

## Intubating laryngeal tube suction device (iLTS-D) requires ‘Mandheeral 1 and Mandheeral 2’ manoeuvres for optimum ventilation

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The recently introduced iLTS-D® combines the characteristics of laryngeal tube suction-D with the added possibility of secondary tracheal intubation. The manufacturer has provided a method to insert the novel device, iLTS-D. With 45-patients worth of experience, two manoeuvres, i.e. Mandheeral 1 and Mandheeral 2, are recommended for smooth insertion of the device, and ventilation through the device. These were head extension and ‘up-to-one-inch-out manoeuvres’. These two manoeuvres were required in all patients.

**Keywords:** iLTS-D, Mandheeral 1, Mandheeral 2

Sir,

The recently introduced, iLTS-D® (intubating laryngeal tube suction, VBM Medical Inc., Sulz, Germany) combines the characteristics of laryngeal tube suction-D (LTS-D®, VBM Medical Inc., Sulz, Germany) with the added possibility of secondary tracheal intubation.<sup>1,2</sup> After insertion, the endotracheal tube of appropriate size (as per manufacturer) is inserted with or without fibrescope.<sup>3</sup>

With experience of 45 consecutive cases employing iLTS insertion, it was keenly observed that two manoeuvres were absolutely necessary for effective ventilation. Similar to that for a laryngeal tube device, head extension was absolutely necessary immediately post device insertion.<sup>3</sup> To achieve best ventilation, the head extension was mandatorily maintained throughout the surgical procedures. If this manoeuvre was not performed, there was loss or distortion of square-wave capnographic waveform and loss of visible chest expansion, signifying inappropriate ventilation. A detailed dynamic study of the equipment showed that it can be attributed to improper sealing of the iLTS-D cuff or inappropriate alignment of the laryngeal inlet, and airway port openings of the iLTS-D. The ideal seal and appropriate alignment of the ventilation port with the laryngeal inlet requires head extension throughout the surgical procedure (Figure 1). The head has to be fixed in an extended position either with microtape or by putting a pillow under the patient’s shoulders. The authors named this manoeuvre ‘Mandheeral 1’ (Figure 2).

Secondly, it was noted that as soon as the iLTS-D was inserted inside the oral cavity, the cuffs were inflated and anaesthesia circuits attached. Adequate chest expansion was visible when the iLTS-D was withdrawn slowly and up to 1 inch. While withdrawing the iLTS-D slowly, optimum ventilation was checked continuously with adequate visible chest rise. The moment adequate chest rise was visible, the operator stopped and fixed the iLTS-D with tape, noting the ventilator parameters and feeling the resistance in the bag. Head extension was maintained and the square-wave capnograph observed via the monitor. This ‘up-to-one-inch-tube-out’ manoeuvre was observed in all 45 patients. Thus, it was named the ‘Mandheeral 2’ manoeuvre.

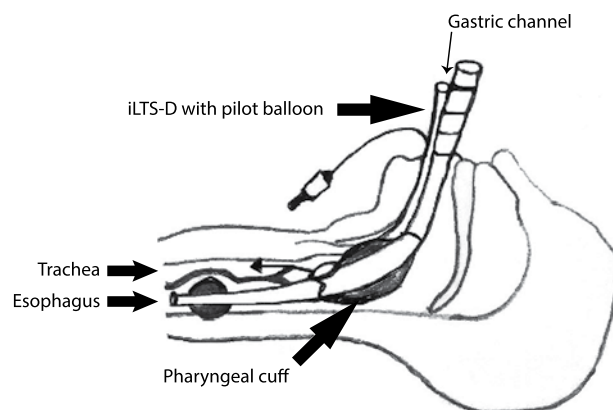


Figure 1: The head in neutral position.

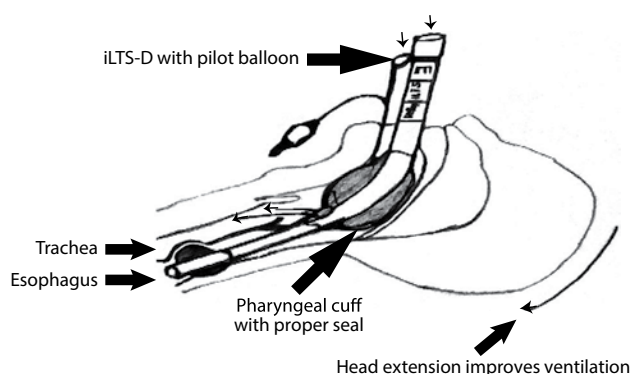


Figure 2: Head extension leading to better alignment of laryngeal inset and ventilation port of the iLTS-D with improvement in pharyngeal seal (Mandheeral 1).

Oropharyngeal leak pressure (OLP) was also observed in this position and was clinically correlated with quality of ventilation. The mean OLP at these positions was  $34 \pm 2$  cm of water. The more the OLP, the more accurate the ventilation. In all 45 patients, OLP remained highest when the above two manoeuvres were done. The endotracheal tube insertion was done using 'Mandheeral 1' and 'Mandheeral 2' manoeuvres. These manoeuvres may be better validated if a number of studies are conducted in the near future.

To conclude, the 'head extension' manoeuvre ('Mandheeral 1') and 'up-to-one-inch-out' withdrawal manoeuvre ('Mandheeral 2') are absolutely necessary, and beneficial for successful ventilation through the iLTS-D and blind endotracheal intubation through the device. The quality of ventilation, OLP and success of intubation through the iLTS-D is best using these two manoeuvres.

Thank you,

Manpreet Singh and co-authors

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