

Bronchial blocker through Proseal LMA - A useful approach for paediatric lung isolation

Sir,

We present a case of an 11-year-old female, 136 cm in height, weighing 27 kg, diagnosed with osteosarcoma of the right femur scheduled for wide excision of bone with rotationplasty and video-assisted thoracoscopic (VATS) removal of solitary lung metastasis nodule in the upper lobe. The airway during orthopaedic surgery was maintained with an endotracheal tube (ET) of 5.5 mm internal diameter (ID). For metastatectomy, right lung isolation was required. The transverse tracheal diameter at the cricoid was 9.3 mm on computed tomography scan. Due to the non-availability of a 5 F Arndt endobronchial blocker, Fogarty catheters and Univent tubes, we decided to use a Coopdech Endobronchial Blocker (CEBB) (Daiken Medical Co. Ltd, Japan, outer diameter – 3 mm) and a paediatric fiberoptic bronchoscope (PFOB) (OD – 3.8 mm). Passage of CEBB with PFOB was impossible through an ET of 5.5 mm ID. Extra-luminal placement of CEBB would have resulted in too snug tubes in the lower airway. Hence, we decided to pass CEBB through a 2.5 size laryngeal mask airway Proseal™ (PLMA). We prepared an assembly in which a well-lubricated CEBB was passed through a PLMA under aseptic precautions. Using laryngoscopy, ET was removed, CEBB was passed into the trachea, and PLMA was railroaded into the supra-glottic space [Figure 1]. The cuff of the PLMA was inflated with 14 cc of air and its position was confirmed passing a PFOB that showed an unobstructed view of the vocal cords. Using PFOB, CEBB was positioned into the right main bronchus. The bronchial cuff was inflated with 4 cc of air. PLMA and CEBB were firmly fixed to each other using adhesive tape. The position of CEBB was reconfirmed after left lateral position of patient. Lungs were ventilated using pressure-controlled ventilation with 100% oxygen and sevoflurane, inspiratory pressure of 20 cm of water and positive end-expiratory pressure of 4 cm of water. There was no leak around PLMA, the right lung was well collapsed and oxygen saturation was maintained at 100%. After metastatectomy, CEBB was removed. PLMA was removed after the patient gained

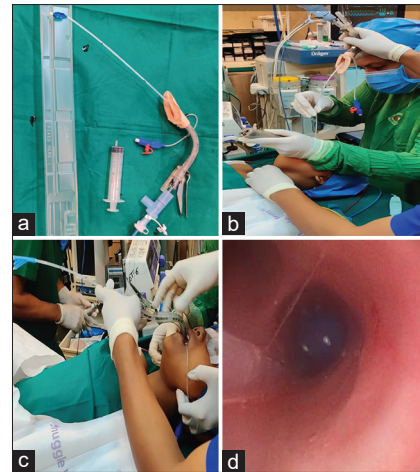


Figure 1: (a) Assembly of a Coopdech endobronchial blocker passed through a Proseal LMA, (b) Insertion of Coopdech endobronchial blocker using laryngoscopy, (c) Railroaded the Proseal LMA over Coopdech endobronchial blocker, (d) Bronchoscopic view of Coopdech endobronchial blocker in the right main bronchus

consciousness. Rest of the postoperative course was uneventful.

The challenges for paediatric lung isolation include the small dimensions of the lower airway and the non-availability of appropriate lung isolation devices. In our case, a narrow tracheal diameter precluded the use of a 26 F double-lumen tube (OD-8.7-9.3 mm).^[1] The attempt of endobronchial intubation with a small-sized ET would have faced the problem of insufficient length. We could have passed CEBB extraluminally besides an ET of 4.5 mm ID, but PFOB of 3.8 mm OD would have passed too tight through the ET.

Bronchial blocker (BBs) have been used successfully through PLMA, mainly for adult lung isolations.^[2] Li *et al.*^[3] used an Arndt blocker through PLMA in the case of paediatric scoliosis. Second generation LMAs are better suited as they provide higher airway sealing pressure. The advantages of this method are minimal instrumentation and trauma to the larynx and lower airways. Also, the manoeuvrability of BB into the desired bronchus was easy due to no crowding of tubes in the lower trachea. Potential risks with this approach were dislodgement of PLMA, rise in airway pressure above sealing pressure of LMA and inability to provide continuous positive airway pressure, in case of intraoperative hypoxaemia. PLMA has been used successfully in the lateral position with minimal dislodgement rates.^[4,5] However, the oropharyngeal sealing pressure of PLMA can decrease in the lateral position in children.^[6] In an event of dislodgement, rescue measures should include deepening the

plane of anaesthesia, repositioning of LMA, and if not successful, LMA may be removed and ET can be passed with BB in situ.

Thus, a Coopdech endobronchial blocker through a PLMA can be a rescue measure for lung isolation where conventional lung isolation devices are not available especially in small for age children.

Consent from the patient

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Submitted: 19-Jan-2022

Revised: 17-Mar-2022

Accepted: 05-Jul-2022

Published: 22-Jul-2022

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Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/ija.ija_63_22

How to cite this article: Sarangi A, Singh S, Parab SY. Bronchial blocker through Proseal LMA- A useful approach for paediatric lung isolation. *Indian J Anaesth* 2022;66:537-8.

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