

Segmental Mesenteric Thrombosis as the Initial Manifestation of Primary Thrombophilia: Clinical Case

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ABSTRACT

Introduction: Acute mesenteric ischemia is caused by interruption of the blood supply to the intestine, leading to cell damage, intestinal necrosis, and often death of the patient if untreated. AMI can be occlusive or non-occlusive, with primary etiology defined as mesenteric arterial embolism (50%), mesenteric arterial thrombosis (15-25%) or venous thrombosis (5-15%). **Clinical case:** A 54-year-old male presented to the emergency room with abdominal pain, vomiting, and hypotension. Important history: Systemic arterial hypertension 2 years after diagnosis, without pharmacological treatment, without other important history upon admission. His Current Condition begins: 24 hours prior to admission, with diffuse abdominal pain, of moderate intensity that partially subsides to the administration of NSAIDs, subsequently he presents fever and general malaise, vomiting of gastro-alimentary content is added and he goes to a rural clinic where he is evaluated and referred to a second level hospital. Exploratory Laparotomy reported the following findings: necrotic area of 5 cm that covers the entire

circumference located at 20 cm from the Angle of Treitz, Total necrosis of the small intestine that involves approximately 70 cm located at 40 cm of the ileocecal valve. Generalized Peritonitis; Resection and manual anastomosis were performed in two planes, resection of 70 cm of terminal ileum, closure of the ileal stump and terminal ileostomy. He had an adequate post-surgical evolution and was discharged due to improvement. **Discussion:** Surgical intervention aims to evaluate and remove any unsalvageable intestine, prevent further intestinal infarctions with urgent revascularization, and preserve the small intestine. This often involves a midline laparotomy, which allows direct visualization of the intestine to evaluate blood flow through the mesenteric vessels, observe abnormalities of color or appearance of the intestinal serosa, and monitor peristalsis. Additional techniques such as intravenous fluorescein, Doppler, or intraoperative laser angiography may also be used. used to evaluate perfusion.

Keywords: Mesenteric ischemia, Bowel ischemia, Primary thrombophilia.

INTRODUCTION

Acute mesenteric ischemia (AMI) is caused by interruption of the blood supply to the intestine, leading to cell damage, intestinal necrosis, and often death of the patient if untreated. AMI can be occlusive or non-occlusive, with primary etiology defined as mesenteric arterial embolism (50%), mesenteric arterial thrombosis (15-25%) or venous thrombosis (5-15%). The overall incidence is low (0.09-0.2% of all acute admissions to the emergency department, representing a rare cause of abdominal pain, but a common cause of intestinal resection. Timely diagnosis and intervention are essential to reduce mortality rates that exceed 50% [1].

On the other hand, mesenteric vein thrombosis (MVT) is a rare and insidious disease with a high mortality rate, estimated to occur between 5 and 15% of patients with acute mesenteric ischemia. Its diagnosis is often delayed due to its nonspecific abdominal symptoms, low incidence and low awareness among emergency department physicians. However, recent improvements and widespread use of diagnostic imaging have facilitated early recognition of this disease. Before laparotomy, leading to a dramatic change in your initial treatment. MVT can be idiopathic or caused by conditions responsible for thrombophilia and acquired risk, as was our case [2].

CLINICAL CASE

A 54-year-old male presented to the emergency room with abdominal pain, vomiting, and hypotension.

Important history: Systemic arterial hypertension two years after diagnosis, without pharmacological treatment, without other important history upon admission.

His current condition begins: 24 hours prior to admission, with diffuse abdominal pain, of moderate intensity that partially subsides to the administration of NSAIDs, subsequently he presents fever and general malaise, vomiting of gastro-alimentary content is added and he goes to a rural clinic where he is evaluated and referred to a second level hospital.

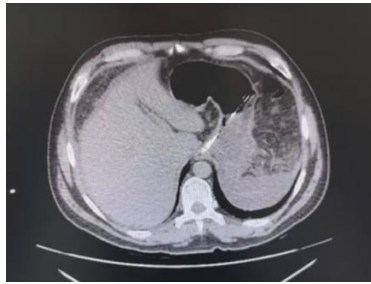


Figure 1: Free perihepatic fluid is observed.

Upon arrival at the emergency room, he had a blood pressure of 80/40 mmHg, significant abdominal distension, which was accompanied by pain and voluntary muscle resistance. Simple Abdominal Tomography was performed, which reported: "Free fluid in the abdominal cavity, distention of small intestine loops and probable internal hernia.



Figure 2: Striation of the mesenteric fat is observed at the level of the terminal ileum.

Exploratory Laparotomy was performed, which reported the following findings: Necrotic area of 5 cm that covers the entire circumference located at 20 cm from the Angle of Treitz, Total necrosis of the small intestine that involves approximately 70 cm located at 40 cm of the ileocecal valve. Generalized Peritonitis; Resection and manual anastomosis were performed in two planes, the first with Connell-Mayo stitches and the second with Lemberg invaginating stitches in the necrotic area in the jejunum, resection of 70 cm of terminal ileum, closure of the ileal stump and terminal ileostomy. He had an adequate post-surgical evolution and was discharged due to improvement.



Figure 3: A segment of resected terminal ileum with necrotic areas is observed.

