

Case report

Anesthetic challenge in removing foreign body mimicking cancer in bronchus from a child

Bhawana Wagle¹, Yogesh Regmi²

¹Head of Department, BP Koirala Memorial Cancer Hospital

²Registrar, Department of Anaesthesia

ABSTRACT

We describe a case of 12 years old boy who had recurrent pneumonia for 1 year, under investigation for bronchogenic malignancy. He was found to have foreign body in his bronchus, that was successfully removed with a 11 mm gastroscope.

Keywords: Bronchogenic Cancers, Foreign Body, Pneumonia, Bronchoscope.

Introduction

Its always a challenge for an anesthesiologist to manage airway in a child while being manipulated in the airway itself as it is a shared common airway. When the subject in the airway/bronchus is large, then the risk of dislodgment causing desaturation, and many other advert event may occur. Foreign body aspiration can mimic other conditions like pneumonia or croup. Particularly without a witnessed event or history of aspiration; there can be delay in management or at times mismanagement of extreme degree with its consequences. This case report must be enough for an eye opener to medical counterparts.^{1,2}

In this case report one such, grossly mismanaged case of foreign body aspiration is being presented, who was kept on ATT (Anti tuberculosis treatment). 12 year male child presented with feature of sever respiratory distress for 1 year planed for bronchoscopy and biopsy. On flexible bronchoscope foreign body was seen. Due to unavailability of rigid bronchoscope with the help of Gastroscope and Dormia basket foreign body was removed. Using a bigger size gastroscope in child, which doesn't have any side port for oxygen and giving general anaesthesia is very challenging for anaesthesiologist.

Case Report

Twelve years old male child presented with shortness of breath, cough mixed with blood, chest pain, fever, weight

loss of 10 kg since 1 year. He also has fever, with recorded temperature of 102° F and recurrent in character and was specially during night. He was treated in different time in different hospitals in the line of recurrent pneumonia. When we saw him, he was started on anti tubercular drugs for 1 month with no improvement. He was referred to our hospital to rule out malignancy.

On examination general condition was cachectic, ill looking, dyspnoeic, accessory muscles of respiration on use. SPO2: 85-90% with O2 @ 6 lit/min, Bp-110/70 mm Hg PR-100b/min regular. He was thin without jaundice, anaemia, laymphadenopathy, neck veins and peripheral veins were normal, tracheal position- central, spine- normal. His mouth opening was adequate, teeth, lips and gums were normal. B/l nostrils were patent, neck movement was in full range. His mallam-patti score was class I.

His chest has diminished movement on left side, on percussion dull note was present in left chest, on auscultation wheezes and crepitation were appreciated. Cardio vascular, GI, CNS examination were within normal limits. Lab reports were within normal limits. Chest X ray showed homogenous radio dense opacity in left lower zone with no air bronchogram, tracheomediastinal shift towards left (Figure1). CT chest showed collapse consolidation of the left lower lobe lungs (Figure2).

Correspondence

Dr. Bhawana Wagle, Department of Anaesthesia, B. P. Koirala Memorial Cancer Hospital
Bharatpur, Chitwan, Email: bit2wagle@yahoo.com

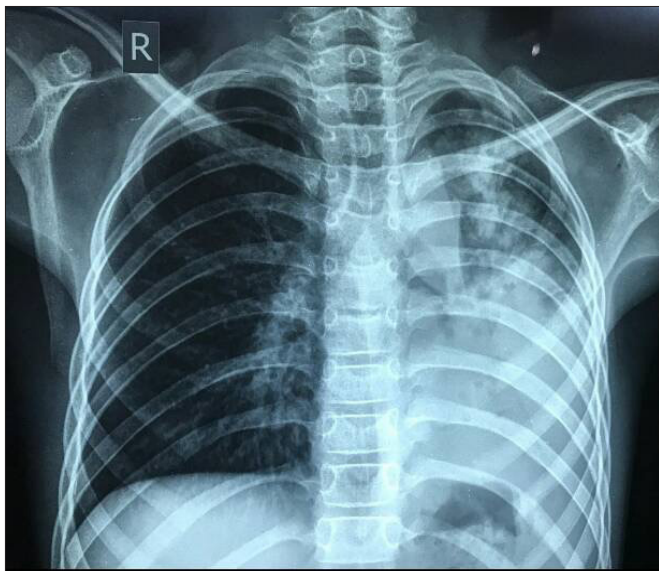


Figure 1. Heterogeneous radio dense opacity with air bronchogram within left upper and mid zones, Homogenous radio dense opacity in left lower zone with no air bronchogram, Tracheomediastinal shift towards left side.

