

## CASE REPORT

# **Lymph node perforation into the airway in AIDS-associated tuberculosis**

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*Lymph node perforation into the airway in AIDS-associated tuberculosis. T. Alamé, P. Dierckx, S. Carlier, R. Sergysels. ©ERS Journals Ltd 1995.*

**ABSTRACT:** A 27 year old African woman infected with the human immunodeficiency virus (HIV) presented with pulmonary complaints. Her sputum smears were positive for acid-fast bacilli (AFB). Chest roentgenogram showed right mediastinal and hilar adenopathy with a right pulmonary infiltrate. At fiberoptic bronchoscopy, mucosal infiltration with perforation and presence of thick caseum was detected in the bronchus intermedius confirming the diagnosis of a perforated lymph node.

This case demonstrates that a more liberal indication of bronchoscopy helps in evaluating the impact of enlarged intrathoracic lymph nodes on neighbouring bronchi, leading to earlier detection of endobronchial tuberculosis in patients with the acquired immune deficiency syndrome (AIDS).

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Tuberculosis (TB) is a frequent disease in patients with human immunodeficiency virus (HIV) infection, but its clinical and radiographic features may differ from that of non-HIV-infected patients. Extrapulmonary TB is found in as many as 70% of HIV-infected patients. Hilar and mediastinal adenopathy, localized middle or lower infiltrates are the common radiographic manifestations of pulmonary TB in the HIV-infected patients [1]. Endobronchial tuberculosis (ETB) is rarely associated with HIV infection. A recent review of the medical literature found only four reports of such cases [2].

We describe a case of ETB in an acquired immune deficiency syndrome (AIDS) patient, in whom perforation of a caseous lymph node into the bronchus intermedius was detected at bronchoscopy.

### **Case Report**

A 27 year old Zairian woman presented with fever, productive cough and weight loss. She had abused drugs intravenously until 3 months before admission. On physical examination, rhonchi and wheezing were present over the right lower chest. Laboratory results included positive antibody to HIV by enzyme-linked immunosorbent assay (ELISA) and Western blot assay, and the CD4 lymphocyte count was  $77 \text{ cells} \times 10^9 \cdot \text{l}^{-1}$ . All three sputum smears yielded acid-fast bacilli (AFB). The posteroanterior chest roentgenogram revealed right mediastinal and hilar adenopathy and a right pulmonary infiltrate (fig. 1). Chest computed tomographic (CT) scan confirmed the presence of right paratracheal and hilar necrotic lymph

nodes, associated with upper middle and lower right infiltrate as well as consolidation of the apical segment of the right lower lobe (fig. 2).

At fiberoptic bronchoscopy, mucosal infiltration with erosion and presence of thick caseum highly suggestive of a ruptured tuberculous lymph node into the bronchus



Figure 1. – Chest roentgenogram showing right mediastinal and hilar adenopathy with right pulmonary infiltrate.

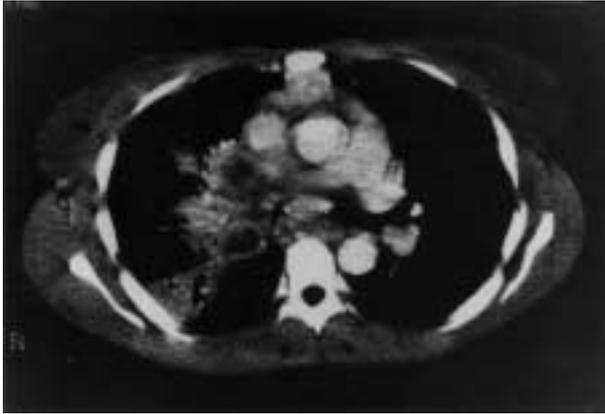


Figure 2. — Computed tomographic (CT) scan shows necrotic lymph nodes, pulmonary infiltrate and consolidation of apical segment of the lower right lobe.



Figure 3. — Chest roentgenogram after 6 months of antituberculosis chemotherapy showing marked resolution of the infiltrate and adenopathy.

intermedius was detected. Significant inflammatory stenosis of the apical segmental bronchus of the right lower lobe was also observed. Bronchial biopsy revealed granulomatous inflammation but no mycobacteria. Bronchial washings were positive for AFB.

