Esophageal Perforation

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KEYWORDS

• Esophageal perforation • Sepsis • Iatrogenic perforation • Management

KEY POINTS

- Esophageal perforation most frequently occurs secondary to endoscopically induced injury.
- Patients may progress quickly to septic shock, which mandates immediate surgical intervention.
- Thoracic-contained perforations may be managed nonoperatively if patients are not septic and imaging shows a contained perforation.
- Esophageal stenting has been effective in patients with malignancy-associated perforation.
- Primary repair and drainage should be used in patients without malignancy.

Esophageal perforation is relatively uncommon but carries a high morbidity and mortality (10%–40%), particularly if the injury is not detected early before the onset of systemic signs of sepsis.[1,2] The fact that it is an uncommon problem and it produces symptoms that can mimic other serious thoracic conditions, such as myocardial infarction, contributes to the delay in diagnosis. Furthermore, patients at risk for iatrogenic perforations (esophageal malignancy) frequently have comorbidities that increase their perioperative morbidity and mortality.[3] The optimal treatment of esophageal perforation varies with respect to the time of presentation, the extent of the perforation, and the underlying esophageal pathologic condition.

CAUSE

- The most common cause is iatrogenic at sites of luminal narrowing during endoscopy (cricopharyngeus, aortic knob, gastroesophageal junction and pathologic sites such as tumors or strictures).[4] Therefore, underlying conditions are frequently present, which lead to the endoscopically induced injury (**Box 1**).
- The classic description is a perforation that occurs spontaneously after vomiting, as described by Boerhaave, in which the tear occurs in the distal esophagus.

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Box 1
Common conditions associated with esophageal perforation

Malignancy

Gastroesophageal reflux disease

Achalasia

Stricture (eg, caustic, benign, anastamotic)

Scleroderma

Hiatal hernia

- Blunt trauma to the epigastrium can cause distal esophageal perforation, although this is rare. Penetrating trauma can result in injury anywhere in the esophagus but is frequently associated with trauma to the surrounding structures.
- Ingestion of caustic substances can lead to full-thickness perforation.

PRESENTATION

- Pain is the most frequent complaint.
  - Cervical esophageal perforation results in dysphagia, or pain with neck flexion may be noted.
  - Thoracic esophageal perforation presents with pain in the back, chest, or epigastrium. Most of these injuries occur on the distal left side of the esophagus because there is little protection from surrounding structures.
  - Distal injuries that leak into the abdomen will lead to abdominal pain and peritonitis. Epigastric pain may radiate to the shoulders because of diaphragmatic irritation.
- Other symptoms that are less frequently observed include dysphagia, hematemesis, and nausea/vomiting (**Table 1**).

Table 1
Signs and symptoms of esophageal perforation

Sign or Symptom	Frequency (%)
Pain	70
Dyspnea	26
Fever	44
Emphysema	25
Pneumomediastinum	19
Nausea or vomiting	19
Pneumothorax	14
Pleural effusion	14
Hematemesis	8
Dysphagia	12
Empyema	8

Data from Hasimoto CN, Cataneo C, Eldib R, et al. Efficacy of surgical versus conservative treatment in esophageal perforation: a systematic review of case series studies. Acta Cir Bras 2013;28(4):266–71.