



## HELLP SYNDROME COMPLICATED BY RUPTURED SUBCAPSULAR HEMATOMA OF LIVER: A CASE REPORT AND REVIEW OF THE LITERATURE

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### Abstract

We report a case of spontaneous hepatic rupture secondary to HELLP syndrome. A favorable evolution was observed after massive transfusion and surgical management limited to hepatic packing. Subcapsular hepatic hematoma is a rare complication of preeclampsia occurring mainly in the context of HELLP syndrome. A high maternal and fetal mortality is observed. Different therapeutic options are presented including medical, surgical and radiological interventions. A unique strategy cannot be defined. Multidisciplinary approach seems mandatory. Surgery should remain as less aggressive as possible.

**Keywords:** Subcapsular hepatic hematoma; HELLP syndrome; Preeclampsia

### INTRODUCTION

Subcapsular liver hematoma (SLH) has been reported in less than 2% of pregnancies complicated by HELLP syndrome. The incidence of SLH has been reported, 1/40.000 to 1/250.000, leading to increased rate of both maternal and perinatal morbidity and mortality [1, 2]. The principal symptom of SLH is an epigastric pain, it can also be revealed by nausea and vomiting. SLH may result in hepatic rupture and therefore may cause life threatening problems such as disseminated intravascular coagulation (DIC), acute liver, and kidney failure. In this paper, we reported a patient with a ruptured SLH who was managed surgically and reviewed the literature.

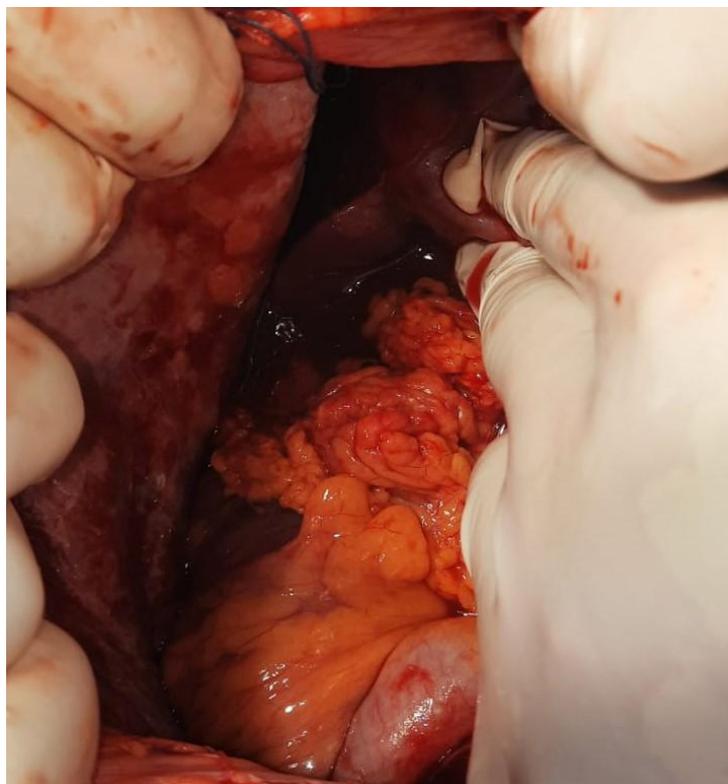
### Case report

This is a 36-year-old patient, with no particular pathological history, 5 live children by vaginal delivery, admitted to our training for severe pre-eclampsia on a pregnancy of 39 weeks of amenorrhea in labor. The clinical examination found a blood pressure of 16/09, osteotendinous reflexes were sharp, epigastric pain in bar, intense headache in helmets. The obstetrical ultrasound showed an evolving monofetal pregnancy, fundal placenta, estimated fetal weight at 2800g. The abdominal ultrasound showed a sub capsular hematoma of the liver of 7\*6 cm. The biological work-up showed a hellp syndrome with: serum aspartate aminotransaminase (AST): 433 IU/L (N: 5-34), serum alanine amino-transaminase (ALT): 179 IU/L (N: 0-55), serum lactate dehydrogenase (LDH): 943 IU/L (N: 125-243), normal serum urea and creatine, hemoglobin (Hb): 14 mg/dl (N: 11. 5-16.0), and platelet count (Pit): 48,000/mm<sup>3</sup> (N: 150,000-450000).

