

is present then the trachea should remain intubated and the patient should be placed in an intensive care unit until the swelling has resolved and the trachea can be extubated safely. The development of the edema is insidious. It has occurred as late as 2½ h after surgery and has worsened over the subsequent 9–36 h. Even if no edema is seen at extubation, patients should be observed carefully, particularly after procedures lasting 3 h or more. Conventional management may fail to re-establish the airway should it be lost and emergency tracheotomy, cricothyrotomy or transtracheal jet ventilation may be required.

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Proper Lateralization of Left-Sided Double-Lumen Tubes

To the Editor:—The placement of a left-sided Robertshaw design, double-lumen endobronchial tube is usually accomplished as follows. After the tip of the bronchial catheter is below the glottis, the stylet is removed, the tube is rotated counterclockwise through 90 degrees, and then advanced until resistance is met.¹ The bronchial lumen should now lie in the left mainstem bronchus. It is important to not advance the tube at all until it has been rotated, otherwise it may enter the right mainstem bronchus which arises from the carina at a less acute angle.

Despite following the above protocol, a left-sided tube may still become located in the right mainstem bronchus and repeated attempts at correct placement may be unsuccessful. When this was our experience on several recent occasions, we found that rotating the patient's head and neck to the right, prior to rotating and advancing the tube, resulted in proper lateralization of the left-sided Bronchocath (Mallinckrodt Inc., Argyle, NY) double-lumen endobronchial tube.

Bronchoscopists have long recognized the increased difficulty of inserting a rigid bronchoscope into the left mainstem bronchus because of the angle it makes with the trachea and because its orifice is partly covered with the tracheal carina in 74% of patients.² The technique recommended for passage of a rigid bronchoscope into the left mainstem bronchus is that, "after the carina is identified, the patient's head and neck are raised and abducted to the right, the patient's face being simultaneously turned to the right. In most cases the bronchoscope will now readily slip into the main bronchus, although sometimes it is necessary to displace the carina to the right."²

Kubota *et al.*³ have reported their experience of selective blind left endobronchial intubations using a single-lumen endotracheal tube in 300 adults. The highest success rate (275/300, or 92%) was achieved when the tube was rotated 180 degrees (so that the bevel faced toward the right) and the patient's head was turned to the right. When the head was not rotated to the right the success rate was only 61% (182/300). The difference in success rates was statistically significant ($P < 0.01$). These authors³ offered no explanation for why their success rate was improved when the head was turned to the right.

We have now incorporated this step, of rotating the head and neck to the right, as part of our routine technique during placement of left-

sided double-lumen endobronchial tubes. In our recent experience, the method has so far been uniformly successful with the tube being correctly localized on the first attempt at placement.

We are presently studying the mechanism whereby turning the head and neck improves the success of tube placement. The most likely explanation is that turning the head shifts the larynx to the right in relation to the carina. This would tend to bring the axis of the left mainstem bronchus more into line with that of the trachea, *i.e.*, the bronchus would arise at a smaller angle, and the endobronchial tube would have a "straighter shot" at the left mainstem bronchus. It is also possible that head turning stretches the trachea and left main bronchus, thereby altering the anatomy of the origin of the left mainstem bronchus to make it wider or less slit-like, either way rendering it more receptive to the passage of the bronchial catheter of a left-sided double-lumen endobronchial tube.

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