

Bronchoscopic Foreign Body Removal in a Child

Sir,

An eighteen month child came with breathlessness and fever for one day with history of accidental aspiration of beans two days back. Child remained asymptomatic for initial twenty four hours.

He was drowsy, cyanosed and restless with heart rate 180/min, blood pressure 106/60mm Hg, temperature 103°F and oxygen saturation (SpO₂) 75% with O₂ via face mask. He had jerky and rapid respiration. Diminished chest movement with absent breath sounds were noted on right side.



Figure 1

Chest radiograph demonstrates right lung collapse and hyperinflated left lung with tracheal shift to the right side

Suspecting FB aspiration, urgent rigid bronchoscopy was planned as cyanosis and drowsiness did not improve despite conservative management with intravenous fluid, antiaspiration prophylaxis, antibiotics, steroid and nebulisation. Routine monitors and precordial stethoscope were attached. After preoxygenation, anaesthesia was induced with sevoflurane 6-8% in O₂. Topical lignocaine (10%) was sprayed over the laryngeal inlet. A rigid ventilating bronchoscope (3.5mm) was introduced under direct laryngoscopy by the anaesthesiologist. Assisted ventilation via the ventilating port was checked. Surgeon confirmed FB completely obstructing right main bronchus. As jerky ventilation hindered surgeon and the procedure was anticipated to be long, muscle relaxant (atracurium) was administered. Intermittent controlled ventilation was done in accordance with surgical activity and oxygen saturation.

Adequacy of ventilation was checked with precordial stethoscope. Anaesthetic depth was maintained by sevoflurane 2-4%. The foreign body (bean seed) was retrieved in pieces. SpO₂ improved after removal of the first piece. Pus and oedematous mucosa was found in the right bronchus.

On removal of the bronchoscope, patient was intubated with a 4.0 mm (ID) uncuffed endotracheal tube and ventilated with manual PEEP. The entire procedure took fifty five minutes.

At the recovery room, the patient showed signs of improvement. Air entry in right side was confirmed; however mild bilateral crepitations were heard suggestive of pneumonitis.

Moist O₂ inhalation was continued for 3 hrs after the procedure. Steroids, antibiotics and nebulisation were continued.



Figure 2

After 24 hrs of the procedure, CXR reveals well inflated right lung, centrally located trachea and features of bilateral pneumonitis

The child was asymptomatic, afebrile and discharged on third post operative day.

Foreign body (FB) aspiration accounts for approximately 7% of accidental deaths among children <4 years in UK.¹ Aspirated FB of vegetable origin, produces delayed symptoms, often mimicking common conditions like asthma, pneumonia or upper respiratory tract infections. Their radiolucency makes diagnosis difficult. Time of intervention is crucial. Symptoms and signs vary with location, nature and size of the FB. Timing of surgery is critical, as in this case, waiting for oedema to recede might have resulted in aggravation of distress, even death. Despite insistence of surgeon to wait, priority was given to emergency removal of FB in this dyspnoeic, cyanosed and drowsy child with definitive history of FB inhalation.

Organic FB causes surrounding tissue reaction. This can change partial obstruction to complete one with subsequent swelling. Delayed removal is related to higher rate of complications.

As tracheal diameter is smaller in children, a little obstruction results in greater effect. Desaturation occurs rapidly. Crying and vigorous respiratory efforts can lead to dynamic obstruction in children as their respiratory tract is pliant. In infants and smaller children, the rigid bronchoscope is the instrument of choice as it allows better ventilation and control of the airway.²

During endoscopic procedures, most anaesthesiologists prefer inhalational rather than intravenous induction of anaesthesia and a ventilating bronchoscope rather than intubation.³

Spontaneous ventilation is desirable until the nature and location of FB is identified by bronchoscopy.⁴ Reviewing anaesthetic experiences of various studies, equally good results have been reported with spontaneous or controlled ventilation.³

In conclusion, anaesthetic technique for rigid bronchoscopy should be individualised. Cooperation between surgeon and anaesthesiologist is essential as both are sharing the same field.

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NOTICE

We thank our previous esteemed Editorial Board Members & Editorial Office Bearers for printing the January 2011 issue of JOACP, on behalf of the new Editorial team.

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