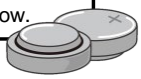
UC DAVIS HEALTH | CHILDREN'S HOSPITAL

Foreign Body Ingestion Algorithms:
Button Battery, Coin/Blunt Objects, Magnet, Sharp Objects, Esophageal Food Impaction

Updated: (MW, 8/7/2025)

BUTTON BATTERY INGESTION

1. Obtain Button Battery (BB) information, if possible.
2. Call National Battery Ingestion Hotline: **800-498-8666**.
3. Obtain STAT X-rays: lateral neck (including nasal cavities and nasopharynx) and AP or PA chest, and AP abdomen/pelvis views.
4. Keep patient NPO except for sucralfate (as directed below). Start IV and MIVF.
5. Submit report to Consumer Product Safety Commission at www.SaferProducts.gov. See QR code below.



ESOPHAGUS

Above the clavicles: Consult ENT
Below the clavicles: Consult Peds GI

Any concern for perforation or obstruction or history of esophageal or abdominal surgery: Consult Pediatric Surgery

STOMACH & BEYOND

Consult Peds GI

Active bleeding or Unstable

1. Emergent (<1hr) endoscopic removal with Pediatric Surgery present

2. Consider CT prior to removal

Stable

1. Urgent (<2hr) endoscopic removal
2. If able to swallow AND ingestion <12hr prior, give sucralfate* while waiting for endoscopy. *This should not delay removal*

No symptoms, Single battery, No magnet co-ingestion

- ≥ Battery 15mm → Esophagram
  - **Abnormal** → **If any evidence or concern for esophageal injury:**
    1. Place NG tube intraoperatively under direct visualization
    2. Admit to PICU after procedure
    3. NPO- IV antibiotics
    4. Consider CTA or MRI chest to assess for proximity of injury to aorta to exclude aortic injury

    - **Hematemesis or upper GI bleed within 21 days of removal:**
      1. Assume aorto-enteric fistula
      2. Consult CT surgery for emergent management
    - **Injury close to aorta:**
      1. NPO
      2. Antibiotics
      3. MRI q5-7 days until injury recedes from aorta
    - No significant injury to surrounding tissue or proximity to aorta:

      Esophagram to exclude leak before advancing diet as tolerated
  - Normal → Discharge
    1. Repeat X-ray in 2-3 days if BB has not passed
    2. Return if any symptoms develop
- Battery < 15mm → Discharge
  1. Repeat X-ray in 10-14 days if BB has not passed
  2. Return if any symptoms develop

Symptoms, Multiple batteries, OR magnet co-ingestion

Urgent/ Red (<2hr) endoscopic removal, if possible, surgical removal if not

NASAL

If visible, attempt removal

After removal, or if unable to remove, Consult ENT

See reverse for additional information →

*Sucralfate (1g/10mL suspension): 10mL q10min, max 3 doses

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Endoscopic Retrieval Tips

- Removal should be performed under general anesthesia
- Inspect mucosa for extent, location, and depth of damage

Discharge Considerations

- Bowel regimen
- Reliable/competent caregiver
- Regular diet
- Encourage activity
- Educate on signs of GI bleed (bloodstained vomiting, melena, abdominal pain, change in eating pattern) or features of intestinal obstruction (persistent vomiting, abdominal distention)

References

- Management of Ingested Foreign Bodies in Children: A Clinical Report of the NASPGHAN Endoscopy Committee Kramer, Robert E.; Lerner, Diana G.; Lin, Tom; Manfredi, Michael; Shah, Manoj; Stephen, Thomas C.; Gibbons, Troy E.; Pall, Harpreet; Sahn, Ben; McOmber, Mark; Zacur, George; Friedlander, Joel; Quiros, Antonio J.; Fishman, Douglas S.; Mamula, Petar
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- https://www.chop.edu/clinical-pathway/foreign-body-ingestion-clinical-pathway

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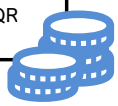
Last updated: July 2025

COIN & OTHER BLUNT OBJECT INGESTION

1. ***Obtain history: Ensure no concern for button battery or magnet ingestion (refer to those algorithms if there is concern).***
2. Obtain STAT X -rays: lateral neck (including nasal cavities and nasopharynx) and AP or PA chest, and AP abdomen/pelvis views.
3. Keep NPO. If symptomatic or esophageal FB, start IV and MIVF.
4. Consult: ENT for above the clavicles; Peds GI for esophagus, below clavicles, or as needed for stomach or intestinal FB.
5. Submit report (if applicable) to Consumer Product Safety Commission at www.SaferProducts.gov. See QR code below.



