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Case Series

Acute pancreatitis in pregnancy: Case series

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Abstract

Objectives: Acute pancreatitis (AP) in pregnancy is a rare condition resulting in maternal and perinatal morbidity and mortality. We aimed to study the course of pancreatitis in pregnant women and concluded that early diagnosis and early treatment results in good maternal and perinatal outcomes.

Materials and Methods: A retrospective case series study. Data was collected hospital record section. Four patients with pancreatitis during pregnancy were managed at tertiary center at our department in the last 4 years. The inclusion criteria were pregnant women who came with acute abdomen due to non-obstetrical causes. This was further confirmed by elevated pancreatic enzymes. Transabdominal ultrasonography was performed to rule out other causes of acute abdomen. Fetal well-being was also monitored. Maternal and fetal conditions were noted at discharge. Women were followed up till 6 months post-delivery.

Results: There was one maternal mortality and no perinatal mortality. Two patients underwent cesarean section and other two patients had vaginal delivery. One patient had Pseudo pancreatic cyst with mortality in the postpartum period due multi organ dysfunction.

Conclusion: Acute pancreatitis in pregnant women remains to be challenging as delayed diagnosis and treatment result in poor maternal & fetal outcomes. Hence early diagnosis and treatment are crucial to reduce adverse outcome.

Keywords: Acute pancreatitis, Pregnancy, Hypertriglyceridaemia.

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1. Introduction

Acute pancreatitis (AP) in pregnancy is a rare condition resulting in maternal and perinatal morbidity and mortality. The incidence is approximately 1 in 1000 to about 10000 births.[1] AP in pregnancy is relatively rare during the first 6 months of pregnancy (12%) and occurs mainly during the third trimester (50%) or the immediate postpartum period (38%) and is commonly caused due to cholelithiasis or hypertriglyceridemia.[1] The spectrum of AP in pregnancy ranges from mild to severe disease associated with necrosis, abscesses, pseudocyst, and multi-organ dysfunction.[1] Acute pancreatitis is often difficult to diagnose as it could be misleading with other conditions presenting with acute abdomen. Hence early diagnosis and early treatment are necessary to improve maternal and perinatal outcomes.

2. Materials and Methods

This is a retrospective study conducted at Father Muller Medical College, Mangalore, India from January 2015 to December 2019. There were four cases reported during this period. Inclusion criteria for the study were pregnant women who came with acute abdomen due to non- obstetrical causes. This was further confirmed by elevated pancreatic enzymes. Transabdominal ultrasonography was performed to rule out other causes of acute abdomen. Fetal well-being was also monitored. Maternal and fetal conditions were noted at discharge. Women were followed up till 6 months post delivery.

2.1. Source of data

Data was collected manually from the hospital medical record section.

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2.2. Type of study

Observational descriptive record-based study

3. Results

3.1. Clinical course and treatment in the Hospital

Among the 4 patients, the average age was 28.5 years (22–36 years). Two cases were acute and two were on chronic with acute exacerbation. The commonest clinical symptom was acute epigastric pain and vomiting (**Table 1**). Biliary sludge/ calculi were noted in two cases, and two had hypertriglyceridemia. The diagnosis was further confirmed with an elevation in serum amylase and lipase levels. Only one patient had a poor maternal and fetal outcome due to acute necrotizing pancreatitis with multi-organ dysfunction (**Table 2**)

Table 1:

	Case 1	**Case 2**	**Case 3**	**Case 4**
Age (years)	22 years	36 years	30years	27years
Obstetric Score	Primigravida	G2P1L1	G5P4L4	G2P1L1
Gestational Age(weeks)	37 weeks + 3 days	27 weeks	39 weeks + 2 days	29 weeks + 6 days
Chief Complaints	Pain abdomen, radiating to the back	Pain abdomen, radiating to the back, 2 episodes of vomiting	Pain abdomen, radiating to the back, 4-5 episodes of vomiting	Pain abdomen, radiating to the back, 5 episodes of vomiting and fever
Past History	Previous history of AP present, recent one at 26 weeks of gestation	Nil	History of pancreatitis 3 years back	History of pancreatitis 1 year back
Co-morbidity	Nil	Previous 1 LSCS Chronic hypertension with superimposed pre-eclampsia GDM on Insulin	GDM on Insulin Rh-Negative pregnancy	Nil
General Physical Examination	Pulse rate: 82/min BP: 100/60mmHg Temperature: 98.7C No Pallor	GCS Score:15/15 Pulse rate:94/min BP: 190/110mmHg Temperature: 98.6C No pallor	Pulse rate: 90/min BP: 110/80mmHg Temperature: 97.6C No Pallor	Pulse rate: 108/min BP: 110/70mmHg Temperature: 100. 4°C **Pallor present**
Obstetric examination	Epigastric tenderness present Term size uterus, cephalic presentation, Relaxed, fetal heart sounds -140/min	Epigastric tenderness present Uterus corresponds to 28 weeks gestation, cephalic presentation, Relaxed, fetal heart sounds -160bp/min	Epigastric tenderness present. Term size uterus, cephalic presentation, Relaxed, 4/5th palpable, fetal heart sounds -140/min	Epigastric tenderness present. Uterus corresponds to 30 weeks gestation, relaxed breech presentation, fetal heart sounds – 156/min
Admission CTG	Normal	Normal	Normal	Normal
Per vaginal Examination	Os uneffaced closed, posterior	Os uneffaced closed, posterior	Os 1 cm dilated, 30% efface, Posterior, firm, vertex : -3 station, membranes present	Os uneffaced closed, posterior
Initial Hemoglobin g/dl	10.7	14.5	10.1g/dL	8.9g/dL
Total Leukocyte counts (cumm	11900	20600	12400	18400
At admission **S. Amylase (IU/L)**	553.3	1222.1	281.3	300.4
S.Lipase(IU/L)	1399	3000	490	450.5
S. Calcium(mg/dl)	8.24	8.17	8.15	7.88

