

AFRICAN JOURNAL OF MEDICINE and medical sciences

VOLUME 35 NUMBER 1

MARCH 2006



**Editor-in-Chief
YETUNDE A. AKEN'OVA**

**Assistants Editor-in-Chief
A. O. OGUNNIYI
O. D. OLALEYE**

ISSN 1116-4077

Spontaneous liver rupture in pre-eclampsia

^aBA Ekele, ^aLR Airede, ^bJN Legbo, ^cA Yakubu, ^aDC Nnadi and ^aMA Gana

^aDepartments of Obstetrics and Gynaecology, ^bSurgery, and ^cInternal Medicine,

Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria

Summary

Spontaneous liver rupture is a rare complication of pre-eclampsia. A booked, 30-year old woman with pre-eclampsia and twin gestation developed severe abdominal pains 10 hours after a supervised, vaginal delivery. On examination she was in hypovolemic shock with abdominal distension from hemoperitoneum. Uterine rupture was suspected and she had a laparotomy after resuscitation. But at surgery the uterus was intact and instead liver rupture was found which was managed by omental packing after evacuating the clots. Postoperatively, the patient developed acute renal failure that responded well to treatment. The mother and her babies were discharged in good health after 15 days of multidisciplinary management.

Keywords: *Pre-eclampsia, liver rupture, twin gestation*

Résumé

La rupture spontanée du foie est une complication de la pré-éclampsie. Une femme de 30 ans enregistrée ayant la pré-éclampsie et les jumeaux développait des douleurs abdominales sévères 10 heures après l'accouchement vaginal supervisé. Examinée, elle était hypovolémique avec une distension abdominale de l'hémopéritonéal. La rupture utérine était suspectée et elle a eu une laparotomie après la resuscitation. Mais après la chirurgie, l'utérus était intact, cependant elle avait une rupture du foie et a été gérée par l'accumulation omentale après l'évacuation du sang coagulé. Après l'opération le patient développait une chute rénale aiguë qui était bien traitée. La mère et les jumeaux étaient déchargés en bonne santé après 15 jours de ménagement multidisciplinaire.

Introduction

Pre-eclampsia and its complications still remain a major cause of maternal and perinatal morbidity and mortality in Nigeria [1,2,3]. Spontaneous liver hemorrhage with formation of subcapsular hematomas and rupture of the Glisson's capsule is a rare but often lethal complication [4,5]. There are no pathognomonic clinical features for this complication hence diagnosis could be delayed with untoward consequences. We report a case in which the diagnosis was confirmed only at laparotomy with subsequent multidisciplinary care. To the best of our knowledge, this is the first report of spontaneous liver rupture in a patient with pre-eclampsia from Nigeria.

Case report

A 30-year old gravida 2, para 1 woman with twin gestation presented at the labour ward with spontaneous labour at 38 weeks gestation in January, 2005. She had booked for antenatal care in this index pregnancy at 21 weeks gestation and because uterine size was more than the estimated gestational age, an ultrasound scan was requested which confirmed twin gestation. Booking blood pressure was 120/60 mmHg and there was no proteinuria or glucosuria on urinalysis. She had no jaundice, pallor or dependent edema. Subsequent antenatal follow-up visits were uneventful.

In her first pregnancy, she had pre-eclampsia diagnosed intra-partum and was managed with subsequent return to normalcy immediately after delivery. The first record of elevated blood pressure in this index pregnancy was also in labour (150/100mmHg) with moderate proteinuria. The labour progressed satisfactorily with delivery of a set of twins (cephalic/cephalic) within 6 hours of admission and third stage was managed with Syntocinon. Twin I weighed 2.4kg with Apgar scores of 7 and 10 while Twin II was 2.9kg with scores of 6 and 8 at one and five minutes respectively. She had no abnormal vaginal bleeding post delivery but complained of abdominal pains about 3 hours postpartum and was given pentazocine injection for what was then thought to be "after pains". Seven hours later, the abdominal pains became severe and generalized. She also complained of pain over the right shoulder. Her blood pressure had fallen to 100/60 mmHg and pulse rate was 112 per minute with evidence of hypovolemic shock and abdominal distension. The packed cell volume was 20%. A pelvic ultrasound scan was essentially normal except for the free peritoneal fluid and an ultrasound guided tap confirmed hemoperitoneum. The possibility of uterine rupture was entertained and she was resuscitated and taken for laparotomy. At surgery the uterus was found to be intact with normal tubes and ovaries but the Glisson's capsule on the anterior surface of the liver was breached with hematomas (Fig. 1). Liver rupture was therefore confirmed and about 2 liters of hemoperitoneum evacuated. Omental packing of the raw liver surface was performed with an external tube drainage left in-situ. She had four units of blood transfused.

