



# Pancreatitis in Pregnancy: Case Series for 5 Years

Chandrakala Magudapathi<sup>1</sup> · Sudha Shanthi<sup>2</sup> · R. Palanisamy<sup>3</sup>

Received: 26 January 2019 / Accepted: 19 August 2019 / Published online: 11 September 2019  
© Federation of Obstetric & Gynecological Societies of India 2019

## Introduction

Pancreatitis is rare in pregnancy with an incidence of 1 in 10,000 approximately. Late diagnosis and delay in treatment results in worst pregnancy outcomes. It presents mostly in second or third trimester. Commonest presentation is biliary disease and rarely hypertriglyceridemia or preeclampsia. There is no significant association between pancreatitis and pregnancy, but there is association with gallstones. Conservative management and early delivery seems to improve maternal and perinatal outcome. It is a spectrum of mild to severe disease with necrosis, causing abscesses, pseudocyst and multi-organ dysfunction.

## Materials and Methods

This study is a retrospective case series of six cases from over a period of 5 years from 2009 to 2013 at GKNM Hospital, Coimbatore, India. All pregnant women who were diagnosed as pancreatitis were included in the study. Diagnosis was based on clinical, laboratory and imaging criteria. Diagnosis was by levels of amylase, lipase and ultrasound. Prognostic scoring was by (BISAP) bedside index for severity

in acute pancreatitis. Results were expressed as mean and average.

## Case Series

Among six patients, average age was 27.5 years (25–30 years), and mean body mass index was 22.8 (15–33). Most of them belonged to middle class socioeconomic status (Table 1). Two of them were chronic with acute presentation and four were acute. Five cases were diagnosed between 18 and 30 weeks, and one was diagnosed on first postnatal day. The commonest clinical symptom at presentation was epigastric pain, vomiting and abdominal distension (Table 2). Biliary sludge or calculi were the etiology in four cases, and two were secondary to hypertriglyceridemia. Diagnosis was based on amylase and lipase levels. Only one patient who was diagnosed late had pseudo-pancreatic cyst and underwent cesarean delivery due to abruption and had a morbid postnatal period including laparotomy drainage (Table 3). All the rest had good maternal outcome. All the offsprings including three preterm deliveries who were followed up to 2 years had a good outcome (Table 4). Recurrence was a common finding in the chronic cases.

## Discussion

Commonest causes of pancreatitis are alcohol, gallstones and hyperlipidemia. Rarely pancreatitis occurs due to anatomic or functional disorders, trauma, penetrating ulcers, drugs, infections, infestations, pregnancy, hypercalcemia, anorexia or bulimia and autoimmunity.

The hallmark symptom of acute pancreatitis is the acute onset of persistent upper abdominal pain, usually with nausea and vomiting. Pain is present at the epigastric and periumbilical regions. Patients are usually restless and bend forward (in the knee-chest position) in an effort to relieve the pain because supine position may exacerbate the intensity of symptoms. Physical examination findings are variable but

---

Dr. Chandrakala Magudapathi DGO, DNB(OG), FRCOG(UK) is a Senior Consultant in Department of Obstetrics and Gynaecology, Genesis Royal Infirmary, Coimbatore, India. Dr. Sudha Shanthi is a Consultant, Department of Obstetrics and Gynaecology, Ramachandra Medical Centre, Trichy, India. Dr. R. Palanisamy is a Senior Consultant in Department of Medicine, Royal Care Hospital, Coimbatore, India.

---

✉ Chandrakala Magudapathi  
chandrakala\_m@yahoo.com

<sup>1</sup> Department of Obstetrics and Gynaecology, Genesis Royal Infirmary, Coimbatore, India

<sup>2</sup> Department of Obstetrics and Gynaecology, Ramachandra Medical Centre, Trichy, India

<sup>3</sup> Department of Medicine, Royal Care Hospital, Coimbatore, India

**Table 1** Clinical features

Case series No	Age	Socioeconomic status	BMI	Complications	Index
1	27	Lower middle	25	Chronic pancreatitis*5 years Hypothyroid*2 years Type I DM*2 years Previous PPROM, cervical encercilage	G4P1L0A2
2	25	Upper middle	22	–	Primi
3	27	Lower middle	15	Chronic pancreatitis*20 years Type 1 DM*6 years Hyperlipidemia, previous portal vein thrombosis Underweight/RH negative/cervical encercilage/previous preterm labor	G2P1L0
4	26	Lower	19	Acute pancreatitis Miliary TB, ARDS Underweight	G2A1
5	30	Upper middle	23	Acute pancreatitis GDM on insulin/mild anemia Seizure disorder off medications	Primi
6	30	Lower middle	33	Obese, hyperlipidemia Acute pancreatitis Absent right kidney with compensatory left kidney	G4A1E2

