Reminder of important clinical lesson

Accidental ingestion of a cocktail stick

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Summary

Cocktail stick (CS) ingestion injury has rarely been reported in the literature. It is a serious clinical problem with considerable morbidity and mortality, largely due to the fact that the event is unnoticed by the patient. We report a case of CS ingestion that went unrecognised by the patient and caused a perforation in the mid-small bowel. We discuss how injuries from such events can become a diagnostic challenge. The history should be re-evaluated in any undiagnosed abdominal pain which has an unclear aetiology and negative radiology.

BACKGROUND

Foreign body (FB) ingestion is a common surgical problem, but small, blunt FB ingestion is unlikely to cause complications or require intervention.¹ Complications are more common and have been reported to be as high as 35% when sharp-pointed objects are swallowed.^{1 2} Surprisingly, the ingestion of a double-pointed sharp object such as a cocktail stick (CS), or toothpick (TP) as referred to by North American authors, occurs unnoticed in most instances, and only 12% of patients remember the swallowing event.^{3 4} The literature is not clear on the exact differentiation between CS and TP. In the UK, we would consider a CS to be approximately 10 cm in length and primarily for use with preparation and serving of foodstuffs, whereas a TP is approximately 6 cm in length, often sharp at only one end and intended primarily for oral hygiene. The CS is not radio-opaque, rendering the diagnosis very challenging.³ Generally, there is a variable clinical picture of CS injuries, which could closely resemble other more common disorders, and the diagnosis is usually made at exploratory surgery.^{3 4}

We report a case of CS ingestion that went unrecognised by the patient and caused a perforation in the mid-small bowel. We discuss how injuries from such events can become a diagnostic challenge.

CASE PRESENTATION

A 44-year-old Caucasian man presented to the surgical assessment unit with a 3-day history of worsening sharp upper abdominal pain localised mainly to the epigastric region and associated with nausea, fever and night sweats. The pain was worse after eating and occasionally intensified with movement. Associated with this, he described a longstanding history of bloating and distension after eating. The patient denied any history of trauma and reported no vomiting, bleeding per rectum, haematemesis or change in bowel habit. On closer questioning, he reported a 10-year history of periodic upper abdominal pain associated with nausea and complete constipation but with spontaneous resolution. His past medical history was significant for excision of malignant melanoma 22 years ago and appendicectomy in his teens. He did not smoke or drink alcohol, and he was not taking any medications.

Physical examination revealed a well-looking gentleman with normal pulse, blood pressure and temperature. The abdomen was soft with tenderness in the right upper quadrant and epigastric regions. His bowel sounds were present, and rectal examination was normal. Urinalysis was unremarkable as well as all the laboratory findings apart from a raised C-reactive protein of 178.9 mg/l (normal range: 0–5 mg/l). Erect chest and plain abdominal radiography were unremarkable. The initial differential diagnosis included gastritis, duodenitis or cholecystitis, but the possibility of intermittent upper gastrointestinal obstruction was considered and he was thus admitted for observation and further investigations. Subsequently, he had abdominal ultrasonography which was unremarkable with normal gallbladder, and there was no free fluid in the abdomen.

On day 2, the patient's symptoms worsened and he underwent CT scanning of the abdomen and pelvis, which revealed an abnormal area of thickening of the small bowel and a focal lesion with significant perilesional stranding in the small bowel mesentery (figure 1 – white arrow).

Diagnostic laparoscopy proceeding to laparotomy was undertaken. At laparoscopy multiple small-bowel adhesions were seen, limiting proper assessment of the small and large bowel and mandating laparotomy (figure 2). At laparotomy, the extensive small bowel adhesions, which were confined to the distal half of the small bowel, were divided and the mesentery was then visualised. A wooden object was identified protruding through the small bowel wall and penetrating posteriorly into the very thickened and tethered small bowel mesentery (figure 3). The associated small bowel also seemed very abnormal. The object was approximately halfway between the duodeno-jejunal flexure and ileo-caecal valve. The object was retrieved, and the affected small bowel segment was resected with stapled side-to-side anastomosis. The remainder of the bowel was inspected, and the abdominal cavity was thoroughly irrigated. No further abnormalities were identified.

Postoperatively he developed an ileus, which resolved with conservative management, and he was discharged from the hospital after 10 days. In retrospect, he did not recall swallowing the CS but declared that he had quickly eaten a club sandwich embedded with such objects 3 days prior to admission.

Figure 1 CT scan of the abdomen and pelvis revealed an abnormal area of thickening of the small bowel and a focal lesion with significant perilesional stranding in the small-bowel mesentery.

DISCUSSION

Ingestion of FBs is a fairly common event and is not usually related to any untoward effect, as the majority of objects pass uneventfully through the gastrointestinal tract.^{5 6} Ingested FBs can get impacted at any point in the gastrointestinal tract from the oesophagus to the anus, typically at areas of physiologic narrowing or acute angulation of the intestine such as the upper and lower oesophageal sphincters, pylorus, duodenal sweep, ileo-caecal valve and anal area. The most common areas of perforation are the ileum, appendix and colon.⁷ Our patient's perforation was most likely preceded by impaction of the CS at the jejunum approximately halfway between the duodeno-jejunal flexure and ileo-caecal valve. The clinical presentation was subtle because the perforation was not free, but the small bowel mesentery was enwrapping it. The site and the over-

all manifestation of the perforation did not correlate with the findings in previous reports.

