CASE REPORT

Spontaneous hemoperitoneum, due to bleeding from retroperitoneal varices, in a cirrhotic patient: a case report

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Key Clinical Message
Hemoperitoneum from retroperitoneal varices in cirrhotic is very rare. This condition should be taken into account based on anamnesis, clinical features, and laboratory findings; but due to the unstable presentation, diagnosis remains a challenge. Emergency laparotomy could be effective treatment, but the prognosis remains poor related to the hepatic reserve.

Keywords
Cirrhosis, hemoperitoneum, hemorrhagic shock, portal hypertension, varices.

Introduction
Spontaneous hemoperitoneum is a rare and catastrophic complication of portal hypertension [1], mainly affecting patients with liver cirrhosis. Rupture of retroperitoneal varices can lead to hemoperitoneum. The worldwide mortality rate of patients with ruptured retroperitoneal varices causing hemoperitoneum is 65.7%, with surgical intervention reducing the mortality rate to 57.1% [1]. Only 35 cases of spontaneous rupture of retroperitoneal varices causing hemoperitoneum have been reported in the literature [2]. This case report describes the first such patient with this condition in Qatar.

Case Report
A 47-year-old alcoholic male was brought to the Emergency Department (ED) of the Hamad General Hospital in Doha, Qatar. The patient was unresponsive, with no history of trauma. On examination, his blood pressure was 60/35 mmHg, his heart rate was 121 beats/min, his respiratory rate was 16 breaths/min, his body temperature was 35.4°C, his Glasgow coma scale score was 3/15, and his body had a strong smell of alcohol. The patient was intubated and ventilated. His abdomen was found to be distended and tense, with an everted umbilicus; his bowel sounds were negative and a digital rectal examination showed no blood or masses. A nasogastric tube drained bilius fluid, and ultrasonography and a diagnostic peritoneal lavage (DPL) revealed blood. His MELD score was 68.8 and his Child–Pugh grade was C-11. His unresponsiveness may have been due to alcohol intoxication or encephalopathy.

Laboratory investigations showed a red blood cell (RBC) count of 2.6 × 10⁶/μL, a hemoglobin (Hb) concentration of 7.0 g/dL, a hematocrit of 23.7%, a platelet count of 70 × 10³/μL, and a white blood cell (WBC) count of 7.3 × 10³/μL, creatinine was 133 mmol/L, albumin was 13 g/L, total bilirubin was 17.6 μmol/L, AST was 130 U/L, ALT was 37 U/L, ALP was 194 U/L, lactic acid was 17.9, INR was 1.5, ammonia was 166 mmol/L, ethanol was 35 mmol/L, pH was 6.93, PCO₂ was 70.9 mmHg, Po₂ was 199 mmHg, BE was −17.0 mmol/L, and HCO₃ was 9 mmol/L.

A massive transfusion protocol, consisting of 5 units of packed RBCs and 4 units of fresh frozen plasma, was...
initiated and an emergency exploratory laparotomy was performed. Intraoperatively, around 3 L of blood and clots were evacuated and a bleeding retroperitoneal varix, in the left lower quadrant, was identified and ligated (Fig. 1). The liver was cirrhotic and the spleen was enlarged. Following this damage control procedure, the abdomen was left open with a Bogota bag as a laparotomy, for a relook if required. The patient, still intubated, was transferred to the surgical intensive care unit for postoperative care. He continued to ooze serous fluid from the laparotomy, but there was no more bleeding. His hemoglobin stabilized, with an RBC count of $3.1 \times 10^{12}/\mu L$, Hb 9.1 g/dL, hematocrit 27.1%, platelet count $147 \times 10^{12}/\mu L$, WBC count $4.4 \times 10^{9}/\mu L$, creatinine 169 mmol/L, albumin 22 g/L, total bilirubin 30 µmol/L, AST 1347 U/L, ALT 336 U/L, ALP 47 U/L, lactic acid 29.7 mmol/L, and INR 1.4.

However, the patient developed multiple organ dysfunction syndrome (MODS) and died 48 h after the operation.

