Letters to Editor

Bronchopleurocutaneous fistula in absence of empyema: A rare presentation of pulmonary tuberculosis

Sir,

A 60-years-old male presented to us with complaint of fever and cough with expectoration for last one month and pus discharging sinus on anterolateral aspect of right side chest wall for last one week. There was no history of hemoptysis, chest pain, dyspnoea or any previous swelling on chest wall at the site of discharging sinus. There was no previous history of tuberculosis or any anti-tubercular drugs (ATT) intake. Also there was no past history of intercostal tube drain (ICD) insertion or any history suggestive of pleural effusion. On respiratory system examination, crepts were present in bilateral lung fields. Examination of cardiovascular system and gastrointestinal system was absolutely normal.

In laboratory investigation, ESR was raised while complete blood count (CBC), renal function test, liver function test were within normal limit. Smear and culture of sputum was positive for acid fast bacilli. Pus from discharging sinus failed to reveal any growth of pyogenic or fungal organism on staining as well as culture. CECT of –thorax was performed after injecting dye in the discharging sinus which revealed the presence of bronchopleurocutaneous fistula. Frontal CT scout view demonstrates extensive fibrocavitatory changes in both lungs more on right side with right sided mediastinal shift. It also revealed volume loss of right lung associated with extensive pleural thickening and blunting of CPA. Infant feeding tube was used for injecting dye in fistula. Axial chest CT demonstrates movement of dye injected in subcutaneous fistula along posterior pleural space into cavity in posterior segment of right upper lobe. From the cavity dye entered in draining segmental bronchus, thus confirming the presence of bronchopleurocutaneous fistula [Figure 1]. There was no evidence of empyema or any rib involvement on CECT of-thorax.

Patient was diagnosed as a case of pulmonary tuberculosis with bronchopleurocutaneous fistula. Patient was put on antitubercular drugs. Patient responded well and the fistula healed.

Bronchopleurocutaneous fistula is a pathological communication between bronchus, pleural space and skin. It usually develops due to pulmonary operations, perforating chest trauma, empyema, lung abscess, pneumonia or massive pulmonary infarction.[1-3] Occasional cases of bronchopleurocutaneous fistula associated with histoplasma and aspergillus are reported in literature,[4,5] but in these cases empyema was also present. In our patient for the first time Mycobacterium tuberculosis was implicated in the development of bronchopleurocutaneous fistula in absence of empyema. This is also the first case of pulmonary tuberculosis in our best knowledge in which patient presented with bronchopleurocutaneous fistula without having empyema. The most common presenting features of pulmonary tuberculosis are productive cough with fever, weight loss, night sweats, anorexia and chest pain. The radiological presentations are infiltrates, opacities, consolidation, cavitation, miliary lesions, hilar lymphadenopathy, bronchiectasis, collapse, pneumothorax, hydropneumothorax, effusion or empyema.[6] Bronchopleurocutaneous generally develops as a complication of empyema neccisstans. Diagnosis is made by bronchogram, fistulogram or by percutaneous fibrooptic bronchoscopy.[3]

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Sir,

Empyema necessitatis is characterized by an extension of pus (empyema thoracic) from pleural cavities to the surrounding structures such as chest wall, mediastinum, pericardium, esophagus, retroperitoneum and so on [1,2].

A case of empyema necessitatis, presenting with cervical abscess, is being reported.

A 5-year-old boy was presented, in surgical emergency of our institution, with discharge of pus from a cervical lump during inspiration. There was a history of fever, cough and respiratory distress 10 days back, followed by the appearance of a lump in the right cervical region. The parents sought medical treatment from a local dispensary. A day back the lump spontaneously bursted with copious amount of pus came out of the cervical lump.

The general physical examination revealed a temperature of 100°F, pulse 96/min, respiratory rate 33/min, and blood pressure within normal limits. The examination of the right cervical region showed an abscess cavity from which a small amount of pus was coming out during the inspiratory phase of the respiration. The respiratory system examination showed overt clinical signs of respiratory distress including nasal flaring, intercostal and subcostal retractions. The air-entry was reduced on the right side. A chest radiograph and ultrasound were requested that delineated empyema on the right side.

The hemoglobin of the patient was 10g/dl with WBC count of 13000.

A tube thoracostomy with debridement of the cervical wound was performed under ketamin anesthesia. The patient was started on parenteral antibiotics including co-amoxiclav and amikacin, steam nebulization, and chest physiotherapy. The patient did well post-thoracostomy. The culture of the pus revealed *Staphylococcus aureus* which was sensitive to both of the drugs. The patient showed a commensurate amelioration of the symptoms. The chest drain was removed on tenth day of insertion and patient was discharged on oral co-amoxiclav for a week. The patient is symptom-free during a follow up of six months time.

Empyema thoracic is defined to have frank pus in the pleural cavity. Various kinds of complications can arise in untreated or partially treated patients. Empyema can extend to the surrounding structures; the reported sites are chest wall, peritoneum, pericardium, retroperitoneum, esophagus, mediastinum, abdominal wall, paravertebral space, vertebrae, bronchus, breast and diaphragm. The site in our case is very rare i.e. posterior triangle of the neck in the supraclavicular region.

Empyema necessitatis usually presents with a lump in the chest along with clinical features of empyema thoracic such as fever, cough, respiratory distress etc. Rarely, the pus starts coming out from the wound, but emission of pus from the lump during inspiration is a unique attribute in the index case. In our opinion, there should be a pleuro-cutaneous communication that ejects the pus from pleural cavity as the lungs expand during inspiration.

The common organisms isolated from the pus cultures in patients of empyema necessitatis are *Mycobacterium tuberculosis*, *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Pseudomonas* and others. Rarely, methicillin-resistant *Staphylococcus aureus* (MRSA) has also been isolated from the pus cultures [1,4].

In our patient, the *Staphylococcus aureus* was sensitive to the empirical therapy instituted and patient showed a substantial improvement in the clinical condition and general well being.

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