

Upper gastrointestinal bleeding in superior mesenteric vein thrombosis

Authors: Wah P Phyu,^A Hin Ming S Tang^B and Zeeshan Subhani^C

ABSTRACT

Superior mesenteric vein thrombosis (SMVT) is an uncommon disorder with non-specific signs and symptoms, where missed catastrophic consequences often follow secondary to disease progression. This case report highlights an unusual complication of SMVT and presented alongside with literature review.

KEYWORDS: GI bleeding, gastroenterology

Case presentation

A 78-year-old female with a background history of aortic stenosis, chronic obstructive pulmonary disease, bronchiectasis and hiatus hernia presented to a district general hospital with lethargy, diarrhoea and abdominal pain. Her description of abdominal pain was a dull ache over epigastrium and the left side of her abdomen. These symptoms were present for approximately 6 months and weight loss for 12 months prior to seeking medical attention. On admission, there was acutely worsening of pain with no associated haematemesis, haematochezia or melaena. Physical examination revealed mild epigastric tenderness without guarding, however Murphy's sign was positive.

Relevant blood results on admission were haemoglobin of 95 g/L, white blood cell count of $21 \times 10^9/L$, platelet count of $424 \times 10^9/L$, aspartate transaminase of 71 U/L, bilirubin of 16 mg/dL, alanine aminotransferase of 469 U/L, amylase of 46 U/L and C-reactive protein of >300 mg/L. Given presentation and blood results, antibiotics were commenced for treatment of acute cholangitis.

An ultrasound revealed no liver abnormalities, along with a negative magnetic resonance cholangiopancreatography. Computed tomography (CT) of the thorax, abdomen and pelvis did not identify any hepatobiliary pathology or malignancy, however filling defect at the superior mesenteric vein with thrombophlebitis and diverticulitis was found. Oral apixaban was commenced after superior mesenteric vein thrombosis (SMVT) was confirmed and sought advice from the local haematology and gastroenterology departments.

Authors: ^Aspecialty registrar, Charing Cross Hospital, London, UK; ^Bspecialty trainee year 1/2, Blackpool Teaching Hospitals NHS Foundation Trust, Blackpool, UK; ^Cconsultant, Blackpool Teaching Hospitals NHS Foundation Trust, Blackpool, UK

While inpatient, an oesophagogastroduodenoscopy (OGD) was performed for unexplained anaemia and weight loss. An active bleeding point at distal D2 without oesophageal varices or duodenal ulcer was located, adrenaline injection with haemoclip was applied to the lesion followed by intravenous omeprazole infusion. She developed one episode of melaena after recommencement on her anticoagulant; repeat OGD did not reveal further bleeding and patient symptoms resolved spontaneously in the next 24 hours.

During the course of hospitalisation, two units of packed red cells were transfused. The patient was discharged to the care of her primary physician with appropriate follow-up arranged.

Discussion

Incidence and epidemiology

Mesenteric vein thrombosis (MVT) is estimated to account for 0.002–0.06% of all inpatient admissions and approximately 0.01% of all emergency surgical admissions.^{1,2} MVT is an uncommon cause of mesenteric ischaemia accounting for 5–15% of the cases.³

Pathophysiology

Virchow's triad of stagnation of blood flow, vascular injury and hypercoagulability play a role in pathophysiology of venous thrombosis. Venous return from the bowel is impaired by MVT resulting in venous engorgement and ischaemia. When there is acute occlusion of mesenteric vein, there is no time for formation of collateral circulation and bowel infarct may occur.⁴

Acute MVT most commonly affect the ileum (64 to 83%) or jejunum (50 to 81%), followed by colon (14%) and duodenum (4 to 8%).⁵

Causes

Idiopathic or primary account for one-third of the cases of MVT but the cause depends on the extent of investigations. Prothrombotic state such as hereditary thrombophilia, haematological malignancies and myeloproliferative disorders are also commonest causes. MVT can develop as a result of abdominal inflammatory conditions caused by inflammatory bowel disease, intra-abdominal infection, abdominal trauma or surgery, or pancreatitis. There is an increased risk for developing thrombosis with use contraceptive pills.^{6,7}

Clinical presentation

SMVT has no specific presentation and a high index of clinical suspicion is required to ensure early diagnosis. The most common symptom found is disproportionate abdominal pain, typically seen in 90–100% of patients.^{8,9} Nausea, vomiting, diarrhoea or gastrointestinal (GI) bleeding may also occur as early findings. Onset of pyrexia may suggest signs of septic thrombosis or intestinal infection, secondary to acute diverticulitis or appendicitis.

