CASE REPORT

Epidural Analgesia for Recurrent Acute Pancreatitis in Early Pregnancy: A Case Report

Md. Mostafa Kamal[1], Shahara Afroz[2], Atidh Muhammad Molla[3], Md. Shahidul Islam[4]

DOI:https://doi.org/10.62848/bjpain.v3i1.9760

Received: 05 March, 2023
Accepted: 05 May, 2023

1. Anaesthesiologist, Department of Anaesthesia, Intensive Care and Pain Medicine, ShSMCH, Dhaka-1207

2. Registrar, Department of Anaesthesia and Pain Medicine, Evercare Hospital, Dhaka-1229

3. Assistant Professor, Department of Anaesthesia, Intensive Care and Pain Medicine, ShSMCH, Dhaka-1207

4. Associate Professor, Department of Anaesthesia, Intensive Care and Pain Medicine, ShSMCH, Dhaka-1207

Correspondence
Md. Mostafa Kamal
dr.mostafakamal85@gmail.com
ORCID ID: 0000-0002-4665-1904

Abstract

Recurrent acute pancreatitis is a rare presentation in the early trimester of pregnancy. Severe abdominal pain is commonly associated with acute pancreatitis and adequate pain relief is essential to achieve better outcomes.

We share the case of a 21-year-old female with 8 weeks of pregnancy who was diagnosed with recurrent acute pancreatitis. The patient complained of continuous pain, moderate to severe in intensity which was not relieved by taking intravenous opioid. Her laboratory reports and imaging studies were consistent with mild acute pancreatitis. Intensity of pain was severe and it was 8 out of 10 in visual analogue scale (VAS). We have performed thoracic epidural at T8-9 intervertebral space for pain management and intensity of pain was assessed. Epidural catheter was kept in situ for 48 hours and intermittent bolus of 3-5 ml of 0.1% plain bupivacaine with 2 µg/ml fentanyl was administered throughout this period. Effective pain relief was achieved (VAS < 3) and general wellbeing was improved significantly. Thus, thoracic epidural analgesia technique provides adequate analgesia and can be considered as an effective modality for pain management in acute pancreatitis.

Keywords: Analgesia, Recurrent acute pancreatitis, Epidural, Pregnancy, Early trimester

Citation: Kamal MM, Afroz S, Molla AM, Islam MS. Epidural Analgesia for Recurrent Acute Pancreatitis in Early Pregnancy: A Case Report. Bangladesh J. Pain 2023; 3(1): 46-50 doi.org/10.62848/bjpain.v3i1.9760

Introduction

Acute pancreatitis is a rare but serious medical disorder during pregnancy with a high maternal and fetal mortality[1,2]. Globally it affects approximately one in 1000 to one in 10,000 pregnancies[3]. The incidence is higher in the third trimester and postpartum period but rare in the first and second trimester[4]. Pregnancy does not cause pancreatitis but several physiological modifications during pregnancy may increase the risk by altering bile acid composition, reducing gallbladder contractility, biliary sludge accumulation and gallstone formation[5].

Repeated episode of acute pancreatitis leads to recurrent acute pancreatitis. It is defined as more than one well documented and separate attacks of pancreatitis that completely or nearly completely resolved with more than three months in between the attacks[6]. The prevalence of recurrent acute pancreatitis in various studies varied from 10-30%[7]. Despite multiple etiological factors, acute biliary pancreatitis related to pregnancy has a high recurrence rate of 70% in subsequent pregnancies[4].

The clinical presentation of acute pancreatitis during pregnancy is highly variable and ranges from mild to severe form including necrotic processes, pseudocyst formation, abscess formation, multi organ dysfunction syndrome and multi organ failure[8]. The earliest and most common symptoms of acute pancreatitis is severe epigastric and abdominal pain[9]. Effective pain relief is an integral part of optimal management but the analgesic strategy for patients with acute pancreatitis remains unknown[9,10]. Several analgesics like opiates, non-steroidal anti-inflammatories (NSAIDs), metamizole, local anaesthetic, epidural, and paracetamol have been used to relief pain in acute pancreatitis. Across all modalities, epidural analgesia appears to provide the greatest improvement in visual analogue scale (VAS)[10]. We report the case of a 21 year old female with 8 weeks of pregnancy who was diagnosed with recurrent acute pancreatitis.

