Symptomatic patient, no ingestion history. Consider battery ingestion if: Suspect a battery ingestion in these situations · Airway obstruction or wheezing Drooling Vomiting · Chest discomfort "Coin" ingested. · Difficulty swallowing, decreased appetite, refusal to eat Check AP x-ray for battery's · Coughing, choking or gagging with eating or drinking double-rim or halo-effect and lateral view for step off. Immediately Battery in Battery ingestion known or suspected YES remove batteries Esophagus? lodged in the esophagus. X-ray immediately to locate NO Serious burns can battery.² Batteries lodged in (battery in Patient ≤ 12 years occur in 2 hours. NPO until esophagus may cause serious stomach or Do not delay esophageal position burns in 2 hours. Batteries in beyond) Patient > 12 years and because patient ruled out by x-ray.1 the esophagus may be has eaten. Prefer battery > 12 mm asymptomatic initially. Do not endoscopic Was a magnet co-ingested? wait for symptoms. removal (instead of Take up to 5 minutes to retrieval by balloon LYES-NO determine imprint code catheter or magnet (or diameter) of affixed to tube) for Do not wait for companion or direct visualization symptoms. Are all these conditions met? replacement battery. of tissue injury. • Patient is entirely asymptomatic Remove NO Inspect mucosa for endoscopically if and has been so since extent, depth and ingestion. possible; surgically Consult National Patient > 12 years and location of tissue Only one battery ingested. if not. **Battery Ingestion** damage. Note battery ≤ 12 mm · Magnet not also ingested. Hotline at position of battery ≤ 12 mm diameter 202-625-3333 and direction determination is certain for assistance with negative pole Are related signs No pre-existing esophageal battery faces. or symptoms disease identification and present? Patient or caregiver is reliable. treatment. mentally competent, and agrees to promptly seek NO evaluation if symptoms After removal, if **TIPS, PITFALLS & CAVEATS** mucosal injury was develop. present, observe for • 3 "N's": Negative - Narrow - Necrotic. The YESand anticipate YES negative battery pole, identified as the delayed narrowest side on lateral x-ray, causes the ≥ 15 mm cell complications: most severe, necrotic injury. The negative ingested by child tracheoesophageal Manage patient at home. < 6 years³ battery pole is the side opposite the "+" and fistula, esophageal Regular diet. Encourage without the imprint. perforation, activity. Confirm battery • 20 mm lithium coin cell is most frequently mediastinitis, vocal passage by inspecting YES NO involved in esophageal injuries; smaller cells stools. Consider x-ray to cord paralysis, lodge less frequently but may also cause tracheal stenosis or confirm passage if X-ray 4 days post serious injury or death. passage not observed in tracheomalacia. ingestion (or • Definitive determination of the battery diameter 10-14 days. aspiration sooner if prior to passage is unlikely in at least 40% of pneumonia, symptoms ingestions. empyema, lung If symptoms develop). If still in • Assume hearing aid batteries are < 12 mm. abscess, develop later, stomach, remove • Manage ingestion of a hearing aid containing a pneumothorax, promptly endoscopically battery as an ingestion of a small (≤ 12 mm) spondylodiscitis, or re-evaluate. (even if battery. exsanguination asymptomatic). • Do not induce vomiting or give cathartics. Both from perforation are ineffective. into a large vessel. · Assays of blood or urine for mercury or other battery ingredients are unnecessary. If battery in stomach, remove endoscopically even if symptoms NOTES: appear minor. If battery Anticipate specific complications based on injury beyond reach of ¹ NPO. Anesthesia may be required for removal. location, battery position and orientation (negative endoscope, surgical pole). Determine length of observation, duration of removal reserved for ² X-ray abdomen, esophagus and neck. Batteries esophageal rest, need for serial imaging or unusual patients with above the range of the x-ray have been missed. If endoscopy/bronchoscopy based on severity and occult or visible battery in esophagus, obtain AP and lateral to location of injury. Monitor patients at risk of perforation bleeding, persistent or determine orientation of negative pole. If ingestion into vessels as inpatients with serial imaging and stool severe abdominal pain, suspected and no battery visualized on x-rays, guaiacs. Intervene early to prevent fatality. Monitor for vomiting, signs of acute respiratory symptoms, especially those associated check ears and nose. abdomen and/or fever, with swallowing, to diagnose TE fistulas early. Expect or profoundly ³ If battery diameter is unknown, estimate it from decreased appetite perforations and fistulas to be delayed up to 28 days after battery removal and esophageal strictures the x-ray, factoring out magnification (which tends (unless symptoms delayed weeks to months. to overestimate diameter). unrelated to battery).