A simple method to protect tracheal cuff of double lumen tube from damage during intubation

Sir,

Double lumen tube (DLT) placement is a standard method of lung isolation. Tracheal cuff damage may occur during difficult placement of the DLT as in difficult intubation and in patients with sharp teeth. Whenever the cuff tears, the DLT has to be replaced. This is not only expensive and requires additional time, but may also place the patient at increased risk of hypoxia/airway trauma.

We used a new technique to protect the tracheal cuff using a tube protector. We made this protector using single-lumen tube of 9.0–10 mm ID. We cut out a 6-inch-long segment and incised along the whole length at the concave margin, so that one side opened up and an eye made at proximal end around 1 cm below the upper edge of protecting tube through which a tie was placed. The inner side of the protector tube was lubricated with KY jelly and the tracheal cuff was covered with the protector tube. This protector tube covers the anterior, lateral, and posterior two-third to three-fourth surface of the

![Protector Tube with Tie and DLT](image1)

![Protector Tube over Tracheal Cuff](image2)
tracheal cuff, with the distal end of the protector lying over the tracheal opening of the DLT. [Figures 1 and 2]

During laryngoscopy, the tip of bronchial lumen was advanced through the vocal cords. Once the protected tracheal cuff passed beyond the teeth, the assistant standing on the right side of patient pulled the protector tube upward till the proximal end of tracheal cuff, then laterally, and finally removed it with the help of towel clip/prefixed tie. The DLT was then advanced further into the trachea. There was no dislodgement of tube protector or any injury to oral cavity in any patient.

We successfully intubated the trachea of 15 patients using a tube protector and compared it with 15 patients in the control group. In all the cases, left-sided DLT 37–39 FG was used. In one patient, in spite of using tube protector, the tracheal cuff of DLT got damaged and a new DLT was replaced. The tracheal cuff was probably damaged due to exposure of anterior surface of tracheal cuff to lower incisors as the tube protector was not properly railroaded over the tracheal cuff and the anterior surface remained exposed. Two patients in the control group had tracheal cuff damage and the DLT was successfully replaced using tube protector.

A method described to protect the tracheal cuff earlier was placing silk tape over the cuff[1] and placing the protector, but it is time consuming, cumbersome, and the sterility of the DLT is breached. We recommend this technique of protecting DLT cuff during DLT placement. We recommend using size 9.0-mm-ID single-lumen tube as a protector for 35 FG DLT, 9.5-mm-ID single-lumen tube for 37 FG and 39 FG DLT, and 10-mm-ID single-lumen tube for 41 FG DLT.

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Reference

1. Coppa GI, Brodsky JB. A Simple Method to Protect the Tracheal Cuff of a Double-Lumen Tube. Anesth Analg 1998;86:675.