Portomesenteric axis thrombosis not associated with cirrhosis: A clinical case report

Trombosis del eje porto mesentérico no asociado a cirrosis: Reporte de un caso clínico

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ABSTRACT
Portomesenteric venous thrombosis accounts for 10% of cases of acute mesenteric ischemia. A 71-year-old patient presented with abdominal pain associated with fecal and gas retention. These symptoms are nonspecific and may occur in various abdominal conditions, which can hinder early diagnosis. Contrast-enhanced abdominal computed tomography confirmed the diagnosis. with unusual abdominal symptoms is presented. The choice of endovascular treatment led to a successful recovery, highlighting the importance of early diagnosis to minimize morbidity and mortality. This case marks the first documented occurrence of portomesenteric venous thrombosis in Paraguay, with no identifiable cause.
***Keywords**: Abdomen, Mesenteric Ischemia, Tomography.*

RESUMEN
La trombosis venosa porto mesentérica, constituye el 10% de los casos de isquemia mesentérica aguda. Se informa un paciente de 71 años que acude por dolor abdominal asociado a retención de heces y gases. Estos síntomas son inespecíficos y pueden presentarse en diversos cuadros abdominales, lo que dificulta su diagnóstico. La tomografía axial computarizada de abdomen contrastada confirmó el diagnóstico. La elección del tratamiento endovascular resultó en una recuperación exitosa, destacando la importancia del diagnóstico temprano para minimizar la morbimortalidad. Se presenta la primera manifestación documentada de la trombosis venosa porto mesentérica en Paraguay, sin causa identificable.
***Palabras claves:** Abdomen, Isquemia Mesentérica, Tomografía.*

INTRODUCTION

Portomesenteric venous thrombosis (PMVT) is a rare condition, difficult to diagnose, that presents with nonspecific symptoms and variable clinical manifestations [1].

In non cirrhotic PMVT, abdominal pain is the most frequent symptom, present in 80–90% of cases, especially in acute forms; it may be diffuse or localized (periumbilical). Abdominal distension occurs in 30–50% of patients, being more common when there is mesenteric involvement or ascites, while nausea and vomiting also appear in 30–50% of cases. In the patient presented in this report, no nausea or vomiting were observed [2].

PMVT consists of the presence of a thrombus in the trunk of the portal vein and/or branches of the right or left intrahepatic portal vein, which may extend to the splenic vein and/or the superior or inferior mesenteric veins [3]. It accounts for 5–10% of acute mesenteric ischemia, of which 80% are of identifiable etiology [4]. Among these causes, several studies recognize that secondary local inflammatory factors, such as cirrhosis, portal hypertension, abdominal trauma, malignant disease, and acute inflammatory abdomen, represent 60% of these cases, while primary hypercoagulable states account for 30% [4]. Despite this extensive list of risk factors, the literature also reports that 25% of cases are idiopathic [5].

This report details the clinical course of an acute PMVT case in a 71 year old man without the aforementioned predisposing factors. In addition, it contributes to the medical literature with a rare case and represents the first of its kind reported in the country, examining the characteristics and management of PMVT in atypical contexts.

CLINICAL CASE

Male patient, 71 years old, hypertensive under treatment with enalapril 20 mg/day and with type 2 Diabetes Mellitus (DM2) under treatment with metformin 850 mg/day, fully vaccinated including two doses of COVID 19 vaccine, presented with abdominal pain, stool and gas retention. Previously operated on for appendectomy, cholecystectomy, and sigmoidectomy due to diverticular disease of the colon 7, 5, and 3 years ago respectively, all performed by conventional approach. Eventroplasty and left inguinal hernioplasty, both performed 1 year ago, also by conventional approach. The patient denies family history of hypercoagulability.

The patient reported abdominal pain of gradual onset 12 days prior to admission, initially localized in the periumbilical region and the lower left quadrant, radiating to the flanks and

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hypogastrium. In the last 48 hours, the pain worsened and stool and gas retention were added to the clinical picture, which prompted him to seek medical attention. He denied fever, nausea, and vomiting.

On physical examination, the abdomen was slightly distended, soft, depressible, and painful to palpation in the lower left quadrant with mild localized guarding, without rebound tenderness. Bowel sounds were present. Surgical scars compatible with appendectomy, cholecystectomy, sigmoidectomy, eventroplasty, and left inguinal hernioplasty were observed, all well healed. No palpable masses or adenomegalies were identified.

