An innovative way to reinsert dislodged Arndt blocker using urological glide wire

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ABSTRACT

The Arndt blocker is positioned in the desired bronchus using a wire loop which couples the blocker with a fiberoptic bronchoscope (FOB). The wire loop once removed cannot be reinserted in 5F and 7F blockers making repositioning of the blocker difficult. A 34-year-old female was to undergo left thoracotomy followed by laparoscopic cholecystectomy. The left lung was isolated with a 7F Arndt bronchial blocker. During one-lung ventilation, the wire loop was removed for oxygen insufflation. There was loss of lung isolation during the procedure and dislodgement of the blocker was confirmed by FOB. The initial attempts to reintroduce the blocker into the left main bronchus failed. An alternative technique using a glide wire was attempted which resulted in successful reintroduction of the Arndt blocker. The 0.032 inch zebra glide wire may be effectively used to reposition a dislodged Arndt blocker if the wire loop has been removed.

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INTRODUCTION

Bronchial blockers (BBs) have found its place in thoracic surgery. Although they provide isolation comparable to double lumen tubes (DLTs),[1] the incidence of dislodgement and the need to reposition is more with BBs.[2] The Arndt blocker is positioned using a wire loop contained in its inner lumen which couples the blocker with a fiberoptic bronchoscope (FOB). The wire loop once removed cannot be reinserted in 5F and 7F blockers making repositioning of the blocker difficult after accidental dislodgement. We would like to report the reinsertion of a 7F Arndt BB, following its accidental dislodgement, with the use of a glide wire.

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CASE REPORT

A 34-year-old, American Society of Anesthesiologists grade 1, female patient diagnosed to have a left upper lobe solitary lung nodule was planned for left thoracotomy and frozen section biopsy followed by laparoscopic cholecystectomy for cholelithiasis. The left lung was isolated with a 7F Arndt BB introduced through a 7.5 endotracheal tube. The lung collapse was achieved by preoxygenation with 100% oxygen before lung isolation, disconnection of the breathing circuit for 20 s with blocker cuff deflated followed by inflation of bronchial cuff and resumption of ventilation. During one-lung ventilation in the lateral decubitus position, the wire loop was removed for oxygen insufflation for treating hypoxia. There was loss of lung isolation during the procedure, and we suspected dislodgement of the blocker which was confirmed by FOB. The initial attempts to reintroduce the blocker into the left main bronchus failed, prompting us to attempt an alternative technique using 0.032 inch zebra urological glide wire [Figure 1].

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The Arndt blocker was removed, and the patient was ventilated with 100% oxygen. A straight 0.032 inch zebra glide wire was introduced through the accessory port of the pediatric FOB (4 mm Karl Storz) [Figure 2]. The bronchoscope was then introduced through the BB port of the Arndt multiport adaptor and advanced into left lower lobar bronchus. The glide wire was advanced into the left lower lobe under vision. FOB was withdrawn leaving the glide wire in place [Figure 3]. The proximal end of the glide wire was introduced into the distal central lumen of the Arndt BB, and the blocker was railroaded over it into the left main bronchus [Figure 4] under fiberoptic (through FOB port) guidance [Figure 5]. The blocker balloon was inflated under vision with 5ml of air, and isolation was confirmed both by auscultation and by bronchoscopy. The further course of thoracotomy and biopsy was uneventful, and lung isolation was maintained throughout the procedure. The Arndt blocker was removed along with the multiport connector at the end of the thoracotomy.

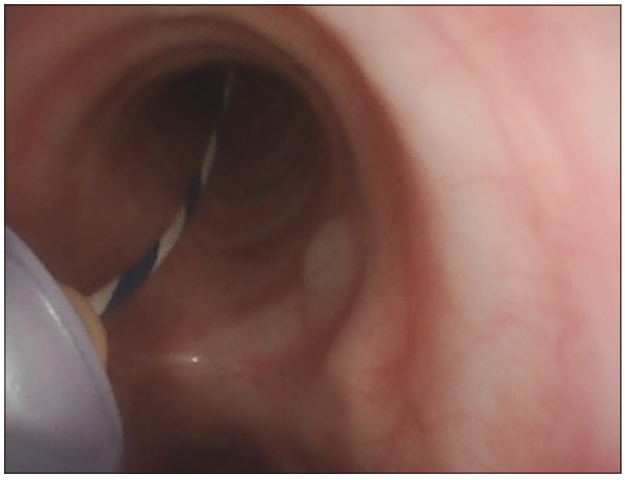

Figure 1: Insertion of Arndt bronchial blocker using a zebra urological glide wire

