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Anaesthetic Management in Patient with Montgomery T-Tube in-Situ- A Case Report

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ABSTRACT

Montgomery tube is a silicone tube which has greater flexibility and minimal tissue reaction. It can act as both tracheostomy tube and stent to keep the tracheal airway open after repair of tra-cheal stenosis.Here we report a successful management of a case of 45-year old male who had Montgomery tube in situ posted for Direct Laryngoscopy assessment to rule out subglottic steno-sis before decannulation trial.

Keywords: Montgomery T-Tube, Silicone Tube .

INTRODUCTION

Montgomery T-tube is a silicone stent with a long center lumen and a similar lumen projecting from the side of the stent at either at 90° or 75° angle which shaped like letter "T". T-tube is used for many reasons, like to support a diseased upper airway or to support the upper airway after surgery.[1,2] The distinctive shape of T-tube allows part of the tube to support (or stent) the upper airway, while the lower part acts such as tracheostomy tube, allowing the patient to breathe easily and expel secretions.[3-5] It is a valuable option in the management of upper and midtracheal lesions. It is available in sizes ranging from 4.5 to 16 mm external diameter for pediatric and adult use, respectively.[3] A problem associated with Montgomery T-tube is that a fraction of gas passes across the tracheal stoma into the lungs and the rest leaks out through the upper laryngeal end of the tube. Also the open superior end of the T-tube intratracheal lumen allows entrainment of air during inspiration resulting in dilution of anaesthetic gases.[6] As its use is sporadic, only a few anaesthesiologists are familiar with this device, and its anaesthetic management may pose a challenge. Safe management of such patients requires careful planning.

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CASE REPORT

A 45 year-old male patient weighing 54kg was scheduled for direct laryngoscopy assessment under general anaesthesia. Patient had history of accidental neck injury while working at farm. He was tracheostomised in March 2017, later replaced by Montgomery t-tube, which was in-situ till then. Patient presented to us for decannulation in September 2018 .Direct Laryngoscopy was planned to assess crico-laryngeal separation and subglottic stenosis. History and general physical examination revealed that patient was a known case of psoariasis vulgaris with no other comor-bidities. All relevant investigations were within normal limits.

On the day of surgery, intravenous (IV) access was secured and standard monitors were attached. Bain's circuit was connected to extraluminal limb of t-tube via ETT connector of I.D 6mm, preoxygenated with 100% oxygen, and adequate depth of anaesthesia was achieved with sevoflurane 2%, and intravenous

anaesthetics and spontaneous respiration was maintained. Air leak from upper end of t-tube was prevented by pinching nose and closing mouth. After ensuring adequate ventilation and depth of anesthesia, Direct Laryngoscopic assessment was started. No significant changes in hemodynamic parameters were noted during the procedure. At the end of procedure, the anaesthetic gases were discontinued and 100% oxygen was administered. The pa-tient regained consciousness and was shifted to the recovery room with stable vital parameters.

DISCUSSION

Montgomery tube can be used as a tracheal stent or as an airway. Unavailability of suitable adap-tor for catheter mount and difficulty in controlling and maintaining ventilation through this tube is really challenging. There are only few techniques for management of patients who present for anaesthesia with a montgomery tube in situ. Here we present a novel technique for anaethetic management of one such case. We were able to ventilate the patient through extraluminal stem of t-tube while pinching nose and closing mouth to reduce leak. Some other techniques for man-agement of such cases are already mentioned in literature.

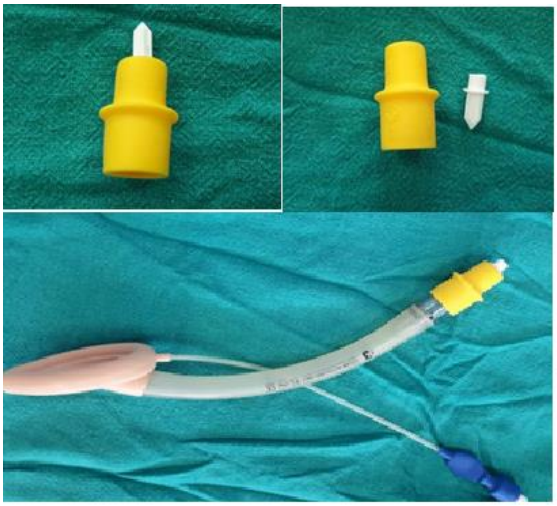
The patient with t-tube in situ can be ventilated through either the extraluminal limb or the in-traluminal limb. If extraluminal limb of t-tube is used, plans to prevent upward escape of gases should be made.Montgomery used a Fogarty embolectomy catheter, passed through the extralu-minal limb to the upper end, to occlude the end by inflating its balloon.[3] A suitable smaller size ET was then positioned in extraluminal limb next to Fogarty catheter. Other methods described in literature to prevent loss of gases through upper end are insertion of oropharyngeal pack or laryngeal mask airway to occlude the lumen of T-tube.[7,8,10] Yellow cap of Jackson Rees circuit can be used to occlude airway channel of LMA.

While ventilation can also be maintained through LMA by occluding extraluminal stem of t-tube with spigot.

The ventilation through intraluminal limb requires occlusion of extraluminal limb and delivery of anesthetic gas mixture at upper open end. Wouter et al.,[6] passed a microlaryngeal tube, using awake fiberscopy, through the entire intratracheal limb of the t-piece, in a patient of acute intestinal obstruction. For induction of anaesthesia, Guha et al.,[9] utilized both extraluminal and intraluminal limb using a modified breathing circuit consisting of a Y-piece connected to the end of a Bain's circuit. One end of Y-piece was connected to standard face mask and other to extraluminal limb of t-piece with high fresh gas flow to aid carbon dioxide elimination. After induction of anaesthesia, t-tube was removed and a 6.5-mm endotracheal tube was inserted through the tracheostomy stoma.

In our case, since the patient was for DL assessment and proceed, insertion of LMA or a oropharyngeal pack, to prevent loss of gases at upper end of intraluminal end, were unsuitable as they would have compromised the surgeon's vision. The use of Fogarty catheter for occlusion and subsequent insertion of smaller ET carried drawbacks of difficulty in directing the catheter upwards and increased resistance in ventilation.

So by using this technique of pinching nose and closing the mouth combined with spontaneous breathing using inhalational and iv agents we can provide safe anaesthesia for direct laryngoscopy to patients with montgomery tube in situ.



CONCLUSION

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