



Case Report

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Acute Mesenteric Ischemia, a Troublesome Diagnosis

Blanca Prieto García*, Piedad Arias Rodríguez, Fátima Cano Mateos, José Francisco Asensio Calle and Sonia Yáñez Castaño

Servicio de Radiodiagnóstico, Complejo Asistencial Universitario de Salamanca, Spain



Abstract

Acute mesenteric ischemia (AMI) is an infrequent cause of acute hospital admission with a reported mortality rate of 50-90% that requires early diagnosis and treatment. If untreated, AMI can cause mesenteric infarction, intestinal necrosis and death. Early intervention can reverse this process leading to a full recovery, but the diagnosis is often difficult to establish.

Acute mesenteric ischemia can be caused by various conditions such as arterial occlusion, venous occlusion, strangulating obstruction, and hypoperfusion associated with nonocclusive vascular disease. In addition, imaging findings vary depending on the cause and underlying pathophysiology.

We report a case of patient who presented an acute mesenteric ischemia secondary to a small bowel strangulation caused by bridle.

Introduction

Acute mesenteric ischemia is a rare life-threatening condition that can be related to various causes such as arterial occlusion, venous occlusion, strangulating obstruction or hypoperfusion associated with nonocclusive vascular disease [1].

This pathology has a reported mortality rate of 50-90% and imaging findings vary widely depending on the cause and underlying pathophysiology [1]. This high mortality rate associated with AMI is largely due to the difficulty of early detection and the subsequent delays in appropriate management [2].

Acute mesenteric ischemia refers to an insufficient blood flow within the mesenteric circulation and it is a potentially catastrophic entity that may require emergent intervention in the acute setting [3]. Because neither the symptoms nor laboratory tests are specific, imaging studies play an important role in the diagnosis of mesenteric ischemia [2].

We report a case of young female patient who presented an acute mesenteric ischemia secondary to adhesive small bowel strangulation.

Case Presentation

A 37-year-old woman with a history of caesarean section was referred to the emergency department of our hospital with complaints of sudden onset abdominal pain located in the hypogastrum without response to analgesic treatment. No nausea or vomiting were referred.

Except for minor alterations in the analysis (hematology and biochemistry), no other abnormalities could be found.

Given the absent response to analgesics, an urgent abdominal CT scan was requested. This study showed up a marked decrease enhancement of small bowel wall (mainly ileum) and a moderate amount of intraperitoneal fluid. No filling defects were identified neither in aorta or its main branches. These findings suggested an inflammatory-infectious gastrointestinal process without being able to rule out the possibility of an ischemic process. The patient was admitted to the Digestive Service (Figure 1).

The patient's clinical deterioration continued despite treatment, showing an increased abdominal pain and laboratory abnormalities (leukocytosis and increased lactate) and a second abdominal CT scan was requested 24 hours later. CT findings revealed greater gastrointestinal involvement than in the previous study (Figure 2 and Figure 3); these findings suggested an acute mesenteric ischemia.

Given the imaging findings, the patient underwent an exploratory laparotomy that demonstrated the existence of transmural ischemia in the small intestine (from jejunum to terminal ileum) secondary to adhesion in the left iliac fossa

***Corresponding author:** Blanca Prieto García, Servicio de Radiodiagnóstico, Complejo Asistencial Universitario de Salamanca, Spain

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Figure 1: Abdominal CT scan with contrast medium administration (coronal and axial planes). Small bowel loops involvement (ileum) with a marked decrease enhancement of small bowel wall and intraperitoneal fluid. No signs of pneumoperitoneum or defined collections were detected.

