

## Case Report

### Arecanut aspiration: A mimic of eosinophilic lung disease

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#### Abstract:

History suggestive of foreign body aspiration should not be disregarded. Similarly a negative history may mislead. We present a case of recurrent chest infection and very high eosinophil count which mislead to an eosinophilic lung disease. A bronchoscopy revealed an areconut and it causes an eosinophilic reaction.

#### Key words

Eosinophelic lung disease, Ventilatory bronchoscopy, Broncho alveolar lavage, Arecoline

#### Introduction

Foreign body aspiration is more common in paediatric population than in adults. Older infants and toddlers are the most affected. Common objects that choke are nuts, seeds, small fruits, coins, jewellery, pins, pen caps and toys. The presence of cough reflex, gag reflex, and closure of the glottis prevent aspiration of foreignbody. But mucous production and secretions in the airway produce a seal around the foreign body after aspiration and prevent the dislodgement by expulsion.

Children with foreign body aspiration present with paroxysms of cough, choking, respiratory distress, drooling or gagging. History suggestive of foreign body aspiration should not be disregarded. Similarly, a negative history may mislead towards a different diagnosis.

#### Case history

A 3-year-old boy was presented with fever and respiratory symptoms of 5 days duration. He was dyspnoeic with reduced air entry in the right middle and lower zones with crepitations. There was no history suggestive of foreign body aspiration or choking episodes. His WBC count was high ( $19 \times 10^9/\text{litre}$ ) with neutrophilic predominance (76%) and a high CRP (130mg/litre). Chest Xray showed right middle and lower lobe inflammatory

shadows. He was initially treated with IV Cefotaxime but due to poor response antibiotic was upgraded to IV Meropenem. Clinically he improved with a 7day course of antibiotics, even though the air entry in the right lower zone persisted to be low. Regular chest physiotherapy was arranged, and he was discharged with an oral antibiotic for another 7days. He was followed up in the clinic and it took about 6weeks for the air entry to improve. Repeated Chest Xray showed resolution of inflammatory shadows and excluded the evidence of foreign body.

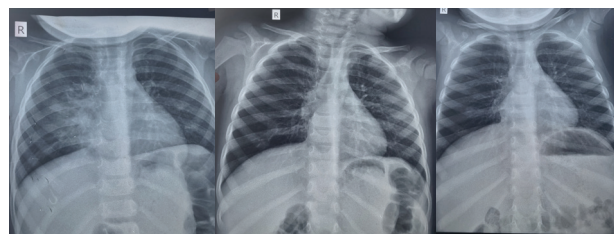


Figure 1: Series of Chest Xrays taken 6 weeks apart

He was brought again after a month, with bouts of cough which disturbed his activity and sleep. He was noted to produce streaks of blood in the sputum which was coughed out. He was not in respiratory distress. There were bilateral lung signs and equal air entry in all zones. Due to persistent symptoms, tuberculosis was excluded with a negative sputum for Acid fast bacillus, Mantoux test and a normal ESR value (12mm in 1st hour). But the full blood count showed a high WBC level ( $15 \times 10^9/\text{L}$ ) with a rising eosinophil count (From 18% to 25%). He was given cough suppressants and low dose steroid as well.

Due to the persistent symptoms and eosinophilia, it was planned to exclude eosinophilic lung disease with bronchoscopy and broncho alveolar lavage, High Resolution Computerised Tomography (HRCT) and serum IgE level.

Initially he underwent ventilatory bronchoscopy, which showed the presence of a portion of an arecanut lodged

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at the level of carina. Clinically he improved in 48 hours and discharged with a follow up plan to do interval HRCT and to repeat full blood count in two weeks' time to look for the decrement in eosinophil count.

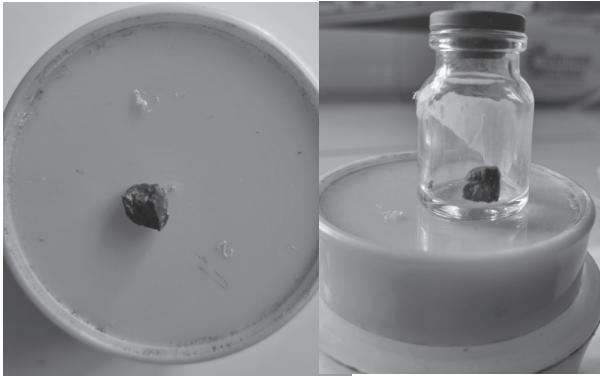


Figure 2: The piece of arecanut removed by bronchoscopy

### Discussion

Persistent cough with reduced air entry in a particular zone in a toddler should always raise the suspicion of foreign body aspiration. Blood stained sputum or hemoptysis should warn that it could be due to erosion of the bronchial wall by the foreign body. It can cause secondary bacterial infection which can cause high WBC count with neutrophilic predominance.

In this child, after the initial treatment with intravenous antibiotics, the white cell counts normalised. During the second presentation, bilateral diffuse lung signs were there with equal air entry in all zones of the lung but there was again a rise in WBC count with significant eosinophilia. This led to a suspicion of eosinophilic lung disease.

The foreign body found in this child was half of an arecanut which his grandmother used to chew. Arecanut

has an alkaloid component known as arecoline which is responsible for inflammation other than the mechanical compression caused by the foreign body.

Arecoline stimulates the production of Exotoxin-1, a chemokine which involves Th2 lymphocytes and eosinophils and plays a major role in the airway inflammation. This involvement of arecoline could be the reason for the peripheral eosinophilia as found in this case.

### Conclusion

This case is a good example that a negative history will never exclude foreign body aspiration and all the cases with eosinophilia and lung involvement cannot be considered as having eosinophilic lung disease. The constituents of foreign body that involve in the inflammation also can cause peripheral eosinophilia.

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