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A Rare Presentation of Purplish-Brown Peripancreatic Fluid in Acute Pancreatitis: A Case Study

Mrinmayee Sonawane, Nilay Gondhalekar, Aditya Bandgar, Ashok Solanki, Arunadevi Konar

Abstract

Introduction: Acute pancreatitis is an inflammatory condition resulting from premature activation of pancreatic enzymes, leading to autodigestion, necrosis, and potential systemic complications. Pancreatic pseudocysts commonly arise as sequelae of acute pancreatitis, typically containing clear or straw-colored fluid. We have reported a rare case of acute pancreatitis with a large pancreatic pseudocyst containing purplish-brown fluid, uncommon finding, not commonly described in literature.

Case Presentation: We report the case of a 28-year-old male presenting with severe abdominal pain, nausea, and vomiting, worsened by oral intake. Contrast-enhanced CT revealed a large peripancreatic loculated collection (14.0 × 9.5 cm) consistent with a pseudocyst, along with a small intrapancreatic pseudocyst, splenomegaly, and moderate hyperdense peritoneal fluid. Image-guided drainage yielded purplish brown, slightly hazy fluid.

Discussion: The unusual fluid discoloration likely reflects haemoglobin degradation pigments from prior intracystic hemorrhage, despite the absence of active bleeding on imaging. Recognition of such not-so-typical features is essential to avoid missed vascular complications and to guide timely interventions for better outcomes in patient.

Conclusion: This rare presentation focuses on diagnostic significance, early recognition of such atypical features, along with detailed radiological evaluation and biochemical analysis of drained fluid, is essential to guide appropriate management and prevent serious complications

Keywords: Acute pancreatitis, Pancreatic pseudocyst, Hemorrhagic fluid, Purplish-brown discoloration.

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Introduction

Acute pancreatitis (AP) is a sudden inflammatory disorder of the pancreas and remains one of the most frequent causes of acute abdomen presenting to emergency departments worldwide. Its clinical spectrum ranges from mild, self-limiting disease to severe, life-threatening inflammation accompanied by organ failure and local or systemic complications.[1] While mild AP typically resolves with supportive care, moderately severe (MSAP) and severe AP (SAP) are associated with higher morbidity due to persistent organ dysfunction, infected necrosis, and complex pancreatic fluid collections (PFCs).[1]

The Revised Atlanta Classification (RAC) provides an essential framework for understanding the evolution and nature of PFCs. According to RAC, early (<4 weeks) fluid accumulations include acute peripancreatic fluid collections (APFCs) and acute necrotic collections (ANCs), while late (>4 weeks) evolutions include pseudocysts and walled-off necrosis (WON).[2,3] Characterizing the contents—whether purely fluid or containing necrotic debris—is crucial because management strategies differ significantly. Importantly, any type of collection, whether fluid-filled or necrotic, may become secondarily infected, requiring timely intervention such as image-guided drainage or endoscopic/surgical debridement.[4]

Department of Medicine, SMBT Institute of Medical Sciences and Research Centre, Nashik, Maharashtra, India

Corresponding Author: Dr. Mrinmayee Sonawane (**Email:** mrinmayee.sonawane@gmail.com)

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The occurrence of a distinctly purplish-brown fluid, as in the present case, is extremely rare. Such an appearance may suggest unusual underlying mechanisms such as hemorrhagic pancreatitis, altered hemoglobin degradation products, liquefied necrotic tissue mixed with old blood, or evolving infected necrosis with atypical discoloration. Reports of purplish or dark purple pancreatic collections are exceedingly scarce in available literature, making this case noteworthy.[5]

Management of AP requires a multidisciplinary approach involving gastroenterologists, interventional radiologists, and surgeons. Early treatment focuses on aggressive fluid resuscitation, pain relief, oxygenation, and nutritional support.

Antibiotics are reserved exclusively for proven infections or highly suspected infected necrosis.[6] Percutaneous image-guided drainage remains a minimally invasive and highly effective option for infected or symptomatic collections, particularly in unstable patients or those not suitable for endoscopic intervention.[6,7]

We present a unique case of acute pancreatitis in which image-guided percutaneous drainage revealed an unusual purplish-brown pancreatic fluid collection. The rarity of this fluid appearance, combined with its diagnostic and management implications, highlights the clinical value of reporting this case. This case study emphasizes the importance of recognizing unusual presentations of PFCs and understanding how fluid characteristics can offer valuable diagnostic clues regarding the underlying pathology.

