CASE REPORT

Non-specific abdominal pain, an inconclusive CT scan and an unusual and puzzling finding at exploratory laparotomy

Kapil Sahnan, David McGowan, Peter G Vaughan-Shaw, Asmaa Al-Allak

Department of Surgery,
Gloucester Royal Hospital,
Gloucester, UK

Correspondence to
Dr Peter G Vaughan-Shaw,
pvaughan-shaw@nhs.net

SUMMARY

A 71-year-old man presented to our hospital with generalised abdominal pain. Initial laboratory investigations were normal and an abdominal CT scan was inconclusive. The following day, persisting pain, generalised tenderness and haemodynamic instability prompted exploratory laparotomy. At laparotomy, two perforations of the proximal jejunum were identified caused by two 3 cm pieces of wood. The pieces of wood were retrieved and the perforations repaired primarily. The postoperative period was complicated by acute confusion but the patient went on to make a full recovery. On direct questioning, the patient was unable to explain the presence of wood within his gastrointestinal tract. One hypothesis was that he may have ingested this material during a period of acute confusion following an elective abdominal aortic aneurysm repair 8 years previously.

BACKGROUND

Imaging techniques, in particular CT scans, are an essential adjunct to clinical decision making in modern surgical practice. Traditionally, exploratory laparotomy was often employed to aid diagnosis and enable subsequent treatment of surgical pathology. Recently, clinicians more frequently rely on imaging to aid diagnosis and may therefore be reluctant to proceed to exploratory laparotomy or laparoscopy in the absence of a conclusive diagnosis.

This case illustrates the vital importance of clinical findings in clinical decision making. Where results from laboratory or imaging investigations do not correlate with a concerning clinical picture, exploratory surgery with a view to diagnosis and treatment must be considered.

CASE PRESENTATION

A 71-year-old man presented to the emergency department (ED) with a 2-day history of sudden-onset generalised abdominal pain. There was a 4-day history of loose stool, but no rectal bleeding or more chronic change in bowel habit was observed. Systems review was unremarkable. Medical history included an elective open abdominal aortic aneurysm repair (AAA) repair 8 years previously complicated by a postoperative acute confusional state, but a subsequent full recovery was achieved. Medical comorbidity included ischaemic heart disease, hypertension and chronic obstructive pulmonary disease. On admission, observations were normal and on

examination, the abdomen was soft with generalised tenderness to palpation, but no guarding or percussion tenderness was observed.

INVESTIGATIONS

Plain erect chest and abdominal radiographs were unremarkable and a FAST scan performed in the ED was normal. Laboratory investigations revealed haemoglobin of 14.5 g/100 ml, leucocytes of 6000/mm³, C reactive protein of 22 mg/l and a lactate of 1.6 mmol/l. Renal, liver and clotting function tests were normal. In the presence of marked abdominal tenderness and no clear diagnosis, a CT scan of the abdomen and pelvis was performed. This demonstrated non-specific reduced enhancement of both the right colon and spleen, but no other features were consistent with visceral ischaemia. There was no free gas or fluid evidence.

DIFFERENTIAL DIAGNOSIS

Differential diagnoses included visceral ischaemia, appendicitis and visceral perforation.

TREATMENT

On the second day following admission, the patient complained of persisting significant abdominal pain and remained markedly tender to palpation on abdominal examination. In addition, he had become hypotensive, with a blood pressure of 96/55 mm Hg. As a result, a decision was made to proceed to exploratory laparotomy. At laparotomy, the patient was found to have four-quadrant peritonitis and small bowel contamination. Two small perforations were identified just distal to duodenojejunal flexure from which two 3 cm pieces of wood were retrieved (figure 1). A primary single-layered sutured closure of the two perforations was undertaken and generous irrigation and abdominal washout was performed. Appropriate antibiotic treatment was started.

OUTCOME AND FOLLOW-UP

The postoperative course was complicated by a severe systemic inflammatory response syndrome, agitation and an acute confusional state necessitating a prolonged intensive therapy unit (ITU) admission. Following discharge from the ITU, the patient made a good recovery and was discharged 19 days post-operatively to make a full recovery. On direct questioning, the patient recalled a previous period of acute confusion following his AAA repair 8 years previously. There was no other history of psychiatric illness and the patient was unable to recollect

To cite: Sahnan K, McGowan D, Vaughan-Shaw PG, et al. *BMJ Case Reports* Published online: [please include Day Month Year] doi:10.1136/bcr-2012-008271

Figure 1 Two pieces of wood measuring 3 cm were removed, which had caused two perforations in the proximal jejunum.

consciously ingesting any unusual matter. The patient suggested that he most likely ingested the material while he was confused following his AAA repair.