Table 1 continued…				
S.Triglycerides(mg/dl)	145	300	350	112
Ultrasound –Abdomen, and pelvis	Distended gallbladder with calculus, an enlarged body of pancreas (4.2cm)	Enlarged pancreatic head (5.8cm). Cystic collection of 7.8x 6.8cms in the body and tail of pancreas, peripancreatic fat stranding: Pseudocyst Distended gallbladder	Enlarged pancreatic head and body(4.8cms) with dilated pancreatic duct (6mm)	Atrophic pancreas, dilated main pancreatic duct of 8mm with multiple calculi largest 13mm, gall Bladder over distended, minimal pericholecystic fluid

Table 2: Maternal outcome

Case	Trimester	Course	Normalization of Biological parameters(days)	Admission Discharge Interval	Follow Up (6months)
1.	3	Acute Exacerbation	6 days	12 days	Cholecystectomy after 6 weeks
2.	2	Acute Exacerbation Preterm Superimposed Preeclampsia GDM on insulin Bilateral Pleural effusion ARDS Septic shock MODS	-	Critical	Nil
3.	3	Acute exacerbation	4 days	5 days	Recurrence
4.	3	Acute exacerbation	5 days	7 days	--

Table 3: Fetal outcome

Case Series	Course in the hospital	Gestational age At delivery	Mode of delivery	Birth weight	APGAR	NICU Stay	Follow Up
1	Uneventful	37 weeks + 3 days	LSCS	2.774kgs	8,9	0 days	6 weeks, well
2	Ventilated, Critical	27 weeks	Emergency LSCS	980gms	5,5	20 days (Critical)	Critical
3	Uneventful	39 weeks + 2 days	NVD + Episiotomy Shoulder Dystocia present	4.567kgs	8,9		6 weeks, well
4	Uneventful; CPAP, weaned off	38 weeks + 6 days	Vacuum-assisted VD +episiotomy	3.254kgs	8,9	3 days	

In the first case, the patient was admitted to the labor room, she was managed symptomatically with good hydration by maintenance of intravenous fluids, analgesics, antipyretics, and IV antibiotics. Regular fetal and maternal vital monitoring was done. Serum amylase and lipase level were serially monitored which showed a decreasing trend. In case 2 the patient was diagnosed with acute severe idiopathic pancreatitis. Despite initial supportive management, on day - 2 developed sudden onset tachypnea and was shifted to the Intensive care unit and was managed by a multidisciplinary team and was on the assisted mode of ventilation. An endocrinology opinion was sought, in view of elevated sugar

levels, GRBS monitoring was done and her insulin dosage was adjusted accordingly. Laboratory Parameters such as CBC, LFT, RFT, coagulation profile were done daily which worsened. In view of worsening labs with positive blood & urine culture sensitivity report, she received higher IV antibiotics (Inj Cilastatin +Imipenem, Inj Metrogyl 100ml IV TID) & LMW- Heparin 0.6cc s/c and other supportive medications. On day 10- Repeat USG abdomen + pelvis showed Acute necrotizing pancreatitis with a pseudocyst, Minimal ascites. Chest X-Ray Showed right minimal Pleural effusion with left Pleural effusion and basal lung collapse, Obstetric Scan revealed a viable fetus with Oligohydramnios (AFI-5). In view of her worsening condition, she was planned for termination of pregnancy by elective LSCS after explaining the guarded prognosis. Postoperatively she received 3 pints of FFP. On POD -1 she was diagnosed with ARDS with Septic Shock & was on dual inotropic support. Despite close monitoring, the patient's general status deteriorated shortly followed by a fatal multiple organ failure that could not be reversed despite adequate resuscitation and was declared dead. In the 3rd case-patient was admitted to the labor room with acute on chronic pancreatitis. She was managed with intravenous fluids, analgesics, and IV antibiotics. With the spontaneous onset of labor pains, she had a vaginal delivery. On PND-1 in view of low hemoglobin, she received 1 pint of packed cell transfusion. The patient maintained her health and was discharged on the 3rd PND. In our 4th case, the patient who was managed in the labor room had chronic calcific pancreatitis. Gastro surgery opinion was sought and the patient underwent MRCP confirmed the biliary etiology. She also received symptomatic medical management. In view of persistent fever spikes, the patient was planned for Induction of labor and underwent a vacuum-assisted vaginal delivery.

