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Case Report: Acute Fatty Liver of Pregnancy

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Abstract

Acute fatty liver of pregnancy (AFLP) is a rare disease in Vietnam. Diagnosis by recorded literature is often difficult to distinguish from viral hepatitis, paraplegia, or bile duct disease, so AFLP diagnosis is often delayed. The prevalence of hepatitis B in Vietnam in pregnant women is estimated at 10% [1], preeclampsia is estimated at 0.2% [2]. A case pregnant woman has 35.5-week gestational age with AFLP, who was safely delivered both mother and infant at Hung Vuong hospital, Vietnam. A careful history and physical examination, in conjunction with compatible laboratory and ultrasound imaging results, are often sufficient to make the diagnosis, and liver biopsy is rarely indicated. Intensive adjuvant therapy and rapid birth control are essential for maternal and fetal outcomes.

Keywords

Acute Fatty Liver of Pregnancy, Expeditious Delivery

1. Introduction

Acute fatty liver of pregnancy (AFLP) was first described in 1940 by Sheehan [3] "Acute hepatic jaundice". *AFLP* is characterized by the phenomenon of viral fat infiltration into liver cells without any inflammation or necrosis. Frequency of rare occurrence is 1/10,000 - 15,000 pregnancies [3], however mortality rates, maternal and neonatal mortality by 75% and 85% [4]. The literature reports that if the timely intervention of maternal and neonatal mortality is reduced, about 18% and 23% [3] [5] [6]. Although the understanding of the mechanisms of pathogenesis is not yet clear, "rapid birth" is still the best treatment.

So far, studies have documented that long-chain 3-hydroxyacyl-CoA dehydrogenase (LCHAD) seems to be more susceptible to *AFLP*. In addition to the LCHAD deficiency, a number of risk factors are associated with risk factors: first

child, preeclampsia, fetal male and multiple pregnancy [3] [6]. Acute fatty liver is reported to be more common in twin than in singleton pregnancies. KM Davidson et al report three cases of biopsy-proven acute fatty liver in triplet gestations. The hypothesis is proposed by [7] that multiple pregnancies may be at high risk of *AFLP* because of an increased production of fatty acid metabolites by multiple pregnancies. Race does not seem to be linked to the *AFLP*. Case report [8] notes the relationship between the use of acetylsalicylic acid and *AFLP*.

In *AFLP*, there is a progressive accumulation of fat in the liver cells. The normal level of liver fat is about 5%. In *AFLP*, this rate may increase from 13% to 19% [3]. This fat accumulation, along with ammonia produced by hepatocytes, leads to coagulant dysfunction and secondary hypoglycaemia develops to liver failure [5] [9]. The liver is usually noted as small, soft and yellow, probably mostly as a result of decomposition and atrophy of liver cells [3]. To progress further, the kidneys, pancreas, brain and bone marrow can also penetrate into the fats [9].

The majority of women diagnosed with *AFLP* are in the last trimester of pregnancy and have an average gestational age of 35 to 36 weeks, with a series of cases that can last anywhere from 28 to 40 weeks [10]. The syndrome of *AFLP* has shown that it can occur for up to 26 weeks and until postpartum. Monga and Katz [9] reported a case diagnosed at 22 weeks gestation. Clinical findings in the *AFLP* vary because it can occur at different clinical levels and in combination with other third pregnancy symptoms, making early diagnosis of *AFLP* difficult. Patients often have nonspecific symptoms such as anorexia, nausea, vomiting, discomfort, fatigue, headache and abdominal pain. Physical examination, patients with fever and jaundice, occurred in more than 70% of *AFLP* [6]. Riely analysed five consecutive cases of acute fatty liver of pregnancy, along with the associated morbidity, mortality and complications, pain on right side or epigastric area are usual symptoms [6]. Liver examination is usually small and does not touch. In severe cases, patients may exhibit disorders in many organs including acute renal failure, encephalopathy, gastrointestinal bleeding, pancreatitis, and coagulopathy. Some pregnant women may also have preeclampsia with edema and high blood pressure. Possible: haemolysis, elevated liver enzymes and low platelets (HELLP syndrome). Thrombocytopenia and haemorrhagic thrombocytopenic purpura may also be present in *AFLP*. Transient diarrhea may also occur, but is rare [11] (**Table 1**).

2. Case Report

In April, a 37-year-old gravida, resident in Kien giang province, Vietnam. PARA 1021, she was born once, in 2009, boy child 3500 gr; medical abortion twice. She have examed at Hung vuong hospital 12 April, 2017 (Ho Chi Minh city, Vietnam) because: pregnant 35 weeks, eating poor 5 days, jaundice, non-stress test (NST) less responsive.

History: She forgot the fisrt day of her last menstrual period but she has result

Table 1. Clinical symptoms common in *AFLP* [12] [13].

