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Tuberculous bronchoesophageal fistula presenting as intractable cough

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SUMMARY

Tuberculous bronchoesophageal fistula presenting as intractable cough

Intractable cough is one of the debilitating conditions, which warrants immediate investigation to find out the underlying cause. There are numerous causes of intractable cough. We present one such young immunocompromised post renal transplant patient with pulmonary tuberculosis and severe uncontrolled cough due to bronchoesophageal fistula. Bronchoesophageal fistula representing abnormal communication between bronchus and esophagus is an uncommon condition. We emphasize the role of CT in such cases.

Key words: Cough, Immunocompromised, bronchoesophageal fistula, tuberculosis

ÖZET

Geçmeyen öksürüğe neden olan tüberküloza bağlı bronkoözefageal fistül

Geçmeyen öksürük rahatsız edici bir şikayettir ve altta yatan nedenin bulunması için tetkik edilmesi gerekir. Çok sayıda nedeni olabilir. Bu çalışmada böbrek nakli yapılan bağışıklığı baskılanmış akciğer tüberkülozu bulunan ve bronkoözefageal fistüle bağlı geçmeyen öksürüğü olan genç bir hastayı sunuyoruz. Bronkoözefageal fistül bronşlarla özefagus arasında olmaması gereken geçişi tanımlar ve nadir bir durumdur. Bu durumlarda bilgisayarlı tomografinin önemini vurguladık.

Anahtar kelimeler: Öksürük, bağışıklığı baskılanmış, bronkoözefageal fistül, tüberküloz

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INTRODUCTION

Intractable cough is a debilitating condition which warrants immediate investigation. There are numerous causes of intractable cough. We present one such young immunocompromised post renal transplant patient with pulmonary tuberculosis and severe uncontrolled cough due to bronchoesophageal fistula, which is an uncommon condition. We emphasize the role of CT in such cases. Bronchoesophageal fistula, an abnormal communication between bronchus and esophagus can be either congenital or acquired. The most common acquired pathology is malignancy, followed by infection and inflammation. *Mycobacterium tuberculosis* is the most common cause of infectious fistulas. Bronchoesophageal fistulas due to tuberculosis are more common in immunocompromised patients. Multi slice CT plays a pivotal role in diagnosing fistulas of tracheobronchial tree.

CASE REPORT

A 22 year old post renal transplant female patient with intractable cough for 15 days came for plain CT chest examination. Patient had a renal transplant 9 years back and was on immunosuppressants. Her renal parameters were normal. She had elevated ESR and mild lymphocytosis. Sputum was positive for AFB. Small cavitary lesions were seen in the superior segment of right lower lobe (Figure 1A). There were multiple tiny nodules in centrilobular and random distribution in both lungs (Figure 1B). Collapse-consolidation was seen in the right middle lobe, right lower lobe and left upper lobe. Bronchiectasis was seen in the right lower lobe (Figure 1B). There was no significant bulky lymphadenopathy, apart from small sub centimeter nodes in pretracheal region. There was a mediastinal air collection measuring ~ 4 x 1.2 x 1.7 cm in the subcarinal and azygoesophageal regions. Defects in the anterior and right lateral wall of esophagus at D5 & D6 level along with defects in the right main bronchus and junction of bronchus intermedius & right lower lobe bronchus were seen communicating with the above mentioned mediastinal air collection (Figure 1,2). There were no definite mass lesions in the mediastinum. Diagnosis of pulmonary tuberculosis complicated by bronchoesophageal fistula was made. Upper gastrointestinal endoscopy and bronchoscopy confirmed the rents and diagnosis of bronchoesophageal fistula. Thoracotomy and closure

of rents was done along with lobectomy of right middle and lower lobes. However, she unfortunately succumbed to the infection and sepsis.

DISCUSSION

Bronchoesophageal fistulas can be either congenital or acquired. The most common acquired cause is malignancy, followed by infections like tuberculosis and histoplasmosis, radiation, surgery, endoscopy, chemical burns, prolonged mechanical ventilation and penetrating trauma (1,2). Congenital fistulas may be symptomatic in childhood or present later in adult life. Brunner's criteria help in differentiating congenital and acquired bronchoesophageal fistula.

Bronchoesophageal fistulas commonly involve right side bronchi with left side involved sparingly, possibly due to thinner muscle layer and lack of soft tissue envelope around the esophagus below the carina on the right side (3). *Mycobacterium tuberculosis* is the most common cause of infectious fistulas. Tuberculous mediastinal adenopathy causing necrosis and perforation of the adjacent structures (trachea, bronchi, or esophagus) is an important pathogenetic factor for fistula formation (4). Mycobacterial and Candidial infections of the esophagus, commonly seen in patients with hematological malignancy, acquired immunodeficiency syndrome and marrow or organ transplantation, can erode into the adjacent tracheobronchial tree and form fistulas (5).

Though our patient showed findings consistent with tuberculous infection of lung parenchyma and bronchoesophageal fistulas, she had no significant bulky mediastinal adenopathy. Most probable hypothesis would be the presence of nodes in the subcarinal region previously with inflammatory changes in the mediastinum between the trachea and esophagus, which progressed to transmural erosion due to lack of adequate immune response. The other possibility could be invasive esophagitis due to tuberculosis because of the immunosuppressed status. The multiple defects could have occurred due to raised intraluminal pressure associated with prolonged coughing.

Bronchoesophageal fistulas present a diagnostic challenge, frequently misdiagnosed as asthma/pulmonary infections. Bronchoesophageal fistula should be considered in any patient with severe intractable cough. They usually present with bouts of coughing while eating or drinking (Ohno's sign) and

recurrent pulmonary infections. Delay in diagnosis can lead to life threatening infection, hemoptysis and respiratory failure. Barium swallow and CT play important roles in diagnosis (1). Multislice CT, with increased resolution and availability of multiplanar reformations is very useful in the detection of bronchoesophageal fistulas. Bronchoscopy is also pivotal in identifying the fistula with esophagoscopy as an adjunct.

Immediate surgical treatment is recommended for bronchoesophageal fistula despite its seemingly benign nature, to avoid chronic pneumonia and disability. Though treatment of tuberculous bronchoesophageal fistulae has primarily relied on surgery, antituberculous treatment is also quite successful, with complementary use of endoscopy guided therapeutic intervention (6). However our patient succumbed to the disease unfortunately.

The noteworthy message would be the need for subjecting any patient with debilitating and intractable cough to a multi slice CT chest examination, as early as possible, irrespective of the duration of complaints.

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