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# Intestinal Tuberculosis with Hoarseness as a Chief Complaint due to Mediastinal Lymphadenitis

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## Key Words

Intestinal tuberculosis · Hoarseness · Mediastinal lymphadenitis

## Abstract

A 68-year-old woman was admitted to our hospital complaining of hoarseness. A chest X-ray detected an abnormal shadow on the upper right lung. Bronchoscopic examination revealed that the left vocal cord was fixed in the paramedian position, and therefore left recurrent nerve paralysis was suspected. Lymphadenopathy was found in the left supraclavicular area. Chest computed tomography showed that the pretracheal and subaortic lymph nodes were swollen. Gastroendoscopy showed a 2-cm protruding lesion with ulceration on the upper esophagus. Histological examination of the supraclavicular lymph nodes and biopsy specimens from the esophagus revealed non-specific inflammation. PET-CT showed abnormal accumulations not only on the upper right lung but also on the lower right of the abdomen. Colonoscopy was performed and multiple erosions on the terminal ileum were found. Polymerase chain reaction analysis of a specimen biopsied from the erosion of the terminal ileum was positive for *Mycobacterium tuberculosis* and intestinal tuberculosis was diagnosed. The patient was then treated with anti-tuberculous therapy. After treatment, the erosions on the terminal ileum, the swelling of the mediastinal lymphadenopathy, and the esophageal ulcer were all improved. The hoarseness was subsequently relieved. This is the first report of intestinal tuberculosis with hoarseness as a chief complaint due to mediastinal lymphadenitis.

## Introduction

Mediastinal lymphadenopathy is difficult to diagnose and often mimics mediastinal tumor and malignant lymphoma [1]. Surgery is sometimes necessary in order to establish a diagnosis. Tuberculosis is one of the most likely causes of mediastinal lymphangitis but the diagnosis is difficult because the frequency of detection of granulomas or bacilli is relatively low. Intestinal tuberculosis is rare and often indicated by complaints of abdominal pain or diarrhea [2]. Occasionally, no chief complaint is noted and the condition is detected incidentally by colonoscopy [3]. We herein describe the case of a 68-year-old woman who suffered from mediastinal lymphangitis associated with intestinal tuberculosis and whose hoarseness was successfully relieved by anti-tuberculous therapy. Intestinal tuberculosis should be included in the differential diagnosis of hoarseness due to mediastinal lymphadenitis.

## Case Report

A 68-year-old female presented to our hospital in July 2008 due to hoarseness. The patient had no history of previous diseases, medication or exposure to dust or biomass. There was no history of contact with any patient with tuberculosis. On examination, the patient presented with hoarseness, and lymphadenopathy 3–2 cm in diameter was found in the left supraclavicular area. Other examination findings were normal. Lymphocytosis, elevated erythrocyte sedimentation rate and anemia were revealed by laboratory investigation. Acid-fast bacilli were negative on three examinations of sputum. A purified protein derivative skin test was weakly positive. There were abnormal shadow-like coin lesions on the upper portion of the right lung and no parenchymal abnormalities on plain chest X-ray (fig. 1a). Computed axial tomography showed lymph nodes in the subcranial, periaortic and aortopulmonary windows (fig. 1b). Bronchoscopic examination revealed that the left vocal cord was fixed in the paramedian position. Gastroendoscopy showed a 2-cm deformity of the upper esophageal wall, covered by normal mucosa with deep ulcer, located 25 cm from the anterior incisor teeth (fig. 1c). Endoscopic ultrasonography suggested that the lesion was an extramucosal mesenchymal tumor of the esophagus. Fine needle aspiration of the tumor was negative for malignancy and acid-fast bacilli. No parenchymal lesion was seen on computed tomography. Fine needle aspiration of the lymph node located in the supraclavicular area was also negative for malignancy and acid-fast bacilli. PET-CT showed abnormal accumulations on the upper right of the lung and the lower right of the abdomen. Therefore, colonoscopy was performed, which revealed multiple erosions on the terminal ileum and Bauhin's valve (fig. 1d). Polymerase chain reaction analysis of *Mycobacterium tuberculosis* from the biopsied specimen from the erosion of the terminal ileum was positive, and intestinal tuberculosis was diagnosed. A QuantiFERON-TB Gold test was also positive, which strongly supported the diagnosis.

