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Ruptured Subcapsular Hematoma of the Liver in HELLP Syndrome: A Case Report

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Abstract **Case Report**

We report a case of spontaneous rupture of a subcapsular hematoma (SCH) of the liver complicating HELLP syndrome. The outcome was favorable thanks to polytransfusion and early liver packing. SCH is a rare complication of preeclampsia occurring most often in the context of HELLP syndrome. Hepatic capsular rupture is associated with significant maternal and fetal mortality. We propose, based on a clinical case, to review the different therapeutic options (medical, surgical and radio-interventional). It is difficult to establish a consensual therapeutic approach, but in all cases, management must be multidisciplinary and as conservative as possible when surgery is decided.

Keywords: Subcapsular hematoma of the liver; HELLP syndrome; liver packing.

INTRODUCTION

Approximately 10% of parturients with preeclampsia may develop HELLP syndrome (hemolysis and elevated liver enzymes and low platelet count) [1]. This syndrome is associated with significant maternal and fetal morbidity and mortality [2]. The pathophysiology is poorly understood, but is partly explained by a microangiopathic syndrome with hemolysis [3, 4]. Disseminated intravascular coagulation is often associated. These coagulation abnormalities located in the liver can lead to hepatic necrosis and spontaneous hemorrhage initially contained by Glisson's capsule (subcapsular hematoma) which can rupture secondarily [1]. Based on a clinical case, we propose to review the different therapeutic strategies for subcapsular hematoma (SCH) of the liver occurring in the context of HELLP syndrome.

CLINICAL CASE

A 32-year-old woman, 4 procedures, 2 parous (2 living children + 1 miscarriage), history: Type 2 diabetic with hygienic and dietary rules was admitted at 40 weeks of amenorrhea with a picture of preeclampsia that had been developing for 48 hours (blood pressure at 180/100 mmHg, proteinuria with three crosses on the urine strip, persistent epigastric pain in a bar). The first biological assessment was in favor of HELLP syndrome (ASAT at 239 IU/l, ALAT at 360 IU/l, platelets at 65,000 elements/mm3, hemoglobin at 12 g/l. The patient had given birth vaginally; on admission, the newborn was not alive. The patient was admitted to intensive care for monitoring. On admission, the patient presented hypotension at 90/50 mmHg associated with severe abdominal pain and hemoglobin at 8.5 g/l. An abdominopelvic ultrasound was performed revealing a large abdominal effusion. Abdominal CT revealed a ruptured subcapsular hematoma of the liver associated with a large hemoperitoneum and perfusion disorders (Fig 1 and 2).

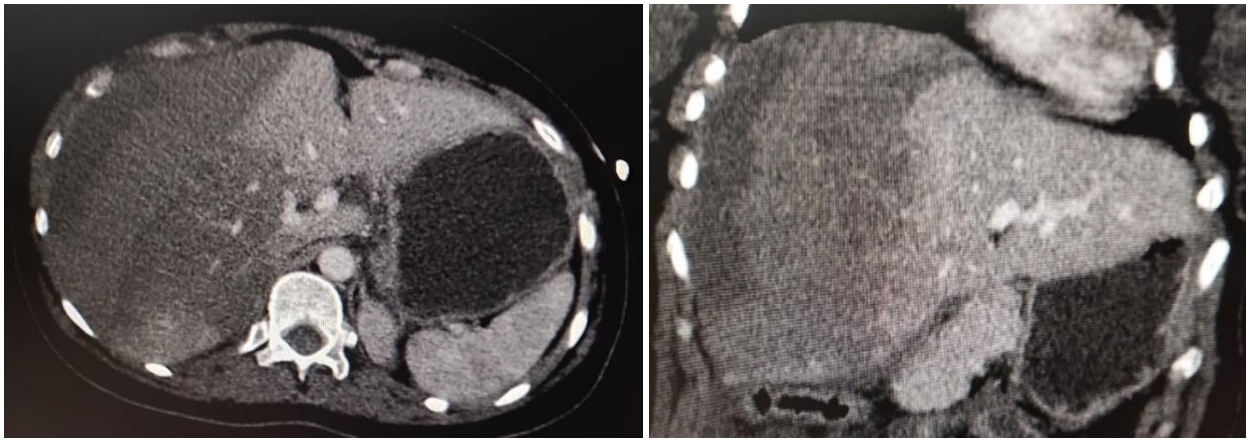

Fig 1 and 2: Abdominal scan: ruptured subcapsular hematoma of the liver with abundant hemoperitoneum

The hemodynamic status had worsened with the onset of hypovolemic shock despite the transfusion of 5 red blood cells. The patient was taken to the operating room for liver packing, for surgical exploration: large hemoperitoneum with a large ruptured subcapsular hematoma of the liver (Fig 3).

