

# Oesophageal tuberculosis: rare but not to be forgotten

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**ABSTRACT** Tuberculosis remains an important cause of morbidity and mortality, especially in underdeveloped and developing nations. Manifestations could be nonspecific and may mimic many other conditions, including malignancies. Oesophageal involvement is surprisingly rare despite the high prevalence of pulmonary tuberculosis and the close proximity of these two structures. We report two cases of oesophageal tuberculosis; a 73-year-old man with simultaneous oesophageal, stomach and duodenal involvement, and a 45-year-old man with isolated oesophageal involvement. Underlying malignancies were initially suspected in both cases, but they were eventually diagnosed as tuberculosis.

*Keywords:* dysphagia, extrapulmonary tuberculosis, gastrointestinal tuberculosis, oesophageal cancer  
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## INTRODUCTION

Tuberculosis (TB) remains endemic, especially in underdeveloped and developing nations, and is an important cause of morbidity and mortality. Despite the close proximity of the oesophagus and lungs, involvement of the oesophagus is surprisingly rare.<sup>(1–4)</sup> Like any other system involvement, manifestation of oesophageal TB could be nonspecific and could even mimic many other conditions. In most cases, oesophageal carcinoma is often initially suspected before the diagnosis of oesophageal TB is made.<sup>(4)</sup> We report two cases of oesophageal TB and highlight the importance of considering this infection in patients found to have oesophageal lesions that resemble tumours.

## CASE REPORTS

### Case 1

A 73-year-old Malay man presented with a two-month history of constipation and nonspecific abdominal pain. He also complained of undefined weight loss. His past medical history was significant for hypertension, myelodysplastic syndrome and treated hyperthyroidism. On examination, apart from recent weight loss, no other abnormalities were detected.

Blood investigations revealed bicytopenia with serum haemoglobin of 8.7 (normal range [NR] 13.0–17.0) g/dL and total white cell count of  $1.7 \times 10^9$ . Erythrocyte sedimentation rate (ESR) at one hour was 80 (NR < 10) mm/hr, and serum liver profiles showed hypoalbuminaemia at 29 (NR 35–45) g/L, elevated globulin at 49 (NR 35–45) g/L and hyperbilirubinaemia at 55 (NR < 17) mmol/L. Viral hepatitis (hepatitis A, B and C) serologies were all negative. The rest of the investigations, including fasting blood glucose, and renal and thyroid profiles, were all within normal limits. Both chest and abdominal radiographs were normal. Abdominal ultrasonography was also normal. This was followed by computed tomography (CT) of the abdomen and thorax, which showed only mild omental thickening. There was

no pulmonary abnormality. In view of the history of constipation and weight loss, the gastrointestinal tract was also evaluated. Colonoscopy only showed right-sided diverticular disease, but upper gastrointestinal endoscopy showed a small excavated ulcer in the proximal oesophagus, deformed stomach from external compression and an ulcerated mass in the duodenum.

The initial suspicion was that of disseminated gastrointestinal malignancy, and biopsies were taken from these abnormalities. Histology showed no evidence of malignancy but was positive for caseating granuloma in all biopsies, and acid-fast bacilli (AFB) were seen in both the gastric and duodenal biopsies. The patient was started on standard anti-TB treatment. HIV serology was non-reactive. Unfortunately, he developed gastrointestinal obstruction and required surgery. This showed the presence of adhesions but without evidence of tuberculous peritoneal involvement. He made a slow but uneventful post-surgery recovery.

### Case 2

A 45-year-old Malay man presented with a one-month history of retrosternal discomfort and symptoms of laryngopharyngeal reflux. He also complained of slight weight loss. He was otherwise well without any comorbid conditions. Physical examination was unremarkable and chest radiograph was normal. Blood investigations only showed elevated serum ESR of 65 mm/hr. The rest of the investigations, which included a full blood count and liver, renal, thyroid and glucose profiles, were all normal.

Upper gastrointestinal endoscopy showed two ulcerated lesions on the anterior wall of the proximal oesophagus (Fig. 1), with the larger lesion located 24–25 cm from the incisors and the smaller lesion located 19 cm from it. The oesophageal lumen was narrowed but not completely obstructed. The rest of the endoscopic examination was normal. The initial suspicion was that of oesophageal squamous cell carcinoma. However, the

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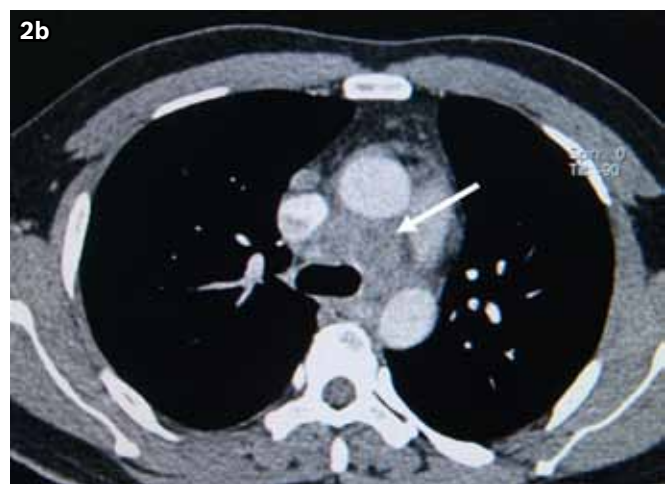


**Fig. 1** Endoscopic image shows one of the ulcerated lesions in the anterior wall of the proximal oesophagus.

biopsies did not show any malignancy but revealed chronic inflammatory changes with non-caseating granuloma. Ziehl-Neelsen stain for AFB was negative. CT of the thorax and abdomen showed an ulcerated oesophageal lesion with thickening of the oesophageal wall (Fig. 2a). There were also multiple large mediastinal lymph nodes with necrotic centres (Fig. 2b). There were no pulmonary or abdominal abnormalities. Percutaneous fine-needle aspiration biopsies were positive for AFB. HIV test was nonreactive. The patient was started on standard anti-TB therapy and his symptoms settled. He completed six months of therapy and remained well one year after completion of the therapy.

