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RARE CASES OF FOREIGN BODY LEFT BRONCHUS IN ADULT

Otorhinolaryngology

Dr. Surendra Kumar Arya*	Department Of Otorhinolaryngology, B.R.D. Medical College, Gorakhpur, Uttar Pradesh, India *Correponding Author
Dr. R.N. Yadav	Prof & HOD Department Of Otorhinolaryngology, B.R.D. Medical College, Gorakhpur, Uttar Pradesh, India
Dr. A.K. Pathak	Asso. Prof. Department Of Otorhinolaryngology, B.R.D. Medical College, Gorakhpur, Uttar Pradesh, India
Dr. P.N. Singh	Asso. Prof. Department Of Otorhinolaryngology, B.R.D. Medical College, Gorakhpur, Uttar Pradesh, India
Dr. Vaibhav Srivastava	Department Of Otorhinolaryngology, B.R.D. Medical College, Gorakhpur, Uttar Pradesh, India
Dr. Pragya Narayan	Department Of Otorhinolaryngology, B.R.D. Medical College, Gorakhpur, Uttar Pradesh, India

KEYWORDS

INTRODUCTION

Foreign body aspiration (FBA) has been reported to be an uncommon manifestation in adults and more common in youngsters.[1] Adults who aspirate a foreign body typically have cognitive or alertness impairments, similar to those seen in drug and alcohol intoxication. This might happen while under general anaesthesia, while intoxicated, or during an epileptic episode.[2] If the aspirated object is large enough to block the airway completely, foreign body aspiration may become an urgent, potentially fatal condition.[3] meal particles such meal boluses, nut shells, and bone chips are the most frequent foreign body aspirations in healthy adults. Mendleson explained the aspiration of stomach contents and fluids. During dental treatments or while under anaesthesia, broken teeth and dentures may be inhaled.[4]

Children may experience acute respiratory distress, but it can also occasionally be asymptomatic. Adults, on the other hand, maybe asymptomatic and have shortness of breath, coughing, and side pain. These asymptomatic cases can occasionally develop into lung infections, bronchiectasis, or lung abscesses in the future.[5] It is quite uncommon for dentures to aspirate asymptomatically into the trachea or bronchus. It's interesting to note that dental appliances and procedures rank as the second most frequent cause of FBA.[1] To prevent problems, the foreign body must be removed right away, and the patient must be comforted. Although rigid bronchoscopy is frequently performed on children, adults may require both rigid and fiberoptic bronchoscopy in the event of aspiration.[5] Here, we describe a 25-year-old man who swallowed his dental prosthesis during an epileptic episode and a 18 yr old female who aspirated safety pin.A rigid bronchoscopy was used to remove a foreign body from the left main-stem bronchus successfully. Men's larynx has an AP diameter of roughly 36 mm, while women's is about 26 mm. Adult male tracheas are 11.8 cm long on average (range 11–13 cm), with an exterior diameter of 2.3 cm (AP) by 1.8 cm (transverse) for males and 2.0 cm by 1.4 cm for females. The bronchus is around 5 to 5.5 cm long and has a diameter of 15 mm (+/- 4 mm) for women and 17 mm (+/- 4 mm) for men. Compared to the right, the left bronchus is larger and 2-3 mm narrower.

Case Report

Case 1

A healthy 25-year-old man with a history of GTCS came to our ENT OPD complaining of a moderate but ongoing cough that had persisted for approximately a month. He sought therapy from a local physician, but it did not help. The cough was dry and unrelated to either position or chest pain. In the last 10 to 15 days, he also experienced two or three haemoptysis episodes. He did not report having a fever or any other notable symptoms. He worked as a labourer by trade. The patient reported having a seizure at work one month prior. Upon regaining consciousness, he realised that he had misplaced his top jaw's four prosthetic teeth. searched around to find them but was unable to locate it. He has been on antiepileptic drugs for a month. The patient presented us with a lateral view chest radiograph that revealed a radio-opaque shadow of four rings joined by a structure that resembled a wire in the airway. His saturation level on room air was 97%, and he was stable. The left lung's breath sounds were normal during auscultation. In the left main bronchus, near the carina, we recommended a digital chest X-ray (PA and Lateral view) that revealed a radio-opaque shadow of four rings joint by a wire-like structure (fig. 1A,1B). It was recommended to perform an HRCT neck and thorax for additional assessment. A metal-density foreign body measuring about 38 mm in length was detected by HRCT, causing a streak artefact in the left bronchus immediately distal to the carina. Lung collapse and considerable luminal constriction were not evident (fig. 2A, 2B).

