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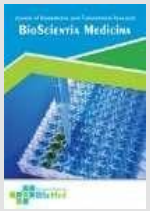

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Rigid Esophagoscopy for an Impacted Kaffir Lime in the Proximal Esophagus: A Case Report and Discussion of a Unique Mechanical-Chemical Injury

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A B S T R A C T

Background: Esophageal food bolus impaction is a common otolaryngological emergency. However, impaction by a large, whole citrus fruit is exceedingly rare and presents unique diagnostic and therapeutic challenges, particularly concerning the object's size, radiolucency, and potential for causing both mechanical and chemical mucosal injury. **Case presentation:** We present the case of a 42-year-old male with acute-onset dysphagia and hypersalivation after ingesting a whole kaffir lime. Laryngoscopy revealed pooled secretions in the pyriform sinus, a key indicator of high esophageal obstruction, despite non-contributory plain radiography. The patient underwent emergent rigid esophagoscopy under general anesthesia. A 36 mm kaffir lime was identified at 15 cm from the incisors and successfully extracted *en bloc* using alligator grasping forceps. Post-extraction evaluation revealed localized mucosal excoriation without evidence of deep laceration or perforation. The patient recovered fully with no long-term sequelae. **Conclusion:** This case highlights the successful management of a rare and challenging esophageal foreign body. It underscores the diagnostic primacy of clinical findings over negative radiography for radiolucent objects and demonstrates the distinct advantages of rigid esophagoscopy—superior airway control, a wider operating channel, and use of robust instrumentation—for large, solid foreign bodies lodged in the proximal esophagus. In this instance, the impaction did not lead to severe complications within 24 hours, but prompt removal is essential to mitigate the risks of pressure necrosis and chemical esophagitis.

1. Introduction

Esophageal foreign body (FB) ingestion and food bolus impaction represent a significant portion of emergencies managed by otolaryngologists and gastroenterologists worldwide.[1] While the incidence is highest in the pediatric population, esophageal FBs in adults present a distinct set of challenges, often occurring secondary to an underlying esophageal pathology such as a stricture, ring, or motility disorder. In the absence of such pathology, impaction is typically caused by inadequately masticated food, particularly meat boluses. The annual mortality rate from foreign body-related incidents in the United States is estimated at 1,500, underscoring the potential severity of this condition.[2]

The esophagus possesses three areas of natural anatomical narrowing that are common sites for FB impaction: the cricopharyngeal sphincter (upper esophageal sphincter, UES), the point where the esophagus is crossed by the aortic arch and left mainstem bronchus, and the gastroesophageal junction (lower esophageal sphincter, LES).[3] The cricopharyngeus, located approximately 15 cm from the upper incisors, is the narrowest point of the entire gastrointestinal tract, with a resting diameter of only 14-15 mm, making it the most frequent site for impaction.[4]

Diagnosis relies on a combination of clinical history and imaging. The classic presentation includes acute-onset dysphagia, odynophagia, and an inability to manage oral secretions, leading to drooling or hypersalivation.[5] While plain radiography is a useful initial step, particularly for radiopaque objects like bones or metallic items, its utility is severely limited for radiolucent materials such as food, plastic, or wood, with false-negative rates reported to be as high as 47%.[6] Therefore, a high index of clinical suspicion must be maintained even in the face of normal radiographs.

Management of esophageal FBs is dictated by the object's nature, location, and the patient's clinical stability.[7] While 80-90% of ingested FBs pass spontaneously, those that become impacted in the esophagus require endoscopic intervention to prevent complications such as pressure necrosis, mucosal erosion, perforation, mediastinitis, or fistula formation.[8] The choice between flexible and rigid esophagoscopy is a subject of ongoing discussion, with gastroenterologists primarily favoring the former and otolaryngologists often preferring the latter, especially for objects in the proximal esophagus, due to superior airway control and instrumentation capabilities.[9]

Impaction by a large, whole fruit is a rare event, with only sporadic reports in the literature, such as the case of a mango seed. To our knowledge, there have been no previous reports documenting the impaction of a whole kaffir lime (Citrus hystrix). This object presents a unique challenge due to its large size, spherical shape, acidic nature, and the chemical composition of its peel.[10]

The aim of this report is to present the successful diagnosis and management of an impacted whole kaffir lime in the proximal esophagus. The novelty of this case lies in detailing the application of rigid esophagoscopy for this unique object and providing a comprehensive discussion of the dual mechanical-pressor and chemical-irritant pathophysiology of injury, offering valuable insights for clinicians facing similar rare presentations.

