Reminder of important clinical lesson

Massive acute haemoperitoneum and shock from a ruptured ovarian varix

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Summary

A 38-year-old woman presented with shock and severe abdominal pain. Abdominal CT scanning demonstrated massive ascites, which was highly suggestive of haemoperitoneum. Diagnostic paracentesis confirmed haemoperitoneum. Urgent operative treatment with ligation of a ruptured ovarian varix successfully controlled the bleeding. She eventually made a full recovery.

BACKGROUND

Trauma and non-malignant gynaecological conditions account for more than 90% of intra-abdominal haemorrhage. Haemorrhagic ascites is encountered in only 5% of patients with cirrhosis, and infrequently causes haemodynamic instability as it rarely develops abruptly.¹ Intra-abdominal haemorrhage from ruptured varices is an unusual though severe complication of portal hypertension. We present a rare case of acute haemoperitoneum from a ruptured ovarian vein varix.

CASE PRESENTATION

A 38-year-old woman was transported to our emergency centre with shock, nausea and acute severe lower abdominal pain. She was noted to have undergone an operation for ectopic pregnancy at the age of 31. Emergency laparotomy showed the right tubal isthmus pregnancy. Right salpingectomy with removal of the haemoperitoneum was performed. She also had a history of alcoholic liver dysfunction and had undergone treatment for a ruptured oesophageal varix 3 months previously. She had no history of trauma.

On examination, she was pale and clammy. Her abdomen was distended but not so rigid and had tenderness and slight rebound tenderness of lower abdomen, but no guarding. Bowel sounds were normal. Her Glasgow Coma Scale score was 13/15 (E3, V4, M6), pulse 82 beats/min, O₂ saturation 100% on 2 l/min oxygen, respiratory rate 26/min and temperature 36.5°C. Her blood pressure was 60/40 mm Hg.

INVESTIGATIONS

Laboratory blood testing showed a haemoglobin level of 88 g/l (normal range: 125–157 g/l), platelets $71 \times 10^9/l$ ($130\text{--}320 \times 10^9/l$), international normalised ratio 1.72 (0.9–1.1), prothrombin time 18.9 s (11–14 s), total bilirubin 33.0 $\mu\text{mol/l}$ (0–18.8 $\mu\text{mol/l}$), aspartate aminotransferase 84 U/l (7–35 U/l), alanine aminotransferase 23 U/l (5–35 U/l), alkaline phosphatase 464 U/l (115–345 U/l) and γ -glutamyl transpeptidase 421 U/l (6–83 U/l). A pregnancy test (urinary β human chorionic gonadotropin) was negative.

Portable chest and abdominal x-ray in decubitus position, which were taken at emergency room, did not reveal any abnormal findings. Focused emergency ultrasound examination demonstrated massive intraperitoneal fluid. As the diagnosis remained unclear, CT scanning of the whole abdomen was performed after fluid resuscitation with 1.5 l of Ringer's solution. The images were highly suggestive of intraperitoneal haemorrhage (figure 1). Diagnostic paracentesis showed thick, bloody ascites. Red blood cell count in ascites was $3.68 \times 10^{12}/l$.

DIFFERENTIAL DIAGNOSIS

Our differential diagnosis included ruptured intraperitoneal varix of the portal system and ovarian haemorrhage.

TREATMENT

The patient was transferred to the operating theatre. After laparotomy incision, 2.0 l of mixed fresh and clotted blood was evacuated. Active bleeding was identified originating from a left ovarian varix just near the left ovary (figure 2). The bleeding point was ligated. No other intra-abdominal abnormalities were observed. Twenty units of blood products (red cell concentrate: 8 units, fresh frozen plasma: 12 units) were transfused during the perioperative period.

OUTCOME AND FOLLOW-UP

The patient made steady progress, and was discharged home on day 11.

DISCUSSION

Haemoperitoneum can develop spontaneously, or can follow abdominal trauma including diagnostic or therapeutic procedures. Acute haemoperitoneum develops in 5%–15% of patients with hepatocellular carcinoma, requiring transcatheter arterial embolisation. Metastatic liver tumours and ovarian tumours frequently cause bloody ascites.¹ Massive acute haemoperitoneum from a ruptured intraperitoneal varix is an unusual complication of portal hypertension and requires prompt surgical treatment.² In our case, the patient had a history of alcoholic liver dysfunction

Figure 1 Enhanced CT images suggesting intraperitoneal haemorrhage on surface of the liver (A) and in the pelvic cavity (B).

and had previously undergone treatment for a ruptured oesophageal varix and an operation for right ectopic pregnancy. However, the left ovarian vein normally drains into the left renal vein, not the portal system. It is known that extensive collateral circulation may develop in patients with long-term portal hypertension. Such communications exist in the oesophageal, umbilical and rectal veins, and where organs supplied by the splanchnic circulation come into contact with the retroperitoneum.¹ In addition, previous abdominal operations and inflammatory conditions of the peritoneal cavity have been associated with the development of mesenteric varices after the formation of new portosystemic communications in the adhesions between the bowel and the parietal peritoneum.³

Haemoperitoneum resulting from rupture of the utero-ovarian vessels is rarely reported, and is almost always associated with pregnancy or labour.^{4 5} The aetiology is unknown, but arteriovenous malformation, uterine artery aneurysm or increase in venous pressure (especially during labour) may be responsible. In our case, there was no

Figure 2 A diagram of the operation findings. Arrow shows the left ovarian varix.

concern that the patient might be pregnant. Obvious aetiological causes such as endometriosis or vascular malformation were not found.

This acute abdomen was treated with rapid administration of intravenous fluids and blood, and prompt surgical intervention. A laparotomy was indispensable, because other causes of haemoperitoneum were possible. The patient underwent exploratory laparotomy, and varix ligation was successfully performed.

Learning points

- ▶ An acute abdomen in a patient with cirrhosis may be due to haemorrhagic ascites, which may develop abruptly, and infrequently causes haemodynamic instability.
- ▶ Varices resulting from portal hypertension exist in the oesophageal, umbilical and rectal veins, and in organs supplied by the splanchnic circulation.
- ▶ To chase a source of bleeding in a symptomatic patient is crucial no matter how unusual.
- ▶ The only definitive therapy for rupture of an intra-abdominal varix is operative exploration with treatment of the bleeding vessel.

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Competing interests None.

Patient consent Obtained.

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