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Therapeutic Management of Sous Capsular Hematoma of the Liver Complicating Pre-Eclampsia

H. Nidyahya[1], M. Nour[2], Y. Haouas[3], Z. Allal[4], R.Nijimbere[5], A. Raja[6], Y. Hafiani[7], M. Elyoussoufi[8], S. Salmi[9]

[1,2,3,4,5,6,7,8,9] Department of Obstetric Anesthesia and Intensive Care, UHC Ibn-Rochd, Casablanca, Morocco

Abstracts:

Subcapsular hematoma of the liver is a rare and extremely serious complication of pre-eclampsia. Its rupture is one of the most serious obstetric complications.

Liver HSC occurs in the context of HELLP syndrome in pre-eclampsia, with a maternal mortality rate of 50% to 75% and a fetal mortality rate of 60% to 80%. Treatment is based on a multidisciplinary approach involving anesthetists, obstetricians, radiologists, surgeons and pediatricians.

The aim of our study was to examine the epidemiological and clinical profile of this complication, the circumstances in which it occurred, the treatment methods and its evolution.

Patients were collected from the anaesthesia-intensive care unit of the maternity ward of the CHU Ibn Rochd in Casablanca, Morocco, over a 5-year period from January 2022 to December 2023.

We collected eight cases; the average age of our patients was 33.37 years with extremes between 20 and 40 years. Six were multiparous. The antecedents included 3 fetal deaths in utero. The mean gestational age was 33.62 SA. All were pre-eclampsia.

The diagnosis was made during the prepartum period in one case, intraoperatively in four cases and postpartum in three cases. Pain was present in all patients and was epigastric or in the right hypochondrium.

All parturients developed HELLP syndrome. Two patients were able to undergo vaginal delivery, and six underwent caesarean section. All 8 cases were transfused with labile blood products. Surgical treatment consisted of packing in five women, only one of whom required ligation of the right hepatic artery. Therapeutic abstention was adopted in three patients. We noted only one maternal death.

Keywords: Preeclampsia - Subcapsular hematoma of the liver - HELLP syndrome - Treatment - Mortality

Introduction:

Among pregnant women with pre-eclampsia, 10% may develop HELLP syndrome [1,2], with both conditions associated with significant maternal and fetal morbidity and mortality. Among the complications, subcapsular hematoma (SCH) of the liver is a serious accident that can be complicated by rupture, associated with maternal and fetal mortality of 50% and 80% respectively [2].

This potentially fatal condition requires rapid diagnosis and appropriate treatment for both mother and child. Secondary rupture is one of the most serious obstetric complications.

We report eight cases of ruptured subcapsular hematoma of the liver complicating HELLP syndrome.

Materials and Methods:

During the period from January 2022 to December 2023, we retrospectively collected all cases of subcapsular hematoma of the liver collected in the anesthesia-intensive care department of the maternity ward of CHU Ibn Rochd in Casablanca.

We collected 8 cases, one of which was in eclampsia.

During the study, we presented the epidemiological, clinical, biological, radiological, therapeutic and evolutionary data for each patient.

Results:

We collected eight cases, the mean age of our patients was 33.37 years with extremes between 20 and 40 years. Six were multiparous with an average parity of 2.75. There were 3 cases of fetal death in utero. The mean gestational age was 33.62 weeks' gestation. All were pre-eclampsia (Table 1).

The diagnosis was made during the prepartum period in one case, intraoperatively in four cases and postpartum in three cases. Pain was present in all patients and was epigastric or in the right hypochondrium. Only one patient was admitted with hemorrhagic shock (Table 1).

The initial laboratory work-up showed anemia in seven patients, thrombocytopenia and elevated transaminases in all (Table 2).

All parturients developed HELLP syndrome. Two patients underwent vaginal delivery, and six underwent caesarean section.

All 8 cases were transfused with labile blood products. Surgical treatment consisted of packing in five women, only one of whom required ligation of the right hepatic artery. Therapeutic abstention was adopted in three patients. We noted only one maternal death. Fetal mortality was 37.5% (Table 3).

Table 1: Epidemiological and clinical characteristics of subcapsular haematoma of the liver, and circumstances in which it is discovered.

Patients	1	2	3	4	5	6	7	8
Age (Years)	30	37	32	37	40	36	35	20
Parity	4	5	3	3	2	3	1	1
Pregnancy (SA)	35	32	34	28	36	37	29	38
History	Fetal death in utero	Fetal death in utero	--	--	--	--	--	Fetal death In utero
Preeclampsia	+	+	+	+	+	+	+	+
Blood pressure	140/60	130/62	160/90	170/110	177/110	180/110	175/110	impregnable
Proteinuria	++	++	++	+++	+++	+++	++	+++
Pain	+		+					

	hypochondrium		epigastrium					
Haemorrhagic shock	-	-	-	-	-	-	-	+++
Ultrasound	+	+	+	+	+	+	+	+
Abdominal and pelvic CT scan	+	+	+	+	+	+	+	--
Medical treatment	+	+	+	+	+	+	+	+
Surgical treatment								
Surgical Exploration	Immediately	Deferred	Deferred	Immediately	Deferred	Immediately	Deferred	Immediately

