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## Case Report

## Acute mesenteric ischemia: A case report ☆

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## ABSTRACT

Acute mesenteric ischemia is a rare life-threatening diagnostic and therapeutic emergency. Lack of clinical and biological specificity makes the diagnosis difficult. Imaging, particularly computed tomography can help confirm the diagnosis. An underlying cause is identified in about 30%-70% of cases and should always be sought. We report a case of a 51-year-old man with chronic alcoholic liver disease admitted to the emergency department for abdominal pain. Computed tomography showed mesenteric venous thrombosis with signs of small bowel ischemia and cirrhosis with portal hypertension. Through this observation, we describe the imaging aspects of mesenteric ischemia and emphasize the necessity of seeking underlying pathological condition.

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## Introduction

Acute mesenteric ischemia is a vascular emergency with overall mortality of 50%-90%. It leads to intestinal ischemia in approximately 20% of cases [1]. Diagnosis of AMI is difficult due to lack of clinical and biological specificity and imaging plays a key role. An underlying cause should always be sought. A local underlying cause is identified in about 30% of cases and a general underlying cause in 70% of cases. Cancer and locoregional inflammation (pancreatitis, cholangitis, sigmoiditis, cholecystitis) represent the main underlying causes [2]. We report a

case of AMI by mesenteric venous thrombosis in the setting of cirrhosis.

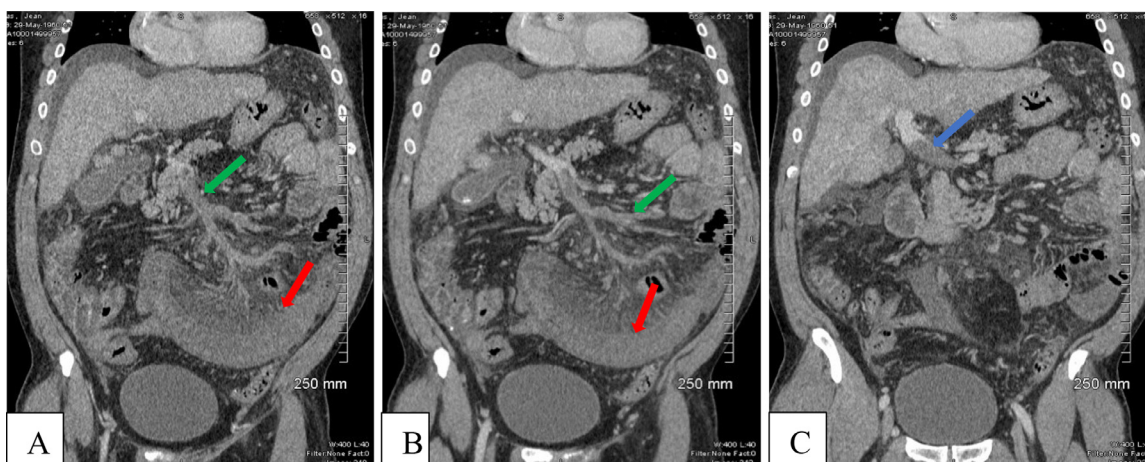
## Observation

It was a 51-year-old man, with cirrhosis and portal hypertension due to chronic alcoholic liver disease. He was admitted to the emergency department for diffused abdominal pain evolving for 3 hours. He also reported mild epigastric pain for 2 days. The following vital signs were found: temperature 98.4°F,

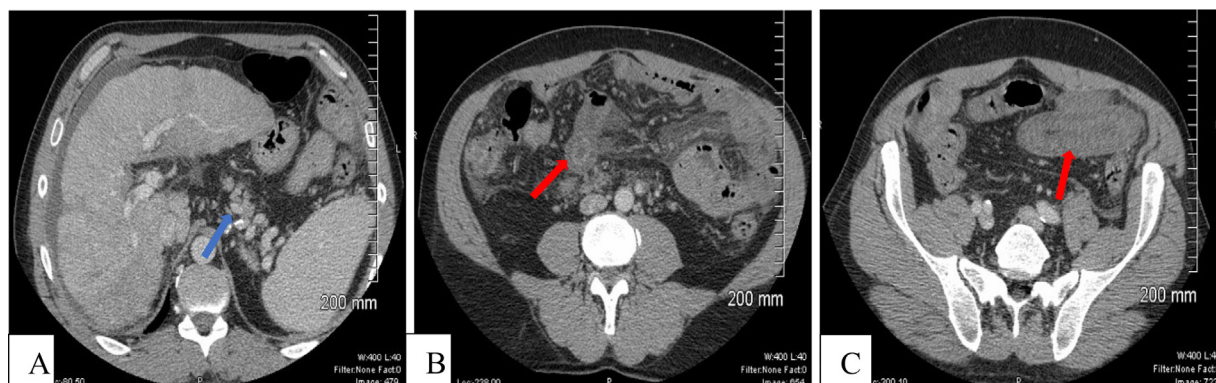
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**Fig. 1** – Coronal reconstruction of enhanced abdominal CT in portal phase, showing complete thrombosis of the superior mesenteric vein (green arrows), partial thrombosis of the portal vein (blue arrow) and ileal wall thickening (with submucosa edema) associated with mesenteric fat stranding (red arrows).



