CASE REPORT

Superior Mesenteric Vein Thrombosis

C K Ho, MMed*, S T Khoo, FRCS, M H Saw, MRCP*****

*Department of Imaging, **Department of Surgery, *** Hematology Unit, Hospital Lam Wah Ee, Jalan Tan Sri Teh Ewe Lim, 11600 Pulau Pinang

Summary

A 43 year-old woman presented with severe non-specific abdominal pain of 1-week duration. She was on oral contraceptive pills for the past 6 years. Clinically patient appeared ill with no specific abnormal physical sign. Moderate amount of free fluid in the peritoneal cavity on ultrasound prompted an urgent abdominal computed tomography (CT) scan, which revealed thrombosis of the superior mesenteric vein. Further investigations revealed a hypercoagulable state with protein C deficiency. Patient responded well to anticoagulation and supportive therapy. One month later patient readmitted with vomiting and signs of intestinal obstruction. Barium study revealed a moderately long tight stricture at mid jejunum with proximal dilatation. A by-pass surgery was carried out. She was well at 3 months follow-up.

Key Words: Superior mesenteric vein (SMV), Thrombosis, Protein C deficiency, Computed Tomography (CT), Intestinal stricture

Introduction

Superior mesenteric vein thrombosis (SMV) is an uncommon cause of intestinal ischemia. It is estimated that approximately 5 to 15% of all intestinal ischemia are due to venous problems[1]. The majority of patients with SMV thrombosis have underlying predisposing factors.

The clinical presentation in patients with superior mesenteric vein thrombosis is rather non-specific, with abdominal pain, anorexia and diarrhoea being the leading complaints. Because presentation is not well defined, delay in diagnosis is not uncommon.

Contrast enhanced CT scan of the abdomen is the investigation of choice in patients with suspected SMV thrombosis. Accurate diagnosis and prompt treatment are important in order to avoid intestinal infarction.

Intestinal stricture complicating SMV thrombosis is extremely rare[2]. We present here our experience in managing a patient with acute SMV thrombosis with consequent small intestinal stricture.

Case Report

A 43 year-old Chinese woman presented with a 1-week history of generalised abdominal pain. It was associated with diarrhoea and vomiting. The

This article was accepted: 7 February 2002
Corresponding Author: CK Ho, M Med (Radiology), Department of Imaging, Hospital Lam Wah Ee, Jalan Tan Sri Teh Ewe Lim, 11600 Pulau Pinang

patient had an appendicectomy done four years ago. There was no other significant medical history. She had been on oral contraceptive pills for the previous 6 years.

Clinically the patient appeared ill. She was afebrile. Her vital signs were stable. The abdomen was mildly distended with slight tenderness elicited at the epigastrium. Examination of the other systems revealed no abnormality. Routine blood and urine tests were normal. An ultrasound abdomen performed at admission revealed dilated loops of bowel with moderate amount of free fluid in the pelvis.

As there was no apparent cause to account for the moderate amount of free fluid in the pelvis, a computed tomography (CT) scan of the abdomen was performed on the day of admission. Contrast enhanced spiral CT scan of the abdomen revealed filling defects in the superior mesenteric vein, extending up to the main portal vein and its right main branch (Fig. 1). The stomach was grossly distended. Uniform bowel wall thickening was noted in multiple loops of small bowel. Streaky opacities were noted at the mesentery and there was moderate amount of free fluid in the pelvis. A diagnosis of superior mesenteric vein and portal vein thrombosis with oedema of the small bowel wall and mesentery was made.

The patient was started on heparin, which was later switched to warfarin after 1 week. The oral contraceptive pill was discontinued. Total parenteral nutrition was started on the second day of admission. She developed low-grade temperature and one episode of bloody diarrhoea while in the ward, which settled with conservative treatment. Further blood investigation revealed that she had decreased level of protein C (36%). The blood antithrombin III and protein S were within normal limits. She continued to improve and discharged home 2 weeks later.

The patient was readmitted 2 weeks after discharge with recurrent epigastric pain and vomiting. Clinically her abdomen was distended and a 'succussion-splash' elicited. Barium follow-through revealed a moderately long tight stricture in the jejunum with proximal dilatation (Fig. 2). Laparotomy confirmed the presence of tight stricture in proximal jejunum with a hard band of adhesion to lateral abdominal wall.

The strictured portion of the jejunum was viable. Good vascular circulation was noted in both the small and large bowel. Jejuno-jejunostomy, adhesiolysis and bilateral tubal ligation were carried out. The postoperative period was uneventful. The patient was discharged home 2 weeks after surgery. She was well on follow-up at 3-month.

Discussion

Acute mesenteric venous thrombosis remains a disease with a high mortality if not diagnosed early. The non-specific presentation of patients with SMV thrombosis complicates the situation. A high index of suspicion especially in patients with clinical symptoms out of proportion to clinical findings should prompt the clinician to suspect SMV thrombosis as the cause of the problem.

Approximately 80% of patients with SMV thrombosis have associated underlying predisposing factors. Previous abdominal surgery and hypercoagulable state are the two most common associated conditions in patients with mesenteric venous thrombosis[3]. A previous history of appendicectomy and associated hypercoagulable state with protein C deficiency and oral contraceptive pill usage were the underlying factors contributing to SMV thrombosis in our patient.

