A caecal perforation from foreign body ingestion in a child with autistic spectrum disorder

Tzu-Yi Chuang, Sijo Samuel, Hassan Malik

ABSTRACT

Foreign body ingestion is a common medical issue. However, quite often the diagnosis of foreign body ingestion can be a challenge as clinical presentation is variable, often with non-specific symptoms. It is reported that 80-90% of ingested foreign bodies can pass through the gastrointestinal tract without any clinical sequelae; rarely, 1%, cause bowel perforation. This report presents the case of a 13-year-old boy with autistic spectrum disorder brought in by his parents with undifferentiated abdominal pain and non-specific symptoms including recent flu-like symptoms, generalised weakness, and lethargy. It was difficult to obtain a thorough history and examination due to his developmental disorder. Diagnostic laparoscopy was subsequently conducted and an unexpected finding of a caecal perforation from an ingested metal wire was noted. Primary closure of the caecal perforation was performed post metal wire removal. The patient recovered well with no post-operative complications. As clinicians, we should have a high index of suspicion for foreign body induced viscus perforation when patients present with atypical abdominal pain, especially in those with paediatric developmental disorders such as autism. Patients with autism often increase the difficulty of clinical diagnosis due to poor history taking and a challenging physical examination. Overall, an emergency diagnostic laparoscopy is recommended if the patient has any suspicion of an acute abdomen.

Keywords: Autism, Caecal perforation, Foreign body

INTRODUCTION

Foreign body (FB) ingestion is a common surgical presentation with certain groups exhibiting a higher prevalence of this complaint compared to the general population. These include children, elderly persons, patients with dental prosthesis, people with alcohol or drug dependency, and people with mental health disorders [1–7]. FB ingestion may lead to complications like gastrointestinal mucosal injuries, gastrointestinal bleeding, gastrointestinal perforation, gastric outlet obstruction, infection, abscess formation, peritonitis or fistula formation [1].

It is believed that approximately 80–90% of ingested FBs pass through the gastrointestinal tract without causing any luminal damage, however approximately 1% of FBs are known to remain lodged within the bowel and cause luminal erosion and perforation [3, 6, 7]. The most common sites of perforation are the ileocecal junction, rectosigmoid region, and duodenum due to
acute angulation and narrowing of the lumen within these sections. Other, less commonly damaged sites include the appendix, colonic flexure, diverticulum, and anal sphincter [3, 7].

In our report, we discuss the case of a 13 year old boy with autism spectrum disorder (ASD) who presented with non-specific abdominal pain. Intraoperatively, a caecal perforation from an ingested metal wire was identified. This emphasised the importance of appropriate history taking, and also reminded colleagues to always have a high index of suspicion for serious medical/surgical problems in paediatric populations with ASD.

CASE REPORT

A 13-year-old boy was brought in by his parents to the emergency department with a 3 day history of non-specific abdomen pain. It was difficult to obtain a thorough history due to the communication difficulties associated with his diagnosis of ASD. From the limited information provided by the patient, it was understood that he had suffered from severe abdominal pain for 2-3 days which was worse in right iliac fossa region. He had never experienced similar pain before and he denied any nausea and vomiting, diarrhea, loss of appetite, or fever. His last bowel motion was during the night prior to presentation. It was noted that he had also suffered from coryzal symptoms with a runny nose for the past 2-3 weeks. His past medical history included a formal diagnosis of ASD, intellectual impairment, and attention deficit hyperactive disorder (ADHD). His vaccinations were up-to-date and his parents denied any recent travel history.

On physical examination, the patient appeared to be unwell and lethargic. Vital signs were all within normal ranges. The patient was reluctant to allow for a proper examination as he had been anxious while he was at emergency department, therefore only limited examination was conducted. His abdomen was tender in the right lower quadrant and no obvious focal signs of peritonism were found. Groin examination was grossly unremarkable; testicular examination was however unable to be conducted. Biochemical laboratory tests highlighted a haemoglobin level of 129 g/L, elevated white cells (14.5x10^3 /mm^3), and elevated CRP (50 mg/dL). An abdominal ultrasound was performed, however the appendix was unable to be visualized. At this point a working diagnosis of appendicitis was made. He was subsequently admitted for intravenous antibiotics and booked and consented for a laparoscopy appendectomy.

The surgery was conducted one day after the patient’s admission. Intraoperatively, the caecum was found to be covered with fibrin plaque with numerous adhesions to the wall of right iliac fossa. A 2–3 mm small caecal perforation was also identified along with a metal wire after further mobilization of the caecum. No contamination or enteric contents were seen. The distal ileum segment and appendix were grossly normal. As such, the decision was made to perform a laparoscopic removal of the foreign body and intracorporeal repair of the 3 mm perforation with 3x3-0 PDS caecal suture repair. Laparoscopic washout was conducted along with the insertion of a 15 blake drain at right paracolic gutter (Figures 1–4).

