Use of Arndt bronchial blocker through nasal RAE endotracheal tube in a patient with limited mouth opening

One-lung ventilation in patients with limited mouth opening is always a challenge to the anesthesiologist. We are reporting use of Arndt Endobronchial blocker (Cook Medical, Inc., Bloomington, IN, USA) through a nasal Ring-Adair-Elwyn (RAE) endotracheal tube for one-lung ventilation. Use of Arndt blocker through nasotracheal tube sparsely reported.

A 36-year-old male, weighing 56 kg, known case of oral submucous fibrosis due to chronic tobacco chewing presented with a history of road-traffic accident with thoracic vertebral body fracture and paraparesis. Subsequently, he was diagnosed with right chylothorax and was posted for thoracic duct ligation by right thoracotomy requiring one-lung ventilation.

On airway examination, his mouth opening was severely restricted, and it was less than a fingerbreadth [Figure 1], but rest of the parameters, such as neck movement and thyromental distance etc., were within normal limit. Fiberoptic bronchoscope–guided placement of Arndt Endobronchial blocker (Arndt Endobronchial blocker set, Cook Medical LLC) through nasal RAE endotracheal tube was planned for lung isolation. Because of limited mouth opening, double-lumen endobronchial tube (DLT) was not an option and we preferred nasal RAE tube over a flexometallic tube because negotiation of bronchial blocker could have been difficult through a flexometallic tube as it has a smaller internal diameter. In the operating room, pulse oximetry, 3-lead electrocardiogram and noninvasive blood pressure monitoring were instituted. General anesthesia was induced with propofol 120 mg and fentanyl 100 µg; thereafter, a north-polar RAE endotracheal tube of size 7.5-mm internal diameter was inserted over a fiberoptic bronchoscope (Olympus BF-3C40 pediatric bronchoscope, outer diameter 3.3 mm; Olympus Medical Systems) under direct visualization. After securing
endotracheal tube, neuromuscular blockade was achieved by injection rocuronium 40 mg. Then, a 7-French Arndt endobronchial blocker was passed through the RAE tube and was positioned using a pediatric bronchoscope passed via the tube coaxial to the endobronchial blocker and it was placed in the right main bronchus. Thereafter, balloon of the bronchial blocker was inflated with 5 mL of air and position of the balloon was confirmed below the carina. Lung isolation was confirmed by absence of air entry on auscultation after inflating balloon of the bronchial blocker. After placing the patient in left lateral position, location of the endobronchial blocker was then reconfirmed by fiberoptic bronchoscopy. During the surgical procedure, right lung was adequately deflated and one-lung ventilation was maintained with a tidal volume of 4–5 mL/kg, peak airway pressure was below 32 mm Hg, and Positive end-expiratory pressure (PEEP) was at 5–8 mm Hg with acceptable oxygenation and ventilation parameters. General anesthesia was maintained with air-oxygen-isoflurane with intermittent boluses of rocuronium and boluses of fentanyl were used as analgesics. Patient was extubated at the end of surgery uneventfully.

Hence, in conclusion, an Arndt endobronchial blocker through a nasal RAE endotracheal tube may be used to achieve one-lung ventilation in a patient with restricted mouth opening. The use of a coaxial fiberoptic bronchoscope helps in guiding the blocker and its placement even while using an acutely angled RAE tube.

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

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Conflicts of interest
There are no conflicts of interest.

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