

# Radiology for the surgeon

## Soft-tissue case 57

### Presentation

A 43-year-old woman presented with a 5-day history of abdominal pain, fever and vomiting. There was no diarrhea, constipation or abdominal distension. She had undergone laparoscopic appendectomy 2 weeks before the onset of these symptoms. On examination, there was nonspecific abdominal tenderness. Bowel sounds were normal. The patient underwent plain abdominal radiography and contrast-enhanced CT of the abdomen. The representative images (Fig. 1, Fig. 2) are shown.

What is your diagnosis?

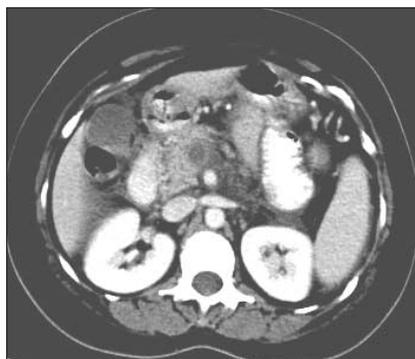


FIG. 1. Axial contrast-enhanced CT image below the level of the pancreas.

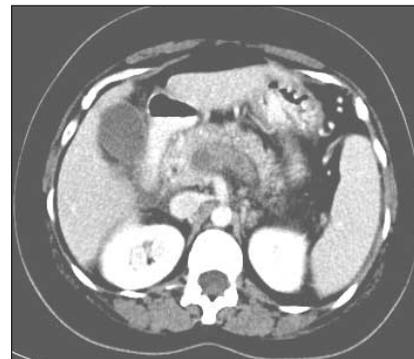


FIG. 2. Axial contrast-enhanced CT image at the level of the pancreas.

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## Diagnosis

### Superior mesenteric vein thrombosis

Axial contrast-enhanced CT images show a hypodense thrombus within the superior mesenteric vein (SMV) (Fig. 3, arrow) and the portal vein (Fig. 4, arrow). No abnormality was detected in the right iliac fossa. There was no evidence of air in, or adjacent to, the thrombus and no evidence of liver abscess. Thrombosis of the SMV and the portal vein following appendicitis and appendectomy was diagnosed. The patient received anticoagulant therapy, initially with heparin and subsequently warfarin. The findings on thrombotic work-up were negative.

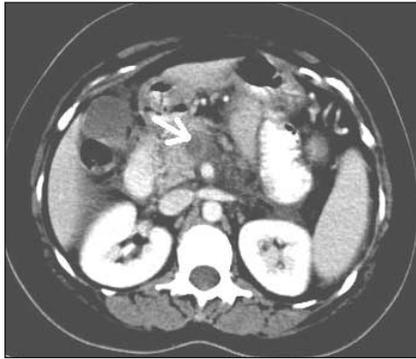


FIG. 3. A hypodense thrombus is seen within the superior mesenteric vein (arrow) on axial contrast-enhanced CT.

SMV thrombosis is a rare entity. It is a complication of appendicitis, and can follow appendectomy. Multiple factors may influence the development of SMV thrombosis after appendectomy, including hypercoagulation disorders, platelet abnormalities, rheologic changes and abnormalities of the splanchnic vessels.<sup>1</sup> The complication is more frequent if the surgery is performed under difficult conditions (peritonitis) or when the patient presents with coagulopathy.<sup>2</sup> Extension of the thrombus to the portal vein is associated with a higher risk of bowel ischemia.

The diagnosis of SMV thrombosis after appendectomy is usually not suspected clinically because the symptoms and the signs are nonspecific.<sup>3</sup> CT has proven effective in the diagnosis and evaluation of SMV and portal vein

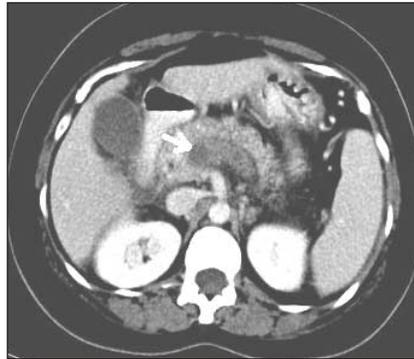


FIG. 4. A hypodense thrombus is seen within the portal vein (arrow) on axial contrast-enhanced CT.

thrombosis.<sup>4</sup> With contrast-enhanced CT, SMV thrombosis is characterized by a decreased intraluminal density, occasionally combined with a ring enhancement of the vein, because of opacification of the vasa vasorum.<sup>1</sup> These patients are treated with early anticoagulation. The mortality and morbidity associated with SMV thrombosis are high. Thrombolysis has recently been reported as an alternative therapy.<sup>5</sup>

Competing interests: None declared.

### References

1. Parvey HR, Raval B, Sandler CM. Portal vein thrombosis: imaging findings. *AJR Am J Roentgenol* 1994;162:77-81.
2. Schmutz GR, Benko A, Billiard JS, Fournier L, Peron JM, Fisch-Ponsot C. Computed tomography of superior mesenteric vein thrombosis following appendectomy. *Abdom Imaging* 1998;23:563-7.
3. Grendell JH, Ockner RK. Mesenteric venous thrombosis. *Gastroenterology* 1982;82:358-72.
4. Franquet T, Bescos JM, Reparz B. Noninvasive methods in the diagnosis of isolated superior mesenteric vein thrombosis; US and CT. *Gastrointest Radiol* 1989;14:321-5.
5. Warshauer DM, Lee JK, Mauro MA, White GC 2nd. Superior mesenteric vein thrombosis with radiologically occult cause: a retrospective study of 43 cases. *AJR Am J Roentgenol* 2001;177:837-41.