Contrast enhanced CT (CECT) scan is the modality of choice in the diagnosis of SMV thrombosis. It is non-invasive and nearly 100% sensitive in demonstrating filling defects in the

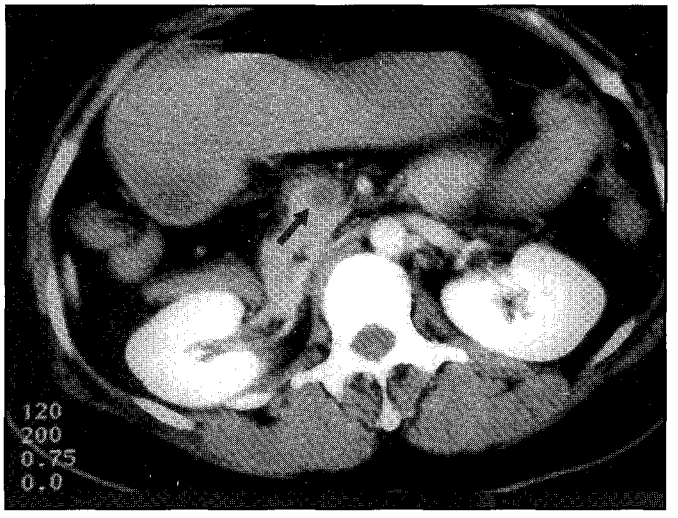

Fig. 1: Contrast enhanced spiral CT section at portal-venous phase at the region of head of pancreas showing filling defects (arrow) in superior mesenteric vein indicating thrombosis.

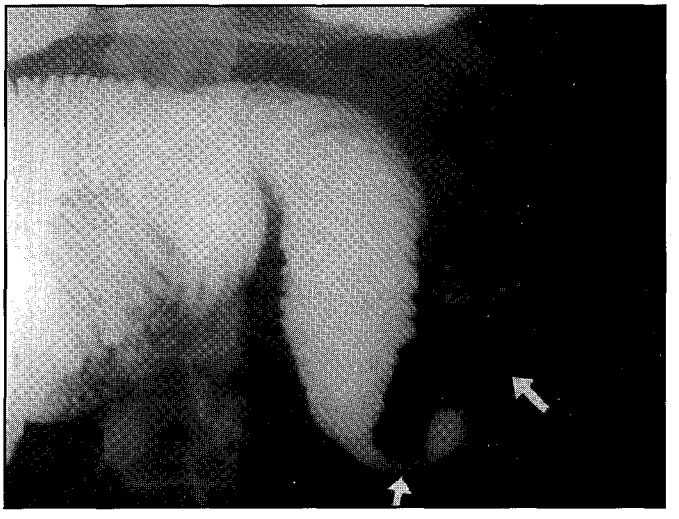

Fig. 2: Barium follow-through study showing a tight moderately long stricture (arrows) at jejunum with proximal dilatation.

SMV[3]. Besides that, CT also allows assessment of the bowel for oedema, ischemia and infarction. Magnetic Resonance Imaging (MRI) is equally sensitive in diagnosing SMV thrombosis. However it is not yet freely available and the long examination time makes it less favourable in critically ill patients. Colour Doppler ultrasound is another non-invasive way of diagnosing SMV thrombosis. However it is operator dependent and unlike CECT, it does not provide much information about the bowel.

The management of patients with acute SMV thrombosis should focus on close observation for signs of peritonitis or intestinal infarction, whereby immediate laparotomy with resection of infarcted bowel is indicated. Administration of heparin and later long term warfarin is beneficial in reducing recurrence and mortality. Evaluation of underlying associated factors such as discontinuation of oral contraceptive pills is indicated. Supportive therapy with total parenteral nutrition is important in patients with SMV thrombosis, as absorption is impaired due to bowel wall oedema/ischemia.

Small bowel stricture complicating SMV thrombosis is extremely rare. A 2 stage clinical course of acute abdominal pain, followed by intestinal obstruction, corresponding to the sequence of thrombosis and stricture was observed in our patient. The presence of intestinal stricture invariably required surgical resection.

In conclusion, SMV thrombosis remains an elusive disease with a high mortality. Clinicians should consider the possibility of acute SMV thrombosis in a patient with abdominal pain out of proportion to the physical findings and with a negative workup for the common causes of abdominal pain.

Acknowledgements

The authors would like to thank Dato' Dr. Tan Chong Siang, Medical Superintendent of Hospital Lam Wah Ee, Pulau Pinang for his kind permission to publish this article.

References

1. Rhee RY, Gloviczki P. Mesenteric venous thrombosis. Surg Clin North Am 1997; 77(2): 327-38.
2. Eugene C, Valla D, Wesenfelder L et al. Small intestinal stricture complicating superior mesenteric vein thrombosis. A study of three cases. Gut 1995; 37(2): 292-5.
3. Rhee RY, Gloviczki P, Mendonca CT et al. Mesenteric venous thrombosis: still a lethal disease in the 1990s. J Vasc Surg 1994; 20(5): 688-97.