Investigations

Unfortunately, there are no specific blood tests in supporting the diagnosis of SMVT. Although lactic acidosis may be present due to bowel ischaemia, it is not specific to support the diagnosis alone. Contrast enhanced-CT is the modality of choice in diagnosis SMVT, where it is sensitive in greater than 90% of cases.^{5,10} A filling defect in the mesenteric vein characterised by a low-attenuation lumen surrounded by a well-defined rim enhancing venous wall, is the most common finding. Bowel ischaemia can be detected in the CT. The underlying condition should be investigated and blood tests need to be taken before initiation of anticoagulation, especially prothrombotic state.⁷ Endoscopic investigation may be needed for a patient with haematemesis and melaena.

Management

Although anticoagulation is the mainstay treatment in SMVT, in the acute setting recanalisation of the mesenteric vein immediately is vital. If surgery is needed to resect necrotic bowel, anticoagulation immediately postoperatively may prevent thrombus extension.¹¹ Bowel resection may be required in evidence of acute abdomen with bowel ischaemia. Mechanical thrombectomy can provide rapid debulking, but should only be considered if the patient's condition continues to deteriorate despite anticoagulation.^{12–15}

Conclusion

Mesenteric vein thrombosis presented in this case was unusual secondary to her symptoms of GI bleed; a high index of suspicion is required to allow rapid diagnosis and management of patients.

Learning points

- > Mesenteric vein thrombosis can be associated with GI bleed, thrombophlebitis and may present as diverticulitis secondary to its complications.

- > Mainstay of treatment is anticoagulation and should be commenced as soon as possible to prevent further bowel ischaemia.
- > The use of early anticoagulation post bowel resection may improve outcome. ■

References

- 1 Ottinger LW, Austen WG. A study of 136 patients with mesenteric infarction. *Surg Gynecol Obstet* 1967;124:251–61.
- 2 Hansen HJ, Christoffersen JK. Occlusive mesenteric infarction. A retrospective study of 83 cases. *Acta Chir Scand Suppl* 1976;472:103–8.
- 3 Grendell JH and Ockner RK. Mesenteric venous thrombosis. *Gastroenterology* 1982;82:358–72.
- 4 Singal AK, Kamath PS, Tefferi A. Mesenteric venous thrombosis. *Mayo Clinic Proceedings* 2013;88:285–94.
- 5 Rhee RY, Gloviczki P, Mendonca CT *et al.* Mesenteric venous thrombosis: still a lethal disease in the 1990s. *J Vasc Surg* 1994;20:688–97.
- 6 Abu-Daff S, Abu-Daff N, Al-Shahed M. Mesenteric venous thrombosis and factors associated with mortality: A statistical analysis with five-year follow-up. *J Gastrointest Surg* 2009;13:1245–50.
- 7 Hmoud B, Singal AK, Kamath PS. Mesenteric venous thrombosis. *J Clin Exp Hepatol* 2014;4:257–63.
- 8 Kumar S, Kamath PS. Acute superior mesenteric venous thrombosis: one disease or two? *Am J Gastroenterol* 2003;98:1299–304.
- 9 Harnik IG, Brandt LJ. Mesenteric venous thrombosis. *Vasc Med* 2010;15:407–18.
- 10 Morasch MD, Ebaugh JL, Chiou AC *et al.* Mesenteric venous thrombosis: A changing clinical entity. *J Vasc Surg* 2001;34:680–4.
- 11 Kumar S, Sarr MG, Kamath PS. Mesenteric venous thrombosis. *N Engl J Med* 2001;345:1683–8.
- 12 Lopera JE, Correa G, Brazzini A *et al.* Percutaneous transhepatic treatment of symptomatic mesenteric venous thrombosis. *J Vasc Surg* 2002;36:1058–61.
- 13 Zhou W, Choi L, Lin PH *et al.* Percutaneous transhepatic thrombectomy and pharmacologic thrombolysis of mesenteric venous thrombosis. *Vascular* 2007;15:41–5.
- 14 Kim HS, Patra A, Khan J *et al.* Transhepatic catheter-directed thrombectomy and thrombolysis of acute superior mesenteric venous thrombosis. *J Vasc Interv Radiol* 2005;16:1685–91.
- 15 Uflacker R. Applications of percutaneous mechanical thrombectomy in transjugular intrahepatic portosystemic shunt and portal vein thrombosis. *Tech Vasc Interv Radiol* 2003;6:59–69.

Address for correspondence: Dr Wah Pwint Phyu, Department of Geriatric Medicine, Charing Cross Hospital, London W6 8RF. Email: wahpwint.phyu@nhs.net