Therapy with isoniazid, rifampicin, pyrazinamide and ethambutol was initiated on the third day of hospitalization. The patient's fever abated within two weeks. Six weeks later, sputum culture yielded fully sensitive *Mycobacterium tuberculosis*. The patient was discharged to a long-term institution. After two months of therapy, sputum smears became negative, whilst the chest roentgenogram showed no change and bronchoscopy still demonstrated lymph node erosion with marked mucosal inflammation of the bronchus intermedius. At 6 months, there was visible improvement of the pulmonary infiltrate and adenopathy (fig. 3). The patient refused a follow-up bronchoscopy.

### Discussion

Prior to the advent of antituberculous chemotherapy, ETB was an important complication of TB. SALKIN *et*

*al.* [3] performed serial rigid bronchoscopy on 622 patients with TB and found 15% of patients with endobronchial involvement. A postmortem study of 1,000 patients with pulmonary TB revealed that 42% had involvement of the tracheobronchial tree [4]. Nowadays, ETB has become a rare occurrence. So *et al.* [5] found 12 patients with ETB out of 65 with sputum negative TB undergoing fiberoptic bronchoscopy. More recently, LEE *et al.* [6] reported a total of 121 patients with ETB in 2,951 subjects who underwent flexible fiberoptic bronchoscopy. The common mechanisms of development of ETB include direct implantation of mycobacteria from infected sputum, erosion of intrathoracic lymph node into the bronchus, haematogenous spread, or extension to the peribronchial region by lymphatic drainage from the parenchyma [3, 7, 8]. Direct bronchial implantation is seen in cavitary TB, whereas tuberculous lymph node erosion into the bronchus occurs mainly in children, especially infants, with primary TB. WEBER *et al.* [9] studied 85 children with primary TB, and in five cases observed lymph node perforation through the bronchial wall with spillage of caseous material. FORSTAD [10] found 27.8% of lymph node perforation in 90 children with primary TB.

The radiographic features of ETB are atelectasis or persistent infiltrates. ETB may simulate a bronchial neoplasm in the old smoking patient [11, 12]. The chest roentgenogram may even be normal in some patients [6, 13]. When CT is performed on patients with ETB, enlarged mediastinal and peribronchial lymph nodes are frequently seen [14, 15].

TB is often the initial manifestation of HIV infection. Chest roentgenograms of HIV-infected patients with pulmonary TB frequently show hilar and mediastinal lymph nodes, whereas chest cavities are rarely seen. In a study by PITCHENICK *et al.* [1], 60% of patients had hilar and mediastinal nodes, and none of the patients had chest cavities. Although these features may predispose HIV-infected patients to ETB, a recent review of the medical literature by JUDSON and SAHN [2] found only four reports of ETB in HIV-infected patients.

Our patient came from a country with a high prevalence of AIDS-associated TB. ETB may be frequent in such countries but remains unrecognized because of lack of diagnostic facilities. BATUNGWANAYO *et al.* [16] reported no cases of ETB among 25 HIV-infected TB patients from Rwanda who underwent bronchoscopy. ABOUYA *et al.* [17] found no tracheobronchial involvement in 21 autopsies of HIV-infected TB deaths in Abidjan. However, it is not possible to draw firm conclusions from these studies because of the small number of patients involved.

Although our patient was smear positive, we performed chest CT and bronchoscopy to rule out other aetiologies of enlarged hilar and mediastinal lymph nodes. For instance Kaposi's sarcoma, lymphoma, bronchogenic carcinoma, fungal infections and atypical mycobacterial infections, which may occur simultaneously with TB in HIV-infected patients [2]. Chest CT confirmed the presence of low density lymph nodes, suggesting necrosis. The impact of these enlarged necrotic lymph nodes on the neighbouring bronchi was demonstrated by bronchoscopy. In fact, erosion of a lymph node into the bronchus intermedius and

stenosis of the apical segmental bronchus of the right lower lobe were detected. These findings may explain why the sputum smears remained positive at discharge after 6 weeks of adequate treatment. In such patients, who remain highly infectious for a prolonged period and who may spread the disease widely [18], prompt and effective treatment should be instituted and complete contact tracing conducted. This case demonstrates that a more liberal indication for bronchoscopy may detect endobronchial involvement. Early recognition of this unusual presentation enables the physician to select the most appropriate approach for prompt therapy, and to follow-up the patient more closely in order to detect the development of long-term complications.

In summary, we report a case of ETB in an AIDS patient in whom a perforated lymph node into the bronchus intermedius was detected at bronchoscopy. We think that this type of ETB will be encountered more often in patients with AIDS in the future.

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