

Case Report

Mesenteric Venous Ischemia; An Unusual Cause of Abdominal Pain

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ABSTRACT

Mesenteric ischemia is an uncommon and under-recognized cause of abdominal pain. In most cases it is secondary to arterial occlusion. Venous occlusion accounts for only 5-10% of all cases of mesenteric

ischemia. We present a patient with unexplained abdominal pain, who on evaluation was discovered to have venous occlusion of the superior mesenteric vein.

KEY WORDS: abdominal pain, mesenteric venous ischemia, superior mesenteric vein

INTRODUCTION

Mesenteric venous ischemia (MVT) accounts for 5-10% of patients presenting with acute mesenteric ischemia (AMI)^[1]. MVT is clinically divided into acute, subacute and chronic forms. Both the subacute and the chronic forms are clinically silent and are usually discovered during an imaging study done for otherwise unrelated reasons. MVT affects both males and females in an approximately similar proportion (1.5:1 to 1:1) with a mean age of 48-60^[1]. The etiology of this entity is not clearly defined. Several hypercoagulable states such as antithrombin III, protein C and protein S deficiencies may play a role in pathogenesis of this entity. Modern imaging studies, such as enhanced CAT scan and MRI play a major role in the accurate diagnosis of this entity. The mortality rate of MVT, although lower than other forms of AMI, still ranges between 20-50%^[2]. A recurrence rate of 20-25% has been reported which drops to less than 15% if the diagnosis is made early and anticoagulant therapy initiated promptly^[2]. We present a case of acute MVT, as one of the causes of undefined abdominal pain, especially in elderly population.

CASE HISTORY

A 77-years-old man presented to the hospital with a two-week history of lower abdominal pain. The pain was colicky in nature, of moderate severity, not radiating and without any clear precipitating or relieving factors. He noted abdominal distension and nausea, but there was no vomiting. There was no history of alteration of bowel habits, rectal bleeding, weight loss or loss of appetite. Review of systems was unremarkable.

The past medical history was significant for deep vein thrombosis (DVT) of the lower limbs 30 years ago, femoral artery embolism and acute myocardial infarction 20 years ago. His medication included aspirin 75 mg daily. He does not smoke cigarettes but drinks alcohol occasionally.

On clinical examination, he was an elderly man, not in distress. There was no pallor, jaundice or stigmata of chronic liver disease. The vital signs showed a blood pressure of 130/80 mm Hg, a regular pulse of 80 per minute, a respiratory rate of 22 breaths/min and body core temperature of 37 °C. The jugular venous pressure was not elevated, the heart sounds were normal. Examination of the chest was normal. Abdominal examination showed mild abdominal distension, few dilated veins in the hypogastrium, mild tenderness over the peri-umbilical area and loud bowel sounds. There was no hepatosplenomegaly. Rectal examination was normal. The remainder of the physical examination was within normal limits.

Baseline investigations showed, hemoglobin (Hb) 139g/L, white blood counts 8.2X10⁹/L and platelets counts 108X10⁹/L. The blood chemistry and liver profile was as follows: glucose 5.1 mmol/l, creatinine 43 mmol/l, urea 6.1 mmol/l, sodium 140 mmol/l, potassium 3.9 mmol/l, alkaline phosphatase 52 IU/L (normal 40-128), alanine transaminase 17 IU/L (normal 10-60), aspartate transaminase 22 IU/L (normal 10-42) and total bilirubin was 6 µmol/l (normal 3-25). The electrocardiogram showed changes consistent with an old anteroseptal myocardial infarction. The chest X-ray was normal. Plain abdominal X-ray showed multiple air fluid levels and dilated small bowel loops. A contrast enhanced CAT scan

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Fig. 1a: CAT scan of the abdomen showing a thrombus in SMV as a filling defect (arrow).

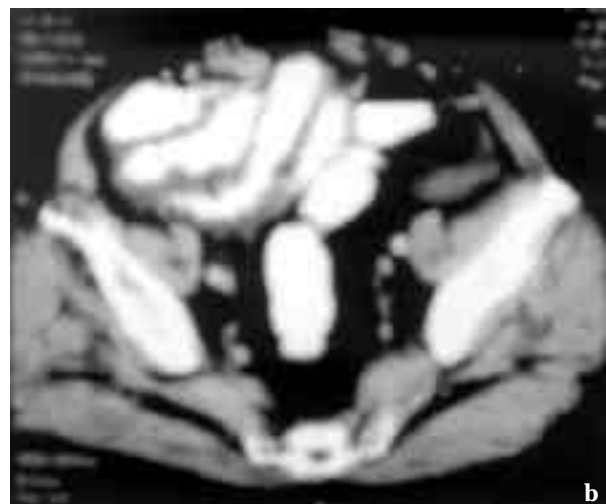


Fig. 1b: CAT scan of the abdomen showing thickened loops of small bowel with surrounding fluid.



