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Foreign Body Aspiration in Adult, What Would You Expect? Case Report

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ABSTRACT

Foreign body (FB) aspiration is an uncommon but potentially life-threatening event, while the majority of accidental aspiration events occur in children, adults represent up to 25% of cases.

When the diagnosis is not established immediately, retained FBs may lead to recurrent pneumonias, bronchiectasis, recurrent hemoptysis, pneumothorax, lung abscesses, pneumo-mediastinum, or other complications. Extraction of aspirated FBs should be undertaken as soon as possible to alleviate acute symptoms and prevent long term complications.

FB aspiration is slightly more common in males. The vast majority of adult patients with FB aspiration have obvious risk factors for aspiration including neurological deficits with swallowing difficulties or altered mental status, neuromuscular disease, intoxication, or have an iatrogenic cause. Still, 10% of adult patients with FB aspiration have no known risk factors.

Our case is 35 y old male patient who was brought to Accident and Emergency department after being found unresponsive in the street, on arrival to hospital his GCS was 9/15 with pin points pupils, spontaneous breathing and hemodynamic stable. CT brain was unremarkable. Patient failed to respond to repeated doses of naloxone and his GCS dropped with episode of apnea so was intubated and mechanically ventilated.

Follow up chest x-ray show opacification of the right lung, and ABG revealed hypoxia with respiratory acidosis in spite high ventilator settings, So CT chest was the best option which revealed bronchial obstruction mostly due to foreign body.

Urgent bronchoscopy was done and unexpectedly obstruction was due to chewing gum pieces, aspiration of four large pieces of chewing gum, following that patient remained in the ICU for 2 days where chest x-ray show significant improvement and he was weaned and extubated successfully.

Keywords: Foreign body aspiration, Chewing gum aspiration, bronchoscopy.

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Introduction

Foreign body aspiration (FBA), defined as the introduction of a large particulate material into the tracheobronchial tree.

Foreign body aspiration is an uncommon clinical entity in adults. Children account for the vast majority of all foreign body aspirations reported. Foreign bodies can either be organic (eg, peanuts, peas) or inorganic (eg, plastic caps, pins, screws, nails, teeth).

Clinically, patients may present either with acute respiratory failure requiring urgent intervention or with recent onset of respiratory symptoms, including breathlessness, wheezing, coughing, and expectoration. Identification of foreign body aspiration requires a high index of clinical suspicion, especially in those presenting without a history of aspiration.

FB aspiration is slightly more common in males. The vast majority of adult patients with FB aspiration have obvious risk factors for aspiration including neurological deficits with swallowing difficulties or altered mental status, neuromuscular disease, intoxication, or have an iatrogenic cause. Still, 10% of adult patients with FB aspiration have no known risk factors.

The majority of FBs become lodged in the right bronchial tree, favoring the bronchus intermedius and the basal segments of the right lower lobe, owing to a more vertical course of the right main stem bronchus.

Standard postero-anterior and lateral chest radiographs should be obtained in all patients in whom FB aspiration is suspected. Radiographs directly identify the FB in 25% of patients, as only a minority of FBs such as coins, nails, teeth, or dental appliances are radiopaque. Most FBs are organic and radiolucent (such as food), and therefore not directly visible on chest radiograph.

Chest computed tomography (CT) is more sensitive for identification of FBs, helps with procedural planning, and has become the gold standard of imaging studies when a FB aspiration is suspected.

Flexible bronchoscopy broadened the scope of bronchoscopic interventions to the peripheral airway, allowing removal of foreign bodies lodged more distally with a large variety of dedicated flexible instruments. As technology advanced, technique spread, and practitioners became more experienced, flexible bronchoscopy gradually supplanted rigid bronchoscopy as the most commonly used technique in adults.

Chewing gum aspiration can present a particular dilemma, in that fragments of gum may not be easily extracted. Here we present the clinical and therapeutic challenges that arose in unexpected one episode of chewing gum aspiration.

Case Report

Our case is 35 y old male patient who was brought to Accident and Emergency department after being found unresponsive in the street, on arrival to hospital his GCS was 9/15 with pin points pupils bilaterally, spontaneous breathing and hemodynamic stable. CT brain was unremarkable.

Patient failed to respond to repeated doses of naloxone and his GCS dropped with episode of apnea so was intubated and mechanically ventilated.

Follow up chest x-ray show opacification of the right lung, and ABG revealed hypoxia with respiratory acidosis in spite high ventilator settings, So CT chest was the best option which revealed complete collapse of right lung with an obstructing foreign body was strongly suggested in bronchus intermedius.

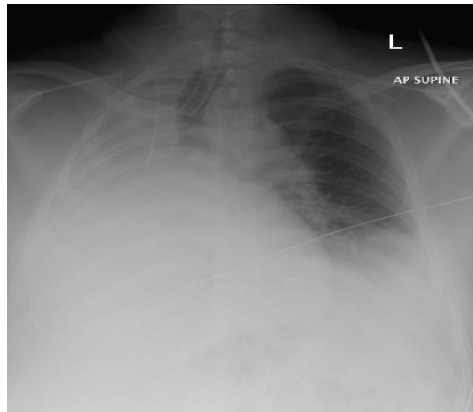
Urgent bronchoscopy was done and unexpectedly obstruction was due to chewing gum pieces, aspiration of four large pieces of chewing gum, following that patient remained in the ICU for 2 days where chest x-ray show significant improvement and he was weaned and extubated successfully.

