

Case Report

Fractured intubating stylet: A case of airway foreign body in Intensive care Unit

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Introduction

Management of seizures demands securing airway in ICU. But at the heat of the moment, small details that can affect the safety of the patient can go unnoticed. We would like to report a case of broken intubating stylet as a foreign body in trachea which was successfully removed by rigid bronchoscopy.

Case Report

A 23 year old female on 7.5 months of pregnancy presented in the emergency department in active phase of labor with history of abnormal body movement and vomiting. On presentation, she was not oriented to time, place and person and was drowsy. Her vitals were, heart rate = 112 beats/min, blood pressure = 140/80 mmHg, respiratory rate = 22 /min, oxygen saturation = 98% with oxygen via facemask at 6L/min. Respiratory and cardiovascular system examination was non-significant. Patient was attended by the Obstetric team and was given a loading dose of Magnesium sulfate. However, she delivered a baby via vaginal breech delivery after 45 minutes of presentation. Diagnosis of preterm vaginal delivery with eclampsia was made and was transferred to Intensive Care Unit (ICU) for further management.

Following transfer to ICU, she developed generalized tonic clonic seizure. Patient was tachycardic (HR = 147 bpm), tachypnic (RR = 38 /min) with oxygen saturation of 88% on facemask at 10 L/min. Patient was placed in left lateral position, intravenous midazolam 3 mg and intravenous magnesium sulfate 2 gm iv was given. Rapid sequence induction with Cricoid pressure was performed with intravenous propofol 80 mg and succinylcholine 75 mg. Laryngoscopy was done with Macintosh blade (size 3). Patient was intubated with stylet endotracheal tube (6.5 mm internal diameter), tube fixed at 18 cm. After confirmation of the tube placement, the patient was kept under mechanical ventilation. Intravenous midazolam and vecuronium was started. Magnesium sulfate was continued in maintenance dose. An AP view chest X-ray was performed. No abnormality could be traced out.

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On the 2nd day of admission, the patient was extubated as she had met all extubation criteria and kept under intermittent external CPAP. Patient remained hemodynamically stable.

On the 3rd day of admission, she improved but she had occasional cough which was non productive. She was tachypneic with respiratory rate ranging from 20-28 /min. On auscultation, there was decreased air entry in the right lung field, no added sounds were appreciated. On reevaluation of chest X-Ray performed post extubation in the morning showed a radiopaque curved object in the trachea extending into the right main stem bronchus (Fig 3). Chest X-ray performed a day earlier just before extubation was evaluated which showed similar object but a bit proximally in the airway (Fig 2). With careful evaluation of chest X-ray performed on the day of intubation, showed similar object protruding just over the distal end of endotracheal tube which could have been easily confused with radiopaque line of a standard endotracheal tube (Fig 1). On discussion with nursing staff, a broken stylet in the ICU was discovered (Fig 4). Broken stylet as a foreign body trachea was suspected and ENT team was informed. Rigid bronchoscopy was planned. Bedside USG scan of lungs showed no evidence of pneumothorax. Intravenous clindamycin was started.

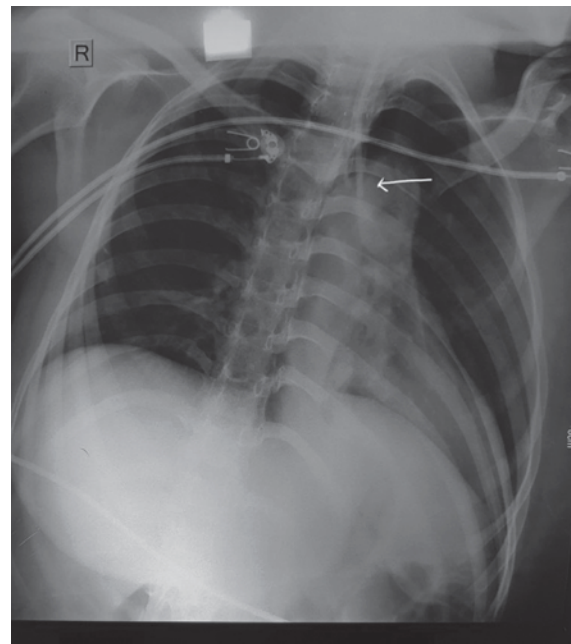


Figure 1: Chest X-Ray showing foreign body protruding out of distal end of endotracheal tube (Day 1 of admission)

