

## Conservative management of esophageal perforation complicating the ingestion of a sharp foreign body: A case report

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World Journal of Advanced Research and Reviews, 2026, 30(03), 043-047

Publication history: Received on 07 April 2026; revised on 22 May 2026; accepted on 25 May 2026

Article DOI: <https://doi.org/10.30574/wjarr.2026.30.3.1350>

### Abstract

**Background:** Esophageal perforation is a rare but serious complication of foreign body ingestion and is associated with significant morbidity and mortality. Sharp foreign bodies are the leading cause of perforation in adults.

**Case Presentation:** We report the case of a 50-year-old man admitted with progressive dysphagia, hypersalivation, and cervical pain evolving for five days after ingestion of a bone fragment. Upper gastrointestinal endoscopy revealed an impacted sharp foreign body at 20 cm from the dental arches associated with an esophageal perforation. Endoscopic extraction was successfully performed. Cervicothoracic computed tomography demonstrated two esophageal wall defects communicating with peri-esophageal abscess collections, confirming complicated esophageal perforation. Despite delayed diagnosis and the presence of localized collections, the patient was managed conservatively with intravenous broad-spectrum antibiotics and proton pump inhibitors. Clinical, biological, and radiological evolution was favorable, with complete resolution of the abscesses and no evidence of contrast leakage on follow-up imaging.

**Conclusion:** Conservative management can be an effective therapeutic option for selected patients with esophageal perforation secondary to an impacted sharp foreign body, even in the presence of localized peri-esophageal collections, provided that close monitoring is ensured.

**Keywords:** Esophageal perforation; Foreign body ingestion; Bone fragment; Conservative treatment; Endoscopy

### 1. Introduction

The esophagus is a frequent site for the lodgment of foreign bodies (FBs). The nature of ingested foreign bodies varies according to patient age. In children, commonly ingested objects include coins, medals, toy fragments, and batteries. In adults, foreign bodies are predominantly food-related, particularly fish bones and meat bones, while ingestion of dental prostheses is less frequent.

Esophageal foreign bodies account for 15–20% of esophageal perforations. Management strategies are heterogeneous, ranging from conservative medical treatment to minimally invasive endoscopic techniques, and, in severe cases, esophagectomy.

We report a case of esophageal perforation secondary to the ingestion of a sharp foreign body, successfully managed using a conservative medical approach.

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## 2. Case Presentation

We report the case of a 50-year-old male patient with no significant past medical history, admitted for progressive dysphagia to solid foods evolving over five days. The dysphagia was initially limited to solids, occurred in an afebrile context, and was associated with hypersalivation and anterior cervical pain. No dysphonia, dyspnea, or cervical subcutaneous emphysema was reported.

The patient initially consulted a general practitioner. After a normal cervical examination, he was reassured and discharged home with unspecified medical treatment, without clinical improvement.

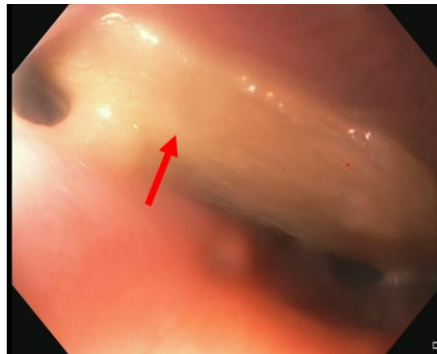
Five days later, due to worsening dysphagia, he was referred to the emergency department of the University Hospital Hassan II in Fez for specialized management.

On admission, the general condition was preserved. The patient was afebrile (37.2 °C), with blood pressure of 110/70 mmHg, heart rate of 77 beats per minute, and respiratory rate of 19 cycles per minute. Physical examination revealed tenderness on palpation of the anterior cervical region. The remainder of the physical examination was unremarkable.

Biological tests showed marked leukocytosis at 23,000 cells/mm<sup>3</sup> (normal range: 4,000–10,000/mm<sup>3</sup>) and elevated C-reactive protein (CRP) at 143 mg/L (normal < 5 mg/L), indicating a significant inflammatory syndrome.

