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Unforgettable Lesson: Emergency in Emergency Room

Khalida Hamad Adiya Al-Othebi, Abd-ur-Haman Al-Shwirikh and Shazia Aslam
King Saud Medical City, Riyadh, Kingdom of Saudi Arabia

Corresponding Author: Shazia Aslam, King Saud Medical City, Riyadh, Kingdom of Saudi Arabia

ABSTRACT

The main objective of this investigation was to observe difficulties and problems encountered by a pregnant woman during emergency in order to find amicable solutions in such cases. It was noticed that spontaneous liver rupture is a rare and life-threatening condition. It is usually associated with pregnancy, although it can occur with other liver pathology and, very rarely, in isolation. It is difficult to diagnose and suggest numerous treatment options under this condition which could add to the complexity of the problem. Liver disease is an uncommon complication of pregnancy, although one that must be recognized early because of its potential grave consequences for mother and child. Pregnant women, who develop nausea, vomiting, anorexia, jaundice, dark urine, itching or abdominal pain, needed much attention. Initial blood tests should cover complete blood count and the liver function test. It is recommended to use the gestational age of the pregnancy as the best guide for the differential diagnosis of liver disease in pregnancy.

Key words: Pregnancy, woman, liver rupture, pathology, emergency, nausea, jaundice, abdomen

INTRODUCTION

In general, women face numerous liver related problems during pregnancy which could be detrimental both to the mother and the child. Many researchers investigated to determine real problems, difficulties and its associated hazards. Ch'ng *et al.* (2002) studied the liver dysfunction in pregnancy and observed that normal physiological and hormonal profiles changes occur during pregnancy. Moreover, changes in liver biochemical profile are normal in pregnancy. They further stated that up to 3% of all pregnancies are complicated by liver disorders. However, the common physiological changes during pregnancy could be a rise in maternal heart rate, cardiac output, together with a fall in blood pressure and systemic vascular resistance. Rolfes and Ishak (1986) described that during a normal pregnancy, serum albumin concentration falls due to the expansion in plasma volume and the alkaline phosphatase activity increases due to added placental secretion.

Weinstein (1982) first described that the combination of haemolysis with a micro-angiopathic blood smear, increased liver enzymes and low platelets (HELLP) in pregnancy, also it affected six in 1000 pregnancies. About 5-10% of women with pre-eclampsia developed HELLP (Martin *et al.*, 2006). Although, HELLP showed symptoms similar to pre-eclampsia and was the criteria that can define severe pre-eclampsia. Besides, Ultrasonography remained the safest imaging modality to visualise the liver during pregnancy.

Ropponen *et al.* (2006) stated that intrahepatic cholestasis of pregnancy normally resolves after delivery but, in rare cases of familial forms, the condition can persist after delivery, leading to fibrosis and even cirrhosis. They further pointed out that in these cases, an increased risk of cholestatic liver disease exists, irrespective of pregnancy.

Many investigators reported that in pregnant women risk factors include increased Body-Mass Index (BMI), psychiatric illness, molar pregnancy, pre-existing diabetes and multiple pregnancies (Kuscu and Koyuncu, 2002; Fell *et al.*, 2006). Recent studies identified angiogenic markers which might help to confirm the diagnosis of pre-eclampsia in women without hypertension or proteinuria. They include decreased placental growth factor, increased serum soluble endoglin and increased soluble fms-like tyrosine kinase-1 (VEGF) receptor (Masuyama *et al.*, 2006; Levine *et al.*, 2006; Salahuddin *et al.*, 2007; Robinson and Johnson, 2007). Sookoian (2006) emphasized the use of lamivudine and other antiviral drugs during the third trimester to reduce HBV viral load and thus decrease the risk of transmission to the fetus.

Spontaneous liver rupture is a rare and life-threatening condition. It is usually associated with pregnancy, although it can occur with other liver pathology and, very rarely, in isolation. It is difficult to diagnose and the numerous treatment options suggested for this condition thus adding to the complexity of the problem. We faced same emergency in our emergency department. The main objective of this investigation was to observe difficulties and problems encountered by a pregnant woman during emergency in order to find amicable solutions in such cases.

CASE REPORT

A 30 years old, not booked, Ethiopian lady G₂P₁+0 term gestation previously having one Cesarean. She came to emergency with headache, blurring of vision, epigastric pain. On examination, it was observed that she is drowsy, disoriented pale and in agony due to abdominal pain.

Her temperature was 37°C, pulse as 110 bpm, BP as 90/60 mmHg, bilateral lower limbs pitting oedema, with normal chest and heart examination. Abdomen was tender diffusely, fundal height 32 weeks with cephalic presentation, Doppler no foetal heart sound, exaggerated reflexes, protein urea+1 and no clonus. There was no per vaginal bleeding and cervix OS was closed. Bedside scan showed no foetal heart and placenta upper anterior with no retro placental clots.

The Patient was operated for Cesarean with provisional diagnosis of severe pre-eclampsia toxemia, abruption placenta with concealed haemorrhage, ruptured uterus, because the patient collapsed during initial resuscitation. The outcome was fresh still delivering a baby boy of 1.9 kg with no sign of abruption and intra-peritoneal bleeding. A drain was inserted and 3 pints of blood was transfused during and just after operation.

Next day, the laboratory results showed Hb (8.8 mg%), platelets (79000), AST (5871) and ALT (3231). The coagulation profile was normal so HELLP syndrome was diagnosed. Therefore, MgSO₄ infusion was started. As the blood pressure was high (170/110 mm Hg), a bolus of hydralazine was administered. A 500 mL drainage fluid was collected that increased to 1500 mL within 2 h.

