

## A Case Report of Mimicking Sub mucosal Tumor on Esophageal Tuberculosis

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### Abstract

Primary esophageal tuberculosis (TB) mimicking submucosal tumors is an extremely rare disease that is difficult to distinguish from benign and malignant tumors. Most esophageal TB cases along with ulcer were diagnosed via routine upper gastrointestinal endoscopy. With the development of new technologies and methods, new progress has emerged in the diagnosis and treatment of esophageal TB. The submucosal tunneling endoscopic resection (STER) solutions are a minimally invasive procedure. The STER technique has been used instead of thoracotomy for diagnosis and treatment esophageal submucosal tumors including esophageal tuberculosis, which has less trauma, shorter hospital stay, less cost and lower complication. Here, we present a case of primary esophageal tuberculosis with non-progressive dysphagia for 4 months in a 41-year-old female. The submucosal tumor originated from the muscularis propria layer of middle piece esophagus wall was firstly diagnosed with upper gastrointestinal endoscope and endoscopic ultrasound examination. We confirmed that the submucosal tumor reveal features suggestive of tuberculosis based on histopathology via STER.

**Keywords:** Esophageal tuberculosis; Submucosal tumor; Endoscopic ultrasound; Submucosal tunneling; Endoscopic resection

### Introduction

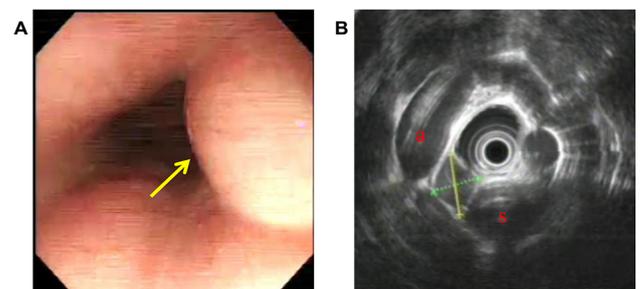
Esophageal tuberculosis (TB) is an extremely rare disease [1]. Most esophageal TB cases were reported along with ulcer in the literature diagnosed via upper gastrointestinal endoscopy [2]. With the development of new technologies and methods, new progress has emerged in the diagnosis and treatment of esophageal TB and its complications. Some minimally invasive operation including endoscopic ultrasound-fine needle aspiration (EUS-FNA), submucosal tunneling endoscopic resection (STER) and stent implantation has become popular for diagnose and treatment esophageal TB with uncharacteristic manifestations. We report a case of esophageal TB diagnosed via STER that originated from the muscularis propria layer of esophagus wall.

### Case Report

A 41-year-old female was admitted to the Xiangya Hospital of Central South University (Changsha, China) with non-progressive dysphagia for 4 months. Before the appearance of symptoms, she had no history of trauma, surgery or illness except hypertension, which was controlled with an oral antihypertensive drug. She had no nausea, melena, productive cough, intermittent fever with night sweats or weight loss. No family history was reported. Physical examination and standard laboratory test results were normal. Tuberculosis skin test is positive.

A protruding lump covered with intact esophageal mucosa and slidden by biopsy forceps pushing was found by upper gastrointestinal endoscope from 30 cm to 32 cm distal to the upper incisor (Figure 1A). Endoscopic ultrasound (EUS, Olympus Co., Ltd, Japan) examination demonstrated that the submucosal tumor (SMT) was hypoechoic and was originated from the muscularis propria layer of esophagus wall (Figure 1B), suspected leiomyoma or stromal tumor. Tumor size was about 16 mm × 21 mm with well-defined margin. After a chest computed tomography (CT) with enhanced contrast revealed a mass localized inside the esophageal wall with slightly low density, stromal tumor was suspected (Figure 2).

Because of persistent symptoms and suspected stromal tumor with potential malignant transformation, a minimally invasive operation of STER was performed under general anesthesia via upper gastrointestinal endoscope. An ovoid-tumor was found to be located in the muscularis propria layer of the esophageal wall in submucosal tunneling (Figure 3A). When the main tumor body was separated, the patient heart rate unexpectedly dropped to 38 times/min and restored to normal by using atropine. Therefore, the tumor was not completely separated from the muscularis propriety layer of esophageal wall. Then we used dual-knife incision surface of the tumor for tissue biopsy. Chylous liquid outflowed from puncture hole of tumor (Figure



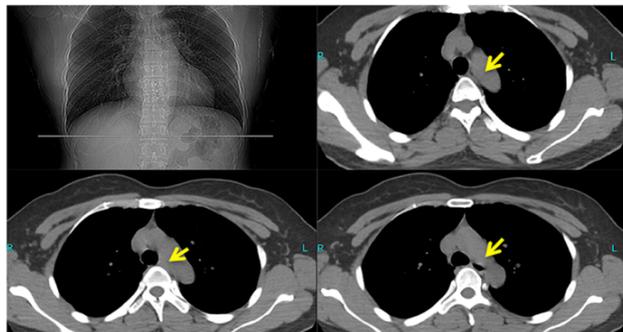
**Figure 1:** (A) Upper gastrointestinal endoscopy revealed a protruding lump covered with intact esophageal mucosa (arrow). (B) EUS demonstrated a 16 mm × 21 mm hypoechoic mass originated from the muscularis propria layer (a: aorta arch; s: spine).

