

Superior mesenteric venous thrombosis complicating acute appendicitis

A case report

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Abstract

Rationale: Superior mesenteric venous thrombosis (SMVT) is a rare condition that carries high mortality. Very few cases have been reported of SMVT, complicating acute appendicitis. Early recognition requires a high index of suspicion and is crucial in successful treatment of such a life-threatening condition.

Patient concerns: A 33-year-old male presents with a 4-day history of right lower abdominal pain, nausea and subjective fever. CT scan showed acute appendicitis and a central filling defect in the superior mesenteric vein.

Diagnoses: Acute appendicitis complicated by SMVT.

Interventions: Intravenous antibiotics, appendectomy, and anticoagulation.

Outcomes: Repeat CT scan showed successful resolution of the SMVT at a 3-month follow up.

Lessons: Clinical awareness and high index of suspicion are essential to diagnose and manage SMVT, a serious complication of acute appendicitis.

Abbreviations: μL = micro liter; CT = computed tomography; ED = emergency department; IV = intravenous; mmHg = millimeter of mercury; MVT = mesenteric venous thrombosis; SMVT = superior mesenteric venous thrombosis.

Keywords: appendicitis, mesenteric vein thrombosis, mesenteric venous thrombosis, superior mesenteric vein thrombosis, superior mesenteric venous thrombosis

1. Introduction

Mesenteric venous thrombosis (MVT) is a rare clinical entity that carries high mortality due to its nonspecific presentation leading to delayed diagnosis and increased risk of complications including bowel ischemia.^[1] Many potential risk factors have been identified including malignancies, abdominal infections, recent surgeries, and hepatic cirrhosis.^[1–3] Superior mesenteric venous thrombosis (SMVT) is the most common form of MVT.^[1,4] SMVT has been rarely associated with acute appendicitis and has been only reported in a handful of case reports.^[5,6] Early recognition and proper management are imperative in preventing complications and reducing mortality.^[1]

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Ethical approval: Not applicable, ethics committee approval is not required for case reports.

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We present a rare case of SMVT complicating acute appendicitis with no other identified risk factors.

2. Case presentation

A 33-year-old Hispanic, construction worker, man, with no significant past medical history, presented to the emergency department (ED), complaining of severe right lower abdominal pain. Pain initially started 4 days prior to presentation, was colicky in nature, not radiating, not related to oral intake, and was gradually progressing to the point he had to come to the ED. He also reported subjective fever, chills, anorexia, and nausea. Initial vital signs were stable including a blood pressure of 135/72 mmHg, a heart rate of 86 beats per minute, a respiratory rate of 18 breaths per minute, a temperature of 98.7°F, and a peripheral oxygen saturation of 99% on room air. Physical exam was significant for right lower quadrant tenderness without guarding or rebound tenderness. Lab work was unremarkable except for elevated white blood cell count of 12.8 ($10^3/\mu\text{L}$), with normal amylase and lipase. Contrast-enhanced computed tomography (CT) scan of the abdomen and pelvis revealed acute appendicitis with associated central superior mesenteric vein thrombosis (Fig. 1). Pain was controlled in the ED with intravenous (IV) morphine. The patient was started on IV fluid hydration, plus perioperative antibiotic coverage with piperacillin-tazobactam and underwent laparoscopic appendectomy. The operative specimen was sent for pathology and showed acute necrotizing appendicitis with peri-appendicitis. The patient tolerated the procedure well and the postoperative course was uneventful. The patient was started on anticoagulation with low molecular weight heparin and was discharged on day 3 on oral anticoagulation with rivaroxaban to be continued for 3 months. Follow up CT scan 3 months later showed resolution of the SMVT (Fig. 2).