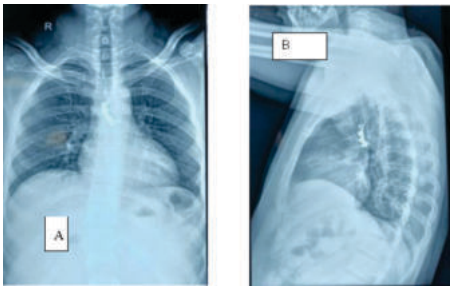
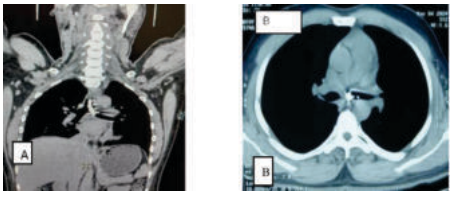


Figure 1 displays a posteroanterior (A) and lateral (B) chest X-ray, revealing a radio-opaque foreign body in the left main bronchus.



Figures 2 (A) Coronal and (B) axial chest CT image revealing left main bronchus and left trachea with signs of hyperdense foreign body.

Case 2

Another patient who was 18 yr old healthy female presented to our ENT OPD with similar complaint of mild but persistent cough from 2 days. The pattern of cough was similar as in 1st case. She had no episode of hemoptysis, no prior history of fever or other serious symptoms. According to patient she held safety pin in mouth during wearing of cloth and accidentally she aspirated the pin after that she had dry but persistent cough. Her saturation level on room air was 98%, and she was likewise stable.The left lung's auscultation revealed

a normal breath sound. Dig was our recommendation. A radio-opaque shadow of a pin in the left main bronchus near the Carina was visible on the chest x-ray (PA and Lateral view) (fig.3A,3B).

Fig 3. Revealing a radio-opaque foreign body in the left main bronchus, shows a posteroanterior (A) and lateral (B) chest X-ray image.

Based on X-ray and HRCT findings the patients were planned for rigid bronchoscopy. The laboratory tests were with in normal limit and during physical examination they were conscious, oriented and cooperative. The plan was explained to them and written consent was taken. Under general anaesthesia with a relaxant, a rigid bronchoscope measuring (6.0 mm by 30 cm) and with an ID of 7.5 mm and an OD of 8.2 mm was used to penetrate the trachea and left main bronchus.

In case 1, the foreign body presented as metallic wire with the rest of the denture impacted in the left lower bronchus just distal to the carina (fig. 4). In case 2, the foreign body presented as the head of a pin with a plastic cap, with the pointed end of the pin impacted in the left lower bronchus. Light traction was exerted using a non-optical alligator forcep, and the denture prosthesis was gradually removed. The bronchoscope, forcep and prosthesis were removed en-bloc through the glottis .Similar procedure was also done in case 2. After that re-inspection of the trachea and bronchus was done which revealed no remnant, bleeding or injury (fig.5). Denture prosthesis was of size 3.5 x1.0 cm with metallic hook attached bilaterally (fig.6). Safety pin was of size approx 2.5 cm(fig.7) in length with attached plastic cap at head. In post operative period their symptoms subsided and they were treated with antibiotics and steroid nebulisation for 3 days. During post operative period direct endolaryngoscopy (70 degree telescope) was performed which showed no abnormalities.

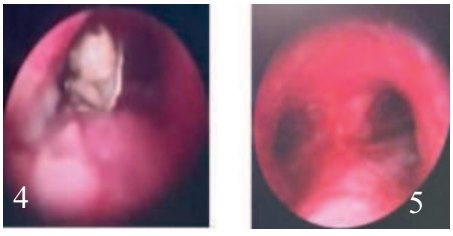


Fig 4 Per operative bronchoscopic and endoscopic view of Trachea ,carina and bronchus showing foreign body.
Fig. 5 Per operative image are taken with the help of 0°Telescope of dimension (2.5 mm×36cm) showing Trachea, carina and bronchus.

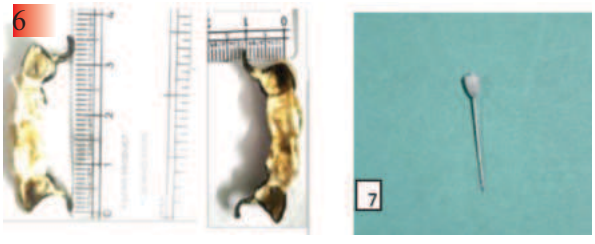


Fig. 6 A post-operative gross view of the aspirated denture with a size of (3.5x1.0)cm with metallic hook.
Fig. 7 Post operative gross view of the aspirated safety pin of size 2.5 cm with plastic cap.

