

Case Report

Treatment of delayed cervical oesophageal perforation with T-tube

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ABSTRACT

Cervical oesophageal perforation is a potentially life-threatening situation associated with pooled mortality of 5.9%. Early detection and referral to the thoracic surgery is important. We present a case of an obese lady admitted for foreign body ingestion and had an endoscopic removal of foreign body. Her general condition deteriorated two days later and the diagnosis of delayed cervical oesophageal perforation was made. She was managed surgically by placement of T-tube as controlled-fistula, nasogastric tube insertion and drain at superior mediastinum to control sepsis and contamination. Patient was discharged well despite prolonged hospital stay. T-tube drainage is established as safe and effective to manage delayed cervical oesophageal perforation.

Keywords: Cervical oesophageal perforation, T tube, Delayed oesophageal perforation, Cervical drainage

INTRODUCTION

Oesophageal perforation is a potentially life-threatening condition. Biancari et al reported cervical perforation is associated with pooled mortality of 5.9% and a relatively higher mortality for intrathoracic (10.9%) and abdominal perforation (13.2%).¹

The oesophagus is a tubular structure and can be divided to three parts; cervical, thoracic and abdominal. The cervical part commences at level of cricopharyngeus, 15 cm from incisors and terminates at level of suprasternal notch 20 cm from incisors. The Killian's triangle formed by inferior pharyngeal constrictors and cricopharyngeus, has no muscularis layer and has highest risk of injury. The intrathoracic, the longest part of oesophagus, continues from 20 to 36 cm from incisors and the abdominal oesophagus, 36 to 40 cm from incisors.

The most common causes of cervical oesophageal perforations are foreign body ingestion, followed by penetrating trauma, iatrogenic perforation from instrumentation and intraoperative injury.² Presentations are neck pain, cervical dysphagia, dysphonia, bloody regurgitation³ and subcutaneous emphysema.

Treatment for cervical oesophageal perforation depends on the cause, extent of injury, condition of patient, and time of diagnosis.⁴ The goal of treatment is to limit contamination, removing source of infection, restore the gastrointestinal tract integrity and providing adequate nutritional support.⁵

CASE REPORT

A 44-year-old obese lady with short neck presented to emergency department with shortness of breath after accidental ingestion of her denture when taking medications. She was intubated for respiratory distress and underwent direct laryngoscopy, oesophagoscopy and removal of foreign body. The denture was seen just above cardio-oesophageal junction, and it was trawled out. After procedure, a mucosal tear was seen at oesophagus 20 cm from incisors. She extubated on post-procedure day 1. However, her general condition deteriorated following day. She developed subcutaneous emphysema and respiratory distress requiring re-intubation. She was febrile and her blood count showed leukocytosis of $26 \times 10^9/l$. An urgent CT neck and thorax showed pneumomediastinum, subcutaneous emphysema at the chest and neck, and a right retropharyngeal collection.

A bedside oesophagogastroscopy revealed two perforations: anteriorly at 20 cm and posteriorly at 18cm from incisors, with friable surrounding tissue. She was brought to operating theatre for neck exploration immediately. About 50 ml of pus was drained from superior and posterior mediastinum. A nasogastric tube was inserted under endoscopic guidance. A T-tube was placed between posterior and anterior perforations via a new incision as a controlled fistula. A drain was inserted posterolaterally to oesophagus. She was then kept nil orally, started on total parenteral nutrition (TPN), proton pump inhibitor (PPI) and intravenous broad spectrum antimicrobial therapy.

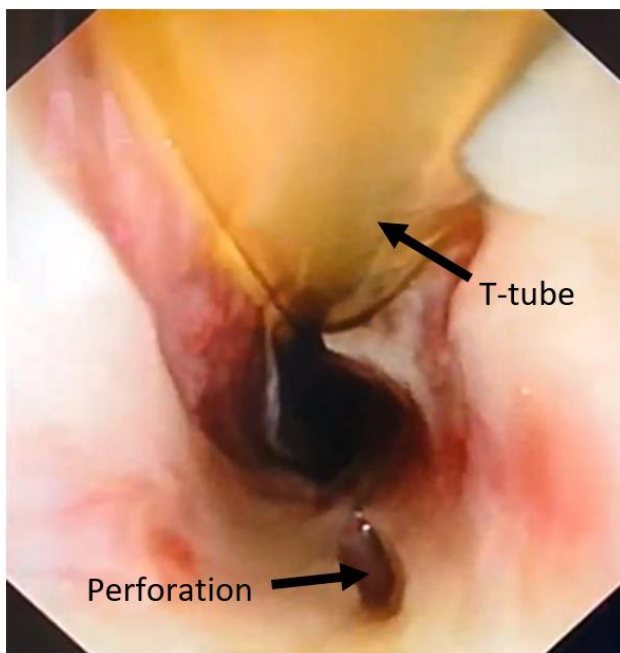


Figure 1: Oesophageal perforation seen posteriorly with T-tube anteriorly on post-operative day 6.

