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# ACUTE MESENTERIC ISCHEMIA IN YOUNG ADULT - CASE REPORT

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**Abstract:** Acute mesenteric ischemia (AMI) can be defined as a syndromic condition of ischemic acute abdomen triggered by vascular insufficiency, leading to hypoxemia and malnutrition of gastrointestinal organs due to arterial obstruction. It is a rare surgical emergency, difficult to diagnose and has a mortality rate of 50 to 80% of cases.[1,4] **Clinical case:** Young, 32-year-old female patient admitted to the General Surgery service of the Federal Hospital of Andaraí, with pain and abdominal distension, evolving with rapid deterioration of the clinical picture, with metabolic acidosis and abdominal sepsis, with the hypothesis of mesenteric ischemia being suggested, confirmed during urgent exploratory laparotomy, with a favorable outcome after the procedure. The aim of this article is to report an atypical case of acute mesenteric ischemia, as well as to address the importance of rapid diagnosis and the need for an early surgical approach.
**Keywords**: Acute mesenteric ischemia, segmental enterectomy, ischemic acute abdomen.

## INTRODUCTION

Acute mesenteric ischemia (IMA) is a condition resulting from a sudden reduction in blood flow in the mesenteric vessels. Without adequate and timely treatment, necrosis of the small and large intestines occurs, leading to sepsis and potentially death. Due to the difficulty of diagnosis and rapid progression, the condition is fatal if not identified and treated early. Its diagnosis is challenging because the symptoms are nonspecific, as well as imaging tests can be. IMA mortality rates vary between 60% and 80%. IMA is classified as occlusive or non-occlusive mesenteric ischemia (IMANO). Occlusive mesenteric arterial ischemia (AMI) is subdivided into acute thromboembolism and acute thrombosis. [1,2,3].

## CASE REPORT

Patient M.E.M.A., female, 32 years old, with a history of miscarriage in 2019, previous episodes of migraine, in regular use of oral contraceptives; denies other comorbidities or previous surgeries. She was admitted to the General Surgery Service of the Federal Hospital of Andaraí in Rio de Janeiro on 01/15/2023 by the emergency room, complaining of rapidly evolving pain and abdominal distension, with moderate to severe intensity, in the mesogastric region, associated with nausea, vomiting, and low fever. Evolves with metabolic acidosis, worsening of the clinical status, progressing to abdominal sepsis, and an empirical antibiotic regimen with intravenous Ciprofloxacin and Metronidazole is started. Total abdominal tomography with venous contrast, which showed small ascites and distension with air-fluid levels of the proximal small bowel loops, with segmental parietal thickening in the mesogastrium and abrupt thinning of the caliber in the right flank with collapse of the ileal segments (Figure 1). Due to the clinical severity of the patient and the probable abdominal focus, an urgent surgical approach was indicated.

An exploratory laparotomy was performed, which showed a moderate amount of citrine-yellow free fluid; signs of ischemia and necrosis in the jejunal segment at 30cm from the Treitz angle up to 160cm (Figure 2). No adhesions, signs of ischemia in other organs, or other alterations were seen. We opted for segmental enterectomy of the proximal jejunum, and anisoperistaltic latero-lateral anastomosis of the remaining segment, using a linear stapler.

She was referred to the intensive care unit in a serious general condition, in the immediate postoperative period, with good evolution, being discharged after 8 days.

During hospitalization, an etiological investigation of the ischemic condition

was carried out, in an attempt to avoid new episodes that would subject the patient to another surgical approach, with a new enterectomy.

The electrocardiographic study showed changes in ventricular repolarization and left bundle branch block. The arrhythmology sector of the National Institute of Cardiology (INC) evaluated the case and ruled out the possibility of a cardioembolic cause. An evaluation of the hematology service was also carried out, which suggested the possibility of a thrombophilic cause. He was referred to a specialized service, and prophylactic anticoagulation with rivaroxaban was instituted.

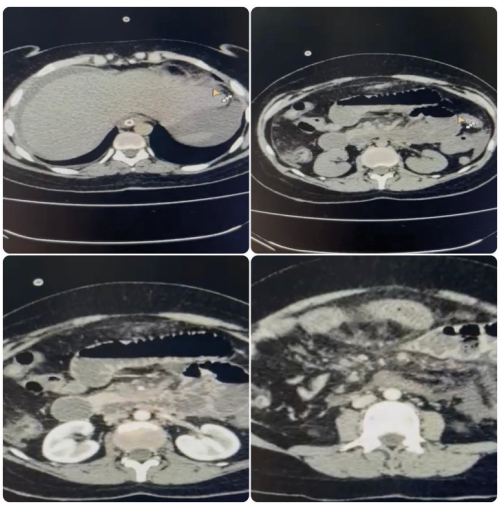

Figure 1: Axial sections of the computed tomography scan performed with and without venous contrast.

Figure 2: Segmental enterectomy product.

