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Oesophageal tuberculosis mimicking oesophageal carcinoma

擬似食道癌的食道結核

Tuberculous involvement of the oesophagus is rare, and is usually caused by direct spread from adjacent afflicted structures. We report an 83-year-old male patient with oesophageal tuberculosis secondary to tuberculous mediastinal lymphadenitis who presented with non-specific symptoms of anorexia and lethargy. Upper gastro-intestinal endoscopy revealed an ulcerative tumour-like lesion in the mid-oesophagus suggesting oesophageal carcinoma. Repeated endoscopic biopsies revealed a non-specific acute-on-chronic inflammation consisting of non-caseating granulomas, with no evidence of malignancy. Endoscopic ultrasonography demonstrated that the oesophageal lesion was secondary to direct extension of mediastinal lymphadenopathy. The diagnosis of tuberculosis was eventually confirmed by histological and microbiological analysis of a surgically excised cervical lymph node. The patient responded promptly to treatment with anti-tuberculous drugs. We suggest that oesophageal tuberculosis has to be kept in mind in the differential diagnosis of oesophageal ulcerohypertrophic lesions.

結核菌入侵食道的情況極為罕見，通常是受旁邊已感染器官直接擴散所致。本文報告一名83歲男性病人出現因結核性縱隔腔淋巴結炎而衍生食道結核，表徵包括缺乏食慾和昏昏欲睡。上胃腸內窺鏡檢查顯示食道中間位置出現狀似腫瘤的潰瘍性受損，故最初認為是食道癌。重覆作內窺鏡活組織檢查卻發現包括非干酪性壞死肉芽瘤的慢性發炎，而沒有惡性腫瘤的證據。內窺鏡超聲波檢查發現食道受損是由縱隔腔淋巴結炎直接衍生。最終將病人身上切除的頸部淋巴結作顯微解剖學及微生物學化驗，證實病人是患上結核病。病人在接受抗結核藥物後病情迅速好轉。本文建議醫護人員診斷較特別的食道潰瘍性肥大受損病例時，要留意是否有食道結核的可能。

Key words:
Esophageal diseases;
Tuberculosis, lymph node

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Introduction

Mycobacterial involvement of the oesophagus is very rare, constituting only about 0.3% of cases of gastro-intestinal tuberculosis (TB).[1] Most of the reported cases of oesophageal TB were secondary to direct extension from adjacent afflicted structures such as mediastinal lymph nodes or a pulmonary focus. Rarely, primary oesophageal TB occurs in the absence of identifiable TB elsewhere in the body. We report a patient with secondary oesophageal TB as a result of contiguous extension of disease from an adjacent mediastinal lymph node.

Case report

An 83-year-old Chinese man presented to the United Christian Hospital in November 2005 with anorexia and lethargy for 3 months. He denied having fever, chills, night sweats, weight loss, cough, sputum production, or difficulty with swallowing. The patient had a history of diabetes mellitus, hypertension, ischaemic heart disease, and prior treatment for pulmonary TB in 1998. Physical examination was unremarkable, including no evidence of lymphadenopathy. Blood tests revealed a mild normochromic and normocytic anaemia (haemoglobin, 107 g/L), an elevated erythrocyte sedimentation rate of 81 mm/hour (reference level, <15 mm/hour), and an elevated C-reactive protein of 39.3 mg/L (reference level, <5 mg/L). The white blood cell count was 7.7 x 10^9 /L with a normal