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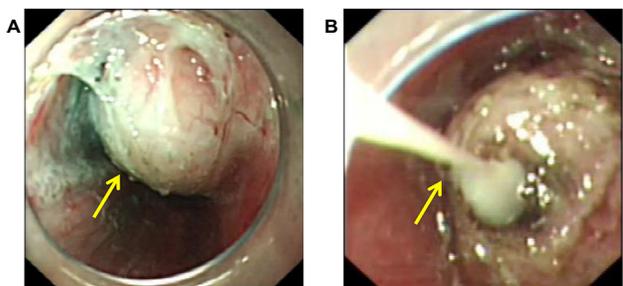
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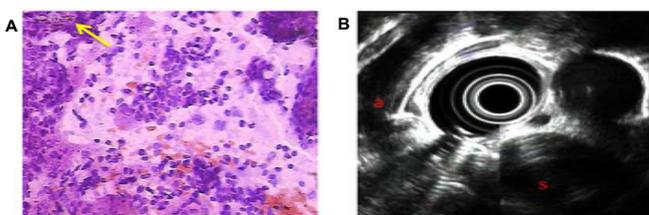
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**Figure 2:** Chest computed tomography (CT) with enhanced contrast revealed a mass localized inside the esophageal wall with slightly low density (arrow) and narrow esophageal lumen.



**Figure 3:** (A) A tumor originated from the muscularis propria layer was revealed by STER (arrow). (B) Chylous liquid outflowed from the puncture hole of tumor (arrow).



**Figure 4:** (A) Histopathological of chylous liquid shows a lots of lymphocytes and a little epithelioid cells (arrow, H&E staining, magnification  $\times 200$ ). H&E, hematoxylin and eosin. (B) Reviewed EUS revealed no tumor recurrence except local thickened of muscularis propria and submucosa layer with diffused calcification after antituberculous treatment 6 months (a: aorta arch; s: spine).

3B), and we collected 0.2 milliliter with 22G puncture needle for pathological examination, and rinsed tunnel with saline and confirmed no bleeding. We closed tunnel entrance with titanium clips. The patient was hospitalized for five days in total, and took liquid food two days after operation. Histopathological diagnosis with hematoxylin and eosin (H&E) staining showed a lot of lymphocytes and a few epithelioid cells in the submitted sample, but no tuberculosis bacilli with acid-fast staining, suspecting tuberculosis (Figure 4A).

The patient received therapy with isoniazid, rifampicin, pyrazinamide and ethambutol for two months, then with isoniazid, rifampicin for four months. No discomfort remained after a follow-up period of six months, EUS revealed no tumor recurrence except local

thickened of muscularis propria and submucosa layer with diffused calcifications after 6 months (Figure 4B).

## Discussions

Esophageal TB is a rare disease, and constitutes about 0.3% of digestive tract TB cases [1]. Moreover, primary esophageal TB with submucosal tumor pattern of manifestation is even less common. The esophageal TB has various clinical presentations. Symptoms of dysphagia are the most common complaints. Tuberculosis causes dysphagia due to esophageal ulcers, tracheoesophageal fistula or extrinsic compression by the mediastina lymph nodes [2]. Retrosternal pains are more common in patients with esophageal ulcer. Systemic manifestations such as fever, body weight loss and anorexia are distinguished from the esophageal malignancy [3-6]. Esophageal TB is usually caused by direct extension and spread from mediastina structures, mechanism including the inoculation of swallowed sputum, hematogenous and lymphatic spreading.

Esophageal TB with ulcer can be diagnosed via upper gastrointestinal endoscopy and biopsy. Esophageal TB should be suspected in patients with pulmonary or systemic TB who develop dysphagia or odynophagia. Chest X-ray is necessary for these patients. Chest CT scan can be used to assess mediastina status, including per esophageal lymph node, esophageal wall thickness, and pulmonary involvement. EUS, as a new and advanced technique, provides a valuable method to diagnose esophageal TB lesion, providing not only characteristic of esophageal TB ultrasonic image including mixed echo and no clear layer but histological sample by direct biopsy or endoscopic ultrasound-fine needle aspiration (EUS-FNA) acquiring tissue specimen. However, EUS and CT in this case can not differentiate between TB and stromal tumors or leiomyoma. EUS-FNA is especially used to distinguish SMTs including originated from TB [7]. Because the patient was reluctant to EUS-FNA, we had to resect tumor and confirm the diagnosis by STER. In recent years, STER technique had been used instead of thoracotomy for treatment esophageal SMTs, Which had less trauma, shorter hospital stay, less cost and lower complication [8,9].

Esophageal TB treatment is usually effective with antituberculous agent. Even if complications such as the formation of fistulae between the esophagus and bronchus occur, then esophageal stent implantation may be effective for treating esophagobronchial fistula [10]. Arotoesophageal fistulas can lead to death by massive hematemesis, which may demand surgical treatment [11].

## Conclusion

Compared with former thoracotomy, it is very important and superior to diagnose uncharacteristic manifestations of esophageal TB (especial mimicking SMTs) by means of EUS-FNA or STER.

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