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Radiological Evaluation of Postpartum Mesenteric Venous Thrombosis and Severe Intestinal Necrosis

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Abstract **Case Report**

Mesenteric venous thrombosis (MVT) is a rare but serious cause of acute abdominal pain, particularly in postpartum women. This case report discusses a 30-year-old female, 45 days postpartum, who presented with acute diffuse abdominal pain. Computed tomography (CT) imaging revealed a venous occlusive mesenteric infarct with nonviable bowel loops, necessitating surgical intervention. This case highlights the importance of early recognition and prompt management, including surgery, in cases where ischemic bowel injury has progressed to infarction.

Keywords: Computed Tomography, Postpartum mesenteric venous thrombosis, mesenteric ischemia, bowel infarction, venous occlusive disease.

INTRODUCTION

Acute mesenteric ischemia (AMI) encompasses various conditions leading to reduced blood flow to the intestines, resulting in ischemia and potential bowel necrosis if untreated. While arterial causes are more common, mesenteric venous thrombosis (MVT) accounts for 5-15% of AMI cases. MVT can present insidiously, making early diagnosis challenging. The postpartum period is associated with a hypercoagulable state, increasing the risk for thrombotic events, including MVT [1].

CASE PRESENTATION

A 30-year-old female, 45 days postpartum following an uncomplicated vaginal delivery, presented to the emergency department with cessation of both fecal and gaseous transit pain associated with nausea and a 24-hour history of acute abdominal. She had no significant medical history, with no evidence of thrombophilic disorders, and she was not receiving any medication.

Clinical examination revealed stable vital signs and an afebrile status. Abdominal assessment demonstrated diffuse tenderness without rebound or guarding. Laboratory results were significant for leukocytosis (white blood cell count: 14,000/µL) and elevated D-dimer levels. while liver and renal function tests remained within normal limits.

Given the clinical suspicion for an intra-abdominal pathology, a contrast-enhanced CT scan of the abdomen and pelvis was performed. Imaging revealed thrombosis of the superior mesenteric and portal veins, with associated bowel wall thickening, indicative of venous occlusive mesenteric ischemia.

Figure 1: **Coronal reconstructions (a): Without Contrast and (b): With Contrast in Portal phase: Revealed a 30mm dilated portal vein containing a thrombus spontaneously hyperdense, non-enhancing after contrast and extending into the superior mesenteric and splenic veins**

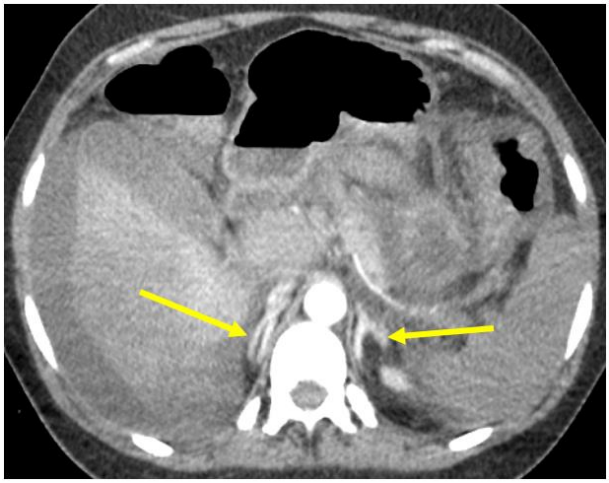

Figure 2: CT scan in early phase acquisition (arterial) demonstrates intense bilateral adrenal enhancement (yellow arrows), consistent with signs of tissue distress

