

Case Report

Pulmonary Actinomycosis with Endobronchial Involvement: Masquerading as a Foreign Body

Dr. Muhammad Josheel Naveed*, Dr. Khalid Farooqui¹

1. Al Khor hospital, Hamad Medical Corporation, Qatar.

***Corresponding Author: Dr. Muhammad Josheel Naveed ***, Consultant Respiratory Physician, Department of Pulmonary Medicine, Al Khor hospital, Hamad Medical Corporation, Qatar.

Received Date: November 17, 2020

Publication Date: December 01, 2020

Abstract

Introduction: Pulmonary actinomycosis is a rare but important and challenging diagnosis to make. Pulmonary involvement is uncommon and even when the clinical suspicion is high, the disease is commonly confused with other chronic suppurative lung diseases and with malignancy. Endobronchial involvement is very rare in pulmonary actinomycosis.

Case Report: We describe an interesting case of endobronchial actinomycosis in a 44-year-old gentleman who presented with cough, hemoptysis, evening rise of temperatures with a subjective weight loss for 2 weeks. While getting him initially worked up for Tuberculosis, his initial CT scan thorax mimicked like a foreign body but was later on confirmed to be pulmonary actinomycosis on endobronchial biopsies. The purpose of reporting this case is its rare occurrence.

Conclusion: Internist and Respiratory physicians should be aware of this important differential of pulmonary actinomycosis when investigating patients for non-resolving pneumonia and persistent pulmonary shadowing. Early and accurate diagnosis improves the prognosis and could be managed with antibiotics effectively.

Key Words: Actinomycosis, Misdiagnosis, Foreign Body.

Abbreviations

CT- Computerized tomography,

CXR- Chest X-Ray

AFB- Acid Fast Bacilli

PAS- Periodic acid-Schiff

TB- Tuberculosis

RUL- Right upper lobe

Introduction

The disease shares many similar clinical features with chronic suppurative lung infections, such as tuberculosis, fungal infections, lung abscesses, and lung malignancy with which it is commonly confused. Pulmonary actinomycosis clinically manifests as a triad of cough, blood-stained sputum, and chest pain while later is the most prominent presentation especially on taking deep inspiration. It also presents with non-specific symptoms of fatigue, shortness of breath, weight loss, night sweats, appetite loss which mimics chronic infective lung disease or malignancy. It is also difficult to diagnose the disease radiologically which may mimic lung mass, foreign body, or infiltrative lung disease. (8)

Case presentation

44-year-old Nepalese male admitted with complaints of cough with blood-stained sputum associated with evening rise of temperature and subjective weight loss since the past 2 weeks. The patient also complains of a pleuritic type of right sided chest pain.

There was no history of sick contacts, vomiting, dizziness, abdominal pain, shortness of breath, alcoholism or any drug abuse. The patient was initially admitted as a suspected case of Pulmonary Tuberculosis based on symptoms, from the endemic area and chest X-ray findings.

Initial workup with 2 sets of AFB smear and TB QuantiFERON test were negative and further workup with CT chest was suggestive of foreign body/broncholith in the proximal aspect of the posterior segment of right upper lobe bronchus with distal bronchiectasis and consolidation changes.

Flexible bronchoscopy and endobronchial biopsy were planned and it showed as soft tissue mass lesion obstructing subsegmental bronchus with the necrotic part that was excised and sent for culture and histopathology. The procedure was uneventful.

Histopathology of the biopsy section showed numerous balls of filamentous organisms that stain positive with gram stain and PAS, suggestive of Actinomycosis.



Figure 1: CXR consistent with nodular and reticular opacities in right midzone.

