Intestinal perforation and intervention 12 years after ingestion of reading glasses

T Allsopp, G Fraser-Kirk

Citation

T Allsopp, G Fraser-Kirk. *Intestinal perforation and intervention 12 years after ingestion of reading glasses*. The Internet Journal of Surgery. 2009 Volume 23 Number 2.

Abstract

Foreign body ingestion can be a frequent cause for presentation to the emergency department. It is often accidental, but in a small number of cases may be intentional. Any age group can present after intentional foreign body ingestion but all have contributing factors, often including medical conditions. Although up to 90% of ingested foreign bodies will pass spontaneously, the other 10% cause substantial morbidity and require intervention[1,2,3,4,5,6,7,8]. We report below a case of small-bowel resection for perforation, 12 years post intentional ingestion of a sharp foreign body.

CASE REPORT

A 42-year-old man presented to the Toowoomba Base Hospital emergency department in December 2009 with persistent and worsening abdominal pain. He reported severe and constant right iliac fossa pain for the past 48 hours on a background history of self-limiting abdominal pain over the past 20 years. He denied any associated vomiting, fevers, radiation of pain, or change in bowel habit. He reported the pain to be worse on movement.

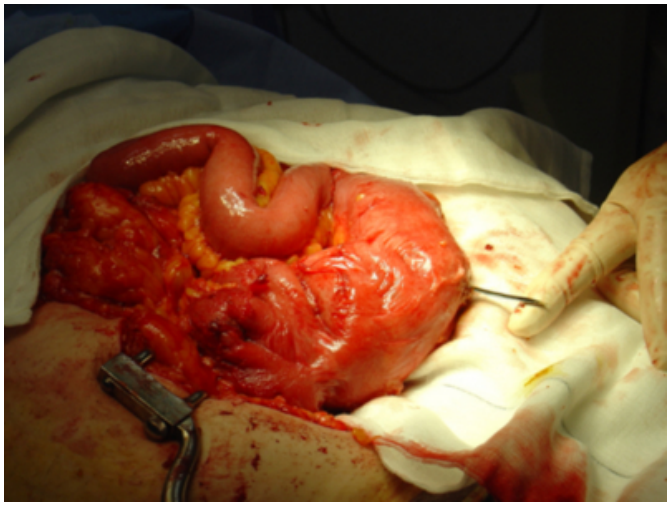
He had previously been diagnosed with an organic personality disorder and frontal lobe syndrome secondary to meningitis as a child. He reported ingestion of multiple foreign bodies over the past 20 years, most of which were without complication. Of note he did remember ingesting the side arms of his reading glasses twenty years ago and reported them to still be in the gastrointestinal tract. He currently resided at Ballie Henderson Hospital, a psychiatric institution in Toowoomba.

On presentation, the patient was not in apparent distress and appeared comfortable. He was afebrile and his observations were unremarkable. Palpation of his abdomen revealed central tenderness with no guarding, rebound or rigidity. Investigation revealed a leukocytosis with predominant neutrophilia (white cell count 16.1 $x10^9$/L, neutrophils 11.25 $x10^9$/L) and slight hypocalcaemia (corrected calcium 2.10 mmol/L). A computed topographic scan of his abdomen showed significant inflammatory changes in the small-bowel mesentery adjacent to a small-bowel loop containing a foreign body. Multiple small air specks were also identified outside the lumen of the small bowel consistent with a small perforation. The patient then proceeded to theatre for laparoscopy and removal of the foreign body.

Intra-operatively, the patient was seen to have dense inflammatory adhesions between loops of small bowel. The procedure was converted to a laparotomy and the small bowel was mobilised. An obvious perforation caused by a sharp foreign body was identified in the mid ileum (Figure 1). The section of ileum showed local inflammation and was felt to contain several other ingested foreign bodies. A small bowel resection and hand sewn anastomosis were performed and a thorough abdominal washout was completed.

Figure 1

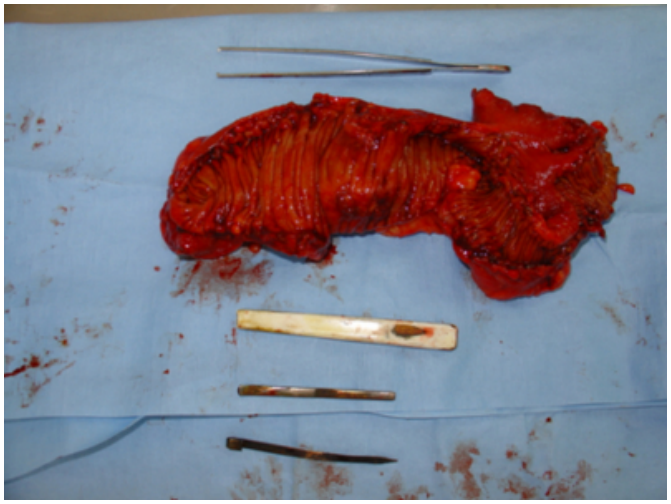
Figure 1: Appearance of the sharp foreign body causing perforation of the small bowel. Note the dense adhesions between the surrounding bowel.



