# Button Battery Ingestion

Clinical Practice Guidelines

Monroe Carrell Jr. Children's Hospital at Vanderbilt

**VERSION 10/06/2025**

**Suspected button battery ingestion**

***PRE-HOSPITAL***

For ingestion <12 hours:
≥12mo. Give honey 10mL PO Q10 min
<12 mo. Give Sucralfate 1g PO Q10 min
Keep patient NPO (except honey/Sucralfate)
Provide oral suction as available

**ED**

*Priority placement; notify Pediatric ED Attending & Staff leader*
Obtain STAT foreign body series radiologic study if not already completed
Determine size and location of button battery

**Button Battery Alert:** Call 1-1111. Activate Monroe Carell Button Battery Alert. Notifies Pediatric Surgery, Cardiac Surgery, ENT, IR, Anesthesia, OR Charge Nurse

Pre-Op

**If Active and/or Sentinel Bleed, Esophageal Perforation, Patient Clinically Unstable, hematemesis or hematochezia or melena:**

-STAT Pediatric Surgery Consult
-Activate button battery alert
-STAT CBC, coag, type & cross
-Activate MTP
-Assume aorto-enteric fistula and emergently prepare OR with Peds Surg/ CT surgery/IR/ENT. Consider ECMO on standby.
-CTA at discretion of surgical team prior to OR

**LEVEL 1 to OR**

**ESOPHAGEAL**

STAT Pediatric Surgery Consult

Activate button battery alert

Consider CTA for button batteries ingested >12 hrs ago

EMERGENT REMOVAL

**Goal is Removal Within 1 Hour**

**GASTRIC WITH CO-MAGNET INGESTION OR WITH SYMPTOMS**

STAT Pediatric Surgery Consult

EMERGENT REMOVAL

**Goal is Removal Within 1 Hour**

**GASTRIC AND BUTTON BATTERY > or = 20mm AND patient ≤6YO**

ROUTINE Pediatric Surgery Consult

**Endoscopic Evaluation & BB Removal Within 24 Hours**

**GASTRIC AND BUTTON BATTERY <20mm AND patient >6YO AND patient ASYMPTOMATIC**

ROUTINE Pediatric Surgery Consult

PO Trial
Discharge once tolerating PO
Follow up x-ray in 4 days

*Consider endoscopy or esophagram for button batteries >15mm and ingested >12 hours ago to evaluate for esophageal injury prior to discharge.

Intra-Op

Attending Surgeon notifies Anesthesiologist in Charge (AIC) or Anesthesiologist on-call Pediatric Surgery notifies OR board

Attending Pediatric Surgeon to contact subspecialty Attending Surgeon/Proceduralist to confirm assistance requested

Emergent Endoscopic Removal
* Case to be placed in OR 11 (back up location OR 5) if possible

Evaluate Esophageal Damage

Flush with 50-150mL sterile 0.25% acetic acid if no evidence of esophageal perforation

Consider bronchoscopy if concern for airway involvement.

Follow up with Pediatric General Surgery in 4 days for repeat X-ray to confirm passage

Patient return to ED if symptomatic

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**VERSION 04/10/2025**

Endoscopic Removal

May extubate in OR if clinically appropriate vs. Transport direct to PICU intubated

Post Endoscopy Management-Admit to Pediatric General Surgery (Acute Care) or Pediatric Critical Care (PICU)
- Admission location (PICU vs. acute care) to be made on case-by-case basis

Continuous cardiorespiratory monitor
Begin D5NS w/20mEq KCl/L at maintenance
Patient remains NPO
Call National Button Battery Ingestion Hotline at 800-498-8666 to report the case

Post-Op

Post Procedure Imaging: Obtain esophagram 24- 48 hours post removal or prior to starting oral feeds

Esophagram Technique
-If NG tube in place – performed as a NGT pull back and injection at different levels (with peds surgery) to get optimal distension of the esophagus
- PO feeding if no NGT in place

Assess for any residual metal fragments on the scout image

No esophageal injury identified and no concern for injury to adjacent structures (great vessels; trachea)

Advance diet as tolerated
** If esophagram normal but dysphagia or difficulty feeding or swallowing, consider Videofluoroscopic Swallow Study (VFSS) to confirm safe swallow, r/o vocal cord injury*

Evidence of esophageal injury or concern of proximity to great vessels

Continue NPO and antibiotics. Order CT Angiography or MRI neck/ chest to evaluate for vascular injury.

Following MRI findings are associated with an increased incidence of vascular injury and post removal complications:
- Proximal esophageal injury (above T5/carina) + tracheal wall thickening (>3mm)
- Proximal esophageal injury + edema/enhancement > 50% circumference of the aorta or great vessels
- Mid-distal esophageal injury + edema and enhancement >50% of the circumference of the descending aorta
- Distance between the esophageal injury and the great vessels or aorta less than 3mm monitor very closely for sentinel bleeds.

Imaging reassuring: Advance diet as tolerated. No additional inpatient imaging needed.

Abnormal MRI/CT, but surgery not indicated: Remain NPO. Repeat imaging in 1-2 weeks. Remain inpatient.

High risk findings: Remain NPO. Consider additional surgical subspecialty consultation.

**Discharge patient when:**
Tolerating PO without need for IVFs, follow up imagining completed, low risk of acute complication.
**Discharge Instructions:**
Follow up appointment with pediatric general surgery. 4-6 week post-op esophagram to rule out stricture.


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