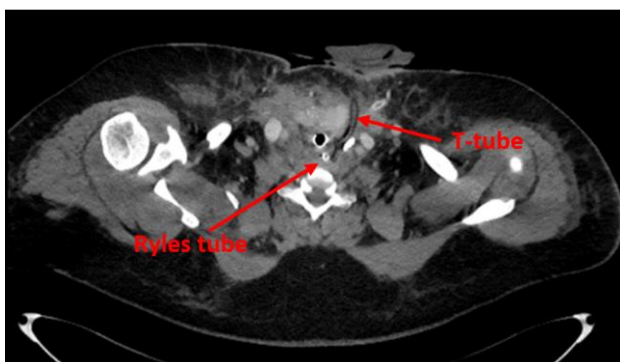


Figure 2: CT neck demonstrating the t-tube in oesophagus on post-operative day 7.

Her general condition gradually improved and was transferred to general ward after 18 days in intensive care unit and discharged home one week after that with nasogastric tube feeding. An oesophagoscopy on post-operative day 6 showed a smaller perforation (Figure 1).

At postoperative day 7, a CT thorax showed resolving mediastinal collection (Figure 2). At 18 days postoperatively the mediastinal drain was removed. A follow-up oesophagoscopy one month postoperatively showed healthy granulation tissue healing over perforation site and T-tube was removed in the outpatient setting. She could eat normally without dysphagia, even though she had complication of oesophageal stenosis in which she received regular balloon dilatation.

DISCUSSION

Suspicious of oesophageal perforation should be raised in cases of foreign body ingestion with severe symptoms, and clinical deterioration following endoscopic procedures. Our patient developed subcutaneous emphysema, sepsis and respiratory distress two days after the endoscopic procedure. The delayed diagnosis led her to complications from sepsis. The finding of mucosal tear after the endoscopic denture removal should raise an alarm of oesophageal tear and warrant an early referral to allow prompt repair.

Oesophageal perforation, regardless of site, if treated early within the first 24 hours has the best outcome. Brinster et al.² concluded that treatment initiated after 24 hours the overall mortality rate was 27% compared to 14% with treatment initiated within 24 hours. Eroglu et al showed mortality of 3.7% in early diagnosed oesophageal perforation, but if delayed >24 hours the mortality is 44.4%.⁶

Operative strategies for cervical oesophageal perforations include primary repair, or by drainage only without repair. Surgical repair of the perforation, if performed early which is less than 24 hours from injury, is easier with better outcome. Tissue flaps from sternohyoid, sternothyroid or sternocleidomastoid muscle may be used to reinforce the cervical oesophageal perforation repair site.⁷ If diagnosis is delayed which is more than 24 hours of perforation, primary repair may not be feasible due to severe contamination and inflammation. In these patients an oesophageal T-tube insertion been advocated.^{5,8} It creates a controlled oesophageal fistula allowing the perforation to heal by draining the contamination.²

Other alternative treatment includes endoscopic insertion of self-expanding metallic stents (SEMS), endoscopic clips and suturing.⁶ However, the inflamed and friable tissue at the perforation site and high perforation location are not suitable for these endoscopic interventions.

In order to minimize contamination to the perforation site, she was strictly on TPN without enteral feeding for 2 weeks, she was placed at propped up position and PPI was administered to reduce gastric reflux. She was encouraged to spit her saliva regularly.

CONCLUSION

Early detection and referral to thoracic surgery for an oesophageal perforation is paramount. We suggest a high suspicion of oesophageal perforation in all cases of foreign body ingestion. Communication between departments and early referrals should be practiced in cases of potential injury to oesophagus after endoscopic procedures. In managing delayed cervical oesophageal perforation, a T-tube drainage is proven feasible as well as safe.

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