Table 2: Biological results

Patient	1	2	3	4	5	6	7	8
Haemoglobinb (g /100ml)	6.8	7.8	9	8.5	8.5	4.4	10.5	5
Haematocrit (%)	23	24	26	27	26	12.9	20	19
Platelet (/m 3)	74000	65000	81000	68000	84000	45000	78000	37000
Prothrombin rate (%)	66	79	71	89	80	77	80	38
GOT/GPT (IU/ml)	553/310	461/230	123/211	282/134	34/114	494/101	420/128	134/325
Total Bilirubin (mg/l)	8	7	8	7	7	8	8	52
LDH (U/l)	1157	995	650	849	695	1020	1419	931
Creatinine (mg/l)	10	8	7.5	8.4	13	35	12	42
Transfusion								

Table 3: Therapeutic characteristics and progress of patients

Patients	1	2	3	4	5	6	7	8
Delivery	Caesarean section	Vaginal delivery	Caesarean section					Vaginal delivery
Monitoring	+	+	-	-	-		+	
Surgery	-	-	Packing	Packing	Packing	Packing	-	Packing
Progress	Favourable							harmful
Maternal	+	+	+	+	+	+	+	Deaths
Fetal	Death	+	+	+	+	+	Death	Deaths

Discussion:

Liver subcapsular haematoma complicates 1/45,000 to 1/ 225,000 pregnancies [1,2].

It is most often a complication of pre-eclampsia, whether or not complicated by eclampsia or HELLP syn-

drome, with maternal-foetal mortality (50% and 80% respectively) [3,4].

Pre-eclampsia is a multi-systemic disease of the third trimester, of placental origin, with multivisceral involvement. Liver damage in pre-eclampsia occurs in 2-5% of pregnancies with gestational hypertension [5]. These lesions are secondary to intravascular fibrin deposits located mainly in the periportal sinusoids. They initially consist of foci of hepatocyte necrosis, followed by infarction and intrahepatic haemorrhage. These lesions may progress to the formation of an intrahepatic haematoma, most often under Glisson's capsule and in the right lobe. Rupture of this haematoma is the main complication [5].

A few cases of spontaneous hepatic hematoma have been described during pregnancy, even in the absence of pregnancy-related pathology or trauma [6]. HSC may present with variable symptoms, and should be suspected and investigated in the presence of epigastric and/or right hypochondrium pain, typically in the form of a bar, more or less associated with scapular irradiation [7].

At the stage of rupture of Glisson's capsule, signs of haemorrhagic shock are associated [7].

Biological diagnosis is not specific to HSCF, but HELLP syndrome was present in the 3 patients presented, associated with coagulation abnormalities in the 2nd and 3rd patients [2].

Formal diagnosis was based on imaging, in particular abdominal ultrasound and computed tomography (CT) [5]. Abdominal ultrasound identifies the haematoma, which most often begins in the right liver in the form of a subcapsular biconvex lens [2]. CT is more effective in exploring the liver, showing the hepatic origin of the haemoperitoneum.

Management of HSCF must be rapid and requires multidisciplinary collaboration. It has three components: resuscitation combined with treatment of hypertension, foetal extraction and treatment of HSCF. It varies according to the patient's haemodynamic state and whether or not Glisson's capsule is intact. In the ante-partum period, if the HSCF has not ruptured, treatment consists of close monitoring with symptomatic treatment to correct coagulation disorders and fetal extraction.

If it is ruptured, a median laparotomy can be used to extract the fetus, explore the liver with drainage of the hemoperitoneum and pack the liver [8]. This therapeutic approach was adopted in the first observation.

The use of laparoscopy introduced during a caesarean section with a transverse incision has recently been described [9]. This allowed the liver to be explored easily, ensuring that there was no active bleeding and thus avoiding a more disfiguring median incision.

Other therapeutic alternatives have been evaluated, such as selective embolization of the hepatic arteries [10], lobectomy, surgical ligation of the hepatic arteries and resection of areas of hepatic necrosis, but the last two are associated with a high maternal mortality rate of over 30% [1]. In a retrospective analysis, Rinehart et al [1] compared survival rates according to the therapeutic strategy applied. Mortality was lower (10% in ten patients) in the case of hepatic artery embolization compared with medical treatment alone (35% in 31 patients), surgical exploration without specifying the nature of the procedure performed (20% in 50 patients) or surgical treatment combining hepatic resection or arterial ligation (42% in 26 patients).

If the sub-capsular hematoma of the liver has occurred post-partum, an abdominal and pelvic CT scan should be carried out to diagnose the hematoma and assess whether or not it has ruptured.

In this case, it is the hemodynamic state that guides the therapeutic attitude, either conservative treatment with polytransfusion and correction of biological parameters without recourse to surgery, as illustrated by our second observation, or median laparotomy with recourse to one of the techniques already mentioned. In the event of acute liver failure, transplantation may be considered.

Conclusion

Subcapsular hematoma of the liver in HELLP syndrome in preeclampsia is a rare complication of pregnancy, but associated with significant maternal and fetal morbidity. Its treatment is based on a multidisciplinary approach involving anesthetists, obstetricians, radiologists, surgeons and pediatricians.

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