

Foreign Bodies of the Upper Gastrointestinal Tract: Epidemiology and Management

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Abstract

Foreign body ingestion of the upper gastrointestinal (GI) tract is a frequent cause of emergency endoscopy. Although most ingested foreign bodies pass spontaneously, some require urgent intervention to prevent serious complications. We conducted a retrospective monocentric study over three years (May 2022–July 2025) including all patients admitted for emergency upper GI endoscopy for foreign body ingestion at CHU Ibn Sina Rabat. Among 506 emergency endoscopies, 42 cases (8.3%) were performed for foreign body extraction. The mean age was 39 years, with a male predominance. Food impaction was the most common cause. The esophagus was the most frequent location. Endoscopic extraction was successful in most cases, while a minority required surgical intervention. Early endoscopic management adapted to the type and location of the foreign body ensures high success rates and reduces complications.

Keywords: Foreign body ingestion, Upper gastrointestinal tract, Endoscopy, Emergency, Food impaction.

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INTRODUCTION

The ingestion of foreign bodies (FBs) is a frequent occurrence. While the majority of foreign bodies pass through the digestive tract without complication, in some cases they can be responsible for serious lesions, making their endoscopic removal a matter of urgency.

In this regard, we report our experience by studying the epidemiological characteristics and management modalities in our series, and reviewing the data in the literature.

MATERIAL AND METHODS

This is a monocentric descriptive retrospective study conducted at the Hepato-Gastro-Enterology and Proctology Department "Medicine B" CHU Ibn Sina Rabat, over a 3-year period from May 2022 to July 2025, including all patients admitted in the emergency setting for foreign body ingestion, using the upper GI endoscopy registry. Epidemiological data and management modalities were specified.

RESULTS

506 oesogastroduodenal fibroscopies were performed in the emergency department, including 42

(8.3%) for foreign body extraction. The mean age of our patients was 39, with extremes ranging from 16 to 80 years. A male predominance was observed, with 24 men (57%) and 18 women (42.8%), i.e. a M/F sex ratio of 1.3. 5 patients (11.9%) were prisoners and 2 patients (4.7%) had psychiatric disorders.

Clinical manifestations were dominated by retrosternal pain in 19 patients (45.2%), followed by odynophagia in 16 patients (38%) and hypersialorrhea in 10 cases (23.8%), while 6 patients (14.2%) were asymptomatic. FOGD was performed within an average of 6h (extremes: 3h-24h). Ingestion was accidental in 35 patients (83.3%), and voluntary in 7 cases (16.6%). Food impaction was involved in 14 cases (33.3%), chicken bones in 7 cases (16.6%), pins in 6 patients (14.28%), metals in 5 cases (35.7%), dentures in 5 cases (11.9%), pieces of glass in 3 cases (7.14%), a battery in 1 case (2.4%) and a sharp object in 1 case (2.4%).

The foreign body was found in 22 patients (52.9%) at esophageal level, in 2 patients (4.7%) at gastric level and in 1 patient (2.4%) at bulbar level. Extraction was performed by polypectomy loop in 5 patients (11.9%), rat-tooth forceps in 3 cases (7.14%), foreign-body forceps in 3 cases (7.14%), basket loop in

2 cases (4.7%) and laryngoscopy in 2 patients (4.76%). Successful endoscopic extraction was achieved in 15 cases (35.7%), in 17 cases (40.4%) there was migration,

the foreign body was pushed back into the stomach in 5 cases (11.9%), and extraction had failed in 5 cases (11.9%), hence the indication for surgical intervention.

