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Silent Strangler: Missed Mesenteric Vein Thrombosis Uncovered Surgically

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Abstract

In this case report, we describe a case of mesenteric venous thrombosis (MVT) in a 66-year-old male with a pertinent medical history of coronary artery disease, hypertension, hyperlipidemia, and prior conservatively managed partial small bowel obstruction. The patient presented with the nonspecific symptoms of acute-onset nausea and multiple episodes of nonbloody, nonbilious emesis, precipitating presentation to the emergency department. Initial CT imaging of the abdomen and pelvis demonstrated only findings that were consistent with a partial small bowel obstruction or ileus. There was no evidence of any MVT, so the patient was started on supportive care and empiric antibiotics. However, the patient continued to have persistent symptoms and was eventually taken for an exploratory laparotomy. During this operation, surgeons discovered a segment of mid-to-proximal jejunum consistent with MVT. This report demonstrates the challenges of diagnosing and managing MVT. First, MVT may mimic other diagnoses and present with nonspecific symptoms, which can delay diagnosis. Additionally, preoperative CT is a very useful tool for diagnosing MVTs, but it is not immune to false-negative results that can delay treatment. As such, a negative CT finding should not definitively eliminate MVTs from a differential list. Finally, treatment of MVT, once diagnosed, can extend all the way to exploratory surgery, with medical management before and after surgery being of vital importance.

Categories: General Surgery, Internal Medicine, Gastroenterology
Keywords: anticoagulation, ct, false negative, mesenteric venous thrombosis, small bowel obstruction

Introduction

Mesenteric venous thrombosis (MVT) is an uncommon but potentially life-threatening cause of mesenteric ischemia. It may involve the superior mesenteric vein, inferior mesenteric vein, portal venous system, or smaller mesenteric branches [1]. Presentation is frequently nonspecific, including abdominal pain, nausea, vomiting, and anorexia, and may mimic more common intra-abdominal conditions such as ileus, gastroenteritis, or small bowel obstruction [1]. Overall, MVT makes up 5% to 15% of acute mesenteric events [1]. Approximately 1 in 5,000 to 1 in 15,000 inpatient hospital admissions are due to MVT [1]. Delayed recognition can result in bowel ischemia, peritonitis, sepsis, or shock [2]. Additionally, patient death remains a major concern, as mortality continues to hover around one in five [1].

Contrast-enhanced computed tomography is the preferred initial diagnostic modality for suspected MVT; however, small-branch thrombosis, early venous ischemia, suboptimal contrast timing, or nonspecific bowel findings may limit detection [3]. Due to these limiting factors, CT misses a diagnosis of MVT approximately 10% of the time [2]. In this report, we detail a case of suspected MVT presenting as partial small bowel obstruction with nondiagnostic initial imaging, underscoring the need for continued clinical vigilance when symptoms persist despite the absence of definitive radiographic thrombosis.

Case Presentation

A 66-year-old male with coronary artery disease, hypertension, hyperlipidemia, gastroesophageal reflux disease, prior conservatively managed partial small bowel obstruction, cholecystectomy, and umbilical hernia repair presented to the emergency department with acute-onset nausea and multiple episodes of nonbloody, nonbilious emesis beginning the night before presentation to the emergency room. Other pertinent gastrointestinal history included an unremarkable upper endoscopy and a colonoscopy showing internal hemorrhoids, which were treated with banding. Both of these procedures were completed a few years prior to presentation, with no complications in the intermittent time span.

On presentation, the physical exam was relatively benign. The patient did endorse some mild tenderness to palpation in the right and left lower quadrants of the abdomen, along with mild distension. However, the abdomen was soft, with normoactive bowel sounds, and the rest of the physical exam was noncontributory. Initial labs, including CBC, CMP, and lactate levels, as seen in Table *1*, were all not impressive. CT with contrast of the abdomen and pelvis was conducted. Findings were concerning for partial small bowel obstruction versus ileus; however, there was no definitive radiographic evidence of MVT (Figure *1*).

Supportive care and empiric antibiotic therapy with ceftriaxone and metronidazole were initiated. Given persistent symptoms and concern for evolving intra-abdominal pathology, general surgery was consulted.

