Unusually dislodged tracheostomy tube with intact airway

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DESCRIPTION

A 35-year-old male patient, tracheostomised for about 10 years, presented to our hospital with a dyspnoea of 2 days duration. There was a history of accidental decannulation of the tracheostomy tube recently. The cause for initial tracheostomy performed about a decade back was a subglottic stenosis following a prolonged intubation in an episode of scrub typhus with altered sensorium. Patient was however lost to follow-up after a few months of initial tracheostomy.

On evaluation, a stenosed stoma was seen at the tracheostomy site with no tube being visible externally. Suspecting accidental extubation, the stoma was revised for 7.5 mm cuffed tracheostomy tube and supportive management was initiated. The emergency chest radiograph had significant motion artefacts and hence unremarkable. Next day, the tracheostomy tube fixation was performed as planned with an endpoint of non-dyspnoeic clinical status. A non-contrast CT chest and neck (figure 1) with virtual bronchoscopy was done to assess the airway status. The freshly instilled tracheostomy tube was in situ. However, another tracheostomy tube was seen caudal to it contiguously from the internal opening of the fresh tube, snugly approximating to its orifice, inferiorly, its extent was beyond the carina, for up to 3 cm into the left main bronchus. On the three-dimensional volume-rendered images (figure 2), there was a left-sided kink in the caudal tracheostomy tube at the carina with a focal breach on the opposite side. Both the left and right main bronchi had patent airways communicating through the end of the conduit and broken part of the tube, respectively. No pulmonary lobar collapse or consolidation was noted on either side. The management team was alerted about the dislodged and fractured old tube across the carina with a patent airway and a new tracheostomy tube in situ.

Dislodgement of tracheostomy tube is considered to be rare, with an incidence of <1/1000 tracheostomy tube days.¹ Although the incidence is low, a high risk of mortality is commonly associated due to severe airway compromise. Many times, the tube is suspended in trachea or even displaced cranially or caudally due to active force generated by coughing.^{2,3} Major factors for decision-making in a displaced tracheostomy tube are respiratory distress of the patient at presentation, type of the tube and extent of its dislodgement and the need for resecuring of the airway.⁴ Translaryngeal or transstomal oxygenation and intubation is immediately ensued

Figure 1 Non-contrast CT chest—axial (A–C, E and F), sagittal (D) and coronal (G and H) images showing the freshly placed tracheostomy tube in situ and displaced old tracheostomy tube with closely approximated openings (thick arrow). Bilateral main bronchi (thin arrows) are patent with adequate air column across the end of the previous tube (towards the left) and a focal breach towards the right leading to aeration of the right-sided bronchial tree.

to optimise respiratory status. Role of imaging commences once the patient is rendered free from respiratory distress and/or airway is secured. Our patient fortunately had a fracture in the displaced tracheostomy tube across the carina, without bronchial airway compromise on either side which is hitherto unreported to the best of our knowledge.

Figure 2 Three-dimensional volume-rendered images in oblique coronal views (A and B) showing contiguity of in situ and displaced tracheostomy tubes (thick arrow), focal breach on opposite side of kink in the old tube (arrow head) and patent airway within bilateral main bronchi (thin arrows).

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Learning points

- It is essential to maintain strict vigil in tracheostomised patients about the care of the tracheostomy site with pre-emptive tube changes advocated in any risk of displacement.
- The imaging in management of tracheostomy tube dislodgement is of paramount importance, irrespective of the clinical status or relief of respiratory distress.

Imaging plays a vital role by alarming the management team about the status of airway patency, pulmonary parenchyma and procedural complications like false tracks and vascular or pulmonary injury.

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