IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 17, Issue 2 Ver. 10 February. (2018), PP 41-45
www.iosrjournals.org

Acute Fatty Liver Of Pregnancy- A Case Report

Dr.Suganya Devi.A[1], Dr.Bhuvana.S[2]
[1]Postgraduate, [2]Associate Professor
Department Of Obstetrics And Gynecology, Sri Ramachandra Medical College And Research Institute, Chennai, India
Corresponding Author: Dr.Suganya Devi.A[1]

Abstract:
Background: *Acute Fatty Liver Of Pregnancy (AFLP) Is A Rare Life Threatening Condition. It Is An Idiopathic Disorder With Extremely High Mortality (10–85%) In The Third Trimester. Incidence Of AFLP-1:7000-16000.* ***Case Report:*** *A 25 Year Old Primi Gravida At 33 Weeks, IVF Conception, DCDA Pregnancy, Presented With Vomiting, Yellow-Colored Sclera And Urine. Clinical Evaluation And Biochemical Investigations Showed Features Of Liver Impairment. A Clinical Diagnosis Of Acute Fatty Liver Of Pregnancy Was Suspected And Termination Of Pregnancy By LSCS Was Planned After A Multi-Disciplinary Approach Which Involved A Team Of Obstetrician, Medical Gastroenterologist, And Anesthetist And Neonatologist .Pre-Operative Transfusion Done. Intraoperatively, She Had A Massive PPH Leading To Sub-Total Hysterectomy. Postoperatively Patient Was Managed In ICU. Multiple Transfusions Were Done. Liver Parameters Gradually Improved And Patient On Follow Up.* ***Results:*** *AFLP Is An Uncommon, Life-Threatening Complication Of Third Trimester With Variable Presentation. It Is Recommended That Patients Who Are Critically Ill At The Time Of Presentation, Who Develop Complications, Or Who Continue To Deteriorate Despite Emergency Delivery, Should Be Given A Tertiary Care Management.*

Keywords - *Acute Fatty Liver, Pregnancy, Jaundice, Hypoglycemia*

Date of Submission: 05-02-2018 Date of acceptance: 23-02-2018

I. Introduction

Acute Fatty Liver Of Pregnancy (AFLP) First Described In1940s By Sheehan [1] As An "Acute Yellow Atrophy Of The Liver". It Is A Rare, Idiopathic Disorder With Extremely High Mortality (10–85%) In The Third Trimester [2, 3] It Is Characterized By Micro Vesicular Fatty Infiltration Of Hepatocytes Without Any Inflammation Or Necrosis.AFLP Affects 1 In 7000 To 1 In 16000 Deliveries [4, 5]. It Is More Commonly Seen In Nulliparous Women, Women With Multiple Gestation And Pregnancies With Male Fetus [6]. Maternal Mortality Rate Is Estimated To Be 12.5-18% With Neonatal Mortality Rate Of 7-66% [6]. The Extremely Important In Diagnosing The Etiology Of Pregnant Women Presenting With Jaundice As Certain Conditions Like AFLP, HELLP Syndrome And Intrahepatic Cholestasis Of Pregnancy (ICP) And May Need For Termination Of Pregnancy And Supportive Treatment [4]. There Is Usually Severe Liver Dysfunction With Hypofibrinogenemia, Hypoalbuminemia, Hypocholesterolemia And Prolonged Clotting Times. However, Differentiating These Conditions Is Difficult Due To Unpredictable And Similar Presentation And Laboratory Investigations. We Report A Case Of A 25 Year Old Primi Gravida With 33 Weeks Of Gestation, IVF Conception With Twin Pregnancy Who Was Diagnosed To Have AFLP With Coagulation Failure. She Responded To Prompt Delivery And Appropriate Management Of The Coagulopathy.