The patient was treated with anti-tuberculous therapy, comprising isoniazid, rifampicin, ethambutol, and pyrazinamide. The hoarseness recovered after 1 month of treatment. Four months later, pathological findings were improved on plain chest X-ray (fig. 2a), and a repeat computed tomography of the chest showed that the mediastinal lymphadenopathies had completely resolved. A follow-up gastroendoscopy showed that the ulcer on the esophagus had disappeared (fig. 2b). The erosions on the terminal ileum had improved (fig. 2c). The anti-tuberculous therapy was continued for 1 year and the patient was in good health 2 years after initiation of anti-tuberculous therapy.

## Discussion

A typical clinical presentation of intestinal tuberculosis includes abdominal pain, weight loss, fever, weakness, nausea, vomiting, obstruction and bleeding [4]. This is the first report of intestinal tuberculosis with hoarseness as a chief complaint due to mediastinal lymphadenitis. The etiology of mediastinal lymphadenopathy in this case

may be due to tuberculosis because both lymphadenopathy and hoarseness recovered after anti-tuberculous therapy against intestinal tuberculosis.

Colonoscopy is regularly employed in the diagnosis of intestinal tuberculosis [5]. Previous studies reported that the majority of tuberculous lesions occurred in the ileocecal region, with ulcer and nodularity being the most common findings [3]. Biopsies should be examined for caseating granulomas and acid-fast bacilli. Endoscopic biopsies should be taken from the margins of erosions because granulomas often are submucosal [6]. However, the frequency of the detection of granulomas or bacilli is relatively low. On biopsy specimens, polymerase chain reaction assays for the detection of TB DNA demonstrated higher sensitivity [7]. Recently, the QuantiFERON-TB Gold test has been reported to be useful to aid in the detection of intestinal tuberculosis [8].

In this case, PET was useful for the detection of intestinal lesions. The high accumulation of the metabolic tracer FDG (fluorodeoxyglucose F18) was observed by FDG-PET analysis. The use of FDG-PET has not been clearly studied in intestinal tuberculosis. Active inflammation leads to increased local concentrations of neutrophils, lymphocytes, and macrophages. These active inflammatory cells may lead to increased intracellular glycolysis resulting in high accumulation of FDG [9].

