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Complicated Acute Fatty Liver in Pregnancy

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ABSTRACT

Acute fatty liver of pregnancy (AFLP) is a rare condition that occurs most commonly in the third trimester of pregnancy. Its associated hepatic and extra-hepatic complications can cause serious maternal morbidity or mortality and the definitive treatment is immediate delivery of the fetus. There is insufficient data describing the management of complicated AFLP. This case report of an AFLP complicated by acute renal failure and coagulopathy discussed the diagnosis of AFLP and demonstrated the need for intensive monitoring and management in such patients.

INTRODUCTION

Acute fatty liver of pregnancy (AFLP) is a rare clinical entity that is unique to human pregnancy with an estimated incidence rate of 1 in 7,000 to 1 in 20,000 deliveries[1]. It is known to be associated with high maternal and perinatal morbidity and mortality which may include hepatic and extra-hepatic complications. However, with early detection and prompt delivery, these multi-systemic manifestations may be rapidly reversed.

There is strong evidence that there is an association between AFLP and fatty acid oxidation (FAO) disorders [2-4]. One of the enzymes which have been shown to predispose the mother to the development of AFLP is the long-chain 3-hydroxyacyl CoA dehydrogenase deficiency (LCHAD) [5-8].

There is insufficient data describing the management of complicated AFLP. Hence, we report a case of AFLP which was complicated by acute renal failure and coagulopathy at our centre to demonstrate the need for intensive monitoring and management in such patients.

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CASE REPORT

A 39 year-old lady, primigravida, presented at 35 weeks and 2 days gestation with a sudden onset of epigastric pain which radiated to the right hypochondrium. This was preceded by generalized lethargy, nausea, vomiting and pruritus for the past 1 – 2 weeks.

She denied symptoms of headache, visual disturbances, fever nor other symptoms of hepatic obstruction such as tea coloured urine or pale coloured stools. Apart from gestational diabetes mellitus, well controlled with dietary restriction, she had no significant past medical or surgical history.

On examination, she appeared lethargic but oriented with a Glasgow Coma Scale score of 15. She was haemodynamically stable. Her pulse rate of 111 beats per minute and her blood pressure was borderline elevated at 143/80 mmHg and afebrile. She was clinically dehydrated and icteric. Her abdomen was tender at the epigastrium but there was no sign of peritonism. There was no hepatosplenomegaly, her reflexes were normal and there was no evidence of fluid retention.

Investigations performed revealed elevated aminotransferases (AST) at 234 IU/l, elevated total and conjugated bilirubin at 126 mg/dl and 85 mg/dl respectively. Uric acid was markedly elevated at 476 µmol/L. She was noted to be hypoglycaemic – random capillary sugar 2.8. Renal panel also showed acute renal dysfunction. Her creatinine and urea level was 230 µmol/L and 10.2 mmol/L respectively. Her platelet count was normal. However, her prothrombin time (PT) was raised at 16.3s with the international normalised ratio (INR) at 1.36 and the activated partial thromboplastin time (aPTT) was raised at 47.8s. The fibrinogen level

was 1.45 and D-Dimer level was more than 32. Her haemoglobin was 12.9 g/L.

Based on the above clinical presentation and preliminary investigations, which showed hepatic dysfunction, complicated by hypoglycaemia, coagulopathy and acute renal injury, possibilities of a primary hepatic pathology versus pre-eclampsia with HELLP syndrome were suspected.

Initial management was supportive to correct her dehydration, hypoglycaemia, coagulopathy and renal impairment. She was commenced on an intravenous drip of dextrose 10% with hourly hypo count, input – output monitoring, transfused with 1 pint of fresh frozen plasma, administered IV Vitamin K. She was also started empirically on systemic antimicrobials - ceftriaxone and metronidazole – in view of elevated white cell counts with neutrophilic shift. Further investigations which included an autoimmune screen, ultrasounds of the hepatobiliary system and kidneys were normal.