II. Case Report

A 25 Years Old, Primigravida At 33 Weeks Of Gestation, Was Admitted In Labor Room At 9.00 Pm On 20/4/2017 With IVF Conception, DCDA Twins, GDM On Diet, Anemia Corrected With 2 Dose Of IV Iron. She Had Complaints Of Vomiting Since Five Days And Yellow-Colored Sclera And Urine Since Two Days. Her Embryo Transfer Date (ET) Was 14/9/2016. Estimated Due Date (EDD) Was 8/6/2017. All 3 Trimester Was Uneventful. There Was No Significant Past History. On Examination, She Was Conscious, Well-Oriented. Temperature Was Normal, Pulse - 120/Min, Blood Pressure (BP) -120/80 Mmhg, Sclera Was Yellow, Bilateral Pitting Pedal Edema Present And Respiratory And Cardiovascular Systems Were Normal. On Abdominal Examination, Uterus Was Over Distended, Relaxed, Multiple Fetal Parts Felt, Fetal Heart Sounds Twin 1 Present, Twin 2 Absent, Clinically Liquor Adequate, Abdominal Edema Present. Per Speculum, Os Closed. Per Vaginum, Cervix Was Closed. On Laboratory Test, 20/4/2017, Hemoglobin (Hb) - 12.4 G/Dl, Blood Grouping And Rh Typing- B Positive, Platelet Count- 1.21lakhs/Cmm, Peripheral Smear Showed A Microcytic

Hypochromic Anemia. Her Liver Function Tests Showed A Serum Total Bilirubin- 6.96 Mg/Dl, Serum Direct Bilirubin- 4.98mg/Dl, Alanine Aminotransferase 117U/L, Aspartate Aminotransferase 126 U/L, Alkaline Phosphates 561 U/L, Total Protein 5.1 Gm/Dl, And Albumin 5.3gm/Dl. Renal Function Tests Revealed Blood Urea 12 Mg/Dl And Creatinine 2 Mg/Dl. Random Blood Sugar Was 90 Mg/Dl. The Coagulation Profile Showed A Prothrombin Time 18.8 Sec (Control 12.2 Sec.); With INR Of 1.63 And A Partial Thromboplastin Time Of 36.3 Seconds (Control 24.7 Sec.). Urine Analysis Showed Mild Proteinuria (1+) With 8-10 Pus Cells; Fibrinogen Level Of 36 Mg/Dl. Serum Uric Acid Of 7.5 Mg/Dl, Markers Of Hepatitis A, B, C, E Were Normal. Clinical Diagnosis Of AFLP Was Suspected And Pregnancy Was Terminated By LSCS By Keeping Packed Cell Ready, Fresh Frozen Plasma (FFP), Random Donor Platelets (RDP) And Cryoprecipitate. Live Twin 1 Girl Child Of 2.39 Kg Was Delivered. Twin 2 Intra Uterine Fetal Death With Weight Of 1.9kg.Atonic Postpartum Hemorrhage (PPH) Did Not Respond With Medical Treatment; Hence Proceed With Sub-Total Hysterectomy (Figure 1). Abdominal Drain Was Kept. She Was Shifted To ICU And Managed By Critical Care Specialist, Gynecologist, Gastroenterologist And Anesthetist. On Day 2, Abdominal Ultrasound Showed Fatty Changes With Bright Echo Texture In Liver; Ascites Was Present. Total Eight FFP, 24 Cryoprecipitate, Four Random Donor Platelets And Two Packed Cells Were Infused. She Was Shifted To Ward On 4th Day. Mother And Baby Were Normal On Follow-Up

