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Esophageal Foreign Body Impaction: Diagnostic and Therapeutic Challenges in the Emergency Department

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Abstract

Background: Esophageal foreign body (EFB) impaction is a frequent emergency department presentation. While many cases involve witnessed, low-risk ingestions, significant diagnostic and therapeutic challenges arise when clinical history is incomplete, as in young children or cognitively impaired individuals. The risk spectrum is broad, ranging from spontaneous passage to life-threatening complications like perforation or aortoesophageal fistula.

Aim: This article reviews the etiology, epidemiology, pathophysiology, and management of EFB impaction, highlighting the complexities faced in emergency settings and outlining evidence-based strategies for evaluation and intervention.

Methods: A comprehensive review synthesizes current clinical knowledge on EFB impaction. It examines age-related epidemiological patterns, the pathophysiology of impaction at physiological narrowings, and the specific mechanisms of injury from high-risk objects like button batteries, magnets, and sharp items. Diagnostic approaches, including radiography and computed tomography, and therapeutic algorithms are detailed.

Results: Management is dictated by patient stability, object type, location, and dwell time. Endoscopic removal is the cornerstone of treatment, with success rates >90%. Button batteries in the esophagus require emergency removal due to rapid caustic injury. Most blunt objects pass spontaneously, but food impactions in adults often indicate underlying pathology (e.g., strictures, eosinophilic esophagitis), necessitating further evaluation.

Conclusion: Successful outcomes rely on prompt recognition of high-risk scenarios, timely endoscopy, and understanding object-specific risks. A coordinated, interprofessional team approach from triage through discharge and prevention counseling is essential to minimize morbidity.

Keywords: Esophageal foreign body, Food impaction, Emergency endoscopy, Button battery, Dysphagia, Emergency department.

Introduction

Most individuals undergoing evaluation for an esophageal foreign body present after the inadvertent ingestion of an identifiable object. In these typical scenarios, the event is often witnessed or reliably recalled, symptoms are generally mild, and patients frequently remain hemodynamically stable at the time of assessment. Such presentations may allow for a focused diagnostic approach, as the suspected material, timing of ingestion, and progression of symptoms can often be delineated with reasonable clarity, thereby facilitating timely risk stratification and appropriate management. However, the diagnostic and therapeutic complexity increases substantially when the clinical history is incomplete, unreliable, or entirely unavailable. This challenge is especially evident in populations who are unable or unwilling to provide an accurate account of ingestion, including infants and young children, individuals with cognitive impairment or developmental delay, patients with significant psychiatric illness, and incarcerated persons. In these settings, clinicians may be required to rely on indirect evidence, caregiver reports, or clinical inference to determine whether ingestion occurred, what object might be involved, and when the event took place. The absence of a dependable history can delay recognition of high-risk objects and complicate decisions regarding imaging, observation, or urgent endoscopic intervention. Further contributing to the difficulty of evaluation is the breadth of possible symptoms and presentations, which can range from subtle discomfort to overt airway compromise or signs of gastrointestinal obstruction. The clinical manifestations may be nonspecific and variable, and they do not always correlate predictably with the size, shape, or location of the foreign body. Moreover, the spectrum of potential complications—including mucosal injury,

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perforation, mediastinitis, fistula formation, and aspiration—necessitates a careful and systematic assessment even in patients who initially appear stable. As a result, esophageal foreign body ingestion represents a condition in which diagnostic uncertainty, heterogeneous clinical features, and the possibility of serious adverse outcomes converge to make evaluation and management particularly demanding.[1][2][3][4]