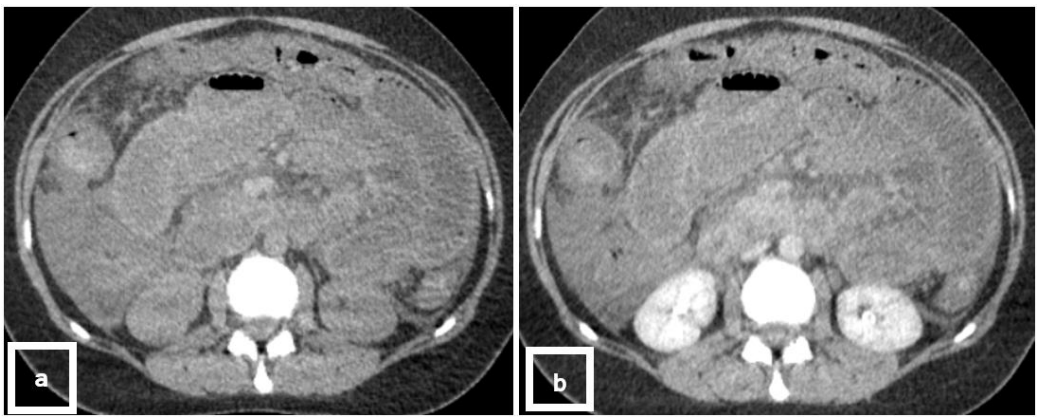

Figure 3: CT scan in axial view, (a): Without Contrast and (b): With Contrast in Portal phase: Revealed a diffuse mural thickening (up to 12 mm) observed in the ileo-jejunal loops, right colon, displaying a target sign with submucosal edema. Several ileo-jejunal loops appeared hyperdense and lacked post-contrast enhancement, Additional findings included extensive mesenteric fat stranding, a significant peritoneal effusion, and a collapsed inferior vena cava suggestive of ischemia

MANAGEMENT AND OUTCOME

The patient underwent an emergency exploratory and therapeutic laparotomy, which revealed necrotic intestinal segments that necessitated resection followed by a primary anastomosis.

Figure 4: Intraoperative image demonstrating intestinal ischemia with necrotic segments

Postoperatively, she was managed in the intensive care unit with continued anticoagulation and meticulous monitoring for complications. Her condition improved gradually, with laboratory parameters returning to normal. The patient was transitioned to oral anticoagulation and discharged on postoperative day 10, with hematologic follow-up arranged for thrombophilia screening.

DISCUSSION

Mesenteric venous thrombosis (MVT) is an uncommon but serious cause of acute mesenteric ischemia, accounting for approximately 5-15% [2] of cases. The condition arises from thrombotic occlusion of the mesenteric veins, leading to impaired venous drainage, bowel wall edema, and, if untreated, bowel infarction. The nonspecific clinical manifestations of MVT, such as diffuse abdominal pain, often hinder early diagnosis, thereby delaying treatment and heightening morbidity and mortality [2][4].

The postpartum state is inherently hypercoagulable due to physiological adaptations that facilitate hemostasis during delivery. These alterations—namely, increased coagulation factor levels and reduced fibrinolytic activity—elevate the risk for thrombotic events, including MVT. Although MVT remains rare in this context, it should be a diagnostic consideration in postpartum women with acute abdominal pain, as early recognition is paramount for favorable outcomes [3].

Contrast-enhanced CT is the diagnostic modality of choice for MVT, given its high sensitivity and specificity. CT findings may include intraluminal thrombus within the mesenteric veins, bowel wall thickening, and radiologic signs of bowel ischemia or infarction. Prompt imaging is therefore crucial for early diagnosis and timely intervention [4][5].

Initial management of MVT typically involves anticoagulation therapy to prevent thrombus propagation and promote recanalization. However, in cases where bowel infarction has occurred, as evidenced by nonviable bowel loops on imaging or during surgical exploration, anticoagulation alone is insufficient [6]. Surgical intervention becomes imperative to resect necrotic bowel segments, prevent sepsis, and reduce mortality [7].

This case accentuates the importance of a high index of suspicion for MVT in postpartum patients with acute abdominal pain. Early diagnosis through appropriate imaging and prompt surgical management when necessary are critical to improving patient outcomes. A multidisciplinary approach, involving obstetricians, radiologists, surgeons, and intensivists, is essential for the effective management of these complex cases [5][7].

CONCLUSION

Prompt diagnosis and intervention are crucial in managing mesenteric venous thrombosis during the postpartum period. Recognizing the hypercoagulable state allows for rapid imaging, appropriate surgical resection when necessary, and targeted anticoagulation therapy to minimize morbidity and improve outcomes.

Conflict of interest

The authors declare no conflicts of interest.

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