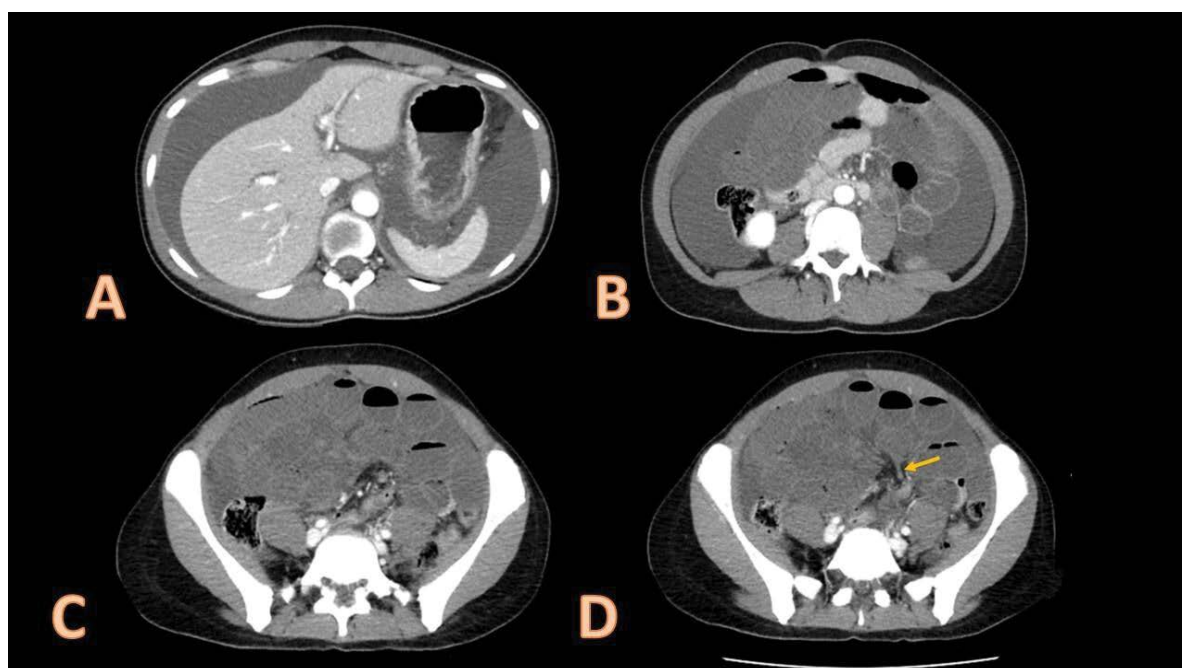


Figure 2: Abdominal CT scan with contrast medium administration (axial plane). Small bowel loop involvement (distal jejunum and proximal ileum) with submucosal edema and absence of enhancement after contrast. In addition, a change in caliber in the loop of the ileum located in the hypogastrium is identified (arrow). A significant increase in free intraperitoneal fluid with marked ascites is also observed. No signs of pneumoperitoneum or defined collections were detected.

(probably related to her previous history of cesarean section mentioned above).

Discussion

Acute mesenteric ischemia is an uncommon life-threaten-

ing condition that can be caused by various conditions such as arterial occlusion, venous occlusion, strangulating obstruction or hypoperfusion associated with nonocclusive vascular disease [1].

