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Case report

Bronchopleural and pleurocutaneous fistula in HIV patient with pulmonary tuberculosis

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ABSTRACT

We present a 37-year-old man intravenous drug user, with HIV/HCV/HBV co-infection, lymph node tuberculosis 10 years before (completed 12 months of treatment), and left lobar pneumonia 4 years earlier complicated by empyema (treated with left lower lobectomy with a persistent bronchopleural fistula) who was admitted to the emergency department with caseous-purulent drainage and exteriorization of air from an orifice in the chest wall. Acid-fast bacilli were identified in this drainage. A pleurocutaneous fistula was evident on the chest computed tomography scan. He was admitted to the Infectious Diseases Unit and started on antituberculous therapy with a favorable outcome.

Case report

A 37-year-old man presented to the Emergency Department with a two-week course of asthenia, weight loss, night sweats, dyspnea, left pleuritic chest pain, and cough with putrid sputum. The patient was HIV-positive for about 7 years (risk factor: intravenous drug use) and had started antiretroviral therapy but with poor therapeutic compliance. His medical history also included a hepatitis C and B virus co-infection, lymph node tuberculosis 10 years before (completed 12 months of treatment), and a left lobar pneumonia 4 years earlier, complicated by empyema (he underwent left lower lobectomy and had a persistent bronchopleural fistula).

On physical examination, he was cachectic with caseous-purulent drainage and exteriorization of air with cough effort from an orifice in the antero-lateral left chest wall (Fig. 1a and b). Acid-fast bacilli were identified in this drainage. Initial exams included hemogram (normocytic and normochromic anemia – hemoglobin 10.0 g/dl [13.0–18.0 g/dl]; lymphocytes in the lower limit of normal – 1.03×10^3/μl [1.0–4.8 $\times 10^3$/μl]; and thrombocytopenia – 123×10^3/μl [150–440 $\times 10^3$/μl]), electrolytes (normal values), hepatic enzymes (elevated aspartate aminotransferase – 80 U/L [4–33 U/L]), serum albumin (hypoalbuminemia – 1.8 g/dl [3.4–4.8 g/dl]), and coagulation tests (normal values). His HIV viral load had increased from < 20 copies/mL to 107409 copies/mL and his $CD4^+$ count had decreased from 591 cell/μl to 241 cell/μL. The chest radiograph showed bilateral infiltrates (Fig. 2) also evident on the chest computed tomography (CT) scan showing several bilateral cavitary lesions (Fig. 3) and a pleurocutaneous fistula extending from left pleural cavity to left anterolateral chest wall (Fig. 4). He was admitted to the Infectious Diseases Unit with the diagnosis of fistulized pulmonary tuberculosis, confirmed by visualization of acid-fast bacilli, positive polymerase chain reaction and cultures for *Mycobacterium tuberculosis* in the sputum. Was identified resistance to isoniazid and streptomycin on the culture sensitivity tests. The patient started on antituberculous therapy with rifampin, pyrazinamide and ethambutol and improved symptomatically with a favorable outcome. The discharge from the cutaneous site stopped after 7 days.

Discussion

Tuberculosis and HIV infection are strongly associated in HIV infected patients and are a major public health problem [1,2]. The pathogenesis involves $CD4^+$ T cell depletion and reduction of antigen-specific cytokines responses, resulting in an uncontrolled mycobacterium replication [1].

Fistulisation of the skin and the pleural cavity is poorly described. Clinically, the onset is insidious marked by a swelling with caseous-purulent drainage through a fistula [3].

In this case report the clinical suspicion of tuberculosis was high (two-week course of typical symptoms associated with caseous-purulent drainage from an orifice in the chest wall). The presence of alcohol resistant acid bacilli in the pus sample confirmed the diagnosis. The patient was HIV positive with poor therapeutic adherence and an increase in HIV viral load and a decrease in CD4 cell count were

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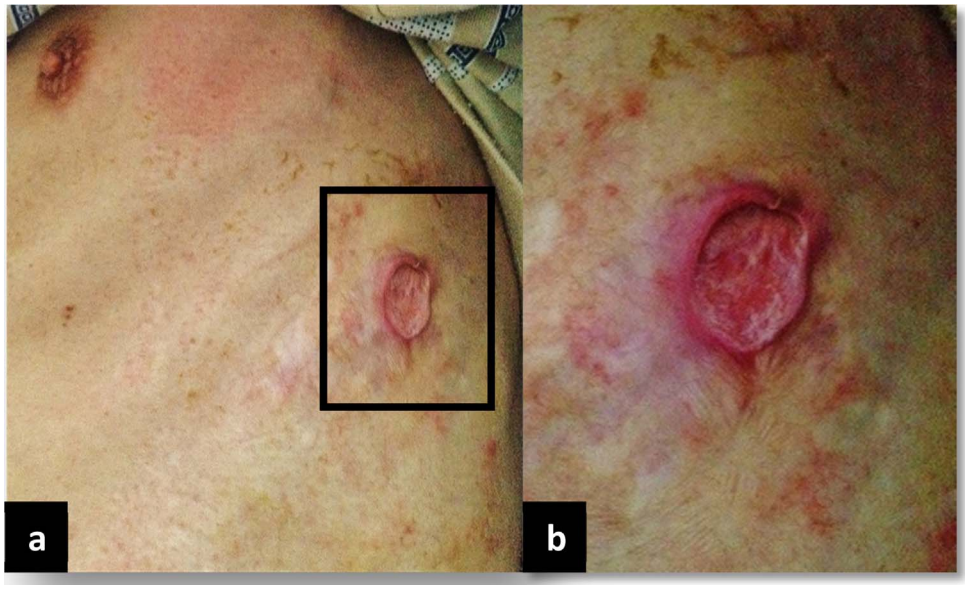

Fig. 1. (a and b): Fistulous orifice in the antero-lateral left chest wall.