A previous computed tomography (CT) scan showed inflammation in the superior mesenteric axis, with initial symptomatic management.

Laboratory studies showed Hb: 14 g/dL, Hct: 40%, WBC: 7800/mm^3, Neutrophils: 74%, CRP: 78 mg/dL, Blood glucose: 132 mg/dL, Urea: 48 mg/dL, Creatinine: 0.8 mg/dL, normal liver function, Amylase: 90 U/L, and normal coagulation. Abdominal ultrasound reported normal liver, bile ducts, spleen, and pancreas, with clustered small bowel loops in the lower abdomen and free interloop fluid. Contrast enhanced CT confirmed thrombosis in the superior and inferior mesenteric veins, extending to the portal vein *(see Figure 1)*, establishing the diagnosis of PMVT.

Treatment included anticoagulation with enoxaparin 60 mg every 12 hours for 10 days and endovascular thrombolysis with tissue plasminogen activator (rTPA). The superior and inferior mesenteric arteries were catheterized for rTPA infusion over 24 hours *(see Figure 2)*. After 24 hours, arteriography showed partial repermeabilization of the affected veins *(see Figure 3)*.

The patient was transferred to intensive care, remaining stable. After one week of hospitalization, he was discharged with rivaroxaban 20 mg/day for six months. At six months, he showed good clinical progress.

Figure 1. Contrast enhanced CT in the arterial phase. Thrombus at the level of the Portomesenteric Trunk. A left renal cyst is observed (incidental finding).

Figure 2. Arteriography of the trunk of the Superior Mesenteric Artery.

Figure 3. Follow up arteriography at 48 hours showed satisfactory patency of the Portal Vein and the Superior Mesenteric Vein.

DISCUSSION

PMVT has a worldwide prevalence of about 1%, with 25% of cases associated with unidentified causes [6]. Although it is commonly related to cirrhosis, it can also occur in the absence of

liver disease and in primary vascular disorders [7]. A case series emphasizes the importance of recognizing the highly ambiguous clinical presentation of PMVT and the need for rapid diagnosis and treatment to avoid serious consequences [1].

In this context, contrast enhanced abdominal CT is fundamental to assess both the extent of the thrombus and the condition of the affected intestine. The mortality rate associated with this condition ranges between 20% and 50%; however, the use of imaging techniques has helped reduce this figure by enabling more precise diagnoses [8].

In the case presented, the patient sought medical attention due to abdominal pain and distension, symptoms commonly seen in PMVT. Tomographic studies showed characteristic signs such as dilated loops and thickening of the same, as well as a filling defect in the vascular lumen. It is important to consider PMVT in the differential diagnosis of acute surgical abdomen, relying on clinical findings and, especially, contrast enhanced CT as the test of choice [3].

Once the diagnosis of PMVT was confirmed in a clinically stable patient without signs of intestinal ischemia or perforation, endovascular therapy was chosen as the first line treatment [5, 6]. Enoxaparin and rTPA were administered. Surgery is reserved for cases with complications, instability, or lack of diagnosis in patients with worsening abdominal symptoms, which was not applicable in this case. Among the complications associated with multiple reinterventions is short bowel syndrome, and more than half of cases present PMVT recurrence at the site of the anastomosis. Therefore, an accurate diagnosis is vital due to the morbidity and mortality associated with surgical treatment.

It is crucial to evaluate predisposing causes in the management of PMVT, since more than 15% of patients present multiple etiological factors [9]. Although this case is associated with an idiopathic cause, it is suggested that the hypercoagulable state secondary to type 2 Diabetes Mellitus (DM2) and endothelial dysfunction due to systemic arterial hypertension (HTN) could be contributing factors that alter Virchow's triad [9]. Several studies indicate that acquired hypercoagulable states can result in idiopathic events, which is consistent with the diagnosis in this case [4, 5, 7, 9]. Although the inclusion of DM2 as a cause of PMVT is minimal in reports, it should not be ruled out.

The case of a 71 year old male patient is presented, in whom the diagnosis of acute idiopathic PMVT was confirmed, highlighting the rarity of the case in the absence of cirrhosis.

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