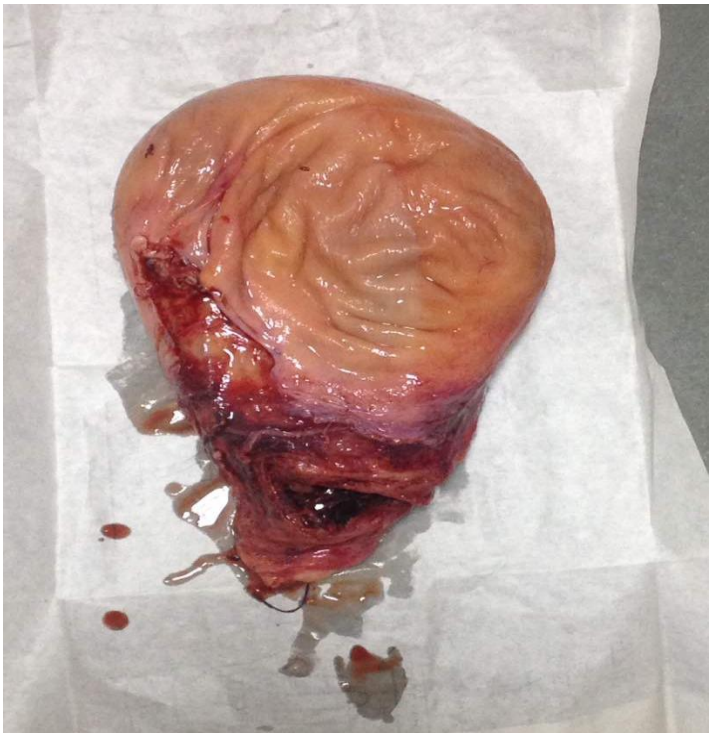

Figure 1: Sub-Total Hysterectomy

III. Discussion

The Causes Of Jaundice In Pregnancy Are Cholestasis, Viral Hepatitis, Pre -Eclampsia, HELLP Syndrome And AFLP. Intrahepatic Cholestasis Of Pregnancy (IHCP) Usually Occurs In The Third Trimester, Is Characterized By Itching In Palms And Soles Mainly And Serum Bilirubin Is Mostly Less Than 6 Mg/Dl. Acute Viral Hepatitis In Pregnancy Presents As A Systemic Illness With Fever, Nausea, Vomiting, Fatigue, And Jaundice, However, Aminotransferase Concentrations Are Markedly Elevated (>500 U/Litre). All These Causes Were Ruled Out In Our Case On The Basis Of Presentation, Symptoms, And Investigations. Pre-Eclampsia With Deranged Liver Enzymes, HELLP Syndrome, And AFLP Have Some Distinct Characteristics, Particularly With Regard To Time Of Presentation. However, They Also Have Some Similarities In Terms Of Clinical Presentation And Investigations. This Makes Differentiate These Entity Difficult [4, 7, 8]. The Incidence Of HELLP Syndrome Is Much Higher (1:5,000) As Compared To AFLP (1:13,000) [9]. The Distinct Features Of AFLP Include Coagulopathy, Jaundice, Hepatic Encephalopathy, Ascitis, Hypoglycemia, And An Elevation Of Transaminase Levels.

Due To A Mitochondrial Dysfunction In The Oxidation Of Fatty Acids Which May Leads To An Accumulation In Hepatocytes. Fatty Acid Accumulation Causes Hepatocyte Dysfunction. The Cause May Be

Underlying Fatty Acid Absorption Defects, Which May Be Inherited. Long Chain 3-Hydroxyacyl Coa Dehydrogenase (LCHAD) Is An Enzyme Which Is A Part Of The Enzyme Complex Known As The Mitochondrial Trifunctional Protein (MTP). It Is Believed That G1528C And E474Q Mutations Of MTP Gene Lead To LCHAD Deficiency. [4-9].

These Defects Were First Studied In Children With Reye-Like Syndromes And It Is Later Found To Be Associated With Micro Vesicular Liver Disease In Pregnancy. Theoretically, The Risk Of Recurrence In Subsequent Pregnancies Is About 25% (Fetus Is Homozygous Or Compound Heterozygous For LCHAD Deficiency) But Practically Very Few Cases Of Recurrence Have Been Reported. However, All Women Must Be Counseled Regarding The Risk In Future Pregnancies And Should Be Tested For LCHAD Deficiency.

AFLP Should Be Suspected In Following Conditions: (I) Severe Gastrointestinal Symptoms, I.E., Nausea, Vomiting, Abdominal Pain Usually In The Right Upper Quadrant (Or) Midepigastric Area, Gastrointestinal Bleeding, Polydipsia/Polyuria, And Persistent Jaundice Appearing In Late Pregnancy (Ii) Abnormal Liver Function Tests, Leukocytosis And Thrombocytopenia In Third Trimester Of Pregnancy, (Iii) Other Associated Organ Derangements, I.E., Renal Insufficiency, Coagulopathy, Hypoglycemia, Pancreatitis And Hepatic Encephalopathy, Along With Multiple Organ Dysfunction. (Iv) Other Signs And Symptoms Are Anorexia, Malaise, Fatigue, Headache, Altered Sensorium, Confusion, Disorientation, Late Onset Of Pyrexia Along With These, Other Causes Of Jaundice Need Exclusion.Transient Diabetes Insipidus May Also Occur, But Is Very Rare [10,11].AFLP Also Has A Detrimental Effect On The Fetus. One Of The Complications Of AFLP Is Maternal Metabolic Acidosis Secondary To Impaired Clearance Of Serum Lactate By Damaged Hepatocytes [12]. Maternal Metabolic Acidosis Directly Affects Fetal Acid-Base Status [13]. Therefore, Prompt Correction Of Maternal Metabolic Acidosis Is Essential To The Fetal Well-Being. Expeditious Birth May Be Necessary

