Reminder of important clinical lesson

Splenic abscess rupture postappendicectomy

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Correspondence to Miss Roshani Patel, roshanipatel@doctors.net.uk**Summary**

The authors present a case of splenic abscess rupture postappendicectomy. Splenic abscess is rare with a reported incidence of 0.05%–0.7%. It is extremely unusual for a splenic abscess to result in splenic rupture. Contiguous spread, in this case from postappendix perforation, can cause splenic abscess formation. Postemergency splenectomy, the patient required admission to intensive therapy unit for 5 days but made a good postoperative recovery. This case is important to report as this is a rare postoperative complication of generalised peritonitis and this case highlights that astute diagnosis and management of the deteriorating surgical patient and rapid mobilisation of theatre are lifesaving.

BACKGROUND

Splenic abscess rupture is a rare, unusual and life-threatening complication.^{1–3} This case, postappendicectomy for perforated appendicitis, reinforces that splenic aetiology must be considered in the differential diagnosis of the unwell postoperative patient.

CASE PRESENTATION

A 64-year-old man presented to the emergency department with a 24 h history of right iliac fossa pain with nausea but no vomiting. He had last opened his bowels 2 days before admission. He did not report rigors or fevers and was afebrile on examination. He had no previous medical or surgical history. Clinical examination findings showed he was tender at McBurney's point which was consistent with appendicitis and he was prepared for theatre.

Initially laparoscopy was performed for suspected appendicitis. However, on insertion of the first port via Hassan's technique, frank pus and dilated bowel were found. The operation was thus converted to a lower midline laparotomy. A perforated appendix was found; appendicectomy and thorough washout were performed.

Postoperatively, the patient remained afebrile on intravenous ceftriaxone (as per local hospital guidelines) but progressed slowly and was managed as a postoperative ileus based on clinical findings of nausea, bowels not opening and abdominal distension. This was evident on a plain abdominal radiograph (figure 1).

On day 5, there was sudden deterioration, with left-sided abdominal pain and tenderness. On clinical examination, the patient was haemodynamically compromised, with a tachycardia of 140 beats per min and a systolic blood pressure of 75 mm Hg. Laboratory tests revealed a precipitous drop in haemoglobin from 12 to 5 g/dl. The patient did not respond to intravenous fluid resuscitation and was taken back to theatre for an immediate exploratory laparotomy.

Our preoperative differential diagnosis at this point included bleeding, collection and stump blow out.

Emergency laparotomy found the peritoneum to be full of fresh and clotted blood with a large haematoma and fresh bleeding from the spleen. After initial four quadrant

packing, bleeding from a tear at the splenic hilum was revealed. Clinical impression was that this was due to either a ruptured splenic abscess or haematoma, as there was pseudomembrane at the splenic hilum. Splenectomy and subsequent washout was performed. Abdominal viscera, including liver and appendix stump, were checked and no abnormality could be seen.

The patient was transfused approximately nine units of blood and was cared for postoperatively in the intensive care unit for 5 days. Subsequent recovery was uncomplicated.

Histology revealed loss of capsule and acute inflammatory exudate compatible with abscess formation (figure 2).

Figure 1 Abdominal x-ray showing dilated loops of bowel, consistent with ileus.

Figure 2 Histology revealed loss of capsule and surrounding acute inflammatory exudate compatible with abscess formation.

INVESTIGATIONS

Laboratory tests revealed a precipitous drop in haemoglobin from 12 to 5 g/dl when the patient suddenly deteriorated and a marked increase in inflammatory markers (white cell count of $20 \times 10^9/l$ and C reactive protein of 288 mg/l).

Histology of the spleen specimen showed that the capsule was lost in most places, that there was congestion of the red pulp, but white pulp remained normal. Fibrin and acute inflammatory exudate was seen lining one edge of the splenic parenchyma. This was compatible with acute inflammation and abscess formation (figure 2).

Microbiology swabs taken from peritoneal fluid at the initial operation cultured a moderate growth of *Pseudomonas*. TB testing was negative.

DIFFERENTIAL DIAGNOSIS

When the patient deteriorated suddenly on the ward the differential diagnosis included bleeding, appendix stump blow out and large collection.

TREATMENT

This patient required immediate exploratory laparotomy and splenectomy for definitive treatment.

OUTCOME AND FOLLOW-UP

This patient was extubated day 1 postsplenectomy and cared for on intensive therapy unit for 5 days. He required bilateral chest drains for pleural effusions. He made an uneventful recovery and was discharged home after 2 weeks.

DISCUSSION

Rupture of the spleen is categorised as traumatic or atraumatic. Atraumatic rupture of the spleen can be atraumatic-idiopathic rupture or atraumatic-pathological rupture representing 7% and 93% of atraumatic cases, respectively.⁵

This case represents an atraumatic-pathological rupture of the spleen. Renzulli *et al*, in a systematic review of 845

cases of atraumatic splenic rupture found six major aetiological group causes, as follows: neoplastic (30.3 per cent), infectious (27.3 per cent), inflammatory, non-infectious (20.0 per cent), drug- and treatment-related (9.2 per cent) and mechanical (6.8 per cent) disorders and normal spleen (6.4 per cent).⁵

To our knowledge there are no other case reports in the literature that describe a link between peritonitis secondary to perforated appendix, subsequent splenic abscess formation followed by splenic rupture.

Some authors have postulated a link between generalised peritonitis causing non-specific acute splenitis and consequently progressing to rupture.⁶ Our case, however, is different as there was a splenic abscess formation; either from translocation of bacteria from the peritoneum into the spleen or from haematological spread. It highlights that prompt senior review and good decision making are life-saving, and that critical time was not lost seeking unnecessary CT imaging.⁶ In addition, our case reinforces the lesson that intravenous antibiotics can mask underlying sepsis, and that in patients that fail to progress, further imaging should be considered early. Considering its poor prognosis,⁴ splenic pathology must be borne in mind in acute deterioration in postoperative patients.

Learning points

- ▶ Splenic rupture needs to be considered in patients who suddenly display hemodynamic instability, as it is life threatening if not recognised early.
- ▶ Intravenous antibiotics are necessary but can mask on-going sepsis in postoperative patients.
- ▶ Patients failing to progress postsurgery should be considered for further radiological imaging.
- ▶ Rapid return to theatre and quick mobilisation of theatre staff is life-saving in the ruptured spleen.
- ▶ The clinician must be aware that in cases of generalised peritonitis, infection may spread directly or haematologically and cause sequelae throughout the body.

Competing interests None.

Patient consent Obtained.

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