2. Case Presentation

A 42-year-old male presented to the emergency department of Dr. M. Djamil General Hospital Padang, with the chief complaint of acute difficulty in swallowing (dysphagia) for approximately 24 hours. The patient reported that he was drinking a traditional herbal tea when he accidentally swallowed a whole kaffir lime that was being used as an infusion ingredient. Immediately following the event, he felt a sensation of something being "stuck" in his throat and was subsequently unable to swallow any solids or liquids, including his own saliva, which resulted in significant drooling. He denied any odynophagia, chest pain, shortness of breath, or changes in his voice. There was no history of choking, coughing, or cyanosis at the time of ingestion. The patient's past medical history was unremarkable. He had no prior history of dysphagia, gastroesophageal reflux disease (GERD), eosinophilic esophagitis, esophageal strictures, or known motility disorders. His surgical history was non-contributory. He was a non-smoker and consumed alcohol only on rare social occasions (Table 1).

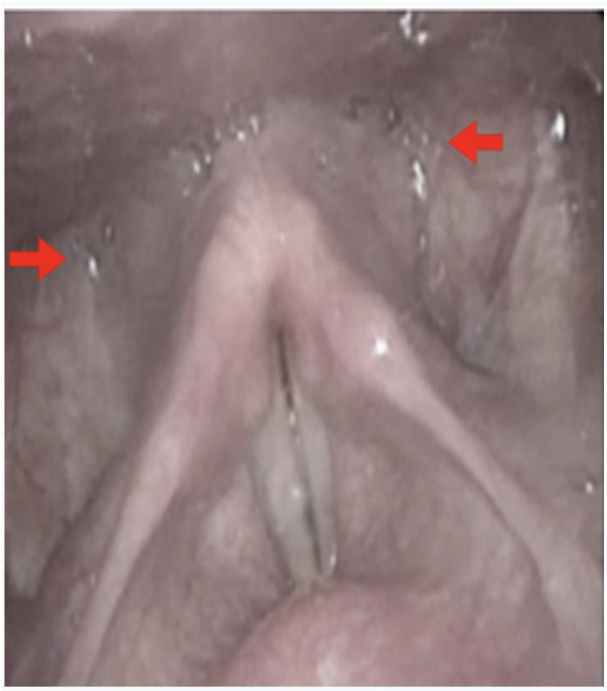
On initial physical examination, the patient was alert, cooperative, and in no acute distress. His vital signs were stable: blood pressure was 117/82 mmHg, heart rate was 82 beats per minute, respiratory rate was 18 breaths per minute, and his temperature was 36.8°C. A comprehensive head and neck examination revealed no cervical swelling, tenderness, or palpable subcutaneous emphysema. The trachea was midline, and cranial nerve function was intact. The oral cavity and oropharynx were normal. An indirect laryngoscopy performed with a flexible nasopharyngoscope revealed normal anatomy of the epiglottis and arytenoids with symmetric vocal cord movement. Critically, there was a significant pooling of secretions in the left pyriform sinus (Figure 1), a hallmark sign of high esophageal obstruction.

Routine laboratory examinations were conducted (Table 2). The complete blood count showed a mild leukocytosis with a white blood cell count of 12,950/mm^3 (normal range 4,500-11,000/mm^3) with

a neutrophilic predominance, suggestive of an early inflammatory response. Hemoglobin, hematocrit, and platelet counts were normal at 15.8 g/dL, 47%, and 212,000/mm³, respectively. Serum electrolytes, including sodium, potassium, and chloride, as well as renal function tests (ureum and creatinine), were all within normal limits. A C-reactive protein (CRP) level was slightly elevated at 12 mg/L (normal <5 mg/L). A coagulation profile (Prothrombin Time, Activated Partial Thromboplastin Time, and INR) was obtained as part of the preoperative workup and was unremarkable.

Table 1. Summary of clinical findings on admission.

PARAMETER	FINDING / RESULT	COMMENTARY
I. Patient Demographics		
Age	42 years	Adult Male
Sex	Male	--
II. Clinical History		
Chief Complaint	**Acute Dysphagia (Difficulty Swallowing)**	Primary symptom indicating obstruction.
History of Present Illness	Accidental ingestion of a whole kaffir lime while drinking tea. Sensation of object "stuck" in throat.	Duration: ~24 hours.
Associated Symptoms	Complete aphagia, significant drooling (hypersalivation).	No odynophagia, chest pain, or dyspnea.
Past Medical History	Unremarkable	No prior esophageal disorders.
III. Physical Examination		
Vital Signs	BP: 117/82, HR: 82, RR: 18, Temp: 36.8°C	**Stable**
Laryngoscopy Finding	**Significant pooling of secretions in the left pyriform sinus.**	**Pathognomonic for high esophageal obstruction.**
Head & Neck Exam	No cervical swelling, tenderness, or subcutaneous emphysema.	No external signs of perforation.
IV. Diagnostic Workup		
WBC Count	**12,950 /mm³**	Range: 4.5-11k (Mild Leukocytosis)
C-Reactive Protein (CRP)	**12 mg/L**	Range: < 5 (Slightly Elevated)
Hemoglobin / Hematocrit	15.8 g/dL / 47%	Normal
Radiography (Neck/Chest)	Negative for radiopaque FB or perforation.	Expected for radiolucent object.
V. Admission Diagnosis & Plan		
Working Diagnosis	**Foreign Body Impaction, Proximal Esophagus**	Based on clinical findings.
ASA Status	**ASA I**	Cleared for surgery.
Initial Plan	NPO, IV fluids, emergent rigid esophagoscopy.	Standard of care.



