Is fibreoptic bronchoscopy a must prior to one lung ventilation in a situs inversus patient?

Sir,

Situs Inversus (SI) is a condition characterized by a mirror image orientation of the abdominal and thoracic viscera in relation to midline. Thoracoscopic surgery enables internal examination, biopsy and resection of masses within the pleura and thoracic cavity and requires one lung ventilation (OLV).[1] We report OLV of a patient, ASA grade II with SI, and right-sided breast carcinoma posted for thoracoscopic surgery. Chest X-ray Postero Anterior view showed Dextrocardia with right pleural effusion. Echocardiography revealed dextrocardia with normal cardiac function. High-resolution computed tomography of chest and contrast-enhanced computed tomography of abdomen were suggestive of a tumor of right breast with right pleural effusion and SI. The anesthetic plan was to first perform fibreoptic bronchoscopy (FOB) to confirm the anatomic aberration of tracheobronchial tree in the patient. In the operating room, monitoring was initiated in the form of pulse oximeter, noninvasive blood pressure, and 5-lead electrocardiography electrodes placed in a mirror image of normal. FOB done under sedation revealed right main bronchus with upper and lower lobe branches and left main bronchus with upper, middle, and lower lobe bronchus confirming the mirror image aberration of anatomy. FOB revealed left main bronchus in line with the trachea, with upper lobe bronchial opening close to the carina. Hence, the choice of endobroncheal tube was -right-sided double lumen tube (DLT) to be placed in the left main bronchus of the patient. The slit in the endobroncheal cuff of the right-sided DLT would enable ventilation of left apical segment. With standard anesthetic technique a 37 Fr right-sided DLT was placed in the left main bronchus. The distal bronchial tube was held with the tip directed upward.

As it passed through the glottis the stylet was removed. The tube was advanced and rotated 90° counterclockwise (toward the left) and advanced until resistance was felt [Figure 1]. Correct positioning was checked by auscultation and by FOB including the ventilation of the left upper lobe through the slit in the endobronchial cuff. Intermittent positive pressure ventilation of left lung was achieved through the endobronchial lumen after cuff inflation and right lung was collapsed and CPAP applied to tracheal lumen. Multiple pleural biopsies and pleural lavage was done and neuromuscular blockade was reversed and trachea extubated at the end of the procedure.

This case is reported to highlight the need of FOB to evaluate the anatomy of tracheobronchial tree prior to choosing the appropriate DLT in a patient of SI Totalis for OLV. The mirror image airway anatomy demands innovative and meticulous planning for the placement of lung separation devices. Successful right bronchial intubation using a left-sided DLT has been reported in a patient with SI.[2] The difference between the length of the left main bronchus upto the opening of the left upper lobe bronchus and the length of the cuff and tip of the bronchial segment of the DLT has been termed "the margin of safety" by Benumof.[3] This margin of safety is minimal in a patient with SI. Use of a right-sided DLT in left lung of SI patient is useful to maintain the ventilation of the apical segment of the left lung. The use of a bronchial blocker, Fogarty's catheter or the Univent (TCB Univent; Fuji Systems Corporation) can also be considered for OLV in patients with SI. However, intentional left bronchial insertion of a right-sided DLT and confirmation with FOB is a reliable option.

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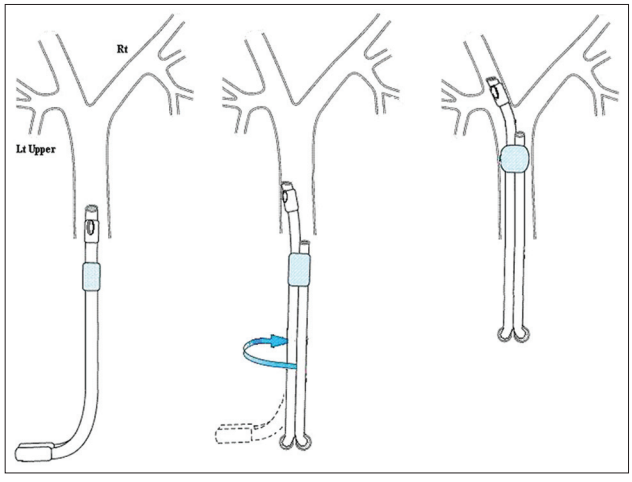

Figure 1: Placement of a right-sided double lumen tube in the left main bronchus with situs inversus totalis

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