DISCUSSION

FBA is seen as a common, potentially fatal occurrence that primarily affects children. It seldom occurs in adults, but it is commonly suspected in children with pulmonary symptoms. Patients over 15 make up just 20% of FBA cases.[6] Just 5% of patients at our college tertiary care centre are older than 15.The most frequently aspirated foreign body is food. There is recorded evidence of nuts, seeds, pins, nails, and dental appliances after dental treatments.[7, 8] Up to 27 percent of instances involve dental prosthesis, including the dental bridge our patient aspirated. According to a Japanese review by Tamura et al., the prevalence is significantly higher in adults than in children, and the range is between 3.6% and 27.7% of all foreign bodies. [9, 10] Tissue irritation is minimal when inorganic materials, like those found in dentures, are used. Conversely, organic aspirated materials exhibit symptoms as a result of the surrounding inflammatory response.[5] Associated symptoms include fever, haemoptysis, foul-smelling sputum, and chest pain might be caused by infectious complications resulting from FB aspiration. Breathlessness might not always be a noticeable characteristic. Granulation tissue may form if FB becomes stuck in the tracheo-bronchial tree for a few days, making it challenging to identify and remove during bronchoscopy. These patients may experience post-obstructive consequences such lung abscess and pneumonia.[11] The tracheobronchial tree may develop ulcers due to corrosive external objects like iron or potassium chloride pills.

The most common complaint is persistent cough. It first manifests as cough attacks and is ineffective, irritable, and spasmodic. This type of coughing is present in 59–82.5% of patients.[5] A cough, which is a common symptom of FBA, was present in our patient. In 1759, Louis carried out the first documented bronchotomy to remove an airway foreign substance [12]. In 1897, the first foreign body was removed endoscopically.[13] The tracheobronchial tree's structure and the patient's posture are linked to the foreign body's position.[11] The most common sections are the right main and distal bronchus. Because the right bronchus is shorter than the left, wider than the left, and more vertical like the trachea, tracheobronchial foreign body aspirations are significantly more common on the right side.[5] Here, we describe a case in which a foreign body may have entered the left main-stem bronchus. Since most adults do not remember a history of choking, foreign bodies might go months without being noticed in adults, necessitating a high index of suspicion for diagnosis. On radiographic imaging ordered for symptoms that are wrongly attributed to other medical disorders, such as asthma and unresolving recurrent pneumonia, many foreign things are inadvertently observed.[14]

If there is a suspicion of aspiration, radiological assessment—which includes a PA and a lateral image of the Dig. X-ray chest—should be the first course of action. It can disclose alien objects that are radio-opaque. Chest computed tomography provides more conclusive information than chest radiography, including the location of the impaction, the existence of a non-radioopaque portion, and indications of further problems such as atelectasis, consolidation, pneumothorax, and pleural effusion. The most reliable technique for removing foreign bodies from the pulmonary tree is still bronchoscopy. [4] The most reliable technique for removing foreign bodies from the pulmonary tree is rigid bronchoscopy, while flexible bronchoscopic removal is also advised for adults.[15] Throughout the process, the rigid ventilating bronchoscope can sustain ventilation and offer steady airway management.[11]

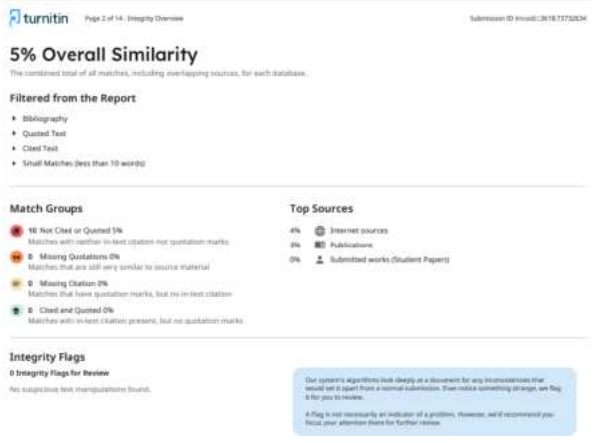
There are dangers associated with fibre optic bronchoscopy extraction. Compared to rigid bronchoscopy forceps, fibre optic forceps have less capacity to hold foreign bodies, which can cause the foreign body to migrate to the contralateral lung and could be fatal. One should therefore have a low threshold for switching to a rigid bronchoscopy. When a tiny FB is distally wedged, a patient is on artificial ventilation, or there are fractures to the spine, craniofacial region, or skull that make it impossible to position the neck for rigid bronchoscopy, fibre optic is a better option than rigid bronchoscopy.[3] In this instance as well, the pulmonologist tried a flexible bronchoscope, but the foreign material was unable to be dislodged. Therefore, we employed a rigid ventilating bronchoscope with fiberoptic forceps to remove the foreign body from the left main bronchus.

Fortunately, in our case, the wireframe of the dental prosthesis was firm and narrow and there was no granulation present around the prosthesis providing easy extraction of the dental prosthetic using rigid bronchoscopy without any complication. On follow-up visits, the patient showed complete resolution of cough and taking his antiepileptic medication regularly.

CONCLUSION

In adult Foreign body aspiration may produce no or minimal symptoms. Cough is very common symptom in FBA. Digital X-ray chest PA and lateral view are the first choice of investigation if there is a suspicion of FBA. Rigid bronchoscopy with or without optical Forcep is the treatment of choice for the removal of Foreign bodies from the tracheobronchial tree in adults. Removal of the large foreign body may need a rotation of forces at the level of the subglottis to align the foreign body with the glottis for easy removal.

Plagiarism Report



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