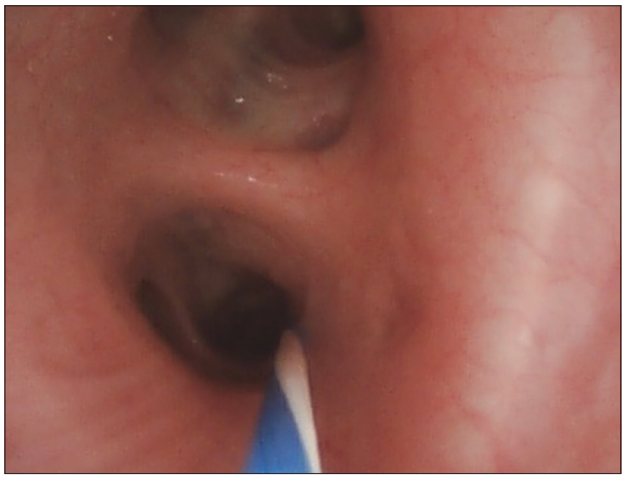

Figure 3: Glide wire in the left lower lobe bronchus

DISCUSSION

Even though BBs may take a slightly longer time for positioning, the deflation of the lung is comparable to that using a DLT.[1] Denitrogenation of the lung with 100% oxygen and suction for a few minutes by

Figure 2: Zebra glide wire introduced through the accessory port of the fiberoptic bronchoscope

Figure 4: The glide wire is used to railroad the Arndt bronchial blocker

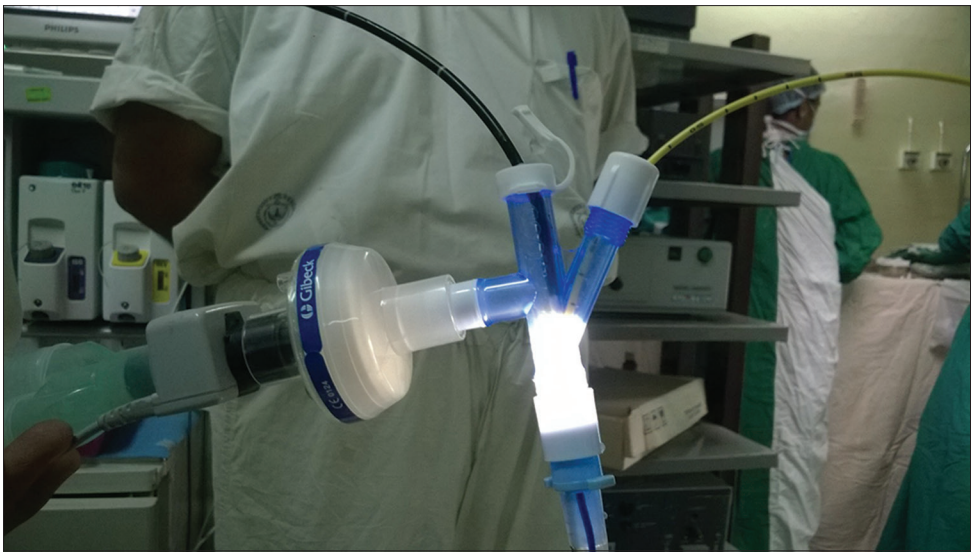

Figure 5: The Arndt bronchial blocker is railroaded over the glide wire under fiberoptic bronchoscope guidance

connecting an adaptor to the central channel expedites lung collapse.[2-4] The incidence of malposition of blockers is also more compared to DLT. All the Arndt blocker sizes have a wire loop that is used for introduction into the desired bronchus by coupling the blocker to an FOB. Once the nylon wire loop removed, it cannot be reinserted in 5F and 7F blockers. Reinserting the Arndt blocker, without the wire loop, into the left main bronchus or the nondependent lung in the lateral decubitus position, is a great challenge, often needing replacement with a new blocker. As BBs are expensive (Rs. 11,000 MRP), we cannot afford to use a new blocker.

We chose a urological zebra glide wire for the following reasons. They are easily available in most urology operating suites. These glide wires are made up of a kink resistant nitinol wire core in a striped jacket which produces an excellent visual feedback. Their flexible polytetrafluoroethylene jacket is designed for torque control. They are available in many sizes, but we chose the 0.032 inch wire as it passes smoothly in the narrow 1.4 mm diameter central lumen of the blocker. It proved effective as it has sufficient length (150 cm) for negotiation through the working channel of FOB as well as the inner channel of the Arndt blocker.

The use of a 0.032 inch zebra glide wire is an effective way to reposition a dislodged 5F and 7F Arndt blocker if the wire loop has been removed for improving oxygenation.

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Conflicts of interest

There are no conflicts of interest.

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