Case Report

When a Safety-Valve Became a Ticking Time-Bomb: Fractured Tracheostomy Tube as a Tracheobronchial Foreign Body in a Child

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Abstract

Tracheostomy Tube care is a part of respiratory rehabilitation in acquired brain injury but just tracheostomy tube insertion is not enough. Checking for Pre-requisites including manufacturing details, and regular follow – up is important. Here we present a rare case of fracturing of the tracheostomy tube in a traumatic brain injury which was managed timely.

Key words: **Acquired brain injury, Tracheostomy.**

Introduction:

Tracheostomy tube care is part of respiratory rehabilitation among persons with acquired brain injury and high cervical spinal cord injury[1,2].Foreign body aspiration is a life-threatening complication while on tracheostomy. We present an instance of a part of the tracheostomy tube fracturing and migrating into the tracheobronchial tree.

Case report

A 4 year old male incurred traumatic brain injury following a road traffic accident in 2003 and had residual left Hemiplegia. He needed long term tracheostomy for management of subglottic stenosis. Following a course of inpatient rehabilitation for left hemiplegia, he resumed functional ambulation and independ but daily activities. Three years post trauma, aged 7, he was brought by his family members to the outpatient brain injury rehabilitation clinic with complaints of the tracheostomy tubefound missing since the previous evening. He gave no history of respiratory distress. Based on clinical suspicion, a plain radiograph of the chestwas done. It revealed a part of the tracheostomy tube stem lodged at the junction of trachea and right main bronchus, with no other significant abnormality (Fig 1). He was immediately referred to the Pediatric Emergency Department for management by Pediatric Surgery. He underwent rigid bronchoscopy and removal of the tracheostomy tube fragment. A new metal

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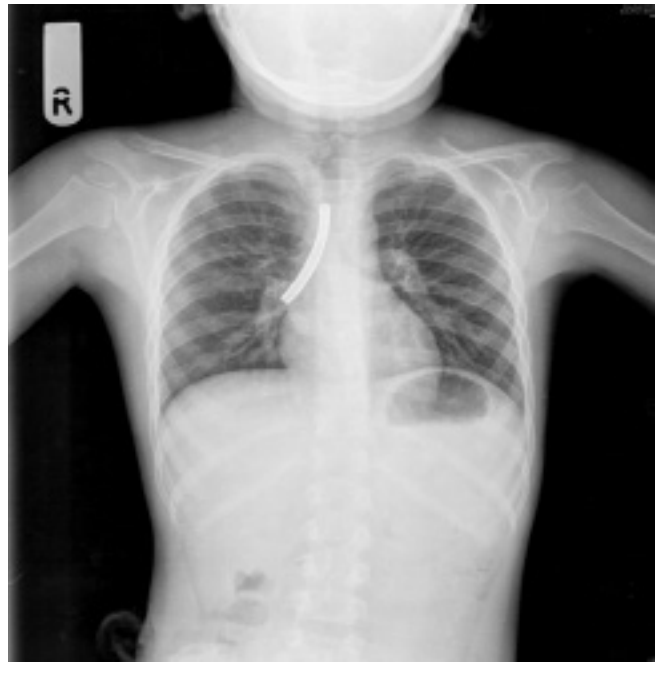

Fig 1 - *Chest radiograph revealing fractured tracheostomy tube in right tracheobronchial tree*

tracheostomy tube was inserted via the stoma. Post-procedure period was uneventful and he was discharged from the hospital two days later.Since then, he has been followed up for about seven years, and he has had no complications.

Discussion

While many reports mention only a few of the published literature, we were able to identify at least 35 reports of tracheobronchial tree foreign body due to a fractured tracheostomy tube[3-37].Potential causes that have been ascribed for such fractures include manufacturing/ designing defects, corrosion due to alkaline tracheal secretions, repeated boiling[9]. Metal, PVC and silicone tracheostomy tubes have all been implicated[16,18,30].The junction of the stem with the flanges is the commonest site of fracture, though fracture at the level of fenestration has been reported too[22]. Fractures have been reported to have occurred as early as within 8 hours of first use[31]. Complications include but are not limited to respiratory distress, lower respiratory infection, and death19. The boy in our case report was asymptomatic probably because the lumen of the fractured tracheostomy tube was strategically lodged at the junction of trachea and the right main bronchus such that it acted like a stent. It is also possible that presentation to the hospital and therapeutic intervention within 24 hours of aspiration could have precluded sequelae related to delayed inflammatory response.

Respiratory tract pathology being among the leading causes for morbidity and mortality among persons with tracheostomy, it is essential to ensure diligent care. Checking for manufacturing defects prior to insertion, regular follow-up inspections of the tube to detect early signs of wear should be essential part of care. Change of tracheostomy tube at regular intervals should also be considered in order to prevent this rare but potentially fatal complication related tofracturing of tracheostomy tube.

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