Etiology

The esophagus is a tubular conduit measuring approximately 20 to 25 cm in adults, extending from the hypopharynx to the stomach. Structurally, it is composed of an inner mucosal layer and a muscular wall arranged in an inner circular and outer longitudinal configuration, features that collectively facilitate coordinated propulsion of ingested material. From a functional standpoint, the esophagus demonstrates regional specialization in muscle type: the proximal third is predominantly voluntary striated muscle, enabling the initiation of swallowing under conscious control, whereas the distal third is primarily involuntary smooth muscle, supporting peristaltic transport through autonomic regulation. These anatomical and physiologic characteristics help explain why the esophagus is particularly susceptible to transient obstruction when luminal caliber is challenged by poorly chewed food, irregularly shaped objects, or pre-existing narrowing. Clinically, the esophagus constitutes the most frequent site of acute foreign body lodgment or food bolus impaction within the gastrointestinal tract. Although the majority of ingested items that traverse the esophagus and reach the stomach will ultimately pass without the need for intervention—estimated at approximately 80% to 90%—a subset becomes arrested within the esophageal lumen, especially at physiologic constrictions or in the presence of underlying pathology. The etiologic spectrum of esophageal foreign bodies is broad, but accidental ingestion most commonly involves food boluses, particularly meat, which may become impacted when inadequately masticated or when esophageal motility is impaired. Other frequently encountered objects include fish or chicken bones, which may lodge due to their sharp, linear geometry, as well as dentures and coins, which are often implicated in specific age groups and settings. Importantly, the profile of ingested foreign bodies is not uniform across populations; it varies according to dietary habits, cultural practices, and regional environmental factors. As an example, fish bones have been reported as the leading cause of esophageal foreign body impaction in parts of southern China, reflecting local dietary patterns and food preparation practices.[4][5][6] Recognizing these etiologic patterns is clinically valuable, as the suspected object type influences both risk assessment—particularly with respect to mucosal injury or perforation—and the choice and urgency of diagnostic and therapeutic strategies [4][5][6].

Epidemiology

Esophageal foreign body ingestion represents a common cause of emergency department presentation, with a marked predominance in the pediatric population. Children account for approximately 80% of patients evaluated for esophageal foreign bodies, reflecting developmental behaviors such as oral exploration and limited risk awareness.[1][7] In this age group, ingestions are typically accidental and involve a wide variety of small, readily accessible objects. Commonly reported items include coins, which remain the most frequently ingested foreign body among children, as well as sharp or pointed objects such as pins and needles, button batteries, toy components, crayons, jewelry, and animal bones from fish or chicken. Large food boluses may also become lodged, particularly in younger children who have not yet developed effective mastication and coordinated swallowing. Although most pediatric patients have structurally normal esophagi, the risk of foreign body impaction is increased in the presence of congenital or acquired abnormalities, including eosinophilic esophagitis, a history of esophageal atresia repair, or prior antireflux procedures such as Nissen fundoplication.[8] In contrast to pediatric cases, esophageal foreign body presentations in adults exhibit distinct epidemiologic and etiologic patterns. While accidental ingestion of nonfood objects does occur in adults, the predominant cause of esophageal impaction in this population is food, most commonly meat. The estimated annual incidence of food bolus impaction in adults is approximately 13.0 per 100,000 individuals, underscoring its clinical relevance as a recurrent emergency presentation. Unlike children, in whom anatomy is typically normal, the majority of adult food impactions are associated with underlying esophageal pathology. Epidemiologic data indicate that approximately 80% to 90% of food impactions occur in the distal esophagus, a region frequently affected by structural narrowing or disordered motility [8]. A broad range of anatomic and functional abnormalities has been implicated in adult esophageal impaction. These include diverticula, esophageal webs and rings, benign or malignant strictures, and neoplastic lesions, as well as motility disorders such as eosinophilic esophagitis, achalasia, scleroderma-related esophageal dysfunction, and diffuse esophageal spasm. The presence of such conditions not only predisposes patients to impaction but also increases the likelihood of recurrence if the underlying disorder remains unrecognized or untreated. Consequently, adult patients with a history of food bolus impaction warrant further evaluation of the esophagus, even when symptoms resolve spontaneously. Endoscopic assessment is particularly important to identify and address predisposing lesions, reduce recurrence risk,

and mitigate the potential for complications such as perforation or aspiration [8].

Pathophysiology

The pathophysiology of esophageal foreign body impaction is fundamentally determined by the interaction between the physical characteristics of the ingested object, the intrinsic anatomy and motility of the esophagus, and the presence or absence of underlying structural disease. Under normal conditions, the esophagus contains three principal regions of physiologic narrowing that represent predictable sites of transient arrest for swallowed material. The first is the upper esophageal sphincter (UES), which includes the cricopharyngeus muscle and functions as a high-pressure zone at the entry to the esophagus. The second lies within the mid-esophagus at the level where the esophagus crosses the aortic arch, an external anatomic relationship that may create a relative constriction. The third is the lower esophageal sphincter (LES), which regulates passage into the stomach and may act as a terminal point of luminal resistance. When an ingested object approaches or exceeds the effective diameter of these constrictions, or when peristalsis is ineffective, the object may become lodged, producing partial or complete obstruction. Age-related differences in anatomy, behavior, and disease prevalence influence the typical site of impaction. In children, foreign body entrapment most commonly occurs at the UES, accounting for approximately 74% of cases. This distribution likely reflects the relatively narrow upper esophageal inlet, immature swallowing coordination, and the frequent ingestion of small, smooth objects such as coins that can lodge at the cricopharyngeal level.[9] In adults, by contrast, about 68% of obstructions are localized to the distal esophagus, a pattern closely linked to the higher prevalence of pathologic abnormalities in this region. Structural narrowing from strictures, rings, tumors, or inflammatory remodeling, as well as dysmotility disorders, can reduce luminal caliber and compromise bolus transit, predisposing the distal esophagus to food bolus impaction and foreign body retention.[9]