Notes and Interpretation

1. Anatomical Landmarks Visible

- **Normal Epiglottis & Arytenoids:** Structures appear anatomically normal without edema or erythema.
- **Symmetric Vocal Cords:** Both true vocal cords are visible and demonstrate normal mobility and appearance.
- **Patent Airway:** The rima glottis (airway opening) is clear and unobstructed.

2. Key Pathological Finding

- **Pooling of Secretions:** A significant collection of saliva (red arrows) is observed in the left pyriform sinus. This saliva appears clear and frothy.

3. Clinical Interpretation & Significance

The pooling of secretions in the pyriform sinus is a highly specific and critical sign known as the **"Chevalier Jackson sign"**.

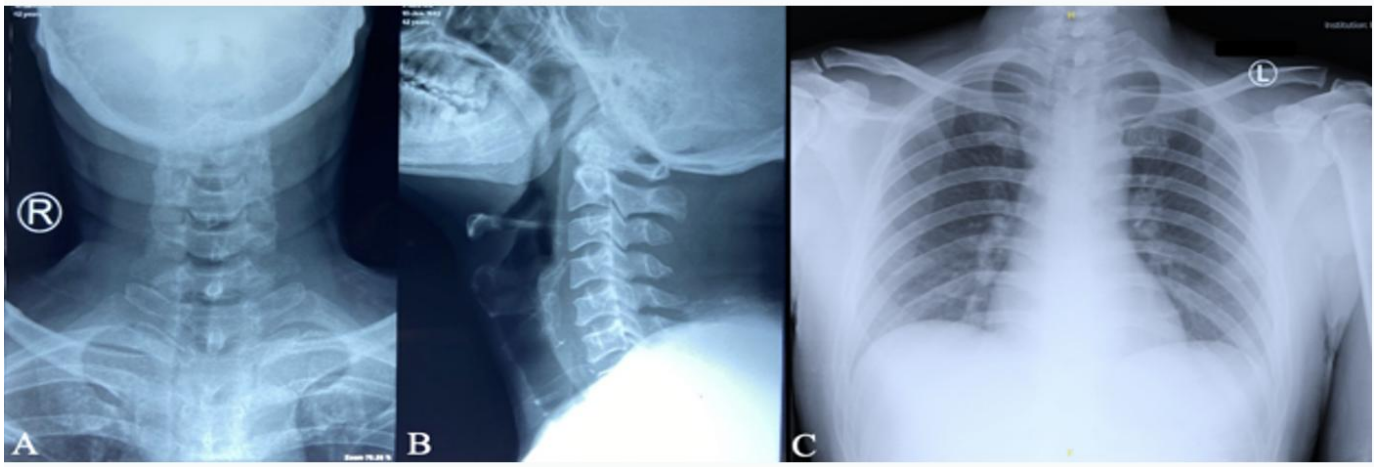
- **Indication of Obstruction:** This finding indicates that swallowed saliva cannot pass distally into the esophagus, strongly suggesting a high-grade or complete obstruction at or just below the esophageal inlet.
- **Diagnostic Importance:** In the context of a patient with acute dysphagia and negative X-rays, this single endoscopic finding is sufficient to confirm the diagnosis of esophageal impaction and mandate urgent therapeutic intervention. It elevates the clinical urgency and justifies proceeding directly to esophagoscopy.

Figure 1. Indirect laryngoscopy finding.

Table 2. Diagnostic workup and preoperative management.

