

## Medical Quiz Answers

- A1. There is a foreign body in the right lower abdomen.  
A2. Bowel obstruction and bowel perforation.  
A3. Close observation.

### DISCUSSION

Foreign body ingestion in the pediatric age group is common and challenging to pediatric surgeons and pediatric gastroenterologists. Foreign body ingestions in pediatrics are incidental and the objects commonly are from the home environment, such as batteries, coins, toys, magnets and jewelry. Ingested foreign bodies are usually seen in 75% of children under the age of 5 years<sup>1-3</sup>.

The clinical presentation of children with ingested foreign body varies from abdominal pain, stridor, fever, vomiting, respiratory distress, drooling and asymptomatic<sup>1,2</sup>.

Foreign body ingestions are classified into magnets, button batteries, food impactions, sharp objects, blunt objects and superabsorbent objects. Button batteries and multiple magnet ingestions are associated with high morbidity and mortality in pediatric age group<sup>2,3</sup>.

The management of children with foreign body ingestion is based on clinical symptoms, age of the patient, object type, size of the foreign body, location, time since ingestion. The management of foreign body impacted in the esophagus is immediate removal by the endoscope. Blunt and small objects, such as coins in the stomach and beyond can be observed without intervention<sup>3</sup>.

The ingestion of button batteries may lead to caustic injury from high pH due to an increase in the level of mercury. The morbidity and mortality of ingesting button batteries are related to the size and the change to lithium cells. Complications of ingested button batteries include esophageal perforation, tracheoesophageal fistula, mediastinitis, vocal cord paralysis and pneumothorax<sup>4</sup>.

Management of ingested button batteries in children depends on the location and the clinical symptoms. Most of the ingested button batteries in the esophagus and stomach need to be removed by endoscopy. Close observation is needed in asymptomatic cases of ingested button batteries beyond the stomach<sup>4</sup>.

The risk of injury by the ingestion of magnets depends on the number of magnets and the location. Injuries include perforation, enteroenteric fistula, intestinal ischemia and peritonitis<sup>5</sup>.

Most of the single magnet ingestion cases can be observed while the management of multiple magnets ingestion cases depends on the symptoms, location of the magnets and the timing since ingestion. Many cases of multiple magnets in esophagus and stomach require endoscopic removal, while multiple magnets in bowel segment may require surgery for removal<sup>5</sup>.

### CONCLUSION

**Foreign body ingestion in children is a common clinical scenario for pediatric surgeons and pediatric gastroenterologists. There are different groups of ingestions with varied clinical presentations. High morbidity and mortality are associated with button batteries and multiple magnets. Management varies from observation to surgical removal depending on the symptoms, location and type of foreign body.**

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**Potential Conflicts of Interest:** None.

**Competing Interest:** None.

**Sponsorship:** None.

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**Ethical Approval:** Approved by the Department of Pediatrics, Salmaniya Medical Complex, Bahrain.

### REFERENCES

1. Wright CC, Closson FT. Updates in Pediatric Gastrointestinal Foreign Bodies. *Pediatr Clin North Am* 2013; 60(5):1221-39.
2. Lee JH, Lee JH, Shim JO, et al. Foreign Body Ingestion in Children: Should Button Batteries in the Stomach Be Urgently Removed? *Pediatr Gastroenterol Hepatol Nutr* 2016; 19:20-28.
3. Kramer RE, Lerner DG, Lin T, et al. Management of Ingested Foreign Bodies in Children: A Clinical Report of the NASPGHAN Endoscopy Committee. *J Pediatr Gastroenterol Nutr* 2015; 60:562-574.
4. Kodituwakku R, Palmer S, Paul SP. Management of Foreign Body Ingestions in Children: Button Batteries and Magnets. *Br J Nurs* 2017; 26(8):456-461.
5. Brown JC, Otjen JP, Drugas GT. Pediatric Magnet Ingestions: The Dark Side of the Force. *Am J Surg* 2014; 207(5):754-9.