Case Presentation

A 28-year-old male presented with complaints of severe acute onset abdominal pain radiating to the back, accompanied with persistent nausea and vomiting. The patient had history of his symptoms worsened significantly after food intake. On admission, clinical evaluation raised a strong suspicion of acute pancreatitis, advising further radiological and laboratory investigations. Contrast-enhanced CT (CECT) of the abdomen revealed a large, loculated peripancreatic fluid collection measuring 14.0 × 9.5 cm with a thin 3 mm wall, consistent with a pancreatic pseudocyst. A small intrapancreatic pseudocyst measuring 8 × 7 mm was also observed along the pancreatic tail. Splenomegaly was noted (12 cm), with moderate hyperdense free fluid within the peritoneal cavity. Other abdominal organs including the liver, kidneys, adrenals, common bile duct, aorta, and inferior vena cava seemed normal.

Given the size of the collection, image-guided percutaneous drainage was performed. The drained fluid demonstrated highly atypical characteristics. The aspirated ascitic/pseudocyst fluid was purplish brown in color, a rare and clinically significant finding. The fluid was slightly hazy, with markedly elevated protein (7.0 g/dL) and albumin (2.7 g/dL) levels, consistent with an inflammatory process. Biochemical analysis showed glucose concentration (52 mg/dL) and a specific gravity of 1.015. Cytological examination revealed a total WBC count of 3860cells/mm^3, comprising predominantly neutrophils (65%), with lymphocytes (30%) and mesothelial cells (5%). No solid necrotic debris was seen on imaging. Ascitic fluid amylase levels were more than 9990 U/L, while LDH level were >4395.

Drained fluid

Culture sensitivity showed no organism .After draining fluid and treatment with antibiotics combined with fluid and tramadol patient was relieved of symptoms.

After 10 days of hospital stay patient was discharged after reassessing cavity. During discharge patient was vitally and symptomatically better

Discussion

Acute pancreatitis (AP) is an inflammatory condition of the pancreas that may progress from mild interstitial disease to severe necrotizing pancreatitis with local and systemic complications. Pancreatic pseudocysts and walled-off necrosis (WON) commonly develop as sequelae of AP, particularly in cases involving significant tissue injury or disruption of the pancreatic ductal system.[8,9] Pseudocysts typically contain clear, straw-colored fluid rich in amylase; however, variations in fluid appearance often reflect the nature of the underlying pathological process.[9]

The present case is notable for the highly unusual purple coloration of the drained pseudocyst fluid—an observation rarely reported in medical literature. The atypical color of the fluid provides an important clue to the underlying pathological mechanisms. Purple colour of fluid is most consistent with the presence of altered blood products, particularly methemoglobin, hematoidin, and other hemoglobin degradation pigments, which accumulate when there is a bleed in closed cystic cavity. Over time, intracystic blood undergoes progressive biochemical transformation, producing darker or brownish tones rather than the bright red appearance of fresh hemorrhage.[10]

Coagulation disturbances are well documented in acute pancreatitis. Systemic inflammation and pancreatic enzyme leakage into the bloodstream can disrupt the coagulation cascade and fibrinolytic pathways. The study by Saif MW *et al.* demonstrated multiple coagulation abnormalities in acute pancreatitis, including elevated fibrinogen, increased factor VIII levels, variable factor V fluctuations, alterations in prothrombin time, and elevated plasminogen and antiplasmin levels.[11]

Based on the above reports, the various differential diagnoses were Cystic Neoplasms of Pancreas, Pancreatic Adenocarcinoma and Pseudomonas infection. Infection by Pseudomonas was ruled out through Culture and sensitivity of the Fluid. Pancreatitis was confirmed by High Serum Amylase and Serum Lipase reports. The fluid changed

colour within one day and the fluid sent for cytology was negative for any abnormal cells, which was also supported radiologically by CT Abdomen report. Hence, CEA and other tumor markers were not done. We plan to do above markers if patient presents again with similar complaints in the next follow-up visit.