The repeated laboratory results came as Hb (8.3 mg%), Platelets (37000), INR (1.9), PTT (51 sec.) and Fibrinogen (184), replacement was done by FFP, cryoproteins and platelets.

Later, patient reassessment showed as P (115/min), BP (140/90 mmHg), CVP (5 cm of H₂O), only mild vaginal blood loss (N lochia) and contracted uterus per abdomen. Also USG of abdomen was done that showed heterogeneous region measuring 15×5×3.5 cm, superolateral surface at right lobe of liver, suggestive haematoma and free fluid in upper abdomen. Other viscerae were normal. However, CT was not done because the patient deteriorated with increasing drain collection up to 2.5 L, so laparotomy was decided in emergency alongside resuscitation.

Exploration laparotomy revealed uterus intact contracted, no bleeding or pelvic collection and ruptured right lobe of liver with clotted blood about 2 L. The blood clot was removed with

haematoma left intact, cauterization and packing done for haemostasis pelvic and fixed the abdominal drain. The patient remained in MICU on ventilatory support and replacement therapy.

Five day post-operation, the packing was removed, abdomen closed and Abx started. The patient went smooth. A CT was done for chest, abdomen and pelvis showing right hepatic lobe sub-capsular haematoma with extensive parenchymal necrosis and compensatory enlargement of left hepatic lobe with normal other viscera.

Patient was on spontaneous breath with tracheotomy that was closed after 5 days. Also, patient developed episodes of generalized fits. The CT and MRI of brain revealed reversible encephalopathy syndrome. Patient improved with the passage of time and discharged with OPD appointment after one month.

After one month, the results of endoscopy and CT of brain were normal. However, the CT of abdomen showed patchy fatty infiltrate of liver and regression of previously seen sub-capsular fluid collection, also complete resolution of peritoneal fluid. There was a mild splenomegaly with normal pancreas and kidneys. The patient was doing well.

DISCUSSION

Hepatic haemorrhage, rupture and infarction usually occur in the third trimester and are extremely rare complications of preeclamptic liver disease (Smoleniec and James, 1993). Hepatic rupture incidence varies from one in 40,000 to one in 250,000 pregnancies hepatic infarction is even rarer (Greenstein *et al.*, 1994).

It occurs in 1-2% of cases of pre-eclampsia and eclampsia eighty percent of the affected women are multiparous with an average age of 32 years old (Henny *et al.*, 1983). Hepatic haemorrhage precedes hepatic rupture which usually involves the right lobe (Benjaminov and Healthcote, 2004). Hepatic rupture affects the right side of the liver in 75%, left side in 11% and both sides in 14% of cases (Hunter *et al.*, 1995). Sub-capsular bleeding and haematoma usually precede hepatic rupture. Henny *et al.* (1983) described a biphasic presentation. It is believed to be a continuum of preeclampsia, in which areas of coalescing haemorrhage result in thinning of the capsule and intraperitoneal haemorrhage (Smoleniec and James, 1993).

The clinical presentation of hepatic infarction, haemorrhage and rupture is generally non-specific with malaise, abdominal pain, nausea and vomiting but hepatic rupture may present as a clinical triad of preeclampsia or eclampsia, abdominal pain and hypotension (Cappbell and Friedel, 2003). A high index of suspicion is essential for early diagnosis (Rafiq *et al.*, 1999).

Liver disease presenting during trimester of pregnancy (Olans and Wolf, 1995)

Trimester of differential diagnosis pregnancy

First:

- Hyperemesis gravidarum
- Gall stone
- Viral hepatitis
- Intrahepatic cholestasis of pregnancy*

Second:

- Intrahepatic cholestasis of pregnancy
- Gall stone
- Viral hepatitis
- Pre-eclampsia, eclampsia*
- HELLP*

Third:

- Intrahepatic cholestasis of pregnancy
- Preeclampsia, eclampsia
- HELLP
- Acute fatty liver of pregnancy
- Hepatic rupture
- Gall stone
- Viral hepatitis

Where:

*Uncommon

Intra-hepatic haemorrhage has been reported to recur in a minority of subsequent pregnancies (Greenstein *et al.*, 1994). These therapies have met with only moderate success i.e., 59-70% maternal mortality rate and 75% prenatal mortality rate have been noted in hepatic rupture (Smoleniec and James, 1993). Predisposing factor and pathophysiology are associated factors including AFLP, HELLP syndrome, preeclampsia, eclampsia, DIC, cocaine abuse, haemangioma, hepatic adenoma, cavernous haemangioma, liver abscess and trauma have been reported (Rafiq *et al.*, 1999; Doshi and Zucker, 2003; Benjaminov and Healthcote, 2004; Stevenson and Graham, 1995).

CONCLUSION

In conclusion, spontaneous liver rupture is a rare and life-threatening condition. It is usually associated with pregnancy, although it can occur with other liver pathology and, very rarely, in isolation. It is difficult to diagnose and the numerous treatment options suggested for this condition add to the complexity of the problem. Liver disease is an uncommon complication of pregnancy, although one that must be recognized early because of its potential for grave consequences for mother and child. Pregnant women who develop nausea, vomiting, anorexia, jaundice, dark urine, itching or abdominal pain need to receive much attention. Initial blood tests should consist of complete blood count, liver function test.

It is, therefore, recommended to use the gestational age of the pregnancy as the best guide for the differential diagnosis of liver disease in pregnancy.

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