

Successful retrieval of a scalloped airway introducer fragment from the trachea using a fiberoptic bronchoscope and a ureteric stone retriever

Dear Editor,

In difficult airway situations where double lumen tube (DLT) insertion is required, a bougie or an airway introducer is used to railroad it. We report one such situation where the airway introducer got sheared and the fragment was successfully retrieved from the trachea with the help of a ureteric stone retriever. A 55-year-old male patient was posted for robotic-assisted Ivor Lewis gastrectomy under general anesthesia. A 39 Fr left DLT (Mallinckrodt) was chosen based on his height (5 ft 6 inches), as lung isolation was needed to facilitate surgery. After intubation, we suspected tracheal cuff tear (as the cuff was not sustaining pressure) and decided to replace it with a 37 Fr DLT (as negotiating the 39 Fr DLT was difficult initially) with aid of FII (Frova™ intubating introducer) (14 Fr, 4.6 (ED) mm), Cook Critical Care, Letchworth, UK). FII was inserted into the bronchial lumen of 39 Fr DLT, after stabilizing the FII, the 39 Fr DLT was removed and 37 Fr DLT was railroaded through bronchial lumen and lung isolation confirmed by a conventional auscultation technique. During railroading of 37 Fr DLT over lubricated FII, we encountered some resistance at the Y connecting segment of the DLT, which was overcome with a little maneuvering. A 3.8 mm fiberoptic bronchoscope (FOB) was passed through the tracheal lumen of DLT for confirmation of cuff positions. After confirmation, we noticed a small, blue colored foreign body (FB) in the carina and a similar smaller piece of its kind [Figure 1a]. On examination, we found some scalloped regions in FII and concluded that the FB seen in the carina must be

scalloped pieces from the introducer [Figure 1b]. We could retrieve the smaller piece through a 14 Fr suction catheter but not the larger one. We also found on FOB inspection that the carinal piece was getting pushed inwards into the right bronchus with ventilation.

We decided to use the ureteric stone retriever after consultation with urologists. We used the Cook Medical 2.8Fr Captura® three-prong grasper, which is 115 cm long with a flexible tip to retrieve the FB [Figure 2a and b]. We were able to successfully retrieve the disrupted larger part in a single attempt atraumatically under FOB with this device [Figure 1c].

Despite adequate lubrication, the shearing occurred because the external diameter of FII (4.6 mm) is just 0.1 mm more than the internal diameter of bronchial lumen of 37 Fr DLT (4.5 mm). The shearing could have probably occurred at the adjoining segment of bronchial lumen with the “Y” connecting area of DLT, where there is encirclement of both the tracheal and bronchial lumens [Figure 3]. Vlachtsis *et al.*^[1] first reported the risk of shearing of FII with DLT in 2006. In response to this report, Cook medical warned not to use FII along with DLT in their instructions.^[2] In spite of this warning, shearing of FII was reported in the later periods.^[3,4] The authors also commented that clinicians mostly do not read the instructions before use^[3] and advised the Cook Medical company to disseminate the information in the packing of FII.^[4] Later on Luther *et al.*^[5] found certain airway introducer–DLT combinations like Mallinckrodt DLT with FII resulted in high degrees of shearing.

To the best of our knowledge, this is the first reported case of such FB removal by anesthesiologists themselves without multiple airway manipulations and trauma. We preferred the flexible tipped grasper as it can be manipulated as needed compared to the non-flexible grasper or forceps, which have been used unsuccessfully in the past.^[1,3] This case report highlights the necessity to disseminate WARNINGS widely to prevent such mishaps in the future. [Video 1]

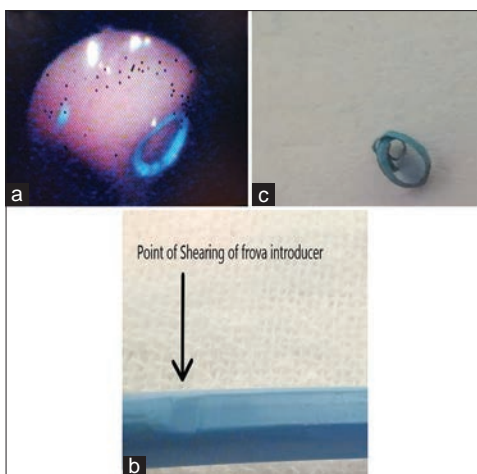


Figure 1: (a) Bronchoscopic view of sheared segments. (b) Point of shearing of a Frova intubating introducer. (c) Sheared part of a Frova intubating introducer

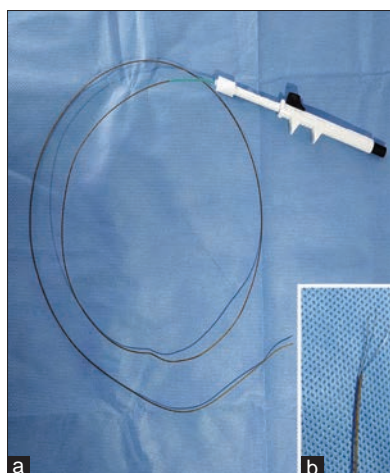


Figure 2: (a) 2.8Fr Captura® Three-Prong Graspers. (b) High-performance grasper with three-arm basket

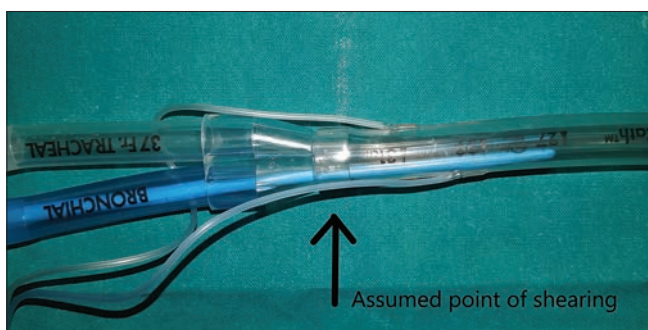


Figure 3: Assumed point of shearing at the Y connecting area of DLT

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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