Children's Hospital and Health System, Inc.
Patient Care Evidence Based Guideline
CW Urgent Care

SUBJECT: Foreign Body (FB) Ingestion

Purpose: To evaluate and initiate treatment of FB ingestion in the esophagus and gastrointestinal tract.

Definition: Patients will be assessed after possible FB ingestion to determine if an object has been ingested and to confirm the object's identity and location when possible so that appropriate treatment is instituted.

- Coins are the most commonly ingested objects in children under 5 years of age.
- Dangerous objects include needles, safety pins, and bobby pins due the potential for these objects to become stuck in the turns of the duodenum, resulting in perforation.
- **The most dangerous objects include batteries, magnets, objects containing lead, and objects that are long, large, or sharp. Rapid diagnosis and retrieval of an esophageal button battery is essential to decrease morbidity and mortality.**

Differential Diagnosis

If the ingestion was not witnessed, consider FB ingestion as part of your differential diagnosis as appropriate based on the information below and the patient's presenting symptoms.

- Signs and symptoms of ingestion may depend on the timing, type of FB, or location.
- Approximately half of patients with a FB ingestion will have symptoms.
- Esophageal FBs may cause a sensation of something stuck in the neck or chest. It may also cause cyanosis, dysphagia, drooling, wheezing, stridor, or choking. The patient may refuse feeds.
- Retrosternal or substernal chest pain may be the result of mucosal ulceration of the esophagus.
- Longstanding FBs in the esophagus may cause weight loss, aspiration pneumonia, strictures, or erosions, which may lead to fistulas with the trachea or other sites.
- Sharp objects may perforate the esophagus, leading to swelling of the neck, crepitus, or pneumomediastinum. Rarely, erosion into the aorta can cause life-threatening GI bleeds.
- Button batteries can cause erosion of the GI mucosa, ulcers, perforation, GI bleeding, and fistulas of aerodigestive tract.
- Objects retained in the distal GI tract may cause delayed symptoms such as appendicitis, liver abscess, or perforation of the GI tract.

Supersedes: 6/2015, 5/2019
Approved by UC Clinical Practice Council and Medical Director: 9/2022
Next review 9/2025

Guideline

Subjective Data/History

- Time of occurrence
- Type of object
- Associated signs/symptoms

Objective Data

- Patient considered at increased risk with foreign body if any of the following criteria are present:
  - Age < 5 y/o
  - Witnessed event
  - Choking episode
  - GI disease (stricture, esophageal ring, eosinophilic esophagitis, previous surgery)
  - Tracheoesophageal fistula
  - Button battery
  - Multiple magnets
  - Sharp objects
  - Large or long objects (> 25 mm diameter or > 6 cm length)
  - Lead-containing objects

Physical Exam

- Evaluate airway and breathing; manage any airway compromise immediately while arranging transfer to ER as indicated.
- Neck exam: evaluate for swelling, erythema, or crepitus.
- Chest exam: evaluate for stridor, cough, wheezing, or decreased or abnormal breath sounds.
- Abdominal exam: evaluate for evidence of obstruction or perforation such as tenderness, distention, rigidity, or abnormal bowel sounds.

Diagnostic Studies

- Pulse Oximetry as appropriate for respiratory symptoms.
- For all suspected FB ingestions, including radiolucent FBs, obtain AP and lateral x-rays of neck, chest, and abdomen (order *XR Nose to Rectum Foreign Body*)**. If a coin-shaped object is seen, need 2 views of the object to rule out button battery.**
- Occasionally, if a known small, blunt object has been ingested more than several hours ago and the patient is asymptomatic, the option may be given to the family to observe for symptoms and passage of the object in the stool. If symptoms develop or the object does not pass, then imaging is needed. **Observation without imaging is NOT an option if the known object is a battery, multiple magnets, or if object contains lead.**

Treatment (See chart below)

- **Urgent evaluation, management, and transfer to ER is required immediately for any patients with signs of:**
  - Airway compromise.
  - Esophageal obstruction
  - Signs of intestinal inflammation or obstruction such as: fever, abdominal pain, vomiting, bloody stools, abdominal distension, or rigidity.

- If the FB is NOT seen on imaging and foreign body is suspected: Consult CW GI

- **Urgent intervention - transfer to ER or consult CW Aerodigestive Foreign Body for any FB found in the esophagus.**
  - Note: this is the recommendation at Children's Wisconsin. *UpToDate* allows for observation of asymptomatic, small, blunt FBs in the esophagus, but standard of care at CW is to consult CW Aerodigestive Foreign Body team for all objects in the esophagus.

- If foreign body is in esophagus, consult CW Aerodigestive team.
- If foreign body is in stomach or beyond, consult CW GI.
- If there are any signs of obstruction or perforation, consult CW General Surgery.

