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(CASE REPORT)

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SPLENIC RUPTURE COMPLICATING SEVERE ACUTE PANCREATITIS: A CASE REPORT

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ABSTRACT

Background: Post-endoscopic retrograde cholangiopancreatography pancreatitis is the most common complication of endoscopic retrograde cholangiopancreatography, with variable severity. Splenic complications are rare but potentially life-threatening.

Case presentation*:* We report the case of a 54-year-old woman with a history of cholecystectomy who developed severe acute pancreatitis following endoscopic retrograde cholangiopancreatography performed for sphincter of Oddi dysfunction. Three days after admission, she presented with acute hemodynamic instability and a significant drop in hemoglobin. Contrast-enhanced computed tomography revealed active bleeding due to splenic rupture. Emergency splenectomy was performed with favorable outcome.

Conclusion: Splenic rupture is an exceptionally rare complication of acute pancreatitis. Early recognition of hemorrhagic complications in severe pancreatitis is critical to ensure prompt management and improve outcomes.

Keywords: Acute Pancreatitis; Case Report; Endoscopic Retrograde Cholangiopancreatography; Hemorrhage; Splenic Rupture.

1 INTRODUCTION

Endoscopic retrograde cholangiopancreatography (ERCP) is widely used for both diagnostic and therapeutic management of biliary and pancreatic disorders, including sphincter of Oddi dysfunction. Post- endoscopic retrograde cholangiopancreatography pancreatitis remains the most frequent complication, occurring in approximately 3–15% of cases, with a small proportion progressing to severe necrotizing forms.

Splenic complications associated with acute pancreatitis are rare and include splenic vein thrombosis, infarction, pseudoaneurysm formation, and, exceptionally, splenic rupture. These complications are associated with significant morbidity and mortality.

We report a case of splenic rupture complicating severe acute pancreatitis. The purpose of this case report is to highlight the rare occurrence of splenic rupture as a severe complication of acute pancreatitis and to emphasize the importance of early recognition and prompt management of this potentially life-threatening complication.

2 CASE PRESENTATION

A 54-year-old woman with a history of cholecystectomy performed 20 years earlier was admitted for endoscopic retrograde cholangiopancreatography due to suspected sphincter of Oddi dysfunction.

An initial endoscopic retrograde cholangiopancreatography was incomplete, and a prophylactic pancreatic stent was placed to reduce the risk of post- endoscopic retrograde cholangiopancreatography pancreatitis. Despite this preventive measure, the patient developed moderate acute pancreatitis (Balthazar C), which resolved with conservative management.

A second endoscopic retrograde cholangiopancreatography was subsequently performed, with successful sphincterotomy and a precut incision.

2.1 Clinical Findings

The day following the second procedure, the patient developed a severe epigastric pain radiating to the back with reflex ileus.

On physical examination, the patient was hemodynamically and respiratorily stable. Abdominal tenderness was noted, without guarding or rebound. Bowel sounds were present.

2.2 Laboratory Findings

- Serum lipase: 2237 U/L (Greater than 3 times the upper limit of normal)
- White blood cell count: 20 G/L
- C-reactive protein: 420 mg/L
- Lactate: 1 mmol/L

2.3 Imaging

Initial contrast-enhanced abdominal computed tomography (CT) showed in figure 1 demonstrated :

- Severe acute pancreatitis (Balthazar grade E)
- Necrotic areas involving the head, body, and tail of the pancreas
- Minimal reactive ascites
- Bilateral pleural effusions with basal atelectasis

A diagnosis of severe necrotizing acute pancreatitis was established.



Figure 1: Initial contrast-enhanced abdominal computed tomography revealing severe acute pancreatitis

2.4 Clinical Course and Management

Three days after the onset of acute pancreatitis, the patient suddenly developed tachycardia secondary to hypovolemia, unresponsive to fluid resuscitation.

Laboratory tests revealed a hemoglobin drop of 6 g/dL over 48 hours.

