Print ISSN: 2321-6379
Online ISSN: 2321-595X

Case Series

Hemorrhage in the Pancreas

Aarzoo Kapur[1], Rajoo Ramachandran[2], Aishwarya Jeyakumar[3], R Rajeswaran[4], B Sivaramakrishna[5]

[1]Post Graduate Resident, Department of Radiology and Imaging Sciences, Sri Ramachandra Medical College and Research Institue, Chennai, Tamil Nadu, India, [2]FESGAR Professor, Department of Radiology and Imaging Sciences, Sri Ramachandra Medical College and Research Institue, Chennai, Tamil Nadu, India, [3]Senior resident, Department of Radiology and Imaging Sciences, Sri Ramachandra Medical College and Research Institue, Chennai, Tamil Nadu, India, [4]Head and Professor, Department of Radiology and Imaging Sciences, Sri Ramachandra Medical College and Research Institue, Chennai, Tamil Nadu, India, [5]Professor and HOD, Department of Urology, Sri Devraj Urs Medical College, Kolar, Karnataka, India

Abstract

Acute pancreatitis is a disease characterized by pancreatic inflammation associated with several etiological factors. There are two types of acute pancreatitis: Acute edematous pancreatitis and acute necrotizing pancreatitis. Hemorrhagic pancreatitis is a known complication of both of them. It is characterized by necrosis of the pancreatic parenchyma, destruction of small blood vessels, interstitial hemorrhage, and significant pancreatic and peri-pancreatic inflammatory reaction associated with a high mortality rate. The incidence of Hemorrhagic Pancreatitis during pregnancy is low, but associated with a high maternal and fetal mortality rate. The highest incidence is seen in the third trimester/early postpartum period. Here, we are presenting two interesting cases of hemorrhagic pancreatitis which presented with apparently benign signs and symptoms.

Key words: Hemorrhagic, Necrotizing, Pancreatitis, Postpartum, Pregnancy

INTRODUCTION

Hemorrhagic pancreatitis is a serious condition that can lead to significant morbidity and mortality. The diagnosis of acute hemorrhagic pancreatitis requires the presence of (i) abdominal pain particularly in the epigastric region (ii) biochemical corroboration of pancreatitis (serum amylase and/or lipase more than three times the upper limit of normal) and (iii) characteristic imaging findings. In this case report, we will present two cases that were diagnosed as hemorrhagic pancreatitis on imaging.

CASE REPORT

Case 1: [Figure 1]

A 33-year-old female, G2P1L1/35 weeks+ 3 days, post-emergency lower segment cesarean section (LSCS) in view of bleeding per vaginum and previous history of LSCS, post-operative day 3, presented with abdominal pain, epigastric tenderness, and high colored urine for 2 days. Laboratory values revealed elevated Liver Function Tests and serum amylase and lipase levels (>200 U/L). Contrast-enhanced computed tomography (CECT) abdomen was done which showed a diffusely enlarged, edematous, and non-enhancing pancreas suggestive of necrosis with few hyperdense areas on plain images in the parenchyma. There was partial thrombosis of porto-splenic confluence extending into the splenic vein. No evidence of calcification/ductal dilatation/pseudoaneurysm was visible. The modified computed tomography (CT) severity score was 10/10. Post-LSCS changes were seen in the uterus. The patient was advised conservative management with IV fluids, analgesics, antibiotics, pantoprazole, and low molecular weight Heparin (LMWH). The temperature chart showed fever spikes. The patient continued to be drowsy and an endocrinology opinion was obtained and a provisional diagnosis of sepsis with multi-organ dysfunction and altered glycemic levels secondary to pancreatitis was made. The patient had a GCS drop of 8/15 and the patient was intubated electively. CT brain was normal. Follow-up CECT on post-operative day 10 revealed acute peripancreatic collections and pancreatitis-related Acute Respiratory Distress Syndrome. The patient then underwent continuous renal replacement therapy in

Access this article online

www.ijss-sn.com

Month of Submission : 06-2024
Month of Peer Review : 07-2024
Month of Acceptance : 08-2024
Month of Publishing : 08-2024

Corresponding Author: Dr. Aarzoo Kapur, Room 245, PG Girls Hostel Block 5, Sri Ramachandra Medical College, Porur, Chennai, Tamil Nadu - 600 116, India.

view of isolated hyperammonemia. Following 4 cycles of the therapy, the patient recovered and was discharged.

Case 2 [Figure 2]

A 45-year-old male, with a known case of Choledocholithiasis and post-endoscopic retrograde cholangiopancreatography (ERCP) and common bile duct (CBD) stenting presented with abdominal distension and tenderness for 1 day. The patient also presented with a history of four episodes of melena. Past medical and surgical history was unremarkable. Laboratory values revealed elevated total counts of 15,000. CECT abdomen was done which showed an ERCP stent *in situ*. Multiple peripancreatic collections were seen replacing the entire pancreatic parenchyma with the largest of the size of around 450 cc. Hyperdense content was noted within the collection. The splenic vein was thrombosed for a length of ~ 25 mm from the confluence of the splenic and portal vein. The patient was advised conservative management with IV fluids, analgesics, antibiotics, pantoprazole, and LMWH.

