

A Bizarre Scenario during Lung Isolation Due to Interchanged Double-lumen Tube Connectors

Sir,

Left-sided double-lumen tube (DLT) can be blindly placed in the left mainstem bronchus (LMB) rapidly but may result in misplacement into the right mainstem bronchus (RMB) because the RMB has a larger internal diameter and diverges from the carina more vertically from the sagittal plane than the LMB.^[1] Fiberoptic bronchoscopy (FOB) are not always readily available for confirming DLT position specially when smaller DLT is used, and hence, conventional auscultation method is used for confirming its optimal position.

We came across a scenario where the connectors of DLT were interchanged during equipment setup which was overlooked and lead to a bizarre situation during confirmation of DLT position using auscultation method.

A 19-year-old female with a left-sided mediastinal mass was scheduled for video-assisted thoracoscopic guided excision after obtaining informed written consent and required one-lung ventilation (OLV). A 35 Fr left-sided Rusch® Bronchopart™ (REF no. 116100, LOT no. 15BT09) DLT appropriate for height was chosen for lung isolation. After induction, DLT was inserted by conventional direct laryngoscopy, and the position was confirmed by auscultation as compatible FOB was not available.

Initially, tracheal cuff was inflated, and tube position was confirmed by bilateral air entry. Subsequently, bronchial tube was clamped, and ventilation through tracheal tube confirmed bilateral air entry, and the tracheal end of the DLT was presumed to be in the desired position above the carina. After this, the bronchial cuff was inflated and tracheal tube was clamped, and ventilation through the bronchial tube confirmed air entry only on the right lung. With evidence of literature supporting the possibility of misplacement of DLT in mind, a conclusion was made that the left-sided DLT had accidentally gone into RMB.

DLT was extubated from trachea, and the patient was ventilated with 100% oxygen for 3 min, and DLT was reinserted by direct laryngoscopy. During assembling of connectors, it was found that the connectors were interchanged and the bronchial segment of the DLT was wrongly connected to the tracheal connector and vice versa. This connection error was rectified, and DLT was placed in LMB, and lung isolation was successfully attained using auscultation method.

The initial scenario where the connectors were interchanged resulted in two situation. First, when the tracheal cuff was inflated, and ventilation was done through tracheal tube after clamping bronchial tube; where in reality ventilation was

occurring through the bronchial tube, as the bronchial cuff was not inflated, right lung was getting ventilated due to air leakage from the bronchial tube and a picture of bilateral air entry was felt and the tracheal tube appeared to be in its desired position above the carina.

Second, when the bronchial cuff was inflated, and the tracheal tube was clamped and ventilation was done through bronchial tube; where in reality, ventilation was occurring through tracheal tube, airflow was completely prevented from entering the left lung as the bronchial cuff was inflated, and air entry was heard only in the right lung. This gave a wrong impression that the left-sided DLT was accidentally placed in RMB [Figures 1 and 2].

This was a case where lung isolation failure was presumed although DLT was correctly placed due to technical error. DLT are frequently used by the authors and routinely PVC Robertshaw tubes are used. Manufacturer coats the bronchial aspect of the DLT with a blue-colored cuff, balloon, and connector [Figure 2] for safety measure but was completely overlooked in our case and lead to a bizarre yet interesting clinical scenario.

Unfortunately, the patient had to undergo intubation twice which increases the chances of airway trauma and complications.

We write this letter as a learning tool where nonavailability of FOB can cause similar error and unnecessary complications and emphasize the importance of adequate preparation, checking, and equipment setup during lung isolation

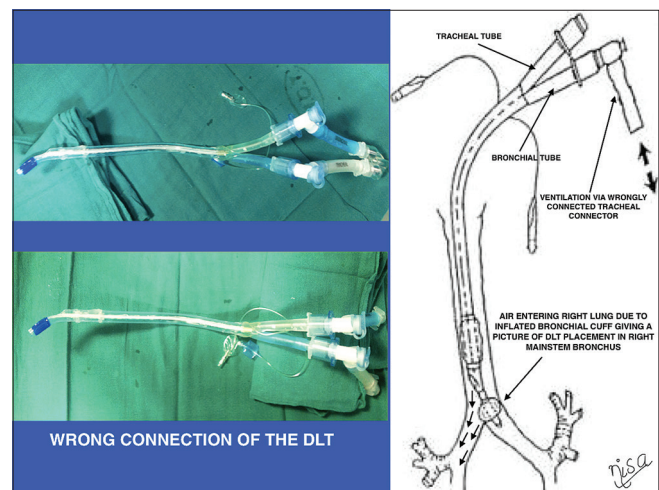


Figure 1: Interchanging of connectors and mechanism of the right lung isolation

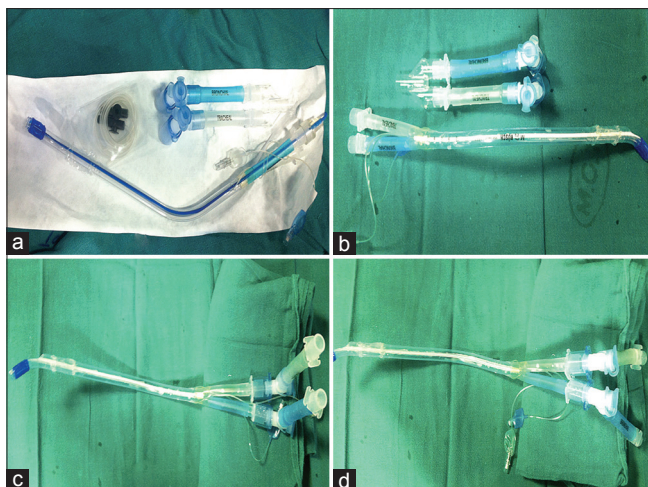


Figure 2: Rusch Bronchopart Robertshaw double-lumen tube and its Parts (2a-2b) showing correct assemble (2c-2d).

using DLT. The suction port of both segments of the tube (both blue in this case) should also be color coded apart from blue-colored cuff, balloon, and connector as additional safety feature. A preformed connector assembly can also avoid this situation so that connectors of DLT not be interchanged during equipment setup.

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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