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Acute Fatty Liver of Pregnancy- Case Study at Tertiary Care Hospital

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Abstract:
Introduction:*Acute fatty liver of pregnancy (AFLP) is life threatening complicationwhich is rare, usually presents in second and thirdtrimesters of pregnancy .[1]Underlying pathology of disease thought to be linked to an abnormality in free fatty acid metabolism and exact pathology is not known.[2]Early identification, supportive care and expeditious delivery are the main stay of treatment of AFLP.*
Material and methods: *Observational prospective study of cases of Acute Fatty Liver of Pregnancy with various presentations and their outcomes are studied over a period of 1year at obstetrics department at NRI hospital, chinakakani, Guntur, Andhra Pradesh after getting approval from Institutional ethics committee and consent from patients.Patients were diagnosed using Swansea criteria, laboratory investigations specific to AFLP and subjecting to imaging.*
Results: *Out of 7 patients with AFLP, 5 were primi gravida and 2 were second gravida.Period of gestation at which they presented was between 32-36 weeks.6 required preterm termination of pregnancy.4 underwent LSCS(Lower Segment Cesarean Section).Average hospital stay was 12 days. Complications seen were DIC (57%), Liver Failure(57%), MODS(57%),Hypoglycaemia (57%) and renal insufficiency (100%) and 1 maternal death.*
Conclusion: *Early diagnosis, prompt delivery, adequate supportive care and a multidisciplinary approach are the key to good outcome.*
Keywords: *Acute Fatty Liver of Pregnancy(AFLP),LSCS, Liver failure, Swansea criteria.*

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I. Introduction:

Acute fatty liver of pregnancy (AFLP) is a life threatening complication which is rare , usually presents in the second and third trimesters of pregnancy[1]. Underlying pathology of disease thought to be linked to an abnormality in free fatty acid metabolism and exact pathology is unknown. [2]Early diagnosis of AFLP sometimes can be difficult as it shares features with other conditions such as pre-eclampsia, viral hepatitis and cholestasis of pregnancy.Careful history and physical examination, along withappropriate laboratory and imaging results, are sufficient to make the diagnosis, and biopsy of liver is rarely required. Early identification,supportive care and expeditious the mainstay treatment for AFLP for maternal and neonatal outcome.

II. Material And Methods:

study was done at obstetrics department, NRI General and Super speciality hospital , chinakakni, Andhra Pradesh. Aprroval from institutional ethics committee taken.Consent of the patients participated in study taken and all the patients were conscious and coherent at the time of presentation.Detailed history of the patients was taken and thorough clinical examination done. Laboratory investigations like Complete blood picture, liver function tests, renal function tests, coagulation profile, urine microscopy and imaging with ultra sonogram were done. Patients who met the Swansea criteria were included in the study. Patients were subjected to daily liver function tests and coagulation profile to assess prognosis. Medical gastroenterologist opinion was taken during evaluation.

Swansea criteria includes:

1. Vomiting
2. Encephalopathy
3. Polydipsia/polyuria
4. Abdominal pain
5. Elevated bilirubin (over 0.8 mg/dL or 14 micromol/L)

6. Hypoglycemia (less than 72 mg/dL or 4 mmol/L)
7. Leukocytosis (over 11000 cells/microL)
8. Elevated transaminases (AST or ALT) (greater than 42 international unit/L)
9. Elevated ammonia (over 47 micromol/L)
10. Elevated uric acid (above 5.7 mg/dL or 340 micromol/L)
11. Acute kidney injury, or creatinine over 1.7 mg/dL or 150 micromol/L
12. Coagulopathy or prothrombin time greater than 14 seconds
13. Ascites or bright liver on ultrasound scan
14. Microvesicular steatosis on liver biopsy

6 or more of the following criteria are needed in the absence of another known cause of liver dysfunction to establish a diagnosis.

III. Results:

During our study total 7 cases were diagnosed as Acute Fatty Liver of Pregnancy. 100% had complaints of vomitings and examination revealed jaundice.86% had epigastric pain, 57% had polydipsia, 43% had pruritus and 43% had Encephalopathy.

CLINICAL PRESENTATIONS:

SYMPTOMS	PATIENT 1	PATIENT 2	PATIENT 3	PATIENT 4	PATIENT 5	PATIENT 6	PATIENT 7
Vomiting	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Epigastric pain	Yes	Yes	No	Yes	Yes	Yes	Yes
Jaundice	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Polydipsia	Yes	Yes	No	Yes	No	No	Yes
Pruritus	Yes	No	No	Yes	No	Yes	No
Encephalopathy grade (0-4)	2	0	0	0	3	0	2

Pregnancy outcome:Age of presentation-<20 years (0%), 21-30 years7(100%), >30 years0(0%). Primi gravida were 5 (71%), second gravida 2 (29%).Out of 5 primi gravida 1 was twin pregnancy.Period of gestation- <32 weeks 0%, 32-36 weeks- 6(86%), 37 weeks and above -1(14%).3 (43%) delivered by Vaginal route and 4(57%) by LSCS. 1 Intrauterine death was noted. 5(63%) were male and 3(27%) were female.weight of the newborn-<2kg-1(13%), 2-2.5 kg- 7(77%), >2.5kg -0.APGAR Score – 6 (75%) had 7-9 score, 1(12.5%) had score <7, and 1(12.5%) had score 0.