**Fig. 2** – Axial sections of enhanced abdominal CT (venous portal phase) showing a dysmorphic liver, portosystemic collaterals (blue arrow) and segmental ileal wall thickening with edema of the submucosa (red arrows).

blood pressure 146/112 mmHg; pulse 116 beats/min; respiratory rate, 22 breaths/min. Physical examination showed abdominal distension without palpable mass. Computed tomography showed a segmental wall thickening of the ileum associated with mesenteric fat stranding (Fig. 1). There was also a complete thrombosis of the superior mesenteric vein and partial thrombosis of the portal vein (Fig. 1). The diagnosis of mesenteric venous thrombosis with signs of ischemic small bowel was retained. There were also signs of cirrhosis with a dysmorphic liver, signs of portal hypertension (systemic portal collaterals) and ascites (Fig. 2). The patient shows good response with anticoagulation and was discharged 2 weeks later.

## Discussion

Acute mesenteric ischemia is the consequence of insufficient splanchnic blood flow to meet the metabolic demand of the intestine. It is rare condition, representing about 1% of hospitalizations for acute abdomen [3]. AMI is a life-threatening

diagnostic and therapeutic emergency. The overall mortality can raise 50 to 90% of cases without early and appropriate treatment [4–6].

The origin of mesenteric ischemia can be arterial or venous. Ischemia by mesenteric venous thrombosis (MVT) and mechanical occlusion is less common (5%-10%) than arterial origin by occlusion (60%-70%) or low blood flow (20%-30%). These 2 origins are also opposed by their physiopathology, their radiological semiology, their treatment, and their prognosis [2].

The splanchnic circulation represents approximately 25% of the resting and 35% of the postprandial cardiac output and its regulation is very complex [7]. AMI occurs when there is a significant drop or interruption of intestinal blood flow. It can lead to intestinal infarction, multiple organ failure syndrome and death [8].

Many of the signs and symptoms associated with AMI are common to other abdominal pathologic conditions, such as pancreatitis, acute diverticulitis, small-bowel obstruction, and acute cholecystitis. Acute abdominal pain is constant and may be associated with vomiting, diarrhea, gastrointestinal

bleeding, and contrasts with abdominal palpation which may be falsely reassuring [9–11].

There is also no specific diagnostic biomarker for AMI. This lack of clinical and biological specificity makes the diagnosis of AMI difficult [12]. Thus, the search and recognition of radiological signs of this pathology are essential and systematic in the face of any acute abdominal emergency.

Dynamic contrast-enhanced CT with high sensitivity (90%) is the investigation of choice in suspected cases of MVT and should be performed as soon as possible after the onset of symptoms. Computed tomography is more sensitive in diagnosing venous thrombus than other types of AMI [13]. Most common CT signs of acute intestinal ischemia include modification of the thickness and enhancement abnormalities of the intestinal wall (thickened bowel walls, intramural hematoma), dilated fluid-filled bowel loops, parietal pneumatosis, mesenteric or portal venous gas, infarction of other viscera, intraperitoneal effusion and arterial or venous thrombus [13,14].

In addition to showing vascular insufficiency and intestinal ischemic lesions, CT can help rule out differential diagnoses and search for etiological factors.

Acute mesenteric ischemia due to mesenteric vein thrombosis is generally less severe and better prognosis than arterial ischemia because it is most often reversible with anticoagulant treatment [15], as this observation shows.

In more than 70% of cases, there are constitutional or acquired coagulation abnormalities which, associated with local factors (local inflammation, digestive cancer, portal hypertension, pregnancy, abdominal surgery) favor the occurrence of venous thrombosis [16]. We had found signs of portal hypertension but no biological argument for coagulopathy.

## Conclusion

Acute mesenteric ischemia is a life-threatening vascular emergency which require aggressive and early treatment. Imaging is essential for the positive diagnosis and the search for underlying cause. CT scan must be quickly performed when AMI is suspected. It can help rule out differential diagnoses and search for etiological factors. Venous mesenteric ischemia seems to have a better prognosis than arterial origin.

## Patient consent

The patient has signed a free and informed consent to the anonymous publication of the material contained in this article.

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