Common signs and symptoms	Prevalence (%)
Jaundice	>70
Abdominal pain (usually right upper quadrant, 50 - 60 midepigastric or radiating to back)	50 - 60
Central nervous system (altered sensorium, 60 - 80 confusion, disorientation, psychosis, restlessness, seizures or even coma)	60 - 80
Disseminated intravascular coagulation	55
Nausea and vomiting	50 - 60
Gastrointestinal bleeding	20 - 60
Acute renal failure	50
Oliguria	40 - 60
Tachycardia	50
Late-onset pyrexia	50

of ultrasound examinations at local health centers 13 weeks gestational age on 10 November 2016. Estimate due day 17 May 2017.

Now gestational age is 35 week. She had eaten less than a week, fever unknown time, jaundice unknown time. At Hung Vuong hospital, NST non reactive should be entered emergency rescue. Emergency room o examination: pulse rate of 96 times/min, blood pressure of 110/70 mmHg, temperature 37˚C, respiratory rate of 20 breaths/min, weight of 45 kg. Uterus height: 28 cm, FHR 142 times/min, uterine contraction (−). Vagina exam: cervix dilation 1 cm, thick; the head, position (−2), membrane still, flat. Nitrazine negative test.

Abdominal ultrasonography: survival of pregnancy, head, BPD = 88 mm, FML = 61 mm, AC = 326 mm, placenta in front of the bottom of coal, degrees II, cervical length = 26 mm, SPD = 26 mm. revealed an enlarged liver with segmental edema, mild ascites and right-sided pleural effusion.

Investigations revealed total leucocyte count of 20,800/mm^3 (Neutrophil 78%), hematocrite of 32.3%, hemoglobin of 105 d/L; red blood cell of 3.6 million/mm^3, platelet 77,000/mm^3, blood type B, rhesus (+). Her random blood sugar was 78 mg/dL Serum levels of bilirubin, aspartate transaminase (AST), alanine transaminase (ALT) and amylase were 22.3 mg/dL, 3411 U/L, 229 IU/L, and 43 IU/L respectively. Coagulogram revealed a prothrombin time (PT) of 42 s 8 with international normalized ratio (INR) of 3.72. Fibrinogen og 2.27 g/dl. Hepatitis serology, autoimmune markers and dengue infection screening were negative. There were increased blood levels of urea (115 mg/dL) and creatinine (2.29 mg/dL) and a pronounced increase of serum uric acid 293 mmol/L. Serum electrolytes showed potassium of 3.3 mEq/L, serum sodium of 153 mEq/L and serum calcium of 9.8 mg/dL.

Treatment: transfusion 5 units fresh frozen plasma,. Supportive care and expeditious delivery, she had been induction of labor with Oxytocin intravenous drop. After 6 hours, delivery natural a baby 2050 grams, APGAR 1 minute 6

points, 5 minutes 7 points, dark green amnion. Nhau xổ tự nhiên. Total blood loss after birth 350 gr.

Post partum 30 minute, pulse rate of 108 times/min, blood pressure of 90/60 mmHg, temperature 37˚C, respiratory rate of 18 breaths/min. She was malaise; her blood sugar was 28 mg/dL and she was immediately started on 30% dextrose infusion. Follow-up in 1 weeks, intravenous Cetriaxone 2 gram per day for 7 days, Metronidazole 0.5 g with 3 times per day for 7 days; intramuscular Vitamin K 1/2 tube per day for 5 days. Mother and baby were stable after 7 days (Table 2).

Table 2. Characteristics of common liver diseases in pregnancy [14].

Disease	Trimester	Incidence	Signs and symptoms	Laboratory findings	Complications
Pre-eclampsia and eclampsia	2nd or 3rd;	5% to 10%	Nausea; vomiting; epigastric pain; edema; hypertension; mental status changes; jaundice (late presentation)	ALT < 500 U/L, proteinuria, DIC (7%)	Maternal: Hypertensive crisis; renal impairment hepatic rupture/infarct; neurological (seizures, cerebrovascular disease) Fetal: Abruptio placentae; prematurity; IUGR leading to increased perinatal morbidity and mortality
HELLP syndrome	3rd	0.10% (4% to 12% of women with pre-eclampsia)	Symptoms of pre-eclampsia (hypertension, headache, blurred vision); epigastric or right upper quadrant pain; nausea; vomiting; hematuria; jaundice (late presentation)	Hemolysis, ALT < 500 U/L, platelets < 100×10^9/L, elevated LDH, DIC (20% - 40%)	Maternal: Seizures; acute renal f ailure; hepatic rupture, hematoma or infarct; increased mortality (1% to 3%) Fetal: Abruptio placentae; increased mortality (35%)
Acute fatty liver of pregnancy	3rd (can occur during 2nd)	0.01%	Malaise; upper abdominal pain; nausea; vomiting; jaundice (very common); encephalopathy (late presentation)	ALT < 500 U/L; hyperbilirubinemia; hypoglycemia; elevated ammonia; leukocytosis; DIC (>75%)—thrombocytopenia; prolonged PT, hypofibrinogenemia	Maternal: Acute renal failure; ascites; encephalopathy; sepsis; wound seroma; pancreatitis; increased mortality Fetal: Increased mortality (13% to 18%) from asphyxia; prematurity; IUGR; LCHAD deficiency and its complications
Viral hepatitis	Any	Same as general population	Nausea; vomiting; fever	ALT greatly elevated (>500 U/L); elevated bilirubin; positive serology tests	Maternal: Increased mortality with hepatitis E
Intrahepatic cholestasis of pregnancy	2nd or 3rd	0.1% to 0.2%	Intense pruritus; jaundice; (20% to 60%, 1 to 4 weeks after pruritus); steatorrhea	ALT < 500 U/L; markedly elevated ALP and GGT; increased bile acids; bilirubin (<10^3 μmol/L)	Maternal: Predisposed to cholestasis on subsequent pregnancies Fetal: Still birth; prematurity; fetal mortality (3.5%)
Drug-induced hepatitis	Any;	Unknown	Usually none; nausea; vomiting; pruritis jaundice (in cholestatic hepatitis)	Variable	Unknown