Contrast-enhanced abdominopelvic CT shown in figure 2 revealed :

- Significant active hemorrhage contained within the splenic capsule, with delayed extravasation into the left paracolic gutter consistent with splenic rupture.
- In addition, findings were consistent with severe acute pancreatitis (Balthazar grade E, modified CT severity index [mCTSI] 6) associated with large pleural and intraperitoneal fluid collections.



Figure 2: Contrast-enhanced abdominopelvic computed tomography showing splenic rupture

The patient was transfused with three units of packed red blood cells and received intravenous fluid resuscitation with 0.9% sodium chloride solution.

- Given the hemodynamic instability, the patient underwent emergency surgery.
- Exploration revealed extensive hemoperitoneum with a large volume of blood.
- The surgery led to the evacuation of a very large amount of blood and clots, revealing a spleen in multiple fragments.
- A splenectomy was performed to achieve hemostasis.

2.5 Outcome and Follow-Up

Postoperative recovery was uneventful, with:

- Hemodynamic stabilization
- Progressive normalization of inflammatory markers
- Clinical improvement

The patient was discharged home 14 days after surgery.

A follow-up abdominopelvic CT scan shown in figure 3 performed three months later showed favorable progression, with a marked decrease in the extent of necrotic collections and peripancreatic fluid collections.

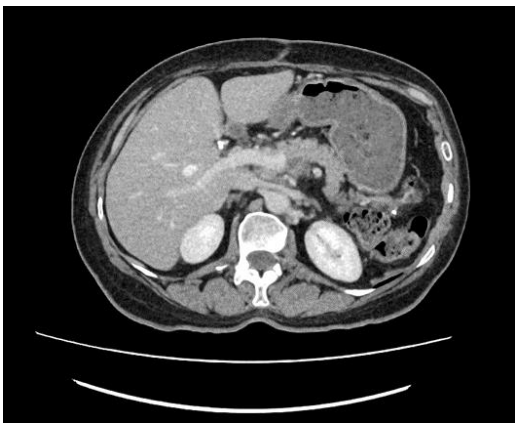


Figure 3: Abdominopelvic computed tomography scan at three-month follow-up

3 DISCUSSION

Severe acute pancreatitis is associated with a wide spectrum of local and systemic complications. Vascular complications, although uncommon, are among the most severe.

Although the pathophysiology of splenic complications is incompletely understood, the close anatomical proximity between the spleen and the pancreas has been considered as a major contributor to splenic complications during the course of pancreatitis [1]. The splenic artery and vein and pancreatic tail, which are all located in the lienorenal ligament, enter the splenic hilum. This close anatomical association may lead to splenic involvement (intra-splenic abscess, pseudocyst formation, infarction, hemorrhage, and rupture) with pancreatitis [1]. The direct erosion of pseudocysts or extravasation of pancreatic enzymes from a fluid collection is considered as one of the potential mechanisms of splenic rupture [2]. Splenic vein thrombosis was also shown to be a common risk factor associated with splenic rupture. Venous outflow obstruction caused by this thrombosis may induce localized hypertension and congestion within the splenic parenchyma [3]. The diagnosis of splenic complications is challenging due to the absence of specific symptoms and signs. However, the presence of pain in the left upper quadrant and referred pain in the left shoulder are indications. The case presented here suggested that the presence of signs of hypovolemia and acute anemia following acute pancreatitis may point toward a complication such as splenic rupture. In most cases, splenic rupture or hematoma was diagnosed using contrast-enhanced CT. Results can be obtained rapidly, and the extent of splenic hemorrhage along with other complications, such as fluid collection or vascular involvement, can be assessed [4-5]. Most of the ruptured cases are managed with laparotomy with splenectomy, as was the case in our patient.

4 CONCLUSION

Splenic rupture is a rare but severe complication of acute pancreatitis, particularly in necrotizing forms following ERCP.

This case highlights:

- The importance of close monitoring in severe pancreatitis
- The need to promptly investigate any sudden hemodynamic deterioration
- The critical role of imaging in diagnosing hemorrhagic complications

Early recognition and timely management are essential to improve patient outcomes.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

The authors have no conflicts of interest to declare.

Statement of informed consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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