Post-operative recovery was complicated by wound dehiscence which was treated with intravenous antibiotics and vacuum-assisted closure. He was eventually discharged home twenty days after initial presentation to hospital. Macroscopically, the foreign bodies were identified as two metal objects and one object composed of dense plastic material (Figure 2). Adhesions between loops of small bowel suggested previous episodes of perforation. Microscopically, areas of inflammation over the mucosal and serosal surface were seen corresponding to the areas of perforation and peritonitis.

Figure 2

Figure 2: Demonstration of the affected small bowel opened transversely and the three foreign bodies retrieved



This patient was previously well known to the Toowoomba Base Hospital as he had ingested multiple foreign bodies over the past 15 years. From 1994 to 1996, the patient ingested multiple radio antenna tips, glass, a razor blade and metal wire, all of which passed spontaneously and in two instances were removed via gastroscopy.

In January 1996, the patient became upset and deliberately ingested the snapped-off arm of his reading glasses. An abdominal x-ray at the time showed the foreign body complete with a sharp end apparently in the stomach. A decision was made to recommend gastroscopy removal, which the patient refused for twenty-four hours. Upon consenting, this was performed although no foreign body could be identified in the oesophagus, stomach or duodenum. As the patient was asymptomatic, a decision was made for conservative management and serial x-rays.

Serial x-rays over the following year revealed the foreign body passing to the lower abdomen, presumably the terminal ileum, at which time it did not move any further. Throughout this time the patient was asymptomatic.

In June of 1997, the patient deliberately ingested another arm of his reading glasses. Due to the time from ingestion to presentation, repeat abdominal x-ray showed the recently ingested foreign body to be past the stomach and it was not thought to be amenable to endoscopic removal. Once again, conservative management was advised.

A serial abdominal x-ray performed in September 1997 revealed three foreign bodies within the lower abdomen with no signs of obstruction or perforation. At this point he reportedly was having some short self-limiting episodes of lower abdominal pain but a decision was made to avoid surgical intervention unless there was evidence of perforation.

The patient failed to attend outpatient appointments in 1998 and was lost to follow-up from our surgical service. He represented to the emergency department in 2004 with continuing episodes of self-limiting abdominal pain with the subsequent x-rays showing 3 separated foreign bodies in the same position as 1997 with no evidence of obstruction or pneumoperitoneum. He was subsequently discharged home from the emergency department as his symptoms quickly resolved.

DISCUSSION

Foreign body ingestion is a common problem encountered by a range of specialities including the emergency, surgical, psychiatric and gastroenterology departments. It is estimated

that approximately 1500 fatalities occur every year in the United States as a result of complications from foreign body ingestion[2,5].

While accidental ingestion occurs in particularly the young, elderly and those with poorly fitting dentures, deliberate ingestion can present in any age group. Predominantly, it is encountered in patients with a psychiatric illness but other contributing factors include; dementia, malingering patients, dares, transport of contraband or illegal substances or manipulative efforts by people in prison and corrective services[5,9,10].

Although deliberate ingestion of various foreign bodies has been reported previously, we believe this case illustrates several key points in the management of these patients. Firstly, ingested foreign bodies that are unable to be endoscopically retrieved pose a significant dilemma when deciding between conservative and operative management. In particular, the timing of intervention in an asymptomatic patient can often be argued either way. Secondly, there have been no previous documented cases of a high-risk ingested foreign body being present in the gastrointestinal tract for 12 years.

Depending on the servicing area of the hospital, the subgroup analysis of accidental ingestion versus intentional ingestion can vary widely. O'Sullivan et al. report that, out of 308 cases of patients presenting to their service after foreign body ingestion, deliberate ingestion was found in only 11.7% of these cases[10]. In comparison, a retrospective analysis performed by Palta et al. found that 92% of all foreign-body ingestions in their series were intentional[5].

While it is thought that 80-90% of foreign bodies pass through the gastrointestinal tract spontaneously, 8-20% are thought to require endoscopic retrieval[8] and a further 1% will require surgical intervention[1,2,5]. Management is therefore determined by several factors including physical shape of the foreign body, time since ingestion, location of the foreign body in the gastrointestinal tract and evidence of associated complications[5]. Previously documented complications following foreign-body ingestion include death[6,11], abdominal pain, perforation, gastrointestinal bleeding, obstruction, colonic impaction and dysphagia[2,3,4,5,6,7]. Estimation of the risk of perforation from any foreign body in the gastrointestinal system has previously been documented as around 1%[1].

Numerous ingested foreign bodies have been presented in the literature including coins, alkaline batteries, magnets, fish bones, bread clips, cutlery, razor blades, glass, toothbrush, antenna, toothpicks and pencils[1,2,3,5,6,9,10,12,13]. Current American Society for Gastrointestinal Endoscopy guidelines recommend urgent intervention for batteries and sharp objects due to the risk of complications[14]. In addition, removal is recommended of objects longer than 6-10cm, as they usually have difficulty passing the duodenal sweep and carry a higher risk of perforation[14]. It is estimated that the incidence of intestinal perforation following ingestion of a long and sharp foreign body is 15-35%[1,14].

