

SMA embolism

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Section: Abdominal imaging

Area of Interest: Abdomen

Procedure: Diagnostic procedure

Imaging Technique: CT

Special Focus: Embolism / Thrombosis Case Type:

Clinical Cases

Authors: Malamouli I., Pappas E., Adoniou A., Krikis P.

Patient: 80 years, female

Clinical History:

An 80 years old male, with a history of atrial fibrillation, was admitted with upper quadrant abdominal pain and diarrhoea for more than 24h. His laboratory tests showed high white cell count(18000), amylase 140, lipase 99, glu 411, WBC 4, 42. Acute pancreatitis was suspected at first.

Imaging Findings:

Abdominal U/S had no signs of pancreatic disease. A CT scan was performed. There was marked thickening of small intestine wall(10mm)[fig.1] with intramural air bubbles in small intestine and transverse colon[fig.2], free air in intrahepatic portal vein branches and SMV[fig.3], thickening of large intestine wall(5mm), a small amount of free air in peritoneal cavity[fig.5] and SMA thrombosis[fig.4]

Discussion:

Acute occlusion of SMA typically affects elderly patients. Risk factors include atherosclerosis, valvular/cardiac abnormalities (congestive heart failure, atrial fibrillation, ventricular aneurysm), intra-abdominal malignancy[1, 2, 3]. Thrombus may be located at the origin(15%) or just distal(50%) to the origin of middle colic artery[5]. SMA thrombosis can be life threatening because sma supplies the majority of small bowel and right side of colon. Clinical presentation is variable and often non specific, CT is the most appropriate examination due to its speed, widespread availability and ability to diagnose other abdominal pathology. CT scan findings with a specificity greater than 95% include SMA thrombosis, increased thickness of bowel wall and lack of bowel wall enhancement, ischemia of other organs[4]. Breakdown of the mucosal barrier results in intestinal pneumatosis and formation of porto-mesenteric venous gas, which is the least common but most specific finding of acute ischemia. Transudation into the mesentery of the peritoneal cavity leads to mesenteric stranding or even ascites[6]. Once a diagnosis of acute mesenteric thrombosis is made, the patient should undergo surgery because of the risk of bowel infarction, perforation, peritonitis.

Differential Diagnosis List: Superior mesenteric artery thrombosis, colitis, peritonitis

Final Diagnosis: Superior mesenteric artery thrombosis

References:

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Wiesner W, Khurana B, Ji H, Ros PR. CT of acute bowel ischemia. Source Department of Radiology, Brigham and Women's Hospital, Harvard Medical School, 75 Francis St, Boston, MA 02115, USA Radiology. 2003 Mar;226(3):635-50 (PMID: [12601205](#))

Figure 1

a



Description: air in intrahepatic portal vein branches **Origin:** Malamouli,CT dep,GH of Volos

b



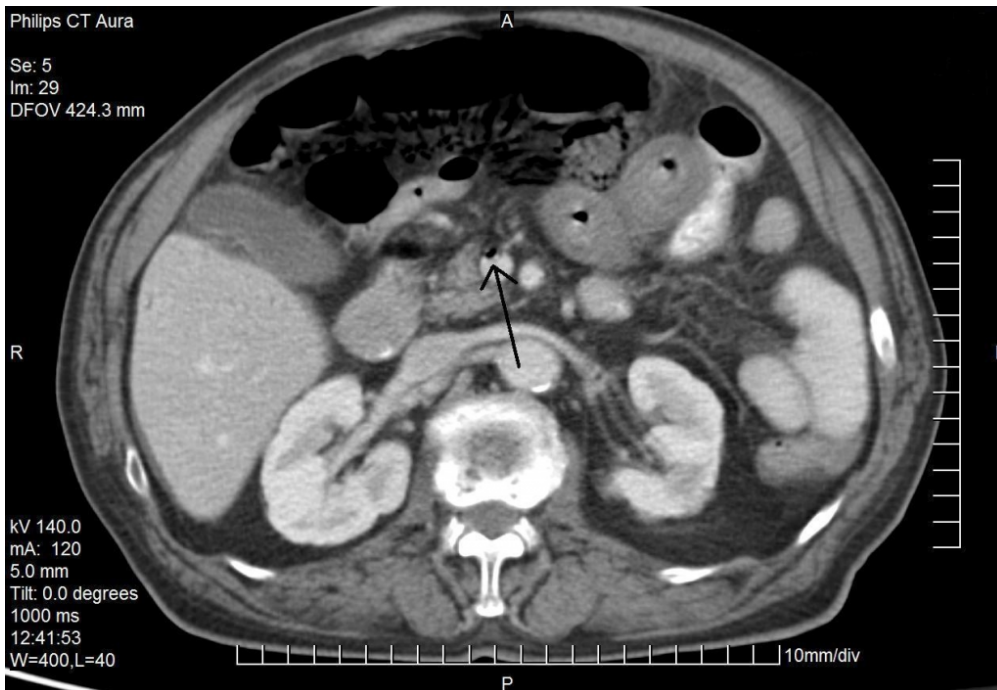
Description: air in intrahepatic portal vein branches **Origin:** Malamouli,CT dep,GH of Volos

