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Pneumonia on Imaging, Endobronchial Tumour on Bronchoscopy but Actually a Foreign Body – a Case Report

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ABSTRACT

Common cough being a common presenting complaint in pulmonary medicine is often misdiagnosed. Endobronchial foreign body is a rare diagnosis in adults and varies in presentation from patient to patient. We present a case of chronic cough in a 65 year old male being misdiagnosed as infective etiology on imaging, neoplastic mass on bronchoscopy eventually being diagnosed as a corn kernel in the subsegmental bronchus.

The case report highlights the value of a strong clinical suspicion to diagnose such cases and the importance a good experienced clinician in identifying such etiologies.

Keywords: Endobronchial tumor, Corn, Bronchoscopy, Chronic cough, Foreign body

Introduction

Complaint of chronic cough is one of the most common clinical presentations in pulmonary medicine, as it's distressing and uncomfortable. Constant airway irritation leads to irritation of the phrenic nerve, consequently leading to medullary cough center activation.[1] Though multiple etiologies both intrathoracic and extrathoracic could be responsible for the symptom, undetected endobronchial foreign body could be a cause, but its diagnosis requires a high degree of suspicion especially in adults. Foreign body aspiration is rather uncommon in adults and it usually presents with a choking event followed by persistent coughing. In the longer term it can mimic more chronic diseases such as COPD, asthma or pneumonia, especially when the initial event goes unnoticed (e.g., while consuming alcohol)[2 - 5].

Here, we present a case of a patient with a history of chronic cough with suspicion of an infective cause on radiological evaluation and suspected neoplastic etiology on bronchoscopic visualization, eventually being diagnosed with an endobronchial foreign body.

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Case presentation

A 65 year old male presented to our outpatient department with complaints of breathlessness and intermittent cough for the past one year exacerbated since a month. Patient also gave a history of intermittent fever and loss of appetite. There was no history of hemoptysis, expectoration, seasonal variation in cough or abnormal sounds while breathing.

On physical examination, the patient appeared comfortable, with blood pressure 125/82 mm Hg, pulse 93/min, temperature 37.5°C, respiratory rate 16/min and oxygen saturation 96% on room air. Chest examination revealed no obvious abnormality and there were no signs of neurological deficit in CNS examination. He was admitted under injectable broad spectrum antibiotic coverage and bronchodilator therapy

Spirometry revealed severe obstruction with restriction, along with post bronchodilator reversibility. Chest X-ray showed right lower zone nodular and inhomogenous opacities which seemed likely to be tubercular etiology but sputum for AFB and CBNAAT was also negative. As per the HRCT performed in the other hospital, there were fibronodular changes within apical segment of right upper lobe with nodular calcified pleural thickening along left lower lobe. Also, multiple discrete centrilobular nodules along with V-Y branching was noted with patchy consolidation of posterior basal segment of right lower lobe (Figure – 1). The CT findings were suggestive of infective pathology. The patient previously seeked treatment from another hospital, where he had undergone flexible video bronchoscopy, which reported a suspected highly vascular soft tissue in the right lower lobe lateral basal segment. Bronchoalveolar lavage taken was negative for malignant cytology, gram and ZN staining and cultures. It arose a suspicion of a vascular endobronchial mass and biopsy was not attempted.

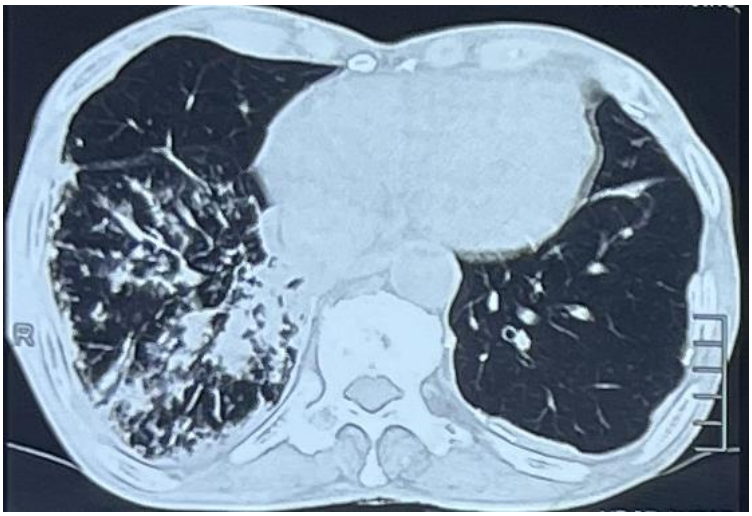

Figure 1

Figure 1: HRCT thorax suggestive of multiple discrete centrilobular nodules along with V-Y branching was noted with patchy consolidation of posterior basal segment of right lower lobe

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Patient reported to our hospital with the anxiety over possible diagnosis of a malignancy. After aforementioned spirometry, fiberoptic bronchoscopy was performed. Bronchoscopy revealed a lobulated mass like lesion seen on the right lower lobe lateral basal segment which made us think of an endobronchial tumour as well (Figure 2). So, in view of this suspicion, biopsy was attempted. After the first attempt, it was visualized that the suspected mass was moving as the patient coughed. This was eventually taken out using the biopsy forceps revealing it to be a foreign body surrounded by vegetations. The foreign body resembled a corn kernel confirming the diagnosis of an endobronchial foreign body (Figure 3).

