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THE MARYLAND POISON CENTER'S MONTHLY UPDATE.
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Pediatric Magnet Ingestions

Children often swallow foreign bodies, which usually pass through the gastrointestinal tract uneventfully. An exception to this is when a child ingests magnets, particularly those that are made from rare-earth metals (e.g. neodymium) which are more powerful than traditional magnets. Rare-earth magnets are typically small and spherical, like ball-bearings. They are found in desk toys, office stress-relievers, kitchen tools, jewelry and other consumer products. They have also been used by adolescents to simulate oral and facial piercings, resulting in unintentional ingestions.

The Consumer Product Safety Commission (CPSC) issued a warning about rare earth magnet ingestions as early as 2007, following the death of a 20 month old and numerous reports of ingestions requiring emergency surgery. CPSC estimated that from January 1, 2009 through December 31, 2011, 1,700 ingestions of rare-earth magnets resulted in emergency department treatment. Whereas a 2009 ban on the sale of rare earth magnets to children under 14 years resulted in some products being discontinued, magnet sets labeled for adult use remain available. On September 4, 2012, CPSC proposed a ban on high-powered magnet sets. Final ruling on the ban is pending.

When multiple magnets are ingested, or one magnet and a metallic piece, gastrointestinal injury can occur. The strong magnets can forcefully attract and link together through the bowel wall, sectioning off portions of the bowel. Intestinal obstruction, perforation, sepsis and death have resulted from ischemia and pressure injuries.

If there is a known history of magnet ingestion or a child presents with unexplained vomiting, abdominal pain with or without fever, an abdominal x-ray should be obtained. Single magnet ingestions can often be managed conservatively with observation and visual and/or x-ray confirmation of the passage of the magnet. Endoscopic removal may be considered in some children. When multiple magnets or one magnet and a metal object are involved, they should be removed by endoscopy or surgery. Serial x-rays will confirm the removal of the magnets, or if removal is unsuccessful, progression of the magnets. The North American Society of Pediatric Gastroenterology, Hepatology, and Nutrition developed a detailed algorithm for the management of magnet ingestions based on the number and location of the magnets and time since ingestion. This algorithm was published in the *Journal of Pediatric Gastroenterology and Nutrition* (*JPGN* 2012;55: 239–242).



Image from *JPGN* 2012;55: 239–242



Did you know?

There were more than **22,000 pediatric magnet foreign body cases in the United States from 2002 to 2011 that required emergency care.**

A study utilizing data from the National Electronic Injury Surveillance System determined that there was a five-fold increase in the number of cases in that time period, peaking in 2010-2011. Ninety-one percent of multiple magnet ingestions occurred from 2007-2011, coinciding with the introduction of rare-earth magnets in consumer products. (*Ann Emerg Med* 2013;62:604-8)

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