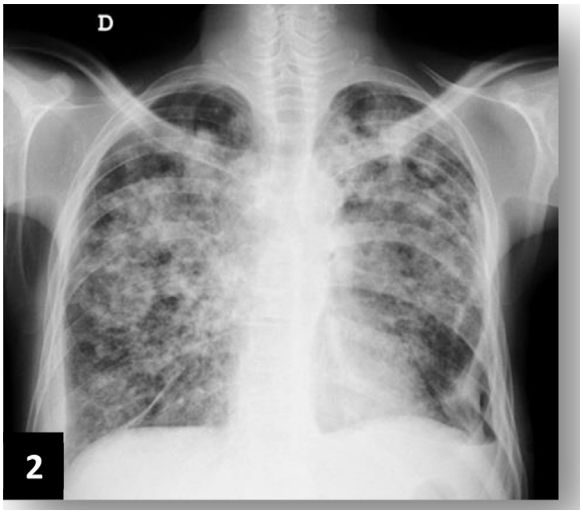

Fig. 2. Chest x-ray showing heterogeneous infiltrate with bilateral alveolar-nodular pattern.

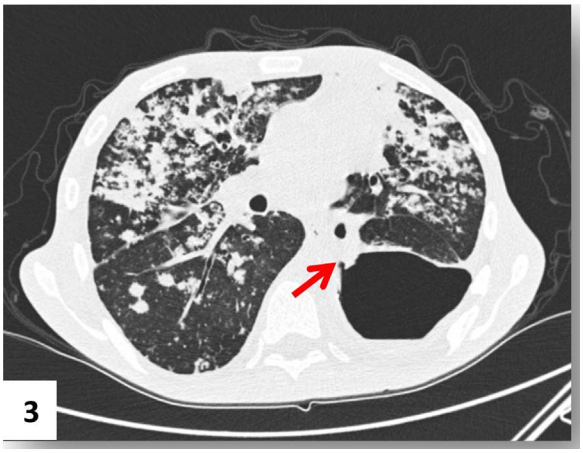

Fig. 3. Axial CT chest showing several bilateral cavitary lesions and communication of left lower lobe bronchus with loculated pneumothorax (arrow) suggestive of bronchopleural fistula.

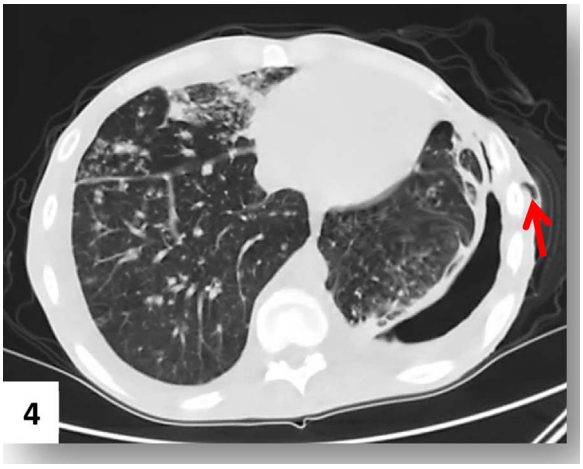

Fig. 4. Axial CT chest showing subcutaneous emphysema in a fistulous path (arrow) corresponding to the pleurocutaneous fistula extending from left pleural cavity to left anterolateral chest wall.

documented. The onset of tuberculosis coincided with the worsening of the patient's immune status.

Thoracic radiography plays a role in the initial evaluation, but chest CT scan allows better clarification and characterization of the lesions and possible complications. In this patient, it was possible to evaluate the bronchopleural fistula that was already known and characterize the location and extent of tuberculosis, identifying infiltrative areas with bilateral cavitary lesions, typical of pulmonary tuberculosis, as well as subcutaneous emphysema in a fistulous path corresponding to the pleurocutaneous fistula extending from left pleural cavity to left anterolateral chest wall.

The most common cause for bronchopleural fistula is postoperative following pulmonary resection [4] and pleurocutaneous fistula is most often related with infectious processes, neoplasm, or iatrogenic procedures like tube thoracostomy [5,6]. Bronchopleurocutaneous pulmonary tuberculosis fistula (double fistula) is rare [2] and one must be aware of this entity, so that proper and early diagnosis can be made (using CT scan) and appropriate management can be carried out. There is usually good prognosis with correct treatment, however morbimortality rate in HIV-patients remains elevated [3]. In this case report, antituberculous therapy allowed the closure of the fistula without the need of other therapeutic strategies.

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