
Fractured tracheostomy tube posted for bronchoscopic removal: An anesthetic challenge

Sir,

Fracture and displacement of tracheostomy tube into the respiratory tract is a dangerous late complication after tracheostomy. We like to present a case of a patient with fractured tracheostomy tube with respiratory distress posted for bronchoscopic removal.

A 48-year-old male patient was admitted to the emergency department with breathing difficulty for past 2 h. Patient was maintained on tracheostomy with a 32 size Fuller's tracheostomy tube. He was admitted as a case of tracheal stenosis 2 years back and had undergone emergency tracheostomy in view of difficult intubation. Subsequent evaluation showed fibrotic stenosis at the level of 5th and 6th tracheal ring with calcification. The patient had lost follow-up since the past 6 months and had now presented with respiratory distress.

On arrival, his vitals were blood pressure - 100/70 mmHg, pulse rate - 94/min, respiratory rate - 24/min, and SpO₂ 97%. On auscultation right, sided rhonchi were present, more in the upper lobe. There was no stridor or visible secretions; suctioning was done and Fuller's tube was removed, and on inspecting the tube, the inner part was missing and outer part was intact. Chest X-ray (CXR) showed the broken part of the tube in the right main bronchus [Figures 1 and 2].

Patient was posted for removal of fractured fragment using rigid bronchoscopy. Inside Operation theatre Fuller's tube was removed and Portex 7.5 mm tube was inserted and position confirmed with chest expansion and capnography.

He was induced with 100 µg fentanyl, 100 mg propofol and after confirmation of ventilation intravenous injection of atracurium 25 mg was given. Injections glycopyrrolate. 2 mg and Dexamethosone 8 mg were also given intravenously.

Sevoflurane 2% with 100% O₂ was started and minimum alveolar concentration of 1.2% was maintained.

After gentle, positive pressure ventilation for 5 min, the patient was handed over to surgeons who removed the Portex tube and inserted 6.0 size rigid bronchoscope through the tracheostomy stoma. Anesthesia circuit was connected to the bronchoscope and ventilation was confirmed. A long foreign body forceps was used to retrieve the displaced inner portion of the tracheostomy tube from the right main bronchus, and it was removed through the tracheostomy stoma. After removal, the 7.5 size Portex tracheostomy tube was reinserted, and breathing circuit was connected and adrenaline nebulization was given, 10 min following removal patient had spontaneous breathing efforts. He was reversed with neostigmine 2.5 mg and glycopyrrolate 0.4 mg; recovery was uneventful. A fracture at the junction between the inner tube and neck plate was found. Postoperative CXR was normal; he was discharged on tracheostomy tube 2 day later with instructions of regular follow-up.

The Fuller's tracheostomy tube usually gets fractured at the junction of flanges and the collar of the tube. Possible etiology includes prolonged use and seasonal cracking; repeated boiling and mechanical stress; erosion caused by

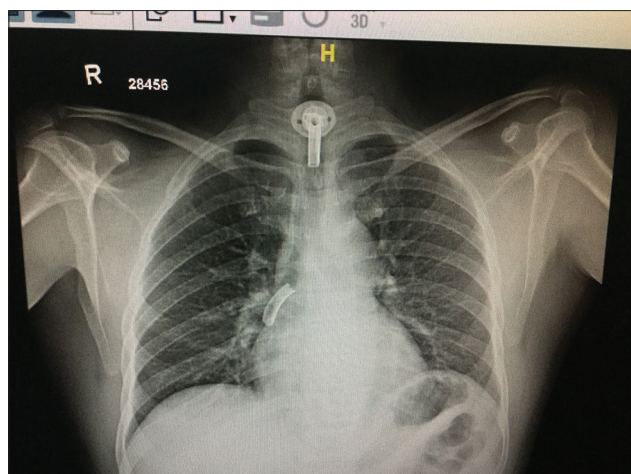


Figure 1: Chest X-ray with fractured portion of tracheostomy tube

tracheobronchial secretions; and manufacturing defects.^[1-5] The right main bronchus is the most frequent site of lodgment of the fractured segment, and some cases of impaction in left bronchus had also been reported.^[1,3] The fracture of the tube is common at the junction of the collar with the neck plates because stagnation of secretions is more in this area and these two parts are welded together.^[4] Other common sites include distal end of tube and fenestration site.^[4]

Anesthetic management during the removal of fractured tracheostomy tube is challenging. Most of these patients will be having a compromised airway anatomy because of the primary disease process and fracture, and dislodgment of the tube may lead to life-threatening airway obstruction. In the present case scenario, the patient already had a tracheal stenosis with resulting airway compromise. Rigid bronchoscopy to retrieve the foreign body was done by inserting the bronchoscope through the tracheostomy stoma site. Ventilation was done through the ventilating arm of the bronchoscope. The fractured portion of the tracheostomy tube was retrieved through the stoma site.

To conclude, fracture and displacement of the tracheostomy should always be considered as a differential diagnosis in the event of a sudden onset respiratory distress in a patient with tracheostomy of long duration.

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Conflicts of interest

There are no conflicts of interest.

**SURUCHI AMBASTA, SUMAN LATA GUPTA, G. RAJIV,
SRINIVASAN SWAMINATHAN**

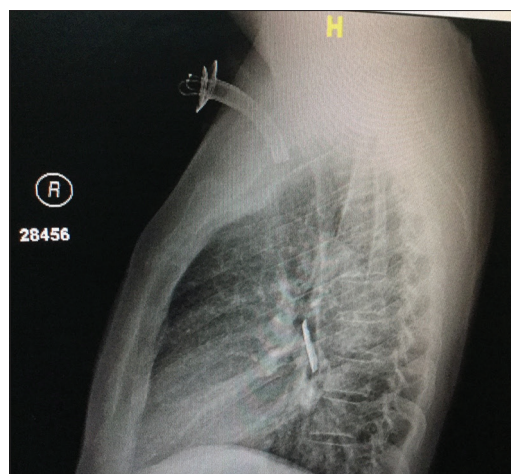


Figure 2: Chest X-ray lateral view showing fractured portion of tube

Department of Anaesthesiology, JIPMER, Puducherry, India

Address for correspondence:

Dr. Srinivasan Swaminathan,
Department of Anaesthesiology, JIPMER,
Puducherry - 605 006, India.
E-mail: srinianaes@yahoo.co.in

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