

Exclusion criteria:

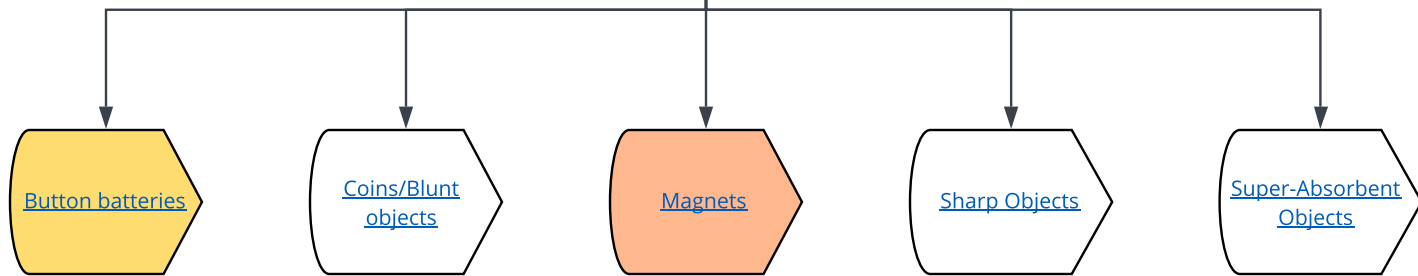
- Respiratory distress or failure
- Known abnormal GI anatomy
- Previous GI surgery
- Suspected aspiration of foreign body (See [Foreign Body Aspiration Clinical Pathway](#))



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Patient presents with suspicion of foreign body ingestion

Obtain [history, physical exam and imaging](#) to determine type and size of foreign body



Pre-Hospital Recommendations for Ingestion of Button Batteries

Children ≥ 1 yr, ingestion in prior 12 hrs:

- Consider giving honey:
 - 10 mL every 10 minutes until recovery of the foreign body, for a maximum of 6 times
- Proceed to ED immediately

Magnet Precautions

- Remove all metallic, magnetic objects from child's environment
- Ensure no magnets, metal on child's clothing (buckles, snaps, buttons)
- Ensure no magnets available for ingestion
- Continue precautions until magnets are passed

Exclusion criteria:

- Respiratory distress or failure
- Known abnormal GI anatomy
- Previous GI surgery
- Suspected aspiration of foreign body (See [Foreign Body Aspiration Clinical Pathway](#))
- Magnet co-ingestion (see [Ingested Foreign Bodies: Magnets pathway](#))

Pre-Hospital Recommendations

- Children ≥ 1 yr, ingestion in prior 12 hrs:
- Consider giving honey:
 - 10 mL every 10 minutes until recovery of the foreign body, for a maximum of 6 times
 - Proceed to ED immediately



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X-ray confirmed button battery ingestion

Ensure pt is NPO

Where is the battery located?

Esophagus

In or beyond stomach

- Consult Surgery
- Plan **emergent** endoscopic removal (within 1 hour)

Is the pt < 5 yrs AND is the battery ≥ 20 mm?

Yes

No

- Discharge pt
- Repeat X-ray in 10 - 14 days if not passed
 - Return to ED if symptomatic

Consult GI and consider EGD to assess for esophageal injury and endoscopic removal within 48 hours

Is the battery in the stomach?

Yes

No

Consult Surgery

Does pt have symptoms?

Yes

No

Can pt tolerate PO?