COMPONENT	RESULT / FINDING	CLINICAL SIGNIFICANCE / COMMENTARY
I. Laboratory Examinations		
WBC Count	12,950 /mm³ (Neutrophilic Predominance)	Suggests early inflammatory response to mucosal injury/stress.
C-Reactive Protein (CRP)	12 mg/L	Corroborates systemic inflammation due to tissue irritation.
Coagulation Profile (PT, aPTT, INR)	Unremarkable	Normal hemostasis; low risk for procedural bleeding.
Renal & Electrolyte Panel	Within Normal Limits	Indicates adequate hydration and baseline renal function.
II. Imaging Studies		
Modality	Anteroposterior (AP) and Lateral Plain Radiographs of Neck and Chest	Standard initial imaging for suspected FB.
Key Findings	• No radiopaque foreign body identified. • No prevertebral soft tissue swelling. • No subcutaneous emphysema or pneumomediastinum.	Confirms the radiolucent nature of the object and effectively rules out perforation.
III. Preoperative Consultations		
Internal Medicine	Cleared for Surgery	Patient deemed medically stable for the procedure.
Anesthesiology	Cleared for General Anesthesia (ASA Class I)	Assessed as a normal healthy patient with low anesthetic risk.
IV. Final Diagnosis & Management Plan		
Working Diagnosis	**Foreign Body Impaction, Proximal Esophagus**	Diagnosis confirmed based on clinical history and laryngoscopy, despite negative imaging.
Management Plan	• Maintain Nil Per Os (NPO) status. • Initiate Intravenous (IV) hydration. • Proceed with **Emergent Diagnostic & Therapeutic Rigid Esophagoscopy**.	Definitive treatment to remove the obstruction and prevent complications.

To rule out radiopaque foreign bodies and assess for complications such as perforation, anteroposterior and lateral view plain radiographs of the neck and chest were performed (Figure 2). These images showed no evidence of a radiopaque foreign body, prevertebral soft tissue swelling, or abnormal air collections such as pneumomediastinum or subcutaneous emphysema. The cardiac and pulmonary silhouettes were normal.



Notes and Interpretation

RADIOGRAPHIC VIEW	SYSTEMATIC EVALUATION CHECKLIST	FINDING & CLINICAL SIGNIFICANCE
A: AP Cervical	Bony Alignment	**NORMAL.** Cervical vertebrae are in proper alignment, with no evidence of fracture or dislocation.
B: Lateral Cervical	Radiopaque FB Prevertebral Soft Tissue Airway Column	**NEGATIVE.** No abnormal density seen. This is the expected finding for a radiolucent object like a lime. **NORMAL.** No widening of the prevertebral space. This is a crucial negative finding, as widening would suggest inflammation, abscess, or hematoma, indicating a possible perforation. **NORMAL.** The tracheal air column is patent and undeviated.
C: Chest X-ray	Mediastinum Lungs & Pleura Cardiac Silhouette	**NEGATIVE.** No widening of the mediastinum or evidence of pneumomediastinum (free air). This is the most important finding on chest X-ray, as it rules out esophageal rupture. **NORMAL.** Lungs are clear with no infiltrates, effusion, or pneumothorax. **NORMAL.** The heart size and contour are within normal limits.

Overall Radiological Impression

The complete set of radiographs is **negative for any direct or indirect signs of an esophageal foreign body or its complications**. This is an expected result for a radiolucent organic object. The primary value of these studies is their ability to confidently rule out life-threatening complications like perforation, thereby allowing the clinical team to proceed with endoscopy based solely on the compelling clinical findings.

Figure 2. Radiographic examination. (A) anteroposterior cervical X-ray; (B) lateral cervical X-ray; (C) chest X-ray.

Based on the definitive clinical history and the pathognomonic finding of pooled secretions on laryngoscopy, a working diagnosis of a foreign body impaction in the proximal esophagus was made. The patient estimated the size of the kaffir lime to be approximately 3 cm in diameter. He was kept nil per os (NPO), and intravenous hydration was initiated with Ringer's Lactate solution. Consultations were made with the Departments of Internal Medicine and Anesthesiology, who cleared the patient for surgery

under general anesthesia with an American Society of Anesthesiologists (ASA) physical status classification of I.

The patient was taken to the operating theater for an emergent diagnostic and therapeutic rigid esophagoscopy. After induction of general endotracheal anesthesia, the patient was placed in the supine position with a shoulder roll to facilitate neck extension (Boyce-Jackson position) (Table 3). A 12x16, 30 cm rigid esophagoscope (Jesberg type) was carefully introduced into the oral cavity. The instrument was advanced posterior to the tongue under direct vision, identifying the epiglottis and arytenoids. The tip of the esophagoscope was used to gently lift the cricoid cartilage anteriorly to expose the esophageal inlet. Upon entry, a large volume of pooled saliva was encountered and immediately suctioned, revealing the superior pole of a greenish-yellow, firm, spherical object completely obstructing the esophageal lumen at approximately 15 cm from the upper incisors (Figure 3 A&B).

Table 3. Operative procedure details.