The intra-operatively finding was discussed with the family following the procedure. On further history taking, it was noted that the patient had previous presentations related to ingestion of foreign bodies. The patient was first admitted under ENT surgery during 2015 with foreign bodies inserted into his ears for which surgical retrieval was required. Following this initial episode, the patient had presented to hospitals with self-inflicted injury to his left forearm with various FBs. Orthopaedic surgery for the removal of FBs was also conducted in May this year.

Post-operatively, IV antibiotics (ampicillin, gentamicin and metronidazole) were continued for 48 hours and the drain was removed on day two following the operation. The patient recovered well and was discharged home with five more days of oral Augmentin duo forte.

Figure 1: (A) Caecal inflammation with fibrin plaque, (B) Caecal perforation from sharp elongated metal wire protruding through caecum.

Figure 2(A and B): Caecal perforation post-metal wire removal.

Figure 3(A and B): Primary closure of caecal perforation post-metal wire removal.
DISCUSSION

Sharp elongated shaped items are found to be the most common objects to cause perforation of the gastrointestinal tract. Our case supports this as the long metal wire was found to be cause of the perforation.

Jayachandra et al. [1] conducted a systematic review of FB ingestion in the paediatric population. It was found that up to 75% of FB ingestion cases in paediatric patients were under 4 years old and most of them were between 6 months and 4 years of age [4]. Common ingested objects included coins, batteries, toys, marbles, erasers and bones. Patients with FB ingestion can either present asymptptomatically or with a variety of symptoms depending on the type of FB that was ingested and how long it remained in situ. Clinical manifestations may include abdominal pain, nausea and vomiting, hematemesis, PR bleeding, fever, generalised feeling of being unwell, diarrhoea, and respiratory symptoms such as coughing, choking, wheezing or stridor. It is recommended that batteries and sharp objects should be removed immediately either endoscopically or surgically as they carry a higher risk of bowel perforation, infection and death.

According to a case review of 21 cases [3], it is quite common that no definitive history or diagnosis of FB ingestion is able to be obtained preoperatively. Further, bowel perforation may not be diagnosed preoperatively because clinical symptoms are sometimes non-specific and mimic other surgical conditions such as appendicitis or diverticulitis [3–4].

Sarmast et al. [3] determined from a review of 21 cases that the mean time from ingestion of a FB to presentation to a doctor was 9.3 days. This is similar to our case in which the patient had ingested a FB approximately 2 weeks prior to hospital presentation.

This case reminded us that as a clinician, we should have high index of suspicion for foreign body induced viscus perforation in a patient who presents with atypical abdominal pain, especially in paediatric patients with ASD. Patients with ASD often increase the difficulty of attaining a clinical diagnosis due to poor history taking and challenging physical examination. In young populations, limited imaging investigation has also increased the challenge of achieving a correct diagnosis. Appropriate explanation and discussion with patient’s parents regarding diagnostic laparoscopy is essential prior to surgery.

CONCLUSION

Overall, emergency diagnostic laparoscopy is recommended by authors of this paper if the patient has a clinical indication, such as an acute abdomen as in our case.

REFERENCES

1. Jayachandra S, Eslick GD. A systematic review of paediatric foreign body ingestion: Presentation, complications, and management. Int J Pediatr Otorhinolaryngol 2013 Mar;77(3):311–7.
2. Petrea S, Brezean I. Self harm through foreign bodies ingestion – rare cause of digestive perforation. J Med Life 2014 Jun 15;7(2):246–53.
3. Sarmast AH, Showkat HI, Patloo AM, Parray FQ, Lone R, Wani KA. Gastrointestinal tract perforations due to ingested foreign bodies: A review of 21 cases. BJMP 2012;5(3):a529.
4. Maemanus JE. Perforations of the intestine by ingested foreign bodies: Report of two cases and review of the literature. The American Journal of Surgery 1941;53(3):393–402.
5. Paul SP, Hawes D, Taylor TM. Foreign body ingestion in children: Case series, review of the literature, and guidelines on minimising accidental ingestions. J Fam Health Care 2010;20(6):200–4.
6. Nicolodi GC, Trippia CR, Caboclo MF, et al. Intestinal perforation by an ingested foreign body. Radiol Bras 2016 Sep–Oct;49(5):295–9.
7. Chuang TY, Sax AT, Dauway E, Clercq SD. Hepatic abscess secondary to the accidental ingestion and lodgment of dental wires in the large bowel: A case report. J Case Rep Images Surg 2018;4:100053Z12TC2018.
Acknowledgements
We would like to thank paediatric and emergency department colleagues’ contribution in this patient’s care.

Author Contributions
Tzu-Yi Chuang – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Sijo Samuel – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Hassan Malik – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor of Submission
The corresponding author is the guarantor of submission.

Source of Support
None.

Consent Statement
Written informed consent was obtained from the patient for publication of this case report.

Conflict of Interest
Authors declare no conflict of interest.

Data Availability
All relevant data are within the paper and its Supporting Information files.

Copyright
© 2018 Tzu-Yi Chuang et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.
Submit your manuscripts at
www.edoriumjournals.com