A Case Of Tuberculosis Presenting As Bronchoesophageal Fistula

Santhosh Narayanan, Subhash Chandra, PV Shiji, K Abdulmajeed, V Udayabhaskaran
Department of Internal Medicine, Govt. Medical College Kozhikode, Kerala, India

Address for Correspondence: Dr. Santhosh Narayanan, MD, Department of Internal Medicine, Govt. Medical College Kozhikode, Kerala, India. E-mail: drsanthosh4@gmail.com

Abstract

We describe a case of 25 year old female who developed a spontaneous bronchoesophageal fistula associated with tuberculosis confirmed by bronchoscopy with esophagoscopy, histopathological examination of bronchial biopsy specimen and PCR for mycobacterium tuberculosis. She responded to antituberculous treatment, with resolution of symptoms and disappearance of fistulous tract without any surgical intervention.

Keywords: Bronchoesophageal fistula, Tuberculosis

Introduction

Benign causes of bronchoesophageal fistula (BOF) are rare and in majority of the cases are due to trauma or infection, the most common being granulomatous disease [1]. The combination of mediastinal lymphadenopathy and cough following intake of food should alert the treating clinicians about possibility of tuberculous bronchoesophageal fistula. Conventionally, BOF require surgical resection of the fistulous tract. However, in recent past a few case reports have suggested that tuberculous BOF can be effectively treated with medical line of management alone.

Case Report

A 25 year old lady, with no premorbid illness presented to us with history of cough during intake of food for 3 months duration with mucoid, non blood tinged expectoration for 1 month duration. She also had weight loss of 8 kg over a period of 3 months. There was no history of breathlessness, chest pain, vomiting, nasal regurgitation, choking or aspiration. There was no history of atopic tendency, oral ulcers, photosensitivity, or skin lesions. There was also no history of foreign body aspiration, ingestion of toxic/corrosive substances, invasive/surgical procedures in past. Her younger sister was detected to have pulmonary tuberculosis 1 year back and completed antituberculous treatment.

On examination, she had mild pallor with no icterus, cyanosis, clubbing or lymph node enlargement. Pulse rate was 86 /min, regular; blood pressure was 110/70mmHg; respiratory rate was 16/min; and she was afebrile. Cardiovascular, respiratory, gastrointestinal, nervous system examination was within normal limits.
Investigations showed Hemoglobin 10gm%, Total Count 11,200/cmm with a differential count P64 L31, ESR 55mm/1st hour, platelet count - 2.3 lakhs, MCV 81.5fl and RDW 15.2. Her blood sugar, renal and liver function tests within normal limits. Retroviral screening and autoimmune markers were negative. Sputum AFB was negative. Tuberculin skin test showed an induration measuring 15x15 mm. Chest X-Ray was normal, but Barium swallow showed a fistulous communication between esophagus and bronchial tree (Figure 1).

Figure 1: Barium swallow showing fistulous communication between esophagus and bronchial tree

Esophagoscopy was performed which revealed a 30 mm ulcer with irregular borders with communication into respiratory tract, 25 cm from the oral cavity. Computed tomography scan of thorax with three dimensional reconstruction was done which showed mediastinal lymphadenopathy, with erosion of posterior wall of left main bronchus, with fistulous tract into anterolateral wall of esophagus (Figure 2).

Figure 2: CT thorax with 3D reconstruction showing bronchoesophageal fistula
There were also centrilobular nodules in bilateral lung parenchyma with tree in bud appearance suggestive of endobronchial tuberculosis. Bronchoscopy showed inflamed mucosa, AFB staining of bronchial secretions was negative, but tested positive for TB PCR. Biopsy from bronchial mucosa showed granulomatous inflammation.

She was started on antituberculous treatment modified according to weight and Ryle's tube feeding was started. Bronchoscopy was done after completing 4 months of treatment and showed normal bronchial lumen with disappearance of fistulous tract. Computed tomography of thorax showed resolution of lung lesions without any fistula. She completed 6 months of antituberculous treatment and is asymptomatic till date.

Discussion

BOF poses a challenge to the clinician for accurate diagnosis which if made can offer the patient a potential cure from repeated pulmonary infections. Patients of BOF usually present with recurrent lower respiratory tract infection. The most characteristic symptom is paroxysmal cough particularly following ingestion of liquids. Some patients are able to avoid the paroxysms of cough by swallowing in the supine position (Ono's sign) [2]. Other symptoms include fullness of stomach with air following expiration. The fistula does not usually give rise to physical signs but can cause clubbing of fingers, crackles or pleural effusion in case of chronic bronchopulmonary suppuration.

BOF are divided into two broad categories as congenital and acquired. Braimbridge and Keith classified congenital BOF into four types depending on the site of the fistulous tract [2]. 49% of acquired BOF are malignant in etiology and rests are secondary to benign causes such as trauma, tuberculosis, actinomycosis and esophageal diverticulosis. (Table 1) [3].

Table 1: Causes of acquired esophagobronchial fistula

I. Intra thoracic malignancy - most common cause
II. Infections
   - Tuberculosis
   - Fungal - Actinomycosis, Histoplasmosis
   - Syphilis
III. Trauma
   - Foreign body ingestion
   - Instrumentation
   - Crushing trauma
   - Operative trauma
   - Chemical burns

The development of BOF in tuberculosis and other granulomatous diseases are related to mediastinal lymph node involvement [4]. Inflammation in and around these enlarged lymph nodes lead to involvement of neighboring structures or organs particularly the esophagus and the trachea near its bifurcation resulting in periesophagitis and peritracheitis. Subsequent healing with scar formation may produce a typical traction diverticulum of the midesophagus [5]. If, however necrosis and caseation occurs in the lymph nodes with local abscess formation, secondary rupture into the esophagus, trachea or main stem bronchi result in fistula.

Other complications related to mediastinal lymphadenopathy may coexist included compression of major bronchi by lymph nodes with secondary formation of lung abscess, bronchiectasis or the middle lobe syndrome. Erosion of a bronchus with intrusion of calcified fragments can give rise to broncholithiasis. Enlarging granulomas may lead to compression of the esophagus and extensive
fibrosis resulting in fibrocalcific mediastinitis with superior venacaval compression. Primary tuberculous infection of the esophagus is a rare disease and usually occurs secondary to tuberculous mediastinal lymphadenopathy. Except for HIV infected patients, almost all other reported cases have spontaneous disease unassociated with immunodeficiency. However a strong clinical suspicion of esophageal tuberculosis should be raised in those patients with known pulmonary disease having recent esophageal symptoms.

The therapy of esophagobronchial communication is surgical and is done by division of the fistulous tract and resection of any portion of the lung irreversibly damaged by the suppurative process. If the fistulous tract originates from lymph nodes with no parenchymal complication, simple ligation and resection of the fistula can be performed [6]. However, in our case surgical treatment was not required. In a similar study in 3 patients infected with human immunodeficiency virus presenting with tuberculous bronchoesophageal fistula, antituberculous chemotherapy and nasogastric feeding resulted in healing of all fistulae [7]. Thus, tuberculous BOF if diagnosed early, both the causative process and the complicating fistula may be effectively treated with antituberculous chemotherapy without the need of surgical intervention [8].

References


