



BRONCHOSCOPIC BALLOON DILATATION COMBINED WITH ELECTRIC CAUTERIZATION OF TRACHEAL STENOSIS UNDER CONSCIOUS SEDATION: A CASE REPORT

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ABSTRACT

Post intubation tracheal stenosis remains the most common indication of tracheal resection and reconstruction. It can cause respiratory symptoms that can often be misdiagnosed as obstructive lung disease. Various treatment modalities are available. As office-based procedures have been common, awake or mildly sedated endoscopic procedures with spontaneous ventilation are now being performed by flexible bronchoscopy. We report a case involving a 45-year-old male who presented with dyspnea and stridor from 15 days. Patient had past history of intubation and ICU stay one month back. After proper topicalization of upper airway of the patient, electric cauterization and balloon dilation was performed by flexible bronchoscope under conscious sedation and spontaneous ventilation. Conscious sedation was achieved by graded doses of propofol and fentanyl. Post-operative period was uneventful, and patient didn't describe any discomfort. Improvement in symptoms were reported. Endoscopic procedures for tracheal pathology under conscious sedation seems to be feasible and safe procedure.

KEYWORDS : Post Intubation tracheal stenosis [PITS], Conscious sedation, cauterization, Fiberoptic bronchoscopy, Balloon dilatation

INTRODUCTION:

Laryngotracheal stenosis is a term that refers to a wide range of clinical conditions that apply to the narrowing of the airway. It can be of congenital or acquired origin, malignant or benign. It can cause respiratory symptoms that can be often misdiagnosed as obstructive lung disease. A rare laryngotracheal stenosis subtype is the tracheal web.^[1]

Most cases of tracheal stenosis result from endotracheal intubation, tracheostomy, or trauma. Post intubation tracheal stenosis [PITS] remains the most common indication for tracheal resection and reconstruction.^[2]

PITS result from healing with fibrosis following stomal and ischemic cuff injuries, especially when a high pressure, low volume cuffed tube is used. Infection and hypotension may also contribute to the events that culminate in tracheal stenosis. Most patients may remain asymptomatic with the pathology running an insidious course. Symptomatic patients present with features of airway obstruction with onset usually between 1 and 6 weeks after extubation.^[3,4,5] There are various treatment modalities for symptomatic improvement of airway stenosis, such as surgical procedures, neodymium-doped yttrium aluminium garnet (Nd:YAG) laser treatment, electrocautery, stent placement and balloon dilatation. As office based procedures have become more common, awake or mildly sedated endoscopic treatments with spontaneous ventilation have been performed via flexible bronchoscopy.^[6,7]

We present a case of 45 year old male with dyspnea and stridor who had been diagnosed with subglottic tracheal stenosis

Case Report: A 45-year-old male presented to pulmonary critical care medicine department of Pt. B.D. Sharma medical college rohtak with alleged history of dyspnea and stridor gradually progressed over 15 days. The patient had history of intubation and 10 days ICU stay in view of poisoning one month back. From past 15 days patient had dyspnea which progressed from on exertion to at rest. On further investigation with x-ray soft tissue neck and CT neck, revealed tracheal stenosis. Diagnostic bronchoscopy was performed that revealed three web like formations in upper trachea. On general physical examination, patient was conscious, oriented, BP 130/76 mmHg, PR 60/min, RR 26/min and

maintaining 98% saturation on non-rebreathing mask with 15 L/min flow of oxygen. All routine investigations are within normal range. Patient had Mallampati grade of II. On arrival of patient in operating room, routine monitors were applied, and baseline vitals were observed to be within normal range. Patient was nebulised with 4ml of 4% lignocaine. Bilateral superior laryngeal nerve block was given with 2 ml of 2% lignocaine on each side. Patient was taken on high flow oxygen nasal canula with 60L/min oxygen flow and FiO₂ of 40 %, on which he was maintaining saturation up to 98%. At the beginning of the procedure, 30 mg iv propofol and 30 mg iv fentanyl was given. Later graded doses of fentanyl and propofol were given during the procedure and patient maintained on spontaneous ventilation. Flexible fiberoptic bronchoscopy was performed, and the lesions were removed by means of electric cauterisation followed by balloon dilatation. Patient was disconnected from high flow nasal canula whenever electric cautery was used. To diminish the cough reflex during the procedure, 2% lignocaine was installed through suction port of bronchoscope intermittently as and when required. The patient was conscious during the entire procedure and mechanical ventilation was never required. Patient reported improvement in breathing functions and didn't describe any discomfort. Patient was shifted again on non-rebreathing mask at 15 L/min oxygen flow. Patient was monitored for one-hour post operatively and then shifted toward fully mobilised.

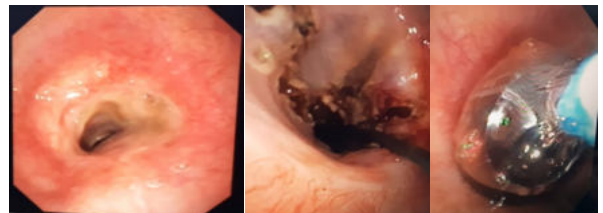


Fig. 1 shows tracheal obstruction due to web formation.

Fig. 2 shows tracheal lumen after electric cauterization.

Fig. 3 shows balloon dilatation.

DISCUSSION :

Tracheal web is a benign subtype of tracheal stenosis resulting in narrowing and partial occlusion of the tracheal

lumen. In most cases it is congenital, while in adults it is more often acquired as a result of prolonged intubation.^[8] It consists of soft tissue in the form of membrane that partially obstruct the tracheal lumen at a level that can vary from intra to extra thoracic trachea, that causing symptoms as expiratory wheeze or stridor depending on the location of the lesion in tracheal lumen and can be misdiagnosed as obstructive lung disease.^[9] PITS are preventable lesions, efforts must be taken towards their prevention by avoidance of prolonged inflation of cuffed endotracheal tubes, use of low pressure cuffed tubes and scheduled deflation of cuff especially at episodes of hypotension.^[10] The goal of anaesthesia in tracheal surgery is to maintain adequate airway ventilation and oxygenation and easy clearance of blood and secretions. In 2010, a series of 21 tracheal resections performed with cervical epidural anaesthesia and conscious sedation was described by Macchiarini and colleagues.^[11] Upper tracheal procedures under spontaneous ventilation allows communication with the patient, thus monitoring of vocal cords movement and conversion to general anaesthesia is also possible whenever required. In our case, patient shows immediate improvement in symptoms after the bronchoscopic intervention and no need of mechanical ventilation required.

CONCLUSION:

As office-based procedures for laryngeal and tracheal pathology have become more common, awake or mildly sedated endoscopic treatments with spontaneous ventilation seems to be feasible and safe procedure.

Conflicts of interest: Nil

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