Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Radiology

Subcapsular Hematoma of the Liver and Right Renal Hematoma Complicating Eclampsia: A Case Report

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DOI: 10.36347/sjmcr.2023.v11i04.057 | **Received:** 13.03.2023 | **Accepted:** 20.04.2023 | **Published:** 23.04.2023

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Abstract **Case Report**

Subcapsular haematoma of the liver (SCLH) is a rare and serious complication in pre-eclampsia, occurring in a relatively stereotyped but non-specific clinical picture, which often leads to a delay in diagnosis. Its secondary rupture is one of the most serious obstetrical complications with an estimated maternal mortality of 50-75% and fetal mortality of 60-80%. We reported a case of a 37-year-old woman presented to the emergency department with postpartum eclampsia, which was revealed by generalized tonic-clonic seizures. On the second day of hospitalization, the patient developed persistent epigastric pain that was resistant to analgesic treatment. Bedside abdominal ultrasound showed a moderate amount of peritoneal effusion, and a complement CT scan revealed a subcapsular hematoma of liver with moderate hemoperitoneum and right renal hematoma. The therapeutic decision was to continue close clinical and laboratory monitoring twice daily. Improvement was noted in laboratory tests on the fourth day of hospitalization, with normalization on the twelfth day.

Keywords: Subcapsular haematoma of the liver, Eclampsia, renal hematoma.

INTRODUCTION

Subcapsular haematoma of the liver (SCLH) is a rare and serious complication in pre-eclampsia, occurring in a relatively stereotyped but non-specific clinical picture, which often leads to a delay in diagnosis. Its secondary rupture is one of the most serious obstetrical complications with an estimated maternal mortality of 50-75% and fetal mortality of 60-80% [1].

The symptoms of SCLH may represent as epigastric, right upper quadrantor shoulder pain, abdominal distension, nausea and vomiting. SLH may result in hepatic rupture and therefore may cause lifethreatening problems such as disseminated intravascular coagulation (DIC), acute liver, and kidney failure.

We reported a case of a patient with SCLH and right renal hematoma who was managed conservatively and reviewed the literature.

CASE REPORT

Madame ES is a 37-year-old woman with a history of iron-deficiency anemia treated with oral iron supplementation. She has had three pregnancies and three live births via vaginal delivery, with her most recent delivery occurring at home without medical intervention three days ago. She presented to the emergency department with postpartum eclampsia, which was revealed by generalized tonic-clonic seizures with periods of consciousness in between, tongue biting, and urinary incontinence that had been occurring for six hours. On admission, the patient was unconscious with a Glasgow Coma Scale score of 6 out of 15, reactive symmetrical pupils, and no other notable neurological deficits. She was hemodynamically stable with a blood pressure of 104/54 mmHg, a heart rate of 124 beats per minute, a respiratory rate of 24 breaths per minute, and an oxygen saturation of 84% on room air with bilateral coarse breath sounds. The rest of her physical exam was unremarkable. She was given oxygen therapy, a loading dose of magnesium sulfate, and norepinephrine to achieve hemodynamic targets for neuro-restitution. Her clinical course was marked by improvement in consciousness with a Glasgow Coma Scale score of 15 out of 15 after three hours.

A brain CT scan without and with contrast was normal. Laboratory tests revealed HELLP syndrome with liver cytolysis 10 times higher than normal (ASAT/ALAT: 441/250), thrombocytopenia at 63,000, anemia at 7 g/dL, and a high LDH level of 1369 IU/L, as well as an inflammatory syndrome with white blood cells at 17,670, neutrophils at 15,050, and CRP at 30 mg/L. Chest X-ray showed a right basal pneumonia that required antibiotic therapy. Abdominopelvic ultrasound was unremarkable.

On the second day of hospitalization, the patient developed persistent epigastric pain that was resistant to analgesic treatment, prompting radiological exploration. Bedside abdominal ultrasound showed a moderate amount of peritoneal effusion, and a complement CT scan revealed a subcapsular hematoma of liver with moderate hemoperitoneum and right renal hematoma. The patient remained stable hemodynamically and respiratorily under oxygen therapy. Laboratory tests showed liver cytolysis at 80 times higher than normal (ASAT/ALAT: 2243/2239), deep thrombocytopenia at 47,000, anemia at 5 g/dL, and a high LDH level of 1541 IU/L.

