

ACUTE FATTY LIVER OF PREGNANCY

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Abstract

Acute fatty liver of pregnancy, characterized by microvesicular fatty infiltration of hepatocytes, is a disorder which is unique to human pregnancy. We describe the successful intensive care management of a parturient who was admitted with the signs and symptoms of acute fatty liver of pregnancy associated with preeclampsia.

Keywords: intensive care, pregnancy, acute fatty liver.

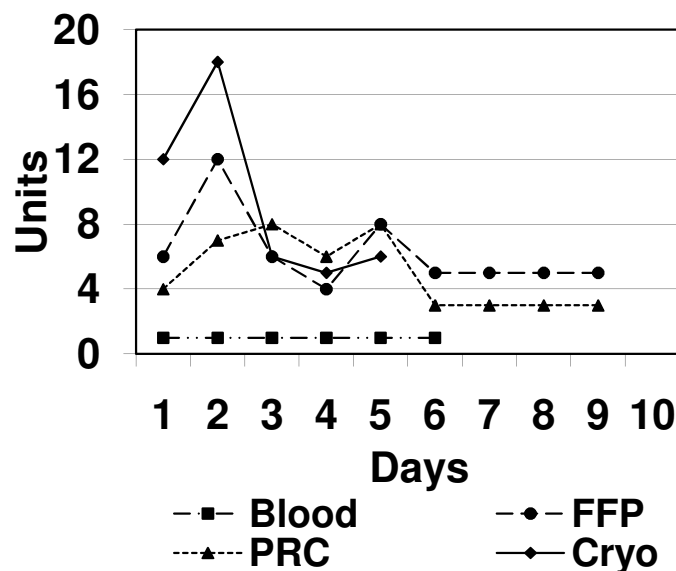
Introduction

Acute fatty liver of pregnancy, characterized by microvesicular fatty infiltration of hepatocytes, is a disorder which is unique to human pregnancy¹. UK incidence of AFLP is 1 case per 20,000 births. Incidence of AFLP from non-UK studies based on hospital case series estimate 1 in 4000 deliveries to 1 in 16 000 births². It was described in 1940 and was initially thought to be universally fatal³. The maternal mortality rate is approximately 12 percent, with most survivors having minimal sequelae⁴. We managed a parturient with the features of acute fatty liver of pregnancy associated with pre-eclampsia.

Case Report

A 25 year-old woman gravida 1 para 0 currently with singleton at 34 weeks of gestation was hospitalized with pregnancy induced hypertension, for which methyldopa 250mg BD had been prescribed earlier in her pregnancy elsewhere. She had history of bilateral pedal edema for a month with associated hematemesis and decreased urine output for the last 3 days. On admission, she was breathless, sensorium was altered, anuric, with HR of 170/min, blood pressure of 80/50 mmHg and RR of 45/min. Airway was secured immediately with a cuffed oral

endotracheal tube size 7. Fluids and vasopressor infusions were started immediately to maintain her haemodynamics and shifted to intensive care unit for further management. In the intensive care unit, she was started on Inj. Adrenaline and Noradrenaline infusion at 0.1mcg/kg/hr. Inj. Vasopressin infusion was added to maintain the haemodynamics for the first two days. Inj. Adrenaline and noradrenaline infusions were gradually tapered and stopped on 8th post-ICU day. She was haemodynamically stable from then onwards. She was acidotic on arrival to intensive care and 7.5% bicarbonate infusion was started to correct acidosis. She had deranged coagulation parameters for which she was transfused with blood and products, based on the clinical signs and laboratory values. Blood and products were transfused for 10 days in the ICU (Fig.1). She was dialyzed daily for a week till her urine output improved clinically. Fetal monitoring using ultrasound showed no fetal cardiac activity. On consultation with the obstetrician and the family members, it was decided to terminate the pregnancy. She delivered a fresh still birth child on the 2nd ICU day. Her bleeding parameters remained persistently deranged even after delivery. She needed transfusion of blood and products even after delivery of child. Liver function tests showed mild elevation of liver enzymes (Table 1). Nutrition was maintained with central total parenteral nutrition in view of the associated pancreatitis. Compression stockings were applied to both limbs to prevent deep vein thrombosis. Aspiration prophylaxis and antibiotics were prescribed during her stay. She was gradually weaned off and extubated on the 12th ICU day. She was observed for 48 hours in the ICU and shifted to the ward, got discharged and advised to follow up.