c



Description: air in intrahepatic portal vein branches **Origin:** Malamouli,CT dep,GH of Volos

d



Description: Free air in superior mesenteric vein **Origin:** Malamouli,CT dep,GH of Volos

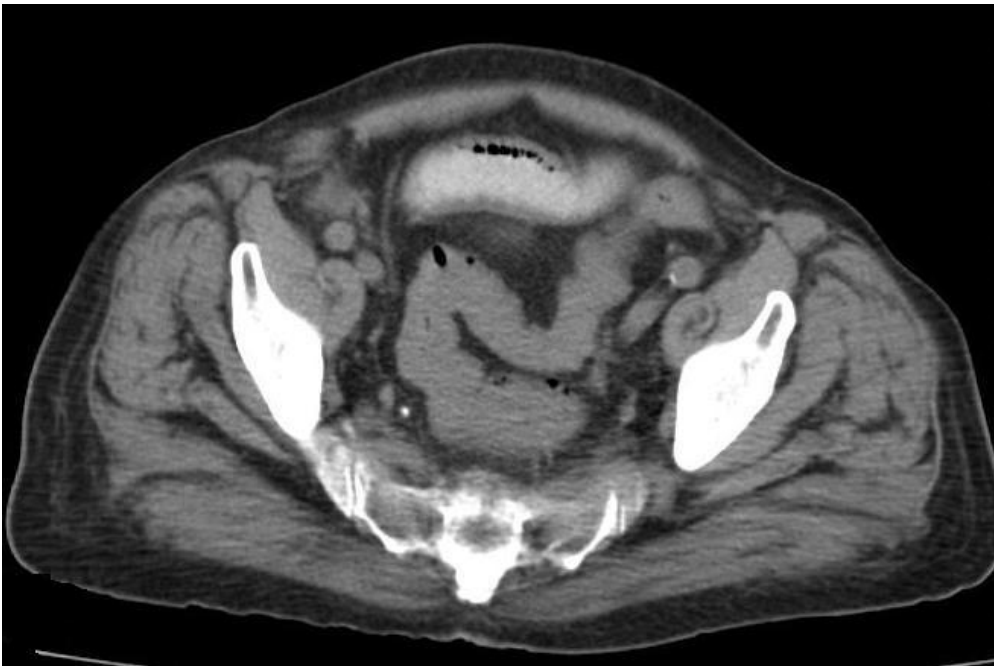
Figure 2

a



Description: intramural air bubbles in small intestine loops **Origin:** Malamouli,CT dep,GH of Volos

b



Description: intramural air bubbles in small intestine loops **Origin:** Malamouli,CT dep,GH of Volos

