

CORRESPONDENCE

Anesthesiology
2000; 92:1857
© 2000 American Society of Anesthesiologists, Inc.
Lippincott Williams & Wilkins, Inc.

The Use of a Modified Intubating Laryngeal Mask Endotracheal Tube for Tracheal Resection and Reconstruction

To the Editor:—The optimal breathing tube for use during resection and reconstruction of proximal and midtracheal lesions should be a long, flexible, reinforced tube that can be manipulated easily during surgery without kinking.¹ The tube should have a short, low-pressure, high-volume cuff and a very short segment beyond the cuff to allow bilateral lung ventilation through short tracheal stumps.¹ Such a tube is not commercially available but can be custom made with advanced planning.

In a previous report,¹ attempts to modify existing endotracheal tubes (ET) for use during tracheal surgery resulted in compromised conditions. A major source of difficulty was that the pilot tube of a modern polyvinyl chloride ET extended beyond the cuff to the tip of the tube. Therefore, any attempt to shorten the distal end of the ET by cutting off the tip resulted in the loss of the cuff seal.

The Intubating Laryngeal Mask ET (ILM-ET; LMA North America, San Diego, CA) is an ET designed for use in conjunction with the LMA Fastrach laryngeal mask (LMA North America). The ILM-ET is a reinforced ET with a relatively short small-volume, high-pressure cuff and a soft tip designed for atraumatic passage through the vocal cords. The tip is molded to the tube at a point immediately distal to the cuff; therefore, it can be cut off without compromising the cuff seal.

We describe two cases in which the ILM-ET was modified by cutting off the tip and was successfully used during tracheal resection and reconstruction. The first patient was a 43-yr-old man who had previously undergone a left pneumonectomy and a esophagectomy for carcinoma of the lung. The patient presented with distal tracheal stenosis caused by recurrence of the tumor and underwent placement of a tracheal stent at the tumor site. The ILM-ET was initially positioned above the tumor. A closed stent was inserted down the tube and was advanced until it was situated completely inside the stenotic segment of the trachea. Once the correct position of the stent within the stenotic segment was confirmed with fluoroscopy, the stent was opened. The tip of the ILM-ET was then advanced through the opened stent until the cuff reached the distal tracheal segment and the tube was secured in this position. The second patient was a 71-yr-old man who in whom tracheal stenosis developed as a complication of radiotherapy for carcinoma of the lung. The patient underwent a resection of the 2-cm stenotic segment, which was situated 2 cm distal to the

vocal cords. The modified ILM-ET was used successfully in both patients and allowed bilateral lung ventilation through short distal tracheal segments and without encroaching on the operative site or on a fresh tracheal suture line.

The high-pressure characteristics of the ILM-ET cuff is a drawback because it can lead to ischemic complications of the trachea.² Therefore, it is important to limit the inflation of the cuff to the minimum volume that seals the trachea to limit the pressure exerted by the cuff on the tracheal mucosa. Both patients required prolonged ventilatory support with the ILM-ET in place and with the cuff volume carefully monitored. No complications related to the long-term use of the ILM-ET were detected in either of these patients.

In conclusion, modifying the ILM-ET by cutting off its tip is a useful alternative to a custom-made ET for use during tracheal resection and reconstruction. However, because of the high-pressure characteristics of the ILM-ET cuff, cuff inflation should be maintained at the minimum volume that is needed to seal the trachea.

Kerry W. DeGroot, M.D.
Assistant Professor
Johan P. Suyderhoud, M.D.
Associate Professor
Medhat S. Hannallah, M.D., F.F.A.R.C.S.
Professor
Department of Anesthesiology,
Georgetown University Medical Center,
Washington, DC
H301@erols.com

References

1. Hannallah MS: The optimal breathing tube for tracheal resection and reconstruction. *ANESTHESIOLOGY* 1995; 83:419–21
2. Wiesel S, Warm T: Fastrach uses a low-volume, high-pressure cuff for the endotracheal tube system. *ANESTHESIOLOGY* 1999; 91:592–3

(Accepted for publication February 7, 2000.)