

Retrieval of Fractured Metallic Tracheostomy Tube – An Innovative Approach.

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ABSTRACT

Permanent tracheostomy following total laryngectomy is a common practice. Distal migration of fractured tracheostomy tube in such patient is a rare complication. We report this rare occurrence in which flexible bronchoscopy guided retrieval of migrated tracheostomy tube was failed. We applied an innovative approach to safely remove the migrated fractured metallic tracheostomy tube.

Keywords: Foreign body, Tracheostomy, Tracheostomy tube, Tracheobronchial tree.

INTRODUCTION

Permanent tracheostomy following total laryngectomy is a common practice. However, fracture of tracheostomy tube with distal migration into the tracheobronchial tree is rare and it carries the potential risk of fatal respiratory obstruction.^[1] We report this rare occurrence in which flexible bronchoscopy guided retrieval of migrated tracheostomy tube was failed. We applied an innovative approach to safely remove the migrated fractured metallic tracheostomy tube.

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CASE REPORT

A 67 years old gentleman was brought to the emergency room with history of the missing tracheostomy tube since one day. During routine care of the tracheostomy tube, the attendant of patient noticed that only neck plate of tracheostomy tube was in place, but the tube part was missing. He had a permanent tracheostomy following total laryngectomy 4 years back. Since then he was using same metallic tracheostomy tube. During a presentation at our hospital, he was maintaining his oxygen saturation and there was no breathing difficulty. X-ray of chest showed migration of the fractured tracheostomy tube in right main bronchus [Figure 1]. Flexible bronchoscopy confirmed presence of the broken tracheostomy tube in the right

main bronchus. Bronchoscopy guided retrieval of tracheostomy tube was attempted, but it failed. Thereafter, we applied an innovative approach to manage this case. We introduced Desjardin's forceps through the stoma of tracheostomy and under C-arm guidance, we successfully removed the tracheostomy tube [Figure 2]. Desjardin's forceps is commonly used to remove bile duct stones. This instrument has many advantages that made us to think of it for removal of the migrated tracheostomy tube. Desjardin's forceps is long enough to reach the main bronchus. It is light and slender, so doesn't cause complete obstruction of the lumen of the trachea and allow passage of air during instrumentation. It is gently curved for working in depth in minimum space and this feature can be utilized to remove foreign body from main bronchus that has natural angulations with trachea. Desjardin's forceps doesn't have any catch and there are no serrations in the blade or at the tips and these features make this instrument less traumatic to the mucosa. We had used C-arm to localize the tracheostomy tube and to guide the extraction of the tube after holding with Desjardin's forceps. The procedure was done under local anaesthesia and there was no postoperative morbidity. A new tracheostomy tube was applied and the patient was discharged on the same day.

DISCUSSION

The first case report of a fractured tracheostomy tube was in 1960 by Bassoe and Boe.^[2] Since then, this complication has been published in medical literature from time to time. The most common dislodged site is right main bronchus and this is

because proximal right main bronchus is consistently steeper and slightly wider than the left.^[3] The weak point of the tracheostomy tube is at the junction of the tube and the neck plate^[4] and it is the most common fracture site.

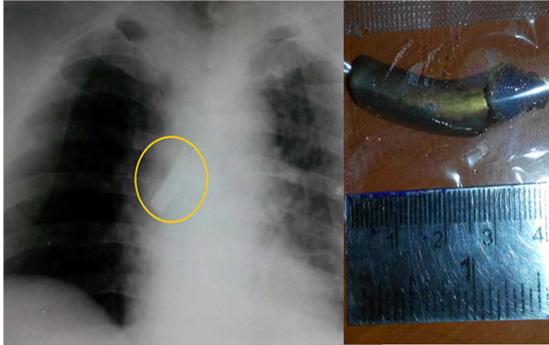


Figure 1: Broken metallic tracheostomy tube, which was removed from right main bronchus.

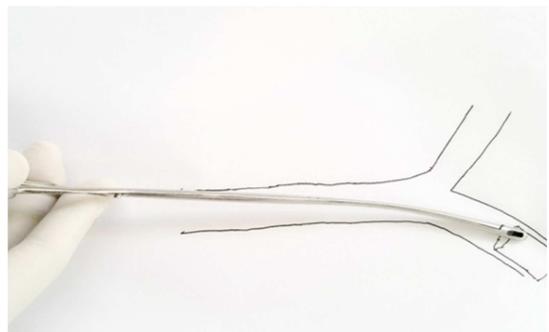


Figure 2: Diagrammatic representation of removal of tracheobronchial foreign body using Desjardin's forceps.

Prolonged wearing, ageing of the tubes, repeated sterilization, alkaline bronchial secretion, tissue reactivity, long continued high internal stresses on the surface and manufacturing defects have been proposed as risk factors for fracture of a tracheostomy tube.^[5] Bronchoscopy is the first choice method and it can be utilised both for diagnostic and therapeutic purposes i.e. removal of foreign bodies with high success rate.^[6] It is a technically difficult to maintain airway and simultaneous instrumentation through a same tracheostomy stoma in patient who had total laryngectomy before. In such cases where bronchoscopy fails to retrieve metallic foreign body, a long, slender and a traumatic instrument like Desjardin's forceps can be useful, provided the facility of C-arm is available for localisation and guidance during foreign body removal. In our case patient presented early without any respiratory symptoms, but in long standing cases the migrated tracheostomy tube can get blocked causing various respiratory symptoms.^[7]

CONCLUSION

Regular check-up for signs of wear and tear and timely replacement of tracheostomy tube are crucial steps to prevent such complication.

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