Once lodged, a foreign body may exert a spectrum of local mechanical and ischemic effects. The immediate consequences typically include mucosal irritation and pressure injury, which can progress from superficial abrasion to deeper lacerations, focal necrosis, and ulceration. Prolonged contact increases the likelihood of inflammation and scarring, and healing may culminate in stricture formation that further predisposes to recurrent obstruction. These local events are not merely incidental; they can initiate a cycle of progressive luminal compromise, recurrent impaction, and escalating procedural needs. Moreover, the esophagus lies in close proximity to critical mediastinal structures, so extension of injury beyond the esophageal wall can produce life-threatening complications. Serious complications arise when mucosal compromise progresses to transmural injury or when the foreign body erodes into adjacent organs. Potential injuries beyond the esophagus include airway obstruction—particularly with proximal impaction—esophageal perforation with leakage into surrounding tissues, and fistula formation between the esophagus and trachea (tracheoesophageal fistula). Vascular injury constitutes one of the most catastrophic events, exemplified by the formation of an aortoesophageal fistula that can precipitate massive hemorrhage. Additional severe sequelae include retropharyngeal abscess, mediastinitis, pericarditis, and vocal cord injury, the latter often related to local trauma or procedural manipulation.[10] The broad range of possible outcomes underscores why even seemingly stable presentations require careful evaluation and why certain high-risk objects demand urgent intervention. Among ingested items, three categories are consistently associated with a disproportionate risk of rapid tissue injury and severe complications: button batteries, multiple magnets, and sharp-pointed objects. Button batteries (also termed “disc” or “coin” batteries) are particularly hazardous when impacted within the esophagus because they generate injury through multiple convergent mechanisms. When lodged, the battery establishes an electrical circuit between its positive and negative poles in the moist esophageal environment. This current can produce thermal injury and, more importantly, drives electrochemical reactions that generate hydroxide ions, causing a rapid rise in local pH and resulting in a caustic alkaline burn. Critically, tissue injury can begin within approximately 15 minutes, and perforation may occur within hours, illustrating the time-dependent lethality of delayed recognition and removal. Initial damage often manifests as focal mucosal necrosis, but longer-term consequences include chronic stricture formation from scarring. More severe outcomes occur when necrosis extends through the esophageal wall, permitting erosion into the mediastinum, the trachea, or adjacent vascular structures.[2][10]

The clinical seriousness of button battery ingestion is further reflected in reported complication rates. Leinwand et al described 13 cases with major adverse outcomes, including perforation in 30.8% of cases, stricture formation in 23.1%, and mortality in 23.1% due to aortoesophageal fistula formation with exsanguination.[2][10] A striking epidemiologic pattern within these severe cases is the concentration of risk in very young children: more than 90% of serious complications occurred in children aged five years or younger. Risk was further amplified when batteries were large (20 mm in diameter or greater) and when impaction persisted for prolonged periods, reinforcing the importance of both object size and dwell time as determinants of tissue injury severity.[2][10] These observations support the clinical principle that suspected esophageal button battery impaction constitutes a true emergency

