


Orogastric Tube Fracture and Ingestion in a Patient With Hyperacute Delirium: A Unique and Potentially Catastrophic Complication

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Abstract

Orogastric tubes (OGTs) are frequently used to administer feeds and medications to critically ill patients. They are inserted blindly, with a low first-pass success rate and frequent benign complications. OGT fractures and ingestion are exceedingly rare, with only two cases reported to date. Herein, we describe a rare case of OGT transection and ingestion in a male patient admitted for hyperacute delirium and complicated pneumonia. The OGT remnant was retrieved using an endoscope without any complications. Clinicians must be aware of this rare but potentially catastrophic complication of OGT use. OGTs must be inspected in the same manner as endotracheal tubes to ensure patient safety.

Keywords: Enteral feeding; Orogastric tube; Orogastric tube fracture; Foreign body; Endoscopic foreign body removal; Hyperacute delirium

Introduction

Feeding tubes are commonly used in emergencies, anesthesia, and critical care for the administration of feeds, medications, gastric lavage, or gastric decompression [1-6]. Blind orogastric tube (OGT) insertion is routinely performed in medical care and is associated with a low first-pass success rate and frequent benign complications [7-9]. OGT fracture and ingestion is an extremely rare event, and only two other cases have been reported to date [1, 10]. Poor storage, stomach acidity,

or aggressive flushing of impacted food residue can affect the structural integrity of an OGT [1]. Herein, we report a unique case of OGT fracture and ingestion in a male patient with a history of hepatitis C and polysubstance use disorder. The OGT was successfully retrieved using an endoscopic snare. To the best of our knowledge, this is the first reported case of OGT transection and ingestion retrieved using an endoscopically.

Case Report

A 34-year-old male with a medical history of chronic hepatitis C and polysubstance use disorder presented to our emergency room (ER) for evaluation of shortness of breath and productive cough. The patient reported using crack cocaine a few hours before the ER visit and was anxious about a potential withdrawal from heroin use. In the ER, he was febrile and tachypneic and required oxygen therapy via a nasal cannula. The initial chest X-ray showed a right-sided loculated pleural effusion suggestive of complicated pneumonia. While still in the ER, the patient experienced hyperacute delirium, warranting endotracheal intubation for airway protection, and was admitted to the medical intensive care unit (ICU).

Triage bloodwork was significant for leukocytosis and hypomagnesemia, and the urine drug screen was positive for cocaine. The rest of the laboratory values, including hemoglobin level, serum electrolytes, creatine kinase, and B-type natriuretic peptide, were unremarkable. The patient was started on broad-spectrum antibiotics with vancomycin and piperacillin-tazobactam, and a chest tube was placed to evacuate the empyema. Eventually, the patient underwent right-sided video-assisted thoracoscopic surgery (VATS), which was converted to open thoracotomy. The surgeons performed decortication of the right lung and chest wall, resection of the right middle and lower wedges, and cryoablation of the intercostal nerves. Two test tubes were placed postoperatively, and the antibiotics were narrowed to ceftriaxone as the sputum culture grew *Klebsiella pneumoniae*. The sputum pneumonia panel tested positive for *Klebsiella pneumoniae* and *Haemophilus influenzae*.

On postoperative day 1, the patient became agitated, and a midazolam infusion was initiated for agitation. Later in the day, a nurse tried to replace the OGT (16 French Covidien Salem Sump Dual Lumen Stomach Tube) but noticed that it was shorter than usual. A chest X-ray showed an OGT terminat-

