

## Case Series

**EARLY TRACHEOSTOMY IN A CASE OF GUILLAIN-BARRÉ SYNDROME – A CASE SERIES**A. Balakrishnan<sup>1</sup>, Mathan Raj<sup>2</sup>, T. Ramanathan<sup>3</sup>, M.Rajesh Kumar<sup>4</sup>

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Respiratory failure occurs in about 20% of Guillain-Barre Syndrome, and mechanical ventilation duration ranges widely from days to months. So, a tracheostomy should be done to provide ventilation effectively. In this series of cases, we followed up who is a case with Guillain-Barre Syndrome and developed respiratory paralysis. IVIG was given, antibiotics were started, and a tracheostomy was done once the patient had recovered, the tracheostomy tube was removed. In the case of Guillain-Barre Syndrome with respiratory failure, tracheostomy can be done early to provide better ventilation, which may result in better recovery.

**INTRODUCTION**

Guillain barre syndrome is an acute inflammatory demyelinating polyradiculopathy characterised by radicular pain, ascending paralysis and areflexia. Respiratory failure is one of the dreaded complications of the Guillain Barre Syndrome. However, immunomodulation therapy has reduced the incidence of respiratory failure.<sup>[1,2]</sup> But, when the patient develops respiratory failure, the duration of it may vary from month to year. A tracheostomy is usually done when the need for mechanical ventilation exceeds day 14.<sup>[1,3,4]</sup> In this case series, we followed up 2 cases of Guillain barre syndrome in which early tracheostomy (within seven days) was done.

**CASE SERIES****CASE 1**

An 11-year-old female child came complaining of weakness in the lower limb, which progressed then to the upper limb and then to her trunk and neck muscles, she was started on antibiotics, and IV IG 2 gram/kg was given. The patient was intubated and put on mechanical ventilation because of respiratory paralysis. Considering that she may require prolonged mechanical ventilation support, an elective tracheostomy was planned, and an elective tracheostomy with a Porte five-size cuffed tube was done on the 5th day. Post-tracheostomy supportive care was given. Bronchoscopy was done, and mucus

plugs were removed. The patient had thick secretions and went into hypoxic seizures, after which the portex tube was changed every three days. After weaning the patient from mechanical ventilation and recovering the respiratory paralysis, the portex tracheostomy tube was changed into Fuller's metal tracheostomy tube on the 27th day. On the 45<sup>th</sup> day of weaning the Tracheostomy tube, spigotting was well tolerated and maintained saturation on air, and the tracheostomy tube was removed on the 49th day.



**Figure 1: Metal tracheostomy tube spigotting was followed by removing the tracheostomy tube, with subsequent strapping performed.**

**CASE 2**

A 9-year-old male child came complaining of weakness of the upper limb, which progressed then to the upper limb, he was started on antibiotics, and IV IG 2 gram/kg was given. Patient saturation had fallen on the same day. Then he was intubated and put on mechanical ventilation because of respiratory paralysis. Considering that he may require prolonged mechanical ventilation support, an elective tracheostomy was planned, and an elective

tracheostomy with five sizes cuffed portex tracheostomy tube was done on 3<sup>rd</sup> day. Post-tracheostomy supportive care was given. After weaning the patient from mechanical ventilation and recovering the respiratory paralysis, the portex tracheostomy tube was changed into a metal tracheostomy tube on the 20th day. After tolerating well and maintaining saturation on air, spigotting was done on the 23rd day, and the tracheostomy tube was removed on the 27<sup>th</sup> day.



**Figure 2: Sequence of tracheostomy and tracheostomy tube removal.**

## DISCUSSION

Guillain barre syndrome is a rapidly progressive predominant motor symmetric polyradiculopathy, usually ascending, leading to bulbar and respiratory compromise. Subtypes include acute inflammatory demyelinating polyneuropathy (AIDP), Acute motor axonal neuropathy (AMAN), Acute motor and sensory axonal neuropathy (AMSAN), and Miller-Fisher syndrome. Immunomodulatory therapy IV Immunoglobulins and plasma exchange have proven benefits in reversing neural abnormality. Until that, supportive care with mechanical ventilation and physiotherapy helps. In providing mechanical ventilation, tracheostomy plays a major role in providing prolonged and effective ventilation.<sup>[1,3-5]</sup> However, the timing of tracheostomy has always been a debate. Delayed tracheostomy may result in changes to the vocal cords, laryngeal muscles and recurrent laryngeal nerve due to local pressure from the endotracheal tube. Conversely, early tracheostomy may be unnecessary because of clinical improvement and the patient's exposure to the risk of perioperative bleeding, tracheostomy site infections, esophageal perforation and pneumothorax. Tracheostomy might facilitate weaning by reducing dead space and decreasing airway resistance, improving secretion clearance, reducing the need for sedation, and decreasing the risk of aspiration.<sup>[6-11]</sup> Various studies have been done to predict the ideal time for tracheostomy, and they are as follows: Walgaard et al.,<sup>[6]</sup> have developed a prediction tool for selecting patients among the patients receiving mechanical ventilation for early tracheostomy. Wijdicks,<sup>[4]</sup> has reported that tracheostomy has strongly recommended for two weeks to avoid tracheomalacia and post-intubation stenosis. Principi et al.,<sup>[8]</sup> have reported that elective tracheostomy was rarely performed in children.

Fourrier et al.,<sup>[12]</sup> reported that a lack of foot flexion at the end of immunotherapy predicted prolonged Mechanical ventilation therapy.

Durand et al.,<sup>[13]</sup> indicated that AIDP was associated with a higher chance of respiratory failure.

Lawn et al.,<sup>[14]</sup> concluded that unexcitable nerves by electrical stimulation required prolonged MV.

A consensus report on MV indicated that the trans laryngeal route is preferred when the expected duration is not exceeding ten days. Tracheostomy is preferred for expected durations longer than 21 days.<sup>[15]</sup>

An early tracheostomy provides more comfort, earlier oral nutrition, adequate oral hygiene, easier oral communication, and out-of-bed mobilisation to GBS patients.<sup>[16]</sup>

## CONCLUSION

From the above case series, we concluded that early (Within seven days) tracheostomy would be beneficial for the case of Guillain barre syndrome with respiratory failure to provide better ventilation and better recovery as the duration of mechanical ventilation is highly variable.

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