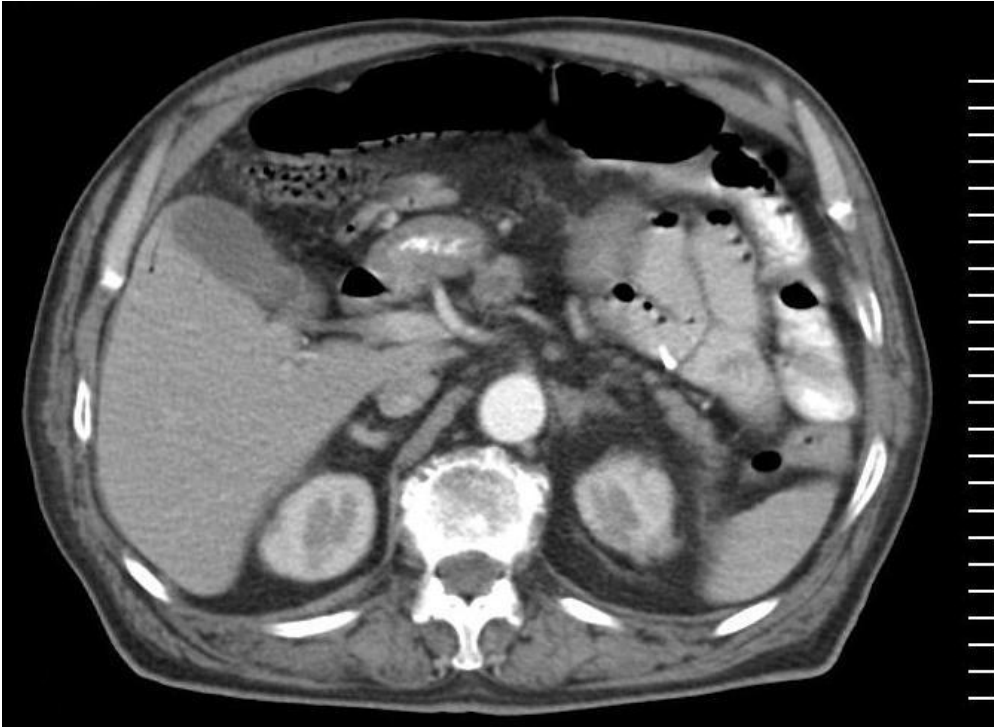
c



Description: intramural air bubbles in large intestine-ascending colon **Origin:** Malamouli,CT dep,GH of Volos

Figure 3

a

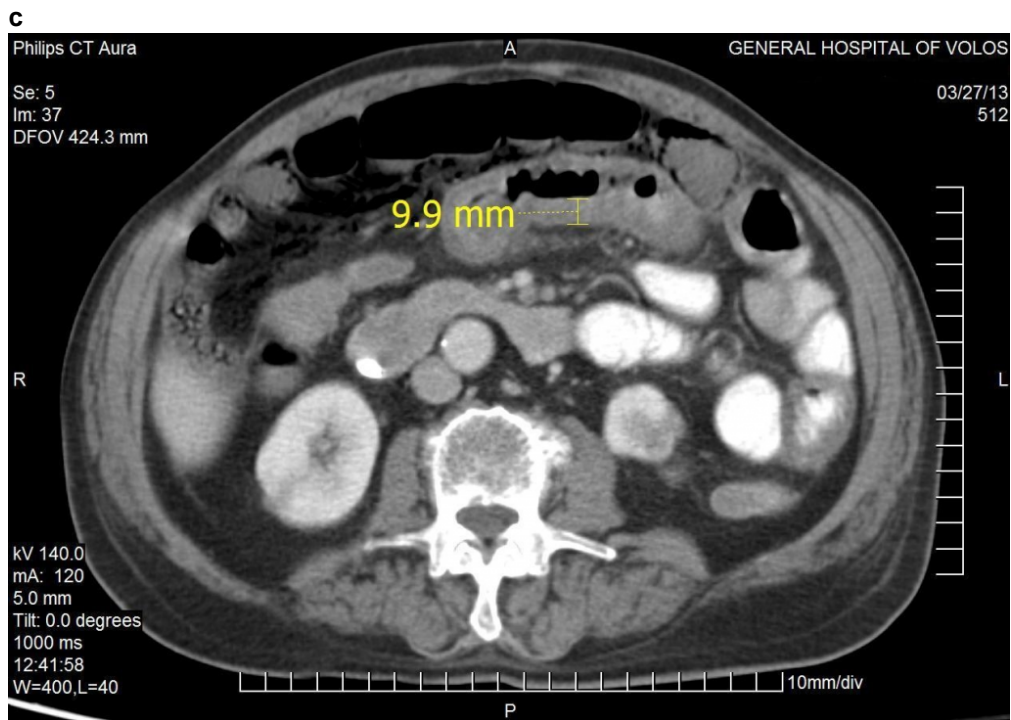


Description: concentric wall thickening of small intestine **Origin:** Malamouli,CT dep,GH of Volos

b



Description: concentric wall thickening of small intestine **Origin:** Malamouli,CT dep,GH of Volos



Description: concentric wall thickening of small intestine **Origin:** MAMMOULI, CT DEP, GH OF VOLOS

Figure 4

a



Description: normally opacified origin of superior mesenteric artery **Origin:** Malamouli, CT dep, GH of Volos

