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Maternal and Perinatal Outcomes of Acute Fatty Liver of Pregnancy: A Retrospective Study at a Tertiary Care Centre in Karnataka, India

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Abstract

Background: Acute fatty liver of pregnancy (AFLP) is a rare, potentially life-threatening pregnancy-specific liver disorder that usually occurs during the third trimester. It can progress rapidly to hepatic dysfunction, coagulopathy, acute kidney injury, hepatic encephalopathy, disseminated intravascular coagulation (DIC), postpartum haemorrhage and multiorgan dysfunction. Early recognition, maternal stabilization and timely delivery are the main principles of management.

Objective: To evaluate the clinical presentation, complications, management and maternal and perinatal outcomes of women diagnosed with acute fatty liver of pregnancy at a tertiary care centre.

Materials and Methods: A retrospective observational study was conducted in the Department of Obstetrics and Gynaecology, KIMS, Hubballi, Karnataka, India, from October 2024 to September 2025. Women diagnosed with AFLP and fulfilling six or more Swansea criteria were included. Women with other causes of liver dysfunction, including viral hepatitis and intrahepatic cholestasis of pregnancy, were excluded. Demographic, clinical, laboratory, obstetric, ICU, transfusion and outcome data were retrieved from hospital records.

Results: Six women were included. Mean gestational age at presentation was 36weeks+3days (range 30+3 to 38+2 weeks). Three women (50%) were primigravidae. Swansea scores ranged from 6 to 9.

Jaundice/hyperbilirubinaemia was present in all six women. Nausea/vomiting occurred in three (50%), abdominal pain in two (33.3%) and hepatic encephalopathy in three (50%). Acute kidney injury, DIC and hepatic encephalopathy each occurred in three women (50%). Postpartum haemorrhage occurred in two (33.3%), with one requiring peripartum hysterectomy. Two women required plasma exchange/plasmapheresis. All six required ICU care; mean ICU stay was 7.6 days. Five women (83.3%) survived and one (16.7%) died following severe multiorgan dysfunction. Four pregnancies resulted in live births and two in intrauterine fetal deaths, giving a perinatal survival rate of 66.7%.

Conclusion: AFLP is a severe obstetric condition associated with significant maternal and perinatal morbidity. Early diagnosis, prompt delivery, intensive care, blood component support and multidisciplinary management are essential. Plasma exchange may be considered selectively in severe or refractory disease, although evidence remains limited.

Keywords: Acute fatty liver of pregnancy, AFLP, Swansea criteria, maternal outcome, perinatal outcome, hepatic dysfunction, acute kidney injury, DIC, plasma exchange.

Introduction

Acute fatty liver of pregnancy (AFLP) is a rare but potentially fatal pregnancy-specific liver disorder characterized by microvesicular fatty infiltration of hepatocytes and varying degrees of hepatic dysfunction. It usually develops during late pregnancy and may rapidly progress to acute liver failure and multiorgan dysfunction.[1–3]

The pathogenesis is closely associated with abnormalities of mitochondrial fatty-acid oxidation. Fetal defects in fatty-acid oxidation, particularly long-chain 3-hydroxyacyl-CoA dehydrogenase (LCHAD) deficiency, have been associated with maternal AFLP.[2]

Clinical manifestations may initially be nonspecific and include nausea, vomiting, abdominal pain and malaise. Progressive disease can result in jaundice, hypoglycaemia, coagulopathy, renal dysfunction, hepatic encephalopathy and DIC. AFLP may overlap clinically with pre-eclampsia and HELLP syndrome, making early diagnosis challenging.[2,4]

The Swansea criteria provide a practical clinical framework for diagnosis. The presence of six or more criteria, in the absence of an alternative explanation, supports the diagnosis of AFLP.[5–7]

Once AFLP is suspected or diagnosed, maternal stabilization and timely delivery are the cornerstones of treatment. Intensive supportive care includes correction of hypoglycaemia and coagulopathy, renal support when required, blood component therapy and close ICU monitoring.[1,3,4]

This study was undertaken to evaluate the clinical presentation, complications, management and maternal and perinatal outcomes of AFLP cases managed at a tertiary care centre in Karnataka.