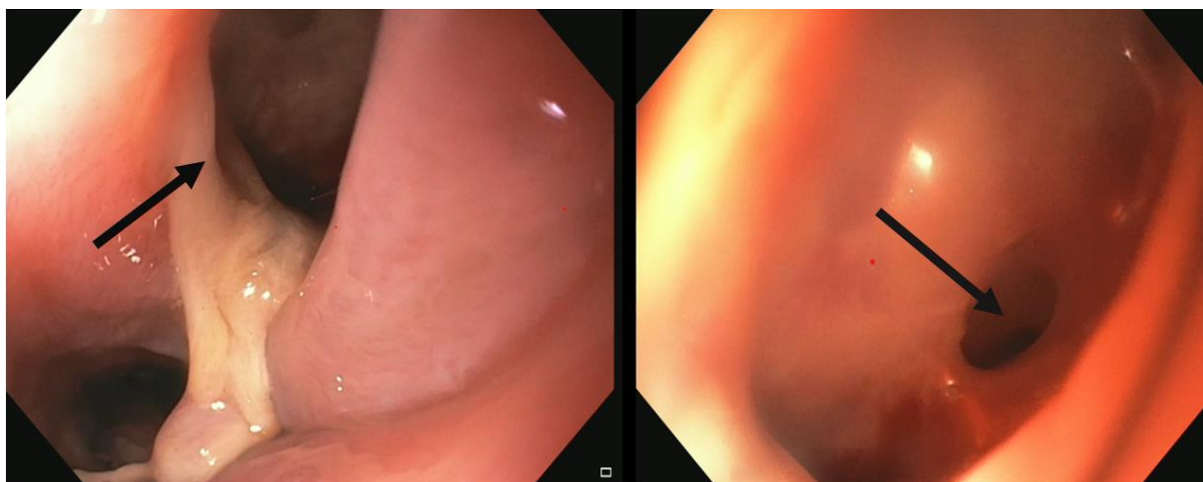
Chest and cervical radiography revealed a poorly defined radiopaque foreign body located in the esophagus.

Emergency upper gastrointestinal endoscopy performed in the Department of Gastroenterology at University Hospital Hassan II in Fez revealed a foreign body impacted in the esophageal mucosa, located 20 cm from the dental arch. Prior to extraction, a 1 cm perforation was identified on the right posterior wall of the esophagus at the same level (Figures 1 and 2).



**Figure 1** Sharp foreign body in the esophagus

Endoscopic extraction was technically difficult and allowed removal of an approximately 15 mm bone fragment (Figure 3). A second suspected esophageal perforation located 24 cm from the dental arch was also noted.



**Figure 2** Endoscopic image showing esophageal perforation

Cervicothoracic computed tomography (CT) demonstrated two parietal defects: the first involving the anterior cervical esophageal wall, and the second located in the left lateral wall of the upper thoracic esophagus.

The first defect communicated with a peri-esophageal abscess collection measuring 30 × 23 mm and extending over 46 mm. The second defect was associated with an abscess collection measuring 10 × 20 mm, extending over 10 cm, dissecting the muscular layer of the esophageal wall (Figure 4).



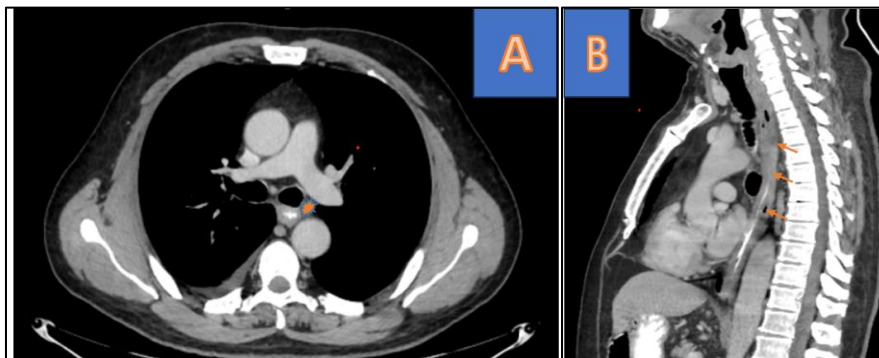
**Figure 3** Foreign body after extraction



**Figure 4** Second defect of the left lateral wall of the upper third of the thoracic esophagus (blue arrow), communicating with an abscess collection dissecting the muscular layer (orange arrow)

These CT findings were highly suggestive of complicated esophageal perforation.