PHASE / STEP	DESCRIPTION	RATIONALE / COMMENTARY
I. Anesthesia and Positioning		
Anesthesia	General Endotracheal Anesthesia	**Essential** for airway protection and patient comfort.
Positioning	Supine with shoulder roll (Boyce-Jackson position)	Optimizes alignment of oral, pharyngeal, and esophageal axes for scope insertion.
II. Endoscopic Procedure		
Instrumentation	12×16, 30 cm Rigid Esophagoscope (Jesberg type)	Provides a wide, stable channel for visualization and tool passage.
Scope Insertion	Advanced under direct vision; tip used to lift cricoid cartilage to expose esophageal inlet.	Standard technique to avoid iatrogenic injury to surrounding structures.
Initial Finding	Large volume of pooled saliva suctioned, revealing a **greenish-yellow, firm, spherical object**.	Confirms the clinical diagnosis of high-grade obstruction.
Location of FB	**~15 cm from upper incisors**	Corresponds to the cricopharyngeal sphincter, the narrowest point of the GI tract.
III. Foreign Body Extraction		
Retrieval Tool	Holinger-type Alligator Grasping Forceps	Chosen for its robust grip, suitable for the object's rough surface.
Extraction Technique	Secure purchase obtained on peel; steady, coaxial traction applied. Object withdrawn into scope tip and removed **en bloc**.	Protects airway and mucosa from trauma during removal.
Outcome	**Successful Extraction**	Foreign body removed intact without fragmentation.
IV. Post-Extraction Evaluation		
Mucosal Injury	2 cm circumferential area of mucosal erythema and superficial excoriation at the impaction site.	Consistent with pressure and chemical irritation; no deep injury.
Distal Esophagus	Scope advanced to 40 cm (GE junction); no other abnormalities noted.	Rules out underlying distal pathology (stricture, ring).
Final Operative Finding	**Whole Kaffir Lime, measuring 36 mm in diameter.**	Confirms identity and size of the foreign body.

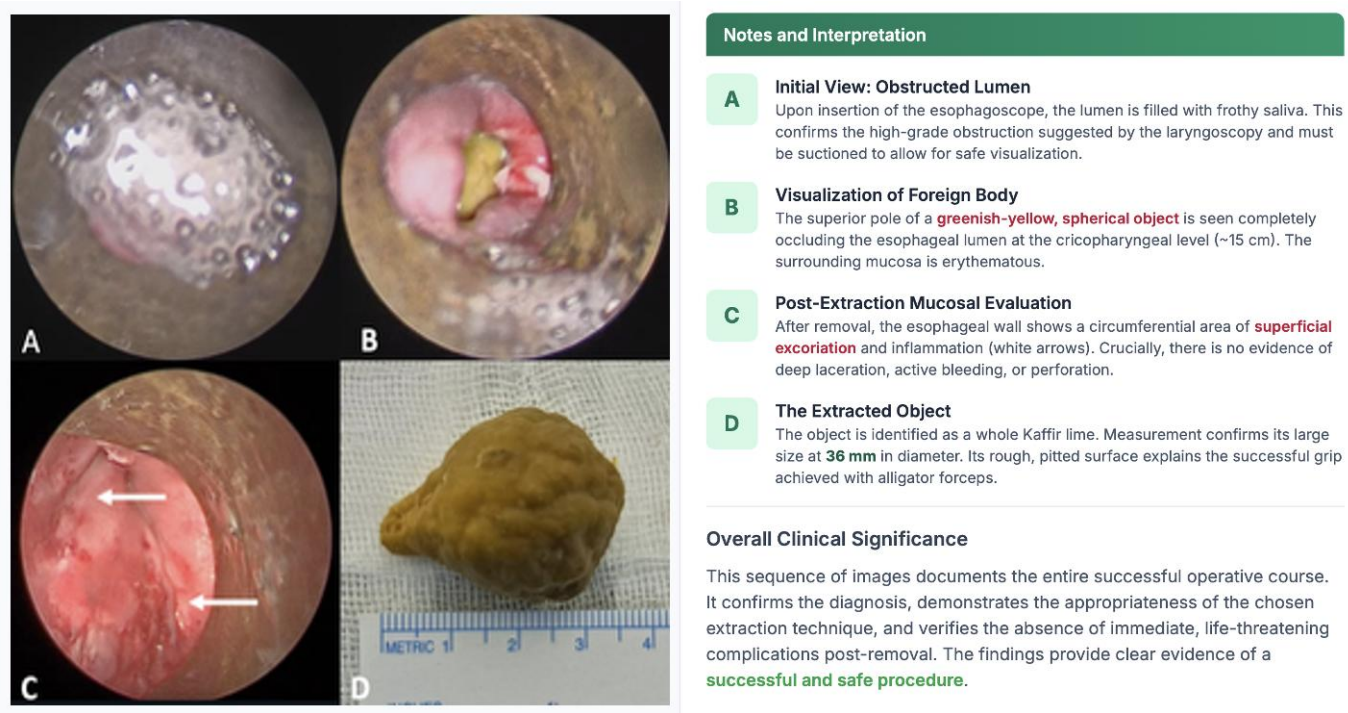


Figure 3. Foreign body a kaffir lime after extraction.