No

Yes

- Discharge pt
- Repeat X-ray every 2 - 3 days until battery passed
 - Return to ED if symptomatic

- Consider Endoscopic removal if:**
- Pt develops GI symptoms **OR**
 - Object has not passed stomach by time of repeat X-ray

- Symptoms**
- Anorexia
 - Vomiting
 - Abdominal pain
 - Fever
 - Hematochezia
 - Abdominal distention

Considerations for Emergent Esophageal Removal of Batteries

- General considerations:**
- Serious burns can occur within 2 hrs of ingestion
 - Symptoms may be delayed
 - If mucosal injury is present after removal, observe for delayed complications (esophageal perforation, tracheoesophageal fistula, vocal cord paralysis, tracheal stenosis, mediastinitis, aspiration pneumonia, perforation into a large vessel)
 - Complications may be delayed weeks, months

- Risk factors for severe esophageal injury:**
- Ingested batteries ≥ 20 mm in diameter
 - Children < 5 yrs of age
 - Multiple battery ingestions
 - Esophageal exposure time > 2 hrs

- Upon endoscopic removal:**
- Irrigate esophagus with 50 - 100 mL of 0.25% acetic acid upon battery removal
 - Consider antibiotic prophylaxis for children with severe esophageal injury, perforation, or fever

- Battery Facts**
- Lithium cell batteries are most frequently involved in esophageal injuries
 - Determination of actual battery diameter prior to removal or passage is unlikely in at least 40% of cases
 - Assume hearing aid batteries are < 12 mm
 - X-ray overestimates the diameter

- Resources**
- National Capital Poison Center
 - 1-800-222-1222
 - Button Battery Ingestion Triage and Treatment Guideline: www.poisson.org/battery/guideline
 - National Battery Ingestion Hotline:
 - 1-800-498-8666

This clinical pathway is meant as a guide for physicians and healthcare providers. It does not establish a standard of care, and is not a substitute for medical judgment which should be applied based upon the individual circumstances and clinical condition of the patient. Printing of Clinical Pathways is not recommended as these documents are updated regularly. Copyright © The Children's Mercy Hospital 2024. All rights reserved.



Exclusion criteria:

- Ingestion of radiolucent objects
- Respiratory distress or failure
- Known abnormal GI anatomy
- Previous GI surgery
- Suspected aspiration of foreign body ([See Foreign Body Aspiration Clinical Pathway](#))

Coin flip procedures:

- May be performed at the discretion of Surgery
- See CM policy for Fluoroscopic Removal of Ingested Foreign Body

X-ray confirmed coins/blunt objects

Ensure pt is NPO

Consider composition of foreign body and potential for toxicity
See information regarding lead-containing foreign bodies

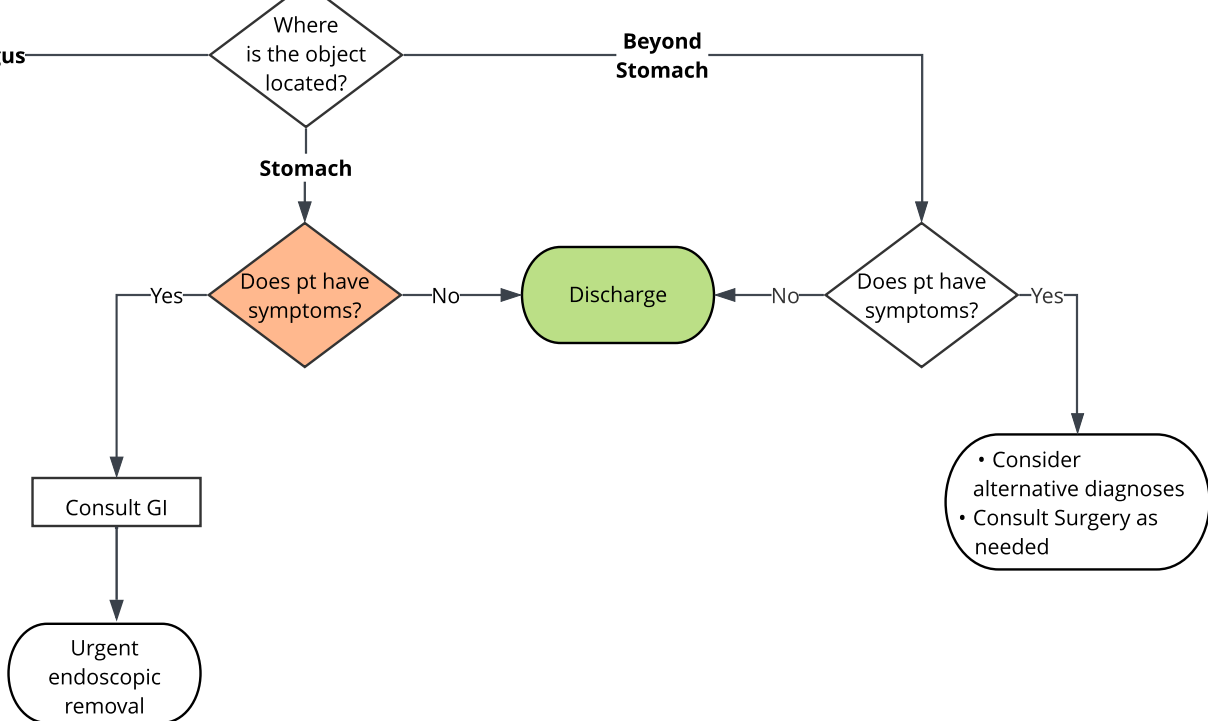
Lead-containing foreign bodies or large burdens of lead paint chips