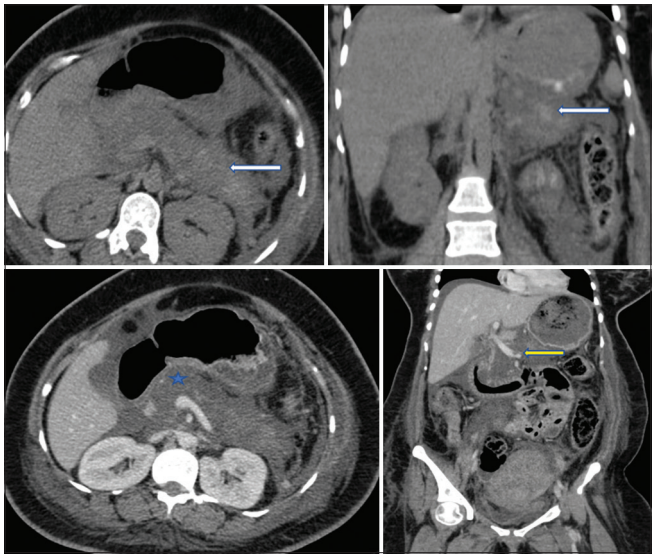

Figure 1: Contrast Enhanced Computed Tomography Abdomen: Axial and coronal views at the level of upper abdomen showing non enhancement of the pancreas (blue star) with few hyperdense areas (HU +60–75) (white arrows) showing no enhancement on contrast administration. Partial thrombosis at porto-splenic confluence (yellow arrow)

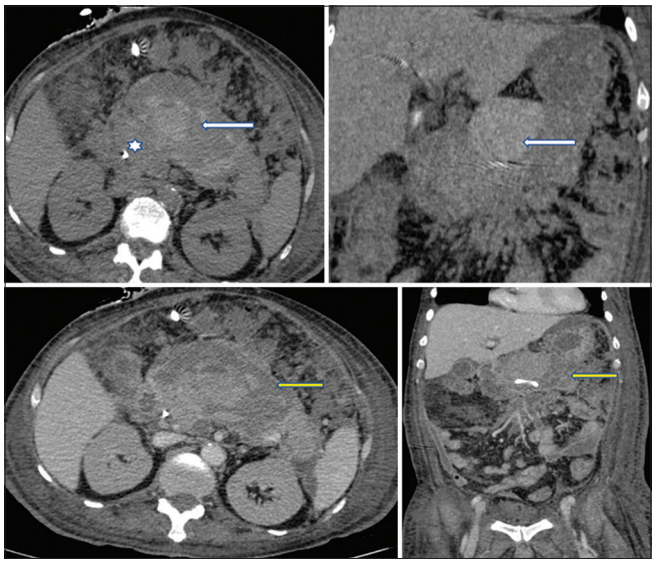

Figure 2: Contrast Enhanced Computed Tomography Abdomen: Axial and coronal view at the level of upper abdomen showing bulky pancreas with intrapancreatic collections (yellow arrows) with hyperdense content (white arrows) with in the collections (HU +70–75). ERCP stent and a small air foci noted in the head of pancreas (white star)- post procedural

DISCUSSION

Acute hemorrhagic pancreatitis during pregnancy is a rare entity and is associated with high risk of adverse maternal and fetal outcomes, occurring in approximately 3 in 10,000 pregnancies.[2] Furthermore, the diagnosis of hemorrhagic pancreatitis in pregnancy is also challenging as it presents with varying features. The highest incidence has been reported during the 3rd trimester and the early postpartum period. In our study case, the patient was immediately postpartum, that is, in a hypercoagulable state and was on anticoagulants.

In our case 1, since there was no evidence of any pseudoaneurysm, pseudocyst formation, or any iatrogenic cause or trauma history, venule and capillary disruption secondary to splenic vein thrombosis and pressure necrosis was considered as the possible cause of hemorrhage. Venule and capillary disruptions are usually caused by extravasated pancreatic enzymes' autodigestion.[3] LMWH augmented the bleeding in this case. High attenuation material within the pancreatic bed on unenhanced CT scans as seen in our cases indicated the presence of blood components.

Another cause of hemorrhagic pancreatitis surgical procedure caused trauma to the vasculature which can also result from the presence of drains that have been placed under ultrasound/CT guidance. In the second case, ERCP drain for Choledocholithiasis that was noted in situ, most likely led to localized inflammation, which further compromised the strength of the artery wall leading to intraparenchymal bleeding. Patients with peri-pancreatic infection, multiple organ failure, prolonged anticoagulation, and underlying vasculitis are at a higher risk of developing such vascular issues.[4]

Other causes of bleeding in Pancreatitis include a pseudocyst or a wall of necrosis being disrupted,

spontaneous arterial rupture, or rupture of pseudoaneurysms combined with pressure necrosis. Although the subsequent bleeding is typically self-contained, 2–5% of patients with acute pancreatitis may experience significant hemorrhage.[5]

Vascular problems as seen in both our cases are comparatively rare, occurring in 1–23% of pancreatitis patients. In comparison to arterial problems, venous complications occur far more frequently. Given that arterial complications have a high mortality rate of 34–52%, it is critical to detect them early and treat them aggressively.[4] Broadly speaking, though the incidence of major bleeding in Pancreatitis is relatively low, however, the morbidity and mortality are high. In clinically severe cases of Acute Hemorrhagic Pancreatitis, mortality rate ranges from 40-80 %. The diagnosis of hemorrhagic pancreatitis should also be considered when there is clinical evidence of retroperitoneal hemorrhage as evidenced by Gray-Turner's or Cullen's sign.

