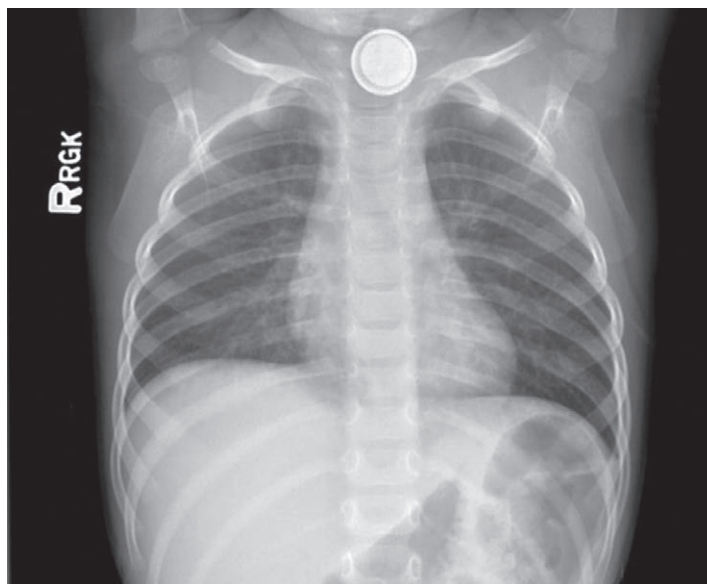


Button Battery Ingestion

A True Surgical and Anesthetic Emergency

T. Wesley Templeton, M.D., Bradley J. Terry, M.D., Shelly H. Pecorella, M.D., Martina G. Downard, M.D.



Button battery ingestion is a surgical emergency frequently associated with significant morbidity and mortality. In the United States, approximately 3,500 button battery ingestions are reported annually.¹ Classically, button batteries have a “double halo” sign on chest x-ray, which distinguishes them from coins (see image; R indicates right side).² The mechanism of injury is liquefactive necrosis from electrochemical generation of hydroxide ions and the resultant alkaline environment at the negative pole of the battery. Given that even short periods of exposure can lead to significant injury, clinicians should disregard *nil per os* guidelines and proceed with anesthesia and endoscopic removal.¹

Factors that inform the anesthetic plan include time since battery ingestion and whether the child has had a sentinel bleed. Mask induction may be considered where ingestion is known to be recent (less than 12 h) and the patient is *nil per os*.³ Intravenous induction is the best choice, however, when the timing of ingestion is less clear because of the risk of aspiration and/or the risk of contamination of other thoracic tissue planes secondary to occult battery-related injuries such as erosion from the esophagus into mediastinum or a tracheoesophageal fistula.¹ If there has been a sentinel bleed, one should strongly consider the possibility of an esophageal-vascular fistula and perform a rapid sequence induction. Further, the clinician should prepare

for the possibility of significant intraoperative hemorrhage by obtaining adequate intravenous access, placing an arterial line, and making sure blood products are immediately available. Eighty percent of fatalities are due to hemorrhage, with aortoesophageal fistula being the most common cause.¹

Competing Interests

The authors declare no competing interests.

Correspondence

Address correspondence to Dr. Templeton: ttemplet@wakehealth.edu

References

1. Ing RJ, Hoagland M, Mayes L, Twite M: The anesthetic management of button battery ingestion in children. *Can J Anaesth* 2018; 65:309–18
2. Pae SJ, Habte SH, McCloskey JJ, Schwartz AJ: Battery ingestion resulting in an aortoesophageal fistula. *ANESTHESIOLOGY* 2012; 117:1354
3. Litovitz T, Whitaker N, Clark L, White NC, Marsolek M: Emerging battery-ingestion hazard: Clinical implications. *Pediatrics* 2010; 125:1168–77

From the Department of Anesthesiology, Wake Forest University School of Medicine, Winston-Salem, North Carolina.

Copyright © 2019, the American Society of Anesthesiologists, Inc. All Rights Reserved. *Anesthesiology* 2019; XXX:00–00. DOI: 10.1097/ALN.0000000000003019