

Mesentéric Segmentary Thrombosis. Atypical Presentation. Clinical Case

Alejandro Alberto Flores-López

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

Alicia Valeria Espinosa-Rosales

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

Luis Arturo Falcón-Cancino

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

Alejandro Agustín-Martínez

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

Adriana Guadalupe Gómez-Salazar

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

Jacob Rodríguez-Perera

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

Adriana Teresa Cruz-Méndez

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

Segundo Yépez-Vallejo

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

Guillermo Padrón-Arredondo

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

Alejandro L. Villalobos-Rodríguez

Clínica Hospital Mérida Issste.

Calle 21 Comisaría de Susulá Mérida, Yucatán, México PC 97314

ABSTRACT

Introduction: No occlusive mesenteric ischemia was first reported by Ende et al., in 1958 as a syndrome of small intestinal necrosis in patients with heart failure subsequently, hypoperfusion of the intestines due to various factors induces mesenteric vascular spasm. **Clinical Case:** A 74-year-old female was admitted to the Emergency Department due to jaundice, intolerance to the oral route, and hemodynamic instability, Septic Shock of abdominal origin secondary to Cholangitis secondary to Choledocholithiasis. After 72 h, she was discharged from the Intensive Care Unit due to improvement to continue surveillance in the General Surgery Hospitalization. During his stay on the floor of General Surgery, she again presented intolerance to the oral intake, abdominal distension, and clinical deterioration, for which a Tomography of the Abdomen was performed, finding significant distension of the small bowel loops from the distal ileum secondary to two circular hyperdense images of 14 and 16 mm located 3.2 cm proximal to the ileocecal valve, as well as free fluid in the cavity, for which it was decided to perform Exploratory Laparotomy with the following findings: Two stones with pigmented biliary characteristics located 3 cm from the ileocecal valve of 1.5 cm each one, segmental mesenteric ischemia of approximately 60 cm in the terminal ileum, ascites 400 cc of purulent yellow fluid, multiple loose liver-omentum-transverse colon adhesions; 60 cm resection of the terminal ileum + ileostomy is performed. In the postoperative period, the patient was admitted to the Intensive Care Unit where she evolved favorably until her hospital discharge. **Discussion:** Medical patients are often admitted to the ICU for the management of septic or hypovolemic Shock or respiratory failure. Although recent clinical practice guidelines recommend light sedation for patients in the ICU, some patients require deep sedation during the initial phase of ICU management. Therefore, for medical ICU patients, early evaluation of abdominal symptoms might be difficult. In addition, physicians often overlook the monitoring of abdominal symptoms in medical patients, which can lead to a delayed NOMI diagnosis and an increase in mortality.

Keywords: Acute mesenteric ischemia, Surgical therapy, Elderly population.

INTRODUCTION

No occlusive mesenteric ischemia (NOMI) was first reported by Ende et al., (1) in 1958 as a syndrome of small intestinal necrosis in patients with heart failure. Subsequently, hypoperfusion of the intestines due to various factors induces mesenteric vascular spasms (1). Acute mesenteric ischemia (AMI) is a potentially fatal vascular catastrophe. Inadequate blood flow to the intestine may result from mesenteric arterial embolism or thrombosis or acute mesenteric venous thrombosis (MVT). Insufficient perfusion may also occur without an acute thrombo-embolic high-grade stenosis or occlusion of large mesenteric arteries—non-occlusive mesenteric ischemia (NOMI). AMI is said to be a rare condition, yet the incidence is poorly documented. Few studies have addressed it among the general population or hospitalized patients, and recent guidelines have, therefore, relied on estimated levels. The most accurate report on the proportion of different forms of AMI comes from a population with an 87% autopsy rate studied (2).

The most common pathogenic mechanism is the embolic occlusion of the superior mesenteric artery (SMA). Other causes can be arterial and venous thrombosis and NOMI. NOMI originates from vasoconstriction of the splanchnic arteries without an underlying structural stenosis.