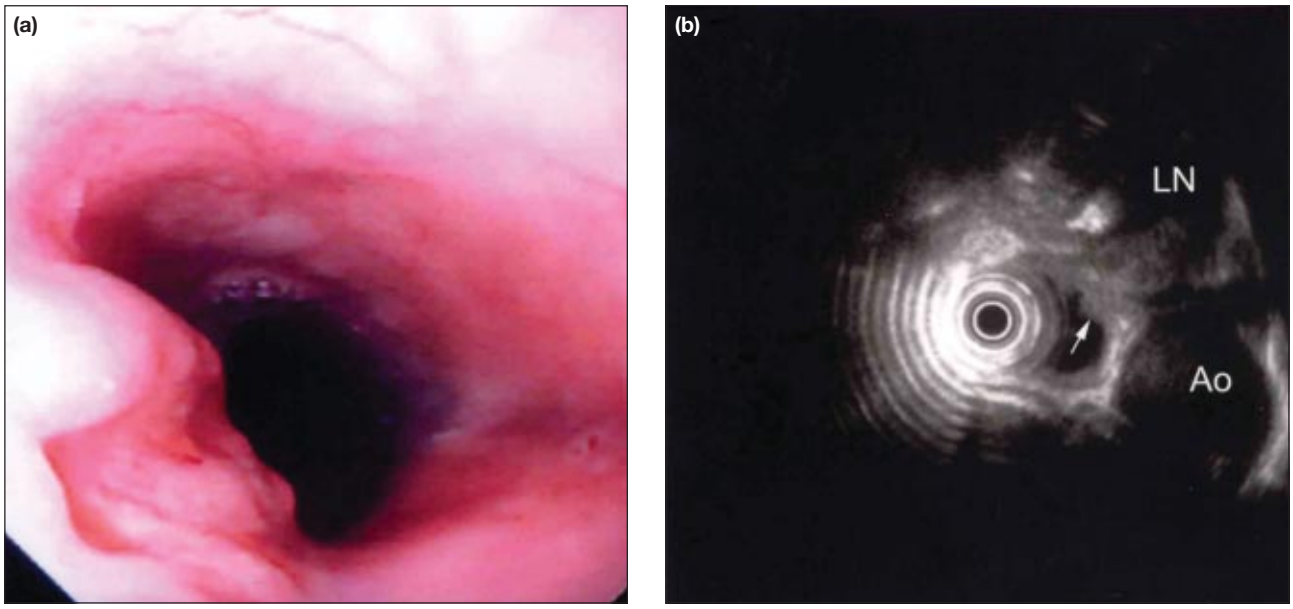

Fig 1. (a) Endoscopic view showing an ulcerohypertrophic lesion in the mid-oesophagus. (b) Endoscopic ultrasonography revealing an extramural lymph node with central hypoechogenicity and calcifications (LN) adjacent to the aorta (Ao). There is no border echo between the lymph node and the adjacent oesophagus, and the adjacent oesophageal wall appeared thickened with indistinct layer differentiation (arrow)

differential count. A chest radiograph showed fibrocalcifications in the right upper lobe and pleural thickening in the right lung base compatible with the previous history of treated pulmonary TB. An upper gastrointestinal endoscopy was arranged to investigate the anaemia and this revealed a 1.5-cm elevated hypertrophic lesion with central ulceration in the mid-oesophagus at about 26 cm from the incisors (Fig 1a). Oesophageal carcinoma was suspected, however, histological examination of biopsy specimens of the lesion disclosed acute-on-chronic inflammation consisting of epithelioid non-caseating granulomas (Fig 2), with no evidence of malignancy. A Ziehl-Neelsen (ZN) stain for acid-fast bacilli (AFB) was negative, and a special stain for fungi was also negative. A repeat endoscopic biopsy of the oesophageal lesion was taken but failed to demonstrate granulomas, AFB, or malignancy, and a polymerase chain reaction (PCR) for *Mycobacterium tuberculosis* was negative. While awaiting the results of a mycobacterial culture of the oesophageal biopsy specimens, which eventually turned out to be negative, an endoscopic ultrasonography (EUS) and computed tomographic (CT) scan of the thorax were arranged for further evaluation of the oesophageal lesion. The EUS revealed multiple enlarged peri-oesophageal lymph nodes. One extramural lymph node measuring about 3 cm in diameter with central hypoechogenicity and central calcifications was seen adjacent to the location of the oesophageal lesion (Fig 1b). There was no border echo between the lymph node and the adjacent oesophagus, and layer differentiation of the oesophageal wall was indistinct (Fig 1b), suggesting the oesophageal lesion was a result of infiltration by mediastinal lymphadenopathy. A CT scan of the thorax confirmed multiple clusters of mediastinal lymphadenopathy in addition to a 1.5-cm lymph node in the right lower neck, and there was no radiological evidence of active pulmonary TB or pulmonary cancer. A transcutaneous ultrasound-guided fine-needle aspiration (FNA) of the right lower neck lymph node was then performed, but both cytological examination and microbiological examination of the aspiration specimens were unrevealing. Subsequently, a surgical excision of the right lower neck lymph node was done. Histological examination of the lymph node showed caseating granulomas with Langhans' giant cells, AFB were

