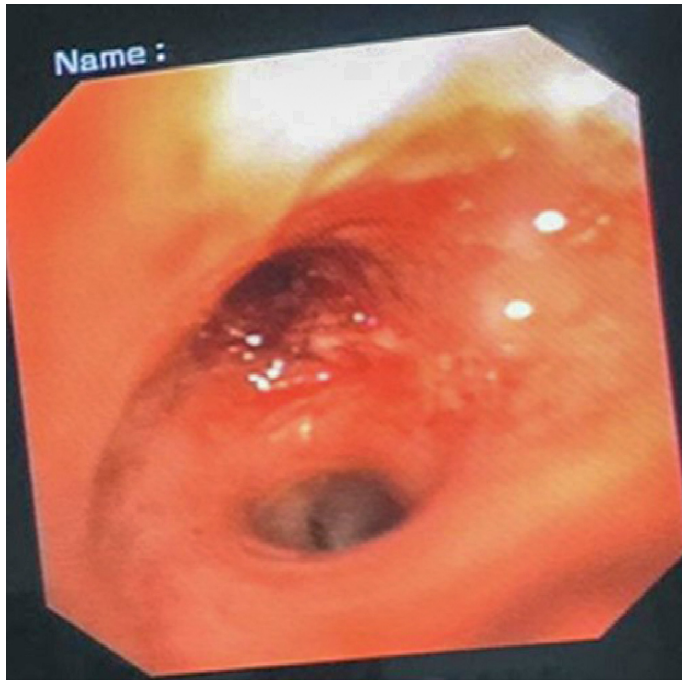

Figure 3. Bronchoscopic view of the endobronchial lesion.

reported at rates ranging from 5.88% to 38.8% in various studies.[6-8] Endobronchial tuberculosis is often symptomatic, and a dry and barking cough is the most common symptom,[8] but in our case, there was no symptom other than shortness of breath. The most serious and common complications of ET are bronchostenosis and permanent atelectasis.

Normal radiological image does not exclude ET.[7] The rates of ARB positivity have been reported between 16% and 53% in various studies.[8-10] Sputum ARBs were found to be positive in our case.

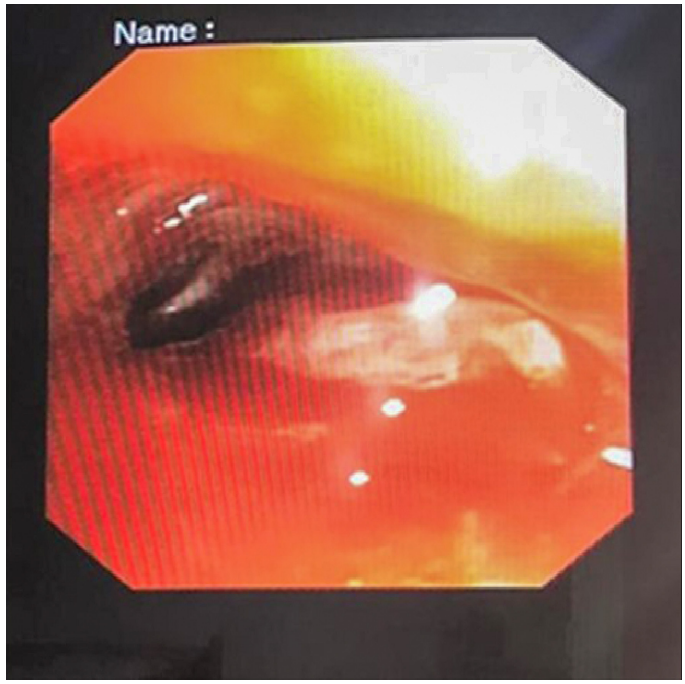

Figure 4. Histopathological image of biopsy and bronchoscopic view of endobronchial fragile lesion.