The most common site of gastrointestinal perforation has been reported in variable areas depending on the study. Palta reported the most common areas for perforation in their series were the stomach (51%), duodenum (11%), and oesophagus (6%)[6]. In comparison, other data has suggested that 73% of perforations occurred in the ileocaecal and appendiceal areas[6]. It was also found that patients that had delayed presentation and those with objects beyond the pylorus had a higher incidence of perforation and subsequent surgery.

In our patient, the site of the current perforation appeared to be the terminal ileum. Based on the macroscopic appearance of dense adhesions surrounding the current perforation, we propose that our patient had likely suffered numerous micro-perforations over the past 10 years.

Endoscopic retrieval of the ingested foreign body provides the least morbidity to the patient and is therefore the preferred method of removal. It has been estimated that the success rates of endoscopic removal range from 83-99%, with complications occurring in 1-6% of cases, depending on the study[6]. Obviously this also depends on the characteristics of the foreign body, location of foreign body, time to presentation and endoscopic accessory (e.g. snare, basket, forceps) available for retrieval[6].

It is interesting to note that the delays often encountered with obtaining consent from psychiatric patients (as in our case) have previously been recognized. Often this delay ranges from 24-48 hours and can increase the risk of perforation[6]. Although our patient was admitted to our facility for a long period, it is noted that the average duration of stay in patients requiring surgical intervention in the series by Palta et al. was 24 days.

In conclusion, foreign-body ingestion, accidental or deliberate, is a common presentation to many departments.

In cases were the ingested object has the potential for considerable morbidity, we recommend immediate intervention. In addition, in patients with a prior history of ingestion, particular observation and care should be taken to prevent any further ingestion.

References

1. Katsinelos P, Kountouras J, Paroutoglou G, et al.: Endoscopic techniques and management of foreign body ingestion and food bolus impaction in the upper gastrointestinal tract: A retrospective analysis of 139 cases. Journal of Clinical Gastroenterology; 2006; 40 (9): 784-789.
2. Morrissey SK, Thakkar SJ, Lance Weaver M, Farah K: Bread bag clip ingestion: A rare cause of upper gastrointestinal bleeding. Gastroenterology and Hepatology; 2008; 4 (7): 499-500.
3. Nagaraj HS, Sunil I: Multiple foreign body ingestion and ileal perforation. Pediatric Surgery International; 2005; 21: 718-720.
4. Newell KJ, Taylor B, Walton JC, Tweedie EJ: Plastic bread-bag clips in the gastrointestinal tract: report of 5 cases and review of the literature. Canadian Medical Association Journal; 2000; 162 (4): 527-529.
5. Palta R, Sahota A, Bemarki A, et al.: Foreign body ingestion: characteristics and outcomes in a lower socioeconomic population with predominantly intentional ingestion. Gastrointestinal Endoscopy; 2009; 69 (3): 426-433.
6. Rodriguez-Hermosa JI, Ruiz-Feliu B, Roig-Garcia J, et al.: Lethal intestinal perforation after foreign body ingestion in a super obsess patient. Obesity Surgery; 2009; 19: 1183-1185.
7. Tang APH, Kong AB, Walsh D, Verma R: Small bowel perforation due to a plastic bread clip: The case for clip redesign. ANZ Journal of Surgery; 2005; 75: 360-362.
8. Wong KKY, Fang CX, Tam PKH: Selective upper endoscopy for foreign body ingestion in children: an evaluation of management protocol after 282 cases. Journal of Paediatric Surgery; 2006; 41: 2016-2018.
9. Pawa S, Khalifa AJ, Ehrinpreis MN, et al.: Zinc Toxicity from massive and prolonged coin ingestion in an adult. The American journal of Medical Sciences; 2008; 336 (5): 430-433.
10. O'Sullivan ST, Reardon CM, McGreal GT et al.: Deliberate ingestion of foreign bodies by institutionalised psychiatric hospital patients and prison inmates. Irish Journal of Medial Science; 1996; 165 (4): 294-296.
11. Guindi MM, Troster MM, Walley VM: Three cases of an unusual foreign body in small bowel. Gastrointestinal Radiology; 1987; 12: 240-242.
12. Kircher MF, Milla S, Callahan MJ: Ingestion of magnetic foreign bodies causing multiple bowel perforations. Pediatric Radiology; 2007; 37: 933-936.
13. Mckinley JM, Brady PG: Bread bag clip: kitchen aid or gastrointestinal barricade? Gastroenterology and Hepatology; 2008; 4 (7): 501-502.
14. American Society for Gastrointestinal Endoscopy: Guideline for the management of ingested foreign bodies. Gastrointestinal Endoscopy; 2002; 55 (7): 802-806.

Author Information

T. Allsopp
Department of General Surgery, The Toowoomba Hospital, Toowoomba, Queensland, Australia

G. Fraser-Kirk
Department of General Surgery, The Toowoomba Hospital, Toowoomba, Queensland, Australia