

INTRODUCTION

- In the United States, the incidence of tracheostomies is 150-300/100,000 patients discharged from a hospital.¹
- Complications related to tracheostomy usually occur “late” or after the first week following the procedure.
- Early complications of tracheostomy include bleeding, pneumothorax, membranous tracheotomy injury, laryngeal nerve injury, premature decannulation and tracheostomy occlusion.²
- Late complications of tracheostomy may include granulation tissue formation around the tube, tracheal stenosis, tracheomalacia, tracheoinnominate-artery fistula, tracheoesophageal fistula and tube occlusion.²

CASE REPORT

A 58-year old male status post motor vehicle accident in 2006 resulting in traumatic brain injury (TBI) and tracheostomy dependence presented to the emergency department (ED). The patient’s primary tracheostomy care provider works as a licensed practical nurse (LPN) and noticed the distal portion of the Portex tracheostomy tube outer cannula had fractured even though the anterior plate and neck tie remained secure (**Figure 1**). Upon removal of the intact anterior portion the patient’s family visualized the distal portion and likely dislodged it further while dressing patient.



Figure 1. Preoperative Chest X-Ray demonstrating foreign body in R main stem bronchus.

CASE REPORT (cont.)

In the emergency department the patient was maintaining 94% oxygen saturation on a non-rebreather mask placed over the mature stoma. An x-ray revealed a foreign body in the right main stem bronchus (**Figure 2**). The patient began to experience respiratory distress with desaturation to 80%, requiring positive ventilation. Anesthesia intubated the patient with a 6.0 endotracheal tube in patient’s stoma and continued to ventilate with an ambulatory bag. Patient recovered to 100%.



Figure 2. Anterior plate with fractured distal outer cannula (left) with outer cannula removed from R main stem bronchus (right).

The patient was rapidly brought to the operating room, where a direct laryngoscopy and bronchoscopy was performed to visualize and remove the migrated outer cannula and tracheostomy tube changed to 6.0 CFS Shiley (**Figure 3**). Patient was discharged to home on post-operative day 8; with modified diet secondary to aspiration precautions and trach education.

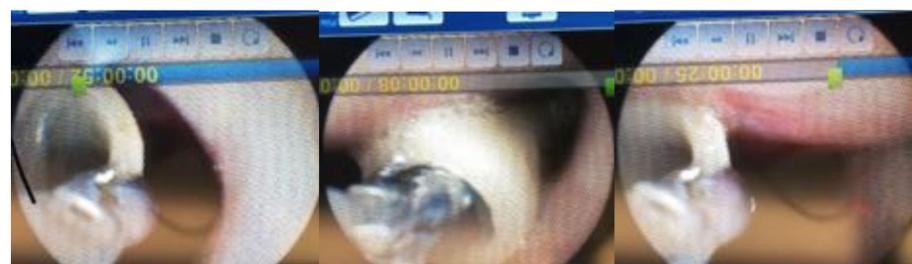


Figure 3. Removal of fractured outer cannula with bronchoscopy.

CASE REPORT (cont.)



Figure 4. Postoperative Chest X-Ray demonstrating proper placement of tracheostomy tube.

DISCUSSION

- We posit that the cause of this tracheostomy tube failure was prolonged use, hardening of the PVC material after prolonged exposure to alkaline secretions and eventual stress fracture at the point of maximum movement during daily activity.²
- This case illustrates the need for meticulous tracheostomy care and adherence to manufacturer guidelines. Portex specifically recommends that its tracheostomy tubes be used for no longer than 29 days.³ Even long term metal tracheostomy tubes have been known to fracture.¹
- Vigilance surrounding inspection and care of worn tracheostomy tubes may prevent the serious complication of a life saving artificial airway becoming a potential life threatening distal airway foreign body.

REFERENCES

1. Piromchai P, Lertchanaruengrit P, Vatanasapt P, et al. Fractured metallic tracheostomy tube in a child: a case report and review of the literature. *J Med Case Reports*. 2010; 4:234.
2. Krishnamurthy A, Vijayalakshmi R. Broken tracheotomy tube: A fractured mandate. *J Emerg Trauma Shock*. 2012; 5(1):97-99.
3. Smiths Medical. Tracheostomy - from first tube in to last tube out. https://m.smiths-medical.com/-/media/M/Smiths-medical.com/Files/Import%20Files/TR194452GB_102012.pdf. Accessed May 27, 2019.