

CORRESPONDENCE

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Incorrectly Adjusted Vaporizer Exclusion System

To the Editor:—We recently had an equipment problem that fortunately resulted in no patient injury.

The patient was a healthy 5-month-old infant undergoing bilateral club foot repair. After a 3.5-h combined halothane/caudal anesthetic without incident, the patient was switched to desflurane to facilitate awakening. The desflurane vaporizer had been retrofitted onto a Dräger machine. The desflurane vaporizer was turned on without the halothane first being turned off because of an incorrectly adjusted exclusion system. This was quickly discovered because of the alarms on a Rascal gas monitor showing two gases present. When the other machines in the department were checked, one other Dräger was found to have this capability.

We never had this problem until retrofitting our machines with desflurane vaporizers and bring it to the attention of others as they may prevent the same problem.

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Improvement of the Left Broncho-Cath Double-lumen Tube

To the Editor:—It is sometimes difficult to properly position a conventional left-sided double-lumen tube (cDLT, Mallinckrodt Broncho-Cath).¹

We think the reasons for this difficulty are the following: First, the angles of the tracheal axis with the proximal left main bronchus (angle a in fig. 1) and with the peripheral left main bronchus (angle b

b in fig. 1) increase greatly when the patient is moved from supine to left lateral position. When the angle changes, the bevel of the bronchial tip of the cDLT occasionally becomes obstructed by the medial wall of the left mainstem bronchus. In one study, angle a in our patients (9 men and 2 women, aged 22 to 73 yr, between 158 and 182 cm in height) changed from $43.9^\circ \pm 5.5^\circ$ in supine position to $50.6^\circ \pm 7.1^\circ$ in left lateral position. Angle b changed from $69.1^\circ \pm 9.5^\circ$ in supine position to $87.9^\circ \pm 14.6^\circ$ in left lateral position.

Second, the elongated or enlarged aortic arch, seen in patients undergoing thoracotomy, can compress the trachea from the left side. In such cases, the tracheal outlet of the cDLT should be positioned properly at the orifice of the right main bronchus.

Finally, the distance from the left endobronchial tip to the distal margin of the tracheal lumen tip of the cDLT (55 mm) is greater than the average left mainstem bronchial length (men, 49 ± 8 mm; women, 44 ± 7 mm).²

Therefore, we recommend four modifications to the cDLT (mDLT):

1. the bevel of the bronchial tip is modified (fig. 2),
2. the angle between the tracheal axis and the bronchial tube axis is increased from 30° to 45° (fig. 2),
3. the length of the bronchial tube is shortened to 40 mm to reduce risk of obstruction of the left upper lobe by the tip of the bronchial tube when an mDLT is positioned with its tracheal outlet fitting properly at the orifice of the right main bronchus, and
4. the endobronchial cuff is shortened 3 mm and moved 3 mm dis-

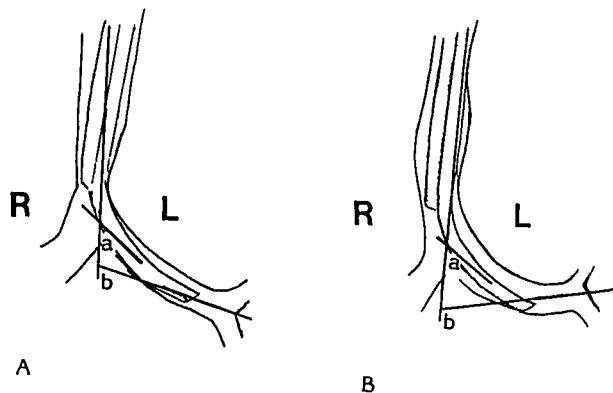


Fig. 1. The changes of the angles between the trachea and the proximal (a) and distal (b) of left mainstem bronchus in the supine (A) and in the left lateral (B) position.