

Right-sided double-lumen tubes: need for design improvement and better insertion technique?

Jean S. BUSSIÈRES*, Jérôme LEMIEUX, Jacques SOMMA

Department of Anesthesiology, Institut universitaire de cardiologie et de pneumologie de Québec, Quebec City, Quebec, Canada

*Correspondence: jbuss@criucpq.ulaval.ca

Received: 28.11.2012

Accepted: 01.01.2013

Published Online: 02.01.2014

Printed: 24.01.2014

To the Editor:

Sazak et al. (1) recently published a randomized study comparing 2 right-sided double-lumen tubes (R-DLTs) from different manufacturers. Assessing R-DLTs' positions by bronchoscopy, they showed a 40% to 50% nonoptimal placement in the supine position and a 30% to 35% nonoptimal placement following turning the patient in lateral decubitus without any statistically significant difference between the 2 different groups.

Some 5 years ago, we published a randomized study comparing the original R-DLT, Broncho-Cath® from Mallinckrodt Medical, to an on-site modified (enlarged lateral orifice) R-DLT (2). Evaluation by bronchoscopy immediately after mobilizing the patient in lateral decubitus showed that the standard R-DLT position was nonoptimal in 63% compared to 23% for the modified R-DLT ($P = 0.0121$) and remained nonoptimal after optimizing the position in 26% for the standard R-DLT in contrast to only 3% with the modified tube ($P = 0.0109$).

Although the studies' endpoints were different, they added to the early publication from McKenna et al. (3) and clearly demonstrated that the classic design of the R-DLT is inadequate. By contrast, our on-site modified R-DLT

seemed to be superior to the classical design in regard to the alignment of the lateral orifice of the tube with the origin of the right upper lobe (RUL).

Sazak et al. also reported some problems with the blind insertion of R-DLTs. In our study, we also described an insertion technique that we have been using for more than 20 years with very good results. Accordingly, immediately after crossing the vocal cords with the R-DLT tip, we introduce a fiberoptic bronchoscope (FOB) inside the bronchial lumen. A preliminary visualization of the right bronchial tree is then performed. After locating the RUL origin, the FOB is kept in position. Next, the R-DLT is gently glided over the FOB until the lateral orifice is aligned with the RUL origin. In our opinion, this technique allows an easy, fast, and safe R-DLT placement.

We agree with the authors that R-DLTs have limited definite indications. However, to be proficient if one of those indications arises, anesthesiologists should frequently practice intubation with R-DLTs. The availability of an optimized R-DLT would help the safe utilization of this essential tool.

P.S. Recently a Chinese company announced the production of a R-DLT with an enlarged lateral orifice (<http://www.ecvv.com/product/2979029.html>). We hope that it will soon be available in the occidental world.

References

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Reply to Letter to the Editor: “Right-sided double-lumen tubes: need for design improvement and better insertion technique?” by Bussières et al.

To the Editor:

On behalf of my colleagues, I want to thank Bussières et al. for their interest in our recent study comparing 2 right-sided double-lumen tubes (RDLTs) with different designs (1).

Various RDLTs with different endobronchial segment configurations are currently available from different

manufacturers. All RDLTs have an additional opening, allowing ventilation of the right upper lobe, in their endobronchial lumen. Although the design of the RDLT has been modified many times in order to facilitate correct installation and ventilation of the right upper lobe, the optimal double-lumen tube (DLT) design has not yet been

found. We strongly agree with Bussières et al. in that the availability of an optimized RDLT would help in the safe use of this tool. Bussières et al. (2) suggested the superiority of the modified Broncho-Cath® RDLT compared to a standard Broncho-Cath RDLT for optimal RDLT positioning. They concluded that this modification may be beneficial when RDLTs are indicated to facilitate one-lung ventilation during thoracic surgery.

In our thoracic anesthesia practice, the RDLT is usually inserted blindly using the conventional method. In order to confirm tube positioning, initial fiberoptic bronchoscopy is performed via the tracheal lumen. After establishing the vision of the carina and direction of the endobronchial lumen towards the right side, the bronchoscope is then passed down the bronchial lumen. Visualization of the right upper lobe

bronchus orifice at the level of the right upper lobe ventilation opening is the target to avoid obstruction.

If there is difficulty in the proper installation, for the initial placement of the DLT, we introduce a bronchoscope inside the tracheal lumen of the DLT after passing the vocal cords. After the confirmation of right-sided placement of the endobronchial lumen as above, the bronchoscope is passed down the bronchial lumen. The examination or the manipulation is performed to avoid obstruction of the right upper lobe. This method may be somewhat time-consuming. Occasionally, as an alternative method, we also use the technique that was described by Bussières et al. in the placement of the RDLT with the bronchoscope in the bronchial lumen after passing the vocal cords. We appreciate their kind comments and valuable contributions to our paper.

References

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Hilal SAZAK*, Ali ALAGÖZ

Department of Anesthesiology and Reanimation, Atatürk Chest Disease and Thoracic Surgery Education and Research Hospital, Ankara, Turkey

*Correspondence: hilalgun@yahoo.com