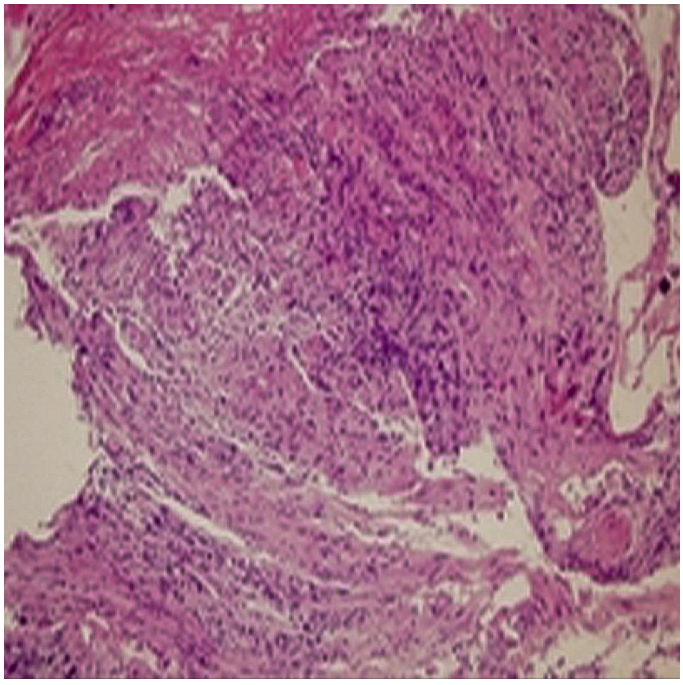

Figure 5. Histopathological image of biopsy.

In all infectious diseases including tuberculosis, SUV values in PET-CT can reach the malignancy level. In our case, there was no malignancy despite the high SUV value, and PET-CT did not contribute enough to the differential diagnosis. Fiberoptic bronchoscopy is indicated in patients in whom chest radiographs, physical examination findings, or symptoms suggest the possibility of ET and/or malignancy cannot be excluded.[11] Even if the diagnosis of tuberculosis is made by sputum ARB or culture, if there is a high suspicion of malignancy in radiological findings, bronchoscopy should be performed considering the possibility of tumor and tuberculosis coexistence.[12] Despite the diagnosis of tuberculosis in our case, malignancy could not be excluded due to smoking history and radiological progression, and bronchoscopy was performed.

If there is parenchymal involvement in ET, nodular or mass appearance can be detected. Postobstructive atelectasis can be seen radiologically. In bronchoscopy, it can be seen in different forms such as edematous hyperemic bronchial mucosa, covered with cheese-like material, fibrosis marked narrowing of the bronchial lumen, endobronchial mass, and ulcerated bronchial mucosa.[6,13] Postobstructive atelectasis, endobronchial lesion, mass, and nodules are findings that mimic lung cancer.[11] In these respects, it enters the differential diagnosis with centrally located and intrabronchial localized tumors, including carcinoid tumor, small cell carcinoma, and squamous cell carcinoma. In our case, there was a radiological mass image and atelectasis in the periphery, and edematous, hyperemic, ulcerated bronchial mucosa was observed in bronchoscopy.

The ordinary locations of pulmonary tuberculosis are the superior segments of the lower lobes and the apical and posterior segments of the upper lobes.[14] It may also develop in immunosuppressive, diabetic, and elderly individuals outside of these localizations. Our case was a diabetic case of tuberculosis with atypical localization.

Endobronchial tuberculosis can be seen alone or together with parenchymal involvement. It mimics malignancy due to its radiological findings such as postobstructive atelectasis and parenchymal mass and bronchoscopic findings such as endobronchial lesion. Tuberculosis should be considered in the differential diagnosis of all pulmonary diseases in countries where it is prevalent. It can be seen as atypically located multifocal foci of tuberculosis in diabetic and immunosuppressive patients. It should be kept in mind that especially ET can mimic lung malignancy bronchoscopically and radiologically. In the presence of suspicious findings, histopathological evaluation should be made considering the possibility of malignancy and tuberculosis association.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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