Acute pancreatitis is most frequently seen in middle-aged and older individuals with biliary tract disease, alcoholism, and hypertriglyceridemia.[2] Other less frequent causes include conditions such as Roundworm infestation, Scrub typhus, Amyloidosis, Cystic fibrosis, viral infections, obesity, and trauma-induced or idiopathic.

Clinical features include abdominal pain radiating to the back, tenderness, fever, jaundice, shock, hematemesis, and anorexia. Amylase/lipase levels usually appear elevated >3 times.

Ultrasound should be performed in all suspected cases of pancreatitis as a baseline investigation to evaluate the biliary tract for cholelithiasis/choledocholithiasis.

In CT and magnetic resonance imaging, interstitial edematous pancreatitis is the most common, which causes non-necrotizing inflammation of the pancreas. In contrast, CT, focal, or diffuse enlargement and enhancement that is generally homogenous is seen. In addition, in contrast to CT, pancreatic necrosis manifests as one or more areas of hypodensity in the parenchyma, while in peripancreatic necrosis, the pancreas enhances normally but the peripancreatic tissues develop necrosis.

Unenhanced multidetector computed tomography scans show significantly high attenuation in cases of acute hemorrhage. The hematoma's attenuation value drops with age. Depending on the imaging sequence employed and the age of the hematoma, the appearance of blood on MR images can vary significantly. On T1-weighted imaging, subacute hemorrhage is usually hyperintense; on T2-weighted images, it might be hypointense or hyperintense. Chronic hematomas can appear hypointense on both T1-and T2-weighted imaging due to the hemosiderin concentration.[6] Magnetic resonance cholangiopancreatography may be recommended in patients with elevated liver enzymes and where the CBD is not visualized adequately.

In terms of treatment, supportive care including intravenous fluids and pain control with mobilization should be started. The primary goal is to interfere with the etiology of pancreatic necrosis and inflammation as well as Systemic Inflammatory Response Syndrome. Antibiotic prophylaxis may be given to avoid superinfection.

CONCLUSION

One of the complications of pancreatitis that poses the greatest risk to life is hemorrhage. The most common causes are rupture of an arterial pseudoaneurysm or erosion of a major pancreatic or peri-pancreatic vessel. Furthermore, the pancreatitis inflammatory process may result in thrombosis of the portal vein or its major tributaries. US, CT, and angiography can all be used to provide a radiologic diagnosis of hemorrhagic pancreatitis and its likely etiology. Hyperdense on plain scan should be particularly looked for to rule out bleeding. Treatment should be initiated soon to reduce morbidity and mortality.

ACKNOWLEDGMENT

I extend my deepest gratitude to my parents for their unwavering support, love, and sacrifices. Your encouragement has been my foundation. To my professors, thank you for your invaluable guidance, wisdom, and mentorship. Your support has profoundly shaped my academic and personal growth. This achievement is a testament to your belief in me.

Statement: The manuscript has been read and approved by all the authors, the requirements for authorship in this document have been met, and each author believes that the manuscript represents honest work and that information is not provided in another form.

REFERENCES

1. Stoppacher R. Sudden death due to acute pancreatitis. Acad Forensic Pathol 2018;8:239-55.
2. Pitchumoni CS, Yegneswaran B. Acute pancreatitis in pregnancy. World J Gastroenterol 2009;15:5641-6.
3. Bhatia M, Wong FL, Cao Y, Lau HY, Huang J, Puneet P, *et al*. Pathophysiology of acute pancreatitis. Pancreatology 2005;5:132-44.

4. Evans RP, Mourad MM, Pall G, Fisher SG, Bramhall SR. Pancreatitis: Preventing catastrophic haemorrhage. World J Gastroenterol 2017;23:5460-8.
5. Chiang KC, Chen TH, Hsu JT. Management of chronic pancreatitis complicated with a bleeding pseudoaneurysm. World J Gastroenterol 2014;20:16132-7.
6. Sahni VA, Mortelé KJ. The bloody pancreas: MDCT and MRI features of hypervascular and hemorrhagic pancreatic conditions. AJR Am J Roentgenol 2009;192:923-35.

How to cite this article: Kapur A, Ramachandran R, Jeyakumar A, Rajeswaran R, Sivaramakrishna B. Hemorrhage in the Pancreas. Int J Sci Stud 2024;12(5):10-13.

Source of Support: Nil, **Conflicts of Interest:** None declared.