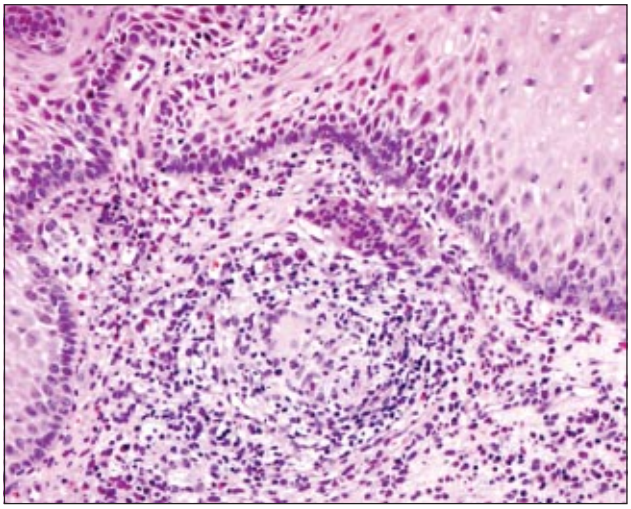

Fig 2. Photomicrograph of the oesophageal ulcer biopsy specimen showing a non-caseating epithelioid granuloma beneath the oesophageal squamous epithelium (H&E, x125)

demonstrated with a ZN stain, and preliminary mycobacterial cultures grew *M tuberculosis* complex. Serology for human immunodeficiency virus was negative. Anti-tuberculous treatment was commenced using a three-drug regimen consisting of isoniazid, rifampicin, and pyrazinamide, in view of the difficulty with monitoring the visual acuity of this elderly patient. The patient responded to the treatment clinically. A follow-up EUS performed 3 months afterwards showed a shallow diverticulum at the site of the oesophageal lesion, and that the adjacent peri-oesophageal lymph node had diminished in size. Treatment was originally planned for 9 to 12 months however, formal mycobacterial culture and sensitivity test results available 5 months into treatment demonstrated multi-drug resistant (MDR) *M tuberculosis*. The organism was resistant to isoniazid, rifampicin, and streptomycin, and was sensitive to pyrazinamide, ethambutol, ofloxacin, amikacin, kanamycin, capreomycin, ethionamide, and cycloserine. The patient was subsequently referred to TB specialists for further treatment.

Discussion

Oesophageal TB is a rare clinical entity. A classic review from the early 20th century found tuberculous involvement of the oesophagus in only 0.15% of 16 489 autopsies on individuals with TB.[2] More recently, Marshall[1] identified only one (0.3%) case of oesophageal TB among 297 patients with TB affecting the gastro-intestinal tract. Most reported cases of oesophageal TB have resulted from direct extension from adjacent infected structures, including mediastinal or hilar lymph nodes, a pulmonary focus, vertebral bodies, or the larynx.[3-6] Less commonly, it is caused by haematogenous spread in miliary TB.[3-6] Primary oesophageal TB is an even rarer event.[3-6]