Education of Patient/Family

- Provide discharge instructions. May also provide applicable CW Teaching Sheet.
- If the FB (low-risk) has passed into the stomach (or distal), and the patient can be discharged without removal, clear instructions should be provided.
- Monitor for the FB to be passed in the stool. A toilet hat may be sent home to help monitor for the FB.
- The family should be instructed to watch for signs and symptoms of a bowel obstruction or other complication such as abdominal pain, fever, vomiting, bloody stools, or distended abdomen. The patient should be referred to the ER immediately if such symptoms develop.
- The patient should be given a normal diet.

Follow-up

- If the FB does not pass as instructed, the patient should contact PMD to obtain repeat x-ray. The patient may return to CW UC or ER if unable to see PMD.

	DISPOSITION	NOTES
COINS	• Esophagus with airway compromise: transfer to ER for removal by CW Aerodigestive team • Esophagus but asymptomatic: transfer to ER (CW Aerodigestive) • Stomach or distal with signs of obstruction or perforation: transfer to ER (CW General Surgery) • Stomach or distal and symptomatic (cough, gagging, drooling, pain): transfer to ER (CW GI) • Stomach or distal and asymptomatic, discharge home and check stool, return if not passed in 14 days	• Most common FB ingested. • Complications include aspiration if lodged in esophagus.
MAGNETS	• Esophagus: transfer to ER for removal by CW Aerodigestive team • Single magnet, stomach or distal, and asymptomatic: consult CW GI, consider discharge home and check stool, return if not passed in 7 days • Stomach or distal with signs of obstruction or perforation: transfer to ER (CW General Surgery) • Multiple magnets: transfer to ER for urgent removal	• Need to rule out multiple magnets, which may not always be obvious, even with imaging. • Magnets are removed when able. • Multiple magnet ingestion may lead to serious complications and should be evaluated urgently.
BATTERIES	• Esophagus: transfer to ER (CW Aerodigestive), goal < 30 minutes ER to OR • Button battery in esophagus: arrange immediate ER transfer. If ingested within past 12 hours, able to swallow, no signs of perforation, and patient over 1 year, give 10 mL honey PO every 10 minutes (up to 6 doses). • If patient less than 1 year, transfer to ER immediately and do not give honey. Keep NPO. • Stomach or distal: consult CW GI	• Proximal to stomach, complications may include risk of necrosis and perforation of esophagus or mucosal injury, and/or toxicity of the stomach. • Xray sometimes shows a double ring or "halo sign" on AP film or a "step-off" edge on lateral film for button batteries. Keep a high index of suspicion with circular foreign bodies.
LONG OBJECTS (≥ 6 cm)	• Consult CW EDTC	• Objects 6-10 cm are usually removed. • Up to 50% of objects > 5 cm may become impacted in the ileoceccal region.
SHARP OR POINTED OBJECTS	• Esophagus: transfer ER (CW Aerodigestive and possible CW General Surgery) • Stomach or distal with signs of obstruction or perforation: transfer to ER, consult CW General Surgery • Stomach or distal with symptoms (cough, gagging, drooling, pain) but no signs of obstruction or perforation: transfer to ER (CW GI)	• Most common objects include straight pins, needles, and straightened paper clips. • Objects in small intestines may be monitored by serial radiographs.

	DISPOSITION	NOTES
	• In stomach or distal and asymptomatic: consider discharge home and check stool, serial x-ray in 2 days	• Instruct patients to return to ER immediately with symptoms of abdominal pain, vomiting, fever, hematemesis, bloody stools, or melena.
OBJECTS CONTAINING LEAD	• Consult CW EDTC • Serum lead levels should be obtained if suspected ingestion	• Examples include lead weights used for fishing, curtain weights, air rifle pellets. • Acute lead toxicity may occur within 90 minutes of ingestion. Acid environment of the stomach increases the release of lead. • Symptoms may be nonspecific and include: lethargy, vomiting, abdominal pain, irritability, seizures, and anorexia.

References

CW EDTC. (2021). Foreign body ingestion: Clinical practice guideline.

Gilger, M. A., Jain, A. K., McOmber, M. E. (2018). Foreign bodies of the esophagus and gastrointestinal tract in children. *UpToDate*. Retrieved from http://www.uptodate.com

Uyemura, M.C. (2005). Foreign body ingestion in children. *American Family Physician,* 72(2), 287-291.

Treatment information also provided by Diana Lerner, MD, Gastroenterology, Children's Wisconsin (personal communication, September 2022), Keli Coleman, MD, Pediatric Emergency Medicine, Children's Wisconsin (personal communication October 2022), and Amy Drendel, MD, Medical Director EDTC, Children's Wisconsin (personal communication, October 2018 and October 2022).

Amy Romashko, MD
Medical Director, CW Urgent Care

This guideline is designed to serve as a reference for clinical practice and does not represent an exclusive course of treatment nor does it serve as a standard of medical care. Providers should apply their professional judgment to the management of individual patient conditions and circumstances. Children's Hospital and Health System (CHHS) does not make any representation with respect to any sort of industry recognized standard of care for the particular subject matter of this clinical guideline. Additionally, CHHS form documents are subject to change, revision, alteration, and/or revocation without notice.