



TRACHEAL RECONSTRUCTION AND ANASTOMOSIS USING MONTGOMERY T-TUBE UNDER GENERAL ANAESTHESIA: A CASE REPORT

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ABSTRACT

Prolonged tracheal stenosis and tracheostomy can result in tracheal stenosis. Treatment includes surgical and endoscopic intervention. We report a case of 36y/f with respiratory difficulty due to subglottic tracheal stenosis, had prior history of tracheostomy, managed by tracheal reconstruction with Montgomery T-tube placement under general anaesthesia.

KEYWORDS : Tracheal stenosis, Montgomery T-tube, tracheal reconstruction

INTRODUCTION

Benign airway stenosis refers to airway stenosis caused by airway wall damage by a variety of non-neoplastic diseases, which can lead to cough, sputum, varying degrees of dyspnoea and other symptoms. The aetiology includes: long-term tracheal intubation, tracheotomy, tracheal-bronchial tuberculosis, trauma and so on.[1] Subglottic tracheal stenosis refers to stenosis of the trachea between the lower edge of the vocal cord and the lower edge of the cricoid cartilage (within 20mm of the glottis).[2] Because the stenosis is close to the glottis, surgical treatment is complex, and many complications may arise.[3] Endoscopic interventional treatments, such as electro-surgical release, balloon dilatation, and freezing, effectively treat membranous subglottic tracheal stenosis.[4] However, complex subglottic stenosis (stenosis length ≥ 10 mm with softening collapse or tracheal atresia) often requires stent placement. Silicone stent placement can cause serious complications, such as granulation hyperplasia and displacement, which is a challenging problem in clinical practice.[5] Recently, placing a Montgomery T-tube during respiratory intervention has become an important treatment option for such patients.[6,7]

A 36-year old female presented to ENT department of Pt. B. D. Sharma PG.I.M.S. Rohtak with the alleged history of difficulty in breathing since 1 month and foreign body sensations since 5 months. Patient had history of intubation and tracheostomy 8 months back. Patient is a known case of neuromyelitis optica spectrum disorder (NMOSD) with CNS TB with polyphasic ADEM seizures. Patient came with complaints of headache, bilateral lower limb weakness, fever with chills and rigor, blurring of vision and urinary retention in April 2022. Patient's GCS was E2V2M3 and had poor respiratory efforts with multiple episodes of focal seizures for which patient was intubated and shifted to ICU for further management. Patient had ICU stay of 1 month and during this period Pt was tracheostomised in view of prolonged intubation and managed conservatively. Immunosuppressants were started (steroids, MMF). Patient was discharged after 1 month. Pt again got tracheostomised, 1 month back, in view of respiratory difficulty and was diagnosed with sub glottic tracheal stenosis. HRCT chest revealed short segment approx. 7mm high grade stenosis (70%-80%) in subglottic region.

CASE REPORT:

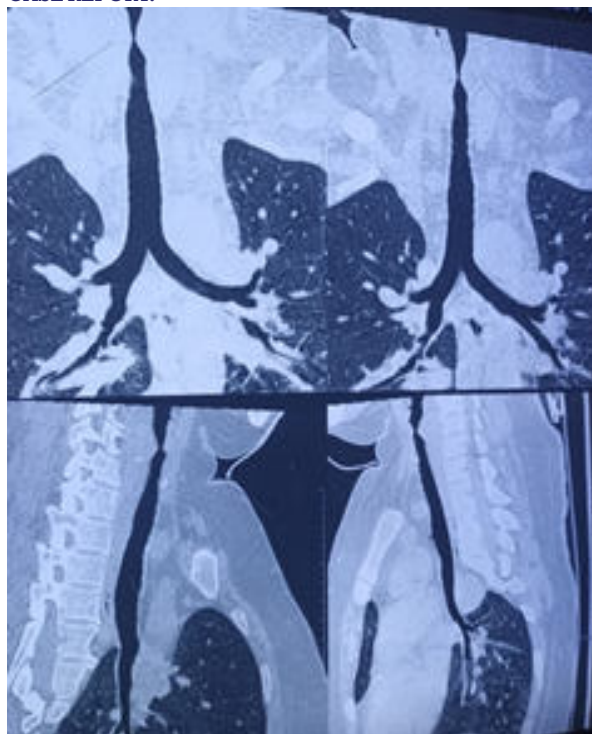


Fig. 1. HRCT Thorax showing tracheal stenosis (Arrow)



Fig. 2. Tracheal Stenosis On Bronchoscopy

On general physical examination, patient was conscious and oriented, BP-110/64mmHg, RR-26/min, maintaining 96% saturation on T-piece with oxygen flow @ 5L/min. Patient had Mallampati grade of II. All routine investigations are within normal limits. Patient is currently on ATT since 6 months and antiepileptics with immunosuppressants and Tablet Levicetrum 500mg BD, Tablet Dexamethasone 4mg OD,

Tablet Mycophenolate mofetil (MMF) 500mg BD. On arrival of patient in operating room; routine monitors were applied and baseline vitals are observed. Patient induced with Inj. 120 mg propofol with 100 mcg fentanyl and relaxed with 35mg atracurium. After induction, right subclavian vein was cannulated and left radial artery was cannulated for invasive BP monitoring. Intraoperatively tracheostomy tube was replaced by flexometallic tube of 7 mm ventilation was checked. Resection of stenotic part was done and replaced with Montgomery T-tube with simultaneous withdrawal of flexometallic tube.



Fig. 3. Placement Of Montgomery Tube

Supraglottic device (I gel no.3) was placed for ventilation of patient till the fixation and successful placement of Montgomery T-tube. After fixing of tube, ventilation was done successfully with Montgomery tube and supraglottic device was removed. Patient was reversed successfully with neostigmine and glycopyrrolate. Postoperative period was uneventful.

DISCUSSION

The incidence of secondary benign airway stenosis caused by long-term tracheal intubation and tracheotomy was rare previously. As reported, the incidence of benign airway stenosis in the critically ill patients with ICU mechanical ventilation was reported to be about 1%.[8] Treatment of subglottic tracheal stenosis includes surgical and endoscopic intervention.[9] However, whether the operation can be performed is highly related to the degree and range of airway stenosis, the presence of infection and other factors. Endoscopic interventional therapy has become an effective and feasible method for treatment of benign tracheobronchial stenosis because of its limited trauma, easy operation and rapid relief of symptoms.[10] The Dumon silicone stent is preferred for benign tracheal stenosis, but the Montgomery T-tube is more advantageous than the Dumon silicone stent for subglottic benign tracheal stenosis.[11] The main advantages of the Montgomery T-tube over the tracheostomy tube are as follows [12,13]: the side branches of the Montgomery T-tube can be closed by breathing through the normal nasopharynx; a Montgomery T-tube smaller than the trachea can be used to reduce granulation; the patient was able to pronounce this; and sputum suction was more convenient. However, the Montgomery T-tube has some disadvantages. It is unsuitable for patients requiring positive airway pressure ventilation; patients may be unable to discharge sputum smoothly; and the Montgomery T-tube is unsuitable for patients with recurrent lung infections[11].

CONCLUSION

For patients with benign airway stenosis who are not suitable for surgery, Montgomery T-tube replacement is an effective, safe and well tolerated method. It is even effective when other

commonly used stents are unsuccessful.

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