

## Airway Management of a Post Tracheostomy Stenosis Patient With Respiratory Difficulty: Make Sure You Have Fibre Optic Guidance Before Administering a Muscle Relaxant!

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### Dear Editor,

Post-tracheostomy stenosis is a rare but serious complication that may be encountered in the emergency department (ED). The incidence of severe tracheal stenosis (TS) with symptoms is seen in 1-2% of patients (1-3). Patients with severe TS may present with respiratory difficulty, requiring emergency intubation in the ED.

A 35-year-old male was a follow-up case of an exploratory laparotomy for a blunt injury to his abdomen. He had stayed 25 days in the ICU with a tracheostomy. His decannulation was done a week prior to his presentation to the ED. The patient had a respiratory rate of 24/minute; air entry was present bilaterally but decreased, and stridor was present. Computed tomography (CT) (Figure 1), revealed TS with a constriction band of 9 mm, 3 cm distal to the larynx and 6.9 cm proximal to the carina. The patient was shifted to the ICU and was posted for tracheal resection anastomosis the next day.

In the operating theater, all routine monitoring was attached. Based on CT findings, it was decided to do a fiber optic bronchoscopy (FOB), 5.7 mm in size, both for identifying the stricture and for intubation. The patient was given a superior and transtracheal nerve block and awake FOB intubation was tried. On the first attempt, a fibrous web was seen (Figure 2) a short distance below the larynx and a small constriction was present. Despite several attempts, we were not able to negotiate the FOB through the constriction.

Any patient with Post tracheostomy stenosis presenting with respiratory difficulty should be approached with caution in emergency department. No muscle relaxant and deep sedation should be given without adequate back up like fibre optic bronchoscope and preparation of emergency tracheostomy.

Therefore, we decided to puncture the fibrous web



**Figure 1.** Computed Tomography Image of Lateral Neck, Showing Tracheal Stenosis (White Arrow)

with an endotracheal tube (ETT) with an internal diameter of 8.0 mm. Though we exerted a good amount of force, we were not able to do so. We made several attempts, but they all failed. We abandoned making further attempts for fear of causing a hemorrhage.

It was decided to do a tracheostomy for the patient below the tracheal stricture. With a dexemetomidine infusion and local anesthesia infiltration, an emergency tracheostomy was performed. The FOB was kept above the stricture so that injury could be prevented. After the tracheostomy was secured, we proceeded with resection and anastomosis of the trachea.

After the completion of his surgery, the patient was intubated orally and the tracheostomy site was closed. The patient was shifted to the ICU for elective ventilation. He was kept sedated until the next morning with his neck



**Figure 2.** Fiber Optic Image Showing Constriction in Web-Like Stricture (Black Arrow)

flexed, and he was extubated next day. The rest of the course of his treatment in the hospital was uneventful.

Tracheal stenosis (TS) following a tracheostomy commonly results from excess granulation tissue formation around the tracheal stoma site caused by abnormal wound healing. Fractured cartilage during the tracheostomy pro-

cedure can lead to excess granulation tissue (4, 5).

If a TS patient presents with severe respiratory distress, he or she should not inadvertently be given any sedation or muscle relaxants, especially in the ED. With a patient with post tracheostomy stricture (PTS), utmost care should be taken, as he or she may present with a full-thickness web as in our case. This patient will desaturate quickly, as it will be difficult to intubate him or her and it will become subsequently difficult to oxygenate the patient. The small constriction present through this full-thickness web could be the only channel through which the patient is breathing, and any attempt to take away spontaneous breathing is not advisable. We also advise you to ensure the availability of an FOB and an emergency tracheostomy set for these cases.

In conclusion, we advocate that airway management of any PTS patient presenting with respiratory distress should always be approached with caution.

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