Postoperatively the patient developed oliguria with hyperkalemia, low serum bicarbonate and elevated serum urea/creatinine (potassium=5.8mmol/L, bicarbonate=18mmol/L, urea=7.5mmol/L, creatinine=1.5mg/dl). She was managed promptly as acute renal failure with mannitol and appropriate fluid regulation. The elevated

blood pressure (180/110 mmHg) post surgery was controlled with hydralazine. Serum liver enzymes in the blood sample that was taken on the labour ward were elevated (SGOT=67U/L; SGPT=24U/L, maximum normal level = 12U/L). Alkaline phosphatase was 313U/L (normal ref = 97-279U/L). There was also a low platelet count (130,000 per cubic millimetre) all of which suggested HELLP (Hemolysis, Elevated Liver enzymes and Low Platelet count) syndrome. Clotting time was however normal. Subsequent postoperative course was uneventful and she was discharged with her babies in good health. At the 6-week postnatal clinic visit, the blood pressure had become normal (120/80 mmHg) and both babies were well.

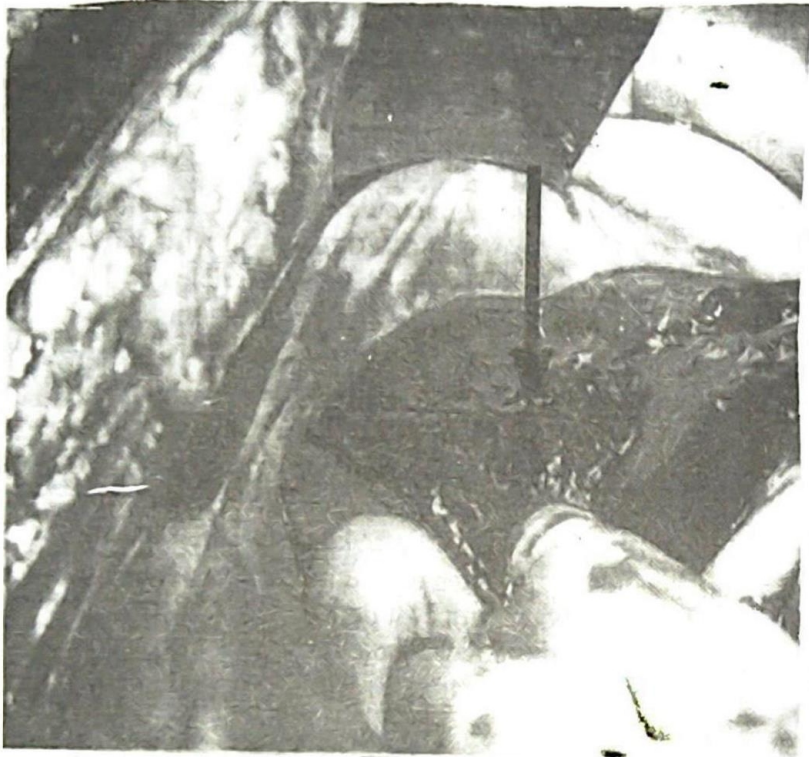


Figure 1: The liver rupture is shown by the arrow.

Discussion

Spontaneous rupture of subcapsular liver hematoma in pregnancy is a rare but potentially life threatening complication of pre-eclampsia with an incidence of 1 in 45,000 live births [6]. The pre-eclampsia in this case report was diagnosed in labour and it is likely that the liver rupture occurred soon after delivery. The intra-partum reoccurrence of the pre-eclampsia and the twin gestation are worthy of note because some commentaries have suggested an association between the complication and twin gestation [7]. Therefore, in areas where multiple pregnancies are common it might be rewarding to actively search for this complication amongst pre-eclamptic patients when they begin to have symptoms.