requiring immediate action to prevent irreversible harm. Magnets represent a second high-risk category, with the danger primarily emerging when more than one magnet is ingested or when a magnet is ingested in combination with another metallic object. A single small, smooth magnet may pass through the gastrointestinal tract without complication. However, multiple magnets can attract each other across loops of bowel or across segments of the gastrointestinal tract, trapping intervening tissue. When tissue is compressed between magnets, sustained pressure results in localized ischemia, which may progress to necrosis. This process can culminate in perforation, fistula formation between adjacent segments, obstruction, or even volvulus, depending on the location and mechanical forces involved.[11] Although many of these complications are classically described in the intestines, the underlying pathophysiologic principle—pressure necrosis from persistent magnetic compression—remains relevant when magnets are retained proximally or when transit is delayed. Sharp-pointed objects lodged in the esophagus comprise the third high-risk group because their geometry predisposes to penetration and perforation. Items such as pins, needles, bones, or other pointed materials may embed in mucosa and resist peristaltic propulsion, transforming routine swallowing forces into repetitive mechanical trauma. Even brief retention can produce laceration, ulceration, and deeper injury, and attempts at passage may worsen penetration. Consequently, sharp esophageal foreign bodies are treated as urgent problems requiring prompt removal to minimize the likelihood of perforation and secondary mediastinal contamination. Taken together, these object-specific mechanisms illustrate that the clinical urgency of esophageal foreign body management is not solely dictated by symptom severity at presentation, but by an understanding of the time-sensitive pathophysiology of tissue injury and the proximity of the esophagus to vital airway and vascular structures.[10]

History and Physical

A thorough history and physical examination form the cornerstone of the initial assessment in patients with suspected ingestion of an esophageal foreign body, as early clinical evaluation directly influences the urgency and direction of management. Several key elements must be systematically explored, including the type and number of ingested objects, their presumed or confirmed location, the elapsed time since ingestion, and the nature and progression of presenting signs and symptoms. Together, these factors assist clinicians in determining whether immediate intervention is required or whether conservative management with observation and follow-up may be safely pursued. Objects with high-risk features, prolonged dwell time, or associated with concerning symptoms warrant a lower threshold for emergent or urgent retrieval. In adults and older children, the history is often informative, as most patients can reliably describe the ingestion event, identify the object involved, and estimate the time of onset. The most frequently reported symptoms in this population are a sensation of a foreign body lodged in the throat or chest and difficulty swallowing, commonly referred to as dysphagia. Symptom onset typically occurs within minutes to hours following ingestion. Patients often localize impactions in the upper esophagus with greater accuracy, describing a discrete sensation at the level of the neck or suprasternal notch. In contrast, foreign bodies lodged in the mid or distal esophagus are more likely to be perceived as nonspecific discomfort, a dull ache, or retrosternal or chest pain, which can occasionally mimic cardiopulmonary pathology [10].

Additional symptoms may further suggest esophageal obstruction or irritation. These include excessive salivation or drooling, a sensation of retrosternal fullness, regurgitation of food or liquids, gagging, choking, hiccups, and retching. The presence of painful swallowing, or odynophagia, is particularly concerning, as it may signal more significant mucosal injury such as laceration, ulceration, or early perforation. During physical examination, affected patients often appear anxious and uncomfortable, especially when attempting to swallow. An important clinical indicator of severity is the patient's ability to manage oral secretions; inability to swallow saliva implies complete esophageal obstruction and constitutes an indication for more urgent intervention due to the increased risk of aspiration and rapid deterioration. Assessment becomes more challenging in populations unable or unwilling to provide a reliable history, including infants, younger children, individuals with cognitive impairment, psychiatric illness, or incarcerated patients. In such cases, clinicians must maintain a high index of suspicion and rely on indirect historical cues or caregiver observations. In infants and young children, symptoms may be subtle or nonspecific and include gagging, poor feeding, drooling, unexplained irritability, or refusal to eat. Because these manifestations overlap with many common pediatric conditions, careful clinical judgment is required to avoid delayed diagnosis. Esophageal foreign bodies may also exert mass effect on adjacent structures, particularly the trachea, leading to respiratory symptoms such as wheezing, cough, dyspnea, or stridor. When such findings are present, it is critical to consider both esophageal and airway foreign bodies in the differential diagnosis, as airway involvement carries immediate life-threatening implications. Consequently, the initial physical examination should prioritize assessment of airway patency and respiratory stability. Evaluation of vital signs, oxygenation, and overall appearance is essential, followed by close observation of the patient's ability to handle secretions without distress. A

comprehensive examination should also include inspection and palpation of the neck, chest, and abdomen to identify signs of complications. Findings such as hematemesis, abnormal or asymmetric breath sounds, localized tenderness, crepitus, or subcutaneous emphysema may indicate mucosal injury, perforation, or mediastinal involvement and necessitate prompt escalation of care. Collectively, meticulous history-taking and focused physical examination allow for early identification of high-risk features, guide appropriate diagnostic testing, and ensure timely intervention in patients with esophageal foreign body ingestion [10][11].