- Lead-containing foreign bodies may result in significantly elevated blood lead levels within 24 hrs.
- Gastric location**
- Consult Toxicology and GI, obtain baseline blood lead level.
 - Prompt endoscopic removal should be considered.
 - Proton pump inhibitor and prokinetic therapy may also be of value.
- Location beyond pylorus**
- Consult Toxicology and GI, obtain baseline blood lead level.
 - Whole bowel irrigation with Golytely may be of value, especially for large burdens of lead paint chips.
 - Rarely, there may be a role for endoscopy or surgery.

Symptoms

- Anorexia
- Vomiting
- Abdominal pain
- Fever
- Hematochezia
- Abdominal distention

Esophagus
Consult Surgery



Diameters of standard US coins

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

Coins may appear larger on X-ray



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Discharge Instructions:

- No endoscopy needed
 - Follow up with GI or PCP and repeat X-ray at 2 weeks
 - Endoscopic removal if not passed within 2 - 4 weeks
 - Repeat X-ray immediately before removal to ensure object still present
- Items in Stomach**
- Cylindrical battery
 - Repeat X-ray 3 - 4 days
 - **Note:** Width > 2 cm, length > 5 cm, less likely to pass pylorus/duodenum
- Items Beyond Stomach**
- Will likely pass
 - Return if symptomatic

Foreign Body Ingestion: Magnets

Exclusion criteria:

- Respiratory distress or failure
- Known abnormal GI anatomy
- Previous GI surgery
- Suspected aspiration of foreign body (See [Foreign Body Aspiration Clinical Pathway](#))

Considerations for multiple non-separated magnets

- Size and formation of attached magnets (ball vs. bracelet)
- Number of magnets
- Low threshold to treat non-separated magnets as "multiple"

Magnet Precautions

- Remove all metallic, magnetic objects from child's environment
- Ensure no magnets, metal on child's clothing (buckles, snaps, buttons)
- Ensure no magnets available for ingestion
- Continue precautions until magnets are passed

Symptoms

- Anorexia
- Vomiting
- Abdominal pain
- Fever
- Hematochezia
- Abdominal distention