The most frequent presenting symptom of oesophageal TB is dysphagia, occurring in over 90% of cases.[3-6] Other common symptoms include odynophagia and retrosternal pain.[3-6] Constitutional symptoms like fever, weight loss, and anorexia are also common.[3-6] Cough on swallowing suggests the development of a tracheo-oesophageal or broncho-oesophageal fistula.[5] The most-feared complication of oesophageal TB is an aorto-oesophageal fistula which can result in massive haematemesis and death.[3] Our patient had non-specific symptoms of anorexia and lethargy, and this paucity of symptoms reflects the atypical presentation commonly encountered in elderly patients with TB.[7]

Tuberculous lesions can occur in any segment of the oesophagus but are most common in the mid-oesophagus, just proximal to the tracheal bifurcation, because of its proximity to the mediastinal and hilar lymph nodes around the bifurcation of the trachea.[2-6] Macroscopically, the most common lesion encountered is a solitary oesophageal ulcer.[2-6] A hypertrophic growth mimicking oesophageal cancer, as in the present case, may be seen at times.[8] Rarely, malignancy and TB of the oesophagus may coexist, and a definitive diagnosis of both is possible only after careful histological examination.[4] The rarest type of lesion is the granular form with small mucosal miliary granulomas, a form usually secondary to haematogenous spread of infection.[9]

Upper gastro-intestinal endoscopy taking biopsy specimens is the diagnostic procedure of choice in oesophageal TB.[1,3-6,8,9] A CT scan of the thorax and/or EUS is mandatory for differentiating primary from secondary infection. Confirmation of the diagnosis of oesophageal TB requires histological demonstration of caseating granulomas and AFB from the endoscopic biopsies or isolation of *M tuberculosis* from tissue specimens.[10] The presence of these diagnostic features is highly variable.[3-5] Nevertheless, histology, ZN staining, and mycobacterial cultures should be routinely performed in suspected cases of oesophageal TB in order to maximise the diagnostic yield. Recently, cytology[11] and PCR[12] have also been proven useful in cases where the initial standard biopsies showed non-specific changes, but PCR for *M tuberculosis* was unrevealing in the present case. In cases of secondary oesophageal TB, the diagnosis can be facilitated by confirming tuberculous infection in neighbouring afflicted structures. In our patient, endoscopic biopsy of the oesophageal lesion revealed non-caseating granulomas in one histological sample only. Crohn's disease is an alternative diagnosis that should also be considered. Endoscopic ultrasonography revealed the oesophageal lesion to be a direct extension of an enlarged extramural lymph node, and the endosonographical features were similar to a previously reported case of tuberculous mediastinal lymphadenitis with secondary oesophageal TB.[13] An alternative diagnostic tool is EUS-guided trans-oesophageal FNA of mediastinal lymphadenopathy,[14] but the linear echoendoscope is not available in our institution. The diagnosis of TB was eventually disclosed by histological and microbiological analysis of a surgically excised cervical lymph node.

Oesophageal TB is managed with anti-tuberculous drugs; surgery being reserved for complications including a non-healing tracheooesophageal or bronchooesophageal fistula, stricture, or bleeding from an aortooesophageal fistula.[3-5] A 6-to-9–month course of anti-tuberculous chemotherapy is sufficient for immunocompetent patients treated with a regimen consisting of four first-line drugs, namely isoniazid, rifampicin, ethambutol, and pyrazinamide for the initial 2 months, then continuing with isoniazid and rifampicin for another 4 to 7 months.[4,5,15] It is necessary to give therapy for longer if one or more of these drugs cannot be used because of intolerance or drug resistance.[15] In cases of MDR-TB, defined as TB caused by organisms showing in vitro resistance to at least both isoniazid and rifampicin, the total treatment duration should be extended to at least 18 months, and the regimen should comprise 5 to 6 drugs to which the organisms are susceptible for the initial 6 months, followed by 3 to 4 drugs subsequently.[16]

In summary, this case demonstrates the importance of remaining aware of the prevalence of TB and its altered presentation in the elderly. Tuberculosis is a disease known to have atypical presentations, and even its typical presentation is altered in elderly patients. Finally, we suggest that oesophageal TB must be included in the differential diagnosis of oesophageal ulcerohypertrophic lesions.

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