Evaluation

The evaluation of suspected esophageal foreign body ingestion relies on a stepwise integration of clinical findings and targeted imaging studies, with the primary objective of identifying the nature and location of the object, assessing the degree of obstruction, and detecting early or established complications. When ingestion of a radiopaque object is suspected based on history or clinical presentation, plain radiography is typically the initial diagnostic modality. Conventional X-rays provide rapid, widely available, and noninvasive assessment and can yield critical information that guides urgency and choice of intervention. Chest radiographs obtained in posterior–anterior (PA) and lateral projections are usually sufficient for initial evaluation, particularly when the suspected object is located within the thoracic esophagus. Depending on the clinical context and symptom localization, additional imaging of the neck or abdomen may be required to evaluate the full course of the esophagus or to assess distal migration. Radiography can assist in determining not only the presence and anatomical level of the foreign body but also indirect signs of complications such as air trapping, mediastinal widening, or subcutaneous emphysema. The orientation of flat objects on radiographs provides an important diagnostic clue to their location. Objects such as coins, bottle caps, or disc-shaped batteries typically align in the coronal plane when lodged in the esophagus and therefore appear as round, well-circumscribed opacities on the frontal PA view. In contrast, when similar objects are aspirated into the trachea, they tend to orient in the sagittal plane and are more readily visualized as circular densities on the lateral view. This distinction is clinically relevant, as airway foreign bodies demand immediate airway-focused management. When a circular, coin-like density is identified, careful scrutiny is essential to differentiate a benign coin from a button battery. The presence of a characteristic “halo” or “double-ring” sign on radiography is strongly suggestive of a button battery, a finding that necessitates emergent removal due to the high risk of rapid caustic injury to the esophageal mucosa. Chest radiography has been reported to distinguish coins from button batteries with a sensitivity, specificity, and overall diagnostic accuracy of approximately 80%, underscoring its value while also highlighting its limitations [11].

Not all ingested foreign bodies are visible on plain radiographs. Organic materials such as food boluses, plastic, wood, and aluminum are radiolucent and therefore not detected on routine X-rays. Other materials, including bones and glass, demonstrate variable radiopacity and may or may not be visualized depending on size, composition, and imaging quality. Consequently, a normal radiograph does not exclude the presence of an esophageal foreign body. When clinical suspicion remains high despite negative plain films—particularly in patients with persistent symptoms, inability to swallow secretions, or signs suggestive of complications—further diagnostic evaluation is warranted. In such cases, advanced imaging or direct visualization becomes necessary. Computed tomography (CT) has emerged as a highly sensitive modality for detecting esophageal foreign bodies, including radiolucent objects, and provides superior anatomic detail regarding surrounding soft tissues. CT imaging is especially valuable when complications such as perforation, abscess formation, or mediastinal involvement are suspected, as it can delineate extraluminal air, fluid collections, and inflammatory changes. Alternatively, diagnostic endoscopy offers the dual advantage of confirming the diagnosis and enabling immediate therapeutic intervention. Selection between CT and endoscopy should be individualized based on patient stability, symptom severity, object characteristics, and resource availability, with the overarching goal of timely diagnosis and prevention of potentially life-threatening complications [10][11].

Treatment / Management

Management of esophageal foreign body ingestion is primarily determined by the clinical stability of the patient and the anticipated risk of time-dependent injury. When the airway is stable and there is no evidence of evolving complications such as perforation, mediastinitis, or significant hemorrhage, the treatment strategy is guided by four interrelated variables: the type of foreign body, its anatomical location, the degree of luminal obstruction, and the duration of impaction. These parameters inform both the urgency of intervention and the selection of the most appropriate therapeutic modality. In contemporary practice, endoscopic removal is regarded as the procedure of choice because it provides definitive diagnosis and treatment in a single session and offers high success rates while maintaining an acceptable safety profile. Reported outcomes indicate that endoscopic retrieval is successful in more than 90% of cases, with an overall complication rate below 5%, supporting its role as the cornerstone of management in the emergency setting.[12][13][14][15] A clinically useful framework divides endoscopic intervention into emergency, urgent, and nonurgent categories, reflecting the recognition that some objects and circumstances can

precipitate catastrophic injury within minutes to hours, while others permit a short period of observation or delayed retrieval without materially increasing risk.[12][13][14] Emergency endoscopy is indicated when the patient demonstrates esophageal obstruction severe enough to prevent handling of oral secretions, a finding that implies complete obstruction and confers heightened risk of aspiration, airway compromise, and rapid clinical deterioration. Emergency intervention is also mandated for disc (button) batteries lodged in the esophagus, given the well-established propensity for rapid caustic injury and transmural necrosis. Similarly, sharp-pointed objects in the esophagus require emergent retrieval because their geometry predisposes to mucosal penetration and perforation, and repeated peristaltic attempts at propulsion may exacerbate tissue injury [12][13][14].