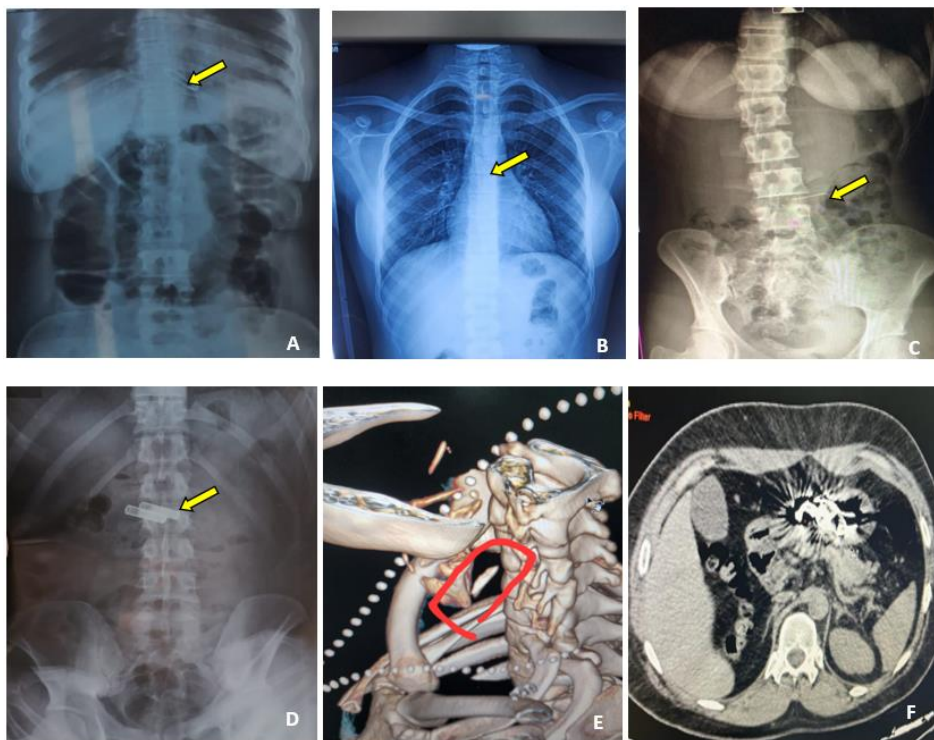


Figure 1: Radiological diagnosis of radio-opaque foreign bodies: A, B, C. pins; D. battery; E. chicken bone; F. metal object



Figure 2: Endoscopic images of: A. sharp foreign body (pin) at gastric level; B. intraesophageal food impaction; C. gastric pile

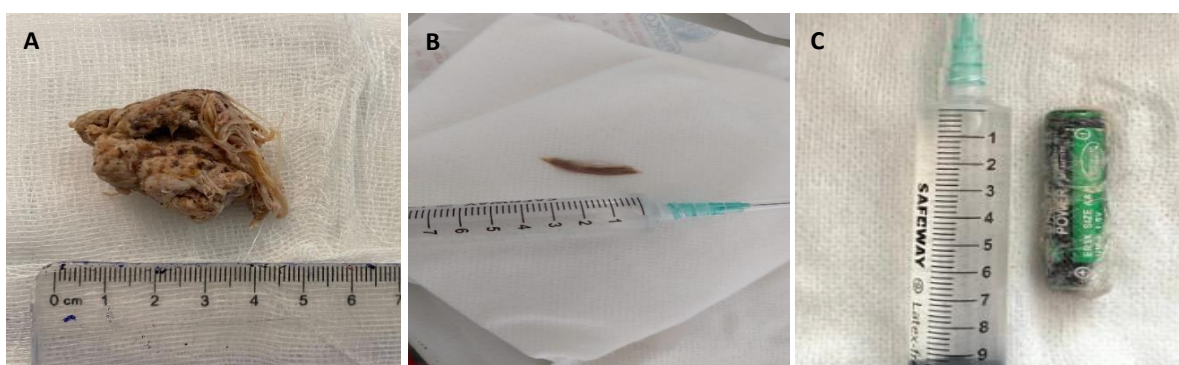


Figure 3: Endoscopic extraction: A. Food impaction; B. Chicken bone; C. Pile

DISCUSSION

Under the term “foreign bodies” of the upper digestive tract, it is conventional to consider food impactions and foreign bodies ingested accidentally or voluntarily [1].

The management of foreign bodies of the digestive tract represents around 4% of endoscopic emergencies in clinical practice [2], in our study FOGD was indicated in emergencies for this purpose in 8.3% of cases

A mean age of 54 years and a M/F sex ratio of 2.23 were observed in a recent Turkish study [3]. While foreign body ingestion was more frequent in patients aged between 46 and 65, with a M/F sex ratio of 0.98 according to a Russian study [4].

In adults, food impactions predominate over actual foreign bodies [3,5]. At-risk populations usually reported are the elderly and/or edentulous, psychotics, prisoners and patients with a history of esophageal disease. The latter population includes patients with a history of surgery, congenital stenosis, peptic or caustic stenosis, motor disorders, diverticula, hiatal hernia and cancer [6].

It is important to remember that in 80-90% of cases, foreign bodies pass spontaneously through the entire digestive tract without complication, while 10-20% of cases require endoscopic intervention, and approximately less than 1% will require surgery [6,7].

