

Cecal necrosis as a cause of acute abdomen in a patient with chronic renal failure

Necrosis de ciego como causa de abdomen agudo en una paciente con insuficiencia renal crónica

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Palabras clave:

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ABSTRACT

Necrosis of the cecum is a rare entity of uncertain etiology, with well identified risk factors. We describe the case of a diabetic patient with chronic renal failure on hemodialysis with abdominal pain and suspicion of complicated appendicitis. The definitive diagnosis of necrosis of the cecum was made intraoperatively. Necrosis of the cecum should be kept in mind in the differential diagnosis of acute abdomen focalized in the right iliac fossa in patients with comorbidities such as renal failure.

RESUMEN

La necrosis de ciego es una entidad poco frecuente de etiología incierta, con factores de riesgo bien identificados. Se describe el caso de una paciente diabética (con falla renal crónica en tratamiento con hemodiálisis) con un cuadro de dolor abdominal y sospecha de apendicitis complicada, el diagnóstico definitivo de necrosis de ciego se realizó en el transoperatorio. Se deberá tener en mente la necrosis de ciego dentro del diagnóstico diferencial de abdomen agudo con foco en fosa iliaca derecha en el paciente con comorbilidades como la falla renal.

INTRODUCTION

Partial ischemia of the cecum is a rare variant of non-occlusive ischemic colitis, with an obscure etiology that is associated with concomitant chronic diseases such as heart failure¹ and/or renal failure (under hemodialysis).^{2,3} Other variants of ischemic colitis exist in relation to acute, chronic, or mixed vascular (arterial or venous) occlusion⁴ and those associated with cocaine use.⁵

Non-occlusive ischemic colitis associated with hemodialysis (as in the present case) is due to a combination of several factors.⁶ Patients with diabetes mellitus, chronic renal failure and on hemodialysis have a higher prevalence of occlusive microangiopathy and are more susceptible to hemodynamic changes during their hemodialysis sessions (both factors are assumed to be etiologies

of segmental necrosis of the colon);⁷ even bacterial⁸ and/or fungal⁹ colon superinfections have been suggested as aggravating cofactors.

Ischemic colitis is usually self-limiting and may even go unnoticed. However, cases with necrosis and micro- or macro-perforation present an acute abdominal picture very similar to that of appendicitis. These cases should be operated on due to their mortality, which ranges from 58 to 88%.³

The surgical approach and treatment can be open or laparoscopic when resources and technical skills are available. Converting a laparoscopic to an open procedure can always be considered for surgeon comfort and patient safety.¹⁰

The aim of this report is to emphasize one of the less common causes of acute right lower quadrant abdomen. We present the case of

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a patient with multiple comorbidities and an acute abdomen that simulated complicated appendicitis.

CASE PRESENTATION

This is the case of 66 years-old female patient with a history of long-standing type 2 diabetes (33 years), retinopathy, and chronic renal failure on hemodialysis, in addition to uncontrolled arterial hypertension and dyslipidemia. She presented to the emergency department with abdominal pain (described as oppressive) of 24 hours of evolution, which started in the mesogastrium and radiated towards the right iliac fossa (RIF) that increased in severity until it became incapacitating. Physical examination showed positive McBurney, Rovsing, and Dunphy signs, and fist-bump percussion. In addition, she presented abdominal distension, nausea, and vomiting. Of note was the presence of liquid bowel movements on five occasions (without mucus or blood).

Her lab test results on admission were glucose 316 mg/dl, sodium 130 mEq/l, potassium 5 mEq/l, chlorine 95 mEq/l, creatinine 8 mg/dl, blood urea nitrogen 46.9 mg/dl, urea 100.1 mg/dl, hemoglobin 8 g/dl, hematocrit 25%, white blood cell count of $18.2 \times 10^9/l$, neutrophil count of 87%, platelet count of $163 \times 10^9/l$, prothrombin

time 16 seconds, INR 1.27 and TPT 29.6 seconds.