Case Report

A 21 year old normotensive, non-diabetic, non-asthmatic female (primigravida) with 8 weeks of gestation was referred to our Pain Clinic, Department of Anaesthesia, Intensive Care and Pain Medicine with the diagnosis of recurrent mild acute pancreatitis with severe pain. The patient was admitted in medicine ward 2 days ago prior to referral with the complaints of 5 episodes of vomiting and abdominal pain. On query, she informed that the vomitus was non projectile, non-blood stained, non-foul smelling and greenish in colour. Pain was continuous, moderate to severe in intensity, aching in nature, mostly over the epigastric region radiating to the back, increased on lying down and reduced in the knee-chest position. There was no history of fever, cough, diarrohea, and constipation, yellowish discolouration of urine, headache and burning sensation during micturition. She also gave history of similar episodes 2 times in the last two years for which she got admitted in hospitals. Her laboratory investigations showed in table 1. Ultrasound of abdomen revealed peri-pancreatic fluid collection, slight gall bladder sludge and intrauterine single live pregnancy (gestational sac 8 weeks). Both surgical and obstetrical consultation were sought. She was treated conservatively with nasogastric suction, intravenous fluids, analgesics and antibiotics. Despite receiving intravenous analgesics, her pain intensity did not decrease satisfactorily.

Table 1: Laboratory reports of the patient

Investigations	Results
Haemoglobin	10.6 gm/dl
Total WBC count	13240 cells/µL
Differential count	N-88%, L-11%
Platelet count	150,000/L
Urea	12 mg/dl
S. creatinine	0.8 mg/dl
CRP	334 mg/L
Lactate	3.7 mmol/L
S. Amylase	812 IU/L
S. Lipase	988 IU/L
Total Cholesterol	180 mg/dl
Triglycerides	224 mg/dl
S. Calcium	10.2 mg/dl
Na+	136 meq/L
K+	4.4 meq/L
HbA1c	5.2%

During her last episode of pancreatitis 6 months ago, an MRCP was done which showed bulky, oedematous pancreas with normal main pancreatic duct, common bile duct and gall bladder. On examination, she was anxious, mildly anaemic, mildly dehydrated and jaundice was absent. Her pulse rate was 96/min and BP was 120/70 mmHg. Her BMI was 26 kg/m^2. Her

cardiovascular and respiratory system examination revealed no abnormalities. Abdominal examination revealed moderate tenderness over the epigastric region. Pain intensity was assessed by visual analogue scale (VAS) and it was found 8 out of 10. So we planned for thoracic epidural for pain management.

With proper counselling and obtaining informed consent, patient was taken to operation theatre. A bolus of 250 ml crystalloid solution was infused and monitoring equipment were attached (Pulse oxymetry, NIBP, ECG) and baseline haemodynamics were obtained. Patient was positioned left lateral and then T8-9 space was identified. With all aseptic precautions, skin was infiltrated with 1% lignocaine. Epidural needle (16G) was introduced and epidural space was found 4 cm from the skin and identified by loss of resistance technique. Then epidural catheter was inserted and 3 cm catheter was kept within the epidural space. A test dose of 3 ml lignocaine mixed with epinephrine was administered to exclude intrathecal or intravascular catheterization. After that catheter was fixed and secured. A bolus dose of 8 ml 0.1% plain bupivacaine with 2 µg/ml fentanyl was given through the epidural route. Patient was assessed for any haemodynamic abnormalities which revealed no abnormality. Then patient was shifted to postoperative ward. Patient was assessed for pain intensity by VAS after 30 minutes and significant decrease of VAS score (from 8 to 3) was observed. No motor block was observed during postoperative period. Then patient was advised to administer 3-5 ml of 0.1% plain bupivacaine with 2 µg/ml fentanyl through epidural route 2-3 hours of interval and omit the intravenous dose of tramadol.

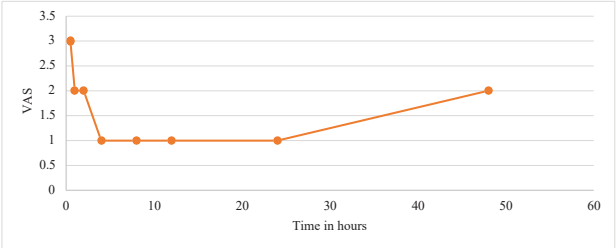

Fig 1: VAS score in different time intervals

Epidural catheter was kept in situ for 48 hours. After 24 hours, patient started oral feeding. Pain intensity was decreased significantly (VAS 1 out of 10). After 48 hours catheter was removed aseptically and no signs of infection was observed. The general wellbeing of the patient was improved and was discharged from hospital on the 5th day.