Lab	Value	Reference range
Sodium	133	135-145 mmol/L
Potassium	4.2	3.5-5.1 mmol/L
Chloride	99	98-107 mmol/L
Carbon dioxide	24	22-30 mmol/L
Glucose	178	70-99 mg/dL
BUN	30.4	9.0-20.0 mg/dL
Creatinine	0.99	0.66-1.25 mg/dL
BUN-to-creatinine ratio	30.7	7.3-21.7 ratio
Calcium	8.7	8.6-10.3 mg/dL
Calcium (corrected for albumin)	8.6	8.6-10.3 mg/dL
Anion gap	10	7-15 mmol/L
eGFR	84	> or = 60 ml/min/SA
Total protein	6.7	6.3-8.2 g/dL
Albumin	4.2	3.5-5.0 g/dL
Alanine aminotransferase	32	18-62 U/L
Aspartate aminotransferase	44	18-39 U/L
Alkaline phosphatase	71	38-126 U/L
Bilirubin	1	0.2-1.3 mg/dL
Lactate	1.2	0.7-2.0 mmol/L
White blood cell count	10.9	3.5-10.5 K/µL
Red blood cell count	4.94	4.20-5.60 M/µL
Hemoglobin	15.4	13.5-17.5 g/dL
Hematocrit	44.4	38.0%-50.0%
Mean corpuscular volume	89.9	80.0-100.0 fL
Mean corpuscular hemoglobin	31.1	26.0-34.0 pg
MCHC	34.6	31.0-37.0 g/dL
Red blood cell distribution width	12.5	12.0%-15.0%
Platelet count	216	150-450 K/µL
Mean platelet volume	7.9	7.4-10.4 fL
Neutrophil count	10.4	1.5-7.0 K/µL
Lymphocyte count	0.2	0.8-4.0 K/µL
Monocyte count	0.3	0.0-0.9 K/µL
Eosinophil count	0	0.0-0.6 K/µL
Basophil count	0.1	0.0-0.2 K/µL

TABLE 1: Summary of lab values.

BUN, blood urea nitrogen; eGFR, estimated glomerular filtration rate; MCHC, mean corpuscular hemoglobin concentration; mmol/L, millimoles per liter; mg/dL, milligrams per deciliter; ml/min/SA, milliliters per minute per square area; g/dL, grams per deciliter; U/L, units per liter; K/µL, thousands per microliter; M/µL, millions per microliter; fL, femtoliter; pg, picogram

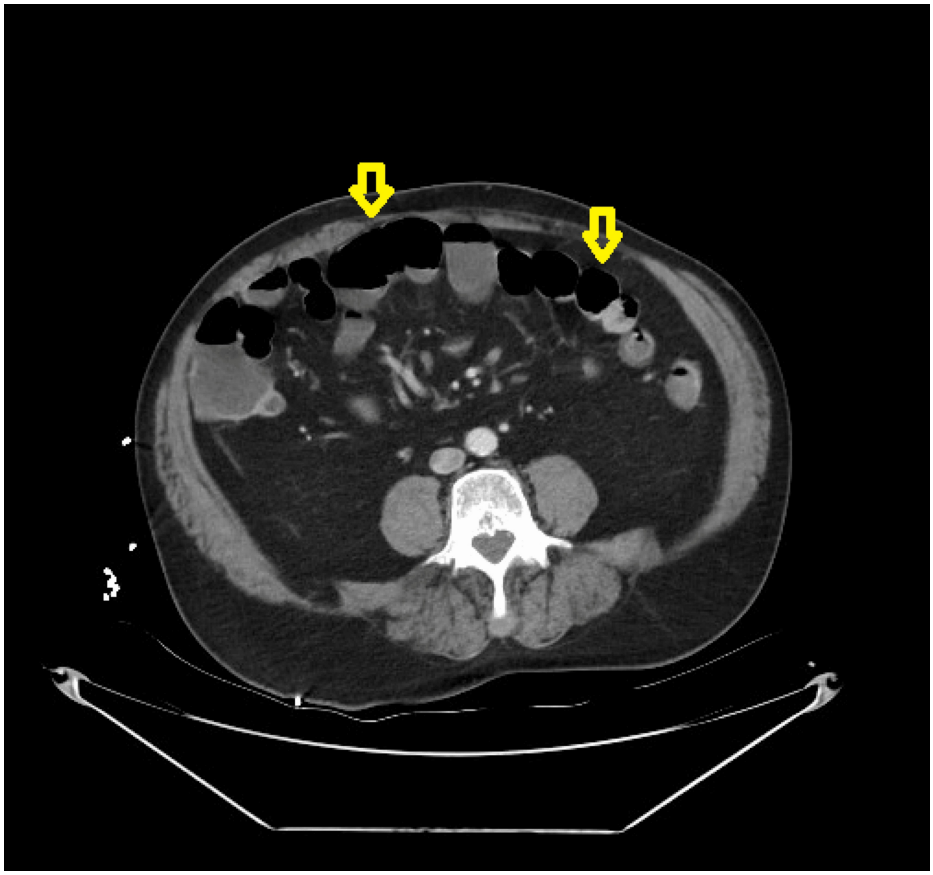


FIGURE 1: Axial CT showing multiple dilated small bowel loops filled with gas and fluid, a pattern that can be seen with ileus or partial small bowel obstruction (yellow arrows).

