



Clinical Approach to Decision-Making in Nasogastric Tube Weaning and Tracheostomy Tube Decannulation

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Received: 16 January 2021 / Accepted: 19 February 2021
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Abstract Extensive resections for advanced malignancies of the oral cavity quite often require patients to have a tracheostomy tube and nasogastric tube for prolonged periods leading to dependence. Timely and safe removal of these tubes would help hasten the recovery and rehabilitation of these patients. A simple bedside protocol for evaluation and weaning of nasogastric tube and tracheostomy tube is outlined in this communication. This would help health care workers in resource-poor settings make safe clinical decisions and improve care.

Keywords Nasogastric tube · Tracheostomy tube · Decannulation · Weaning protocol · Oral malignancy

Complex surgery for advanced malignancies of oral cavity requires vigilant postoperative monitoring. Possibility of aspiration after resection and mechanical obstruction of airway due to bulky flaps used for reconstruction mandate a tracheostomy. Insertion of nasogastric tube (NGT) serves as an alternate route of alimentation which avoids contamination of surgical wound and also prevents aspiration [1]. Therefore, management of such patients frequently involves performing an elective tracheostomy and inserting

a nasogastric tube, both commonly carried out in conjunction with the primary surgical procedure.

Over a period of time, patients become dependent on the tracheostomy tube (TT) and NGT; therefore, it is imperative that the tubes are removed at the appropriate time. When both tubes are in situ, a systematic assessment needs to be done before attempting removal of either of them [1, 2].

Evaluation of swallowing forms a cardinal clinical step in deciding the appropriate time for NGT weaning and TT decannulation. Inefficient swallowing results in aspiration which could be the result of resection which has led to an anatomic dysfunction or due to neurologic reasons because of sensory input damage [1, 2].

Based on our experience, we recommend the following protocol for evaluation of a patient and describe a step-by-step procedure for removal of NGT and TT.

Evaluation for NGT Weaning

Once the intraoral wounds have healed, a trial of oral feeds is attempted. If the patient is able to *swallow without aspiration*, removal of NGT can be considered. Aspiration most often manifests as coughing, choking, wet voice or crepitation on auscultation, but could also be silent. There are various techniques to look for aspiration: fiberoptic endoscopic evaluation of swallowing (FEES) [3] and video fluoroscopic swallowing examination (VFSE)/barium swallow tests being the gold standard in chronic aspiration, but a quick clinical bedside assessment in addition to a chest X-ray most often suffices.

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Evaluation for TT Decannulation

The risk of physical obstruction of the airway is highest during the immediate postoperative period. TT decannulation may be considered in patients with a patent airway, *maintaining adequate oxygen saturation* [4]. It is important to ensure that the patient is capable of clearing secretions by either an effective cough or effective swallow although performing a laryngoscopy to check for vocal cord function would be ideal.

NGT weaning is always done prior to TT decannulation for the reason that after removal of NGT, if the patient shows signs of aspiration, the TT will protect the airway and it is easy to reinsert the NGT.

Protocol for NGT Weaning

- With NGT in situ and TT cuff inflated, rehabilitate the patient to achieve normal swallowing mechanism by attempting oral intake of soft solid feeds initially and liquid feeds subsequently.
- Following this, place the patient in supine position and perform oral suctioning. Next, deflate the TT cuff and perform tracheal suctioning. Ask the patient to swallow while observing for signs of aspiration. After ensuring that the patient is not aspirating saliva, the final step is undertaken wherein the patient attempts oral intake of solids and then liquid feeds in an upright seated position.
- In the absence of signs of aspiration, the NGT may be removed.

Weaning may take 2–7 days and may be prolonged in patients who have been on long-term NGT feeding.

Protocol for TT Decannulation

Once NGT is out, decannulation of TT can be considered.

- Decannulation is initiated by capping the external tube in a deflated TT or down-sizing the tube followed by capping or insertion of an uncuffed fenestrated tube with subsequent capping.
- Patient with capped TT is observed for a period of 12 h during the day with monitoring of saturation, alongside being watchful for signs of aspiration. The TT is uncapped for the next 12 h during the night and recapped the following day for further continuous 24 h.

- If oxygen saturation is maintained and there are no signs of aspiration, decannulation can be done and an occlusive stomal dressing placed.
- The patient is encouraged to cough and counselled about secretions being expelled through the stoma.
- Patients would be able to vocalize by supporting the stomal dressing with a finger.

TT weaning may occur over a week; rapidity of decannulation depends on the duration for which the TT has been in situ.

This easy-to-follow bedside evaluation and step-wise protocol for NGT weaning and TT decannulation help avoid complications, both immediate and long term. Healthcare workers involved in the management of such patients would greatly benefit from familiarizing themselves with these simple and effective clinical guidelines that would enhance patient care.

Acknowledgement The authors express their sincere gratitude to Dr. Ravindra P Deo, Professor, Head and Neck Surgery, Sri Devaraj Urs Medical College, Tamaka, Kolar. He is a constant source of inspiration, encouragement and support in the department.

Funding None.

Declarations

Conflict of interest All authors declare that they have no conflict of interest.

Ethics approval The institutional ethics committee clearance was obtained.

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