The therapeutic decision was to continue close clinical and laboratory monitoring twice daily. The patient received two units of red blood cells to achieve a hemoglobin level of 7 g/dL, along with a loading and maintenance dose of tranexamic acid. Her clinical course was marked by hemodynamic and respiratory stabilization, with discontinuation of oxygen therapy on the third day and discontinuation of antibiotic therapy on the seventh day. Improvement was noted in laboratory tests on the fourth day of hospitalization, with normalization on the twelfth day.

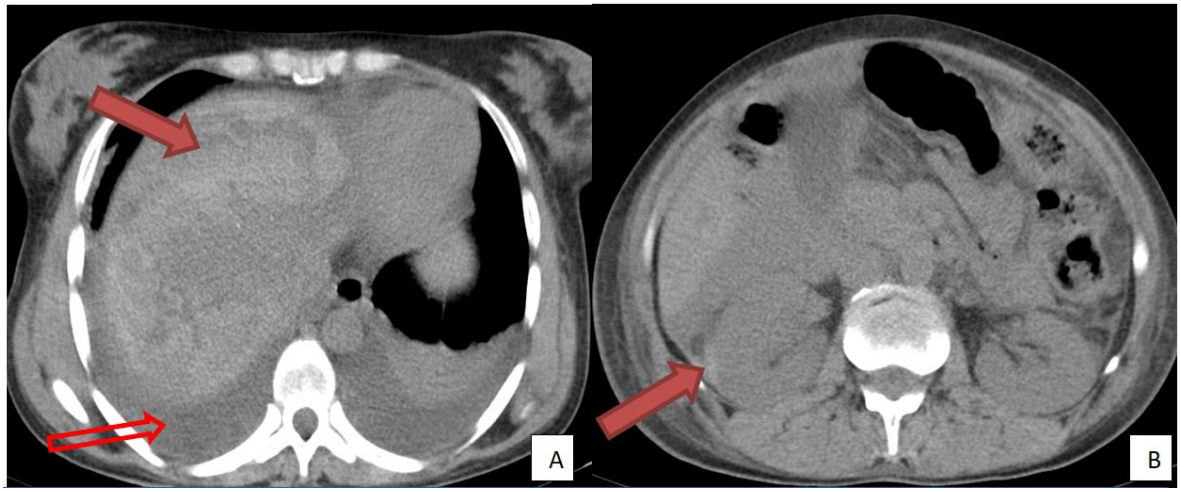
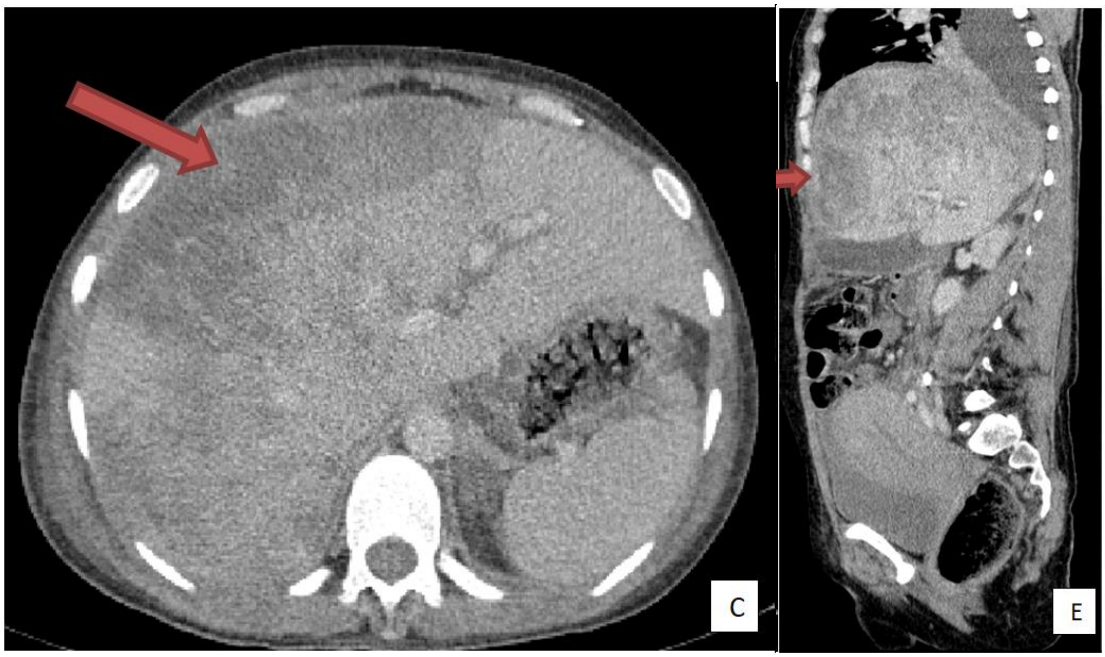