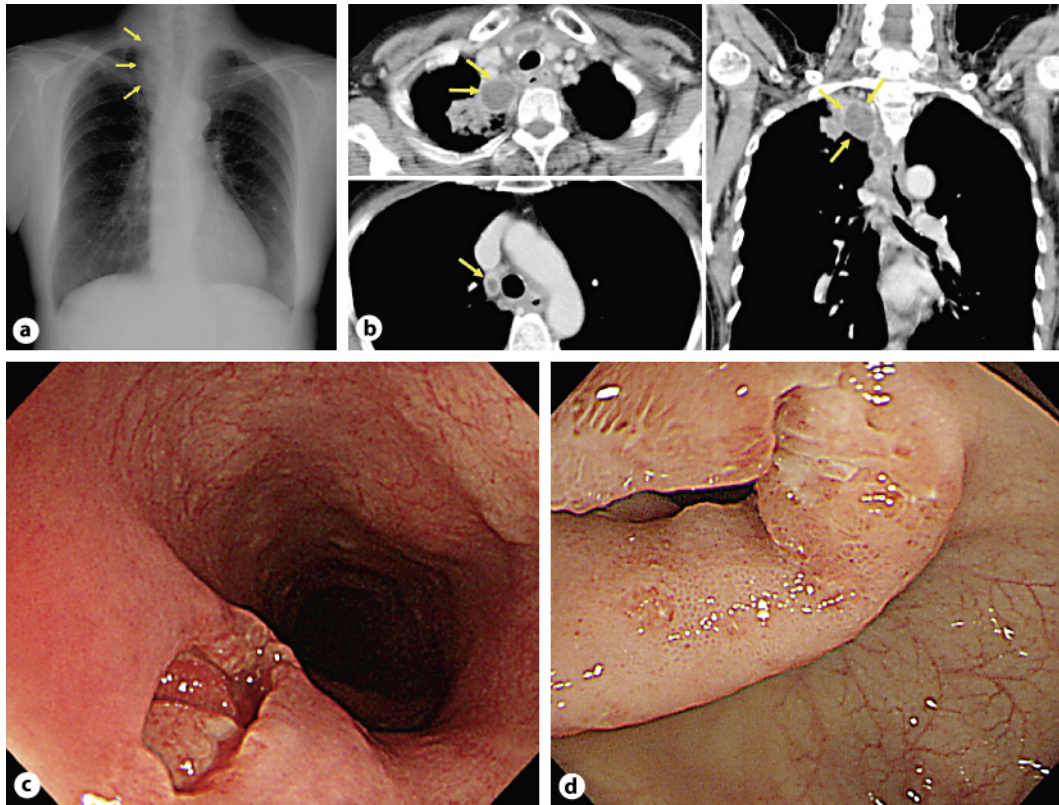
Tuberculous lymphadenitis is one of the most common forms of extrapulmonary tuberculosis and the first lymphoid tissues encountered during spread are presumably hilar and mediastinal lymph nodes [10]. However, mediastinal lymph nodes are rarely reported at the site of tuberculous lymphadenitis and it is also very rare in adults. Clinical conditions are quite variable depending on the affected structures in patients with mediastinal tuberculosis. Hoarseness, resulting from involvement of recurrent laryngeal nerve dysphagia due to compression of the esophagus, and typical manifestations of superior vena cava syndrome resulting from involvement of the superior vena cava are sometimes evident. The differential diagnosis includes mediastinal tumors, malignant lymphoma, esophageal carcinoma, lung carcinoma and sarcoidosis. Enlarged lymph nodes and inflammatory swelling may predispose the compression and dysfunction of recurrent laryngeal nerve paralysis, resulting in hoarseness.

In cases of tuberculous adenitis with esophageal mucosal lesion, confirmation of the diagnosis should be performed by histological or microbiological examination of a specimen obtained by endoscopic biopsy. Nevertheless when it is impossible to reach the affected lymph nodes through these approaches, surgery may be necessary in order to establish a diagnosis [11].

The etiology of intestinal tuberculosis in this case is not fully understood. Mediastinal tuberculous lymphadenitis can affect the esophagus by compressing the esophagus externally, causing rupture in the mediastinum and leading to an inflammatory process with secondary involvement of the esophagus, invasion of the esophagus, ulceration of the mucosa and draining of caseum into the esophageal lumen [12]. Esophageal fistula may result in some cases [13]. The bacilli contained in the caseum may traverse the digestive tract and infect through Peyer's patches on the terminal ileum. This scenario requires further investigation.