Robust Holinger-type alligator grasping forceps were introduced through the working channel of the esophagoscope. A secure purchase was obtained on the object's rough, pitted peel. Gentle, steady, coaxial traction was applied, and the foreign body was carefully withdrawn into the distal lumen of the esophagoscope. The esophagoscope, with the object secured within its tip, was then removed *en bloc* from the patient. This technique protects the airway and surrounding structures from trauma or dislodgement during extraction. The foreign body was confirmed to be a whole kaffir lime, measuring 36 mm in its largest diameter (Figure 3D).

Following the successful extraction, the rigid esophagoscope was reinserted to evaluate the esophageal mucosa. At the site of impaction (15 cm from the incisors), a 2 cm circumferential area of mucosal erythema and superficial excoriation was noted (Figure 3C). There was no evidence of deep laceration, active bleeding, or signs suggestive of a full-thickness tear. The esophagoscope was advanced to the gastroesophageal junction at 40 cm, revealing no other abnormalities. The scope was then slowly and carefully withdrawn.

The patient was extubated in the operating room and transferred to the post-anesthesia care unit in stable condition. He was admitted to the ENT ward for observation and started on a regimen of intravenous fluids, ampicillin-sulbactam (4x 1.5g), dexamethasone (3x 5mg) to reduce mucosal edema, ketorolac for analgesia, and ranitidine as a proton-pump inhibitor. Within 24 hours of the procedure, the patient's difficulty in swallowing had completely resolved. He was able to tolerate a clear liquid diet without any issues. There were no complaints of chest pain or shortness of breath, and physical examination revealed no signs of cervical crepitus or respiratory compromise. He was discharged home on postoperative day two with a course of oral antibiotics (Cefixime 2x 200mg), a proton-pump inhibitor (Lansoprazole 30mg daily), and analgesics (Ibuprofen 3x 400mg) as needed. The patient was seen for follow-

up at the ENT outpatient clinic eight days after the procedure. He was completely asymptomatic and had returned to his regular diet. A follow-up indirect laryngoscopy showed a complete resolution of the pooled secretions in the pyriform sinus, with normal mucosal appearance and function. No further therapy was required.

Table 4. Postoperative course and follow-up.

Patient Recovery

TIMELINE / PHASE	MANAGEMENT / FINDING	RATIONALE / OUTCOME
I. Immediate Postoperative Period (Day 0-1)		
Patient Status	Extubated in OR, transferred to ward. Vitals stable.	Routine recovery; monitored for bleeding or respiratory distress.
Diet	Started on clear liquid diet within 24 hours.	Patient tolerated diet well, confirming resolution of dysphagia.
IV Medications	• Ampicillin-Sulbactam: Prophylactic antibiotic. • Dexamethasone: Anti-inflammatory for edema. • Ketorolac: Non-opioid analgesia. • Ranitidine: Acid suppression for mucosal healing.	Multimodal therapy to prevent infection, reduce swelling, and manage pain.
II. In-Hospital Recovery (Day 2)		
Clinical Progress	Complete resolution of symptoms. No complaints of pain or dysphagia.	Rapid clinical improvement indicating successful intervention.
Physical Exam	No cervical crepitus, chest clear on auscultation.	Confirms absence of delayed perforation or aspiration pneumonia.
Discharge Plan	Discharged home on Postoperative Day 2.	Patient met all criteria for safe discharge.
Discharge Medications	Oral Cefixime, Lansoprazole, and Ibuprofen.	Transition to oral medications to complete treatment course.
III. Outpatient Follow-up (Day 8)		
Patient Status	Completely asymptomatic. Tolerating a regular diet without issues.	Indicates full functional recovery.
Laryngoscopy Finding	Complete resolution of pooled secretions in the pyriform sinus. Normal mucosal appearance.	Objective evidence of resolved obstruction and healed mucosa.
Final Outcome	Full Recovery with no short-term or long-term sequelae.	Successful management with an excellent clinical outcome.
Final Plan	No further therapy or follow-up required. Discharged from care.	Patient considered fully recovered.