Most times liver hematoma is often not suspected until it ruptures. Some workers [8] have suggested that the hepatic rupture is biphasic. In Phase 1 there is necrosis, intrahepatic hemorrhage and subcapsular hemorrhage. Phase 2 is reached when the Glisson's capsule ruptures and symptoms become more severe. We suspect the phase

2 in the case presented occurred when the patient complained of severe pains that was mistaken for 'after pains'. The presence of upper abdominal pain and shoulder pain in particular in a patient with pre-eclampsia should raise the possibility of this complication especially in resource poor countries where computerized tomography and high-resolution ultrasound may not be available for a confirmatory pre-operative diagnosis. Liver function tests and other investigations in the patient suggested she also had HELLP syndrome. If the derangement was limited to the liver enzymes alone then it could be argued that the liver hemorrhage was the cause and not necessarily a HELLP syndrome. However, liver hematoma and spontaneous rupture can occur in pre-eclamptics even without HELLP syndrome [7].

There is no consensus on the optimal management of hepatic hematoma and liver rupture in pregnancy. Opinion varies from conservative care through surgery to hepatic artery embolization [9]. One of the most difficult decisions managing such cases in pregnancy is at what point to abandon conservative therapy. We are in agreement with the recommendations of Wilson and Marshall [10] to proceed to surgery if there is evidence of hemodynamic instability, continued blood loss or documented expansion or infection of the hematoma. Surgical options at laparotomy [11,12] include hepatic gauze packing with planned re-exploration; transplantation; primary ligation and repair; resectional debridement; or viable omental packing plus drainage as was done in this case. Even after surgery such patients need close observation as other medical complications may arise. Multidisciplinary approach to management is usually associated with good foeto-maternal outcome [8] as in the case reported.

References

1. Audu LR and Ekele BA. A ten year review of maternal mortality in Sokoto, Northern Nigeria. *West Afr J Med* 2002; 21: 74-76.
2. El-nafaty AU, Melah GS, Massa AA, Audu BM and Nelda M. The analysis of eclamptic morbidity and mortality in the Specialist Hospital Gombe, Nigeria. *Journal of Obstetrics and Gynaecology* 2004; 24 (2): 142-147.
3. Ogunniyi SO, Sanusi YO and Ogunniyi FA. Eclampsia: a continuing obstetric catastrophe - the experience in Ife, Nigeria. *Journal of Obstetrics and Gynaecology* 1999; 19(1): 26-29.
4. Ghosh TS and Kwawukume EY. Spontaneous rupture of the liver in severe pre-eclampsia. *West Africa Med J* 1993; 12(3): 170 - 171.
5. Manas KJ, Welsh JD, Rankin RA and Miller DD. Hepatic hemorrhage without rupture in pre-eclampsia. *N Engl J Med*. 1985; 312: 424-426.
6. Sherbain R. Spontaneous ruptured subcapsular liver hematoma associated with pregnancy - a case report. *J Reprod Med* 1996; 41: 125-128.

7. Schwartz ML and Lien JM. Spontaneous liver hematoma in pregnancy not clearly associated with pre-eclampsia: a case presentation and literature review. *Am J Obstet Gynecol* 1997; 176: 1328-1333.
8. Henny CP, Lim AE, Brummelkamp WH and Buller HR, Ten Cate JW. A review of the importance of acute multidisciplinary treatment following spontaneous rupture of the liver capsule during pregnancy. *Surg Gynaecol Obstet* 1983; 156: 593-598.
9. Terasaki KK, Quinn MF, Lundell CJ, Finck EJ and Pentecost MJ. Spontaneous hepatic hemorrhage in pre-eclampsia: treatment with hepatic arterial embolization. *Radiology*. 1990; 174: 1039-1041.
10. Wilson RH and Marshall BM. Postpartum rupture of a subcapsular hematoma of the liver. *Acta Obstet Gynecol Scand* 1992; 71: 394 -397.
11. Risseuw JJ, de Vries JE, van Eyck J and Arabin B. Liver rupture postpartum associated with pre-eclampsia and HELLP syndrome. *J Matern Fetal Med* 1999; 8(1): 32-35.
12. Benda JS and Smith GW. Trauma to the liver. In: Zuidema DG (ed). *Shackelford's surgery of the alimentary tract*. WB Saunders. 1996; 564-577.

Received: 05/10/05

Accepted: 13/02/06