A conservative management strategy was adopted, with no surgical indication. Medical treatment consisted of dual intravenous antibiotic therapy for two weeks, combined with proton pump inhibitors.



**Figure 5** Complete regression of the defect in the left lateral wall of the upper third of the thoracic esophagus, previously communicating with an abscess collection identified on initial imaging, with no evidence of contrast extravasation outside the esophagus (orange marker). A: Complete resolution of the abscess collection dissecting the muscular layer of the thoracic esophageal wall (orange arrow). B: Complete regression of the previously described lesion

Clinical and biological evolution was favorable, with marked symptom improvement and progressive normalization of inflammatory markers (leukocytes  $10,000/\text{mm}^3$  and CRP 10 mg/L).

Follow-up CT scan performed after 15 days of antibiotic therapy (Figure 5) showed no contrast extravasation into the peri-esophageal space, complete regression of peri-esophageal abscess collections, and resolution of cervical and mediastinal fat infiltration.

### 3. Discussion

Foreign body ingestion is a frequent accidental event that may occur at any age, with a marked predominance in the pediatric population. Approximately 70% of cases occur in children under six years of age, while 15–20% involve edentulous elderly patients [1].

In adults and elderly patients, foreign bodies are most commonly fish bones or bone fragments. Delayed diagnosis or neglect of the foreign body may lead to severe local complications.

The main causes of esophageal perforation include sharp or pointed objects, prolonged impaction leading to inflammation and local necrosis, and iatrogenic trauma during extraction attempts [2,3]. In the present case, the foreign body was a bone fragment impacted for five days prior to management.

Clinical manifestations of esophageal perforation include dysphagia, dyspnea, cervical subcutaneous emphysema, fever, severe cervical or thoracic pain, and tachycardia [4]. However, symptoms may be nonspecific, delaying diagnosis.

Upper gastrointestinal endoscopy is the gold standard for diagnosis and management. It is the first-line investigation for both radiopaque and radiolucent foreign bodies and allows precise assessment of mucosal injury. Its success rate for foreign body extraction approaches 100% [5].

Perforation may be identified immediately after extraction, although some lesions may remain undetected during initial endoscopy.

Computed tomography (CT) is particularly useful in cases involving mid-esophageal foreign bodies, associated complications such as mediastinitis, abscess, or fistula, delayed diagnosis (>5 days), chronic foreign bodies, or in children under six years [6].

Management of esophageal perforation aims to prevent mediastinal contamination, treat infection, restore esophageal integrity, and ensure adequate nutritional support [7]. Treatment may be conservative or surgical depending on prognostic factors such as time to diagnosis, patient condition, lesion extent, and presence of infection.

Conservative management may be considered under strict conditions: early diagnosis, complete removal of the foreign body, absence or limitation of infection, no underlying esophageal disease, and localized lesions on imaging. It includes fasting for at least 72 hours, parenteral nutrition, and broad-spectrum antibiotic therapy for 7–14 days [8,9].

In our case, despite a five-day diagnostic delay and the presence of peri-esophageal collections, conservative management resulted in complete clinical, biological, and radiological recovery, avoiding surgical intervention.

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#### 4. Conclusion

Esophageal foreign bodies remain one of the most frequent emergencies in otorhinolaryngology. High-risk populations include children, edentulous elderly patients, and adults with psychiatric disorders or underlying esophageal pathology.

The overall complication rate is estimated at 1–4%. Although uncommon, complications can be severe when they occur.

Esophageal perforation is a life-threatening complication requiring prompt and appropriate management. Treatment may be conservative or surgical depending on prognostic factors such as diagnostic delay, lesion extent, and clinical condition.

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#### Compliance with ethical standards

##### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

##### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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