

CASE REPORT

A UNIQUE MANAGEMENT OF TRACHEAL STENOSIS

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INTRODUCTION

Advances in medical technology have dramatically improved one's chances of survival in a number of significant medical illnesses. Failed treatment of acute trauma to trachea, complication of endotracheal intubation and tracheostomy tubes are the common causes of tracheal stenosis. Tracheal stenosis can be treated by LASER ablation, dilatation, endoscopic stenting¹, T-Tube, segmental resection and reconstruction². Repair of tracheal injured ends with placing of a stent through open neck incision after acute tracheal injury in order to prevent tracheal stenosis in future was a unique experience.

CASE REPORT

A 17 years old boy met an accident while driving the bike. He was brought from the accident site within half an hour having multiple injuries head, neck and difficulty in breathing. He was immediately shifted to Main Operation Theatre, Combined Military Hospital Kharian. Initial assessment revealed a young boy, stuporous, having abrasions scalp, fore-head and limbs. There was massive swelling over the neck, subcutaneous emphysema and mucosal tear oral cavity. He was resuscitated and endotracheal intubation was done. In spite of endotracheal intubation patient was having low oxygen saturation with Glasgow coma scale 3/15. Urgent exploration of neck through horizontal incision was done. Exploration revealed complete transection of tracheal rings 3rd and 4th along with shattered thyroid isthmus. Tracheostomy was done by passing tube, into distal segment of trachea. Post operatively patient improved and his Glasgow coma scale became 15/15. To prevent tracheal stenosis in future, tracheoplasty with tracheal stent was planned 07 days after initial injury. A 3cm straight piece of Montgomery T- Tube was used as a silicon tracheal stent. After horizontal incision at tracheostomy site, the transected tracheal ends were located. A new tracheostomy at lower neck was performed. The damaged part of tracheal ends was resected and both ends of trachea were sutured in layers. A silicon stent was placed at the anastomotic site and was sutured with skin by using non-absorbable sutures. Tracheostome was closed on 5th post operative day. Patient showed smooth recovery and satisfactory wound healing on periodic 01 monthly examinations. He was advised regular

follow ups and will be assessed endoscopically for removal of stent, 06 months after the tracheoplasty.

Figure 1. Tracheal stent (piece of T- Tube)

Figure 2. Patient with external non-absorbable suture (After 1 month of surgery)

DISCUSSION

Injuries to the trachea, whether iatrogenic or traumatic, generally heal with some degree of tracheal stenosis. The obstruction may be mechanical in nature, due to stricture or granuloma formation, or it may be functional due to tracheomalacia. Severe tracheal injuries unrecognized or managed conservatively, heal with significant stricture formation. Such lesions produce marked obstructive symptoms that require operative repair, usually segmental resection and end to end anastomosis.

Bronings and Albrecht⁵ first reported using bronchoscopically placed stents in 1915. Since then, a number of materials have been tested and used. Tracheal stents are metallic or silicon. Silicon stents were first developed and can be left for several years and are easily removable. Stent migration and mucociliary clearance are the main problems. Examples of silicon tracheal stents are Dumon,

Reynder and Dynamic stents. Metal stents are usually composed of a mesh and become incorporated into the mucosa, to allow better mucociliary clearance. Palmaz and Strecker are balloon expandable metallic stents. Self expanding metallic stents are Gianturco, the Wallstent and the Nitinol. Pereszlenyi⁴ and colleagues noted that metallic expandable tracheal stents were overused due to easy delivery through flexible bronchoscopy under topical anaesthesia. Metallic stents induce intense granulation tissues and are difficult to remove.

Dumon silicon stents and Montgomery T tubes are invaluable in stenting lesions which are too long for safe reconstruction⁶.

In our patient, we used silicon tracheal stent which was made by cutting a limb of Montgomery T tube as shown in the figure 1. We placed it before reconstruction of tracheal transected ends through horizontal neck incision. The patient was showing good wound healing as shown in figure 2. This approach is unique and different as stents are usually placed endoscopically at stenotic segment of trachea. However removal of stent will be done endoscopically.

CONCLUSION

We should keep our mind open to consider all the options to manage a case of tracheal stenosis. This unique and new intervention needs long term follow up and more studies to prove its efficacy in the management of tracheal stenosis.

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