HELLP syndrome was unlikely in view of her normal blood pressure and lack of significant proteinuria. A diagnosis of AFLP was made. An emergency caesarean section was carried out just 1 day after her presentation. She delivered a 2.2 kg baby girl with APGAR scores of 9 and 9 at 1 minute and 5 minutes respectively.

Postoperatively, the patient was transferred to ICU for observation. Serial trending of her hepatic and renal function revealed spontaneous improvement in synthetic function with correction of coagulopathy. She was discharged well on post-operative day 5.

DISCUSSION

The clinical presentations of AFLP could be similar to that of the HELLP syndrome, making the diagnosis of AFLP a challenging one. The most frequent symptoms experienced by patients with AFLP were nausea and vomiting, abdominal pain (especially epigastric area), anorexia and jaundice [9]. In contrast, the common complaints of patients with HELLP were abdominal pain (usually in the midepigastric region, right upper quadrant), visual disturbances, headaches and haematuria. Our patient had presented with epigastric pain and jaundice without hypertension, significant proteinuria or thrombocytopenia, hence excluding HELLP as a diagnosis.

A diagnostic criterion was proposed by Ch'ng et al[10] in Swansea where AFLP was diagnosed in the presence of 6 or more of features in the absence of another explanation (Table 1). A population-based descriptive study was done in the United Kingdom[4] to evaluate the diagnostic criteria and found that the criterion matched the clinical diagnosis of AFLP. However, more research would have to be done to validate this criterion for adoption into clinical practice as a form of objective diagnosis of AFLP.

AFLP is often complicated by acute renal failure, in as high as 60% of the cases[11-13]. Alketa Koroshi et al[1] described a case of acute renal failure in the immediate postpartum period of AFLP where despite intensive care, the patient died of severe coagulopathy. In our patient, the biochemical tests revealed a predominantly conjugated hyperbilirubinemia with severely deranged liver function tests and prolonged pTT without thrombocytopenia. These findings excluded haemolytic uraemic syndrome (HUS) and supported a diagnosis of ARF secondary to acute liver failure.

Complicated AFLP is a medical emergency and the definitive treatment is immediate delivery following stabilisation of the mother. Based on the numerous case reports on AFLP, it has been shown that stringent monitoring and supportive management of the patients resulted in improved maternal and perinatal outcomes. Khalid Mjahed et al[13] found that the prognostic factors for good clinical outcomes in AFLP include prompt progressive management such as early termination of pregnancy and large dose infusion of fresh frozen plasma. Hence, initial management of the patient should involve a multidisciplinary approach with intensive care available. There may be initial post-partum worsening of the liver and renal dysfunction but these will resolve within the next few days.

Jamal A Ibdah[14] discussed the causative association between carrying a fetus with LCHAD deficiency and development of AFLP. Hence, the early identification of at-risk pregnant mothers and their children could help to reduce the chances of developing AFLP themselves and the complications of FAO disorders, both of which are associated with high morbidity and mortality[15-16].

CONCLUSION

Acute fatty liver of pregnancy requires prompt recognition, maternal stabilisation and expeditious delivery to minimise both maternal and fetal morbidity and mortality since it never resolves before delivery. With complications of acute renal failure, intensive medical interventions can improve maternal outcomes. As there is a strong association between fatty acid oxidation disorders and the risk of developing AFLP, we recommend close monitoring of the mother throughout her gestation and counselling her on the risk of recurrence and the importance of testing for the known mutations. The presence of the mutations has important and even life-saving implications if the child is affected.

Table 1. Features of AFLP as described by Ch'ng et al

AFLP is diagnosed in the presence of ≥6 of the following:

- Vomiting
- Abdominal pain
- Polydipsia/polyuria
- Encephalopathy
- Elevated bilirubin
- Hypoglycaemia
- Elevated urate
- Leucocytosis
- Ascites or bright liver on ultrasound scan (USS)
- Elevated transaminases
- Elevated ammonia
- Renal impairment
- Coagulopathy
- Microvesicular steatosis on liver biopsy

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