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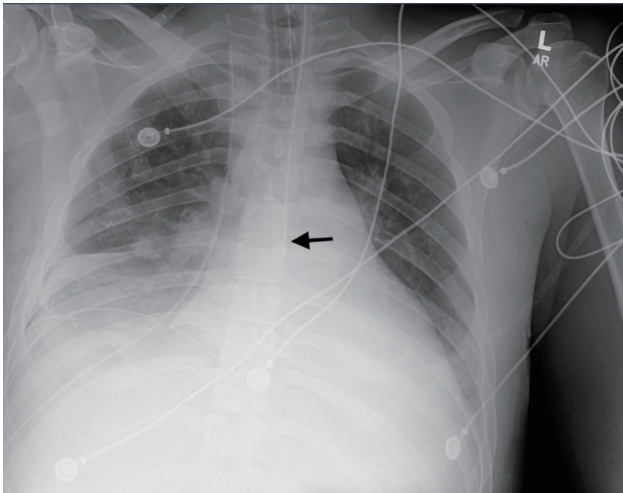


Figure 1. Frontal chest X-ray showing life support and monitoring devices: an orogastric tube terminates within the mid-esophagus (black arrow).

ing within the mid-esophagus (Fig. 1). A relook chest X-ray showed that the distal remnant of the OGT had advanced into the stomach. It was thought that the patient bit on the OGT while agitated and severed it.

Given that the OGT remnant had already advanced into the stomach, glucagon was not used for foreign body retrieval in this case. Upper endoscopy showed a broken OGT piece in the gastric body and antrum, extending into the esophagus (Fig. 2). The OGT remnant was retrieved using an endoscopic snare. The patient was successfully extubated on postoperative day 6, optimized on regular medical floors, and later discharged to a rehabilitation facility. The patient was seen in the cardiothoracic clinic 2 weeks later, and he had no acute complaints.

Discussion

Defined as tubes inserted through the oral cavity into the stomach, OGTs have wide-ranging applications in critical care settings. The choice of OGT size is vital and often depends on patient-specific factors and the intended use. OGTs are commonly used for enteral feeding and to administer medications [4]. The insertion of OGTs is a common procedure in clinical practice, but it is not without risks. Most complications are benign and include esophageal mucosal irritation, tube clogging, kinking, knotting, and misplacement [1, 2, 8]. Flushing the OGT before and after use or using an OGT guide during insertion can minimize some of these complications [1, 7, 8]. Esophageal perforation, pneumothorax, bronchopleural fistula, cranial intubation, endotracheal tube obstruction or entanglement, and OGT stapling during sleeve gastrectomy are less common but serious complications of OGT use [2-4, 6, 8, 11-14].

To date, only two cases of OGT fracture and swallowing have been reported in the literature [1, 10]. In a case reported by Ranier et al, the patient coughed up the broken piece of the OGT while in the post-anesthesia care unit [9, 10]. In