Abdominal plain X-rays (recumbent and standing) showed a sentinel loop and a hydro-aerial level in the right lower quadrant (RLC) (*Figure 1*). A clinical diagnosis (Alvarado score of 8) of appendicitis was made and an appendectomy by exploratory laparotomy was scheduled. An infraumbilical median incision was made, and upon reaching the cavity, intestinal inflammation of the distal ileal region, cecum and ascending colon was corroborated. When the cecum was lifted, a full-thickness necrosis of partial extension (6×8 cm) was found at the level of the antimesenteric border. This necrosis had well delimited borders, while the rest of the cecum and appendix were adequately perfused, with no macroscopic data of ischemic distress. There were no other important findings (*Figure 2*). The distal ileum segment (5 cm) and the entire cecum were resected, closing the ascending colon in a Hartmann's pouch (in two planes, with 2-0 polyglactin 910 suture), leaving a terminal ileostomy.

The patient had a torpid postoperative course, with exacerbation of renal failure and cardiorespiratory collapse within 72 hours and died due to this cause.

DISCUSSION

Cecum isolated ischemic-necrotic colitis is a rare pathology, associated with chronic diseases such as cardiac¹ and/or renal failure.^{2,3} Although there is no "gold standard" imaging study, a CT scan may reveal data suggestive of the diagnosis such as increased volume in the wall of the cecum, intestinal pneumatosis and/or free fluid in the cavity.¹¹

Although most authors suggest performing a hemicolectomy (because of the risk of suffering in the rest of the colon) with derivative ileostomy or in selected cases with primary anastomosis (ileo-transverse anastomosis),¹² the decision to perform only the resection of the involved tissue was based on the poor condition of the patient, the unexpected finding and that resection of the involved cecum alone (with derivative ileostomy) is an option



Figure 1: A) Sentinel loop and intestinal pneumatosis in the right hemiabdomen. B) The same sentinel loop is observed with a hydro-aerial level and intestinal pneumatosis.

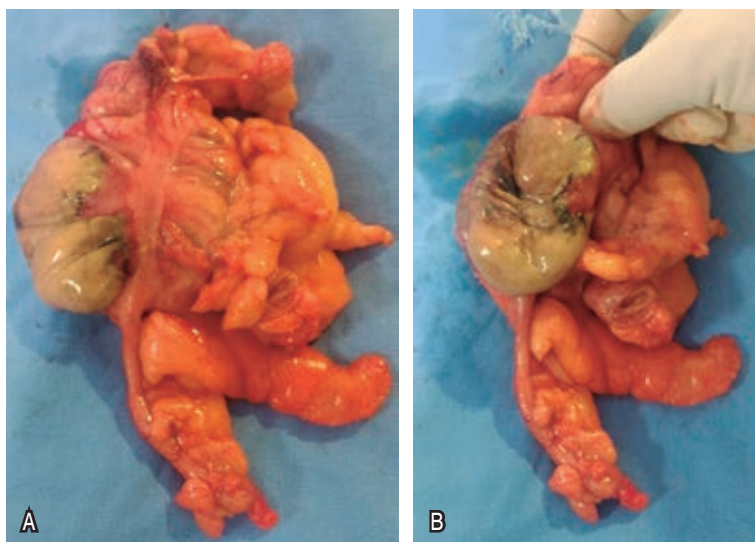


Figure 2: A) The segment of colon (cecum) distal ileum, inflamed mesoappendix and cecal appendix with no evidence of involvement is shown. B) Necrosis of the cecum on its antimesenteric side with well-defined borders close to the cecal appendix.

(without major complications) described in the literature.^{13,14}

Mortality in these patients is possibly not due to the necrosis of the colon segment itself, but to their advanced age and the exacerbation of their chronic cardiac and/or renal problems due to the surgical stress caused by the emergency treatment.¹⁵

The possibility of necrosis of the cecum in the setting of an acute abdomen with a right lower quadrant focus should always be kept in mind (in patients with risk factors such as heart disease and/or nephropathy on hemodialysis). However, other infrequent pathologies such as cecal diverticulum,¹⁶ cecal perforation,¹⁷ intestinal intussusception¹⁸ and epiploic appendicitis¹⁹ (among others) may also be the cause of the clinical picture in question.

CONCLUSION

The differential diagnosis of acute abdomen with focus on FID is diverse and the most common causes such as appendicitis should always be considered; however, less frequent diagnoses in patients with chronic diseases should be kept in mind.

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Data privacy. In accordance with the protocols

established at the authors' work center, the authors declare that they have followed the protocols on patient data privacy and preserved their anonymity.

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