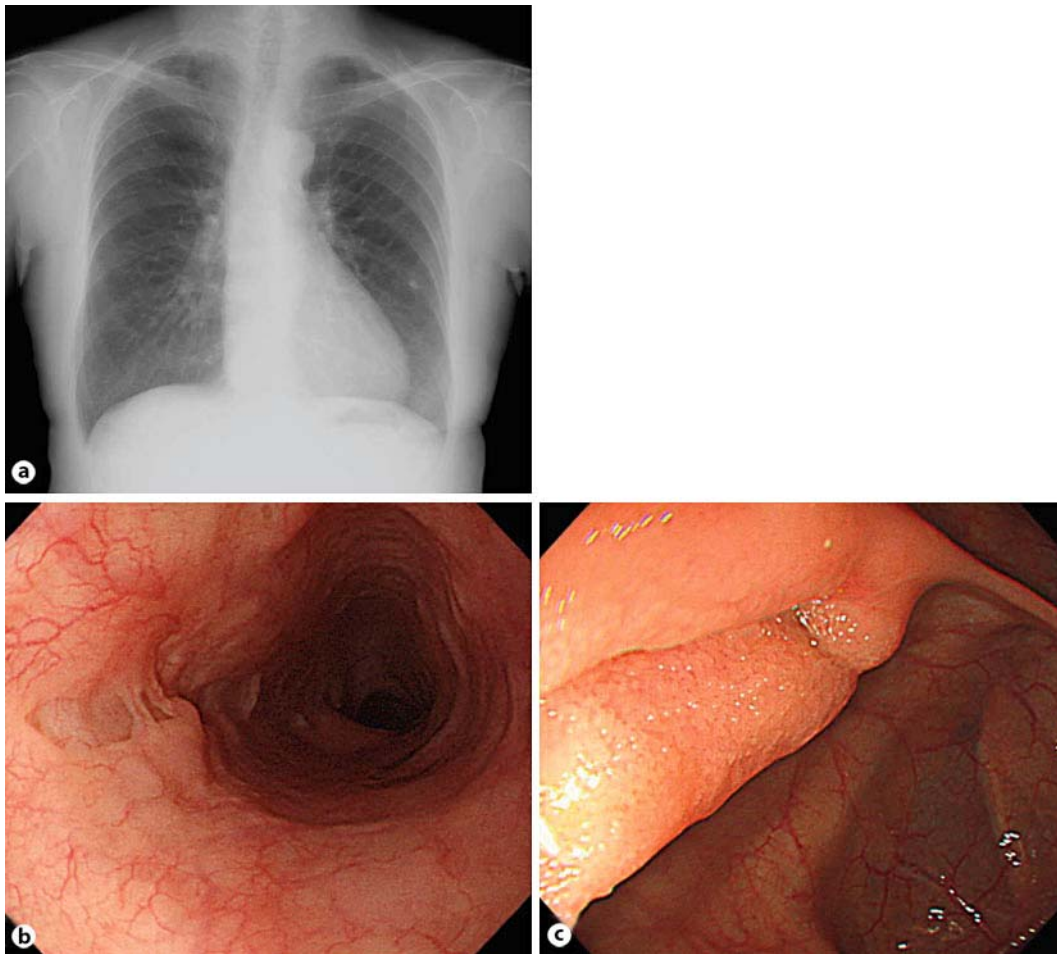
As the incidence of tuberculosis in Japan is gradually increasing, the differential diagnosis of this disease is likely to become more necessary. The present case provides grounds for hoarseness to be considered as a symptom of intestinal tuberculosis. In the

investigation of the causes of mediastinal lymphadenopathy, intestinal tuberculosis should also be taken into consideration. The case may also provide insight into the etiology of intestinal tuberculosis.



**Fig. 1.** **a** Before treatment, plain chest X-ray revealed an abnormal shadow on the upper right of the lung. **b** Before treatment, computed tomography showed low-attenuation lymphadenopathies in the central parts of the aortopulmonary window area. **c** Upper gastrointestinal endoscopy revealed a 2-cm deformity of the esophageal wall, covered by normal mucosa and with consistency, located 25 cm from the anterior incisor teeth. **d** Before treatment, colonoscopy showed erosions on Bauhin's valve.





**Fig. 2.** **a** After treatment, plain chest X-ray showed normalized hilar lesions and mediastinum. **b** Colonoscopy demonstrated the disappearance of the erosions on Bauhin's valve. **c** Improvement in the deformity of the esophageal wall after treatment.

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