## DISCUSSION

Despite the large burden of pulmonary TB and the close proximity of the lungs and oesophagus, oesophageal involvement is surprisingly rare. Even in the early half of the 20th century when TB infection was more prevalent, the reported rate of oesophageal involvement based on autopsy studies was only 0.14%–0.15% of all TB-related deaths.<sup>(1)</sup> The largest series to date was reported from endemic regions such as the Indian subcontinent and Africa.<sup>(2-4)</sup> However, cases are also reported from developed nations, especially among migrant populations from endemic regions.<sup>(5-7)</sup> To date, we have encountered only two cases of oesophageal TB, out of a total of 3,123 TB cases over a 16-year period (1995–2010). This gives a point prevalence of 0.06% of all TB infections and 3.1% among all gastrointestinal involvements ( $n = 65$ ). In most instances, affected patients have some underlying risk factors such as old age, underlying chronic medical disorders such as chronic lung disease, diabetes mellitus, renal failure, malnutrition, malignancies or HIV infection with AIDS. Although it has been estimated that TB infects one in three people worldwide, most do not develop



**Fig. 2** (a) Sagittal CT image shows the corresponding ulcer with thickened oesophageal wall (arrows) shown in Fig. 1. (b) Axial CT image shows multiple enlarged mediastinal lymph nodes with necrotic centres (arrow).

progressive disease unless there are additional factors that impair their immune system. The risk factors in our first patient were old age and myelodysplastic syndrome, whereas our second patient was healthy and had no obvious risk factors.

Oesophageal TB could either be primary (isolated), which is rare, or secondary, which is more common. Primary oesophageal TB is diagnosed if there are no other detectable tuberculous sites. There are several mechanisms proposed to explain how the oesophagus is affected, namely direct extension, inoculation swallowed contaminated saliva and haematogenous or lymphatic spread. Direct extension from affected structures (pulmonary focus, mediastinal lymph nodes, vertebrae or upper laryngopharyngeal complex) is the most common mechanism.<sup>(4,8)</sup> The other mechanisms are uncommon. Given that the oesophagus mainly functions as a conduit and that transit of swallowed materials is rapid, the exposure time is too short to cause infection. In addition, the stratified squamous epithelial lining, coating of the mucosa by saliva and peristalsis of the oesophagus are protective.<sup>(1)</sup> However, infection may occur if there is disruption of the oesophageal mucosa<sup>(1)</sup> or delayed oesophageal clearance. Our first patient had multiple involvements of the upper

gastrointestinal tract without any mediastinal lymphadenopathies, whereas the second patient had mediastinal lymphadenopathies. None had any evidence of pulmonary involvement. This suggests that the first patient had acquired the infection through ingestion, while the second through direct extension.

Oesophageal TB can have varied presentations. In addition to constitutional symptoms, dysphagia, odynophagia and retrosternal discomfort or pain are common.<sup>(1-4)</sup> The patient may also complain of chronic cough or back pain in the presence of pulmonary or spine involvements, respectively. Rarely, the patient may present with life-threatening complications such as broncho-oesophageal fistula or haematemesis from aorto-oesophageal fistula. Diagnostic difficulties may be encountered, as radiological and endoscopic manifestations of oesophageal TB and malignancies overlap. This is especially true for elderly patients. Moreover, concomitant pathologies can occur.<sup>(9)</sup> This is further compounded by the fact that AFB is not isolated in a large proportion (75%) of patients with extrapulmonary TB.<sup>(10)</sup> Despite this, it is important to reach a diagnosis early due to the associated morbidity and mortality. Delay in diagnosis may result in life-threatening complications such as aorto-oesophageal or broncho-oesophageal fistula.<sup>(1,2,5)</sup> Endoscopy is currently the investigation of choice, as it allows for tissue sampling. However, clinicians need to be aware that the endoscopic appearances of oesophageal TB can be diverse. These include extrinsic compressions, traction diverticula, strictures, fistula and mucosal lesions.<sup>(4,11)</sup> Three distinct forms of mucosal lesions have been described (ulcerative, hyperplastic and granular), but manifestations can be mixed.<sup>(4)</sup> The middle third of the oesophagus is most commonly affected. CT is particularly useful for establishing the underlying source of infection and for detecting complications.<sup>(1)</sup> It is also important to evaluate the other organ systems, as simultaneous multiple organ involvement is not uncommon in oesophageal TB.<sup>(12)</sup> Chest radiograph is reported to be abnormal in 65% of patients.<sup>(4)</sup> The management of oesophageal TB is mainly

nonsurgical.<sup>(1-5)</sup> Most patients would respond to 6–9 months of standard anti-TB therapy. Surgery is usually reserved for patients with complications that fail to respond to anti-TB treatment. With the introduction of removable self-expanding metallic stents, surgery may be avoided in some patients.<sup>(13)</sup>

In conclusion, as the standard of living and healthcare improve, the current incidence of oesophageal TB is likely to be much lower. However, our two cases highlight to clinicians the need to consider TB as an aetiology in patients presenting with oesophageal lesions and whose evaluations are negative for malignancy, even when the risk factors for TB are not present.

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