Aim and Objectives

Aim

To study the maternal and perinatal outcomes of women diagnosed with acute fatty liver of pregnancy at a tertiary care centre.

Objectives

- To study demographic and obstetric characteristics of women presenting with AFLP.
- To assess clinical presentation and Swansea criteria fulfilled.
- To identify maternal complications associated with AFLP.

• To study management modalities including delivery, ICU care, blood component therapy and plasma exchange.

• To evaluate maternal and perinatal outcomes.

Materials And Methods

Study design

Retrospective observational study.

Study setting

Department of Obstetrics and Gynaecology, Karnataka Institute of Medical Sciences (KIMS), Hubballi, Karnataka, India.

Study period

October 2024 to September 2025.

Study population

All women diagnosed with AFLP and managed during the study period.

Inclusion criteria

Women fulfilling six or more Swansea criteria for AFLP.

Exclusion criteria

Women with other established causes of hepatic dysfunction, including viral hepatitis, intrahepatic cholestasis of pregnancy and other known liver diseases.

Data collection

Maternal age, gravidity/parity, gestational age, comorbidities, Swansea score, clinical presentation, liver function abnormalities, renal dysfunction, coagulation abnormalities, encephalopathy, mode of delivery, admission-to-delivery interval, maternal complications, ICU stay, blood component transfusion, plasma exchange, maternal outcome and fetal outcome were recorded.

Outcome measures

Primary outcome was maternal survival. Secondary outcomes included maternal complications, ICU duration, blood component and plasma exchange requirements, mode of delivery and perinatal outcome.

Statistical analysis

Because of the small sample size, data were analyzed descriptively. Continuous variables were expressed as mean and range, and categorical variables as frequency and percentage. No inferential statistical analysis was performed.

Results

Six women fulfilling the inclusion criteria were included. The diagnosis was based on six or more Swansea criteria.

Demographic and obstetric characteristics

Variable	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Age (years)	20	26	21	19	28	28
Gravidity	Primi	G2P1L1	G2P1L0	Primi	G3P1L1	Primi
Gestational age	38 wk	38+2 wk	30+3 wk	33+6 wk	35+6 wk	37+2 wk
Comorbidity	None	Gestational HTN	None	Gestational HTN, anaemia	GDM on MNT	Severe pre-eclampsia
Swansea score	7	8	6	6	6	9
Mode of delivery	LSCS	FTVD	PTVD	PTVD	LSCS	FTVD
Fetal outcome	Male/live	Male/live	Female/live	Female/IUD	Male/live	Female/IUD

Clinical presentation

Jaundice/hyperbilirubinaemia was present in all six women. Nausea and vomiting occurred in three (50%), abdominal pain in two (33.3%) and hepatic encephalopathy in three (50%). Hypoglycaemia was documented in four (66.7%). Ascites and abnormal liver echotexture on ultrasonography were each documented in four women.

Feature	Number	Percentage
Nausea/vomiting	3	50.0%
Abdominal pain	2	33.3%
Hepatic encephalopathy	3	50.0%
Polyuria/polydipsia	0	0%
Bilirubin >0.8 mg/dL	6	100%
AST/ALT >42 IU/L	6	100%
Hypoglycaemia	4	66.7%
WBC >11,000/mm³	6	100%
Creatinine >1.7 mg/dL	2	33.3%
PT >14 sec/APTT >34 sec	6	100%
Ammonia >47 µmol/L	3	50.0%
Uric acid >340 µmol/L	2	33.3%
Ascites	4	66.7%
Abnormal liver echotexture on USG	4	66.7%

Liver dysfunction

All six women had elevated transaminases and hyperbilirubinaemia. Peak bilirubin ranged from 6.2 to 22.5 mg/dL. The highest bilirubin value was documented in Case 4, who developed severe systemic complications.

Maternal complications

Complication	Number (%)
DIC	3 (50.0%)
Acute kidney injury	3 (50.0%)
Hepatic encephalopathy	3 (50.0%)
Postpartum haemorrhage	2 (33.3%)
Sepsis	1 (16.7%)
Peripartum hysterectomy	1 (16.7%)

Management and ICU requirement

All six women required intensive care. ICU stay ranged from 5 to 12 days, with a mean of 7.6 days. Two women underwent plasma exchange/plasmapheresis. Blood component therapy was required in all six cases, with total combined component requirements ranging from 5 to 38 units.