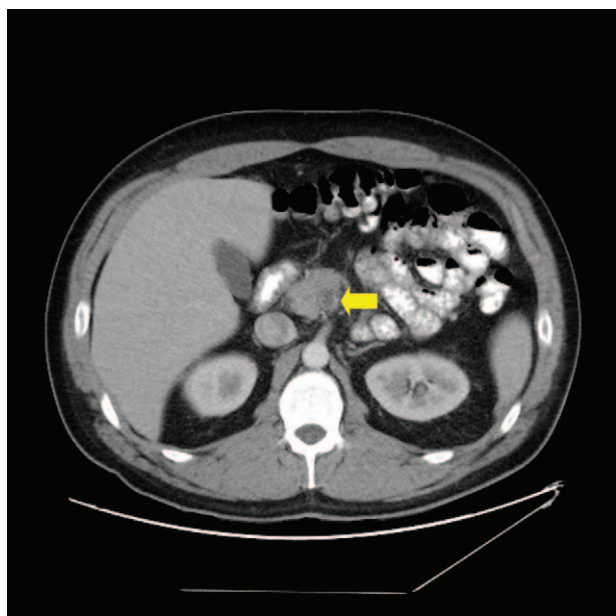


Figure 1. CT scan of the abdomen showing SMVT as a central filling defect in the superior mesenteric vein (arrow). CT=computed tomography, SMVT=superior mesenteric venous thrombosis.

3. Discussion

Our case represents a very rare clinical scenario of SMVT complicating an acute appendicitis. First described in 1895, SMVT most commonly presents in older individuals with known predisposing factors such as local malignancy, liver cirrhosis, hypercoagulability, recent surgery, and/or abdominal infection.^[1–3,7] SMVT complicating acute appendicitis in particular is extremely rare and has been only reported in a handful of case reports. Though not entirely clear in many cases, the proposed pathophysiology is believed to be due to acute ascending infection with resulting pyelophlebitis and thrombosis.^[5,6] The diagnosis is

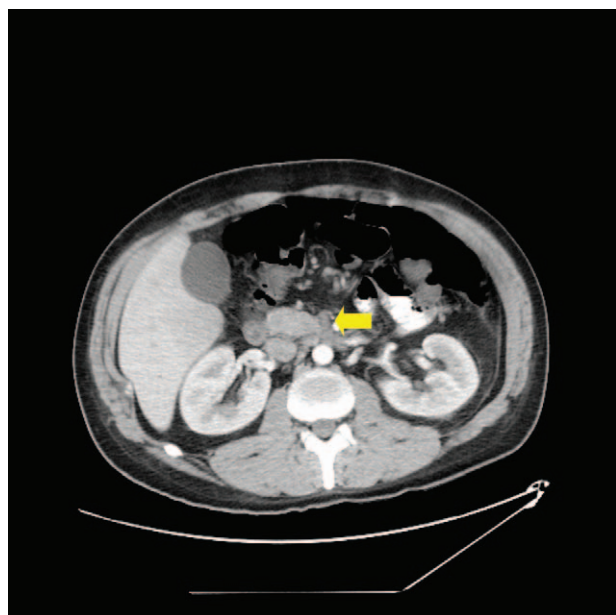


Figure 2. Follow-up CT scan at 3 months showing resolution of the SMVT. CT=computed tomography, SMVT=superior mesenteric venous thrombosis.

often challenging as most symptoms, including abdominal pain, nausea, and vomiting, may be attributed to appendicitis itself, rather than bowel congestion and ischemia. Diagnosis requires clinical awareness of the condition as well as a high index of suspicion. In 90% of the cases, as with our case, diagnosis can be made with the finding of a filling defect in the affected vein using contrast-enhanced computed tomography scan.^[1,8] When left untreated, SMVT can progress to bowel ischemia and infarction. Mortality from SMVT and its complications is very high reaching up to 20% to 50%, especially if not properly treated.^[1] In addition to managing the underlying cause, anticoagulation is the mainstay of therapy in most cases.^[1,9] Our management approach consisted of appendectomy, antibiotics, and anticoagulation with rivaroxaban. Despite the complete resolution of SMVT and symptoms, our management was limited by the fact that there are no specific guidelines.

4. Conclusion

SMVT is a unique and potentially lethal complication of acute appendicitis that can progress to bowel ischemia if left untreated. Due to its rare incidence, and low awareness, high index of suspicion is required to avoid complications. Treatment modalities include, but not limited to, surgery, antibiotics, and anticoagulation therapy.

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