Letter to Editor

Journal of Anesthesia & Perioperative Management

# A Novel Technique for DLT Placement to Prevent Repeated Attempts Due to Cuff Rupture

**Kumar A[1], Bhargava T[2], Singla S[1]* and Sharm RK[3]**

[1]*Department of Oncoanaesthesia and Palliative Medicine, Dr. B.R.A.I.R.C.H. AIIMS, New Delhi, India*

[2]*Department of Anaesthesia, Dr. Ram Manohar Lohia Hospital, New Delhi, India*

[3]*Department of Medical Oncology, Dr. B.R.A.I.R.C.H. AIIMS, New Delhi, India*

Placement of double-lumen tube can be difficult even in normal airways with an adequate laryngoscopic view due to inadequate size prediction, relatively small space for airway manipulation and subjective experience of the anaesthetist [1]. Here we present a case with a difficulty in DLT placement and troubleshooting with a novel manoeuvre. Our case is a 45-year-old male, ASA 1 (Height-171 cm, weight-54 Kg), known case of carcinoma oesophagus, posted for VATS oesophagectomy under general anaesthesia with thoracic epidural blockade. The patient was a tobacco chewer with sharp and irregular denture with a mouth opening of 3 cm and other normal airway examination findings. General anaesthesia was induced with fentanyl and propofol followed by neuromuscular blockade with vecuronium. A 39 Fr size double lumen tube of disposable polyvinyl chloride (Broncho Cath DLT, Mallinckrodt Medical, Inc. St. Louis, MO) was selected and checked for any manufacturing defect. Following successful bag and mask ventilation, patient's trachea (Cormack Lehane II) was visualized with direct laryngoscopy (Macintosh size 3 blade) and intubated. However, following successful initial ventilation, gurgling sounds and inadequate tidal volume delivery was noticed, which raised the suspicion of cuff damage due to patient's sharp teeth. After checking for any manufacturing defects, with proper lubrication of the cuff and preventing the contact between the teeth & cuff with the help of an assistant; the second attempt of tracheal intubation was made with C- MAC (Karl Storz, Tuttlingen, Germany) videolaryngoscope with 39 Fr left-sided DLT, but with similar results. The fibreoptic examination confirmed correct placement of the DLT in both the attempts. Thereafter, to overcome this obstacle, bougie (15Fr, 70cm) guided tracheal intubation with 37 Fr left-sided DLT was attempted. After the successful exchange of previously inserted DLT with the bougie, the videolaryngoscope blade was taken out, DLT was railroaded over the bougie and inserted carefully in the oral cavity while an assistant pulls the lower jaw to the depth where the tracheal cuff passed the dental line while an assistant pulls the lower jaw throughout the procedure.No resistance was felt during the manoeuvre. The forceful movement should be avoided if any resistance is encountered. The C-MAC blade was inserted again to visualise the passage of DLT through the glottis. This manoeuvre enabled more space to negotiate the DLT to prevent any inadvertent contact between the teeth and both cuffs. Successful DLT placement was confirmed by FOB examination and ventilation. There can be chances of cuff damage with this technique in patients with small mouth opening and excessive manipulation should be avoided to prevent airway trauma.

The cuffs of the double-lumen tube are made of "fragile" polyethene vulnerable to damage by teeth or laryngoscope blade during difficult airway management. The incidence of cuff ruptures has been variable in previous literature. Tracheal cuff ruptures (0.9%) are common than bronchial cuff ruptures [2]. Damage to the cuff mandates replacement with an intact DLT which adds to the cost and also put the patient's life at risk until the airway is secured. Many modifications and techniques like the use of Mac Doshi laryngoscope [3], well-lubricated teeth guard [4] and cuff protector [5] have been described in the literature. Most anaesthetists are not familiar with these techniques. Use of airway exchange catheters(AEC) [6,7] and gum elastic bougies as airway adjuncts with their associated complications have been previously described. Removal of these adjuncts immediately after the DLT crossing the dental line can also be a valuable modification to prevent serious complications like of airway injuries by AEC or bougie. Our case management focuses on the use of these adjuncts to prevent tracheal cuff ruptures from the incisors.

***Corresponding author:** Sapna Singla, Department of Oncoanaesthesia and Palliative Medicine, Dr. B.R.A.I.R.C.H. AIIMS, New Delhi, India. Tel:+91 9899907244; E-mail: sapnasingla08@gmail.com

**Received Date:** June 30, 2020

**Accepted Date:** August 17, 2020

**Published Date:** August 27, 2020

**Citation:** Kumar A, Bhargava T, Singla S, Sharm RK (2020) A Novel Technique for DLT Placement to Prevent Repeated Attempts Due to Cuff Rupture. J Anes Perio Manag 4: 008.



## References

1. Brodsky JB (2009) Lung separation and the difficult airway. Br J Anaesth 103: 66-75.
2. Brodsky JB, Lemmens HJM (2003) Left double-lumen tubes: Clinical experience with 1,170 patients. J Cardiothorac Vasc Anesth 17: 289-298.
3. Sanjeev OP, Dubey PK, Shamshery C, Rastogi A (2017) Mac Doshi laryngoscope blade makes tracheal cuff protection easier during double-lumen tube placement. Egypt J Cardiothorac Anesth 11: 8-12.
4. Erb JM (1998) A Less Difficult Method to Protect the Tracheal Cuff of a Double-Lumen Tube. Anesth Analg 87: 1217.
5. Coppa GP, Brodsky JB (1998) A simple method to protect the tracheal cuff of a double-lumen tube. Anesth Analg 86: 675-681.

6. Wu HL, Tai YH, Wei LF, Cheng HW, Ho CM (2017) Bronchial lumen is the safer route for an airway exchange catheter in double-lumen tube replacement: preventable complication in airway management for thoracic surgery. J Thorac Dis 9: 903-906.

7. Thomas V, Neustein SM (2007) Tracheal laceration after the use of an airway exchange catheter for double-lumen tube placement. J Cardiothorac Vasc Anesth 21: 718-719.

Henry Journal of Acupuncture & Traditional Medicine

Henry Journal of Anesthesia & Perioperative Management

Henry Journal of Aquaculture and Technical Development

Henry Journal of Cardiology & Cardiovascular Medicine

Henry Journal of Case Reports & Imaging

Henry Journal of Cell & Molecular Biology

Henry Journal of Tissue Biology & Cytology

Henry Journal of Clinical, Experimental and Cosmetic Dermatology

Henry Journal of Diabetes & Metabolic Syndrome

Henry Journal of Emergency Medicine, Trauma & Surgical Care

Henry Journal of Haematology & Hemotherapy

Henry Journal of Immunology & Immunotherapy

Henry Journal of Nanoscience, Nanomedicine & Nanobiology

Henry Journal of Nutrition & Food Science

Henry Journal of Obesity & Body Weight

Henry Journal of Cellular & Molecular Oncology

Henry Journal of Ophthalmology & Optometry

Henry Journal of Perinatology & Pediatrics



Henry Publishing Groups, 41341 Red Birch Dr, Aldie, VA, 20105, USA
Tel: +1 571-275-4480; E-mail: contact@henrypublishinggroups.org
https://www.henrypublishinggroups.com/