Postpartum Hepatic Rupture and Retroperitoneal Hematoma Associated with HELLP Syndrome

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Hepatic rupture with hemoperitoneum is a rare but devastating complication of pregnancy, mostly associated with the syndrome of severe gestational hypertension hemolysis, elevated liver enzyme levels, and low platelet count, known as the HELLP syndrome. We describe a young woman with HELLP syndrome and hepatic subcapsular rupture with hemoperitoneum. Increased physician awareness of this complication can lead to early diagnosis and better prognosis.

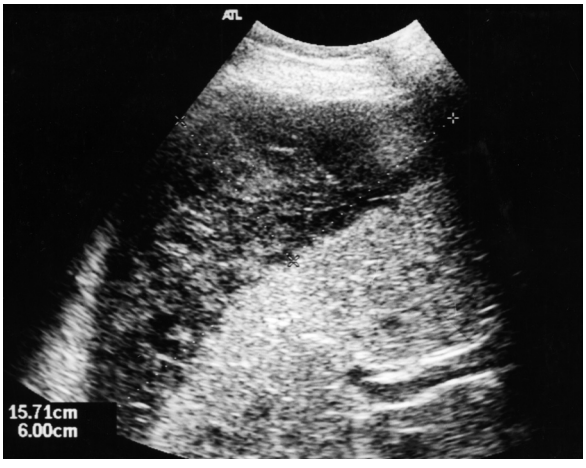
Patient Description

A 25 year old primigravida was admitted to the delivery room at 35 weeks gestation because of elevated blood pressure (140/90 mmHg) and complaints of severe headache. Laboratory workup was unremarkable except for uric acid 7.1 mg/dl and traces of protein in the urine. Treatment with magnesium sulfate was initiated to prevent eclampsia. After 8 hours of labor induction with no progress, cesarean section was performed. A healthy infant was delivered, with birth weight of 1700 g and Apgar score 9 and 10 at 1 and 5 minutes respectively.

Six hours later, the patient complained of severe right upper quadrant pain and blurred vision. Repeated laboratory tests revealed elevated liver enzyme levels: aspartate transaminase 162 U/L and glutamate-pyruvate transaminase 83 U/L, lactate dehydrogenase 1800 U/L and bilirubin 1.2 mg/dl. Platelet count was 55,000/µl.

Funduscopy revealed central serous retinopathy. An abdominal ultrasound scan demonstrated a crescent-shaped collection of echogenic fluid just beneath the liver capsule, consistent with subcapsular hematoma [Figure A]. A diagnosis of hepatic capsular rupture and hemoperitoneum was made. At that point there was a sudden drop in blood pressure from 170/90 to 90/60 mmHg, concomitant with an increase in pulse rate to 105 beats per minute. There was also a 2 g/dl decrease in hemoglobin level. The leading diagnosis was hypovolemic shock due to liver subcapsular hematoma with suspected capsular tears. The operating room was immediately prepared for re-laparotomy. Shortly before surgery, the patient was hemodynamically stabilized using crystalloids and blood products and a decision was taken to postpone surgical intervention.

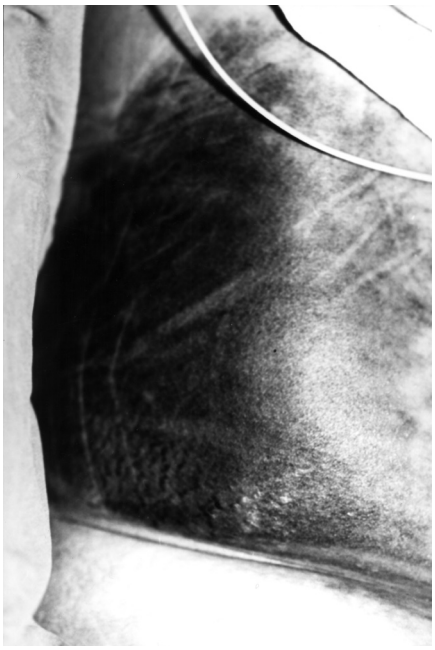
The patient was admitted to the intensive care unit where stabilization was maintained with repeated blood transfusions of packed red blood cells (one/day) for 4 days. Thereafter, no further decrease in hemoglobin level occurred. On day 5, a large subcutaneous hematoma appeared on the right abdomen and back [Figure B].



[A] Abdominal ultrasound scan demonstrating capsular hematoma.

Computed tomography scan revealed a large subcapsular hematoma with rupture of the hepatic capsule and free hemorrhagic fluid around the liver and spleen. A retroperitoneal hematoma anterior to the psoas muscle was also apparent, in addition to lacerations in the liver parenchyma at the right lobe and a large right abdominal wall hematoma. Bilateral hemorrhagic pleural effusion was noted.

After conservative management for 3 weeks the patient was discharged with normal laboratory parameters. Two weeks later, she was readmitted because of a



[B] Picture of the abdomen demonstrating an abdominal wall hematoma

subclavian vein thrombosis in a previous central line puncture. Treatment consisted of full-dose heparin for 7 days. The patient was discharged on low molecular weight heparin. There were no further complications.

Comment

Spontaneous rupture of the liver was first described by Abercrombie in 1844. In pregnancy, liver rupture is usually associated with preeclampsia, with an incidence of 1/45,000 deliveries [1]. Although preeclampsia is more common in primigravidas, hepatic rupture has been reported more frequently in multigravidas [2,3]. Most patients complain of epigastric or back pain. Despite the practice of immediate delivery of the fetus in the presence of HELLP syndrome, patients are still at risk of liver hemorrhage. The use of bedside ultrasound enables prompt diagnosis of this complication. This is extremely important because relapsing hypotension may signal life-threatening rupture of the liver [4]. Ultrasound and computerized tomography are the modalities of choice for the diagnosis of hepatic subcapsular hematoma, including the extent of the hematoma and free fluid in the abdomen. Magnetic resonance imaging is an option in non-urgent cases or in pregnant patients. In cases where gestational hypertension is not the leading diagnosis, these findings can be found post-trauma, direct or indirect, or due to disseminated intravascular coagulation.

There are two approaches to the management of liver rupture in HELLP syndrome. The surgical approach uses packing and drainage or hepatic artery ligation, either alone or in various combinations. In stable patients, non-operative management may be possible with intensive medical support and infusion of fluids and blood products, with or without radiographically guided arterial embolization [5].

In the patient described, although the liver hematoma seemed to expand during the first days of hospitalization, as confirmed by the CT scan showing extravasation of blood into the soft tissue of the abdomen and a retroperitoneal hematoma, the patient's condition remained hemodynamically stable. The decision therefore was to continue with conservative management, including strict hemodynamic follow-up. The patient was admitted to the intensive care unit where stabilization was maintained with repeated blood transfusions of packed red blood cells (one/day) for 4 days. Thereafter, no further decrease in hemoglobin level occurred. On day 5, a large subcutaneous hematoma appeared on the right abdomen and back [Figure B].

We present this case in order to alert physicians to the risk and appearance of this rare grave complication. Prompt diagnosis and treatment may spare the patient surgical intervention and improve outcome.

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