Elderly patients and patients with pre-existing cardiac diseases are at increased risk of developing AMI. Due to varying symptoms and lack of physical findings of peritonitis in the early phase of the ischemia, diagnosis is very challenging. Computed tomography angiography can rapidly and accurately confirm the diagnosis of AMI and is the modern gold standard for diagnosis, complemented by serological parameters including leukocyte counts, pH, and lactate values which however lack the sensitivity and specificity to exclude acute mesenteric ischemia (3).

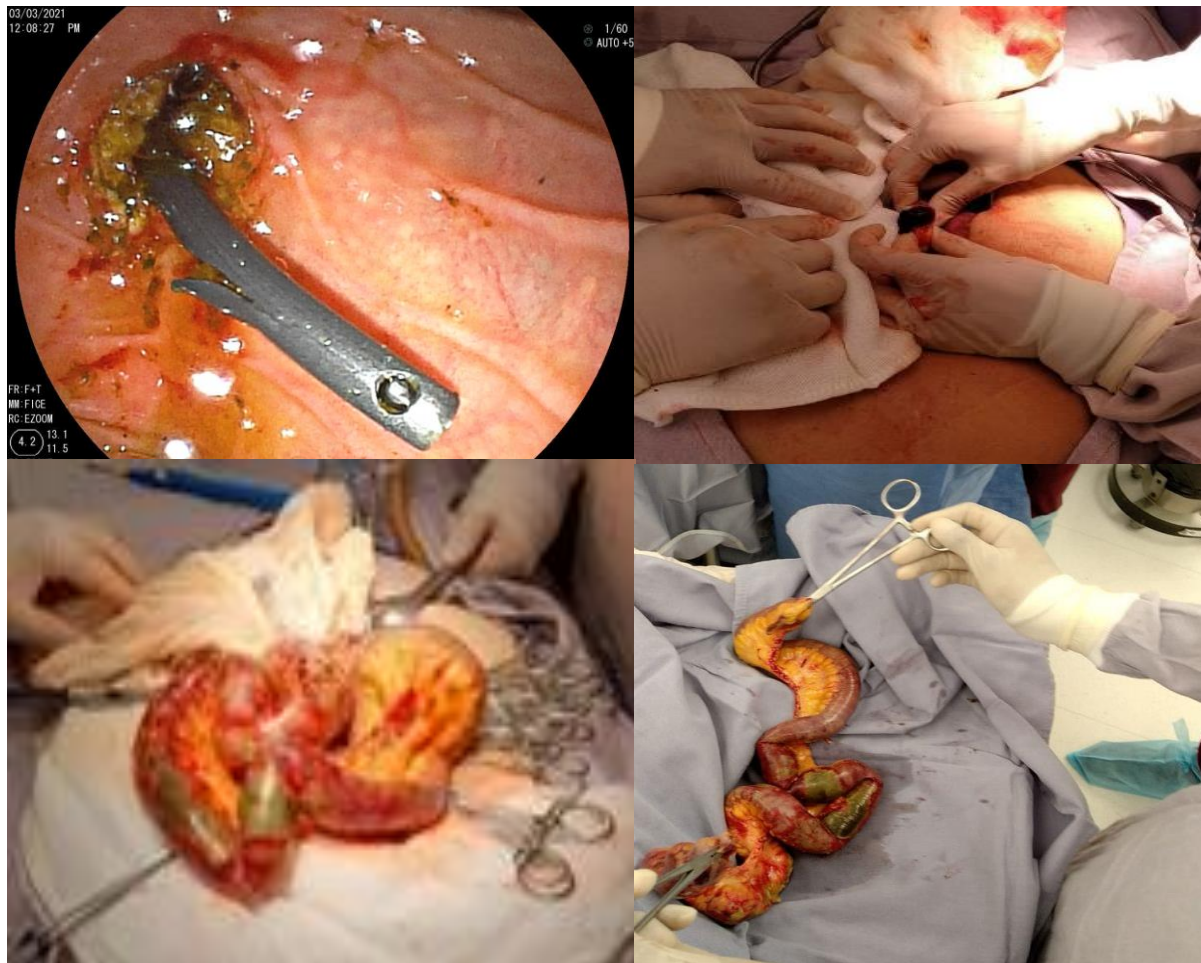
Occlusive etiologies include embolic or thrombotic arterial occlusion and venous thrombosis. NOMI is due to severe mesenteric arterial hypoperfusion with secondary arterial spasm from several causes, such as hypovolemia, heart failure, shock, vasoconstrictors, and severe liver or renal disease. Vasopressors are used to maintain perfusion in critically ill intensive care unit (ICU) patients and part of their mechanism involves vasoconstriction. The excessive vasoconstrictive activity of these agents can produce inadequate perfusion of the organs, and if it involves mesenteric vasculature, it results in NOMI. This accounts for 10-20% of patients with acute mesenteric ischemia and has a reported mortality rate of 70-90%, mainly because of comorbid conditions that eventually result in reduced mesenteric perfusion and delays in diagnosis. Cocaine-induced NOMI has demonstrated significantly high mortality in prior studies compared to other causes of colon ischemia (4).

