

**Case Report**

## **ACTINOMYCOSIS MIMICKING BRONCHOGENIC CARCINOMA — NEED ATTENTION**

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### **ABSTRACT**

Actinomyces is a rare suppurative and granulomatous infectious disease caused by a group of anaerobic, gram positive, filamentous bacteria, which are normal flora in the oral cavity, gastrointestinal tract and female genital tract, they usually presents with abscess formation, tissue fibrosis, sinus drainage and occasionally a soft tissue mass mimicking a tumor. There have been a few cases of this disease which are involved in the lung. We report a case of unresolved pneumonia, which had been treated with antibiotics for 6 months, finally mimicking bronchogenic carcinoma turning into actinomyces in a 50 year old man.

**Keywords:** *Actinomyces*

### **INTRODUCTION**

Pulmonary actinomyces is a difficult condition to diagnose. Its incidence is low because of improved oral hygiene and sensitivity of the Actinomyces sp., to antibiotics. Even when the clinical suspicion is high, the disease is commonly confused with other chronic suppurative lung disease and with malignancy.

### **CASES**

A 50 year old man came with the complaints of chronic cough and low grade fever for the past one month on January 2016; on chest radiograph he was found to have left upper lobe pneumonia. Patient was continuously treated with antibiotics with higher coverage and dose, patient present with the similar complaints and unresolved pneumonia for the past 6 month and further patient was referred to CT thorax with contrast for evaluation of the unresolved pneumonia.

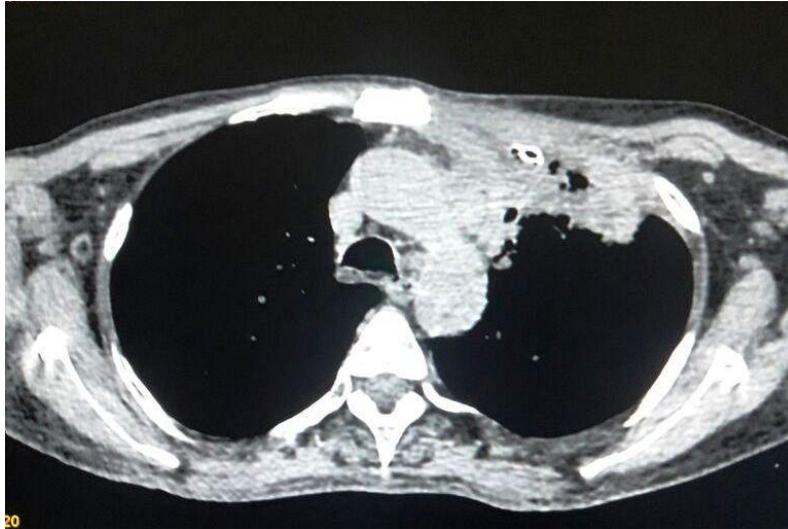
CT chest [Figure 1 to 6] with contrast shows ill defined soft tissue density lesion noted in the anterior segment of left upper lobe with irregular margins. Medially lesion is extending upto the left para-aortic space with loss of fat plane and abutting the left pulmonary artery Anteriorly lesion is extending in to the extra pleural space with significant sclerosis and erosion of anterior aspect of left second rib and further extending into anterior chest wall upto pectoralis major muscle with suspicious loss of fat plane Inferiorly lesion is extending into lingular segment with elevation of left major fissure and significant volume reduction of left upper lobe and elevation of left hilum and left hemi-diaphragm noted. On contrast, lesion showed peripheral heterogeneous enhancement with central non enhancing necrotic area. Feature suggestive of Heterogeneous and peripherally enhancing mass lesion with central necrotizing area in the anterior segment of left upper lobe with associated erosion of the second rib and extra-pleural extension of the mass lesion to rule out neoplastic etiology. Patient went into the USG guided biopsy of the lesion, which on histopathology and culture turning into the actinomyces. On follow up patient was put on the antifungal treatment responded very well and resolution of the symptoms.

### **DISCUSSION**

Actinomyces is an incident, slowly progressive infectious disease caused by anaerobic or micro-aerophilic bacteria that normally colonize the mouth, colon and vagina. The pulmonary actinomyces constitutes 15% of the total burden of the disease, although, estimates of up to 50% have been reported (Russo, 1995; Holm, 1951; Hachitanda *et al.*, 1989; Rose *et al.*, 1982). The incidence of infection is two to four times greater in males compared with females. This disparity has been partly attributed to poorer

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oral hygiene and /or a higher incidence of facial trauma in males. These may also be a risk factor for thoracic form (Smego and Foglia, 1998).

