Atypical Presentation of Tuberculosis in Renal Failure: A Case Mimicking Lung Carcinoma

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Abstract

A 44–year-old patient with CRF, with findings indicating that TB can mimic any other disorder in chronic renal failure including bronchial carcinoma, is presented. The patient was admitted with fever of unknown origin. Chest X-ray revealed left hilar enlargement. Computerized tomography (CT) of the thorax confirmed a mediastinal mass surrounding the large vessels. Fiberoptic bronchoscopic findings suggested malignancy, but the histopathological diagnosis was TB. The mass showed regression with appropriate anti-TB therapy.

Chronic renal failure (CRF) is a condition that increases susceptibility to tuberculosis (TB) and predisposes to atypical presentations. Great caution must be observed in interpreting CT and bronchoscopic findings in patients with CRF.

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Introduction

The global tuberculosis (TB) burden is increasing worldwide especially in developing countries. One of the major strategies to lower this burden is early diagnosis. However, early diagnosis is sometimes difficult especially in atypical presentations of tuberculosis which may be associated with immunodeficiencies (1).
Chronic renal failure (CRF) is a condition which leads to impaired cellular and humoral immunity. Macrophage activity is reduced. As a result of the immunological impairment, these patients show an increased susceptibility to tuberculosis (2,3).
The roentgenographic presentation of pleuropulmonary TB in CRF is often atypical (4). In this report, we present a case of CRF with atypical presentation of TB that mimicked bronchial carcinoma.

Case Report

A 44-year-old male patient was admitted to the hospital with fever, dry cough, anorexia and weight loss. He had a smoking his-

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tory of 30 pack-year. He had been followed with a diagnosis of CRF for 10 years and had been on haemodialysis in the past 2 months.

On initial evaluation at our hospital, pyuria was noted and the origin of the fever was thought to be the urinary tract infection. Fever persisted despite adequate doses of quinolone therapy. On microscopic examination of the urine sediment, there were no acid resistant bacilli and no microorganisms were isolated in repeated blood, urine, throat and bone marrow cultures. In the meantime, left hilar enlargement was noted on the chest x-ray. Computerized thomography (CT) of the thorax revealed multiple mediastinal lymph nodes and a mediastinal mass surrounding the left upper lobe bronchus and aorta suggesting lung carcinoma (Figure 1).

Figure 1. *CT images revealing multiple mediastinal lymph nodes and a mediastinal mass surrounding the left upper lobe bronchus and aorta suggesting lung carcinoma.*

The patient underwent fiberoptic bronchoscopy (FOB). He had multiple fragile mucosal lesions in the left main bronchus and in the lingula. Mucosal biopsies and lavage material were taken. M. tuberculosis were not detected by microscopic examination of the bronchial lavage fluid, but examination of the mucosal biopsy specimens by BACTEC culture system and PCR method revealed several granuloma showing central caseous necrosis and giant cells consistent with a diagnosis of tuberculosis (Figure 2).

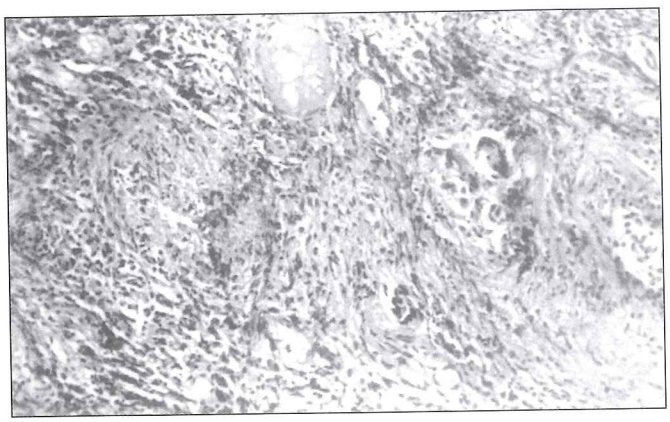

Figure 2. *Pathological image of granulomatous inflammation in the bronchial mucosa suggesting tuberculosis (Hematoxylin Eosin X 200).*

Figure 3. *Significant regression in the mediastinal mass in control thorax CT.*

The patient was started on antituberculosis therapy with isoniasid, rifampin, pyrazinamide and ethambutol in appropriate doses in view of his creatinine clearance results. The treatment resulted in a gradual relief of the symptoms. On the 40th day of the antituberculosis therapy, the fever had completely subsided and a thorax CT revealed 50% regression in the mediastinal mass (Figure 3). A transient transudative pleural effusion, noted in radiographs, was due to CRF.

Discussion

The incidence of pulmonary and extrapulmonary TB in renal failure is higher than that in the general population (5-7) and the diagnosis can be delayed by the insidious presentation of the disease. According to Öner-Eyüboğlu, et al, incidence of TB infection in CRF patients is 8.6%, which is 273 times higher than the average for the general population in Turkey (8). Tuberculosis is reported to be responsible for 0.5 to 1% of all deaths in patients on regular haemodialysis (5). Delayed treatment can result in increased morbidity and mortality.

Although radiography is a major diagnostic tool of pulmonary TB, it has its limitations, mainly due due to the variety of radiographic patterns encountered in TB patients. Atypical manifestations of the disease are observed in 20-22% of cases (9). Chest radiographs may be normal in some patients with endobronchial disease. Spontaneous pneumothorax and enlarged hilum are also among reported atypical radiographic findings (10). These atypical radiological appearances may lead to problems in diagnosis.

CT is a more sensitive method than chest X-ray in the detection and characterization of mediastinal disease (11). Hilar and mediastinal lymph node enlargement is commonly seen on High Resolution CT in patients with active TB. Nodes larger than 2 cm in diameter invariably showed central areas

of low attenuation on contrast enhanced CT, with peripheral rim enhancement. This finding is considered strongly suggestive of active TB.

In our patient, the mediastinal mass with lobulated contours surrounding the aorta and left main bronchus was of a heterogeneous density consistent with central necrosis that strongly suggsested malignancy. This radiological appearance was atypical for TB. The patient underwent FOB for histological diagnosis. FOB findings also suggested bronchial carcinoma. Biopsies were taken and the histological diagnosis, surprisingly, was consistent with TB.

Radiological and clinical response to antituberculosis therapy supported the histological diagnosis and once again showed the possibility of atypical radiological and clinical presentation of TB in CRF. Routine screening and monitoring for TB in chronic renal disease should be considered especially in countries with a high incidence of TB. It must also be kept in mind that TB can mimic any other disorder, and even bronchial carcinoma, in patients with chronic renal failure. Great caution is required in interpreting CT and bronchoscopic findings in patients with CRF.

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