Radiologically, the patient demonstrated features of large peripancreatic pseudocyst, small intrapancreatic pseudocyst, splenomegaly, and moderate hyperdense peritoneal fluid, all of which are consistent with the known spectrum of pancreatic complications. The biochemical profile of the drained fluid—high protein and albumin levels, low glucose concentration, and a predominantly neutrophilic inflammatory infiltrate—further supports the diagnosis of an exudative inflammatory pseudocyst rather than a simple serous fluid collection.

Patient responded very well to routine treatment so we infer there was bleeding inside the pancreatic cyst and the purple colour was due to a mixture of hemosiderin and necrotic debris.

Conclusion

This case emphasizes on unusual presentation of acute pancreatitis complicated with a large peripancreatic pseudocyst containing distinctly purple fluid—an exceptionally rare finding. Early finding of such atypical features, along with detailed radiological evaluation and biochemical analysis of drained fluid, is essential to guide management and prevent serious complications. This rare presentation contributes valuable clinical insight to the existing literature and reinforces the need for individualized, multidisciplinary management in complex cases of acute pancreatitis.

References

1. Foster BR, Jensen KK, Bakis G, Shaaban AM, Coakley FV. Revised Atlanta Classification for Acute Pancreatitis: A Pictorial Essay. *Radiographics* 2016; 36: 675-687.
2. Banks PA, Bollen TL, Dervenis C, Gooszen HG, Johnson CD, Sarr MG, Tsiotos GG, Vege SS; Acute Pancreatitis Classification Working Group. Classification of acute pancreatitis--2012: revision of the Atlanta classification and definitions by international consensus. *Gut* 2013; 62: 102-111.
3. Trikudanathan G, Tawfik P, Amateau SK, Munigala S, Arain M, Attam R, Beilman G, Flanagan S, Freeman ML, Mallery S. Early (<4 Weeks) Versus Standard (≥ 4 Weeks) Endoscopically Centered Step-Up Interventions for Necrotizing Pancreatitis. *Am J Gastroenterol* 2018; 113: 1550-1558.
4. Oblizajek N, Takahashi N, Agayeva S, Bazerbachi F, Chandrasekhara V, Levy M, Storm A, Baron T, Chari S, Gleeson FC, Pearson R, Petersen BT, Vege SS, Lennon R, Topazian M, Abu Dayyeh BK. Outcomes of early endoscopic intervention for pancreatic necrotic collections: a matched case-control study. *Gastrointest Endosc* 2020; 91: 1303-1309.
5. Sabir S, Peace S, Ho C, Oi K, Le K. Giant Hemorrhagic Pancreatic Pseudocyst: A Case Report and Guidelines for Care. Cureus. 2022 Aug 25;14(8):283-98.
6. Bansal A, Gupta P, Singh AK, Shah J, Samanta J, Mandavdhare HS, Sharma V, Sinha SK, Dutta U, Sandhu MS, Kochhar R. Drainage of pancreatic fluid collections in acute pancreatitis: A comprehensive overview. *World J Clin Cases* 2022; 10(20): 6769-6783
7. Baron TH, DiMaio CJ, Wang AY, Morgan KA. American Gastroenterological Association Clinical Practice Update: Management of Pancreatic Necrosis. Gastroenterology. 2020; 158:67-75.
8. Greenberg JA, Hsu J, Bawazeer M, et al. Clinical practice guideline: management of acute pancreatitis. Can J Surg. 2016; 59(2):128–140.
9. Hashim T, Mehmood M, Mohamed MSE, Zaki HA, Idris S, Elgassim M. *Atypical Presentation of Acute Pancreatitis: Case Report and Review of Literature*. Radiology Case. 2024;18(9):39-46.
10. Hashimoto BE, Laing FC, Jeffrey RB Jr, Federle MP. Hemorrhagic pancreatic fluid collections examined by ultrasound. Radiology. 1984 Mar;150(3):803-8.
11. Saif MW, Allegra CJ. Hematological complications of acute pancreatitis: a review. Resid Staff Physician. 2001;47(10):29-35.