Several factors have been reported as predisposing to the accidental swallowing of FBs. These include rapid bolting of food, carelessness, alcohol intoxication, habit of chewing on FBs and decreased sensitivity of the palatal surface (eg, due to the use of dentures).⁸ Most individuals who ingest FBs are unaware of swallowing them.⁵ In a review of the literature Li and Ender reported that only 12% of patients remembered swallowing a TP and just 21% recalled eating something with a TP without swallowing the TP.⁴ In patients who remember swallowing a TP, the maximum reported interval between the ingestion and presentation with related symptoms was 15 years. In our patient's case, it was probably the rapid bolting of food and carelessness that caused him to unintentionally swallow a CS. He

Figure 2 Laparotomy revealed extensive small-bowel adhesions, which were confined to the distal half of the small bowel and limited proper assessment of the small and large bowel.

Figure 3 A wooden object protrudes through the small-bowel wall and penetrates posteriorly into the very thickened and tethered small-bowel mesentery.

recalled eating quickly a club sandwich embedded with a few CSs 3 days prior to the initiation of the symptoms. On admission he reported a 10-year history of periodic upper abdominal pain associated with nausea and complete constipation but with spontaneous resolution. Although it is highly unlikely that these episodes are related to the recently diagnosed perforation, the possibility of an unremembered episode of accidental swallowing of a CS 10 years prior to admission could not be excluded.

All the abovementioned factors suggest that an ingested FB injury may not be suspected in a patient who presents with longstanding unexplained symptoms. This difficulty in diagnosis is compounded by the fact that there is usually a wide spectrum of clinical conditions which would more readily be considered.³ Furthermore, plain radiology is inadequate in detecting radiolucent FBs such as CSs, which are usually made of wood or plastic. In a recent literature review it was reported that TPs were apparent on imaging studies in only 14% of the cases with detection sensitivities of less than 30% for both CT and ultrasound scans.⁴ It was further stated that most TP injuries are diagnosed at exploratory surgery, most commonly laparotomy. In our patient's case, ultrasonography failed to demonstrate the CS, and even CT scan showed an abnormal area with surrounding inflammation, which was by no means diagnostic.

Ingested CS injuries are often associated with considerable morbidity and mortality. Schwartz and Graham⁹ observed two deaths out of their five reported cases, and Li and Ender⁴ literature review revealed mortality of 18%. This is contributed to the diagnostic elusiveness of TP perforation, mainly because patients rarely relate a history of swallowing TPs.⁹ Therefore, impacted or perforated sharp FB should be in the differential diagnosis in any abdominal pain presentation of unclear aetiology.¹⁰ Careful questioning about eating habit and food intake is an essential element of the history in undiagnosed acute abdomen. To an extent, an early suspected diagnosis can effectively prevent a fatal outcome. The physical examination is then the best indicator of an injury.⁴ The persistence of clinical signs in our case led us to suspect an injury. That was picked up and dealt with by exploratory surgery with no immediate and short-term morbidity.

In retrospect and because of the location of CS injury in our case, the overall management would not have been

altered even if we were to consider other diagnostic methods. Endoscopic diagnosis and extraction of the CS has been reported previously.¹⁰ Yet the usage of capsular endoscopy, which was never been reported in the past, could have only played a role and possibly delayed the diagnosis.

Learning points

- ▶ An ingested CS can cause serious damage to the gastrointestinal tract. Complications such as perforation occur subsequent to impaction and the diagnosis is usually challenging.
- ▶ Most patients do not recall the swallowing event and usually the imaging techniques are not adequate.
- ▶ High index of suspicion is required and careful history taking is usually the mainstay for provisional diagnosis.
- ▶ As most reported cases in the literature have proven to date, an exploratory laparotomy is usually required to diagnose as well as to treat the patient.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Cross KM**, Holland AJ. Gravel gut: small bowel perforation due to a blunt ingested foreign body. *Pediatr Emerg Care* 2007;**23**:106–8.
2. **Ginsberg GG**. Management of ingested foreign objects and food bolus impactions. *Gastrointest Endosc* 1995;**41**:33–8.
3. **Lindsay R**, White J, Mackle E. Cocktail stick injuries – the dangers of half a stick. *Ulster Med J* 2005;**74**:129–31.
4. **Li SF**, Ender K. Toothpick injury mimicking renal colic: case report and systematic review. *J Emerg Med* 2002;**23**:35–8.
5. **Perelman H**. Toothpick perforations of the gastrointestinal tract. *J Abdom Surg* 1962;**4**:51–3.
6. **Davidoff E**, Towne JB. Ingested foreign bodies. *N Y State J Med* 1975;**75**:1003–7.
7. **Carp L**. Foreign bodies in the intestine. *Ann Surg* 1927;**85**:575–91.
8. **Maleki M**, Evans WE. Foreign-body perforation of the intestinal tract. Report of 12 cases and review of the literature. *Arch Surg* 1970;**101**:475–7.
9. **Schwartz JT**, Graham DY. Toothpick perforation of the intestines. *Ann Surg* 1977;**185**:64–6.
10. **El-Tarchichi MA**, Yafi MF, Debek AH. Electronic clinical challenges and images in GI. Perforating toothpick mimicking Crohn's disease of the ileum. *Gastroenterology* 2009;**136**:e8–9.

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