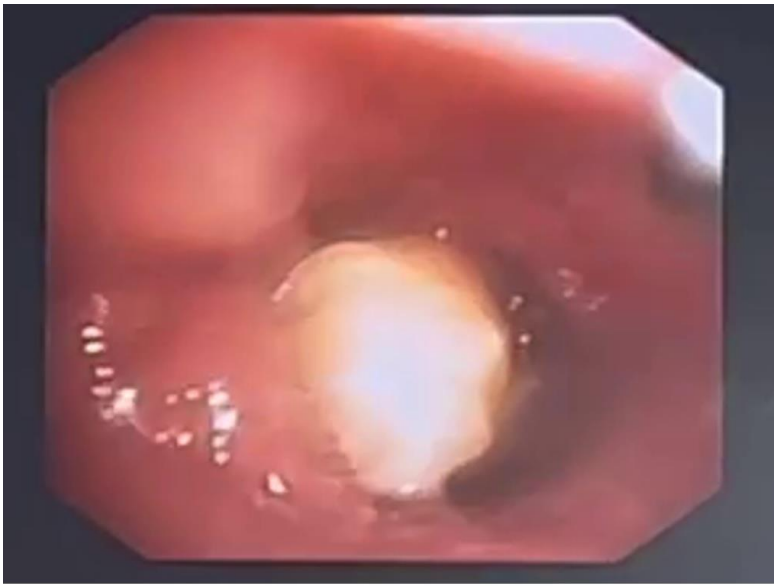

Figure 2: Bronchoscopic visualization of foreign body in the right lower lobe lateral basal segment appearing like an endobronchial tumour. **Figure 3:** Extracted corn kernel from the segmental bronchus using biopsy forceps

Figure 2 **Figure 3**

After foreign body extraction, patient's clinical status showed a quick recovery with marked resolution of symptoms.

A thorough review in history made the patient recall an incident of a bout of coughing and choking sensation while consuming alcohol with his friends and ingesting corns as a snack.

Discussion

Typically defined as a cough that persists for longer than 8 weeks, chronic cough is the most common presenting symptom in adults who seek medical treatment in ambulatory settings.[6] A European Respiratory Society supported survey of 18,277 subjects aged 20-48 from 16 countries worldwide reported nocturnal cough in 30%,productive in 10% and non productive in 10% of the test population.[7] Most episodes of chronic cough in adults are caused by upper airway cough syndrome, asthma and GERD alone or in combination. Foreign body aspiration in adults and

bronchogenic carcinoma are rare causes, thus their diagnosis require thorough workup and high degree of suspicion.[8]

In accordance Irwin RS et al, thorough history taking and physical examination forms the backbone of clinical approach. Persistent cough and abnormal chest radiography warrants the requirement of sputum tests, chest X-ray, CT scan and if needed, bronchoscopy.[9]

The overall incidence of foreign body aspiration has a bimodal distribution, with one peak at 1 or 2 years of age and other peak at over 60 years of age.[10, 11] However, foreign body aspiration usually occurs in children, and adults account for less than 20% of the total cases.[12] The risk factors for foreign body aspiration in adults include neurological deficits with swallowing difficulties or altered mental status, neuromuscular disease, intoxication, or could be iatrogenic. Delay in diagnosis can result into long term complications such as, recurrent pneumonias, bronchiectasis, recurrent hemoptysis, pneumothorax, lung abscesses, pneumomediastinum, or other complications.[13]

CT has become a strong investigative modality in terms of imaging studies when endobronchial foreign body is suspected. The radiological manifestations of FB aspiration include either direct visualization of FB or indirect signs in form of pneumonia, atelectasis, hyperinflation, or localized bronchiectasis.[2, 14 - 16] Although chest CT can help in diagnosing bronchial foreign with high sensitivity and specificity, it is difficult to distinguish between endobronchial tumors and foreign bodies based on CT alone. Even in positron emission tomography images, inflammation surrounding foreign body, which can result in elevated 18F-fdg uptake, making it difficult to differentiate from tumours.[15, 17] Bronchoscopy is hence the gold standard modality as it aids in direct visualization of lesion as well as extraction of foreign body. However, inflammatory changes with granulomas or necrotic debris induced by aspirated foreign body can be mistaken for a tumor, even on bronchoscopy.[15] In our case as well, radiological impression was an infective etiology, likely being tubercular and the foreign body was mistaken with a vascular tissue on previous attempt at bronchoscopy which was probably granulation tissue formed due to inflammatory response towards it. This highlights the observer bias when it comes to bronchoscopic visualization.

Definitive treatment of foreign body aspiration requires its extraction. Extraction by flexible bronchoscope is successful in approximately 90% of patients.[2] The advantages of flexible bronchoscopy include cost effectiveness and ability to be performed on outpatient basis. If foreign bodies are impacted by significant granulation tissue or are difficult to grasp with flexible forceps due to size or shape, rigid bronchoscope can be used for extraction.[18]

Conclusion

Thus, a comprehensive approach including suspicion, detailed history of aspiration, imaging and bronchoscopy is needed to accurately diagnose and endobronchial foreign body especially if

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neglected in adults. Dependance on imaging alone can lead to delay in diagnosis. Also, importance of an expert clinician with ample experience in bronchoscopy is highlighted through our case report. High degree of suspicion about such diagnoses doesn't only save the precious time involved in treating the patient but also, saves the anxiety caused by a serious false diagnosis and monetary stress henceforth caused to the patient.

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