

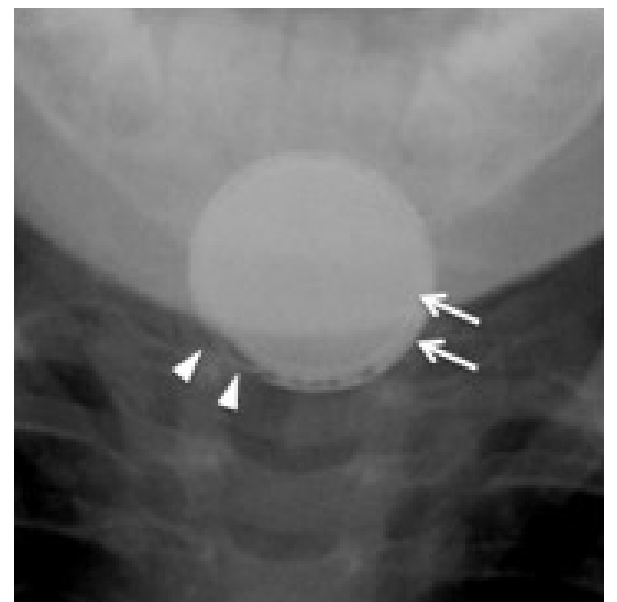
The X-Ray and the Button Battery

BY RURI LEE, MD, HIMANSHU PATEL, MD, & SHIVANI PATEL, MD

An 11-month-old girl was brought to the emergency department with a two-week history of pooling secretions and feeding intolerance. A chest radiograph was performed, and detected a button battery.

ENT was consulted emergently, and the patient was taken to the operating room for a laryngoscopy. The battery was retrieved, and the patient was found to have erosion and perforation of the posterior esophageal wall, which was repaired. She was discharged home following a prolonged stay in the pediatric ICU. Six months later, the patient presented with cough and repeated bouts of emesis. An esophagram was performed, which showed focal high-grade narrowing in the proximal esophagus. This was an esophageal stricture that developed as a delayed complication of button battery ingestion and battery cell corrosion within the esophagus.

Most cases of button battery ingestion result in spontaneous passage through the gastrointestinal tract, but impaction of the button battery in the esophagus can result in considerable morbidity and even mortality. This holds a high risk for severe injury to esophageal mucosa, including full-thickness



Frontal upright radiograph of the chest (left) shows a round metallic foreign object in the expected location of the proximal esophagus. Once magnified (right), the foreign body exhibits a double contour appearance (arrows). This corresponds to the shape of a button battery. Note regions of irregularity and lucency about the periphery of the button battery (arrowheads in 1b), which indicate corrosion of the battery itself.

erosion resulting in perforation. The mechanism for injury is only partially from pressure necrosis. The primary hazard of button batteries (as opposed to other foreign bodies of similar shape, like coins) lies in its ability to induce a current and hydrolyze tissue fluids to produce hydroxide, causing rapid tissue erosion and injury to the esophageal wall. Eventually, corrosion of the battery cell can result in the leakage of battery contents, which causes further injury and toxicity.

It was reasonable to conclude based on the radiographic evidence of battery cell corrosion that significant esophageal injury had already occurred. An emergent laryngoscopy showed a full-thickness injury resulting in perforation of the posterior esophageal wall.

Button battery ingestion poses a risk for delayed complications such as tracheoesophageal fistula and esophageal stricture, in addition to an acute injury. Early diagnosis

is key in managing ingested button batteries, and in cases of impaction within the esophagus, prompt retrieval is crucial not only to avoid acute injury but to prevent delayed complications that may necessitate additional invasive interventions. [EMN](#)

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Spot image from an esophagram (left) shows focal narrowing in the proximal esophagus (arrow). Magnification of the level of narrowing (right) better delineates the abrupt tapering of the esophagus, indicative of a stricture at this level and dilation of the more proximal esophagus and hypopharynx secondary to downstream obstruction.



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