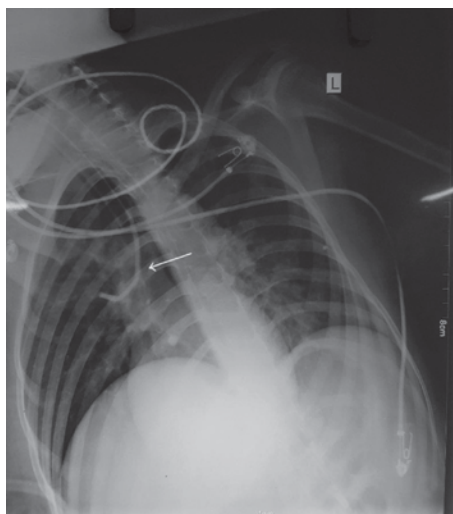


Figure 2: Foreign body seen in trachea and bronchus in X-ray taken on second day of admission

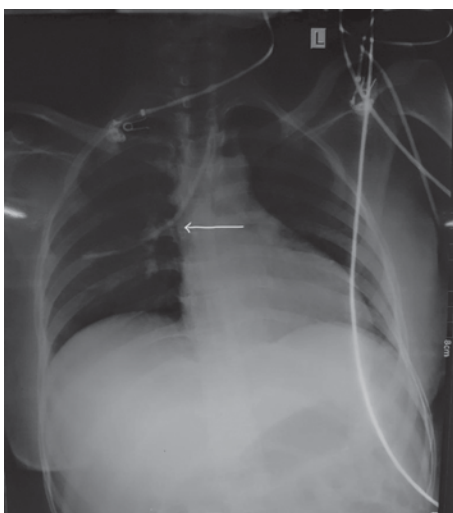


Figure 3: Foreign body seen in trachea and bronchus in X-ray taken on third day of admission (post extubation)

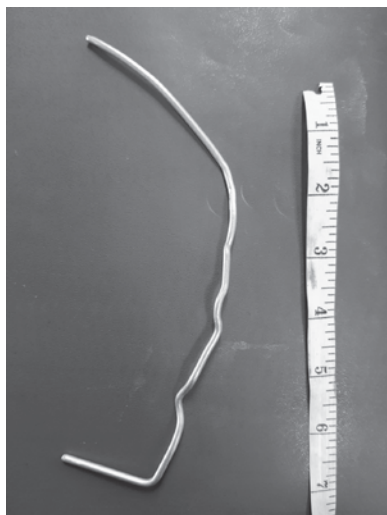


Figure 4: Proximal end of broken stylet

Patient was shifted to operation room. With 100% O₂ patient was induced with incremental concentration of Halothane and titred bolus of Propofol maintaining spontaneous respiration. Anesthesia was supplemented with Fentanyl and Dexmedetomidine boluses. Rigid bronchoscopy was performed and the broken half of the stylet was retrieved successfully. No trauma to the airway or bleeding was observed during the procedure. Then the patient was shifted to ICU. Tranexamic acid nebulization was performed every 4 hourly that day for hemostasis of possible local bleeding. Subsequent chest X-rays were normal. General condition of the patient improved thereafter and WBC counts normalized. On 7th day of admission, patient was discharged from ICU.

Discussion

Inhaled foreign body, a common occurrence in pediatric age group contributes to significant mortality and morbidity. Iatrogenic cases of nasopharyngeal airway, stylet tips or washer from closed suction system as inhaled foreign body have been reported.^{1, 2} The consequences can range from airway irritation to massive respiratory failure.

In our case, aluminum stylet had been used which happened to be weakened leading to its fracture at the most vulnerable part. With the possibility of stylet being pulled off forcibly after intubation led to breakage and being stuck in the endotracheal tube. Since there are no clear markings in the stylet, its breakage went unnoticed after intubation and further management of the patient was continued. Routine endotracheal suctioning could have pushed the broken piece further down the trachea. No difficulty in insertion of suction catheter was noted by the nursing staff nor there any blood tinged secretions. Keen observation of the chest x-ray could have identified the broken piece but it was easy to be missed as it appeared similar to the radiopaque line on the endotracheal tube and other lines like ECG wires obscuring the view.

Conclusion :

Careful Evaluation of airway management equipment before and after procedures and careful radiological evaluation of post intubation and post extubation X rays should be of utmost priority in critical care setup to prevent such iatrogenic complications.

References:

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