Figure 1: Non enhanced CT scan in axial views (A, B) demonstrates: A subscapular hematoma of the liver and right renal hematoma associated with bilateral pleural effusion



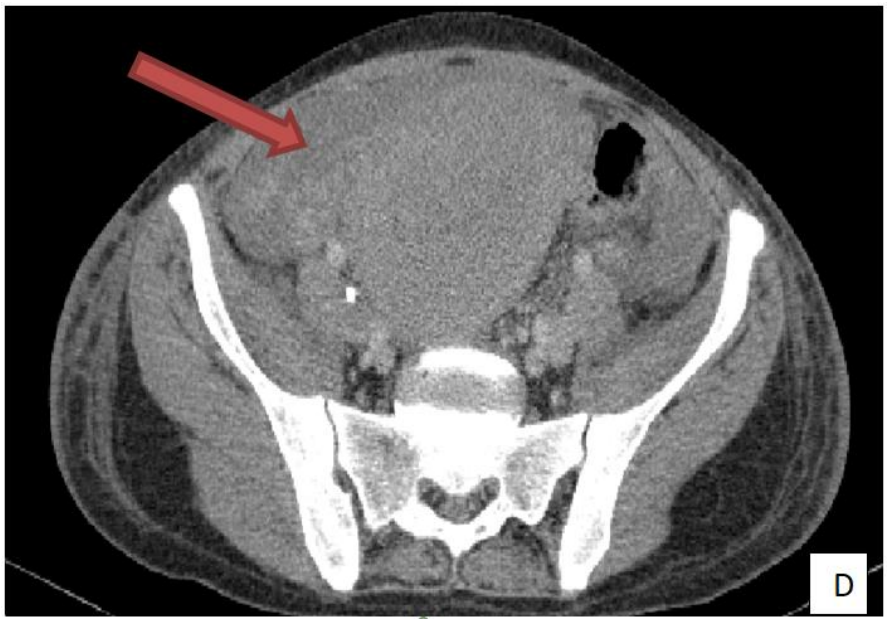


Figure 2: Post Contrast CT scan in axial views (C; D); sagittal view (E) demonstrates: A subscapular hematoma of the liver and moderate hemoperitoneum

DISCUSSION

Subcapsular haematoma of the liver is a rare complication of pregnancy with an estimated incidence of 1 in 45,000 births to 1 in 250,000 births) occurring most often in multiparous women over the age of 30. Subcapsular haematoma of the liver is seen in 50% of cases after 36 weeks of amenorrhoea, is revealed before labour in 85% of cases and in the immediate postpartum period in 15% of cases [1].

The pathogenesis of SCH is not well understood. The common proposed mechanism includes endothelial injury secondary to preeclampsia, fibrin deposition, hepatic sinusoidal obstruction, neovascularization, and microhemorrhage leading to hematoma formation [2–5].

Rarely, SCH are reported with coexisting pleural effusion or renal hematoma [3].

Signs of pre-eclampsia are usually unobtrusive or absent and may even be delayed in relation to hepatic symptomatology. The most consistent clinical sign (90% of cases) is persistent pain in the epigastrium or right hypochondrium more or less associated with scapular irradiation [6]. This pain is due to the distension of the hepatic parenchyma and Glisson's capsule following stasis of blood flow in the hepatic sinusoids. We often find a defense of the right hypochondrium. At the Glisson capsule rupture stage, signs of haemorrhagic shock (hypotension, tachycardia, oliguria) are associated with an acute surgical abdomen [6].