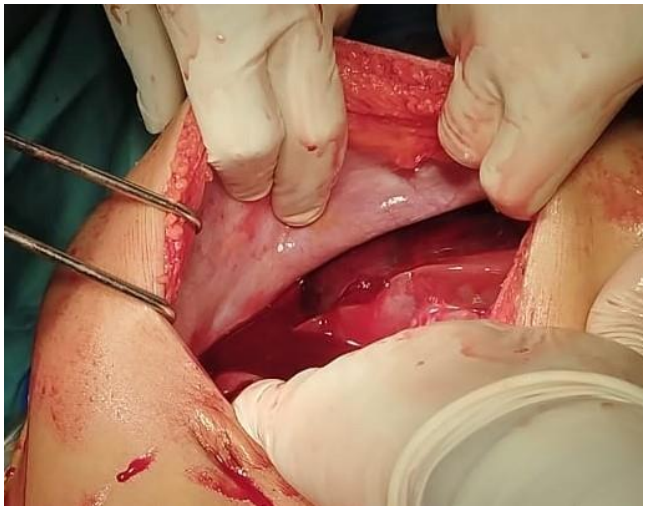

Fig 3: Exploration chirurgicale: volumineuse hématome sous capsulaire du foie rompu avec saignement actif

She was stabilized under noradrenaline with perfusion of 4 red blood cells and 2 fresh frozen plasma. A liver depacking was performed on day 4 post-op after stabilization of the patient's hemodynamic state. The patient's hospitalization in intensive care lasted 15 days. On discharge, the patient was conscious and hemodynamically stable, with hemoglobin at 11.7 g/l, platelets at 122,000/mm, ASAT 57, ALAT at 77 and TP 87%.

DISCUSSION

HSC is a rare complication of preeclampsia that most often occurs in the context of HELLP syndrome. In a series of 442 patients with HELLP syndrome, the incidence of HSC was 0.9% [2]. This complication occurred in 65% of cases in the third trimester of pregnancy and in 85% of cases before labor. The overall incidence of maternal hemorrhage and hepatic rupture is between 1/45,000 and 1/225,000 deliveries [5]. Hepatic rupture is associated with maternal and fetal mortality of 50 and 80% respectively [2]. Parturients with HELLP syndrome should be hospitalized near a level III maternity ward. Specific treatment of preeclampsia should be undertaken with blood pressure control and injection of magnesium sulfate as primary prophylaxis of eclamptic crisis [6,7]. Coagulation disorders must be corrected in the event of bleeding, coagulation factor deficiency, surgery or thrombocytopenia less than 50,000 elements/mm3 [6]. Anemia must be corrected by transfusion of red blood cells. A beneficial effect of corticosteroids has been highlighted in the context of HELLP syndrome [8]. Corticosteroid therapy with dexamethasone for 36 hours at a decreasing dose allows a more rapid improvement in thrombocytopenia, hepatic cytolysis and diuresis; however, no effect on maternal mortality has been observed [9]. The role of plasma exchanges remains debated in forms with multi-organ failure [10]. There is no role for heparin due to the increased risk of hemorrhage [11].

HSC complicating HELLP syndrome may present with variable clinical symptoms dominated by epigastric and right hypochondrium pain often confused

with the clinical signs of preeclampsia. In the absence of hemorrhagic shock, the diagnosis is essentially ultrasound by visualization of a HSC or hyperechogenicity of the Glisson's capsule which may indicate the beginning of detachment.

The therapeutic approach of HSC must take into account the patient's hemodynamic state and the integrity or otherwise of Glisson's capsule. In the absence of rupture of the hepatic capsule, close monitoring and symptomatic treatment by correction of coagulation disorders can be considered [12]. In the event of rupture of Glisson's capsule, the dominant therapeutic approach consists of conservative surgical management by placement of a liver packing [5]. Since then, other therapeutic alternatives have been evaluated, they are most often based on retrospective series grouping together a small number of patients. In this context, the interest of hepatic arterial interruption (by embolization or surgical ligation) was evaluated by a retrospective study involving eight patients [13]. For two patients, embolization was performed after failure of local surgical hemostasis. Bleeding was stopped for six parturients, the authors emphasize the risk of gallbladder gangrene and hepatic necrosis linked to the surgical ligation technique. One team reported 141 cases of HSC [14]. Analysis according to the therapeutic approach shows that it is with packing or selective hepatic embolization that the best maternal survival is obtained, respectively 80 and 90% [14]. Another study emphasizes the interest of selective embolization of the hepatic arteries [15]. Other techniques, such as surgical ligation of the hepatic arteries or resection of areas of hepatic necrosis are associated with significant maternal mortality greater than 30% [14].

CONCLUSION

Liver HSC occurring in the context of HELLP syndrome is a rare complication of pregnancy, but associated with significant maternal and fetal morbidity and mortality. Abdominal ultrasound should be a broad indication in the context of preeclampsia. Its treatment is based on multidisciplinary care involving anesthesiologists, obstetricians, radiologists, surgeons and pediatricians.

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