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Maryland Poison Center
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The Maryland Poison Center's Monthly Update: News, Advances, Information

Cylindrical battery ingestions

Inadvertent ingestion of button batteries in pediatric patients is a major concern due to the potential for severe esophageal or gastrointestinal injury. Although cylindrical batteries (A, AA, AAA, C or D cell) are often viewed as less harmful than button batteries, toxic effects can still occur under certain circumstances. Cylindrical battery ingestions commonly occur in adults and are often intentional in the setting of incarceration or psychiatric illness.

Effects from ingestion of cylindrical batteries can be divided into one of two categories. Physical obstruction of the airway or bowel can occur due to their large size and oblong shape. Corrosive effects due to the metal compounds within the battery (most commonly zinc, lithium, mercury, nickel, and cadmium) are uncommon. Ingestion of intact cylindrical batteries represents a low risk for caustic damage to the gastrointestinal tract. These effects are most likely to occur when the integrity of the battery casing has been damaged before swallowing. This can happen due to physical damage to the outside of the battery before ingestion (through chewing or cracking) or from prolonged retention of the battery in the acid environment of the stomach. Absorption of heavy metals may occur, but systemic toxicity is rare and should not require treatment.

Most cylindrical battery ingestions can be managed conservatively. In a review of 114 battery ingestions, 3 were cylindrical batteries. Two cases involved children ingesting a single AAA battery. The third case was a 30-year-old male who intentionally ingested 4 mercuric oxide batteries. The batteries passed in all cases without complications

Abdominal radiographs can identify the location of the battery and track its movement through the GI tract. They also may allow for the visualization of leakage of corrosive metal compounds in rare situations. Endoscopic retrieval should be performed in patients with signs of esophageal obstruction or corrosive damage (significant gastrointestinal pain, persistent vomiting). Surgical removal is recommended for patients with signs of obstruction or perforation distal to the stomach.

Limited data inform timing of battery removal in asymptomatic patients. One group recommends removal of batteries remaining in the stomach for longer than 48 hours. One case series described 5 patients who had intentionally ingested cylindrical batteries. Four of them spontaneously passed over the course of weeks to months with no symptoms or effects noted. The fifth patient chewed the battery and presented with upper gastrointestinal pain. He underwent laparotomy for urgent removal. These limited cases suggest that cylindrical batteries retained in the stomach for longer than 48 hours can still be treated conservatively in the absence of damage to the casing or obvious gastrointestinal symptoms.

Call the poison center at 1-800-222-1222 for further guidance on management of battery ingestion.

Did you know?

Systemic absorption of heavy metals from cylindrical batteries is rare.

In an analysis of 2,382 battery ingestions (button and cylindrical), 9 patients had blood or urine mercury determinations. One patient had a detectable blood mercury level (9.5 mcg/dL) with radiopaque droplets noted in the GI tract, but did not develop clinical manifestations of mercury and did not require chelation. Ten additional cases in which mercury-containing batteries were ingested had measurable urine and blood mercury levels but without symptoms.

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