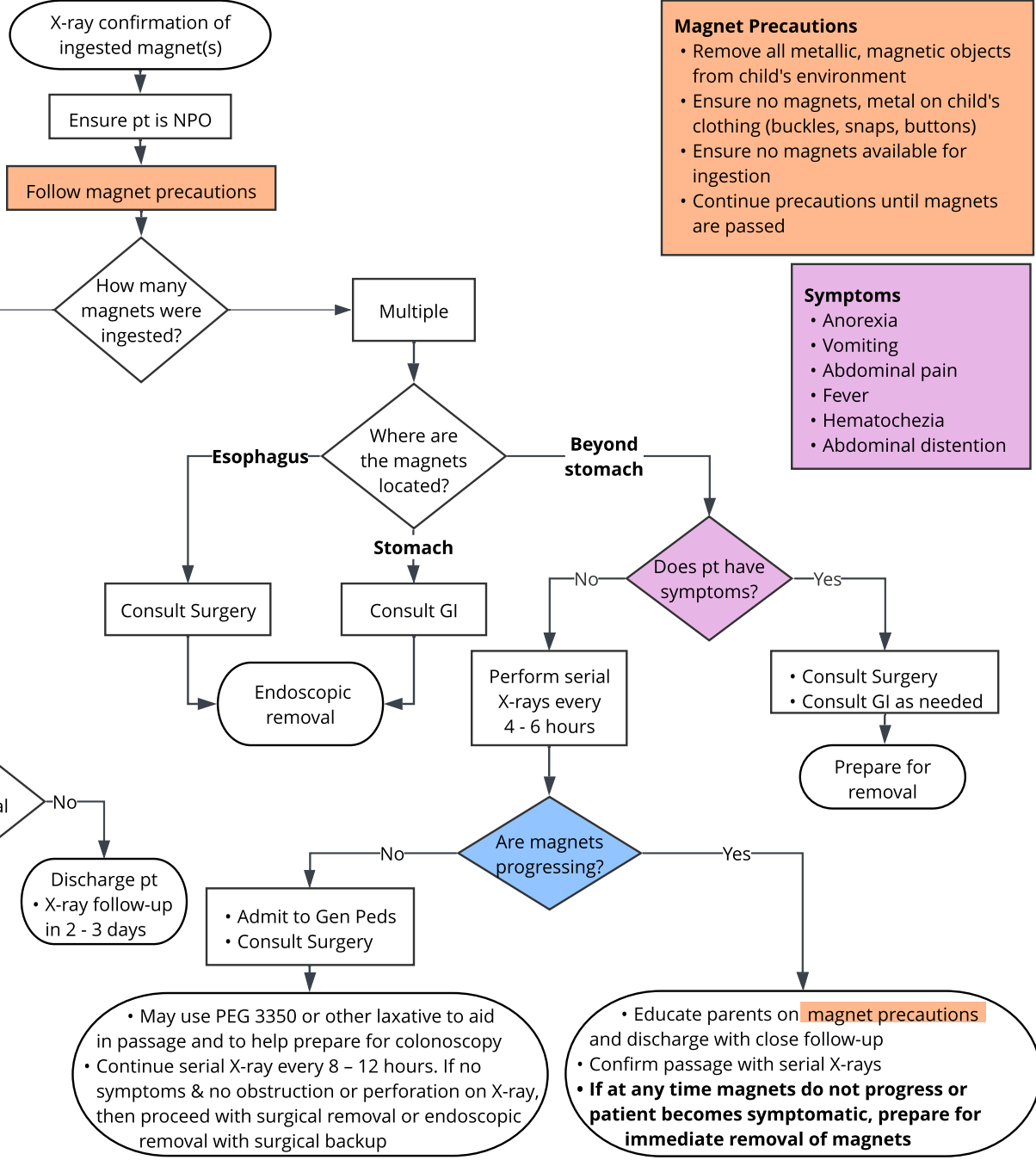


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Considerations for GI Consult