This pathology has a reported mortality rate between 50%

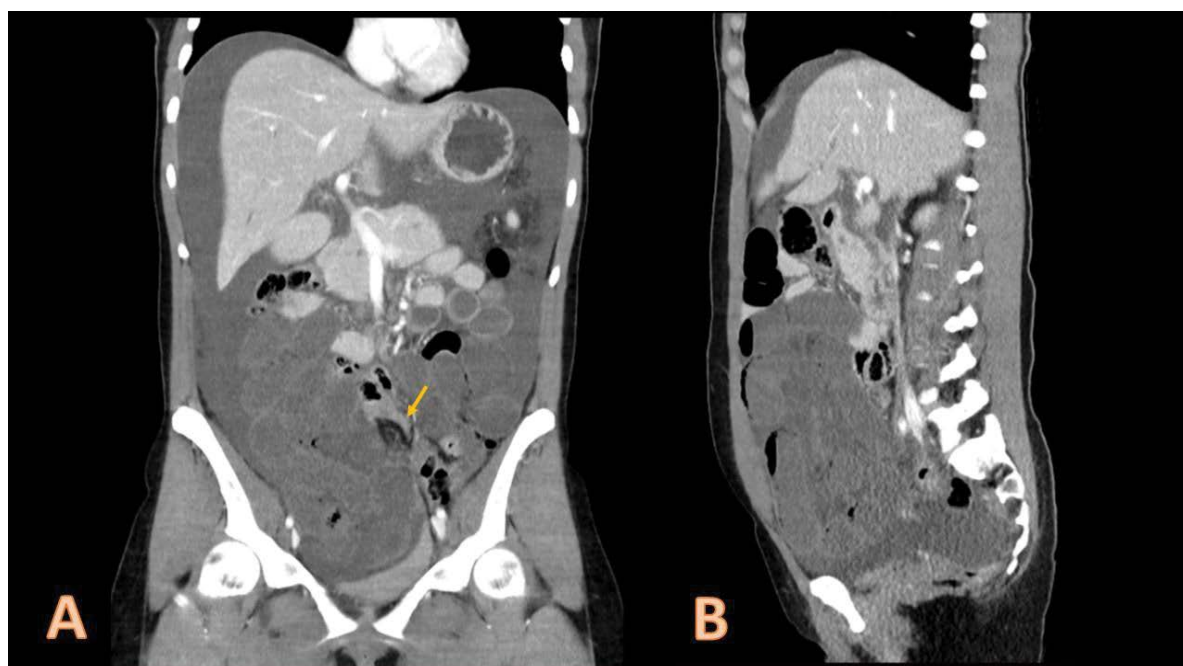


Figure 3: Abdominal CT scan with contrast medium administration (coronal and sagittal planes). Small bowel loops involvement (distal jejunum and proximal ileum) with submucosal edema and absence of enhancement after contrast. In addition, a change in caliber in the loop of the ileum located in the hypogastrium is identified (arrow). A significant increase in free intraperitoneal fluid with marked ascites was also observed. No signs of pneumoperitoneum or defined collections were detected.

and 90% and the CT findings vary widely depending on the cause and underlying pathophysiology [1]. Frequently, symptoms are nonspecific and most common clinical manifestations are vague and include nausea and vomiting, bloating and diarrhea [4]. The classic presentation of patients with embolic disease is of sudden catastrophic abdominal pain out of proportion to physical examination findings [5]. Despite the growing interest paid to the problem, early detection of intestinal ischemia is still difficult with the subsequent delays in appropriate management. Therefore, high mortality rate associated with AMI is due to the difficulty of early detection [2].

Acute mesenteric ischemia refers to a drastic reduction in blood supply to the mesenteric region [6] and it is a potentially catastrophic entity that may require emergent intervention in the acute setting [3]. Because neither the symptoms nor laboratory tests are specific, imaging studies play an important role in the diagnosis of mesenteric ischemia [2].

The various CT findings in AMI can be nonspecific or specific for the diagnosis of AMI and its causes, and they may be indicative of disease severity [2]. Bowel obstruction resulting in ischemia is termed “strangulation” and this phenomenon occurs most frequently with closed-loop obstruction [4] although it can be seen in other type of obstructions. Most frequent CT findings in AMI secondary to small bowel strangulation include bowel wall thickening, low or high attenuation of bowel wall on unenhanced CT (secondary to intramural edema or hemorrhage respectively), decreased or absent bowel wall enhancement on enhanced CT or target appearance of bowel wall, the small-bowel feces sign, prominent bowel dilatation, venous engorgement of mesenteric vessels without

identifying filling defects, diffuse mesenteric edema and ascites.

Our patient presented slight dilatation of small bowel with bowel wall thickening and absence of wall enhancement after contrast medium administration. The patient also presented an increase in the ascites in comparison with previous CT study. No filling defects were detected neither on arterial or venous vessels.

Management of mesenteric ischemia depends on the nature, acuity and severity of disease and it includes various options such as resection of nonviable bowel, restoration of blood flow to the ischemic intestine and supportive care [7].

As we mentioned above, in our case the patient underwent an exploratory laparotomy and a resection of the nonviable small intestine segment (approximately 140 cm) was performed. Due to the favorable evolution of the patient with good analgesic control and clinical-analytical improvement, the patient was discharged 5 days after surgery.

An accurate and early diagnosis is essential for the appropriate and successful treatment of patients with acute mesenteric ischemia to improve their prognoses. Despite growing interest in the problem, early detection of intestinal ischemia remains difficult with the consequent delays in appropriate treatment. In addition, we must bear in mind that neither the symptoms nor the laboratory tests are specific, so imaging studies play an important role in the diagnosis of mesenteric ischemia.

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