

Fidget Spinner Ingestions in Children—A Problem that Spun Out of Nowhere

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The Consumer Product Safety Risk Management System's injury and potential injury database records 13 cases of fidget spinner ingestion since 2016. In addition to a database query, we report 3 additional cases of fidget spinner ingestion to describe patient presentations and subsequent management strategies. (*J Pediatr* 2018;■■■:■■■-■■■).

Foreign body ingestion among pediatric patients is a documented, potentially hazardous injury that can prove fatal.^{1,2} Reeves et al reported an estimated 441 735 suspected foreign body ingestions by children between 2010 and 2015, reinforcing the need for aggressive safety standards.³ The fidget spinner is a cultural phenomenon that has recently received heavy media attention for its potential for ingestion. In our review of the medical literature and a PubMed search in September 2017, using the keywords “fidget” and “spinner,” we found a single case report describing a fidget spinner ingestion by a 13-month-old child (Figure, A).⁴

Catherine Hettinger's 1997 fidget spinner patent expired in 2005, facilitating a mass market surge in the production and sale of fidget spinner adaptations by other companies.⁵⁻⁷ This culminated in the product's ascent to the list of top-20 items on Amazon.com, with approximately 4 units sold online for every 100 US residents in 2017.⁸ This emergence from obscurity is likely related to an increase in social awareness, media attention, and online social communication.⁹⁻¹² In addition, some reports have suggested that fidget spinners can help children cope with anxiety and autism.^{7,13}

The media has publicized a number of injuries, primarily ingestions, by children playing with fidget spinners. In addition, concerns for the regulation of materials used to produce fidget spinners has grown following the detection of elevated levels of lead on the outer paint coatings of some toys.^{14,15} Furthermore, changes to the original spinner design have led to the availability of toys containing lights, batteries, and powerful magnets, increasing the potential for injury.^{14,16}

We present 3 cases of fidget spinner ingestion in conjunction with retrospective analysis of a national database to better describe both patient presentations and the subsequent clinical strategies used for children who ingest fidget spinner parts.

Methods

The Consumer Product Safety Commission (CPSC) database was queried for all injury data related to “fidget spinners”

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| CPSC | Consumer Product Safety Commission |
| CPSRMS | Consumer Product Safety Risks Management System |
| ED | Emergency Department |

from January 2005 (when the original fidget spinner patent expired) to June 30, 2017. A report from the Consumer Product Safety Risk Management System (CPSRMS) injury and potential injury database was generated. The CPSRMS is validated, secure platform that compiles incident reports related to injuries involving consumer products that can originate from multiple sources, including consumer, government, health-care providers, or media outlets.^{17,18} The report collects basic demographic data for the concerned individual, including age (to determine whether subjects were school age, ie, aged ≥5 years), sex, state in which injury occurred, primary injury (ie, ingestion), primary body part involved, severity, and a short incident description. We screened the narrative with the search terms “fidget” and “spinner,” as well as a manual review for further variables, such as circumstances of injury, including size, shape, and presence of magnets/batteries within the fidget spinner toy.

Three pediatric cases of fidget spinner ingestion presented to and were cared for at various medical institutions. On receipt of permission through written record release from a parent, the clinical reports, radiographic findings, and operational/procedural notes for these patients were individually collated for description. This study was approved as exempt by the Institutional Review Board of Baylor College of Medicine.

Results

Case 1

A 9-year-old developmentally appropriate female with no significant past medical history presented to the Emergency Department (ED) after swallowing the central metal bearing of a fidget spinner. The ingestion occurred while the child was playing with the spinner toy, causing dysphagia, choking, and cough. After back blows were unsuccessful, she was transported

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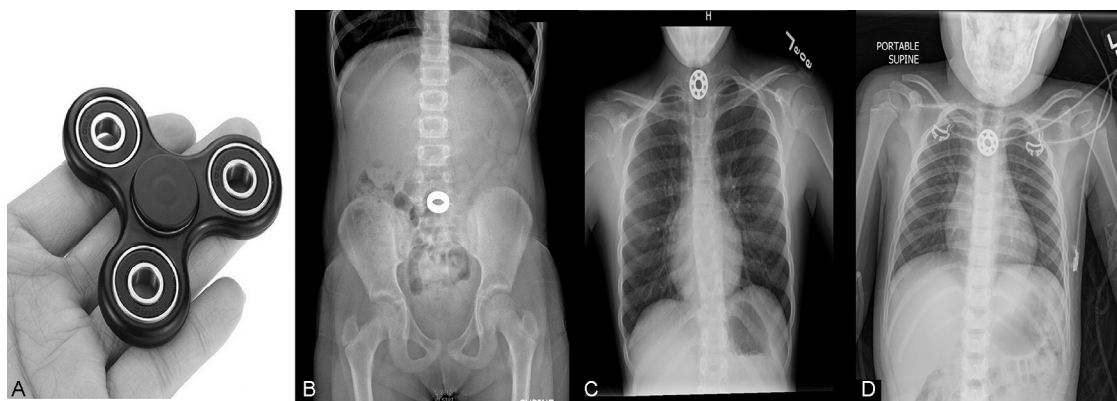