Discussion

Tracheobronchial foreign body (FB) aspiration is an uncommon but potentially life-threatening

event in adults ⁽¹⁾. Clinically, patients may present either with acute respiratory failure requiring urgent intervention or with recent onset of respiratory symptoms, including breathlessness, wheezing, coughing, and expectoration. Identification of foreign body aspiration requires a high index of clinical suspicion, especially in those presenting without a history of aspiration ^(2,3). FB aspiration

is slightly more common in males, many adult subjects with tracheobronchial foreign bodies described in previous studies had an underlying risk factor, such as neuromuscular disease, head trauma, alcohol intoxication, or altered sensorium ^(2,4). Our presented case had altered sensorium with low GCS which was the predisposing factor of his aspiration.



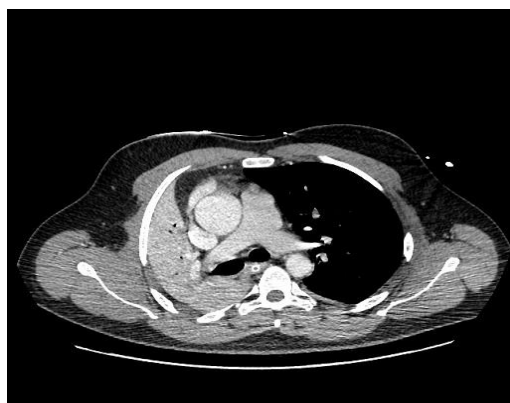
1st chest X ray show right lung Opacity



chest X ray post bronchoscopy



chest X ray on discharge



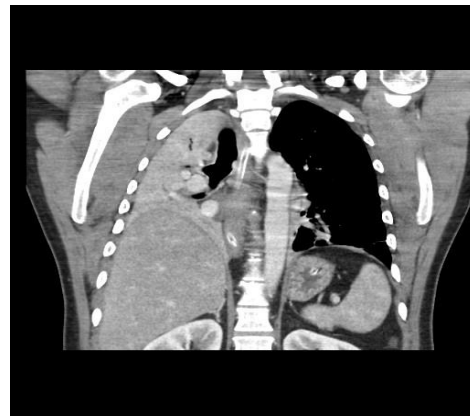
CT Findings(1)



CT Findings (2)



CT Finding (3)



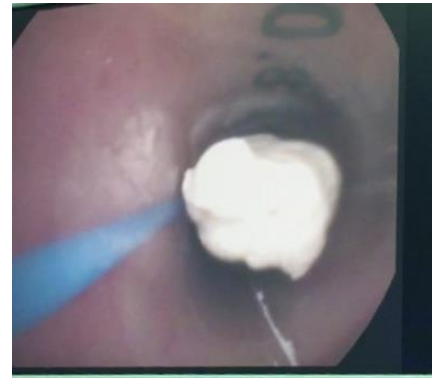
CT Finding (4)



Bronchoscopic extraction (1)



Bronchoscopic extraction (2)



Bronchoscopic extraction (3)



Extracted Chewing gum piece



Extracted pieces of chewing gum

The majority of FBs become lodged in the right bronchial tree, favoring the bronchus intermedius and the basal segments of the right lower lobe, owing to a more vertical course of the right main stem bronchus ^(1,5,6), and our presented case showed clearly the same finding of right bronchus intermedius location of the FB.

Standard postero-anterior and lateral chest radiographs should be obtained in all patients in whom FB aspiration is suspected. Radiographs directly identify the FB in 25% of patients, as

only a minority of FBs such as coins, nails, teeth, or dental appliances are radiopaque ^(1,6). Most FBs are organic and radiolucent (such as food), and therefore not directly visible on chest radiograph ^(2,7).

Chest radiographs can demonstrate indirect, non-specific, findings of atelectasis, hyperinflation, bronchiectasis, or lobar consolidation in the majority of patients. Expiratory films can assess for focal hyperinflation related to ball-valve phenomena caused by a FB that is partially obstructing an

airway on inhalation and completely obstructing an airway on expiration. In 14–35% of patients the chest radiograph will be entirely normal (1,2,7).

Chest computed tomography is more sensitive for identification of FBs, helps with procedural planning, and has become the gold standard of imaging studies when a FB aspiration is suspected. In our case the CT chest was done urgently for the high clinical suspicion which allowed for the rapid recognition of the aspirated FB (8).

Flexible bronchoscopy has, in general, supplanted rigid bronchoscopy as the initial procedure for evaluation and management of FB aspiration. Flexible bronchoscopy allows for a more comprehensive airway survey and has an overall 90% success rate for FB removal (9,10).

Chewing gum aspiration can present a particular dilemma, in that fragments of gum may not be easily extracted, extraction of the aspirated chewing gum was challenging in the presented case as the pieces were fragile and sticky, the extracted 4 pieces were completely obstructing the bronchi (11).

Conclusion

This case illustrated an unexpected presentation of chewing gum aspiration in an adult causing complete collapse of the lung lobes.

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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