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Case Report

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Acute Liver Failure of unknown Origin in Pregnancy

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ABSTRACT

Acute liver failure (ALF) in pregnant women is one of the major public health issues and remains a challenging clinical problem with extremely high maternal and fetal morbidity and mortality, which characterized by sudden onset of coagulopathy (international normalized ratio [INR] ≥ 1.5) and encephalopathy, may occur during pregnancy either as a pregnancy-associated etiology or an unrelated and coincidental liver injury. Therefore, this case report my help to inform clinicians about the current status of the incidence of acute liver failure of unknown origin during pregnancy. ALF is a life-threatening condition in the absence of preexisting liver disease. Here we report a case of 37-year-old primigravida who presented with insidious acute fulminant hepatic failure during the third trimester of her pregnancy.

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Introduction

Acute liver failure (ALF) is a rare condition, affecting approximately 2000 patients annually in Europe [1]. ALF occurring in pregnancy is associated with significant maternal and fetal morbidity and mortality [2,3]. Certain liver conditions that lead to ALF such as the hemolysis, elevated liver enzymes, low platelets (HELLP) syndrome and acute fatty liver of pregnancy (AFLP) are limited solely to pregnant women, occur during the third trimester, and can be classified as pregnancy-associated liver diseases (PAALD) [4-6]. In the obstetrical literature, diagnostic criteria for AFLP known as the Swansea criteria have been proposed as a means to distinguish AFLP from other causes of liver dysfunction including HELLP, but these have not been extensively validated [7,8]. Not all ALF that occurs during pregnancy is directly related to the pregnancy itself. For example, certain viruses occur relatively frequently in the reproductive years; likewise, pregnant women may be more susceptible to conditions not specifically pregnancy-related, such as Herpes simplex virus (HSV) infection [9-11]. Including those presenting with full-blown ALF (defined as any degree of encephalopathy and coagulopathy with INR ≥ 1.5) and those with acute liver injury (ALI, severe injury with INR of ≥ 2.0, but without encephalopathy) [12]. The epidemiology of both diseases needs to be defined in pregnant women in Europe. Treatment options may be different, as prompt termination of pregnancy is usually required for improving the prognosis in acute fatty liver and HELLP syndrome. Long term prognosis may be different in both groups because recent studies suggesting that acute fatty liver can recur in subsequent pregnancies [12].

Case Report

A 37-year-old primigravida with 36 weeks gestation presented to our hospital with right-sided abdominal pain, premature contractions & mildly deranged liver functions. The first two trimesters of pregnancy were uneventful. There was no past medical history of jaundice, vomiting or ascites. The patient denied having a history of hepatitis, blood transfusions, IV drug abuse, alcohol abuse, travel outside the continental Europe, and other illness or use of antibiotics during pregnancy. There was no family history of diabetes, congestive heart failure, or pruritus during pregnancy. Her medications during pregnancy consisted of iron sulfate and multivitamins. Gynecologist decided to put her under observation with suspicion of preeclampsia. Results of a serum alpha-fetoprotein test were normal. Results of the physical examination of her abdomen were normal. Her blood pressure, pulse, and temperature were also normal. An external monitor revealed mild uterine contractions. Terbutaline was administered subcutaneously, causing relief of her symptoms. Admission laboratory tests were normal. She received intravenous corticosteroids and was maintained on oral terbutaline.

Within few hours, she manifested with worsening liver & renal functions & severe acute coagulopathy. Gynecologist decided to perform urgent cesarean section under general anesthetics which went uneventful. Newborn was born without any complications & the mother was transferred to critical care unit following endotracheal extubation for postoperative care. She developed grade 3 hepatic encephalopathy on the following hours. Blood Investigations revealed high liver enzymes (transaminases aspartate transaminase [ALT] and alanine transaminase [ALT]) and hyperbilirubinemia. Laboratory values upon admission showed significant elevations in AST (386 IU/ L [normal, 10–37 UI/L]), ALT (472 IU/L [normal, 10–37 UI/L], alkaline phosphatase 383 UI/L [normal, 44–155 UI/L]. Bilirubin was significantly elevated (27.1 mg/dL, [normal, 0.4–1.2 mg/dL]), with unconjugated bilirubin of 13 mg/dL. Prothrombin time was prolonged (PT-INR, 1.9 [normal, 0.81–1.38]). RBS was 68 mg/dl on admission.

Hemoglobin was 11.1 g%, renal parameters and electrolytes were deranged but not to the extent of using renal replacement therapy. Her renal functions were normalized via hydration therapy. She had a normal platelet count & white blood cells. Abdominal ultrasound showed normal liver echogenicity without structural abnormalities. Moderate free fluid was noted in the abdomen and pelvis. Screening for hepatitis A, B, C and E were normal. By day 8, Hepatic transaminase levels became normal and total bilirubin level came down to 7 mg/dl and patient was discharged in a hemodynamically stable condition on day 13.

Discussion

Pregnancy-induced liver diseases, though rare, carry a poor prognosis (5,6). Pregnancy-associated liver diseases (PAALD) are associated with fetal survival of 88.9% and 88.6% overall maternal survival. PAALD is easily recognized in most obstetrical settings and is often heralded by pre-eclampsia in the third trimester, both in HELLP and AFLP. There is currently no specific prognostic score to determine outcome or need for transplantation in this patient population. In conclusion, half of the women who develop ALF or ALI during pregnancy are not suffering from a disease directly related to the pregnancy itself but rather from other diseases that are relatively common in this age group, but not currently including the common varieties of viral hepatitis. Maternal outcomes are generally favorable for both PAALD and APAP, but less so for those with other etiologies. In contrast, fetal outcomes are not as satisfactory, particularly for the other and APAP causes, since their occurrence across all trimesters limits fetal maturity. Recognition of PAALD in the third trimester is the first step to diagnosis and initial treatment. Hepatologists are typically consulted when the associated liver disease does not resolve immediately post-partum. Early referral and transplant consideration are mandated as it is for anyone with signs and symptoms of ALF.

Table 1: Initial Laboratory Results on Admission

Study	Result
Aspartate Transaminase (AST)	386 IU/L [normal, 10–37 UI/L]
Alanine Transaminase (ALT)	472 IU/L [normal, 10–37 UI/L]
Alkaline phosphatase	383 UI/L [normal, 44–155 UI/L]
Bilirubin	27.1 mg/dL, [normal, 0.4–1.2 mg/dL]
Unconjugated bilirubin	13 mg/dL
Prothrombin time	PT-INR, 1.9 [normal, 0.81–1.38]
Random Blood Sugar (RBS) Test	68 mg/dl
Haemoglobin	11.1 g%

Conclusion

Acute liver failure (ALF) in pregnancy is a challenging clinical problem with very high maternal and fetal morbidity and mortality, Early intervention and appropriate diagnosis can substantially reduce the morbidity and mortality associated with acute liver failure (ALF) especially in pregnancy associated acute liver diseases.

Patient Consent Statement

Written informed consent was obtained from the patient for publication of this case report.
A copy of the written consent is available for review by the editor of this journal.

Potential Conflicts of Interest

The authors have no competing interests to declare.

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