CLÍNICAL CASE

A 74-year-old female with the following important history: positive smoking for 30 years, smoking index 30, suspended 24 years ago, open cholecystectomy 6 years ago, with no other history of importance to the case.

She was admitted to the Emergency Department due to jaundice, intolerance to the oral route, and hemodynamic instability, Septic Shock of abdominal origin secondary to Cholangitis Tokyo 3/Choledocholithiasis of large elements was diagnosed. She was admitted to the Intensive Care Unit where she had multiple organ failure, LVEF 40%, elevated nitrogen levels, and a requirement for vasoactive amines; ERCP was performed, which failed to resolve the choledocholithiasis, but a 10-fr endoprosthesis was placed (Fig. 1). After 72 h, she was discharged from the Intensive Care Unit due to improvement to continue surveillance in the General Surgery Hospitalization.

During his stay on the floor of General Surgery, he again presented intolerance to the oral route, abdominal distension, and clinical deterioration, for which a Simple Tomography of the Abdomen was performed, finding significant distension of the small bowel loops from the distal ileum secondary to two circular hyperdense images of 14 and 16 mm located 3.2 cm proximal to the ileocecal valve, as well as free fluid in the cavity, for which it was decided to perform Exploratory Laparotomy with the following findings: Two stones with pigmented biliary characteristics located 3 cm from the ileocecal valve of 1.5 cm each one (Fig. 2), segmental mesenteric ischemia of approximately 60 cm in the terminal ileum (Fig. 3), ascites 400 cc of purulent yellow fluid, multiple loose liver-omentum-transverse colon adhesions; 60 cm resection of the terminal ileum + ileostomy is performed (Fig. 4); In the postoperative period, the patient was admitted to the Intensive Care Unit where she evolved favorably until her hospital discharge, with follow-up via outpatient clinic to resolve the cholelithiasis in a second surgical time.



Figs. 1-4. Outlined in the text.

DISCUSIÓN

Several case reports exist in the literature documenting an association between NOMI and methamphetamine (MA) use. MA is a sympathomimetic with known vasospastic and vasoconstrictive properties that can compromise splanchnic perfusion and lead to intestinal ischemia. The devastating cerebrovascular and cardiovascular health effects have been well-documented, but its impact on gastrointestinal pathology remains underappreciated (5).

There are well-documented methamphetamine cardiovascular and cerebrovascular pathologies this drug. However, gastrointestinal pathology is less understood and only a few cases of bowel ischemia due to splanchnic vasoconstriction have been reported in the literature and almost none in elderly patients. Here, is report the case of an elderly patient who presented with life-threatening bowel ischemia which was found to be related to methamphetamine abuse (6).

Medical patients are often admitted to the Intensive Care Unit (ICU) for the management of septic or hypovolemic Shock or respiratory failure. Although recent clinical practice guidelines recommend light sedation for patients in the ICU, some patients require deep sedation during the initial phase of ICU management. Therefore, for medical ICU patients, early evaluation of abdominal symptoms might be difficult. In addition, physicians often overlook the monitoring

of abdominal symptoms in medical patients, which can lead to a delayed NOMI diagnosis and an increase in mortality (7).