Discussion

Acute pancreatitis is an inflammatory process of the pancreas and/or peripancreatic tissue. It is clinically defined as the presence of pancreatic type of pain, elevated serum lipase (or amylase) more than three times upper limit of normal with absence of changes characteristic of chronic pancreatitis on abdominal imaging (contrast enhanced computed tomography or ultrasonography/magnetic resonance imaging)[7]. When repeated attack of acute pancreatitis occurs after three months of complete or nearly complete resolution of previous attack, then it is termed as recurrent acute pancreatitis[6]. Acute pancreatitis is very much uncommon during pregnancy[1,3,4] most commonly seen in the third trimester (50%) or in the early postpartum period (35%), rarely observed during the first and second trimesters of pregnancy (12%) and more frequent in multiparous women (75%)[9]. In our case, she developed acute pancreatitis in the first trimester which was a rare findings.

Pregnancy itself does not predispose to acute pancreatitis[5] but there is an increase in gallbladder volume, decrease bile flow and biliary stasis which occurs due to increased estrogen and bile cholesterol8. Progesterone causes gallbladder smooth muscle relaxation and enhances the stasis which causes gallstones formation[8,9]. It can migrate in the main pancreatic duct causing obstruction and activation of digestive enzymes of the pancreas leading to pancreatitis[5,8,9]. Pregnancy also increases the release of estrogen induced triglycerides due to decreased lipoprotein lipase activity[3]. This causes hydrolysis of triglycerides leading to release of free fatty acids which are toxic to the acinar cells of pancreas[3,8]. Increased concentrations of chylomicrons rises the blood viscosity obstructing the pancreatic capillaries causing ischemia, acidosis and necrosis of the pancreas. Obesity, oral contraceptive usage and mutiparity also increase the risk of acute pancreatitis by the above mechanisms[1].

Diagnosis of acute pancreatitis in the first trimester is more difficult as compared to the second and third trimesters because the signs and symptoms mimic hyperemesis gravidarum[9]. Majority of the patients

present with epigastric pain, anorexia, nausea, and vomiting. There are no standard diagnostic tests for acute pancreatitis in pregnancy. Those which are used in non- pregnant patients are used during pregnancy[4]. Pregnancy induced hematological and biochemical changes have an impact on the diagnosis. Abdominal USG is safe and sensitive than CT for diagnosis during pregnancy[2]. MRCP (Magnetic resonance cholangiopancreatography) can be used as an alternative when USG findings are indeterminate and to assess severity without exposing the mother and fetus to non-ionizing radiation[6]. In the present case, the serum amylase and lipase level were higher than normal and the initial USG abdomen showed peripancreatic inflammation with gallbladder sludge.

The common aetiology of acute pancreatitis in pregnancy are biliary (gallstones or sludge), hyperlipidaemia, alcohol intake and in few cases it is idiopathic[4]. Biliary cause is the commonest accounting to 66% cases in pregnancy[2]. The other causes include hyperparathyroidism, hereditary, post-ERCP (endoscopic retrograde cholangiopancreatography), acute fatty liver of pregnancy, pre-eclampsia and drug-induced such as thiazide diuretics[4,7,8]. In our patient who was pregnant and had gallbladder sludge which was a predisposing factor to develop pancreatitis. This is the third time she developed acute pancreatitis and did not progress to severe disease.

