CASE REPORT

Spontaneous haemoperitoneum due to a sigmoid diverticulum

Jayan George,¹ Abozed Ben-Sassi,² Rebecca Dixon³¹Respiratory Department, Abertawe Bro Morgannwg University Health Board, Swansea, UK²Department of General Surgical Directorate, Wrexham Maelor Hospital, Wrexham, UK³Department of Radiology, Wrexham Maelor Hospital, Wrexham, UK

Correspondence to

Dr Jayan George, jayan.george@aol.com

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SUMMARY

Spontaneous haemoperitoneum is rare. When it occurs it is a life-threatening condition. Common causes of this are gynaecological in nature and rarely due to colonic diverticular perforation. Diverticulitis is a common condition affecting people in western countries. This presentation of spontaneous haemoperitoneum highlights the disproportionate abdominal pain and opioid-induced constipation. Significant bloods on admission included haemoglobin of 148 g/L, C reactive protein (CRP) of 1.1 mg/L, white cell count (WCC) of $12.7 \times 10^9/L$ (neutrophils $10.9 \times 10^9/L$). Bloods repeated 10 h later revealed the haemoglobin had dropped to 100 g/L, CRP had increased significantly to 120 mg/L, WCC: $7.4 \times 10^9/L$ (neutrophils $5.3 \times 10^9/L$) and a reduced packed cell volume: 0.307 L/L. CT scan revealed free fluid and a possible mass. At laparoscopy, frank haemoperitoneum was seen and a decision was made to open and perform a Hartmann's procedure. The patient did very well postoperatively and was discharged on the ninth postoperative day. He is currently awaiting reversal of the ileostomy.

BACKGROUND

Diverticular disease is common among people in western countries. Prevalence increases with age. Diverticulitis normally presents with left-sided abdominal pain, leucocytosis and a raised temperature.¹ This case highlights that the complications of diverticular disease can present acutely or atypically, and that the disease can carry with it a life-threatening possibility if not managed promptly. This patient presented in a manner that could be attributed to viral gastroenteritis, however, his pain was disproportionate to that of gastroenteritis, diverticular abscess or diverticular perforation. Once the investigations came back it was evident the patient needed surgery but the imaging was not clear as to what we were dealing with. At the time of surgery, the patient was noted to have over 1000 mL of blood and clots in his abdomen, but the cause could not be determined on laparoscopy. The decision was taken to convert to an open procedure, which demonstrates how results can help guide the way but are not always 100% accurate in determining the cause of the condition.

CASE PRESENTATION

A 31-year-old man presented to the emergency department with excessive pain in his abdomen, particularly in the left and right iliac fossae, following defaecation. He is a sufferer of chronic back pain following a car accident 7 years ago; he was using Co-codamol to help control the pain.

Preceding this presentation he had experienced severe back pain for which he took Tramadol as well as Co-codamol. He was diagnosed with diverticular disease 3 years previously for which he had undergone a laparoscopy and washout. On current examination his abdomen was acutely tender in the left iliac fossa more so than in the right and his abdomen was slightly distended.

INVESTIGATIONS

His bloods on admission were relatively normal with haemoglobin of 148 g/L and C reactive protein (CRP) of 1.1 mg/L. Only an alanine transaminase of 66 U/L (normal <60 U/L) and white cell count of $12.7 \times 10^9/L$ (neutrophils $10.9 \times 10^9/L$) were deranged. Abdominal and chest X-ray were normal. Bloods were repeated 10 h later and revealed haemoglobin of 100 g/L, white cell count: $7.4 \times 10^9/L$ (neutrophils $5.3 \times 10^9/L$), packed cell volume (PCV): 0.307 L/L (0.400–0.520 L/L), CRP: 120 mg/L and phosphate: 0.64 mmol/L (0.80–1.50 mmol/L).

A CT scan was performed based on the change in his clinical picture and bloods. This showed a 7.5 × 5 cm soft tissue mass/fluid collection within the mid aspects of the lower abdomen extending to the pelvis (figure 1). Altered blood was a possibility on CT as demonstrated in the density of Hounsfield units of the fluid (figure 2). The distal colon was noted to be thickened, in particular a collection might have been present around the sigmoid colon (figure 3). The final comment was that there were non-specific suggestions of a mass lesion and free fluid.

DIFFERENTIAL DIAGNOSIS

Given his history for this presentation, a small-bowel obstruction or a perforated viscus could be

Figure 1 Shows a 79 mm fluid collection within the pelvis in the region of the sigmoid mesentery.

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Figure 2 Shows that there is ascitic fluid but this has a lower density 27 HU (measured in Hounsfield units) than the loculated collection in figure 1, which is 77 HU. Altered blood on CT has a density of around 70 HU (literature 40–80 HU).

in the differential, but given that he had passed a bowel motion earlier and that his abdominal and chest X-rays were normal, this was unlikely. His history of diverticular disease indicated that this could be a diverticular abscess.