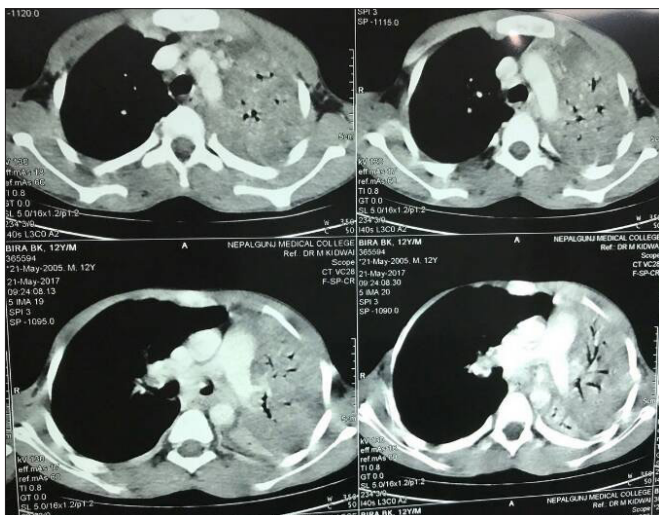


Figure 2. Collapsed left lower lobe and tracheomediastinal shift towards left side, large consolidation involving left upper lobe, enhancing endobronchial hyper dense lesion measuring 14.1 x 7 mm was present in left bronchus causing near total occlusion of left bronchus.

With all these findings, provisional diagnosis of bronchogenic malignancy in left bronchus causing collapse & consolidation of left lung was made. He was scheduled for flexible bronchoscopy and biopsy in operating room.

Management

Anesthetic challenges in this case are 1. Pediatric age group, 2. Respiratory distress, 3. Shared common airway

with the surgeons. Preoperative assessment was done, patient’s identity was checked, elevated risk Consent for anaesthesia was taken, time of the last meal established, emergency and anesthetic drugs were prepared, anaesthesia machine and equipment’s were checked. Patient was taken to OT and kept in supine position. Monitoring included pulse oximetry, ECG, non-invasive BP. Intravenous access was secured.

Flexible bronchoscopy was done Under IV sedation using inj Glycopyrolate 0.2mg iv, Inj Fentanyl 1 micro gm/kg iv, inj Ketamine 2mg/kg iv, inj Midazolam 0.5mg iv, inj Ondansetron 2mg iv.

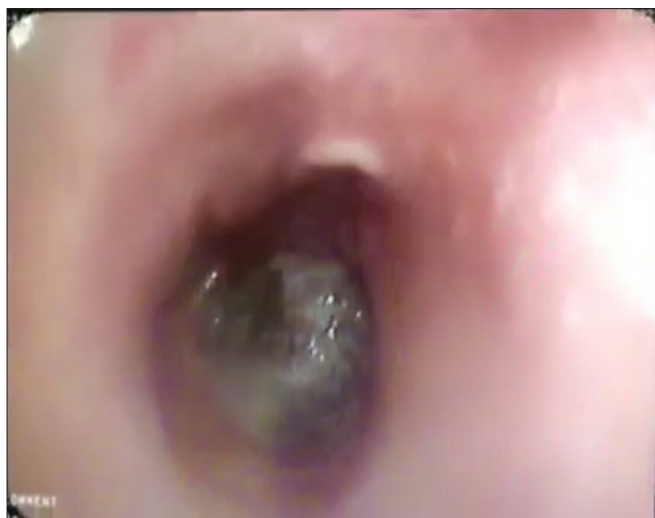


Figure 3. Left bronchus showing a necrotic foreign body occupying the whole lumen.

To our surprise, a necrotic foreign body was seen in the left bronchus, which was impacted and immobile. Flexible bronchoscope that was used couldn’t grasp the foreign body out. Rigid bronchoscope was not available. Availability in other centers nearby was not sure. Patient is not in state to get referred to distant centers. In this adversity, with the help of 11 mm Gastroscope and dormia basket, we were able to remove that foreign body.

When the large bore gastroscope is introduced into trachea, it is unlike rigid bronchoscope has side port to attach t-piece circuit to secure oxygenation. The apnic oxygenation was given via the some working channel where the dormia was going. In case of desaturation our backup plan was intermittent intubation and bagging. Patient was pre-oxygenated with 100% O₂ for 3 mins. As 11 mm gastroscope was to be used, Inj Succinylcholine

1.5mg/kg iv was used for relaxation. Total duration for foreign body removal was less than 2 minute. After removal of the foreign body, oral suctioning was done, positive pressure ventilation was given. When became fully conscious, oxygen was given with face mask to maintain saturation.

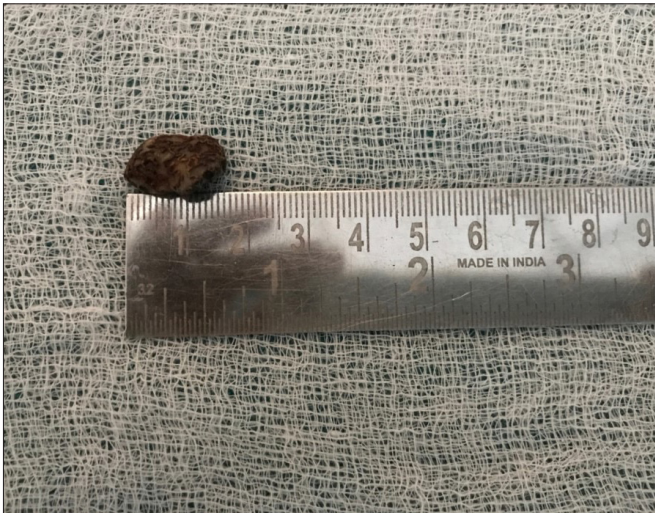


Figure 4. Removed Foreign body.