**Table 2** Evaluation and management

Case series No	First episode	Clinical features	Etiology	Investigation	BISAP score	Treatment
1	21 week	Epigastric pain Vomiting	Biliary calculi	Serum amylase 1346 Serum lipase 1234 Rest normal	0	Conservative
2	PND 1	Epigastric pain Vomiting	Biliary sludge	Serum lipase 1401 Serum amylase 1197 Rest normal	0	Conservative
3	18 week	Epigastric pain Vomiting	Hyperlipidemia	Amylase 1047 Lipase 1709 Increased triglycerides Rest normal	0	Conservative
4	22 week	Epigastric pain Vomiting fever	Biliary calculi	Serum lipase 7640 Serum amylase 1560 Elevated TC	1	Conservative
5	21 week	Epigastric pain	Biliary sludge GB calculi	Serum amylase 1876 Serum lipase 1995 Rest normal	0	Conservative
6	30 week	Epigastric pain Vomiting Abdomen distension	Hyperlipidemia	Serum lipase 4681 Serum amylase 2128 Triglycerides 356	2	Conservative Antenatal laparotomy and drainage post-natally

may include fever, hypotension, severe abdominal tenderness, guarding, respiratory distress and abdominal distention. Clinical features (abdominal pain and vomiting) with elevated pancreatic enzymes are the cornerstones of diagnosis [1].

Amylase provides acceptable accuracy of diagnosis, but lipase is preferred due to longer persistence after an attack and pancreas being its only source has superior sensitivity

and specificity. Amylase-to-creatinine clearance ratio may be helpful in pregnancy; ratio greater than 5% suggests pancreatitis as per newer studies.

Abdominal ultrasound has only 20–25% visualization of pancreas. It is valuable in diagnosing gallstones, CBD gallstones and other differentials and complications. Endoscopic ultrasound (EUS) has better diagnostic ability if common bile duct stone is suspected.

**Table 3** Outcome

Case series no	Maternal outcome		Fetal outcome			
	Course in the hospital	Follow-up at 6 months	Course in the hospital	Gestation	NICU stay	Follow-up
1	Acute exacerbation T1 DM Preterm	Recurrence	Uneventful	34 weeks	2 days	1 year 5 months, fine
2	–	–	Uneventful	38 weeks	0 days	10 months, fine
3	T1 DM Acute exacerbation Previous portal vein thrombosis	Recurrence	Ventilated, weaned off	30 weeks	25 days	1 year 8 months, fine
4	Acute exacerbation Miliary TB ARDS	–	Hood O2 support	32 weeks	7 days	2 year 2 months, fine
5	GDM on INSULIN (28 weeks)	–	Uneventful	36 weeks 5 days	0 days	8 months, fine
6	Pancreatic necrosis Pseudocyst of pancreas Ascites, pleural effusion	–	CPAP, weaned off	30 weeks 4 days	16 days	1 year 9 months, fine

**Table 4** Fetal outcome

Case series no	Gestational age at delivery	Mode of delivery	Birth weight	APGAR
1	34 week	VE with EPI Ind: Fetal distress	3.56	7.8
2	38 weeks	NL with EPI	2.92	8.9
3	30 week	VE with EPI Ind: Fetal distress	1.32	6.8
4	32 week	NL with EPI	1.64	7.9
5	36 week 5 days	VE with EPI Ind: Fetal distress	2.84	6.8
6	30 week 4 days	Emergency LSCS Ind: Abruptio Grade 2	1.645	4.7

*VE with Epi* vacuum extraction with episiotomy, *NL with Epi* normal labour with episiotomy

Computed tomography is rarely needed for diagnosis and provides good evidence for absence of pancreatitis and prediction of severity. There is risk of CT radiation exposure to the fetus, but has to be performed when benefits out-weigh the risk. Magnetic resonance cholangiopancreatography (MRCP) is indicated in pregnancy if other non-ionizing forms of diagnostic imaging studies are inconclusive or to avoid radiation exposure.

Endoscopic retrograde cholangiopancreatography (ERCP) should be only as a therapeutic option in selected cases with confirmed bile duct stones. In severe acute biliary pancreatitis (SABP) with or without cholangitis, early ERCP, preferably within 24 h, is recommended.

Liver function test ALT > 150 U/L suggests gallstone pancreatitis and fulminant disease. Renal function test for severity includes serum electrolytes, BUN, creatinine, glucose. Lipid profile, cholesterol and triglycerides are checked to identify causes. Complete blood count and C-reactive

protein are tested if suspicious of infection. Research tests like immunoglobulin, interleukins may be considered [2].

Prognostic scorings like APACHE, Ransons, CTSI and Imrie scoring predict poor clinical outcomes. The easiest prognostic scoring is the bedside index for severity in acute pancreatitis (BISAP) which includes BUN > 25 mg/d L, impaired mental status (disorientation, lethargy, somnolence, coma or stupor)  $\geq 2$  SIRS criteria, age > 60, pleural effusion. Score 0 < 1% risk of mortality, score  $\leq 2$ , 1.9% mortality risk, and score > 3, 22% mortality risk.