- Symptoms
- Number of non-separated magnets

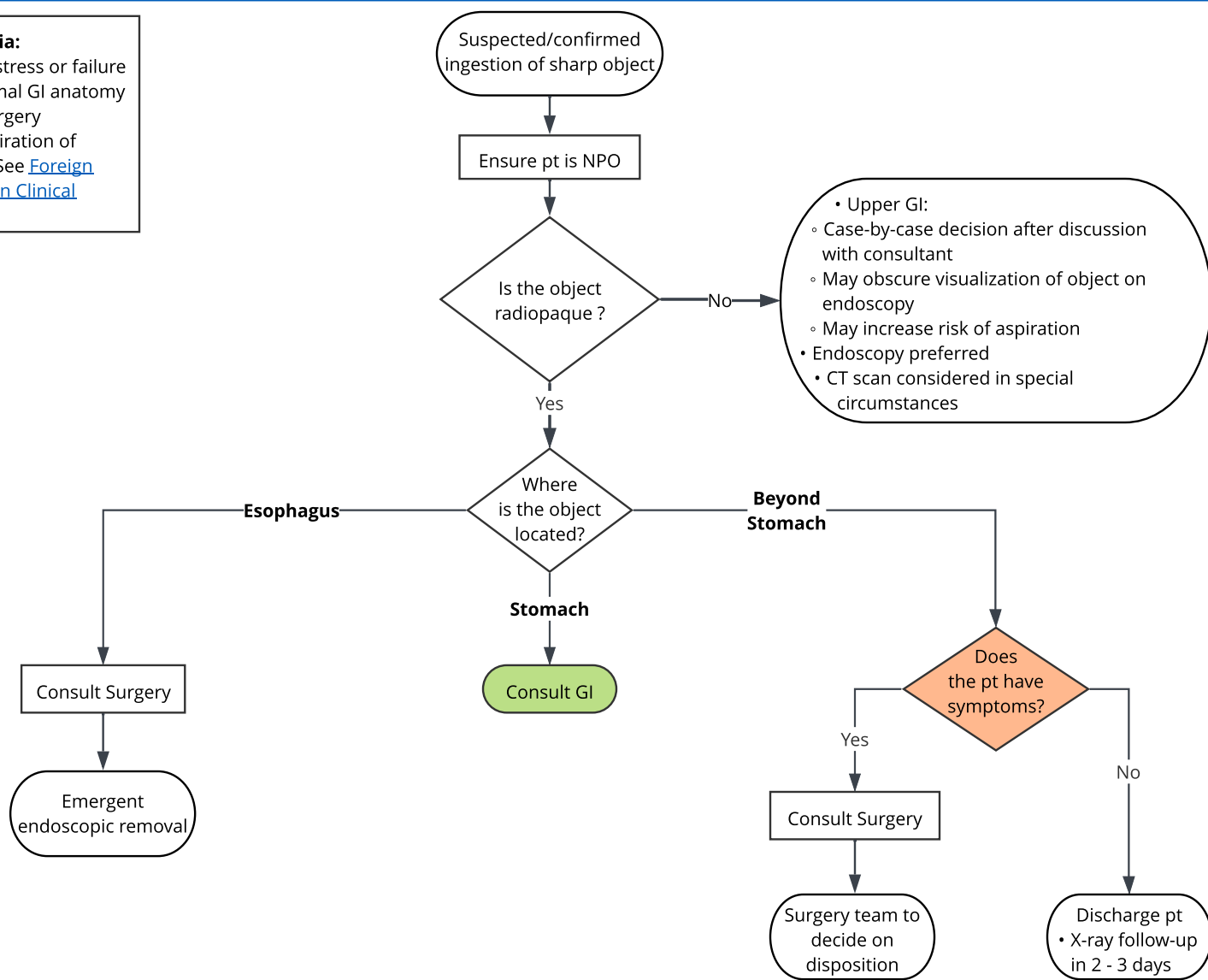
Note: Magnets moving on sequential X-rays may not represent true progression of magnet within a single lumen





Exclusion criteria:

- Respiratory distress or failure
- Known abnormal GI anatomy
- Previous GI surgery
- Suspected aspiration of foreign body (See [Foreign Body Aspiration Clinical Pathway](#))



- Considerations for GI:**
- Consider urgent endoscopic removal for items ≥ 3 cm in length or ≥ 2 cm in width
 - For short objects with a heavier blunt end (like a nail), consider discharge and follow-up X-ray in 2 - 3 days

- Symptoms**
- Anorexia
 - Vomiting
 - Abdominal pain
 - Fever
 - Hematochezia
 - Abdominal distention



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