

# Tuberculous Esophagitis Caused By Mediastinal lymph nodes Tuberculous (Report of Two Cases and Review of Literatures)

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**Abstract Objective** The purpose of our study was to describe the clinical and radiologic features of tuberculous esophagitis through two cases reports and literature. **Methods** Retrospectively analyze the clinical and imaging (a barium swallow and CT examination) manifestations of two cases of tuberculous esophagitis proved by the biopsies with mediastinoscope or operation pathology. Both the two patients were misdiagnosed as malignant tumor of esophagus. **Results** A barium swallow often showed a smooth impression over the wall of esophagus. Niche sign and focal mucosal destruction also can be detected sometimes. CT showed mediastinal lymphadenopathy compressing the esophagus wall. **Conclusion** Esophageal tuberculosis is rare. Careful and integrative analysis of multiple imaging demonstrations can improve diagnosis of the disease.

**Key words** Tuberculous Esophagitis; Lymphadenopathy; Mediastinal Tuberculous

## Introduction

Tuberculous can involve most organs and tissues of the body, but tuberculous involvement of esophagus is rare and often secondary to a focus elsewhere in the body [1]. We describe two patients with tuberculous esophagitis who were referred with low-grade fever and odynophagia. The medical imaging examinations showed ulcerative lesions or mucosal destruction of the esophagus and mediastinal lymphadenopathy. Both the two patients were misdiagnosed as malignant tumor of esophagus. At last we obtained definitive diagnosis by biopsies with mediastinoscope or operation and the response to antituberculous therapy. We review the literatures and summarize the features of the disease so as to make a deeper recognition about the disease.

## CASE REPORTS

### Case 1

A 32-year-old man presented with a two-month

history of mild fever of up to 38°C and a week history of odynophagia. He reported no history of respiratory or urinary tract infection in the past. Clinical examination was apparently normal. There was no peripheral lymphadenopathy or hepatosplenomegaly. Laboratory investigations revealed mild anemia (Hb 86g/L). The PPD test and Human immunodeficiency virus serology were negative. Chest X-ray was normal. A barium swallow showed a smooth impression over the midpiece of esophagus anterior wall and a niche of approximately 10mm in diameter with no mucosal abnormality (see Fig.1). Lymph node enlargement was detected in the abdominal cavity by ultrasonography but the liver, spleen and the kidneys were normal. Upper gastrointestinal endoscopy revealed a deep excavated ulcer of approximately 10mm in diameter in the mid-esophagus. CT showed enlarged paratracheal and paraesophageal lymph nodes compressing the esophagus anteriorly (see Fig.2). The presumptive diagnosis was "lymphoma involving the mediastinum and the esophagus". However, histological examination of the biopsies obtained from the mediastinal lymph nodes by the mediastinoscope showed caseating granulomas which inferred tubercular lymphadenitis. The patient was treated with 6 months antituberculous medicines and became afebrile and remained symptom-free soon. CT scan found the

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**Fig.1** Male, 32 years old. A barium swallow showed a smooth impression over the midpiece of esophagus anterior wall and a niche of approximately 10mm in diameter with no mucosal abnormality.



**Fig.2** The same case of the diagram 1. CT showed enlarged paratracheal and paraesophageal lymph nodes compressing the esophagus anteriorly.

mediastinal lymphadenopathy disappeared.

### Case 2

Another 31-year-old man presented with a three-weeks history of odynophagia and a month history of fever and cough without hemoptysis. Physical examination was normal. A barium swallow showed 4cm in length mucosal destruction in the anterior wall of the midpiece of esophagus (see Fig.3). No niche was de-

tected. CT showed enlarged mediastinal lymph nodes compressing the esophagus anteriorly and demonstrating ring shape enhancement in enhanced CT scan (see Fig. 4). The presumptive diagnosis was "Esophageal carcinoma and metastases of mediastinal lymph nodes". Biopsies through esophageal ultrasonic endoscope showed granulation tissue and multinucleated giant cell. The patient was performed mediastinal lymph nodes partial resection and pathological examination gave the definitive diagnosis as mediastinal lymph nodes tuberculous involving esophagus.

## DISCUSSION

### Infected Ways

The commonest sites of tuberculous infection of the alimentary canal are the terminal ileum and the cecum. Esophageal tuberculosis was rare. The ratio of secondary to primary disease is at least 5:1. A few cases of secondary esophageal tuberculosis were reported. According to the literatures, the esophagus may become infected in five ways<sup>[3,4]</sup>: (1) swallowing infected sputum in the presence of an antecedent esophageal disease such as esophagitis, ulcer or tumor. (2) direct extension from adjacent structures, for example, mediastinal lymph nodes, the lung or the vertebral bodies. (3) extension of tuberculous involvement of the pharynx or larynx. (4) backflow in lymphatics draining the esophagus (paratracheal, subcranial and parabronchial lymph nodes). (5) hematogenous spread from a distant site. Both the two cases were secondary esophageal tuberculosis caused by mediastinal tubercular lymphadenitis involvement.