The Diagnosis Of AFLP Is Challenging And Problematical. It Is A Diagnosis Of Exclusion. A Specific Criterion Was Devised To Diagnose This Rare Condition. Patients With At Least Six Or More Of The ***Swansea Criteria*** [14] Confirm The Diagnosis Of AFLP: Abdominal Pain, Vomiting, Polydipsia/Polyuria, Hypoglycemia, Elevated Serum Bilirubin Level, Leukocytosis, Elevated Uric Acid, Encephalopathy, Elevated Transaminases, Ascites Or Bright Liver On Ultrasound Scan, Elevated Ammonia, Renal Impairment, Coagulopathy, And Micro Vesicular Steatosis On Liver Biopsy In Addition To Metabolic Acidosis And Occasionally Biochemical Pancreatitis.

Laboratory Findings Of AFLP Are An Increased Level Of White Blood Cell Count (Greater Than 15×109/L), With A Normal Hematocrit Level Unless Hemorrhage Has Occurred [1, 15]. Hemolysis And Thrombocytopenia May Also Be Present [3]. The Prothrombin And Partial Thromboplastin Times Are Both Prolonged, And Fibrinogen Levels Are Decreased [1, 13, 3]. Disseminated Intravascular Coagulopathy Occurs When Fibrin Split Products Are Found (75% Of Patients) [15, 16]. Abnormalities In Liver Function Test Include Elevated Serum Aminotransferases (I.E., Serum Aspartate Amino Transferase And Alanine Amino Transferase) Levels Of 300 U/L To 500 U/L [12]. Elevated Serum Amino Transferases May Also Be Associated With Raised Serum Ammonia Levels, Amino Acid Levels And Lactic Acidosis, Serum Uric Acid Level, Elevated Serum Bilirubin Level And Hypoglycaemia Secondary To Impaired Hepatic Glycogenolysis [17]. Lastly, The Blood Urea Nitrogen And Creatinine May Also Be Elevated In Severe Cases [1, 13].

Fatty Liver Is Characterized By Accumulation Of Micro Vesicular Fat That Literally 'Crowds Out' Normal Hepatocytic Function. Gross Examination Shows A Small, Soft, Yellow And Greasy Liver Seen In The Gross Examination. Swollen Hepatocytes With Central Nuclei And Cytoplasm Filled With Micro Vesicular Fat, Periportal Sparing, And Minimal Hepatocellular Necrosis Abnormalities Noted In Prominent Histological. Although The Diagnosis Of AFLP Can Be Made By Liver Biopsy, Today The Diagnosis Is Usually Made Clinically. Liver Biopsy Should Not Be Performed To Confirm A Diagnosis Of AFLP Or To Distinguish AFLP From Severe Pre-Eclampsia, Because Management Of Both Conditions Are The Same. Vigil-De Gracia And Lavergne [18] Suggested That Liver Biopsy May Be Justified In Cases When Liver Function Does Not Return To Normal Postpartum And In Those Cases Where The Definitive Diagnosis In The Early Stages Of AFLP Is Necessary As The Primary Indication For Delivery. Histologically, Shows Microvesicular Steatosis With Sparing Of Zone 1and There Will Be Pericentral Pallour With Lobular Disarray And Vacuolization Of The Centrizonal Hepatocytes. Special Stains, Such As Oil Red O, Must Be Applied To Fresh-Frozen Specimens To Demonstrate Fat [15, 19]. There May Be Patchy Hepatocellular Necrosis; However, Widespread Necrosis Or Inflammation Is Absent [16]. Ultrasound And Computed Tomography Have Been Used But The Sensitivity And Specificity Of These Imaging Studies Are Insufficient To Make A Definitive Diagnosis And False Negative Results Are Common [15, 20].