## DISCUSSION

Acute mesenteric ischemia (AMI) can be defined as a syndromic condition of ischemic acute abdomen triggered by vascular insufficiency, leading to hypoxemia and malnutrition of gastrointestinal organs due to sudden arterial obstruction. It is a rare surgical emergency, with 1 case in every 1000 hospitalizations and a mortality rate of 50 to 80% of cases. [4]

It is more frequent in females, in a ratio of 3:1, from the fifth decade of life onwards, reflecting that the elderly population is more susceptible. Among the risk factors, previous cardiac and vascular diseases stand out, such as valvulopathies, atherosclerosis, arrhythmias and arterial insufficiency. [5]

It is subdivided into non-occlusive and occlusive mesenteric ischemia (mesenteric arterial embolism, mesenteric arterial thrombosis and mesenteric venous thrombosis), whose overall mortality ranges from 50-80%, requiring immediate diagnosis and intervention due to the rapid clinical deterioration of patients. [8-10]

The clinical picture typically manifests itself through sudden and intense abdominal discomfort, mainly in the hypogastric region, in addition, many refer to nausea, vomiting and diarrhea. The evolution of this symptomatology may vary according to the etiology of the ischemia [6]

On physical examination, most patients show signs of hypotension. In the initial phase, it is possible to observe an increase in bowel sounds, as the disease progresses, signs of peritoneal irritation and abdominal distension are observed. On digital rectal examination, it is possible to observe blood in the rectum in some patients. [1] Complementary exams are also essential, it is common to obtain leukocytosis with increased segmentation, in addition to metabolic acidosis. [7]

Imaging tests make a crucial contribution

to the diagnosis of mesenteric ischemia [10,13]. Computed tomography angiography is the first-line diagnostic modality and must be performed as soon as possible as soon as clinical suspicion arises. [9,10,14,17]. In addition to being fast, accessible and non-invasive, it has high sensitivity (89.4%) and specificity. (99,5%) [17]. The characteristic findings described in the literature and consistent with those identified during the review are: 1) filling defects in the lumen of mesenteric vessels indicating the existence of thrombi or emboli [10]; 2) reduction or absence of mural enhancement; 3) "halo" or "target" appearance of the intestinal wall due to edema in the submucosal layer interspersed between the mucosa and the muscle(9,10,14); 4) luminal dilation and a "paper-thin" wall [10,14]; 5) intestinal pneumatosis, portomesenteric venous gas, and intraperitoneal free gas are indications of irreversible ischemia [9,10,14,16]. In non-occlusive acute mesenteric ischemia, these intestinal signs are seen and usually occur in a discontinuous and segmental way, but the mesenteric vessels do not have filling failures on contrast-enhanced examination.

Management of AMI involves restoration of mesenteric blood flow with resection of necrotic bowel [10]. Initial approach requires fluid resuscitation and aggressive correction of electrolyte abnormalities and acid-base imbalance [9,14,15]. Anticoagulation with heparin must be started, in the absence of contraindications [9,14] and broad-spectrum antibiotics need to be given due to bacterial translocation and increased risk of sepsis [9,10,14,15]. Emergency laparotomy is indicated in patients with signs of peritonitis, infarction or intestinal perforation. It allows direct visualization of intestinal viability, resection of unviable loops and early reestablishment of mesenteric blood flow [9,14]. However, during this first surgical approach, doubts may remain regarding the ischemic involvement of some segments, thus, planned relaparotomy (second look) is recommended as part of the management of AMI [9,14,15]. It is usually performed within 24 to 48 hours of the first approach and, in addition to allowing the resection of necrotic loops that are not initially recognized, it also avoids hasty resection of healthy loops by the first approach, thus reducing the chances of "short bowel syndrome" ( 9.15).

Intestinal ischemia and reperfusion is currently a challenging and life-threatening clinical issue, however late diagnosis and treatment definitely contribute to a high in-hospital mortality rate. We know that 70% of the mesenteric blood flow is directed to the mucosa and submucosa of the intestinal layers, and 30% to the muscular and serosa layers.

In the reported case, the patient, being young, was not in the risk group, a factor that may initially delay the diagnosis. The CT scan, discussed and reported by the hospital's radiology service, suggested an obstructive pattern, which did not clarify the case either. The clinical worsening, added to the main hypothesis of an abdominal focus, led to the precise surgical indication. It was before the surgery that the diagnosis was clarified, and treatment was performed through segmental enterectomy with reconstruction at the same time.

She was not submitted to relaparotomy, since there was clinical and laboratory improvement, which did not raise suspicion of new episodes of ischemia. It is worth emphasizing the importance of vigilance in this postoperative period, since episodes of ischemic recurrence are not uncommon. Clinical, laboratory and imaging tests must be used, as well as in the initial diagnosis to evaluate new approaches.

## CONCLUSION

Acute Mesenteric Ischemia is among the causes of surgical acute abdomen that are more difficult to diagnose and have a greater potential for severity. Therefore, it must always be present in our hypotheses, even in young patients without arrhythmias or signs of vascular disease, as in the reported case. Delay in surgical indication is associated with a worse outcome, both due to severe sepsis and the extension of the intestinal segment to be resected, which may lead to malabsorption syndromes or be incompatible with life.[1,4,9,15]

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