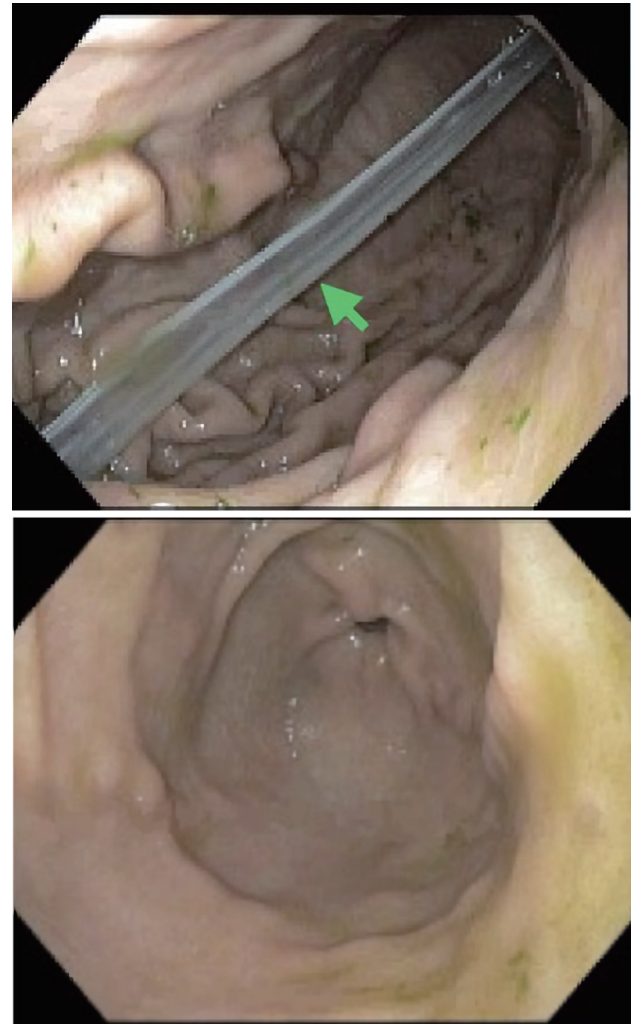


Figure 2. An endoscopic view shows a remnant of the orogastric tube in the gastric body (green arrow). The esophagus, pylorus, and duodenum were normal.

the second case, a laryngoscope was used for retrieval given the patient's impaired swallowing mechanism in the setting of a recent stroke [1]. To the best of our knowledge, this is the first documented case in which an endoscope was used to retrieve the swallowed OGT remnant. Clinicians must be aware of this rare but potentially catastrophic complication of OGT use. To ensure patient safety, OGTs must be inspected after removal in the same fashion as the central lines and endotracheal tubes.

Fractured OGTs are incidentally detected during exchanges or routine care. Depending on the location of the displaced piece, patients can develop a cough, emesis, oropharyngeal irritation, or acute hypoxic respiratory failure [1, 8, 15]. In the case of upper aerodigestive tract perforation, patients may experience subcutaneous emphysema, odynophagia, hoarseness, or chest tightness [16]. Prompt surgical intervention is imperative to prevent life-threatening consequences. When OGT displacement or malfunction is suspected, a chest radiograph or CT scan can be performed to confirm positioning. The radio-

lucent nature of the OGT makes it difficult to visualize and ascertain its exact location within the esophagus [17]. As a result, transected distal remnants are most likely to be missed on imaging, predisposing patients to more complications [17]. In any case, chest radiographs remain the most accurate test for confirming OGT or nasogastric tube (NGT) positioning after insertion [18, 19].

Although soft and pliable, OGTs have a rigid and pointed end that can cause esophageal or gastric irritation or even perforation. Swallowed OGT remnants are managed as foreign bodies with emergent endoscopy as per the American Society for Gastrointestinal Endoscopy (ASGE) and European Society of Gastrointestinal Endoscopy (ESGE) clinical guidelines [1, 20, 21]. This is the first documented case of OGT transection and ingestion successfully retrieved using an endoscope.

OGT fractures and ingestions are extremely rare, with only two cases reported to date. This case report presents a rare instance of OGT transection and ingestion in a patient with hyperactive delirium and complicated pneumonia, which was successfully retrieved endoscopically. We aim to highlight the importance of inspecting feeding tubes in the same fashion as endotracheal tubes to ensure patient safety.

Learning points

Feeding tubes are routinely used in emergency situations, anesthesia, and critical care to administer feeds and medications. OGT insertion is performed blindly and can cause mild complications such as oropharyngeal irritation. OGT fractures and ingestion are extremely rare, with only two other cases documented in the literature. However, this is the first case where an endoscopic snare was used to retrieve a swallowed OGT remnant. Although rare, clinicians must be aware of this potential complication as it can have catastrophic implications.

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Conflict of Interest

There is no conflict of interest to declare.

Informed Consent

The patient consented to the publication of this case report.

Author Contributions

LB conceptualized the idea of this case report. SE, RB, and PP helped with data curation, collection of pertinent patient information, and writing of the case report. GM and BH edited, fact-checked, and proofread the final version of the case report.

Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Abbreviations

OGT: orogastric tube; ER: emergency room; ICU: intensive care unit; VATS: video-assisted thoracoscopic surgery; NGT: nasogastric tube; ASGE: American Society for Gastrointestinal Endoscopy; ESGE: European Society of Gastrointestinal Endoscopy

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