3. Discussion

This case report details the successful management of an exceedingly rare esophageal foreign body—an impacted whole kaffir lime. The presentation and management highlight several key principles and learning points relevant to otolaryngological practice, particularly concerning diagnostics, management strategy, instrumentation, and the unique pathophysiology of injury caused by such an object. A critical teaching point from this case is the paramount importance of clinical evaluation in the diagnosis of esophageal foreign bodies.[11] The patient presented with a classic triad of symptoms: acute aphagia, dysphagia, and hypersalivation. The most definitive

objective finding was the pooling of secretions in the pyriform sinus, visualized during laryngoscopy.[12] This sign is virtually pathognomonic for a high-grade obstruction in the cervical esophagus, as it demonstrates a mechanical inability for swallowed saliva to pass beyond the pharyngo-esophageal segment.

In contrast, the plain radiographs of the neck and chest were entirely negative. This is unsurprising, given that organic materials like lime are radiolucent and do not show up on X-rays. Radiography's main role in such cases is not to identify the object itself but to search for signs of complications, such as air in the mediastinum (pneumomediastinum) or prevertebral soft tissue swelling, which would indicate perforation.[13] The absence of these findings was reassuring but did not lower the high clinical suspicion of an impacted FB. This case strongly reinforces the principle that clinical history and direct visualization of the pharynx are superior to plain radiography in diagnosing radiolucent esophageal foreign bodies and should guide the decision to proceed with endoscopy.[14]

The choice between rigid and flexible esophagoscopy for FB removal is a well-established topic of discussion. While flexible endoscopy is highly effective for many FBs, particularly in the mid and distal esophagus, rigid esophagoscopy offers distinct, undeniable advantages in cases like this one, involving a large, solid object lodged in the proximal esophagus (Figure 4). Airway protection is the foremost advantage. Rigid esophagoscopy is performed under general anesthesia with a secured endotracheal tube.[15] This completely protects the airway from aspiration of saliva or particulate matter and prevents airway compromise should the FB become dislodged into the hypopharynx during manipulation. The rigid esophagoscope provides a much wider and non-collapsible lumen compared to its flexible counterpart. This allows for the use of larger, more robust grasping instruments, which are essential for securing and extracting a large, firm object like a 36 mm lime.[16]

For foreign bodies located at the cricopharyngeal inlet, the rigid scope provides direct, in-line access and control. It allows the surgeon to use the scope itself to manipulate the surrounding tissue and to apply controlled, direct traction on the object, which is often more difficult with the retroflexed view and less direct force application of a flexible scope in this anatomical region.[17] Given the object's size, solid nature, and proximal location, the choice of rigid esophagoscopy was not merely a matter of specialty preference but represented the safest and most effective management strategy for this specific clinical scenario.

Standard endoscopic guidelines often recommend the use of a retrieval net or basket for smooth, round, or spherical objects to prevent slippage and ensure secure encasement during extraction. It is therefore noteworthy that standard alligator forceps were successful in this case. This success can be attributed to the unique physical properties of the kaffir lime. Unlike a smooth object like a grape or a hard candy, the kaffir lime has a characteristically rough, pitted, and uneven peel.[18] This textured surface provided an excellent purchase point for the serrated jaws of the alligator forceps, allowing for a secure grip without slippage. Furthermore, the lime was firm enough to resist fragmentation under the pressure of the forceps. This case serves as a practical clinical pearl: the choice of retrieval tool should not be based solely on the object's general shape (spherical) but must also consider its surface texture and consistency.

A perplexing question is how a 36 mm object passed through the cricopharyngeal sphincter, which has a luminal diameter of approximately 15 mm. The esophagus is a highly distensible organ, capable of stretching to accommodate a food bolus, but this degree of passage is remarkable.[19] It likely resulted from a combination of factors: a moment of incomplete mastication, a forceful swallow, and a transient, profound relaxation of the cricopharyngeus muscle that occurs at the initiation of the swallowing reflex. It is also plausible that the patient may have an underlying, subclinical laxity of the UES, although he had no prior symptoms to suggest this.