Any concern for perforation or obstruction or history of esophageal or abdominal surgery: Consult Pediatric Surgery

ESOPHAGUS

Symptomatic: Drooling, dysphagia, respiratory compromise, severe pain

Timely endoscopic removal depending on symptom severity

Asymptomatic

1. Repeat X-ray to ensure coin is still present
2. Urgent endoscopic removal

STOMACH

Symptomatic

1. Repeat X-ray to ensure coin is still present
2. Urgent endoscopic removal

Asymptomatic

No endoscopy needed.

Consider straining stools, laxatives.

Repeat X-ray at 2 weeks to confirm passage, or sooner if symptoms develop.

Depending on size of object, consider admission for observation (larger objects could get caught at ileocecal valve).

Endoscopic removal if not passed in 2-4 weeks.

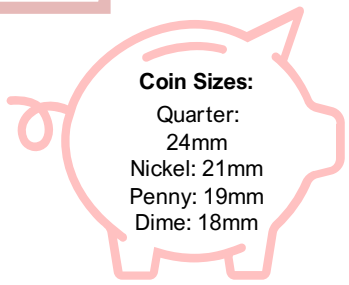
Repeat X-ray before removing to ensure coin is still present.

SMALL BOWEL

Symptomatic

Consider alternative etiologies and alternative foreign bodies.

Surgical removal if indicated.



Coin Sizes:

Quarter: 24mm
Nickel: 21mm
Penny: 19mm
Dime: 18mm

See reverse for additional information

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Endoscopic Retrieval Tips

- Removal should be performed under general anesthesia
- Inspect mucosa for extent, location, and depth of damage

Discharge Considerations

- Bowel regimen
- Reliable/competent caregiver
- Regular diet
- Encourage activity
- Educate on signs of GI bleed (bloodstained vomiting, melena, abdominal pain, change in eating pattern) or features of intestinal obstruction (persistent vomiting, abdominal distention)

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Last updated: July 2025

MAGNET INGESTION

1. Obtain history: known magnet ingestion?
2. Obtain STAT X -rays: lateral neck (including nasal cavities and nasopharynx) and AP or PA chest, and AP abdomen/pelvis views : Determine single versus multiple magnets.
3. Keep NPO. Start IV and MIVF.
4. Consult: ENT for above the clavicles; Peds GI for esophagus, stomach, intestine, or below clavicles.
5. Submit report to Consumer Product Safety Commission at www.SaferProducts.gov. See QR code below.

Any concern for perforation or obstruction or history of esophageal or abdominal surgery: Consult Pediatric Surgery

MULTIPLE MAGNETS

Or single magnet + other metal object(s)

All within stomach or esophagus

Symptomatic: EMERGENT endoscopic removal

Successful Removal:

Discharge home after feeding tolerance with appropriate follow-up and education

Asymptomatic: URGENT endoscopic removal

Unsuccessful removal:

Notify Pediatric Surgery for removal

Beyond stomach

Symptomatic:

1. Admit for further monitoring.
2. Consult Peds GI and Pediatric surgery for endoscopic, laparoscopic removal
3. Keep NPO, IVF.

Asymptomatic AND no concerning radiographic findings:

1. Admit for further monitoring
2. Consult Pediatric GI & Pediatric Surgery
3. Clear liquid diet
4. Serial radiographs q4-6hrs
5. Can use Golytely, Miralax, or another laxative

No progression on serial X-rays in 24-48 hours:

Attempt removal by colonoscopy or endoscopy

Progression of magnets on serial X-rays:

Option 1:

Continue bowel regimen and serial x-rays until magnets have passed

Option 2:

Outpatient management with bowel regimen, serial X-rays, parental education

SINGLE MAGNET

Assess risk factors for further ingestion

In stomach or esophagus

Non-urgent endoscopic removal if patient at risk for further ingestion

Beyond stomach

Outpatient management with bowel regimen, serial X-rays, parental education if no risk factors.

Confirm passage with X-rays at 2-3 days in outpatient.