4. Discussion

In our hospital since 2015, four cases of acute pancreatitis in pregnancy (APIP) have been reported. Symptoms such as epigastric pain, nausea and/or vomiting, anorexia, and fever are considered to be the most common [(1)]. Severe epigastric pain and vomiting were encountered in our three patients. Though rare, potential complications are double when compared to non-pregnant women.[2] The dramatic increase of amylasemia and lipaemia more than 03 times the ULN are significant which were reported in all our reported cases. Recurrence was common in chronic cases. Only one patient was diagnosed with acute necrotizing pancreatitis with a pseudocyst of the pancreas resulting in maternal mortality due to MODS. Prompt diagnosis and treatment have been shown to have good maternal & fetal outcomes. In our study one patient had a fatal AP with multiple organ failure and a poor fetal prognosis. Regarding the etiology gallstones are the most common causative factor being responsible for about 70% of cases.[3] The association between acute pancreatitis and pregnancy is poorly understood. The physiological changes in pregnancy such as facilitation of cholesterol stone formation due to increased secretion due to estrogen and reduced bile acid formation with reduced solubility of cholesterol and decreased enterohepatic circulation. Moreover, progesterone in pregnancy slows gallbladder emptying, induces bile stasis in the duodenum, and then increases reflux predisposing to stone formation. Also, in the third trimester, an enlarged uterus and increased intra-abdominal pressure on the biliary duct bring about acute pancreatitis more frequently.[4] Rare causes include alcohol abuse, consuming fatty foods, diabetes mellitus, infections, or iatrogenic sources: diuretics and anti-hypertensive drugs.[5]

Laboratory tests like Serum Lipase, Serum amylase, S Calcium, liver function, and complete blood count tests are essential for diagnosing acute pancreatitis. An elevated Serum Amylase level has a diagnostic sensitivity of 81%, the addition of S.L lipase increases sensitivity to 94%.[6]

Transabdominal ultrasonography is the initial, safest tool for diagnosis as it has no radiation risk and is helpful in the diagnosis of dilated pancreatic ducts and pseudocysts.[7] However, an enlarged uterus with an ileus makes a pancreas shadow invisible posing a challenge for diagnosis. Recently, additional useful imaging tools for diagnosis of biliary etiology, Endoscopic ultrasound and magnetic resonance cholangiopancreatography (ERCP /MRCP), Abdominal computed tomography (CT), but there is use substantially restricted because of the cost and added fetal toxicity.[8] One patient had undergone MRCP in our study.

Conservative management remains the mainstay of treatment for AP when the causative factor is gall stones and surgical treatment is mainly considered for refractory cases. If surgery is indicated before delivery and the fetus is alive, initial supportive care with symptomatic treatment up to the 32nd week is the rule to avoid premature induction of childbirth. In our series, the cholecystectomy was performed after delivery in one patient. Hence a multi-disciplinary team involving obstetricians, surgeons, and gastroenterologists is essential in the management of severe acute pancreatitis.[4]

When a pregnant woman presents with upper abdominal pain and vomiting due to non obstetric causes, the differential diagnosis of acute pancreatitis, acute cholecystitis, acute gastritis, and peptic ulcer disease should be considered. In addition to diagnostic radiological imaging S.amylase, S Lipase levels should also be assessed. Previously, APIP was associated with a 20% - 50% maternal mortality and fetal loss. Recent studies have shown that there is a less than 5% mortality rate due to earlier diagnosis and better treatment options and better neonatal intensive care.[4]

5. Conclusion

Acute pancreatitis in pregnant women remains to be challenging as delayed diagnosis and treatment can result in an increased incidence of sepsis and shock in both the mother and the fetus. The Ranson criteria and BISAP scoring system

which is used to evaluate the severity in nonpregnant patients may be used to evaluate the severity and treatment as a separate scoring system is not available. Hence early diagnosis and assessment of the severity of APIP at presentation are crucial with conservative management being the mainstay of treatment and surgical treatment being reserved only for refractory gall stone disease.

6. Abbreviations

G: Gravida; P: Parity; L: Living; LSCS: Lower segment cesarean section; GDM: Gestational diabetes mellitus; GCS: Glasgow Coma Scale; MODS: Multi-Organ Dysfunction Syndrome.

7. Source of Funding

None.

8. Conflict of Interest

None.

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