Urgent endoscopy, typically performed within 12 to 24 hours, is appropriate for esophageal objects that are not sharp-pointed, for food impactions that do not produce complete obstruction, and for select objects that have progressed beyond the esophagus but remain clinically hazardous. This includes sharp-pointed objects in the stomach or duodenum, because despite distal migration they retain an elevated perforation risk and may become fixed at angulations or narrowed segments. Urgent intervention is also recommended for long objects—commonly defined as greater than 6 cm—located above the duodenum, since their length makes spontaneous passage through the pylorus and duodenal sweep less likely and increases the probability of luminal injury. Multiple magnets, or a single magnet ingested together with another ferromagnetic object that is accessible endoscopically, constitute another urgent indication, given the potential for magnetic attraction to trap tissue and produce pressure necrosis and fistula formation. Coins in the esophagus, while often less hazardous than batteries, are typically managed urgently to reduce the risk of prolonged obstruction and mucosal injury, though the approach may vary according to symptoms and timing. Nonurgent endoscopy applies to situations in which the immediate risk of injury is lower and a trial of observation is reasonable. Examples include large blunt objects in the stomach greater than 2.5 cm in diameter, which may not pass the pylorus spontaneously and therefore warrant elective removal if persistence is confirmed. A disc battery in the stomach may be observed for up to 48 hours in an asymptomatic patient, given the reduced risk compared with esophageal impaction, though this requires careful monitoring and clear return precautions. Blunt objects that fail to progress beyond the stomach over three to four weeks also become candidates for endoscopic removal, reflecting the low likelihood of spontaneous passage after prolonged retention and the desire to prevent delayed complications [12][13][14].

Pharmacologic or “medical” approaches have been investigated, largely as adjunctive measures for suspected food bolus impaction or smooth blunt objects, with the aim of facilitating spontaneous passage by relaxing the lower esophageal sphincter. Glucagon is the most frequently discussed agent. It is typically administered intravenously in doses ranging from 0.25 mg to 2 mg over one to two minutes, often with the patient in a seated position, followed shortly thereafter by ingestion of water or a carbonated beverage to promote esophageal distention and sphincter relaxation. Despite this rationale, glucagon is not reliably effective and may induce nausea and vomiting. While emesis can occasionally dislodge an impacted bolus, it can also increase intraluminal pressure and may theoretically raise the risk of esophageal rupture, particularly in the setting of sustained obstruction. Moreover, the evidence base supporting glucagon is limited by methodological weaknesses in available studies, including small sample sizes and restrictive inclusion criteria, resulting in findings that are frequently underpowered, not readily generalizable, and often show minimal or no benefit over placebo.[8][16] Consequently, glucagon may be considered selectively but should not delay endoscopic intervention in patients with high-risk objects, complete obstruction, or significant symptoms. Papain, an enzyme found in meat tenderizers, is specifically not recommended for meat bolus impaction because of potential complications and a theoretical risk of mucosal injury, reinforcing the principle that chemical dissolution strategies are unsafe and should be avoided.

Among all foreign bodies, disc battery impaction in the esophagus represents one of the most time-critical emergencies in gastrointestinal practice and requires immediate removal. The urgency reflects not only the rapidity of tissue damage but also the risk of lethal vascular complications. Of particular concern is the development of an aortoesophageal fistula, an event associated with catastrophic hemorrhage. Risk is highest in children younger than five years, in the setting of large batteries (20 mm or greater), impaction at or near the level of the aortic arch, prolonged duration of impaction, the presence of hematemesis (even if limited), and in situations where diagnosis or removal is delayed. In these higher-risk scenarios, management often exceeds the scope of a single specialty and may require coordinated interprofessional planning. Depending on institutional resources and the patient’s status, this may involve pediatric gastroenterology, pediatric surgery, cardiothoracic surgery, anesthesiology, and radiology, with consideration of removal and contingency planning in an operating room environment or, when vascular injury is suspected, in a cardiac catheterization laboratory where rapid intervention may be feasible. This team-based approach reflects the fact that complications can evolve rapidly and may