Sinz S, et al., 8 studied patients with suspected AMI undergoing imaging between January 2014 and December 2019. Recruitment Five hundred and thirty-nine patients underwent imaging for clinically suspected AMI, with 216 examinations showing radiological indication of AMI. Intestinal necrosis (IN) was confirmed in 125 undergoing surgery, 58 of which survived and 67 died. Increasing age, ASA score, pneumatosis intestinalis, and dilated bowel loops were significantly associated with the presence of IN upon radiological suspicion. In contrast, decreased pH, elevated creatinine, radiological atherosclerosis, vascular occlusion (versus non-occlusive AMI), and colonic affection (compared to small bowel ischemia only) were associated with impaired survival in patients undergoing surgery. Based on the identified factors, we developed two nomograms to aid in the prediction of IN upon radiological suspicion (C-Index = 0.726) and survival in patients undergoing surgery for IN (C-Index = 0.791). As AMI remains a condition with high mortality, we identified factors predicting the occurrence of IN with suspected AMI and survival when undergoing surgery for IN. We provide two new tools, which combine these parameters and might prove helpful in the treatment of patients with AMI (8).

Takeda A, et al (9) report a Segmental Arterial Mediolysis (SAM) is a rare non-inflammatory, non-atherosclerotic vascular disorder characterized by arterial media disruption. In conjunction with the SARS-CoV-2 infection or anti-COVID-19 vaccination, vascular disorders have been recognized as organ-specific immune-mediated complications, and the number of reported cases is gradually increasing. A 68-year-old man presented with severe upper abdominal pain and nausea 58 days after a third injection of Pfizer-BioNTech anti-COVID-19 mRNA vaccination. An abdominal dynamic computed tomography angiography showed stenosis and dilatation of multiple visceral arteries, including the middle and right colic arteries. In the omental arteries, spindle-shaped dilatation and stenosis were identified. The left epiploic artery was not visualized, suggesting the development of occlusion due to arterial dissection. Based on these findings, SAM of multiple visceral arteries was diagnosed. Because the patient's vital condition was stable, treatment by observation, with restriction of daily living, was chosen. Seventy-five days later, the pathological lesions in the affected vessels spontaneously resolved.

Mesenteric venous thrombosis (MVT) is one of the common occlusive causes of compromised bowel perfusion. Contrast-enhanced CT angiography is the diagnostic imaging study of choice for MVT. In-hospital mortality following acute mesenteric infarction is 63 %. Surgical resection may be life-saving for patients with peritoneal signs or refractory to conservative management. Darshit D, et al. (10) consecutively included records of five patients from Lubaga Hospital with intestinal obstruction who underwent bowel resection following intraoperative confirmed acute mesenteric ischemia between May 2017 and November 2021. Three of the patients were female. Patients were between 21 and 45 years. One patient had comorbid conditions and an identifiable underlying etiology of polycythemia for MVT. Duration of symptoms ranged from 1 to 11 days. All patients underwent open laparotomy, and the length of bowel resection ranged from 77 cm to 600 cm. Two patients developed short bowel syndrome (SBS) and one patient developed an intestinal fistula. There was one in-hospital death due to multi-organ failure. Morbidity and mortality are associated with delays to diagnose the condition. Revascularization is the primary goal, as resection of all non-viable regions and preservation of viable bowel. Mortality is commonly related to multi-organ failure. Advanced intensive care and

parenteral nutrition have improved survival rates over the years. 2-year and 5-year survival rates have been reported to be 70% and 50%.

Álvarez Ibarra S, et al. (11) presented a 31-year-old female with generalized abdominal pain without peritoneal irritation accompanied by vomiting and loose bowel movements. It is surgically intervened finding intestinal ischemia to 10 cm from the ligament of Treitz to 1 m from the ileocecal valve, the root of the mesentery is explored and the superior mesenteric artery is explored to obtain a feeling of the weak pulse. Thrombectomy is performed with an infusion of 1000 IU of heparin in saline solution to return to viability of ischemic bowel loops in 50% viable resulting 50 cm from the ligament of Treitz to 2 m from the ileocecal valve; in nonviable bowel segment, resection is performed.

Interest Conflict: Neither

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