Management includes analgesics, fluid therapy, probiotics and cessation of oral feeding to prevent auto digestion of pancreas[10,11]. Early enteral feeding is recommended to prevent bacterial translocation and maintain the immunity of gut flora[4]. Pain management in acute pancreatitis is of prime importance because most of the patients present with severe abdominal pain[9]. The most common mode of providing analgesia is via intravenous opioids which has got various side effects[8,9,10.] Epidural analgesia as a treatment for acute pancreatitis has gained interest recently, and growing evidence from experimental studies now supports the beneficial effects of epidural analgesia[9]. It increases mucosal capillary perfusion, increases gut barrier function, increases renal perfusion, and decreases severity in addition to profound analgesia[9,10]. Bernhhardt et al. performed epidural analgesia on 121 patients, where excellent analgesia (VAS <2) was achieved in 72% of the patients[12]. A study conducted by Sadowski et al. showed better pain management with TEA (thoracic epidural analgesia) and increased pancreatic microcirculation[13]. In this case, patient received thoracic epidural analgesia and VAS scores decreased from 8 to ≤2, indicating profound pain relief. Several studies have supported the use of epidural anaesthesia in pregnant patients with acute pancreatitis undergoing C-section[9,10,14] because acute pancreatitis occurs more commonly in late pregnancy than early pregnancy. Here, we gave epidural analgesia for recurrent acute pancreatitis in early pregnancy which provided adequate pain relief, minimized the need for conventional analgesics, and allowed early mobilization and oral feeding.

Conclusion

We highlight the importance of considering thoracic epidural analgesia for acute pancreatitis in pregnancy. It not only provides excellent analgesia but also facilitates early recovery. This technique could be a potential alternative to conventional analgesics for pain management in acute pancreatitis.

Declaration

Ethics approval

Not applicable

Author Contributions

Conception and development of the idea *MMK, AMM, MSI*
Data collection *MMK*
Data analysis *MMK, SA*
Writing - Original Draft Preparation *MMK, SA*
Review & Editing *MMK*

Funding: None

Conflict of interests: None

References

1 Hot S, Eğin S, Gökçek B. et al. Acute biliary pancreatitis during pregnancy and in the post-delivery period. Ulus Travma Acil Cerrahi Derg. 2019, 25:253-8.

2 Ducarme, G., Maire, F., Chatel, P. et al. Acute pancreatitis during pregnancy: a review. J Perinatol. 2014; 34: 87–94

3 Hara T, Kanasaki H, Oride A, et al. A Case of Idiopathic Acute Pancreatitis in the First Trimester of Pregnancy. Case Rep Obstet Gynecol 2015:e469527

4 Rajandran P, Dasari P, Thyagarajan C. Recurrent acute pancreatitis in pregnancy. International Journal of Clinical Obstetrics and Gynaecology 2021; 5(5): 139-142

5 Zachariah SK, Fenn M, Jacob K, Arthungal SA, Zachariah SA. Management of acute abdomen in pregnancy: current perspectives. Int J Womens Health. 2019;11:119-134

6 Al-Haddad M, Wallace MB. Diagnostic approach to patients with acute idiopathic and recurrent pancreatitis, what should be done? World J Gastroenterol. 2008; 14:1007–1010.

7 Khurana V, Ganguly I. Recurrent Acute Pancreatitis. J Pancreas (Online) 2014 Sep 28; 15(5):413-426

8 Alanzi A K, Fouad A, Ghazzal S, et al. (May 11, 2023) Acute Pancreatitis (AP) in Pregnancy and Its Complications From an Anesthesia Perspective: A Case Report. Cureus 15(5): e38913.

9 Dogra S, Sharma P, Pandya S, et al. Epidural analgesia for pain management in acute pancreatitis during pregnancy and its effect on maternal and fetal outcome. Obstetrics and Gynecology International. 2022;e3238613.

10 Thavanesan, N., White, S., Lee, S. et al. Analgesia in the Initial Management of Acute Pancreatitis: A Systematic Review and Meta-Analysis of Randomised Controlled Trials. World J Surg.2022; 46: 878-890.

11 Abdullah B, Kathiresan Pillai T, et al. Severe Acute Pancreatitis in Pregnancy. Case Rep Obstet Gynecol 2015;e239068.

12 Bernhardt A, Kortgen A, Niesel HC, et al. Using epidural anesthesia in patients with acute pancreatitis—prospective study of 121 patients. Anaesthesiol Reanim. 2002;27(1):16-22.

13 Sadowski SM, Andres A, Morel P, et al. Epidural anesthesia improves pancreatic perfusion and decreases the severity of acute pancreatitis. World J Gastroenterol. 2015;21(43) :12448-56

14 Khan S, Razzaq H, Ali Z, et al. The impact of epidural analgesia for acute pancreatitis on maternal & fetal outcome: a cohort study. Ann Med Surg. 2023; 85:1475–1479.