Magnetic menace: safeguarding children from the growing hazard of multiple magnet ingestion

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The article in this issue titled "A case of multiple magnet ingestion in a child with autism managed with gastroenteroscopy and surgical intervention" [1] highlights important issues, even though it focuses on just one case. Foreign body ingestion is frequently encountered in children, and most foreign bodies traverse the gastrointestinal tract without significant complications. However, ingesting multiple magnets presents serious hazards, as they can attract each other through bowel loops. This attraction can lead to severe complications, including bowel obstruction, volvulus, intestinal perforation, fistula formation, peritonitis, and potentially fatality.

The introduction of rare-earth, neodymium magnets in toys and entertainment products since 2008 has significantly escalated related safety issues over the past two decades. These magnets are extremely powerful, exhibiting a magnetic force that is 5 to 20 times stronger than that of traditional iron magnets, reaching strengths of up to 1,300 G. The first reported incident of bowel injury due to the ingestion of a rare-earth magnet was submitted to the U.S. Consumer Product Safety Commission (CPSC) in 2010. Since then, there has been a sharp increase in the number of hazards associated with these potent, small magnets, which are marketed as children’s toys. This issue reached a critical point with the tragic death of a 2-year-old boy in Washington State, which led to a product recall and legal actions against the manufacturer in 2012. Despite initial regulatory efforts, including a lawsuit against the manufacturer and a federal rule finalized by the U.S. CPSC in 2014, subsequent legal challenges in 2016 overturned the recalls. This reversal has led to a renewed availability of these high-powered magnets on the market and a corresponding increase in related accidents worldwide [2-7].

In Korea, the number of incidents involving the ingestion of these potentially hazardous magnets has surged since they were first imported in 2016. In response to these escalating risks, the Korea Consumer Agency emphasized the dangers of children ingesting magnets in 2018 and advocated for stricter regulations and improved monitoring. Despite regulatory measures that define size and magnetic force limits for children’s products containing magnets, many products are not covered by these regulations because they are classified as suitable for individuals over 14 years of age. However, these products are often marketed with terms like “toy” and claims that they improve concentration, which can obscure the boundaries of safety oversight. Their small, bead-shaped design, vibrant colors, and magnetic flux indices that exceed the allowable standards for children’s toys further increase the risks associated with their ingestion.

International experiences have demonstrated that simple
warning labels or age restrictions on toys are not enough to reduce the incidence of magnet ingestion [8]. Countries such as Saudi Arabia have banned high-powered magnet sets from the market, while the U.S. CPSC has implemented mandatory recalls and proposed new regulations to limit the size and magnetic flux index of toy magnets. In Europe, actions including recalls, withdrawals, bans, and sales halts on non-compliant products highlight the need for comprehensive measures to tackle this issue. Additionally, consumer safety groups and organizations like the European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) have formed a task force aimed at preventing the morbidity and mortality associated with these incidents. They have published the first European position paper on clinical guidelines and have also advocated for increased public awareness and legislative actions to restrict the availability of hazardous magnetic objects [9]. In the United States, several reports have been continuously published to inform about the persistent risks associated with these magnets and to call for much stronger sanctions [10].

Despite safety warnings issued in Korea in 2023 regarding neodymium bead magnets, sales have continued in areas lacking stringent safety management, leading to an increase in related accidents. Reflecting on past incidents where early hazard warnings prompted product recalls, it is clear that more rigorous regulations and thorough management practices could have prevented these dangers. It is crucial that concerted efforts are made across all sectors of society to mitigate such serious risks to children, drawing lessons from the successful regulatory approaches of countries like the United States and Saudi Arabia. Just as ESPGHAN advocates for evidence-based risk evaluation and strives to increase public awareness and legislative action, academic initiatives are essential to educate the public and guide appropriate legislative measures to address this pressing issue.

CONFLICT OF INTEREST

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All the work was done by WKJ.

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1. Ha S, Bak YG, Oh SH, Namgoong JM, Park SJ. A case of multiple magnet ingestion in a child with autism managed with gastroscopy and surgical intervention. Arch Pediatr Crit Care 2024;2:***.

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