Fig. 2: Reconstructed MRI image of the portal venous system showing a signal void in the proximal SMV due to a thrombus (arrow).

showed a filling defects at the superior mesenteric vein, representing a thrombus, and a small amount of ascites (Fig. 1 a, b). Abdominal doppler study, showed changes consistent with SMV thrombosis. Magnetic imaging angiogram of mesenteric and portal vein showed normal flow in the splenic and portal vein. The proximal part of SMV was not seen, a finding consistent with SMV thrombosis (Fig. 2).

Upper gastrointestinal endoscopy showed no evidence of esophageal varices, portal hypertensive gastropathy or any signs of ischemia. Doppler ultrasound of the lower limbs was normal.

Intravenous anticoagulation with heparin was initiated, 48-hour post admission, after the radiological evidence of SMV thrombosis was documented. This was followed by oral anticoagulant with warfarin 5mg/day, which maintained the INR in the range of 2.5-3.0. The patient's condition improved in terms of resolution of abdominal pain and tenderness.

Follow-up abdominal ultrasound showed reduction in the amount of ascites and disappearance of the small bowel edema. The patient was discharged in a satisfactory condition a week after admission. He was advised life long anti-coagulation, monthly visit to the anti-coagulation clinic, and 3-monthly follow-up in our clinic.

DISCUSSION

MVT is a relatively rare condition. On autopsy studies, MVT was found in 0.2-2% of the population^[3]. This condition was first described by Elliot in 1895, and was characterized as a clinical entity by Warren and Eberhard in 1935^[4]. MVT is most common in the 6-7th decade of life and it involves the SMV in 95% of the cases reported^[5]. MVT is usually characterized by the presence of abdominal pain, which is out of proportion with the physical findings. The duration of the abdominal pain ranges between 1-2 weeks, but it may extend up to 1 month^[6,7]. Other clinical findings include nausea, vomiting or occult gastrointestinal bleeding. The latter is reported in about 50% of patients. Gross gastrointestinal bleeding, an indication of bowel infarction, was reported in less than 15%^[2]. Physical findings range from being normal to abdominal tenderness, distension and decreased bowel sounds^[7]. The etiology of this condition is not known but several secondary causes have been linked to MVT such as portal hypertension, malignancy, myeloproliferative disorders, intra-peritoneal inflammation, dehydration, trauma and hypercoagulable states^[8]. The latter is the most common predisposing factor reported in the literature^[9]. Investigation for hypercoagulable states was not done in our patient because intravenous heparinization was started promptly after making

the diagnosis and this invalidates the tests.

The diagnosis of MVT depends on both high index of suspicion and the use of imaging studies, including plain abdominal film, CAT scan, and MRI. Plain abdominal film is usually the first test to be done to rule out mechanical obstruction and to look for evidence of bowel edema. However, a normal plain film does not rule out MVT. There should be no hesitation in performing a CT-Scan of the abdomen with contrast in cases of obscure abdominal pain with minimal signs.

CAT scan have an accuracy rate of more than 90% in detecting MVT^[10,11]. Specific findings include thickening and persistent enhancement of the bowel wall, an enlarged superior mesenteric vein with a central lucency representing a thrombus formation, a sharply defined vein wall with a rim of increased density and dilated collateral vessels in a thickened mesentery^[12,13]. Magnetic resonance angiogram, a relatively new imaging study, helped in the localization and correct diagnosis of our case. This image study has an advantage of avoiding radiation exposure and the avoidance of intravenous contrast^[9].

The cornerstone in the management of these cases is early recognition. The two arms of treatment are conservative treatment or surgical intervention. Medical treatment is a valuable option once the diagnosis is confirmed by CAT scan. Anticoagulation or thrombolytic therapy should be started^[14]. The recommendation for the duration of anti-coagulation is not definitely established. In our elderly patient, the presence of superior mesenteric vein thrombosis, previous peripheral venous thrombosis and vasculopathy prompted the need for life long anti-coagulation. The surgical options of treatment involve either mesenteric vein thrombectomy or resection of the non-viable bowel^[15].

The lesson to be learnt from this case is: abdominal pain of an unexplained nature, in an elderly patient, necessitates a full urgent work-up including enhanced CAT scan.

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