require immediate surgical or endovascular management. In contrast, esophageal coins in asymptomatic children can often be managed with urgent rather than emergent intervention, and short-term observation—up to 24 hours—may be appropriate without an increased risk of complications, provided the child remains stable and can manage secretions. The likelihood of spontaneous passage is influenced by coin location within the esophagus. Reported rates indicate that approximately 10% of coins lodged in the proximal esophagus, 26% of those in the mid-esophagus, and 43% of those in the distal esophagus may pass spontaneously within 16 hours of ingestion. These data support a location-informed strategy in selected asymptomatic patients, allowing a brief observation window for distal coins while maintaining readiness for prompt endoscopic removal if symptoms develop, obstruction progresses, or the coin fails to advance. Overall, effective management of esophageal foreign bodies hinges on early recognition of high-risk scenarios, timely deployment of endoscopy, judicious use of pharmacologic adjuncts when appropriate, and escalation to multidisciplinary care when the potential for catastrophic complications is present.[12][13][14][15].

Differential Diagnosis

The evaluation of suspected esophageal foreign body ingestion must account for the possibility that symptoms may persist even after an object has passed, as well as the likelihood that an alternative diagnosis may be responsible when imaging fails to demonstrate an intraluminal foreign body. One common and clinically important explanation is esophageal mucosal abrasion. Minor trauma incurred during passage of a foreign object can produce lingering discomfort and a persistent foreign body sensation, even though no retained material remains. In such cases, management should be guided by physiologic stability and swallowing function. If the patient is clinically stable and tolerating oral intake, a reasonable approach is reassessment within 12 to 24 hours, as symptoms often diminish with time. However, persistence of symptoms beyond this period should prompt further investigation, particularly when pain is significant, swallowing is impaired, or risk factors for complications exist. In these circumstances, cross-sectional imaging with CT or direct visualization with endoscopy may be required to exclude retained foreign material, mucosal laceration, or occult perforation. When no retained object is identified, clinicians should broaden the differential to include conditions that mimic the sensation of an esophageal foreign body. Infectious esophagitis is an important consideration, particularly in immunocompromised patients or those with predisposing factors such as corticosteroid use. Pathogens such as Candida species, herpes simplex virus, and cytomegalovirus can cause odynophagia, dysphagia, retrosternal discomfort, and a subjective sensation of obstruction. Similarly, inflammatory causes of esophagitis frequently reproduce foreign body-type symptoms. Gastroesophageal reflux–related esophagitis may present with burning chest discomfort and dysphagia, while pill-induced esophagitis can cause acute localized pain and difficulty swallowing, often temporally linked to medication ingestion with inadequate water or recumbency. Eosinophilic esophagitis is particularly relevant in the emergency setting because it is strongly associated with food bolus impaction, may present with intermittent dysphagia, and can produce persistent symptoms even after bolus passage due to ongoing mucosal inflammation and edema [15][16]. Esophageal motility disorders also merit consideration. Esophageal spasm can generate intermittent chest pain, dysphagia, and a sense of food "sticking," mimicking obstruction despite the absence of a discrete foreign body. Additionally, globus pharyngeus—historically termed globus hystericus—describes a sensation of a lump or foreign body in the throat without an identifiable structural lesion, often fluctuating with stress or throat clearing and typically unrelated to true esophageal obstruction. In these non–foreign body conditions, management again depends on stability: if the patient tolerates oral intake and has no alarm signs, clinicians should initiate therapy directed at the suspected underlying cause and arrange appropriate outpatient follow-up, while maintaining a low threshold for escalation when symptoms persist, worsen, or suggest complications [15].

Prognosis

The overall prognosis following ingestion of a foreign body is favorable, largely because the majority of ingested objects traverse the gastrointestinal tract without invasive intervention. Approximately 80% to 90% of ingested foreign bodies pass spontaneously within three to seven days, particularly when the objects are small, blunt, and have progressed beyond the esophagus.[1] Nonetheless, prognosis is not uniform across all scenarios and varies substantially by object type, location, patient age, and the presence of underlying esophageal disease. The most clinically consequential exceptions involve high-risk ingestions, particularly disc (button) batteries and recurrent or persistent food bolus impactions. Children who sustain esophageal injury from disc batteries require both short- and long-term follow-up because clinically significant complications may evolve even after removal. Caustic injury can progress over time, and delayed consequences include erosion, perforation, tracheoesophageal fistula formation, and esophageal stricture. Surveillance is therefore essential to detect evolving dysphagia, feeding intolerance, respiratory symptoms, or signs of late structural compromise, and to intervene promptly if complications develop. This follow-up requirement distinguishes battery injury from most other pediatric foreign body events, in which resolution is often complete once the object is removed or passed. In