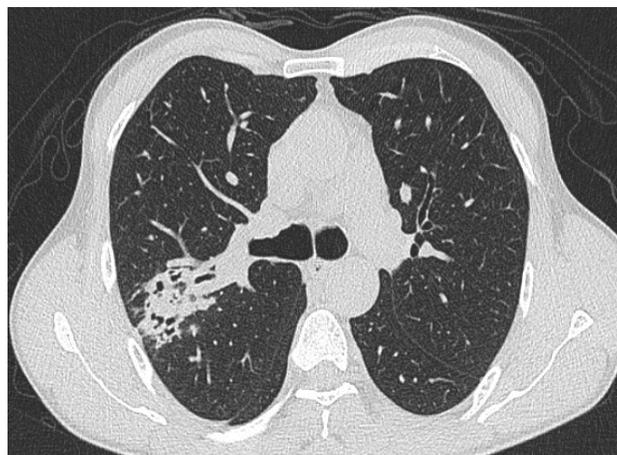


Figure 2: CT revealing hyperdense linear calcific density in the proximal aspect of right upper lobe which could represent a broncholith / foreign body.

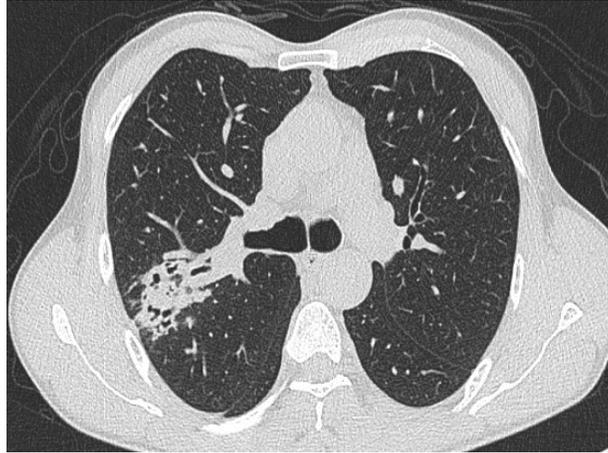


Figure 3: CT revealing posterior segment of right upper lobe with distal bronchiectatic and consolidation changes.

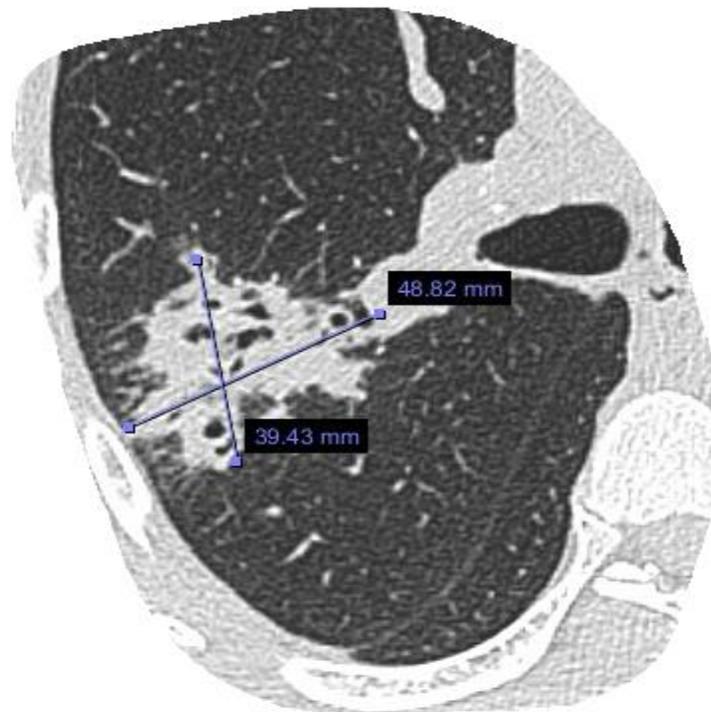


Figure 4: Enlarged view of posterior segment of right upper lobe with distal bronchiectatic and consolidation changes.