The recommended initial work-up is based on clinical and simple radiological examinations. Questioning should be as precise as possible, focusing first on determining the time of ingestion. The type of foreign body should then be determined, as well as any link with the ingestion of a meal, and any history of esophageal disease. Patients may be asymptomatic or symptomatic (most often suggesting a blockage in the esophagus). Clinical signs are varied and not always related to the location of the foreign body: retrosternal pain, odynophagia, dysphagia. Hypersialorrhea and aphagia are often synonymous with complete esophageal obstruction. Signs of complication to look for include: fever, tachycardia, subcutaneous emphysema, cervical swelling, pulmonary auscultatory abnormality, occlusive syndrome, peritoneal abdomen. Standard X-rays are only

recommended in the case of radiopaque foreign bodies, bone food or objects of unknown type. They are also recommended in the event of a suspected complication; however, if surgery is envisaged, CT is to be preferred. [3,6,8]

Emergencies are defined according to the type of foreign body and its location. Esophageal foreign-body impactions are true emergencies, unlike intragastric objects [1,3,8]:

- An endoscopy must be performed within two hours at best, six hours at most, for esophageal foreign bodies if they are stenosing, batteries or sharp or pointed objects; and must be performed within 24 hours for non-stenosing esophageal foreign bodies; and for sharp or pointed intragastric foreign bodies, magnets, batteries, long objects (defined by a length of more than 5-6 cm, posing a risk when passing through the duodeno-jejunal angle) or wide objects (> 2- 2.5 cm, posing a risk when passing through the pylorus or ileocaecal valve);
- Finally, endoscopy must be performed within 72 hours for medium-sized intragastric foam objects.

It is imperative to know that “body packing” is a contraindication to endoscopic management. There is too great a risk of damaging the plastic bag and causing the patient to overdose. Radiological monitoring of pouch progression is recommended, with surgical indication in case of suspected rupture, slow progression or occlusion [3].

It is recommended that endoscopy equipment be adapted to the type of foreign body. Firstly, in the absence of an overtube, it is recommended to install a rubber hood at the end of the endoscope, reversible on passage of the cardia, to extract potentially traumatic foreign bodies (sharp/pointed). A wide range of extraction equipment is available, enabling rapid adaptation to endoscopic conditions: “rat's tooth” or “crocodile” forceps and a variety of loops (polypectomy loops, Dormia-type basket loops) [9]. It has been shown that the management of food impactions usually requires more than one instrument, unlike the removal of foreign bodies [10]. The lavage pump can sometimes be very useful in helping to loosen a dry, compact food body with a handle or forceps.



Figure 4: Protective cap for traumatic intragastric foreign bodies [8]

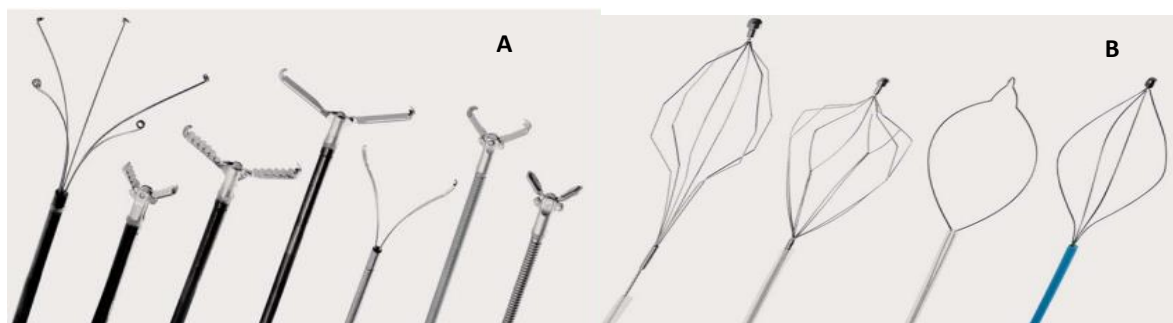


Figure 5: Various endoscopic extraction devices [11]: A. forceps B. handles and baskets

The shorter the delay, the greater the chance of finding the foreign body [12]. In the case of esophageal impactions, the longer the time to endoscopic management, the higher the rate of impaction complication. This is especially true with sharp objects, and is unrelated to the topographical level of impaction [13].

The need for an overtube or reversible cap to prevent dilaceration of the cardia or esophagus during sharps removal has already been discussed. Esophageal perforation complications can be iatrogenic when treating food impactions. So, traditionally, it was advisable to remove them rather than attempt to push them into the stomach. Data in the literature have now clearly shown that there is no significant difference in complications between these two techniques [14]. The ESGE recommendations therefore suggest that, in the first instance, the patient should try to push them gently into the stomach and, only if this fails, pull them out [3], [15].

The success rate of endoscopic management of foreign body ingestions varies from 90 to 95% according to various studies, with a complication rate of less than 5% [5,10,13,16-19].

Following food impactions, it is recommended that esophageal investigations be scheduled in order to search for any underlying disease, including eosinophilic esophagitis, and motor disorders of the esophagus [14].

CONCLUSION

Ingestion of a foreign body from the upper gastrointestinal tract is a frequent reason for emergency room visits, requiring multidisciplinary management involving clinicians, radiologists, endoscopists and surgeons. The urgency with which these foreign bodies must be managed depends essentially on their vulnating nature and esophageal location. Endoscopic extraction is often effective, with a high success rate if the procedure is carried out early, under appropriate conditions and with suitable equipment.

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