adults, food bolus impaction carries a different prognostic implication: it frequently indicates underlying esophageal pathology. Abnormalities are present in approximately 85% to 90% of adult cases, including inflammatory stricturing conditions, rings, strictures, or motility disorders, and without definitive evaluation and management of these etiologies, recurrence risk remains substantial.[8][9] Consequently, while the acute outcome after endoscopic disimpaction is usually excellent, long-term prognosis depends on identifying and treating the predisposing disorder. Appropriate follow-up evaluation is therefore prognostically meaningful, reducing future impactions and limiting cumulative risks associated with repeated obstruction, aspiration, or procedural interventions.

Enhancing Healthcare Team Outcomes

Optimal management of esophageal foreign bodies depends on coordinated interprofessional care that begins at the point of entry into the emergency system and continues through diagnosis, intervention, discharge planning, and prevention counseling. Most patients initially present to the emergency department, making triage the first critical step. Triage nurses must recognize clinical patterns suggestive of esophageal obstruction—such as drooling, inability to swallow secretions, stridor, or significant dysphagia—and ensure prompt prioritization and escalation. Because deterioration can occur rapidly in complete obstruction or high-risk ingestions, these patients often require immediate admission and time-sensitive evaluation. During the diagnostic workup, emergency department nurses play a central role in patient safety through continuous monitoring for respiratory distress, evolving airway compromise, and hemodynamic instability. In pediatric cases, nursing communication is also essential for maintaining caregiver understanding and cooperation, particularly when children are distressed and when urgent intervention is anticipated. Once a suspected foreign body is identified, early consultation with the appropriate specialist is strongly recommended, commonly involving gastroenterology, otolaryngology, anesthesia, radiology, and in selected high-risk cases, surgical teams. Although most esophageal foreign bodies pass spontaneously, a clinically important minority—approximately 3% to 10%—requires active intervention, ranging from endoscopic retrieval to operative management when perforation or inaccessible objects are present. Ensuring that the correct team is mobilized early reduces delays, limits complications, and improves outcomes. Interprofessional responsibilities extend to discharge planning and prevention. Before discharge, clinicians and nurses share the obligation to educate patients and caregivers, particularly in pediatric contexts, about maintaining a safe environment by keeping small objects out of children's reach. Caregivers should also be instructed on warning signs suggestive of esophageal foreign body ingestion, including drooling, persistent vomiting, refusal to eat, unexplained cough, and acute dysphagia, as well as when to seek urgent medical attention. Clear return precautions are vital because delayed complications can occur, especially after high-risk ingestions or mucosal injury. Through structured collaboration—spanning triage recognition, vigilant monitoring, timely specialist involvement, appropriate procedural intervention, and prevention-focused counseling—the morbidity associated with esophageal foreign bodies can be minimized. With such coordinated care, outcomes for most patients are excellent.[17][18]

Conclusion:

In conclusion, esophageal foreign body impaction presents a clinical challenge where management urgency is critically informed by object type and patient status. A thorough history and physical exam, supplemented by targeted imaging, are fundamental. While many ingestions have a benign course, high-risk objects—particularly esophageal button batteries, sharp-pointed items, and multiple magnets—demand immediate intervention due to their potential for rapid, catastrophic tissue injury and complications. Endoscopic retrieval remains the definitive therapeutic procedure, with clear guidelines stratifying intervention into emergency, urgent, and non-urgent categories based on risk assessment. It is imperative to recognize that food bolus impaction in adults is frequently a symptom of underlying esophageal pathology, warranting subsequent investigation to prevent recurrence. Conversely, pediatric cases often occur in anatomically normal esophagi but require vigilant caregiver education for prevention. Ultimately, optimizing outcomes hinges on an efficient, interprofessional team approach. This encompasses accurate triage, vigilant nursing monitoring, timely specialist consultation, and effective discharge planning with preventative counseling. Through this coordinated effort, the significant morbidity associated with complex esophageal foreign bodies can be effectively mitigated, ensuring favorable prognoses for the majority of patients.

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