



## Saline Soaked Pledgets - A Boon for Laser Excision While “Montgomery T-Tube in Situ” A Case Report

Authors

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### Introduction

Wide varieties of open surgical and laser assisted techniques are used for treatment of tracheal granulation tissue depending on site, cause and extent of lesion. Laser assisted surgeries of airway are challenge to anaesthesiologist for airway management. There are various reports of explosions during laser assisted surgeries. We report a case of successful laser assisted resection of granulation tissue surgery with Montgomery T tube in situ.

### Case Report

A 22 yr male weighing 60 kg and height 165 cm was posted for elective laser assisted resection of granulation tissue in trachea. He had trauma to anterior part of neck 12yrs back which was initially managed with tracheostomy followed by repair. Few years following which he developed tracheal stenosis, and underwent 3 surgeries under local and general anaesthesia. Since last 6 months he had Montgomery T tube in situ. The patient presented with respiratory difficulty and change of voice since 1 month. He had no other co morbidities. Routine hematological and biochemical investigations were normal. The X ray STN neck showed T tube in place and subglottic stenosis.



**Figure-1** montgomery tube in situ connected to anaesthesia circuit

After preanaesthetic check up and counselling, written informed consent for surgery and anaesthesia was taken and tablet ranitidine 150mg and tablet alprazolam 0.25mg at night and at 6:00 am was given as premedication.. In the morning patient was shifted to operating room and routine Monitoring with electrocardiogram, non invasive

blood pressure and pulse oximetry was started. An 18G intravenous canula in right forearm was secured.

Topical anaesthesia of oropharynx was achieved with 4% lignocaine spray. After proper suctioning of T tube, Preoxygenation was done with 100% O<sub>2</sub> for 3 min by attaching the anaesthesia circuit to the T tracheostomy tube with the help of a tracheal tube connector of 8.5 mm I.D. ETT. Injection glycopyrolate 0.2mg I.V, injection fentanyl 100 ug I.V. and injection propofol in incremental doses upto 160mg was given. After achieving adequate depth of anaesthesia rigid bronchoscopy was done and the area around the glottic end of the T tube was packed with saline soaked pledgets. After confirming absence of any leakage from the glottic end of T tube, injection succinyl choline 100mg I.V. was given. Adequacy of ventilation and leak was checked again with positive pressure ventilation. Anaesthesia was maintained with 40% oxygen in medical air and TIVA with intermittent injection of propofol and injection of vecuronium as required. The surgery was then allowed to commence. The perioperative course of surgery was uneventful.



**Figure-2** saline soaked pledgets placed with the help of rigid bronchoscope

At the end of surgery the saline pledgets were removed. Muscle paralysis was reversed with inj

glycopyrolate 0.4 mg and inj. Neostigmine 2.5mg. The patient was comfortable in the post operative period with the Montgomery tube in situ.

### Discussion

Montgomery T tube is an uncuffed silicon T tube used as a combined airway and tracheal stent after repair of tracheal stenosis. It has a short laryngeal part, long tracheal part, extratracheal part and spigot<sup>1</sup>. It has several advantages as it acts like a stent, gives a patent airway and helps in easier clearance of secretions but it is also not free of complications. Frictional trauma from the tip of the tube results in granulation tissue formation leading to restenosis<sup>2</sup>. Among the various options available for treatment of granulation tissue, laser is an important one. Laser has many advantages like more precise tissue dissection, less bleeding, less incidence of postoperative complications. Accidental tube ignition and airway fires are known hazards of laser surgeries. Anaesthetic difficulties are further aggravated when endotracheal laser surgery is to be done with T tube in-situ. Leakage of gases from glottic end of T tube results in decrease delivery of O<sub>2</sub> and volatile gases thus inadequate ventilation and depth of anaesthesia and increased risk of fire. The presence of granulation tissue already compromises the airway and the airway again had to be shared with the surgeon.

Various options available were either remove T tube<sup>3</sup>, go for intubation/ nonintubation technique /occlusion technique or with the T tube. There was risk of loss of airway by removal of T tube and there was already a compromised airway because of granulation tissue. Because T tube acts as stent and it again had to be replaced at the end with a new T tube, whose cost is also very high and insertion of T tube is not very easy, so we thought not to remove the tube.

With T tube in situ, nonintubation techniques had many disadvantages like hypoventilation, barotrauma. With T tube in situ, the intubation technique i.e another tube through the T tube

could be done in 2 ways. In one technique fiberoptic intubation via the tracheal limb of the tube<sup>4</sup> and in another technique ET tube could be put through the extratracheal part of the T tube. But both these techniques are more demanding, need a small size laser tube to be inserted through the T tube which is not readily available. Overall the laser tubes are not completely laser resistant the cuffed tubes have a non laser resistant cuff and uncuffed tube produces leakage of anaesthetic gases. If uncuffed tubes had to be used saline soaked pledgets are kept around tube to prevent leakage of gases.

Agrawal et al<sup>5</sup> reported one case where maintenance of anaesthesia was done by tight pharyngeal packing to prevent leakage of anaesthetic gases through upper end of T tube. We had done tight packing with saline soaked pledgets around the glottic end of the T tube with the help of rigid bronchoscope. It prevented leakage of gases, maintained adequate ventilation. The saline soaked pledgets also prevented contact of T tube with laser beam and accidental tube ignition. When saline soaked pledgets are to be used, care should be taken to place it sufficiently layered, keep it moist at all time to prevent its ignition. Extra care to retrieve all pledgets at the end of surgery should not be forgotten.

### Conclusion

Saline soaked pledgets are a boon, in patients with T-tube in situ for making laser repair of subglottic stenosis possible, wherein there is a great risk of fire hazards and blasts otherwise.

### References

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