FFP – Fresh Frozen Plasma PRC – Platelet Rich Concentrate Cryo – Cryoprecipitate

Figure 1: Transfusion of blood & blood products

LFT	Day 1	Day 3	Day 5	Day 10
Total Bilirubin (mg)	17.3	18.3	16.7	14.2
Direct Bilirubin (mg)	10.6	14.2	13.5	12.8
Protein (g)	5.3	4.6	4.5	4.5
Albumin (g)	2.8	2.4	2.2	2.3
SGOT (U/L)	69	61	65	66
SGPT (U/L)	54	46	39	45
SAP (U/L)	134	140	159	124

Table 1: Liver Function Tests

Discussion

Acute fatty liver of pregnancy usually occurs in the latter part of the third trimester but can be seen as early as 26 weeks of gestation⁵. The disease is autosomal recessive in inheritance and mothers are often found to be heterozygous for the affected mutation⁶. About one-half of patients have signs of pre-eclampsia at presentation or at some time during the course of illness⁷. The understanding of the causes of acute fatty liver of pregnancy has been ameliorated by advances in mitochondrial biochemistry. Deficiency of LCHAD (Long chain 3-hydroxyacyl-CoA dehydrogenase) leads to an accumulation of medium and long chain fattyacids⁸. The accumulation of long-chain 3-hydroxyacyl metabolites produced by the fetus or placenta is toxic to the liver and may be the cause of the liver disease.

Criteria for diagnosis of AFLP⁹ include six or more of the following features in the absence of another explanation: Vomiting, abdominal pain, polydipsia / polyuria, encephalopathy, elevated bilirubin (>14 $\mu\text{mol/l}$), hypoglycemia (<4 mmol/l), elevated urate (>340 $\mu\text{mol/l}$), leucocytosis (>11x10⁹/l), ascites or bright liver on ultrasound scan, elevated transaminases (aspartate aminotransferase or alanine aminotransferase >42 IU/l), elevated ammonia (>47 $\mu\text{mol/l}$), renal impairment (creatinine >150 $\mu\text{mol/l}$), coagulopathy (prothrombin time >14 s or activated partial thromboplastin time >34 s), microvesicular steatosis on liver biopsy. The most striking feature of this syndrome is a high level of bilirubin associated with moderate increases of transaminases (Table 1). The

platelet count may be decreased with or without other signs of disseminated intravascular coagulation (DIC)¹⁰. Nearly 80% of the women with AFLP had an abdominal ultrasound examination. Classical features of ascites or bright liver were only seen in a quarter of these. This observation is reflected in other studies which report that hepatic ultrasound is not sufficiently sensitive or specific to make a definite diagnosis¹¹. Our patient had six of the above mentioned criteria. In one series of 32 cases with severe liver dysfunction requiring admission to a liver failure unit, infection occurred in 17 and major intra-abdominal bleeding in 10, some of whom required surgery⁴. Our patient didn't have any of these complications mentioned above. The majority of women diagnosed antenatally (41/42, 98%) were delivered within 4 days of diagnosis, and most (25/42, 60%) delivered within 24 hrs of diagnosis². In our case, we delayed termination of foetus for 24 hours due to maternal haemodynamic instability. Initial treatment involves supportive management with intravenous fluids, intravenous glucose and blood products, including fresh frozen plasma and cryoprecipitate to correct DIC. Once the mother is stabilized, arrangements are usually made for delivery. This may occur vaginally, but, in cases of severe bleeding or compromise of the mother's status, a caesarian section may be needed¹². The disease can recur in future pregnancies, with a calculated genetic chance of 25%⁸. Patient was advised on liver biopsy after 3 months as suggested by gastroenterologist. We planned to have multidisciplinary meeting in the subsequent pregnancy.

Conclusion

The cornerstone of treatment in acute fatty liver of pregnancy is early resuscitation of mother with supportive measures such as mechanical ventilation for coma, fluids and vasopressors for hemodynamic stability, blood and products for coagulopathy, dialysis for renal failure, parenteral nutrition and intensive monitoring. Early delivery of fetus improves the maternal outcome but this is a hard decision when the foetus is alive but may not be viable once outside the uterus.

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