DISCUSSION

Here we describe a case of a small bowel perforation as a result of ingesting a wooden foreign body. This case serves as an important reminder to consider the role of exploratory surgery where results from laboratory or imaging investigations do not correlate with a concerning clinical picture.

Enteric perforation secondary to foreign body ingestion is not a new phenomenon. However, the clinical presentation is not consistent, given the variety of locations along the gastrointestinal tract where perforation may occur, and so a high index of suspicion is required. Enteric perforation most commonly occurs where the bowel is relatively fixed, for example, the retroperitoneal segments of the small intestine, where there is underlying pathology such as Crohn's disease, or abnormal appendices such as a Meckel's diverticulum.^{1 2} Attachments to other intra-abdominal viscera, such as the pancreas may also predispose to perforation from a foreign body.^{1 2} Patients who present with small bowel perforation secondary to foreign body ingestion are usually children or those with cognitive impairment or psychiatric illness.^{3 4} However, foreign body ingestion may also occur through accidental ingestion of inappropriate or undermasticated food, displaced teeth, fillings or any object held in the lips, for example, pen lids or pencils. In children, confused patients or those with psychiatric illnesses, it may not be possible to obtain a comprehensive history. Here collateral history and clinical examination are essential. In addition laboratory investigations such as inflammatory markers may be raised, which could support a diagnosis of perforation and peritoneal inflammation. Abdominal x-rays may confirm the presence and

location of a radio-opaque object and an erect chest x-ray may reveal a pneumoperitoneum consistent with visceral perforation. Axial imaging such as a CT scan may demonstrate free gas, free fluid or the ingested object or identify unrelated, but relevant pathology that may account for a clinical finding independent of the ingested foreign body. However, in some cases, such as that described here, serial clinical examination and a high index of clinical suspicion are required to consider exploratory surgery and make the diagnosis.

Where a patient presents having ingested a foreign body and the clinical picture is not consistent with perforation, expectant management should consider the likelihood that the foreign body will result in enteric perforation rather than passing spontaneously. Whether perforation occurs and the interval between ingestion and perforation is dependent on a number of factors. The size and shape of the object, presence of sharp edges or protrusions of the object (eg, glass or needles) and relevant comorbidities are of relevance. Where sharp objects with a high likelihood of causing a perforation have been swallowed, it may be appropriate to remove these objects to prevent perforation and peritoneal contamination.⁵ However, given that the object may still pass spontaneously, such an approach requires considerable thought and should only occur following full discussion with the patient or relevant family members. Where smooth, non-toxic objects such as a marble have been swallowed, it may be more appropriate to manage the patient conservatively. In such cases a low threshold for further investigations or exploratory surgery must be maintained.

This case offers a reminder of an important clinical lesson: over-reliance on diagnostic tests can result in adverse events if the clinical picture is ignored. All doctors should therefore take heed of the adage 'treat the patient, not the test result'.

Learning points

- ▶ Ingested foreign bodies may be radiolucent and not seen on CT scans.
- ▶ Exploratory surgery remains an important investigation where laboratory and imaging investigations are inconclusive.
- ▶ Where a concerning clinical picture exists take heed of the adage 'treat the patient, not the test'.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Kimichi NA, Broide E, Shapiro M, *et al.* Non-traumatic perforation of the small intestine. Report of 13 cases and review of the literature. *Hepatogastroenterology* 2002;49:1017–22.
- 2 Goh BK, Chow PK, Quah HM, *et al.* Perforation of the gastrointestinal tract secondary to ingestion of foreign bodies. *World J Surg* 2006;30:372–7.
- 3 Uyemora MC. Foreign body ingestion in children. *Am Fam Physician* 2006;73:1332.
- 4 Decker CJ. Pica in the mentally handicapped: a 15-year surgical perspective. *Can J Surg* 1993;36:551–4.
- 5 Bakaleinik M. Foreign bodies of the gastrointestinal tract, surgical considerations. *Mil Med* 1989;154:11–14.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow