Battery, magnet, or coin-shaped metallic foreign body ingestion known or suspected

- If patient provides a disc with images done at OSH, give disc to ED Service Representative and ask for images to be uploaded to Life Image STAT
- If imaging done at OSH, efforts should be made to obtain images via Life Image for review by Lurie staff in advance of arrival

Triage Patient at ESI Level 2

NPO until otherwise instructed by a physician

*Instruct parents that the patient can have nothing to eat or drink.

Order appropriate x-rays immediately to locate battery/foreign body:

- XR Coin/Button Battery/Magnet Ingestion Protocol
- Battery: Double-rim or halo effect on AP view
- Step off on lateral view

Battery, magnet or coin in esophagus?

- ENT, Medical Imaging, & ED Attendings/Fellows review images and collaborate to confirm foreign body type
- Anesthesia and OR Nursing notified as soon as possible of potential surgical case

Immediately remove battery lodged in esophagus

- Pediatric Surgery should be consulted

*Serious burns can occur in 2 hours
*Batteries may be asymptomatic, do not wait for symptoms
*Note position of battery and direction negative pole faces

Prior to hospital discharge, call National Battery Ingestion Hotline (202-625-3333) to report case for national tracking

If battery in stomach or beyond, consult Pediatric Surgery and GI

If battery in stomach or beyond, consult Pediatric Surgery and GI

Patient symptomatic?

Magnet co-ingested* or more than one magnet ingested?

NO

Do not wait for symptoms to develop. Remove endoscopically if possible, surgically if not.

YES

No treatment

EXCEPT:
- If >15 mm cell ingested by child < 6 years old, repeat x-ray 4 days post ingestion (sooner if symptoms develop). If still in stomach at 4 days, remove endoscopically (even if asymptomatic).
- If child < 5 years old, admit for observation

COIN/MAGNET

ENT and ED develop plan for management

If in stomach, remove endoscopically even if symptoms are minor. If beyond reach of endoscope, consider surgical removal for patients with occult or gross GI bleeding, persistent or severe abdominal pain, vomiting, signs of acute abdomen, fever, or profoundly decreased appetite (unless symptoms clearly unrelated to battery).

Important Note:

After removal, if mucosal injury is present, observe for and anticipate delayed complications: tracheoesophageal fistula, esophageal perforation, mediastinitis, vocal cord paralysis, tracheal stenosis or tracheomalacia, aspiration pneumonia, empyema, lung abscess, pneumothorax, spondylodiscitis or exsanguination from perforation into a large blood vessel. Anticipate specific complications based on injury location, battery position and orientation (negative pole).

Determine length of observation, duration of esophageal rest, need for serial imaging or endoscopy/bronchoscopy based on severity and location of injury. Monitor patients at risk for perforation into vessels as inpatients. Intervene early to prevent fatality. Monitor for respiratory symptoms, especially those associated with swallowing, to diagnose TE fistulas early. Expect presentation of perforations and fistulas to be delayed for up to 18 days after battery removal and esophageal strictures weeks to months afterwards.

Tips, Pitfalls & Caveats:

- 3 “N’s”: Negative – Narrow – Necrotic. The negative battery pole, identified as the narrowest side on lateral x-ray, causes the most severe, necrotic injury. The negative battery pole is the side opposite the “+” and without the imprint.

- 20 mm and larger lithium coin cells are most frequently involved in esophageal injuries; smaller cells lodge less frequently but may also cause serious injury or death.