During the post-surgical follow-up via outpatient consultation, a histopathological report of the surgical specimen was collected, which reported Segmental Mesenteric Thrombosis. He was evaluated by Internal Medicine, who initiated the study protocol and diagnosed Primary

Thrombophilia due to protein C bp deficiency antiphospholipid syndrome and referred him to Hematology who indicated pharmacological thromboprophylactic treatment.

As an eventuality, during his outpatient follow-up, he presented an episode of Gastroenteritis with Dehydration that caused Acute Renal Injury of a prerenal type due to the high output from the ileostomy. A presurgical protocol was completed via outpatient consultation and he was scheduled for Mechanical Lateral Anastomosis, which was performed without complications one year after the first surgery.



Figure 4: The proximal end and distal end of the terminal ileum are observed where the resection was performed in the previous procedure.

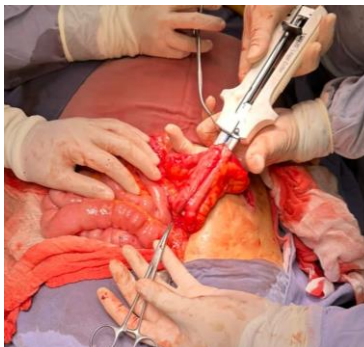


Figure 5: Mechanical latero-lateral anastomosis of the terminal ileum is performed.



Figure 6: Post-surgical follow-up 1 week after the procedure, tolerating oral administration, presenting transrectal evacuations, with wounds in the healing process.

Post-surgical follow-up 1 week after the procedure, tolerating oral administration, presenting transrectal evacuations, with wounds in the healing process.

DISCUSSION

Mesenteric vascular diseases include ischemic changes due to atherosclerotic processes and non-inflammatory processes, non-atherosclerotic arterial diseases due to fibromuscular dysplasia, and segmental arterial mediolysis. Although atherosclerotic diseases are common, FMD and SAM were originally diagnosed by histology after surgery or at autopsy. Recent advances in imaging modalities have led to increasing frequencies of diagnosis of FMD and SAM. Since these diseases can affect various organs and be fatal if not treated properly, it is important to make a proper diagnosis followed by treatment in the early phase [3].

CT angiography is the best diagnostic test for AMI (sensitivity 94%, specificity 95%). In the computed tomography we can observe absence of peristalsis, thickening and pneumatosis of the intestinal wall. Laparotomy is considered a gold standard, but it often arrives late. Laboratory parameters are nonspecific, but may indicate the development of acute abdominal pain that resolves surgically (leukocytosis, increased CRP, D-dimer, lactate). New serological biomarkers such as modified albumin ischemia (MAI), intestinal fatty acid binding protein (I-FABP), D lactate and L citrulline [4].

The therapeutic principle is the multidisciplinary cooperation of the general surgeon, radiologist, and intensivist and the management of aggressive rehydration (1-2 ml of ringer's lactate/kg/h), due to losses in the intestinal lumen and peritoneal cavity. Correction of metabolic acidosis and hypokalemia, placement of nasogastric tube, urinary tube; intravenous antibiotics and anticoagulants (heparin bolus) and finally surgical treatment. An alternative to the surgical approach before the appearance of irreversible changes are anticoagulants, thrombolytics and vasoactive drugs; timely anticoagulant treatment allows recanalization in 80% of cases [5].

Surgical intervention aims to evaluate and remove any unsalvageable intestine, prevent further intestinal infarctions with urgent revascularization, and preserve the small intestine. This often involves a midline laparotomy, which allows direct visualization of the intestine to evaluate blood flow through the mesenteric vessels, observe abnormalities of color or appearance of the intestinal serosa, and monitor peristalsis. Additional techniques such as intravenous fluorescein, Doppler, or intraoperative laser angiography may also be used. used to evaluate perfusion [6].

Visceral revascularization procedures, including embolectomy, thrombectomy, endarterectomy, or bypass, are typically performed in conjunction with bowel resection in acute occlusive mesenteric ischemia [7]. For embolic etiologies, a transverse arteriotomy followed by a standard embolectomy in the superior mesenteric artery is appropriate. Arterial thrombotic cases often require autologous venous bypass that may originate from the infrarenal or supraceliac aorta beyond the thrombus. Serial laparotomy is usually recommended within 24 h after initial surgery if intestinal viability is in question. Studies have shown that serial laparotomies offer better clinical outcomes even in non-critical patients [8]. Endovascular interventions have gained popularity in the treatment of acute diseases. Endovascular treatment options include percutaneous transluminal angioplasty and stenting,

aspiration embolectomy, catheter-directed thrombolysis, or a combination. Some studies have indicated that combining thrombectomy with aspiration stent versus either technique alone may lead to a higher clearance rate, less need for adjunctive thrombolysis, and shorter hospitalization [9]. Retrospective analyzes of patients undergoing endovascular recanalization have shown excellent technical success rates and low rates of post-procedure complications. These interventions have also demonstrated promising survival rates at three months, one year, and 3 years. A major drawback of endovascular interventions is that the intestine cannot be visually inspected and necrotic intestine cannot be resected. Subsequent open surgery may be required after an endovascular approach, i.e., exploratory laparotomy is required [10].

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