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Swallowed endotracheal tube: A consequence of a lack of organized trauma transport care system

Sir,

A 25-year-old male with head injury was referred from a peripheral hospital to our trauma center. His Glascow coma scale was 6, vital parameters were normal and he was supplemented with oxygen through a venturi-mask. The referral slip from the peripheral hospital indicated that the patient had been intubated with 8 mm EndoTracheal Tube (ETT) and was shifted into the ambulance with a T-piece attached to the ETT. The patient's relative have reported that the bandage roll used to secure the tube was loose, and the patient swallowed the ETT during his transit. The connector which was left connected to the T piece had got disconnected prior to his swallowing. Since, there were no trained medical personnel available for intubation, the patient was given with oxygen through a venturi mask.

The patient was electively intubated in the emergency with an 8.5 mm ETT. Computed Tomography (CT) of chest and abdomen showed the ETT in the esophagus and stomach as shown in [Figure 1]. There was no evidence of breach of esophageal or gastric mucosa or any evidence of tracheal injury. Endoscopic removal of ETT was planned. The patient had increased with intra-cranial pressure secondary to traumatic brain injury, we administered general anesthesia with controlled ventilation to blunt the sympathoadrenal responses to endoscopy and minimize any subsequent increase in intra-cranial pressure. The endoscope used for removal was an Olypus GIF-1TQ160 (1030/11.3) mm with a working channel of 3.7 mm through which a FG7 L-1 alligator forceps was passed and the ETT was successfully retrieved without the use of an overtube.

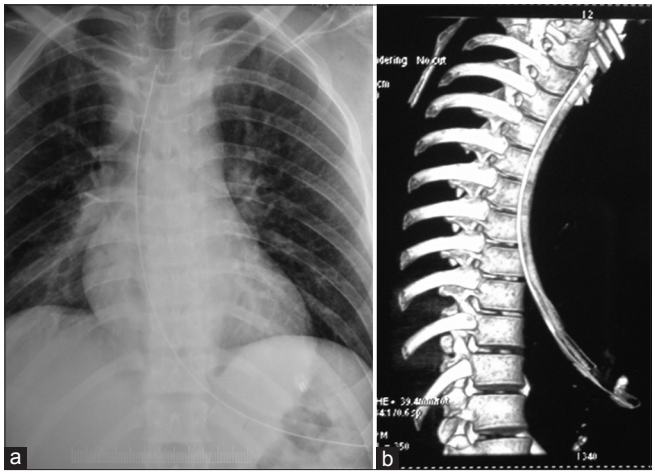

Figure 1: (a) Chest X-ray anteroposterior view showing the endotracheal tube occupying the esophagus with extension into the stomach. (b) Computed tomography chest confirming endotracheal tube in esophagus between vertebral levels T2 to L1

Esophageal placements of ETTs are known complication however prompt detection is mandatory as undue delay can be lead to life-threatening complications such as hypoxia, cardiopulmonary arrest, esophageal tear, gastric rupture, subcutaneous emphysema, pneumo-mediastinum and hemo-peritoneum or pnuemo-peritoneum. Two different possibilities exist in our patient that explains the esophageal placement of the ETT. The first situation is that the patient underwent an accidental esophageal intubation and subsequently swallowed the tube. The second scenario is that the trachea was successfully intubated and possibly later the tube dislodged from the trachea and was swallowed by the patient.

Radiologic evidence has revealed that movement of the neck can dislodge properly placed tubes within the trachea about to 5 cm.[1] The method of tube fixation used is also a vital importance as proper fixation can prevent the dislodgements.

Radjou *et al*.[2] have highlighted the inefficiency of the trauma care system of our country: Lack of organized transport system for interhospital transfer and lack of concept of initial trauma care increase the incidence of iatrogenic insults as described above and thus worsen prognosis of the patient. This is highlighted in our case also as there was no health care provider during the transfer of an intubated patient with a diagnosis of head injury.

Tracheal intubation needs to be confirmed by either five point auscultation of lung fields upper abdomen, colorimetric capnography, negative pressure devices, visualization of condensation in the ETT, direct fiberoptic visualization of the trachea, chest radiography and ultrasound. Continuous capnography monitoring is maintained and with an aggregate sensitivity of 93% and an aggregate specificity of 97% confirmed the endotracheal placement of the tube.[3] In as many as 8% of all attempts at emergency airway management, esophageal intubation has occurred.[4]

Ingested foreign bodies are visualized by using plain radiographs, contrast studies and CT. The risks of aspiration, and obstruction or perforation determines the timing of endoscopy. Emergent endoscopic intervention is needed in patients who are unable to manage their secretions and thus at high risk for aspiration pneumonitis. Other esophageal

foreign objects or food impactions should also be removed within 24 h. According to the recent American society for gastrointestinal endoscopy guidelines, all foreign bodies longer than 6 cm are likely to have difficulty in passing the duodenum and hence it should be removed endoscopically. Surgical intervention may be required in patients with esophageal perforations.[5]

Endotracheal tube displacements and migrations are inevitable and thus the medical personnel must routinely inspect its position. Endoscopic removal of ETT is warranted in patients with dislodgement in the esophagus.

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