Case	ICU stay	Total blood component units
1	7 days	8
2	12 days	27
3	5 days	5
4	7 days	38
5	5 days	9
6	10 days	17

Maternal outcome

Five women (83.3%) survived and one (16.7%) died following severe multiorgan dysfunction. The death occurred in the patient who developed PPH requiring peripartum hysterectomy along with acute kidney injury, sepsis, hepatic encephalopathy and DIC.

Perinatal outcome

Four pregnancies resulted in live births and two in intrauterine fetal deaths. Perinatal survival was therefore 66.7% and perinatal mortality was 33.3%.

Discussion

AFLP is a rare pregnancy-specific liver disorder that can progress rapidly to hepatic failure and multiorgan dysfunction. The present retrospective study describes six women managed at a tertiary care centre and demonstrates the substantial maternal and fetal morbidity associated with severe AFLP.[1–3]

The mean gestational age at presentation was 36.3 weeks, consistent with the typical late-pregnancy presentation of AFLP. A prospective UK national study similarly demonstrated that AFLP predominantly occurs in late pregnancy and is associated with significant maternal and perinatal morbidity.[8]

Half of the women in the present study were primigravidae. Primigravidity has been described among potential risk factors, although this small study cannot establish an independent association.[2]

Jaundice or hyperbilirubinaemia was present in all patients, while nausea/vomiting and hepatic encephalopathy each occurred in half. The nonspecific nature of early symptoms emphasizes the importance of considering AFLP in late pregnancy with vomiting, jaundice or unexplained liver dysfunction.[2,3]

The Swansea criteria were used in all patients, with scores ranging from 6 to 9. They are a useful clinical diagnostic tool, although some criteria overlap with other pregnancy-related liver disorders and their limitations should be recognized.[5–7]

DIC, acute kidney injury and hepatic encephalopathy each occurred in 50% of women. These findings reflect the multisystem nature of severe AFLP and the overlap with HELLP syndrome and severe pre-eclampsia.[4,9]

All women required ICU care and substantial blood component therapy. Prompt maternal stabilization and delivery are central to management, followed by intensive supportive care.[1,3,4]

Two women underwent plasma exchange. Plasma exchange is not a substitute for delivery or supportive care and should be considered selectively in severe or refractory disease. Current evidence remains limited and is largely observational.[10]

Maternal survival in this study was 83.3%, with one death following severe multiorgan dysfunction. Interpretation is limited by the small sample size and the apparent severity of disease in the cohort. Large contemporary cohorts have reported substantially improved maternal survival compared with historical series.[8]

Perinatal survival was 66.7%, with two intrauterine fetal deaths. Adverse fetal outcomes may result from prematurity, maternal metabolic disturbance, placental dysfunction and severe maternal compromise.

The association between AFLP and fetal fatty-acid oxidation disorders, particularly LCHAD deficiency, provides an important biological basis for the condition.[2]

Overall, the findings emphasize that AFLP should be treated as an obstetric emergency requiring early diagnosis, maternal stabilization, timely delivery, correction of coagulopathy and metabolic abnormalities, ICU support and multidisciplinary management.

Limitations

- Small sample size of six patients limits statistical power and generalizability.
- Retrospective design depends on the completeness of existing medical records.

- Maternal/fetal genetic testing for fatty-acid oxidation disorders was not available in the dataset.
- Detailed neonatal outcomes such as birth weight, Apgar score and NICU morbidity were not available.
- No inferential statistical analysis or predictors of outcome could be assessed.

Conclusion

AFLP is a rare but potentially life-threatening obstetric emergency associated with significant maternal and perinatal morbidity. In this retrospective study of six women, maternal survival was 83.3% and perinatal survival was 66.7%. DIC, acute kidney injury and hepatic encephalopathy were the major complications, and ICU care and blood component therapy were frequently required. Early recognition, prompt stabilization, timely delivery and multidisciplinary critical care are essential. Plasma exchange may have a role as adjunctive treatment in selected severe or refractory cases, although further high-quality evidence is required.

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