ALP: Alkaline phosphatase; ALT: Alanine aminotransferase; DIC: Disseminated intravascular coagulation; GGT: Gammaglutamyl transpeptidase; HELLP: Hemolysis, elevated liver enzymes, low platelets; IUGR: Intrauterine growth restrictions; LCHAD: Long-chain 3-hydroxyacyl-CoA dehydrogenase; LDH: Lactate dehydrogenase; PT: Prothrombin time.

3. Discussion

Hung Vuong hospital is one of the two major maternity clinics in the south of Vietnam. On average more than 100 live births a day, so an average of more than 40,000 live each year. AFLP is rarely thought of in practice because initial clinical symptom may be non-specific. Patient history, clinical features and biochemical abnormalities may be manifested as acute hepatitis B virus, preeclampsia in Vietnam because maternal death result by preeclampsia rate of 16% next to postpartum haemorrhage rate of 31%. Although women with *AFLP* precursors may also have preeclampsia, patients with pre-eclampsia are not usually jaundiced and usually do not have hypoglycemia, as seen in *AFLP* [9]. In addition, preeclampsia rarely produces severe coagulopathy, sometimes with extensive intravascular coagulation. Besides preeclampsia, hepatitis should also be eliminated in pregnant women with symptoms of hepatic dysfunction. In hepatitis, patients usually have a much higher serum ALT (Aspartate Amino Transferase) and AST (Alanin Amino Transferase.

Diagnostic imaging commonly used in Vietnam is ultrasound, however false-negative results are common [15]. Liver biopsy can help with definitive diagnosis-Ober and Lecompte in 1955 [16]. However, this method is less effective because of the risk of internal hemorhage due to confused clotting.

AFLP has a detrimental effect on the fetus. One of the complications of *AFLP* is the metabolic acidosis in pregnant women producing serum lactate due to damaged liver cells. Maternal metabolic acidosis directly affects alkalosis-steady state balance in pregnancy. Therefore, timely adjustment of mothers with metabolic acidosis is necessary for conception. Rapid transfer of labor may be necessary [11].

When pregnant is stable, labor is the next step. Birth vaginality is probably the best method if given. However, the caesarean section may be performed due to the rapid deterioration of mothers and fetuses. After delivery, hemodynamic monitoring is necessary because the patient with *AFLP* is at high risk for bleeding as a result of blood clotting disorder [17]. Drainage and blood products may be necessary. Besides the risk of bleeding, patients are also at risk of hypoglycemia and transmission of sugar may be necessary. Finally, other potential complications of *AFLP* (e.g., pancreatitis or hemorrhagic necrotic pancreatitis) should usually be ignored, which usually develop after the onset of liver disease and renal dysfunction [18]. The development of follicles with secondary infection or hemorrhagic pancreatitis with bleeding after the peritoneum may be difficult to control, especially in patients with coagulopathy. Therefore, serial serology and lipase amylase serology should be screened for several days after the onset of hepatic dysfunction. Diagnostic imaging such as CT scans or magnetic resonance imaging may be helpful in assessing the development of follicular or hemorrhagic pancreatitis.

The mortality rate from AFLP is about 18% and death is usually secondary to sepsis, renal failure, pancreatitis or gastrointestinal bleeding [19]. In survivors,

liver function tests show continued decline until one week after birth but then slowly recovered. On screening, liver volume will also decrease and postpartum recovery [13]. Liver enzymes, ammonia and coagulation will begin normalizing and followed by decreased serum creatinine [20]. Clinical rehabilitation usually occurs after a few weeks and there are no long-term sequelae, although altered liver histology can persist for several months [3]. Recurrence of *AFLP* during subsequent pregnancy may occur about 25% [8]. If the patient decides to become pregnant again, it should be closely monitored for any suspicion of *AFLP*.

4. Conclusion

AFLP usually occurs in the last three months of pregnancy or early postpartum. Although it is not clear how pathogenesis is diagnosed and diagnosed early, it is difficult to diagnose the condition as it may present with symptoms similar to those of other causes of liver failure. However, clinical examination and appropriate laboratory testing in addition to active follow-up, intensive adjuvant therapy, and rapid birth control are essential for maternal and fetal outcomes.

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