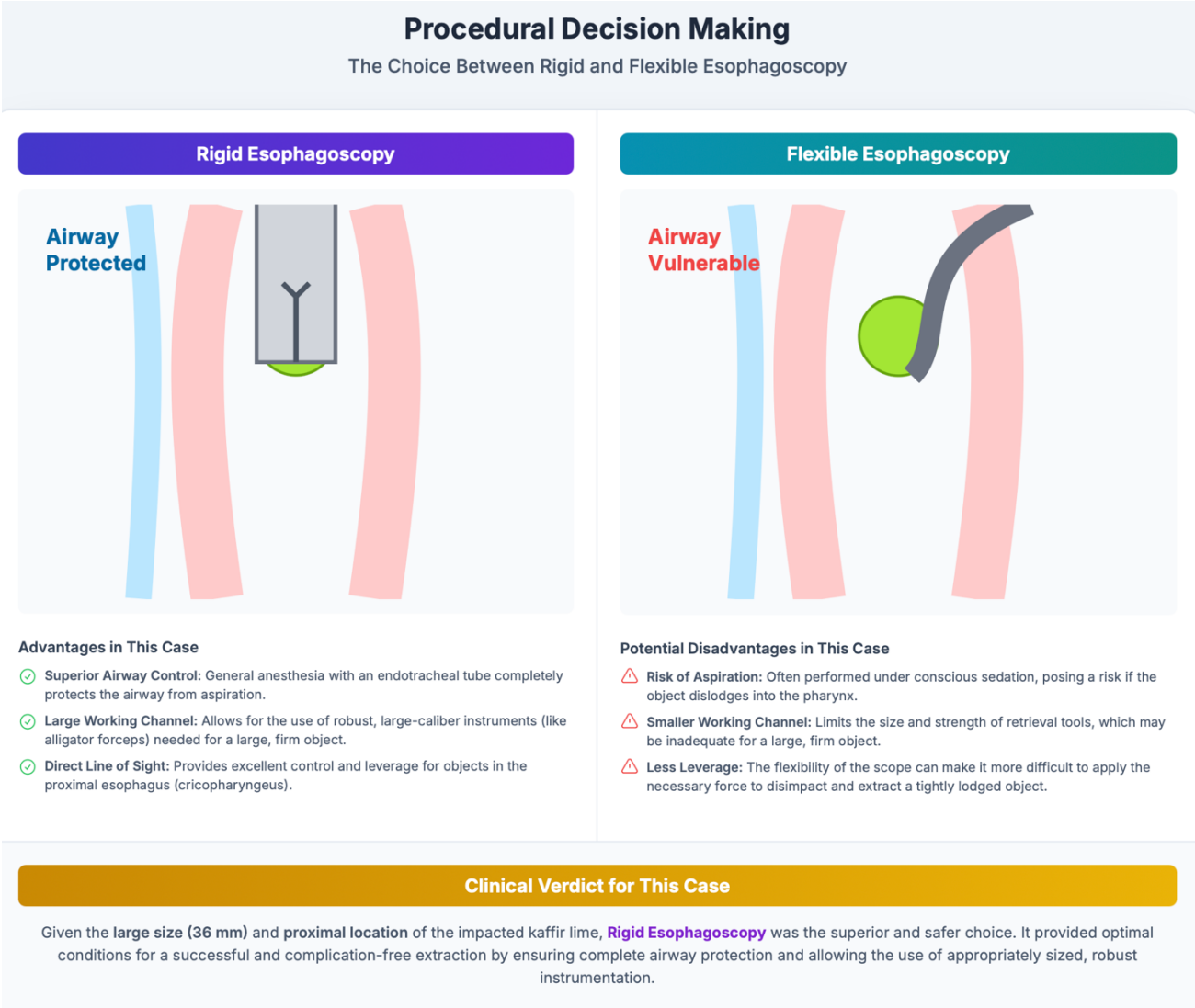


Figure 4. Procedural decision making.

The mucosal injury observed post-extraction—erythema and excoriation—can be explained by a dual-mechanism model. The impaction of a 36 mm object within the proximal esophagus exerted significant radial pressure on the surrounding mucosa. Prolonged pressure from an impacted FB can lead to ischemia, pressure necrosis, and eventual perforation. The 24-hour duration of impaction in this case was sufficient to cause superficial mucosal inflammation and abrasion, as evidenced by the leukocytosis, elevated CRP, and endoscopic findings. Kaffir lime is known for its high concentration of citric acid and potent essential oils in its peel, such as limonene and citronellal. While direct studies on the esophageal effects are lacking, it is highly plausible that these substances contributed to a chemical esophagitis. Citric acid can cause a direct, low-pH acid injury to the mucosa, while the essential oils can act as potent contact irritants. This combined mechanical-chemical insult likely explains the degree of mucosal irritation observed after only 24 hours of impaction.[20]

4. Conclusion

This case reports the diagnosis and successful management of a rare and challenging otolaryngological emergency: the esophageal impaction of a whole kaffir lime. The successful

outcome hinged on a prompt diagnosis based on definitive clinical signs despite negative radiographic findings, followed by emergent intervention. This case demonstrates that for large, solid foreign bodies lodged in the proximal esophagus, rigid esophagoscopy provides a safe and highly effective method of removal, offering unparalleled airway protection and robust instrumentation. The unique nature of the foreign body allowed for a discussion of a dual mechanical-chemical injury mechanism, a concept that clinicians should consider when managing organic foreign bodies. While no severe complications occurred in this patient, this case underscores that prompt endoscopic removal of any impacted esophageal foreign body is imperative to prevent potentially life-threatening sequelae.

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