Post operatively, patients hemodynamics were monitored closely. Oxygenation was continued with the face mask. Nebulization with asthalin and iv hydrocortisone were given. Ventilator was kept as a back up plan just in case of desaturation. To our surprise, post operatively Chest X ray shows opening of the consolidation and good lung expansion.

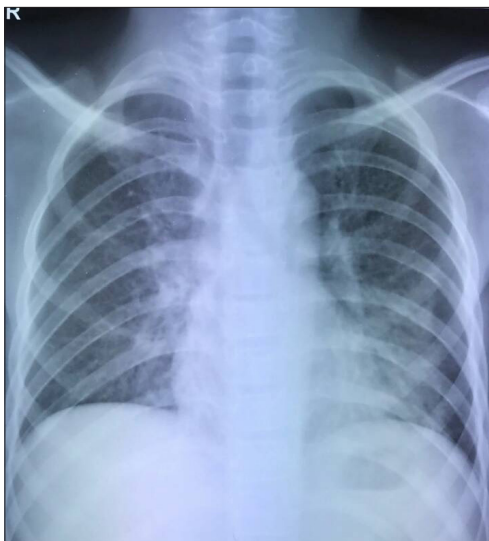


Figure 5. Chest x-ray showing resolution of collapse and consolidation

Patient was discharged in 2 days of hospital admission.

Discussion

Chronic symptoms of cough and irritation in children for whole year showing up as a endo-bronchial growth in CT, ultimately turning into foreign body is rare case scenario. Aspiration is a common surgical problem in children under 15 yrs especially 2-3 yrs of age. Unnoticed event of aspiration can never be suspected when there is episodes of recurrent pneumonia. Repeated treatment of pneumonia and its dismal response made suspicion of tuberculosis logical. Lastly the CT scan of chest was obtained and showing up of luminal filling gave high suspicion of cancer. Finally while doing scopy, the foreign body was notices.

Normally speaking, Sequelae of foreign body in trachea or bronchus are choking, fatal asphyxiation but chronic forgotten episode may mimic chronic and recurrent chest infections. Complications depend on site, size, shape, nature and duration of foreign body. Round smooth objects that occlude the airway either supra or infra-glottic. Smaller objects tend to lead to the late complications. Right bronchus is commoner for foreign body to be dislodged than the left, two third lodge in main stem bronchus.^{1,2} Majority of foreign body (85%) are vegetables in origin, most diagnosis are made with in 2- 3 days. In few cases diagnosis may not be made for several weeks, months or even years. Negative imaging studies do not exclude the presence of foreign bodies.³

Usually the general rule for foreign body in the airway is to proceed for bronchoscopy. If high degree of suspicion is there, rigid bronchoscopy followed by removal is the treatment of choice.³ In our case, there was no preparation, for there was no suspicion. In prepared case scenario, the different anesthetic technique has been proposed for doing bronchoscopy. There are many pros and cons regarding inhalation and iv anesthetic agent. Regarding inhalation anesthesia pros may be depth of anaesthesia which can be maintained on spontaneous ventilation and cons are need of side port for delivery of inhalational agent, pollution in OT, hypoxic pulmonary vasoconstriction is offset if more than 1 mac of volatile anaesthetics are used.⁴ Regarding iv anesthesia pros are can be given as continuous infusion, hypoxic pulmonary vasoconstriction can be maintained, no pollution in OT and cons of iv anesthetic is depth



of anesthesia can increase leading to chance of apnea requiring controlled ventilation.⁴

Regarding types of ventilation during foreign body removal, spontaneous ventilation has less chance of desaturation, do not require positive pressure ventilation, cons of spontaneous ventilation is surgical field of vision not good because of to and fro movement of FB. In controlled ventilation surgical field is good, no to and fro movement of FB, less chance of bucking. Cons of controlled ventilation are greater chance of desaturation and chances of dislodgement of FB distally.⁴ Use of a video gastroscope may be a life saving alternative in tracheo-bronchial foreign body removal which can be done under anesthesia with either spontaneous or controlled ventilation.

References:

1. Darrow DH, Holinger LD: Foreign bodies of the larynx, trachea and bronchi. In Bluestone C, Stool S, editors: Pediatric otolaryngology, Philadelphia, 1996, WB Saunders.
2. Franzese CB, Schweinfurth JM: Delayed diagnosis of a pediatric airway foreign body: Case report and review of the literature, Ear Nose Throat J 2002; 8: 655.
3. Black RE, Johnson DG, Matlak ME: Bronchoscopic removal of aspirated foreign bodies in children, J Pediatric Surg 1994; 29:682.
4. Miller RD. Miller's Anesthesia. sixth ed: Churchill Livingstone; 2006.