

Decannulation- Do's and Dont's

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Dear Editor,

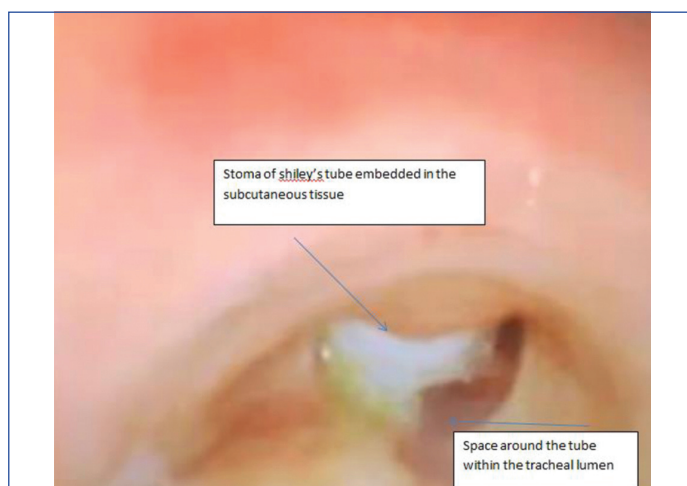
The term "Decannulation" refers to the process of weaning which involves removal of tracheostomy tube and maintaining spontaneous respiration with airway protection. This step though appears very simple requires a near normal neuromuscular coordination for effective cough reflex, phonation, swallowing and respiration. Standard protocol (clearance from the primary care physician/ surgeon, psychological counselling and endoscopy (retrograde or transnasal) to visualise the laryngeal air column) should be followed during this process before planning closure. It will help to prevent complication which can become life threatening. Tracheostomy tube plays a major role as the patient has to be spigotted. Spigotting is a process of closing the tracheostomy tube while maintaining the tube in-situ. It is a preparatory procedure before decannulation to assess the patients airway. Patient was encouraged to breathe normally through the nose, via the port in the tube while maintaining the track.

All normal activities should be encouraged during spigotting to check the anatomical patency of airway and physiological respiratory effort by the patient. The reasons for failed decannulation include elderly patients, obesity, infections, poor neurological coordination, tenacious secretions with poor cough reflex, small size Shiley tube and subglottic granulations [1,2]. The method of decannulation varies depending on the patient, clinical scenario and the facilities available. While some authors preferred tracheostomy tube occlusion after downsizing the fenestrated tubes or changing to non fenestrated tube before closure [2,3], others directly cap the tracheostomy tube without downsizing [4]. In some hospitals, the tracheostomy tube is removed directly [5]. Here, the author would like to highlight her experience and difficulties during decannulation in two patients, one due to obesity and other due to improper care during spigotting. Both the cases were appropriate candidates for removal of tube but problems were encountered.

Case 1

A 52-year-old obese female patient weighing around 90 kg was intubated for Chronic Obstructive Pulmonary Disease (COPD) with retained secretions. To aid regular suctioning, tracheostomy was done five days later, five patients was on tracheostomy tube for 25 days. Once the primary cause was resolved decannulation was planned. Standard protocol followed. Spigotting was attempted with 6 size double lumen Shiley tracheostomy tube but, the patient did not with stand spigotting for more than 30 minutes. Computed Tomography (CT) neck was done and there was no narrowing of subglottic and laryngeal air column. On flexible bronchoscopy the port of Shiley was not visible in tracheal lumen. As the patient was very obese with short neck, the curvature of tube was not enough and the port was in the subcutaneous tissue. Since, there was lot of intraluminal space round the tracheostomy tube, patient withstood closure for around 30 minutes and after that developed desaturation [Table/Fig-1]. In this patient, the author changed Shiley's to Fuller's biphanged metal tube. Since, here the outer tube is biphanged, there was effective communication between

upper and lower airway and not on small single port like Shiley tube. Spigotting was done only with the outer tube in place to maintain the track. Decannulation was done after 48 hours and it was uneventful.



[Table/Fig-1]: Showing the port of Shiley tube embedded in subcutaneous tissue with lot of space around the tube within the tracheal lumen.

Case 2

A 65-year-old male patient who met with Road Traffic Accident (RTA). Burr hole craniotomy was done. Glasgow Coma Scale (GCS) score of patient was low. Patient was on ventilator support for four months so that, surgical tracheostomy was done. Once the primary condition was resolved patient was referred for closure. Without following standard protocols spigotting was done and the patient was sent home for two days. On the 3rd day, patient came to hospital and as the patient said, he was comfortable so that, decannulation was done and sent home. Five hours later, patient presented in emergency room with respiratory difficulty so that, emergency intubation was done. Then on retrograde clinical evaluation, patient revealed that, he was not comfortable with closure and every one hour, was removing the spigott and did not close the tracheostomy tube in night. Then on flexible bronchoscopy, there was subglottic stenosis with narrowing of air column. Revision tracheostomy was done. Patient was explained about the condition and the need for surgical laryngeal and tracheal reconstruction. Patient was not willing and went to home town with the tube. Decannulation is a procedure to remove the tracheostomy tube, close the stoma and allow the patient spontaneous breathing through the nose. It has to be done meticulously with proper planning, as it can lead to emergency situations. This is mainly documented to stress that, decannulation is equally important and life saving like tracheostomy and all medical and paramedical should be trained in it.

REFERENCES

- [1] Schmidt U, Hess D, Bittner E. To decannulate or not to decannulate: a combination of readiness for the floor and floor readiness? Crit Care Med. 2011;39(10):2360-61. Doi: 10.1097/CCM.0b013e318226618a. [PubMed] [CrossRef] [Google Scholar].

- [2] Ceriana P, Carlucci A, Navalesi P, Rampulla C, Delmastro M, Piaggi G, et al. Weaning from tracheotomy in long-term mechanically ventilated patients: feasibility of a decisional flowchart and clinical outcome. *Intensive Care Med.* 2003;29(5):845-48. Doi: 10.1007/s00134-003-1689-z. [PubMed] [CrossRef] [Google Scholar].
- [3] Rumbak MJ, Graves AE, Scott MP, Sporn GK, Walsh FW, Anderson WM, et al. Tracheostomy tube occlusion predict success tracheal decannulation follow long term mech vent. *Crit Care Med.* 1997;25(3):413-17. Doi: 10.1097/00003246-199703000-00007. [PubMed] [CrossRef] [Google Scholar].
- [4] O'connor HH, Kirby Ctr KJ, Terrin N, Hill NS, White AC. Decannulation following tracheostomy for prolonged mechanical ventilation. *J Intensive Care Med.* 2009;24(3):187-94. Doi: 10.1177/0885066609332701. [PubMed] [CrossRef] [Google Scholar].
- [5] Shrestha KK, Mohindra S. How to decannulate tracheostomised severe head trauma patients: A comparison of gradual vs abrupt technique. *Nepal Med Coll J.* 2012;14(3):207-11. [PubMed] [Google Scholar].

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