Figure. Fidget spinner toy image (A) with anteroposterior plain radiographs (B-D) for cases 1 to 3, respectively. **A**, Photograph of a generic fidget spinner toy in the palm of an adult male. **B**, A metal foreign body present in the mid-abdomen overlying the L5 vertebrae. The foreign body is shaped like a cylinder measuring 2.5 cm in diameter by 1 cm in height. **C**, A 2.5-cm pinwheel-like density within the lower cervical esophagus with 3 mm of soft tissue thickening between the esophagus and trachea. **D**, A 2.5-cm round foreign body within the upper thoracic esophagus.

to the ED. There, she remained with normal mentation, denied pain, and was hemodynamically appropriate for age without signs of respiratory distress. The physical examination was unremarkable. A plain radiograph demonstrated a 2.5-cm cylindrical radiopaque object overlying the L5 vertebrae approaching the edge of the pylorus, with no signs of obstruction (Figure, B).

Given the child's apparent clinical stability, lack of pain, and ability to tolerate fluids, she was discharged with a plan to acquire follow-up abdominal radiographs to prove transit of the metal bearing. Three days later, an upright radiograph demonstrated that the foreign body had been successfully passed. On follow-up, she had resumed all previous activities and was otherwise healthy.

Case 2

A 10-year-old female with a past medical history of Prader-Willi syndrome, scoliosis, and vesicoureteral reflux presented with copious drooling and dysphagia without respiratory symptoms after swallowing the central bearing from a fidget spinner. An abdominal thrust failed to expel the object, and the patient was transported to a pediatric ED with complaints of dysphagia and odynophagia without dysphonia or wheezing. A chest radiograph revealed a 2.5-cm pinwheel-like density within the cervical esophagus, suspected to be the culprit fidget spinner (Figure, C). An endoscopy was performed, but no object was visualized. The patient's mucosa appeared normal without evidence of injury. On follow-up 10 days later, an abdominal radiograph showed the object in her lower left quadrant. A repeat radiograph at 27 days after ingestion revealed that the object had passed. Subsequently, the patient resumed all previous activities and has remained at baseline health.

Case 3

A 5-year-old male with unremarkable past medical history presented to an urgent care center following a witnessed ingestion of the metal bearing from a fidget spinner toy. Ingestion

was confirmed by chest radiograph, which located the bearing in the esophagus. The child was transferred to a pediatric ED with symptoms of odynophagia, dysphagia, and abdominal pain. On arrival, a repeat chest radiograph revealed a 2.5-cm round foreign body within the upper thoracic esophagus with no other remarkable features (Figure, D). On endoscopy, the disc was identified 18 cm from the lip and removed inferior to the upper esophageal sphincter. There were no follow-up records to review.

CPSRMS Review

The CPSRMS query identified 13 injuries recorded as an aspirated/ingested object between January 2016 and July 2017 (median age, 8 years; range, 2-14 years) (Table). No fidget spinner ingestions were recorded before January 2016. School-age children (85%; n = 11) demonstrated the highest number of ingestions compared with younger children aged ≤ 4 years. With respect to sex, 61% (n = 8) of the patients with suspected ingestion were male. Regarding the locations where these children received care, 31% (n = 4) were managed at an ED, 23% (n = 3) required inpatient admission, 23% (n = 3) were treated in an outpatient setting, and 23% (n = 3) received basic care at home. The definitive management strategies used for patient care included, in order of frequency, serial radiographs with watchful waiting (31%; n = 5), endoscopy (15%; n = 2), first aid by nonmedical professional (15%; n = 2), no care rendered (8%; n = 1), surgery (8%; n = 1), dental referral (8%; n = 1), and data not available (8%; n = 1).

Discussion

We have presented several case reports as well as data from the US CPSC regarding injury due to ingestion of fidget spinner toys. Specifically, we have demonstrated that children across the age spectrum have the skill to disassemble a spinner toy, which may have a low risk of ingestion as a single unit, but

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