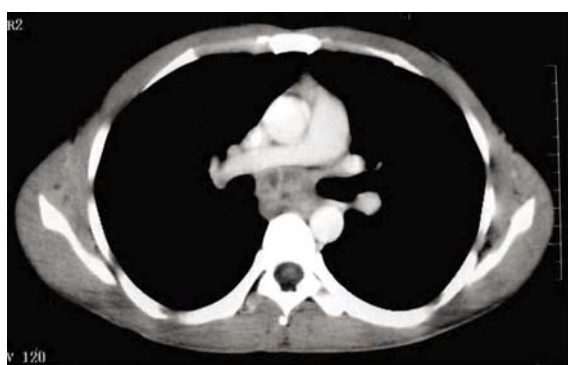
### Diagnosis

Although it is difficult to make accurate diagnosis of esophageal tuberculosis caused by mediastinal tuberculosis, there is some helpful information for it.

The clinical manifestations are not diagnostic. Clinical manifestations are divided into local, systemic and complication-related symptoms<sup>[2,4]</sup>. The most common local symptoms are dysphagia and retrosternal pain. Some patients also complain some systemic symptoms such as fever, weight loss or anemia. The disease may be complicated by a tracheo-esophageal fistula formation,



**Fig.3** Male, 31 years old. A barium swallow showed 4cm in length mucosal destruction in the anterior wall of the midpiece of esophagus. No niche was detected.



**Fig.4** The same case of the diagram 3. CT showed enlarged mediastinal lymph nodes compressing the esophagus anteriorly and demonstrating ring shape enhancement in enhanced CT scan.

mediastinitis due to perforation of esophageal lesion and formation of esophageal diverticula or stenosis.

Besides of the clinical manifestations, medical imaging examinations may play an important role in the diagnosis of the disease. Chest X-ray can find pulmonary tuberculosis but is hard to find the abnormality of the mediastinum. A barium swallow showed a smooth impression on the wall of esophagus with no mucosal abnormality. Niche sign can be detected if esophageal ulcer develops. Focal mucosal destruction sometimes can

be detected. Peristalsis of esophagus is usually normal and the wall is soft. It is still hard to make a definitive diagnosis only depend on barium meal examination of esophagus. When the above signs appear, CT scan of thorax are required to perform in order to make further diagnosis. A CT scan is useful for revealing primary sites of tuberculous and also for diagnosing the complications of the diseases. CT scan can find pulmonary tuberculous or mediastinal lymph nodes enlargement which cause indentation of the wall of esophagus<sup>[4,5]</sup>. Pulmonary tuberculous is also found by CT scan. Another valuable examination is esophageal endoscopy. On esophageal endoscopy there are two main findings: a deep ulcer with shallow, smooth edges and a granular bases with small miliary granulomas and hyperplastic form with or a pseudotumor-like presentation or fibrotic narrowing. Definitive diagnosis is difficult to obtain from biopsy by esophageal endoscopy because the lesion is deep from the mucosa. So we consider that combining series of medical imaging examinations with the clinical information is very important to diagnose the disease.

However, definitive diagnosis is usually confirmed by the biopsies with mediastinoscope and the response to antituberculous therapy.

### Differential Diagnosis

Other disease of the esophagus must be considered such as that may demonstrate mediastinal lymphadenopathy and an ulcer or a mass of the esophagus.

1. Lymphoma involving mediastinum and esophagus. Lymphoma can demonstrate mediastinal lymphadenopathy, a submucosal mass or an ulcer of the esophagus. Peripheral lymphadenopathy can be found in patients with lymphoma. Anemia in lymphoma is more serious than in tuberculous. Enhanced CT scan can provide with more information for the differential diagnosis. Tubercular lymphadenitis demonstrate ring shape enhancement in lymph nodes because of caseous necrosis often occurring in the center of lymph nodes, while lymphoma often demonstrate mild and uniform enhancement of lymph nodes. Biopsies by mediastinoscope or bone marrow aspiration are the diagnosing gold standard of lymphoma.

2. Esophageal carcinoma and metastases of mediasti-

nal lymph nodes. Esophageal carcinoma is a most common disease and mediastinal lymphadenopathy will appear when metastases of mediastinal lymph nodes occur. Barium meal examination of esophagus will find the mucosal destruction and discontinuance, with the wall of the esophagus spastic, and loss of peristalsis of esophagus. Biopsy by esophageal endoscopy as the diagnosing gold standard of esophageal carcinoma is easy to get definitive diagnosis because the lesion is local in the mucosa.

Although the disease is rare and hard to diagnose, it must be considered in the differential diagnosis of odd-looking esophagus lesion, despite the absence of esophageal symptoms. With higher prevalence and more atypical of tuberculous, we should pay more attention to the disease. CT scan is required to perform to detect

the primary focus and evaluate the therapeutic efficacy.

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