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## A different fibre-optic device for double lumen tube position confirmation!

Sir,

The review article 'lung isolation, one-lung ventilation and hypoxaemia during lung isolation'

by Atul Purohit *et al.* in the September issue was an academic treat.

We would like to report a novel and alternative device for confirming double lumen tube (DLT) position. The conventional method needs a paediatric fibre-optic bronchoscope (PFOB) which may not always be available. [1-3] We used a flexible fibre-optic uretero-roscope (F-URS), which has an outer diameter (OD) similar to PFOB, to confirm the DLT position [Figure 1].

A 24-year-old male patient was posted for the right upper lobectomy for aspergilloma in the right upper lobe cavity as a sequel to pulmonary tuberculosis. After induction of general anaesthesia, a 39 French left-sided DLT was inserted under direct laryngoscopic vision with capnographic confirmation.

A “3-step” clinical method was followed to confirm position of left DLT:

- The tracheal cuff was inflated and air entry was confirmed bilaterally
- The bronchial cuff was inflated and the tracheal lumen was clamped proximally for the left lung isolation. Bronchial lumen of the DLT was ventilated and unilateral ventilation confirmed
- On releasing the clamp of the tracheal lumen, ventilation was resumed bilaterally. Hence, the DLT positioning was confirmed clinically.<sup>[3]</sup>

The F-URS was then passed through the tracheal lumen of the DLT, which on exit showed the carina, the right main bronchus and absence of herniation of the bronchial cuff. The two left bronchi were seen on passing the F-URS through the bronchial lumen of the DLT.<sup>[1-3]</sup> The F-URS can confirm placement of right-sided DLT as the working length would be adequate to visualise the right upper lobe bronchus.

The F-URS we used was the E Line Compact Flexible Uretero-roscope®, manufactured by M/S Richard Wolf, Germany-8703.524; 8/9.8 Fr, with an OD of 2.67/3.27 mm and working length of 430 mm. It costs approximately Rs. 7.5–8 lakhs. The F-URS works on fibre-optic technology similar to a FOB and is used for urosurgery as a flexible fibre-optic scope. A 39 Fr DLT accepts a FOB

with 3.9–4.2 mm OD, whereas a 37 Fr DLT accepts OD of 3.5–3.9 mm. The F-URS with OD of 2.67/3.27 mm easily accepts 37 and 39 Fr DLTs [Figure 2].<sup>[1,2]</sup>

Methods used for the confirmation of the DLT are clinical, FOB and recently ultrasonography (USG).<sup>[4]</sup> The clinical method as the sole confirmatory method is inaccurate in detecting malpositions of the DLT, and may present significant intra-operative problems during one-lung ventilation.<sup>[1,2]</sup> Using a FOB aids in confirming DLT position, repositioning if necessary during surgery, visualising the operated site before DLT removal and perioperative pulmonary toileting.<sup>[2,5]</sup> Its use may be limited by non-availability, also it does not confirm deflation of non-ventilated lung.<sup>[4,5]</sup> Confirmation of lung deflation can be done by lung USG by the lung sliding and lung pulse sign. USG is dependent on availability, cost of the machine and subjective assessment of the performer.<sup>[4]</sup> Hence, FOB remains the gold standard for confirming DLT position.<sup>[1,4-6]</sup>

The presence of a super speciality urology facility in our institute ensured the presence of the F-URS. It has a smaller OD, larger working channel, active deflection and better fibre optics due to advanced technology. The indications for its use include diagnostic procedures, management of calculus disease and endoscopic management of upper tract tumours, endoureterotomy or endopyelotomy.<sup>[7]</sup> The sterilisation procedure for the F-URS is similar to other fibre-optic devices, and hence, it can be reused for urosurgery. We would like to emphasise that this was a one time use of the F-URS for confirmation of the position of DLT in the absence of PFOB, and



**Figure 1:** Double lumen tube loaded on fibre-optic uretero-roscope



**Figure 2:** Comparing length of double lumen tube and fibre-optic uretero-roscope

we do not intend to use it on a regular basis. Hence, the warranty terms and conditions would not be affected. The limitation of this device would only be its non-availability in certain institutions.

We would like to draw attention to the fact that application of fibre-optic technology to broader medical specialities can be used to the patients' advantage.

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There are no conflicts of interest.

***Pritee H Bhirud, Pratibha V Toal***

Department of Anaesthesia, BARC Hospital, Mumbai, Maharashtra, India

**Address for correspondence:**

Dr. Pritee H Bhirud,  
B-601, 602, Mayuresh Trinity CHSL, Plot 64-65, Section 16A,  
Nerul (W), Navi Mumbai - 400 706, Maharashtra, India.  
E-mail: priteebhirud@gmail.com

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