TREATMENT

The patient was taken to theatre for laparoscopy. At this time frank haemoperitoneum was noted throughout the abdomen of over 1000 mL, which included clots. It was difficult to identify the cause but the blood appeared to be coming from the distal colon.

Figure 3 Shows how the collection is intimately related to the sigmoid colon (arrowed). Note the bladder under the sigmoid is a lower density.

The procedure was converted to a laparotomy where the source of the bleeding was found to be from a diverticular perforation in the distal sigmoid. The spleen, liver, gallbladder, small bowel and remaining colon appeared to be normal. A Hartmann's procedure was performed given the degree of blood loss.

OUTCOME AND FOLLOW-UP

Postoperatively the patient recovered well. There was delayed stoma output and a CT scan was performed, which was reported as normal. On the sixth day there was output from the stoma. The patient was discharged on the ninth postoperative day and the plan is for reversal in a few months' time.

DISCUSSION

There are reported cases of spontaneous haemoperitoneum presentations of hepatic, splenic, vascular, coagulopathic and gynaecological causes.² The most common of these seems to be gynaecological.³

Diverticular disease affects up to 70% of people by the age of 80 and this increases with age.⁴ It is found in 1–2% of patients below the age of 30 and is prevalent in approximately 5% of patients by the age of 40.¹

Changes in collagen strength that occur with increasing age combined with intraluminal pressures, which are greatest in the sigmoid, result in the formation of diverticula.⁵

The patient's history of back pain and opioid use could have been the main issue, which has left him more prone to harder stools resulting in greater intraluminal pressures. Common symptoms of haemoperitoneum are abdominal pain, which is normally severe in nature and some distension.² A low PCV has also been noted,² which was also present in our case. The imaging option of choice is normally a CT scan.⁶

To the best of our knowledge there are only two case reports that have reported spontaneous haemoperitoneum due to diverticular perforation. The first was due to hypertensive changes.⁷ The second, reported in 2011, described a 35-year-old woman who had spontaneous bleeding of a serosal vessel of the colonic diverticulum and gave details of the use of laparoscopic suturing

Patient's perspective

It was conflicting when coming into hospital because I had recently become a father for the first time 2 weeks beforehand and had been on paternity leave. The last time I had been admitted I had a laparoscopy and was told that if this recurred I would most likely have to undergo an operation that could leave me with a stoma, as antibiotics might not work. This communication prepared me for what would happen this time. I was in such a bad way at the time and my primary concern was that I could die and not see my son grow up. I did wonder what I had done to bring this on. I thought about the food I had been eating, the pain killers and my lifestyle habits. The fear I felt through the experience was alleviated through the ways in which the team at the hospital communicated with me, in particular the surgical team, which was excellent, and my consultant, who saw me on a regular basis and took the time to ask me questions about my family and my concerns. After the operation the reality of the situation started to become more evident. I felt I knew what was to come. I do feel I have been given a new lease of life and I realise that life is short and I am thankful for the time that I have.

to treat it.⁸ In our case this was not possible given the poor visualisation of the magnitude of blood and because the perforation had eroded through the serosa.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

Learning points

- ▶ Always be aware that regardless of age diverticular perforation is possible in the acute patient.
- ▶ Always note the use of opiate analgesics in patients with known diverticular disease.
- ▶ CT scan is the imaging of choice if haemoperitoneum or abscess is suspected.
- ▶ Diverticular perforation should be considered as one of the causes of acute spontaneous haemoperitoneum.
- ▶ Prompt intervention is required when dealing with patients of haemoperitoneum as it can be a fatal condition.

REFERENCES

- 1 Young-Fadok TM, Roberts PL, Spencer MP, *et al.* Colonic diverticular disease. *Curr Probl Surg* 2000;37:459–514.
- 2 Lucey BC, Varghese JC, Soto JA. Spontaneous hemoperitoneum: causes and significance. *Curr Prob Diag Radiol* 2005;34:182–95.
- 3 Lucey BC, Varghese JC, Anderson SW, *et al.* Spontaneous hemoperitoneum: a bloody mess. *Emerg Radiol* 2007;14:65–75.
- 4 Janes SEJ, Meagher A, Frizelle FA. Management of diverticulitis. *Br Med J* 2006;332:271–5.
- 5 Meyers MA, Atonso DR, Gray GF, *et al.* Pathogenesis of bleeding colonic diverticulosis. *Gastroenterology* 1976;71:577–83.
- 6 Lubner M, Menias C, Rucker C, *et al.* Blood in the belly: CT findings of hemoperitoneum 1. *Radiographics* 2007;27:109–25.
- 7 Lawson HH. Haemoperitoneum associated with a solitary diverticulum of the sigmoid colon. *S Afr Med J* 1961;35:715–16.
- 8 Kye BH, Kim HJ, Yoon JH, *et al.* Spontaneous hemoperitoneum caused by a diverticulum of the sigmoid colon. *Int J Med Sci* 2011;8:467.

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