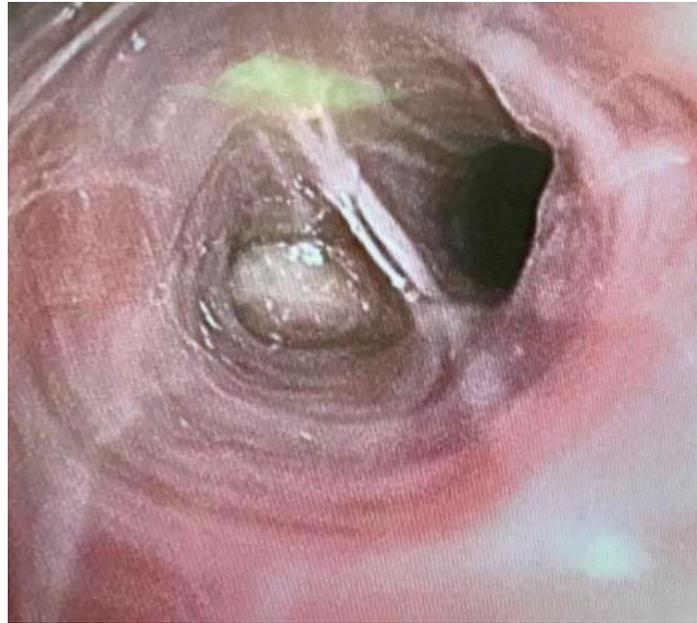


Figure 5: Endobronchial view which gives an impression of impacted foreign body in posterior segment of right upper lobe.

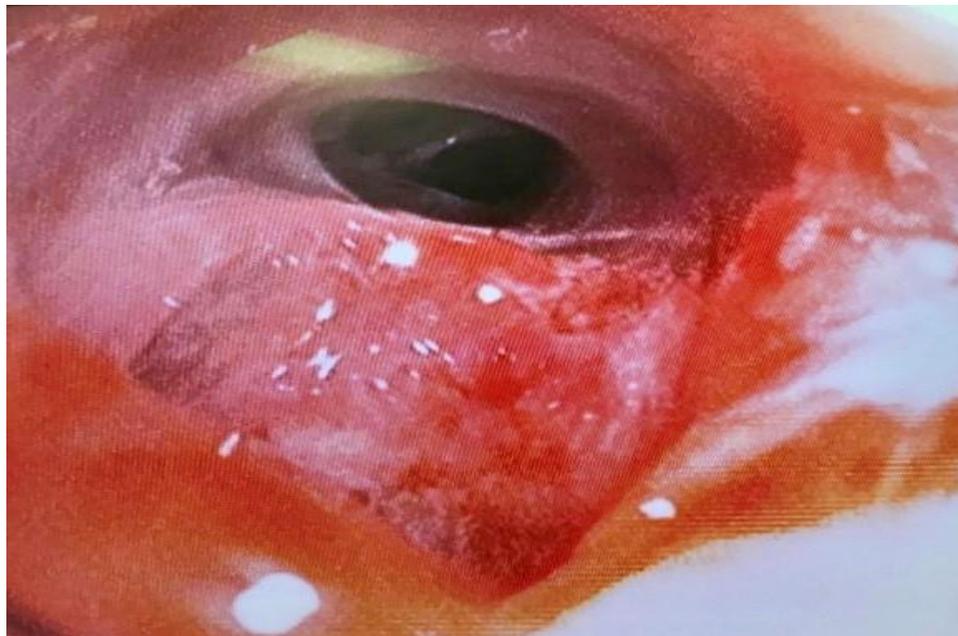


Figure 6: After taking Endobronchial biopsies, the lesion causing erosion in the mucosa.



Figure 7: Macroscopic view of the Endobronchial lesion.

Discussion

Foreign body aspiration in adults usually occurs in the elderly or patients with underlying neurological impairment, excessive alcohol consumption, psychiatric diseases, Alzheimer's disease, or head trauma (1). Foreign body aspiration occurs most commonly in children and the elderly and is uncommon in adults without the above-mentioned risk factors. In one study involving 1,200–1,300 routine adult bronchoscopy practices, foreign bodies were encountered at the rate of < 0.2% per year. (2)

The word “actinomycosis” was derived from the Greek terms aktino, which refers to the radiating appearance of sulphur granules, and mykos, which labels the condition a mycotic disease.

Actinomyces spp. are higher prokaryotic bacteria belonging to the family Actinomyceataceae. When they were first described in the early 19th Century (3). Actinomyces species are Gram-

positive, non-spore-forming, predominantly anaerobic prokaryotic bacteria belonging to the family Actinomyceataceae. They are sensitive to standard antibacterial agents such as penicillin (3)

In 1957, Bates and Cruickshank described a fairly dramatic presentation of pulmonary actinomycosis with prominent chest pain and cutaneous fistulas discharging Sulphur granules. (4)

A vital step in the development of actinomycosis is the disruption of the mucosal barrier, allowing the organisms to invade. For cervicofacial and abdominal actinomycosis, such a break may result from dental sepsis, appendicitis, diverticulitis, trauma, or surgery (5). For pelvic disease, it may result from the use of intra-uterine or intravaginal devices (6). Pulmonary actinomycosis probably results from aspiration of oropharyngeal or gastrointestinal secretions into the respiratory tract. Poor oral hygiene and associated dental disease may increase the risk.(7)

Pulmonary actinomycosis is an uncommon and difficult condition to diagnose. There is a delay in diagnosis or misdiagnosis as tuberculosis, lung abscess or lung cancer is common even among experienced physicians despite there are major clues towards the disease (7).

In our case, the patient was admitted with suspicion of pulmonary tuberculosis and the patient also informed that he had similar complaints previously too, while the initial workup for pulmonary tuberculosis was negative. Further CT imaging of the chest revealed hyperdense linear calcific density in the proximal aspect of the posterior division of the right upper lobe (RUL) which can represent a foreign body. Distal to this, the posterior segment of RUL has areas of bronchiectasis and consolidation almost reaching the pleural surface. This could represent a broncholith or a foreign body with post-obstructive bronchiectasis and consolidative changes.

Because of the CT appearances suggestive of foreign body, flexible bronchoscopy was undertaken which found an endobronchial mass with purulent exudate which was excised and sent for biopsy. The final biopsy was suggestive of pulmonary actinomycosis which was quite an unusual area of presentation in the upper lobe of the lung. He was commenced on 2 weeks course of IV ceftriaxone antibiotic with significant improvement and was discharged with appropriate follow up in the outpatient clinic. An informed discussion regarding the diagnosis and the management plan was undertaken during the patient's journey.

Conclusion

Pulmonary actinomycosis is a difficult condition to diagnose and physicians should be aware of this when investigating for non-resolving pneumonia. It can easily masquerade as tuberculosis, foreign body, lung abscess, or lung cancer.

Increased awareness of the infection expedite early and accurate diagnosis and prevent undesirable complications, including unwarranted surgery, which considerably prevents psychological and physical morbidity.

Conflict of interest

All authors declare no conflict of interest.

Funding

The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Patient's consent

Patient's consent has been obtained for publication of case details.

Provenance and peer review

Not commissioned and externally peer reviewed.

Acknowledgment

I sincerely thank, Dr. Wasfy Hamad, Head of Pulmonary and Critical Care at Al Khor Hospital, for encouragement and support to do the study.

I thank my patient and their attendees for their untoward and kind cooperation throughout patient's journey.

References

1. Mise K, Jurcev Savicevic A, Pavlov N, Jankovic S. "Removal of tracheobronchial foreign bodies in adults using flexible bronchoscopy: experience 1995-2006". *Surg Endosc* 2009;23(6):1360-1364.
2. Nakhosteen JA. "Tracheobronchial foreign bodies". *Eur Respir J* 1994;7(3):429-430
3. Bennhoff DF. "Actinomycosis: diagnostic and therapeutic considerations and a review of 32 cases". *Laryngoscope* 1984;94:1198-1217.
4. Bates M, Cruickshank G. "Thoracic actinomycosis". *Thorax* 1957;12:99-124
5. Miller M, Haddad AJ. "Cervicofacial actinomycosis". *Oral Surg Oral Med Oral Path Oral Radiol Endod* 1998;85:496-508.
6. Lippes J. "Pelvic actinomycosis: a review and preliminary look at prevalence". *Am J Obstet Gynaecol* 1999;180:265-269.
7. Russo TA. "Agents of actinomycosis In: Mandell GL, ed. *Principles and Practice of Infectious Disease*". 5th edn New York, Churchill Livingstone, 1995; pp. 2645-2654.
8. Slade PR, Slesser BV, Southgate J. "Thoracic actinomycosis". *Thorax* 1973;28:73-85.

Volume 1 Issue 4 December 2020

©All rights reserved by Dr. Muhammad Josheel Naveed, Dr. Khalid Farooqui.