Early Diagnosis, Prompt Delivery And Intensive Supportive Care Are The Cornerstones In The Management Of AFLP. Before Delivery, Maternal Stabilization Should Be Achieved Before Delivery, Which Includes Airway Management; Treatment Of Hypertension, And Correction Of Hypoglycemia, Electrolyte Imbalance And Coagulation Abnormalities With Frequent Fetal Assessment Is Also Needed. Therefore,

Collaboration Among Different Specialties Such As Intensive Care, Gastroenterology And Perinatology Are Essential. Once The Mother Is Stabilized, Delivery Of The Fetus Is The Next Step. Vaginal Birth Is Probably The Best Approach If Tolerated; However, Caesarean Birth Is Often Performed Because Of Rapidly Deteriorating Maternal-Fetal Status. During The Postpartum Recovery Period, Hemodynamic Monitoring Is Necessary Because Patients With AFLP Are At High Risk Of Bleeding As A Result Of Coagulopathy. Transfusion Of Fluids And Blood Products May Be Needed. Besides Risk Of Bleeding, Patients Are Also At Risk Of Hypoglycemia And Glucose Infusion May Be Needed [21]. Liver Transplantation Has Rarely Been Performed For AFLP.

Maternal And Fetal Mortality Rates Were Reported To Be As High As 85% [15] Earlier Mostly Due To Cerebral Edema, Gastrointestinal Hemorrhage, Renal Failure, Coagulopathy, And Sepsis. However, Mortality Has Been Lowered Now, To Less Than 10% Due To Improvements In Intensive Care.

A Recent Review Of The American United Network For Organ Sharing (UNOS) Database For The HELLP Syndrome Revealed That During The 16-Year Period Between 1987 And 2003, There Were Only Eight Liver Transplants Performed For This Pregnancy Associated Condition [22]. In Their Case Report, Ockner Et Al

[23] Described A 35-Year-Old Woman Presented With Multiorgan Failure And It Was Rapidly Reversed After Liver Transplantation. Therefore, They Suggested That Orthotopic Liver Transplantation Should Be Considered For Those With Fulminant Hepatic Failure Due To AFLP, Who Manifest Signs Of Irreversible Liver Failure Despite Delivery And Aggressive Supportive Care. Similarly, Pereira Et Al [24] Recommended That Patients With Hepatic Encephalopathy, Severe Metabolic Acidosis Or Worsening Coagulopathy, Or Those With Liver Rupture Complicated By Hepatic Necrosis As Indicated By Computed Tomography Should Considered For Liver Transplantation.

IV. Conclusion

AFLP Progression Is Rapid And Unpredictable. A High Index Of Suspicion Along With Judicious Use Of Laboratory Investigations Can Help Us Reach The Diagnosis Of Acute Fatty Liver Of Pregnancy Early, So That We Are Able To Reduce Both The Maternal And Perinatal Morbidity And Mortality. Early Diagnosis, Prompt Delivery, Adequate Supportive Care, And A Multidisciplinary Approach Are The Key To A Good Outcome

References

[1]. Sheehan HL. The Pathology Of Acute Yellow Atrophy And Delayed Chloroform Poisoning. J Obstet Gynaecol Br Emp 1940;47:49-62

[2]. Nelson DB, Yost NP, Cunningham FG. Acute Fatty Liver Of Pregnancy: Clinical Outcomes And Expected Duration Of Recovery. Am J Obstet Gynecol 2013; 209: 456.E1‐ 7.

[3]. Usta IM, Barton JR, Amon EA, Gonzalez A, Sibai BM. Acute Fatty Liver Of Pregnancy: An Experience In The Diagnosis And Management Of Fourteen Cases. Am J Obstet Gynecol 1994; 171:1342‐ 7.

[4]. Bacq Y. The Liver In Pregnancy. In: Schiff ER, Sorrell MF, Schiff L, Maddrey WC, Editors. Schiff's Diseases Of The Liver (2006). 10th Edn Lippincott: Williams And Wilkins (LWW) 1281–1304.