The patient was given an emergency loading dose of magnesium sulphate, and an emergency caesarean section was performed under general anesthesia. At the operation a medium size

hemoperitoneum was found, fetal extraction of a newborn 2800 g Apgar: 10/10 -the exploration of the abdominal cavity revealed a sub capsular hematoma of the liver ruptured in active bleeding, the patient was transfused (four red blood cell concentrates, eight units of fresh frozen plasma and two platelet concentrates) and a hepatic packing was put in place, a drain of Redon was left in the cul-de-sac of Douglas.

The patient was transferred to the intensive care unit. The evolution was marked by a stabilization of the hemodynamic state, of the hepatic biology and of the platelet rate in the hours following the intervention. Forty-eight hours after the operation, the packing was removed in view of the stabilization of the patient's hemodynamic state and coagulation and the absence of recurrence of the hemoperitoneum on the follow-up examination (Redon drain only brought back a few serum). The patient was seen again two months after her hospitalization: the liver biology had normalized and, on ultrasound examination, the sub capsular hematoma of the liver had regressed.



**Figure 1: Ruptured subcapsular hematoma of liver**

## **DISCUSSION**

SLH in pregnancy was reported firstly by Abercrombie in 1844 [3]. SLH, a rare complication of preeclampsia and HELLP, is an emergent obstetrical problem which increases the rate of severe morbidity and mortality [4]. SLH occurs in about 1- 2% of all preeclampsia cases and HELLP syndrome [1, 2]. The incidence of SLH has been reported to be higher in the group of advanced maternal age and multiparous patients [5]. The exact mechanism of SLH in HELLP syndrome is yet to be determined. It has been reported that preeclamptic syndrome induces fibrin deposition, hypovolemia, hepatic ischemia, and infarction causing hemorrhage and SLH [6]. Thus, continuing expansion of the SLH may induce the rupture of the hepatic capsule in case of trauma such as abdominal palpation, transportation of the patient, manual removal of the placenta, uterine contractions, and vomiting. The histopathological evaluation

of the SLH shows, intraparenchymal hemorrhage, common micro aneurysms with periportal or focal parenchymal necrosis were observed [7, 8]. On macroscopic examination of SLH, tint little bleeding areas were observed in many places under the Glisson capsule [9]. SLH in pregnancy must be followed up with hemodynamic and coagulation parameters during the management of HELLP syndrome or/and preeclampsia. TA-USG, computerized tomography (CT), and magnetic resonance imaging (MRI) can be used as diagnostic tools.

Hemodynamically stable patients should be followed up conservatively by means of intensive medical support with infused fluid, replacement of blood products, and treatment of HELLP syndrome or/and preeclampsia. The administration of recombinant factor VI activated may be useful to stop hemorrhage and to avoid surgery in patients not responsive to surgical therapy [6].

If rupture occurs and the patient is unstable hemodynamically, surgery can be necessary. Operative techniques and hemostatic mesh can be used for the bleeding surface of liver as in the case described. The omentum can also be sutured to the bleeding surface [10]. When the hemorrhage cannot be controlled with conservatively or with surgical techniques and acute liver failure occurs, liver transplantation should be considered [11].

Sibai reported a 13-year retrospective review of three patients with SLH. Two of them were managed conservatively and discharged from hospital. The other patient underwent hepatic resection and had mortality due to multiple organ failure [12]. In another study, Wicke et al. reported a review of 5 patients with subcapsular liver hematoma [13]. Three patients of them were managed conservatively and two required urgent surgical intervention, one of whom required liver transplantation.

With HELLP syndrome is an uncommon and sever clinical entity and should be suspected in signs of clinical symptoms such as a right upper quadrant pain, nausea, vomiting, and anorexia. Rupture should be suspected in the setting of hemodynamic instability. Close monitoring of these patients with HELLP syndrome by advanced imaging techniques in pre- and postpartum period is necessary. conservative management should be the first choice of treatment If the patient's vital signs are stable.

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- [3] J. Abercrombie, "Case of hemorrhage of the liver," *London Medical Gazette*, vol. 34, pp. 792-794, 1844. In our case the discovery of the ruptured subcapsular liver hematoma was fortuitous during a c section which was indicated for a suspicion of an acute fetal distress, a high abundance hemoperitoneum was found with hepatic rupture. In post-operative phase our case was hemodynamically stable, managed with blood products. In conclusion, the subcapsular liver hematoma
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