FIGURE Xomed electromyograph endotracheal tube. Note the blue band on the distal endotracheal tube which guides the anesthesiologist to position the tube with the exposed wires coming in contact with the vocal cords.

within seconds the BIS value dropped from 75 to 24, and remained there. It was then realized that the EMG stimulator had artificially elevated the BIS value. Recovery from anesthesia was somewhat prolonged, requiring the addition of flumazenil 200 µg *iv* and naloxone 80 µg *iv*. The patient recovered well and had no recall of intraoperative events.

We report a case of falsely increased BIS values related to interference from the EMG ETT device used in thyroid surgery. These falsely high BIS values led to the unnecessary addition of intravenous anesthetic agents and a moderately prolonged emergence from general anesthesia requiring the use of benzodiazepine and opioid antagonists. This case demonstrates that the EMG stimulus may be interpreted by the BIS monitor as EEG activity yielding a falsely high BIS value. Light levels of anesthesia with concomitant EMG activity of the facial muscles has also been associated with spuriously increased BIS values⁴ and presents a possible explanation for our patient. However in this case the lack of hemodynamic changes suggested an adequately anesthetized patient, and the immediately falling BIS values upon cessation of the EMG stimulus also suggested that the EMG stimulus was the cause of the spurious BIS reading.

The BIS monitor continues to be used for patients undergoing general anesthesia in an attempt to reduce intraoperative awareness, decrease time to discharge home, and reduce hypnotic drug administration.⁵ In the event of sudden increases in BIS values during surgery and anesthesia, the clinician should consider concomitant use of electromagnetic devices in the

differential diagnosis, especially when clinical judgment would suggest that adequate levels of anesthesia already exist.

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A call to Mallinckrodt for a modified right-sided Broncho-CathTM double lumen tube

To the Editor:

Bussires *et al.*¹ proposed a modified right-sided Mallinckrodt endobronchial tube incorporating an enlarged lateral orifice. This concept has been described previously² with a technique which may provide the best possible margin of safety for a right-sided endobronchial intubation. We have never encountered tissue herniation into the tracheal lumen as feared by Lohser *et al.*³ At the time of our previous work with these double-lumen tubes, we attempted to interest Mallinckrodt representatives in France to develop such a modified right-sided double-lumen tube, without any success. Apparent reasons included the fact that the right-sided Mallinckrodt endobronchial tube represents a relatively small market (10% as compared to 90% of the market share for the left-sided double-lumen tubes), and the fact that the end of the tube is hand-made, and the proposed modification would have increased the price excessively. I sincerely hope that the work of Bussires *et al.* will lead to further enhancements in the commercial development of right-sided double lumen tubes.

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Reply:

We sincerely thank Professor Fischler for his interest and comments regarding our recently published article.¹ The work of his team,² published in 1995, was a trigger to our interest for right-sided double-lumen tube (R-DLT) modification. Their proposed modification consisted of cutting the distal part of the endobronchial portion to

completely remove the lateral orifice (Figure A, B). With their method, great improvement in ventilation of the right upper lobe and easier tube positioning was possible. Unfortunately, there were unresolved concerns about possible obstruction of the intermediate or superior bronchus due to external compression by the mediastinum or from surgical manipulations. This situation can happen in the right lateral decubitus position due to the structural change.

Our modification proposes an enlargement of the lateral orifice with preservation of an annulus in the distal part of the tube (Figure C, D). This conservation of the extremity of the endobronchial portion of the tube acts as a stent to prevent intermediate or superior bronchial obstruction (Figure, arrows). This option also helps to stabilize tube position after insertion of the endobronchial portion. Finally, our modification is also different from Fischler's with the broader opening it creates. This gives a larger aperture, about 180° wide, which facilitates aperture alignment with the origin of the right superior bronchus.

Thanks to the numerous readers for their positive comments. We appreciate Dr. Fischler's support for a commercially available R-DLT. This interest is shared by many thoracic anesthesiologists.

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Laryngeal mask airways: proprietary issues

To the Editor:

I write further to the letter written by Drs. Jee and van Hasselt commenting on disposable laryngeal mask airways.¹ Several important points are raised by this letter. First, the letter erroneously identifies the defective product as an 'LMA'. The symbol LMA has been trademarked and identifies products (Figure, panel A) designed by Dr. Archie Brain and manufactured by the Laryngeal Mask Company Limited. There are many years of clinical investigation and superior manufacturing that have gone into the production of each LMA™ which might go unobserved by the user. Both 'LMA' and 'LMA™' are interchangeable. Second, it is a basically accepted principle that clinicians must inspect medical devices prior to their use. The issue of overuse and pre-use inspection of LMA™ devices was

FIGURE Photographs and schematic representation of the Broncho-Cath™ right-sided double lumen tube: the "Paris modification" (A-B) and "Quebec modification" (C-D). Note the presence of the distal part of the endobronchial portion (annulus: arrows) in the Quebec modification.