Management is mainly supportive involving early and prompt fluid management for volume status to maintain electrolyte, acid base balance and oxygen supplementation to maintain saturation. Restrict oral intake until the gut motility returns. Enteral nutrition is good when the gut motility is present. Total parenteral nutrition can be used in pregnancy. Pain is managed with narcotics. The above mentioned treatment was given in all our cases.

Medical management includes prophylactic broad spectrum antibiotics in severe pancreatitis to prevent infective necrosis. Acid suppressants were administered to neutralize the gut. Octreotide was used transiently for anti-inflammatory and cytoprotective effect on pancreas. Antibiotics and octreotide were administered in all six women. Hypertriglyceridemia medications are not recommended during pregnancy hence were not administered [3].

Surgical management was indicated only in obstructive jaundice, acute cholecystitis intractable to medical treatment, peritonitis and pseudo-pancreatic cyst. Laparoscopic or open cholecystectomy, percutaneous aspiration or ERCP was rarely performed.

Maternal complications are IDDM, pseudocyst, pancreatic necrosis, pancreatic abscess, peritonitis, pleural effusion, lung collapse, increased ICU admission, adult respiratory distress disseminated intravascular coagulation, acute renal failure, multi-organ dysfunction, shock and recurrence [4]. Pancreatic pseudocyst needed drainage in one woman in our study. Fetal complications include preterm, IUGR and stillbirths.

## Conclusion

Most common etiology is gallstones, but non-biliary causes were sought because they are associated with worse outcomes. Preterm deliveries contributed to our increased perinatal morbidity. In our study, there was no maternal and perinatal mortality. Prompt early diagnosis and conservative treatment improved the outcome.

**Funding** There was no funding obtained for the study.

## Compliance with Ethical Standards

**Conflict of interest** There are no potential conflicts of interest.

**Human and Animal Rights** No experimental study was done. Retrospective analyses of the cases was performed and observations charted.

**Informed Consent** Informed consent was obtained prior to the study, and patient identity was not disclosed.

## References

1. Luo L, Zen H, Xu H, Zhu Y, Liu P, Xia L, He W, Lv N. Clinical characteristics of acute pancreatitis in pregnancy: experience

based on 121 cases. *Arch Gynecol Obstet.* 2018;297(2):333–9. <https://doi.org/10.1007/s00404-017-4558-7> (Epub 2017 Nov 21).

2. Sun Y, Fan C, Wang S. Clinical analysis of 16 patients with acute pancreatitis in the third trimester of pregnancy. *China Int J Clin Exp Pathol.* 2013;6(8):1696–701.
3. Pitchumoni CS, Yegneswaran B. Acute pancreatitis in pregnancy. *World J Gastroenterol.* 2009;15(45):5641–6.
4. Ducarme G, Maire F, Chatel P, Luton D, Hammel P. Acute pancreatitis during pregnancy: a review. *J Perinatol.* 2014;34(2):87–94. <https://doi.org/10.1038/jp.2013.161> (Epub 2013 Dec 19).

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

## About the Author



**Chandrakala Magudapathi** Consultant and Director Genesis Royal Infirmary, Director Genesis Foundation, COGS, FOGSI secretary 2013 and 14, MC Member 2015–2019, IMA Managing committee and Women's wing 2014–2017, NABH assessor, Reviewer of JOGI, RCOG 2014, IUJA, Poster Presentation at RCOG 2017, RCOG 2014, Paper on Induction of labour—Reappraisal of protocol at 21st World Congress, COGI China 2015, Faculty AICOG, Dakshin, YUVA FOGSI. Panelist and

speaker on Quality healthcare IMA district and Zonal meet. Best paper and poster awards in YUVA FOGSI and AICOG. Publications (1) Vesicocervical fistula: secondary to intrauterine device (Lippes loop) erosion, *International Urogynecology Journal*, ISSN 0937-3462, I, DOI 1.1007/s00192-015-2667-z. (2) Glanzmann's Thrombasthenia Complicating Pregnancy, *The Journal of Obstetrics and Gynaecology of India*, <https://doi.org/10.1007/s13224-012-0319-5>, April 2013. (3) A rare case of Polyhydramnios-Neonatal Bartter syndrome *Journal of Perinatology*, Vol 14, No 1, April–June 2013. (4) Osseous metaplasia of the Endometrium: A rare entity *The Journal of Obstetrics and Gynaecology of India*, <https://doi.org/10.1007/s13224-014-0589-1> July 2014. (5) Uterus Didelphys with Longitudinal Vaginal Septum: Normal Delivery Magudapathi C. *J Clin Case Rep* 2:194. <https://doi.org/10.4172/2165-7920.1000194> August 27, 2012. (6) Krukenberg Tumour in Pregnancy Magudapathi, C., Nithya, J., Mohanraj, R. et al. *Indian J Gynecol Oncolog* (2017) 15: 66. <https://doi.org/10.1007/s40944-017-0161-x>. (7) Angiosarcoma of Breast in pregnancy Magudapathi, C., Garreepally, H., Pichamuthu, A. et al. *Indian J Gynecol Oncolog* (2018) 16:59. <https://doi.org/10.1007/s40944-018-0231-8>.