CASE REPORT

Gastric perforation due to foreign body ingestion mimicking acute cholecystitis

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Accepted 12 February 2015

SUMMARY

An 82-year-old man presented with signs and symptoms that were suggestive of acute cholecystitis. He underwent a laparoscopic cholecystectomy. During the intervention, a wooden foreign body was removed from the infiltrated omentum, probably after it had perforated the gastric antrum. The gastric perforation had led to a secondary infection of the gallbladder. The presumed gastric perforation was treated conservatively, and the patient recovered well and was discharged after 7 days. Secondary inflamed gallbladders are rare; the current case is, to the best of our knowledge, the first case reporting a secondary infection of the gallbladder due to a gastric perforation. Clinicians should be aware of possible ingestion of foreign bodies in elderly patients wearing dental prosthetic devices.

BACKGROUND

This case is a fine example of how a seemingly common clinical problem, in this particular case an elderly man with signs and symptoms suggestive of acute cholecystitis, was due to a less common condition, warranting different treatment.

CASE PRESENTATION

An 82-year-old man presented at night to our emergency department with a 1-week history of abdominal pain in the right upper quadrant with an increase in intensity of the pain over the past 1 day. He had a good appetite and no symptoms of nausea or vomiting. His stools were unremarkable. He had had an episode of darkened urine 3 months before presentation. On abdominal examination there was a gallbladder-positive Murphy's sign. Relevant medical and surgical history included recent bilateral pneumonia and evaluation for a nodule in the right lower lobe of the lung; a myocardial infarction 8 years ago; and an

appendectomy. Two years prior he had undergone a gastroscopy, revealing multiple *Helicobacter pylori*-negative ulcers in the antrum of the stomach and a diverticulum of the duodenum. Relevant medication at presentation included acetylsalicylic acid 80 mg and pantoprazole 40 mg once daily.

INVESTIGATIONS

C reactive protein was 300 mg/L and white cell count was $14.0 \times 10^9/L$. A chest X-ray was unremarkable except for the pre-existing pulmonary nodule; there was no sign of free intra-abdominal air under the diaphragm. An abdominal ultrasound revealed a slightly hydropic gallbladder with a non-compressible fundus that was tender during the ultrasound. The wall of the gallbladder was not thickened and a few small gallstones were present. The radiologist reported the ultrasound as an image most fitting with acute cholecystitis.

DIFFERENTIAL DIAGNOSIS

Acute cholecystitis.

TREATMENT

The next morning, our patient underwent a laparoscopic cholecystectomy. At inspection, a piece of infiltrated omentum was attached to the falciform ligament. Some pus had evacuated from the gastric antrum region when the omentum was peeled off. The inflamed gallbladder (figure 1) was then dissected and excised from the gallbladder bed without problems. At this point, a wooden stick of about 4 cm was noted at the area where the omentum was attached to the liver (figure 2). Given the location of the wooden stick, it appeared plausible that this had migrated through the pylorus to the abdominal cavity. However, no clear gastric perforation was witnessed, not even when

To cite: Henneman D, Bosman W-M, Ritchie ED, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-207806

Figure 1 The clearly inflamed and hydropic gallbladder was removed after taking a critical view of safety. Note the oedema in the gallbladder bed.

Figure 2 The phlegmonous inflamed omentum showing a wooden foreign body, probably originating from the antrum of the stomach.

Figure 3 The removed foreign body was a wooden stick measuring 40×3 mm.

the abdomen was filled with saline and air driven into the stomach through the nasogastric tube.

A surgical drain was inserted through one of the trocar ports and the patient was treated with intravenous *pantoprazole* 40 mg twice per day, *metronidazole* 500 mg three times per day and *cefuroxime* 750 mg three times per day, for 5 days.

OUTCOME AND FOLLOW-UP

Pathological examination showed fibrinous depositions suggestive of inflammation on the outer gallbladder wall without signs of intraluminal inflammation. The foreign body measured 4 cm in length and 3 mm in diameter and was wooden (figure 3). It was either a cocktail pick, matchstick or a toothpick.

The drain and tube were removed after 3 days, the patients' diet was expanded and he was discharged in good health on the seventh postoperative day after a short episode of delirium. The patient declared that since stopping smoking 46 years earlier, he sometimes chews on liquorice wood and on matchsticks. After discharge, a superficial wound infection was treated with drainage of the umbilical wound and with antibiotics.

A gastroscopy performed 1 month after discharge showed no abnormalities to the gastric mucosa; biopsies showed mild chronic gastritis, some mucosal scarring and reactive changes in accordance with long-standing use of proton pump inhibitors, and no evidence of *H. pylori*.

DISCUSSION

Gastric perforation secondary to ingestion of a sharp foreign body is uncommon but has been described before.^{1–3} Classically, patients present with signs of peritonitis, but some patients may be asymptomatic⁴ or have an atypical presentation. Mehran *et al*¹ describe a case in which, similarly to the present case, clinical presentation and radiological findings suggested acute cholecystitis. However, intraoperative findings showed no abnormalities to the gallbladder. Pyogenic hepatic abscess due to a gastric perforation secondary to foreign body ingestion has been described.^{3 5}

To the best of our knowledge, this is the first case describing a patient presenting with signs and symptoms fitting with acute cholecystitis, secondary to a gastric perforation due to ingestion of a foreign body.

Toothpicks are the most common foreign bodies requiring surgery to the gastrointestinal tract.⁶ We do not know the exact nature of the piece of wood recovered from the abdomen of our patient, but the patient recalled chewing on a matchstick recently. Another possibility is liquorice wood, pieces of which the patient started to chew habitually decades ago after quitting smoking. Denture-wearing elderly patients are especially at risk for ingestion of toothpick-like foreign bodies,^{4 7} possibly due to loss of sensation in the palate. Indeed, our patient wore a dental prosthetic device. He could not recall swallowing the wood. The non-*H. pylori* gastric ulcers that the patient had 2 years before may very well have been caused by a foreign body too, but, unfortunately, this remains speculation.

At least our patient is now aware of the potential risks of chewing on matchsticks, liquorice sticks, toothpicks and similar objects.

Learning points

- ▶ Gastric perforation due to perforation of a small sharp object may not present with classical signs and symptoms of abdominal guarding and free air under the diaphragm.
- ▶ A gastric perforation can present with signs and symptoms suggestive of acute cholecystitis.
- ▶ As ingestion of a sharp foreign body may occur unnoticed, especially in elderly people wearing dentures, gastric perforation by a foreign body should remain in the differential diagnosis in acute abdominal pain in this patient group.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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