



**Figure 1:** Computed tomography scan of neck showing tracheal growth and tracheostomy tube in situ

## Lignocaine jelly: A simple solution to intraoperative endotracheal tube cuff leak

Sir,

Endotracheal tube cuff (ETC) injury by needle, scalpel, electrocautery or retractors during neck surgery can result in cuff puncture necessitating endotracheal tube replacement.<sup>[1]</sup> Temporary interventions (pharyngeal packing, jet ventilation and continuous air/O<sub>2</sub> insufflations), albeit with varying degree of success, can be employed when tube replacement is not feasible.<sup>[2]</sup> We encountered a situation wherein the ETC developed a leak (probably puncture by instruments) during laryngectomy. Written and informed consent was taken from the patient for reporting this case.

A 52-year-old male patient with laryngeal carcinoma (already tracheostomised) was posted for total laryngectomy and hemithyroidectomy [Figure 1]. Postinduction, his tracheostomy tube was replaced with a size 8.5 mm flexo-metallic tube passed directly through the stoma into the trachea and fixed over the chest with sutures. Midway through the surgery, ventilatory discrepancies were noted between the delivered (500 ml) and expired (260 ml) tidal volumes activating low-pressure alarm.

Active search for the cause ensued. An audible bubbling noise emanating from the tracheostomy site and the deflated pilot balloon indicated cuff leakage. Re-inflating pilot balloon with air did not improve the situation. We decided to use a mixture of 2% lignocaine jelly (5 ml) and distilled water (5 ml) as a sealant through the pilot balloon, as already described in the literature.<sup>[3]</sup> However, when we tried injecting the mixture using a 10 ml sterile syringe through the pilot balloon it was not possible. Probably, the narrow caliber of the cuff inflation tube hampered the flow of the diluted jelly through it into the cuff. Thus, the pilot balloon started getting inflated, but the leakage from the cuff was not curbed. Considering the stage of the surgery and possible momentary loss of airway control upon removal of the defective tube, another 10 ml of the same solution was prepared and drawn in a syringe aseptically. The operating surgeon was requested to inject the solution with a 22G needle directly under vision inside the cuff. Consequently, an adequate seal was obtained which restored ventilatory parameters, and bubbling sounds ceased. Surgery restarted and was completed uneventfully in 45 min. Postsurgery, the flexo-metallic tube's cuff was deflated by aspirating the jelly using a large bore needle. It was replaced with a tracheostomy tube keeping the difficult airway cart ready and the residual muscular block was then reversed.

Iatrogenic injuries to the ETC during neck surgeries cause intraoperative leaks hampering proper ventilation. In our case, since the operative and tracheostomy sites were near, ETC injury might have occurred. Replacing the tube would have been the definitive management, but it demanded invading the sterile surgical zone, delays due to repositioning, re-painting and draping and added expenditure on the tube (in certain resource-challenged environments). Moreover, the risk of transient loss of airway control in an airway surgery with a bloody field and access restriction compounded the chances

of aspiration. Schubert et al. successfully reinflated ruptured ETC's using dilute lignocaine jelly.<sup>[3]</sup> However, we failed to inflate ETC with this method. We succeeded in our alternate technique as it was an airway surgery with the direct access of the surgeon to the ETC. Nonetheless, a disadvantage exists with our method that detrimental cuff pressure changes may be applied to the mucosa with gel rather than air, and the cuff may not deflate easily prior to extubation. Puncturing and aspiration of jelly from ETC may be required. Moreover, adequate sealing will depend on size and location of the perforation.

To conclude, injecting lignocaine jelly in the cuff is an effective method to seal punctured ETC while maintaining sterility and obviating the need of tube replacement.

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