PREGNANCY OUTCOME:

Pt No	Age	Parity	Gestational age (weeks)	Days b/w symptoms and delivery	Mode of delivery	Sex of baby	Fetal weight(kg)	APGAR
1	26	G2P1L1	37+5	3	VD	Male	2.22	7-9
2	24	Primi	36+6	2	VD	Male	2.07	7-9
3	22	Primi with MCDA	36	4	LSCS	Female	2.34 2.15	7-9 7-9
4	28	Primi	34+1with IUD	2	VD	Male	2	0
5	21	G2P1L1	35+6	5	LSCS	Female	1.64	5-7
6	24	Primi	32	3	LSCS	Male	2.01	7-9
7	28	Primi	36	2	LSCS	Male	2.4	7-9

COMPLICATIONS:

Findings	Number	Percentage (%)
DIC	4	57.1
Ascites	2	28.5
Liver failure	4	57.1
Hepatic encephalopathy	3	42.8
ARDS	3	42.8
Hemorrhagic shock	3	42.8
Pulmonary-edema	1	14.2
sepsis	1	14.2
Metabolic acidosis	2	28.5
MODS	4	57.1
Impaired glucose tolerance	1	14.2
Hypoglycemia	4	57.1
Maternal death	1	14.2
IUD	1	14.2
PPH	1	14.2
Acute renal insufficiency	7	100

Complications : Various complications were observed in these patients.4 (57%) had liver failure with elevated enzymes. Hepatic encephalopathy was seen in 3(43%), patients. 3 (43%) had metabolic acidosis, 4(57%) had Multi Organ Dysfunction, 1(14%) had impaired glucose tolerance, 4(57%) had hypoglycaemia. 3(43%) had haemorrhaging shock, 3(43%)had ARDS, 1(14%) had pulmonary edema, 1(14%) landed in sepsis, 4(57%) had Disseminated Intravascular Coagulation (DIC), 2(29%) had Ascites, 1(14%) presented with intrauterine death of foetus, 1(14%) had postpartum hemorrhage (PPH), 7(100%) had Acute Renal insufficiency and 1(14%) maternal death happened in postpartum period due to MODS along with COVID-19 infection on POD-6.

IV. Discussion:

The diagnosis of AFLP was made on the basis of clinical, laboratory criteria and imaging.All cases exhibited six or more of the Swansea criteria to objectively confirm the diagnosis of AFLP.AFLP is rare, late-gestational, potentially life-threatening complication which occurs at mean gestational age of 36 weeks (range 32–38weeks).

Zhu et al. [3] showed the 34th gestation week might be important time for screening AFLP outpatients. In our study mean gestational age of presentation was 35+/-3weeks.

Lee et al. and Kilpatrick et al. agree that signs and symptoms commonly associated with AFLP include nausea/vomiting (75% of patients), epigastric abdominal pain (50% of patients), malaise, anorexia, and jaundice [4].In our study nausea and jaundice was seen in 100% of patients and 86% had epigastric pain.

According to Sibai et al.early termination of pregnancy in case of associated HEELP syndrome instead of undue prolongation of labor.

In our study 43% delivered by vaginal route and 57% underwent LSCS.

In our study average age of presentation is 24.71+/-5 years.

In our study average baby weight is 2.1kg+/-0.46kg.

In our study complications seen were Hepatic encephalopathy 3(43%), 3 (43%) had metabolic acidosis, 4(57%) had Multi Organ Dysfunction, 1(14%) had impaired glucose tolerance, 4(57%) had hypoglycaemia. 3(43%) had haemorrhaging shock, 3(43%)had ARDS, 1(14%) had pulmonary edema, 1(14%) landed in sepsis, 4(57%) had Disseminated Intravascular Coagulation (DIC), 2(29%) had Ascites, 1(14%) presented with intrauterine death of foetus, 1(14%) had postpartum hemorrhage (PPH), 7(100%) had Acute Renal insufficiency and 1(14%) maternal death.

In a study conducted by Nelson et al. Maternal mortality, which was as high as 80% to 90% in the 1980s, has now decreased to less than 10%. Perinatal mortality remains substantial and is now recorded in approximately 20% of AFLP cases. In our study maternal mortality was 1(14.2%) and there was 1(14.2%) Intrauterine death.[5]

Medical management of AFLP is supportive. Blood sugar levels should be monitored and treated.Initial treatment involves supportive management with intravenous infusion, intravenous glucose, fresh frozen plasma, and packed red blood cells with coagulation dysfunction to reduce blood loss and cryoprecipitate to correct DIC.Once the patient is stabilized, further course of management includes the appropriate mode for delivery.

The rare patient who progresses to fulminant hepatic failure can be treated by liver transplantation. Further pregnancies are often uncomplicated but remain at risk for recurrent AFLP. Other systemic complicating effects include acute respiratory distress syndrome sometimes requiring assisted ventilation, ascites, and upper gastrointestinal bleeding from gastric ulceration, and Mallory-Weiss syndrome.Maternal deaths occurs due to hemorrhage, gastrointestinal bleeding, sepsis, aspiration, pancreatitis, renal failure.

V. Conclusion

AFLP is an rare, life-threatening complication of third trimester with variable presentation.
Rapid progression is unpredictable.

The patients, who are critically ill at the time of clinical presentation, develop complications, or continue to deteriorate despite emergency delivery require management in the intensive care unit (ICU).

Early diagnosis, prompt delivery, adequate supportive care, and a multidisciplinary approach are the key to a good outcome.

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