However, due to the continuous nausea and vomiting, the surgical team opted for surgical intervention. The patient underwent an exploratory laparotomy, which revealed an approximately 20-cm segment of mid-to-proximal jejunum with thickened, injected mesentery, venous congestion, and mild hypoperfusion. Peristalsis was preserved, and there were no serosal tears, mesenteric rents, or bowel necrosis. Operative findings were consistent with MVT involving the affected jejunal mesentery. No bowel resection was performed because peristalsis was preserved and no necrosis, rents, or tears were detected.

Postoperatively, therapeutic anticoagulation with enoxaparin was initiated and subsequently transitioned to apixaban, 5 mg twice daily. Blood cultures remained negative, and there was no evidence of ongoing infection. The patient improved clinically, tolerating an advancement from liquids to a soft diet, and was discharged on therapeutic anticoagulation with close outpatient follow-up.

Several weeks later, he was rehospitalized for recurrent abdominal pain. Given the prior nondiagnostic CT and suspected MVT based on surgical exploration, follow-up magnetic resonance angiography was performed and did not demonstrate persistent MVT. This suggested interval resolution while on anticoagulation, and the patient improved and was discharged without the development or recurrence of MVT.

Discussion

MVT is a diagnostically challenging entity because symptoms are frequently vague and overlap with more common abdominal conditions. Patients may present with nausea, vomiting, abdominal pain, ileus-like symptoms, or small bowel obstruction-like imaging findings [4]. The diagnosis is clinically important because delayed recognition can lead to bowel infarction, short bowel syndrome, sepsis, and death [1].

Risk factors for MVT encompass inherited and acquired thrombophilias, malignancy, inflammatory intra-abdominal disease, infection, trauma, recent surgery, cirrhosis or portal hypertension, myeloproliferative neoplasms, and idiopathic etiologies [4]. In this patient, a history of partial small bowel obstruction and prior abdominal surgeries may have contributed to diagnostic anchoring toward recurrent obstruction or ileus. However, operative identification of a localized abnormal jejunal segment with injected, thickened mesentery and venous hypoperfusion made MVT the most likely underlying etiology.

This case is particularly notable for the discordance between preoperative imaging and intraoperative findings. While contrast-enhanced CT is the diagnostic test of choice for MVT, its sensitivity may be reduced in cases of early disease, small-branch vessel thrombosis, suboptimal venous-phase opacification, or when radiologic interpretation is confounded by coexisting findings of obstruction or ileus [5]. Accordingly, a negative or equivocal CT should not preclude the diagnosis of MVT in patients with persistent symptoms, clinical deterioration, or operative evidence of venous ischemia, such as was seen in our case.

Management of MVT primarily focuses on prompt initiation of anticoagulation, supportive care, and surgical intervention when bowel viability is uncertain or peritoneal signs develop. Anticoagulation prevents thrombus propagation, facilitates recanalization, and reduces the risk of recurrence [5]. The standard duration of therapy is typically six months for provoked events and may be extended or become indefinite in the presence of persistent thrombophilia, malignancy, recurrent thrombosis, or an idiopathic etiology [4]. In this case, the patient received enoxaparin followed by apixaban, with subsequent imaging demonstrating resolution of the thrombosis.

This case underscores several important clinical lessons. First, MVT may mimic partial small bowel obstruction or ileus, both of which can be incidental findings as well, complicating timely diagnosis. Second, preoperative CT imaging may be nondiagnostic, particularly in cases of localized thrombosis involving smaller mesenteric branches or in non-optimized venous-phase imaging. Third, surgical evaluation remains essential when symptoms persist or clinical concern escalates despite a nondiagnostic initial workup. Finally, early initiation of anticoagulation following diagnosis is crucial to mitigate morbidity and prevent recurrent events.

Conclusions

MVT represents a rare yet serious cause of abdominal pain and bowel hypoperfusion, often masquerading as partial small bowel obstruction or ileus. This case report highlights the diagnostic challenge posed by a suspected MVT despite nondiagnostic initial imaging, emphasizing that negative or equivocal CT findings should not exclude the diagnosis when clinical suspicion remains high. Early surgical consultation, intraoperative recognition of venous ischemic changes, and timely initiation of anticoagulation are critical to preventing bowel infarction and reducing morbidity. Clinicians should maintain vigilance for MVT in patients with unexplained abdominal symptoms, recurrent presentations suggestive of obstruction, or known risk factors for thrombosis.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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