b



Description: opacified sma **Origin:** Malamouli, CT dep, GH of Volos

c



Description: partially obstructed sma **Origin:** Malamouli, CT dep, GH of Volos

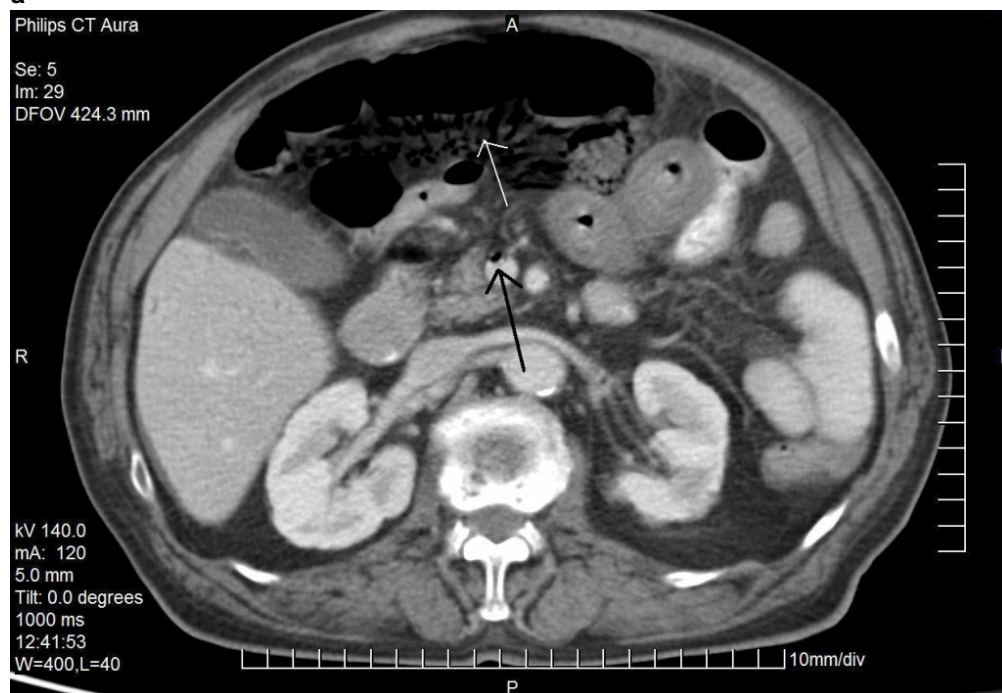
d



Description: thrombus and complete obstruction of sma 7cm below its origin **Origin:** Malamouli,CT dep,GH of Volos

Figure 5

a

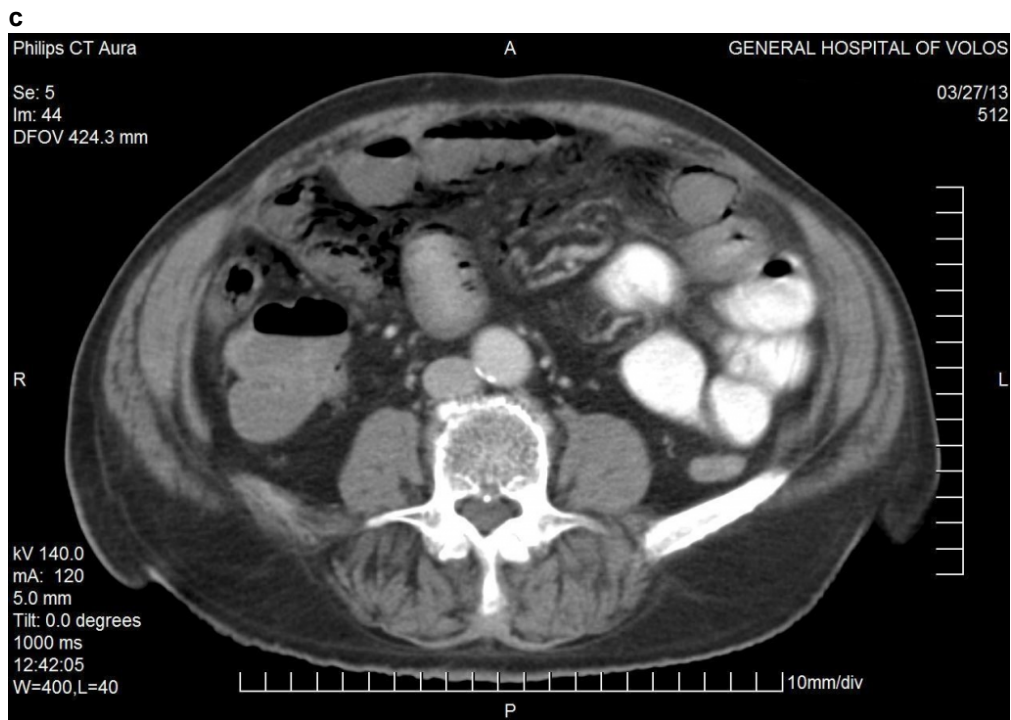


Description: free intraperitoneal air(white arrow).We can also see air in the SMV(black arrow) **Origin:** Malamouli,CT dep,GH of Volos

b



Description: free intraperitoneal air **Origin:** Malamouli,CT dep,GH of Volos



Description: free intraperitoneal air **Origin:** Malamouli,CT dep,GH of Volos