

POST INTUBATION TRACHEAL STENOSIS

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ABSTRACT

Tracheal stenosis usually follows prolonged intubation and is rare but usually causes airway obstruction. Some degree of airway injury is common following intubation, no matter whether it is prolonged or of short duration. Here, we are reporting a case of twelve year old male child patient who had developed tracheal stenosis along with a web like structure following intubation and eventually got tracheostomised.

KEYWORDS : post intubation tracheal injury, stenosis, tracheostomy, therapeutic dilatation of trachea.

INTRODUCTION

Oropharyngeal lesions cause stertor, while lesions in the laryngotracheal tree cause stridor.² Multiple authors have reported that tracheal stenosis is a complication that can follow tracheal intubation in all age groups with an variable incidence between 0.6 to 11.38%.^{3,4}

The risk of tracheal stenosis is more when using high pressure low volume cuff, inflating the normal low pressure high volume cuffs maximally (more than capillary perfusion pressure), prolonged intubation and tracheal trauma during intubation.

However the main risk factors associated with tracheal stenosis are, the time spent while intubated, tissue hypoperfusion and intubation related trauma.^{5,6}

The cuff-pressure of endotracheal tubes play an important role on the development of tracheal damage.

To minimize this injury, use of high volume and low pressure cuff endotracheal tubes is advocated. Because of the risk of recurrence at the site of anastomosis and also these patients are often at higher surgical risk, surgical resection for the management of post intubation tracheal stenosis remains a controversial issue. Other alternative therapies like laser resection, stent placement and balloon tracheoplasty can also be tried. Laser resection, stent placement are expensive and require expertise and available only at few tertiary care centres. Balloon tracheoplasty is a relatively simple procedure, which can be done bedside under sedation.

The symptoms and signs of tracheal stenosis can appear immediately after extubation, or sometimes days later and can include tachypnoea, dysnoea, noisy breathing when asleep, tracheal tug and distended jugular veins in deep inspiration.⁷

Chest X-Rays is usually normal, although sometimes may show signs of lung hyperinflation.

Case Report

A twelve year old male child was referred to our hospital with the complaints of gradually increasing difficulty in breathing and dry cough for three months and stridor for the last seven days. He had history of fever, headache, abdominal pain and rash following which patient was admitted in a peripheral hospital and was diagnosed as dengue haemorrhagic fever. During his stay in hospital patient had been intubated and mechanically ventilated and subsequently extubated on sixth day. Patient had been discharged in a stable condition after

twelve days. His past medical and surgical history was insignificant. Patient had no documents whatsoever from the previous hospital.

In the preoperative room quick review of the patient was done. Patient had a stridor and was using accessory muscles of breathing. There was significant suprasternal and intercostals retractions. Oxygen saturation by pulse oximetry was 92% without oxygen which improved to 100% on oxygen administration, rest of the patient's general physical examination was unremarkable. Chest radiograph was normal.

After attaching all ASA standard monitors and 20G iv cannula was secured on dorsum of right hand patient was premedicated with i.v glycopyrolate 10mcg/ kg, hydrocot 2 mg/kg and dexamethasone 0.1 mg/kg, fentanyl 1 mcg/kg, xylocard 1mg/kg and induced with sevoflourane 8%, anesthesia was maintained by 50% O₂:50% N₂O: sevoflourane 1.5% to maintain MAC of 2. Decision of not to use muscle relaxants was taken. Direct laryngoscopy showed normal movement of both the vocal cords and subglottic stenosis with a membranous web [Figure 1] which occasionally prolapsed to the glottis during expiration [Figure 2].

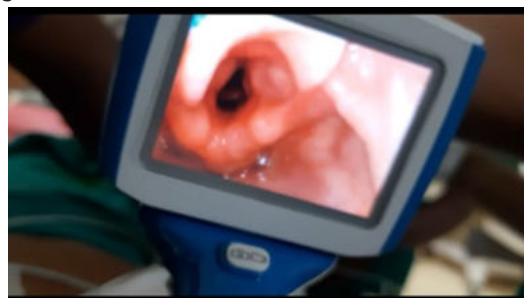


Figure 1



Figure 2

Initially intubation was attempted with a 4 mm I.D endotracheal tube but it could not be negotiated beyond glottis and tube size of 2.5 mm I.D was eventually used which also could not be negotiated beyond vocal chords. Tracheostomy was not possible if supra glottic airway device was placed, as the procedure needs hyperextension which would displace our supraglottic airway device (lma and igel in our case). Upon discussion with surgical team a decision was taken to keep patient on continuous bag mask ventilation with patient spontaneously breathing and tracheostomy was performed. The web was resected and tracheostomy tube with 5mm I.D was placed successfully. Recovery was uneventful. Later on the patient had recurrence and was shifted to another hospital where definitive surgical repair was done.

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