**Discussion**

Retroperitoneal bleeding is a very rare condition with an incidence of 0.1%, which increases six times in patients on anticoagulation [3]. The most common cause is trauma to the pelvic and lumbar regions, followed by iatrogenic complications of femoral artery cauterization. Rupture of aneurysms, commonly aortic and iliac [4–6], and surgeries and radiological interventions involving any of the retroperitoneal organs (pancreas, kidneys, and adrenals) also contribute to retroperitoneal hematomas. However, spontaneous hemorrhage is rarer and can be seen as a complication in patients on hemodialysis and anticoagulants, with hemorrhagic disorders and in cirrhotics with portal hypertension with retroperitoneal varices.

Dilated portosystemic collateral veins located in sites other than the gastroesophageal region can be defined as ectopic varices [2]. These sites may include the duodenum, jejunum and ileum, colon, rectum, stoma sites, and retroperitoneum, and, more rarely, the vagina and ovaries. Bleeding from ectopic varices represent 2–5% of variceal bleeds in the gastrointestinal tract [8]. The veins of Retzius connecting the superior and inferior mesenteric veins with the lumbar and lower intercostal veins represent the main sources of retroperitoneal bleeding from varices [9].

The initial clinical manifestations in cirrhotic patients with rupture of retroperitoneal varices and hemoperitoneum include pain, abdominal distension, light headedness and syncope, with hypotension being the cause of all these symptoms [1]. As our patient was admitted to the ED unresponsive and in hemorrhagic shock, it was not possible to evaluate his symptoms. Of course, in patient like the present one, the anamnesis and the clinical features have to be considered to achieve the right diagnosis and the retroperitoneal rupture of varices have to be taken in account as one of the cause, also if rare.

In the presence of hemoperitoneum, abdominal pain is proportionate to the rate and volume of blood loss within the abdominal cavity. Hence, peritoneal signs may not be present [10]. Our patient presented with a massive and tense abdomen with an everted umbilicus and absent bowel sounds.

The first diagnostic step is abdominal ultrasound, which can acquire information about all the possible sites of bleeding (vessels or tumors) [1]. In women, measuring beta HCG level is a crucial diagnostic test. CT scan and magnetic resonance imaging (MRI) are valuable adjuncts in localizing the source of acute intraabdominal hemorrhage [11], but these methods can only be performed in well compensated and stable patients. In unstable cirrhotic patients, ultrasound and DPL would be diagnostic [12]. Our patient was hemodynamically unstable and therefore underwent a DPL before the emergency laparotomy.

Treatment of retroperitoneal bleeding is still not established as secured guidelines. All patients initially have to be treated in ICU with monitoring, fluid resuscitation, blood transfusion. In case of coagulation, disorders like hemophilia or warfarin administration, conservative management may be adopted [13].

Endovascular treatment in retroperitoneal hemorrhage became used even more in alternative to open surgery for arterial bleeding that can be blocked with embolization in critical and noncritical patients [13].

Open surgery is indicated in all patients who despite adequate resuscitation remain unstable. The role of surgery is to identify the source of bleeding and control it, while also evacuating the hematoma. The other indication for surgery is the presence of abdominal compartment syndrome [13].

![Figure 1. Retroperitoneal varices (after ligation).](image)
Generally, management of variceal bleeding associated with portal hypertension includes treatment with a vaso-
pressor to reduce portal pressure, as well as source con-
trol by endoscopic or interventional radiology techniques,
with surgery considered the method of last resort. How-
ever, because of the rarity of such conditions, no certi-
tudes have been established. A review of 34 cirrhotic
patients with hemoperitoneum secondary to rupture of
intraperitoneal varices found that surgical intervention
was the only effective treatment to control bleeding [1].
Bleeding was halted in 26 (92.9%) of 28 patients who
underwent ligation of the bleeding varix, with 12 (42.9%)
of these patients surviving past the postoperative period
[1]. In contrast, none of the patients managed nonsurgi-
cally survived.

Factors predictive of survival in cirrhotic patients with
spontaneous hemoperitoneum secondary to retroperi-
toneal variceal rupture include functional hepatic reserve,
the severity of hemorrhagic shock at presentation, and the
time taken to control the bleeding [9]. All of these factors
adversely affected our patient and contributed to his
cause of death.

**Conclusion**

This clinical condition remains extremely rare and despite
aggressive emergency management, the prognosis of this
catastrophic complication of portal hypertension remains
poor. Due to the unstable presentation in the ED, diagno-
sis is a challenge. Immediate emergency laparotomy
remains the only effective treatment option.

**Conflict of Interest**

None declared.

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