See reverse for additional information

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Endoscopic Retrieval Tips

- Removal should be performed under general anesthesia
- Inspect mucosa for extent, location, and depth of damage

Discharge Considerations - When Waiting for Single Magnet to Pass

- Bowel regimen
- Reliable/competent caregiver
- Regular diet
- Encourage activity
- Educate on signs of GI bleed (bloodstained vomiting, melena, abdominal pain, change in eating pattern) or features of intestinal obstruction (persistent vomiting, abdominal distention)
- Remove any magnetic objects nearby
- Avoid clothes with metallic buttons or belts with buckles
- Ensure no other metal objects or magnets are in the child's environment for accidental ingestion
- Discuss notification of Product Safety Commission

References

- Management of Ingested Foreign Bodies in Children: A Clinical Report of the NASPGHAN Endoscopy Committee Kramer, Robert E.; Lerner, Diana G.; Lin, Tom; Manfredi, Michael; Shah, Manoj; Stephen, Thomas C.; Gibbons, Troy E.; Pall, Harpreet; Sahn, Ben; McOmber, Mark; Zacur, George; Friedlander, Joel; Quiros, Antonio J.; Fishman, Douglas S.; Mamula, Petar
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Last updated: July 2025

SHARP OBJECT INGESTION

1. Obtain STAT X -rays: lateral neck (including nasal cavities and nasopharynx) and AP or PA chest, and AP abdomen/pelvis views.
2. Keep NPO. If esophageal or symptomatic, start IV and MIVF.
3. Consult: ENT for above the clavicles; Peds GI for esophagus, intestine, or below clavicles.
4. Submit report (if applicable) to Consumer Product Safety Commission at www.SaferProducts.gov. See QR code below.

RADIO-OPAQUE

Any concern for perforation or obstruction or history of esophageal or abdominal surgery: Consult Pediatric Surgery

RADIO-LUCENT

For example: toothpick, fishbone, glass

- Esophageal
  - Endoscopic removal within 2hrs
- Gastric or Duodenal
  - **Symptomatic or Length ≥ 3cm Width ≥ 2cm**
    - Timely endoscopic removal
  - Asymptomatic and Length < 3cm Width <2cm
    - Consider observation with bowel regimen, serial X -rays, parental education.
      Confirm passage with X-ray at 2 -3 days if outpatient.
      Remove if symptoms develop.
- Small Bowel (distal to ligament of Treitz)
  - **Symptomatic**
    - Timely surgical removal
  - Asymptomatic
- **Symptomatic, self-reported, or witnessed ingestion**
  - Timely endoscopic evaluation & removal
- Asymptomatic
  - Consider CT, ultrasound, MRI, or esophagram for further assessment
    - Object found:
      Follow guidelines for found radio-opaque objects
    - No object found:
      Observe or discharge with return precautions

See reverse for additional information

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Endoscopic Retrieval Tips

- Removal should be performed under general anesthesia
- Inspect mucosa for extent, location, and depth of damage
- If sharp end is facing cephalad, consider pushing the object into the stomach and rotate the sharp end caudally before removal
- Safety pin: polypectomy snare can be used to close it before withdrawal
- Toothpick: polypectomy snare is a good option

Discharge Considerations

- Reliable/competent caregiver
- Regular diet
- Encourage activity
- Educate on signs of GI bleed (bloodstained vomiting, melena, abdominal pain, change in eating pattern) or features of intestinal obstruction (persistent vomiting, abdominal distention)

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Last updated: Julyl 2025

ESOPHAGEAL FOOD IMPACTION

1. Obtain STAT X -rays: lateral neck (including nasal cavities and nasopharynx) and AP or PA chest, and AP abdomen/pelvis views.
2. Keep NPO. Start IV and MIVF.
3. Consult Peds GI.

SEVERE SYMPTOMS

Difficulty breathing,
retching,
severe pain,
not tolerating secretions

Timely endoscopic removal depending on symptom severity

Any concern for perforation or obstruction or history of previous esophageal surgery: Consult Pediatric Surgery

MILD OR MODERATE SYMPTOMS

No difficulty breathing,
mild pain,
tolerating secretions

Consider X-ray with water soluble contrast:
1. Obtain AP chest/ abdomen
2. Patient drinks 50mL water soluble contrast
3. AP chest/abdomen immediately afterwards

Endoscopic removal at provider discretion

See reverse for additional information

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Updated: (MW, 8/7/2025)

Endoscopic Retrieval Tips

- Removal should be performed under general anesthesia
- Inspect mucosa for extent, location, and depth of damage
- Obtain proximal and distal esophageal biopsies
- Assess for stricture. Dilation is cautioned against if eosinophilic esophagitis is suspected, or food has been impacted for a long duration

Discharge Considerations

- Ensure patient has appropriate GI follow-up

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Last updated: April 2025

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