The presence of nausea and vomiting may be mistaken for a biliary or gastrointestinal pathology and thus a delay in management [7]. The biology is not specific, but it can reveal a complete or incomplete HELLP syndrome, coagulation abnormalities, up to a disseminated intravascular coagulation [8].

Abdominal ultrasonography and tomodensitometry (CT) are usually used for diagnosis. In the emergency setting, ultrasound is readily available and can be used to directly identify the hematoma that most often begins in the right liver as a biconvex subcapsular lens [2]. In the absence of haemorrhagic shock, the diagnosis is essentially ultrasonographic by visualising a subcapsular haematoma or hyperechogenicity of Glisson's capsule which may indicate the onset of detachment.

Ultrasound examination contributes to the detection of hepatic complications in women presenting with hepatic cytolysis in the context of HELLP, establishes the diagnosis of HSCF in stable patients, and allows the follow-up of these patients after therapeutic abstention.

The use of CT or magnetic resonance imaging, which is more efficient in liver exploration, is only possible in hemodynamically stable patients [10].

CT remains the examination of choice for the exploration of this pathology. It is the most sensitive technique for demonstrating hepatic ischaemia, looking for signs of haemorrhagic complications (intaparenchymal haemorrhage, subcapsular haematoma and haemoperitoneum), and establishing the differential diagnosis.

Magnetic resonance imaging, which is currently being evaluated, will probably have a place in the future in this type of pathology, especially as it does

not involve radiation. It is not of interest in an emergency context, but may prove useful in the secondary detection of possible causal lesions. It should not delay therapeutic action [11].

Barton *et al.,* [12] studied the value of liver imaging in the context of HELLP syndrome. Thirty-four patients with HELLP syndrome were included. Thirty-three patients had a computed tomography (CT) scan, four had magnetic resonance imaging (MRI) and five had ultrasound. All patients presented clinically with right hypochondrial pain. In 45% of cases, the radiological examination was abnormal, showing a subcapsular haematoma of the liver or an intraparenchymal haemorrhage.

The therapeutic modalities of the capsular hematoma of the liver remain discussed, although they are more and more codified. All management must be fast and requires multidisciplinary collaboration. It includes three aspects, resuscitation associated with the treatment of hypertension, fetal extraction and treatment of subcapsular hematoma of the liver guided by imaging or abdominal exploration.

In the absence of rupture of the liver capsule, close monitoring and symptomatic treatment by correction of coagulation disorders can be envisaged.In the case of rupture of the Glisson capsule, the dominant therapeutic attitude consists of conservative surgical management by placing a liver packing [10, 13, 14]. Since then, other therapeutic alternatives have been evaluated, most often based on retrospective series involving a small number of patients. In this context, the interest of hepatic arterial interruption (by embolisation or surgical ligation) was evaluated in a retrospective study of eight patients [15].

In another series of 141 cases of HSCF [16], the analysis according to the therapeutic attitude shows that the best maternal survival is obtained with packing or selective hepatic embolisation, respectively 80 and 90 % [10]. Other techniques, such as surgical ligation of the hepatic arteries or resection of areas of hepatic necrosis, are associated with a high maternal mortality of over 30% [16].

Prevention is essential in our context and should be based on monitoring pregnancies, medicalisation of deliveries, education of the population and screening of pregnancies complicated by pre-eclampsia, which will certainly reduce maternal and fetal mortality linked to this pathology.

CONCLUSION

Subcapsular haematoma of the liver is a rare and serious complication with high maternal-fetal mortality. The prognosis can be improved by monitoring and effective treatment of pre-eclampsia. Its gravity requires rapid diagnosis and appropriate multidisciplinary management .Radiological exploration (ultrasound, CT scan) must be widely indicated in the context of pre-eclampsia. The therapeutic attitude in the absence of consensus must take into account the haemodynamic state and the state of Glisson's capsule. Surgical abstention should be accompanied by adequate resuscitation and clinical, biological and radiological monitoring.

PATIENT CONSENT

The authors confirm that a written informed consent in the local language was obtained from the patient for publication of the case report, on the conditions of maintaining anonymity of identity.

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