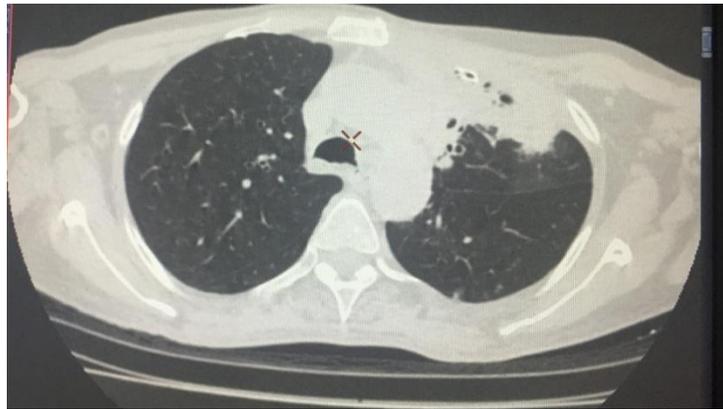


**Figure 1: CT Chest Mediastinal Window Axial Section Showing Large Mass in the Anterior and Apical Segment of the Left Upper Lobe**



**Figure 2: CT Chest Mediastinal Window Coronal Section Showing Extra Pleural Extension of the Mass**

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**Figure 3: CT Chest Lung Window Axial Section Showing Heterogenous Nature of the Mass**



**Figure 4: CT Chest Lung Window Coronal Section Showing Heterogenous Mass with Erosion of the Mass**



**Figure 5: CT Chest Mediastinal Window Axial Section Post Contrast Image Shows Peripherally Enhancing Heterogenous Mass Lesion**

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**Figure 6: CT Chest Mediastinal Window Coronal Section Shows Estension of the Lesion into the Mediastinum and Abutting the Aorta**

Pulmonary actinomycosis probably starts when saliva, or other material laden with *Actinomyces* spp., is aspirated into a minor bronchus, causing atelectasis and a pneumonitis. Once established, the initial acute inflammation is followed by the characteristic chronic, indolent phase that generates local necrosis and commonly cavities (Brown, 1973).

Classic features include extension to contiguous structures by crossing natural anatomic boundaries and the formation of fistula and sinus tracts. Because this infection is commonly confused with neoplasm, it has been called "most misdiagnosed disease" (Apothloz and Regamey, 1995).

Basic tests reflect the nonspecific inflammatory nature of the illness. There is usually a mild leukocytosis, predominantly polymorphonuclear, and, depending on the duration of the illness, a normochromic anaemia.

The erythrocyte sedimentation rate and the C-reactive protein may be moderately raised as with any chronic disease and these probably do not confer any diagnostic advantage.

Radiological pulmonary actinomycosis can resemble a spectrum of lung pathologies ranging from benign infection to metastatic tumour. First, the radiological findings depend on the duration of the infection; in the early stages of the infection, the findings are usually indistinguishable from those of any other pneumonic process. Secondly, the disease usually shows a peripheral and lower lobe predominance,

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probably reflecting the role of aspiration in its pathogenesis (Kwong *et al.*, 1992). Finally, the disease usually shows some diminution in size within 4 weeks of starting treatment (Slade *et al.*, 1973).

The CT is more helpful than the plain radiograph, particularly if performed with a bone window display, which gives a better delineation of minimal bony change, such as early rib erosion and osteomyelitis. These may be easily missed by plain chest radiography. A range of findings have been described on CT in pulmonary actinomycosis, including patchy air-space consolidation, multifocal nodular appearances, cavitation, pleural thickening, pleural effusions and hilar, and/or mediastinal lymphadenopathy (Webb and Sagel, 1982; Flynn and Felson, 1970; Parker and deBoisblanc, 1994). Mediastinal lymphadenopathy may be more common than previously thought. Consolidation with involvement of adjacent pleura and chest wall, and pulmonary infiltrates with air bronchograms or so-called “air sign”, may be more suggestive of thoracic actinomycosis.

Anecdotal reports have shown unexpected focal uptake of certain isotopes in pulmonary actinomycotic lesions (Datta and Raff, 1974; Aktolun *et al.*, 1991). There is insufficient data to make sensible comments about the usefulness of such investigations in routine clinical practice.

Fibreoptic bronchoscopy is usually not diagnostic in pulmonary actinomycosis unless there is clear endobronchial disease on which biopsy can be performed.

Some form of lung biopsy is usually necessary to obtain uncontaminated samples for histological and microbiological confirmation of pulmonary actinomycosis. The challenge for the clinician is to obtain this in the least invasive fashion. Traditionally, excisional biopsy was the definitive diagnostic procedure (Slade *et al.*, 1973). In general, an attempt at establishing diagnosis by percutaneous biopsy with fine needle aspiration or core biopsy is now made before “blind” thoracotomy (Pauker and Kopelman, 1993). When guided by ultrasound or CT, this has proven a simple, safe and effective diagnostic technique and reduced the number of unnecessary resections (Das, 1994; Moore and Scanell, 1968; Hsu *et al.*, 1997). Since the gross appearance of the pulmonary actinomycosis intra-operatively is indistinguishable from that of carcinoma, a frozen section, on a wedge resection or surgical trucut biopsy, may help in deciding the extent of the resection (Das, 1994; Moore and Scanell, 1968).

### Conclusion

In patient with unresolved pneumonia with CT showing the aggressive features of the lesion, possibility of fungal infection had to be kept in mind and USG guided biopsy is always helpful in diagnosing the condition and plays an important role in the treatment.

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