[5]. Ch'ng CL, Morgan M, Hainsworth I, Kingham JG (2002) Prospective Study Of Liver Dysfunction In Pregnancy In Southwest Wales. Gut 51: 876-880.

[6]. Rajasri AG, Srestha R, Mitchell J (2007) Acute Fatty Liver Of Pregnancy (AFLP)- An Overview. J Obstet Gynaecol 27: 237-240.

[7]. Castro MA, Fassett MJ, Reynolds TB, Shaw KJ, Goodwin TM (1999) Reversible Peripartum Liver Failure: A New Perspective On The Diagnosis, Treatment, And Cause Of Acute Fatty Liver Of Pregnancy, Based On 28 Consecutive Cases. Am J Obstet Gynecol 181: 389-395.

[8]. Riely CA1 (1999) Liver Disease In The Pregnant Patient. American College Of Gastroenterology. Am J Gastroenterol 94: 1728-1732.

[9]. Pereira SP, O'Donohue J, Wendon J, Williams R (1997) Maternal And Perinatal Outcome In Severe Pregnancy-Related Liver Disease. Hepatology 26: 1258-1262.

[10]. Kennedy S, Hall PM, Seymour A, Hague WE. Transient Diabetes Insipidus And Acute Fatty Liver Of Pregnancy. Br J Obstet Gynaecol 1994; 101:387-91.

[11]. Tucker ED, Calhoun BC, Thorneycroft IH, Edwards MS. Diabetes Insipidus And Acute Fatty Liver: A Case Report. J Reprod Med 1993; 38: 835-8.

[12]. Woll PJ, Record CO. Lactate Elimination In Man: Effects Of Lactate Concentration And Hepatic Dysfunction. Eur J Clin Invest 1979; 9:397-404.

[13]. Werner CJ, Zoller DP, Baskin WN, Eichmann RE. Acute Fatty Liver Of Pregnancy Associated With Maternal And Fetal Metabolic Acidosis. J Fam Pract 1988;26:198-9.

[14]. Joshi D, James A, Quaglia A, Westbrook RH, Heneghan MA (2010) Liver Disease In Pregnancy. Lancet 375: 594-605.

[15]. Kaplan MM. Acute Fatty Liver Of Pregnancy. N Engl J Med 1985; 313:367-70.

[16]. Riely CA, Latham PS, Romero R, Duffy TP. Acute Fatty Liver Of Pregnancy. A Reassessment Based On Observations In Nine Patients. Ann Intern Med. 1987; 106:703-6.

[17]. Rahman TM, Wendon J. Severe Hepatic Dysfunction In Pregnancy. QJM 2002; 95:343-57.

[18]. Vigil-De Gracia P, Lavergne JA. Acute Fatty Liver Of Pregnancy. Int J Gynaecol Obstet 2001; 72:193-5.

[19]. Rolfes DB, Ishak KG. Acute Fatty Liver Of Pregnancy: A Clinicopathologic Study Of 35 Cases. Hepatology 1985; 5:1149-58.

[20]. Vora KS, Shah VR, Parikh GP. Acute Fatty Liver Of Pregnancy: A Case Report Of An Uncommon Disease. Indian J Crit Care Med 2009;13(1):34-6.

[21]. Moldenhauer JS, O'brien JM, Barton JR, Sibai B. Acute Fatty Liver Of Pregnancy Associated With Pancreatitis: A Life-Threatening Complication. Am J Obstet Gynecol 2004;190: 502-5.
[22]. United Network For Organ Sharing. <Www.Unos.Org> (Version Current At September 8, 2005).
[23]. Ockner SA, Brunt EM, Cohn SM, Krul ES, Hanto DW, Peters MG. Fulminant Hepatic Failure Caused By Acute Fatty Liver Of Pregnancy Treated By Orthotopic Liver Transplantation. Hepatology 1990; 11:59-64.
[24]. Pereira SP, O'Donohue J, Wendon J, Williams R. Maternal And Perinatal Outcome In Severe Pregnancy-Related Liver Disease. Hepatology 1997; 26: 1258-62.

DR.SUGANYA DEVI.A "Acute Fatty Liver Of Pregnancy- A Case Report." "IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), Volume 17, Issue 2 (2018), PP 41-45.