REPORTS AND CLINICAL VIGNETTES

An Unusual Case of Hematochezia: Acute Ischemic Proctosigmoiditis

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Acute ischemia of the rectum is uncommon and usually occurs after aorto-iliac surgery. In this report, we present a case of acute ischemic proctosigmoiditis that developed from a brief episode of hypotension. An 85-year-old male presented to the emergency room with hypotension, mental confusion, and passage of maroon-colored stool. He was resuscitated and treated for presumed sepsis. Computerized tomography of the abdomen and pelvis displayed signs of acute inflammation of the distal colon and rectum. Endoscopic findings and microscopic examination of the rectal biopsy revealed changes consistent with acute ischemic proctosigmoiditis. An evaluation for infectious etiologies was negative. The patient's clinical condition improved over the next 24 h with supportive care. Involvement of the rectum is rare in ischemic colitis because of its abundant collateral blood supply. Acute ischemic proctosigmoiditis should be considered in the differential diagnosis of elderly patients with multiple co-morbidities presenting with hematochezia.

KEY WORDS: proctosigmoiditis; ischemia; hypotension; hematochezia.

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INTRODUCTION

Acute ischemia of the rectum is rare because of its extensive collateral blood supply. It usually occurs as a result of compromised blood flow to the rectum from mesenteric vascular interventions. Patients presenting with acute ischemic proctosigmoiditis are usually elderly, have diffuse atherosclerosis, and may have identifiable precipitating factors, such as severe hemodynamic compromise. Diagnosis of acute ischemic proctosigmoiditis can be challenging because it shares clinical features with common causes of hematochezia. Nevertheless, early recognition of this clinical entity is of paramount importance to implement appropriate therapy and avoid unnecessary treatment of presumed inflammatory or infectious bowel diseases. In this report, we discuss the

clinical characteristics, etiologies, and management of acute ischemic proctosigmoiditis.

CASE REPORT

An 85-year-old male presented to the emergency room with acute onset of hypotension, mental confusion, and decreased cognition. He passed a large amount of maroon-colored stool, which was grossly bloody, during the initial evaluation. His medical history included hypertension, diabetes, chronic kidney disease (baseline serum creatinine: 1.5 mg/dl to 1.7 mg/dl), peripheral vascular disease, benign prostatic hypertrophy, and chronic osteomyelitis of the left calcaneus. There was no history of radiation therapy or recent abdominal surgery. There was no accompanying history of abdominal pain, nausea, or vomiting. A detailed review of the system could not be obtained because the patient was confused and unable to answer questions appropriately. He had no history of smoking or alcohol abuse. His home medications included aspirin, acetaminophen, hydralazine, terazosin, furosemide, insulin, multivitamin tablets, glycerin rectal suppositories (as needed), ciprofloxacin, and amoxicillin/clavulanate (latter two for calcaneal osteomyelitis). The patient's vital signs on admission were: blood pressure 82/33 mmHg, heart rate 110/min and regular, temperature of 98°F, and oxygen saturation 97% on 3 l/min of O₂ via nasal cannula. On rectal examination, his anal sphincter tone was reduced. Additionally, he displayed evidence of systemic hypoperfusion, including cold, clammy skin, mental confusion, and poor responsiveness to verbal stimuli. Lungs were clear on auscultation, and cardiac exam revealed regular heart sounds. Neurological examination was limited because of the patient's poor mentation, but meningeal signs were absent.

His initial laboratory evaluation revealed a hemoglobin level of 6.5 gm/dl, leukocyte count of 15,900/dl, blood urea nitrogen of 121 mg/dl, serum creatinine of 3.4 mg/dl, blood glucose of 344 mg/dl, serum bicarbonate of 15 mg/dl, anion gap of 17, and blood lactic acid level of 2.0 mg/dl. His arterial blood-gas test showed a pH of 7.46, pCO₂ of 20.6 mmHg, and pO₂ of 94 mmHg. Urine analysis revealed many polymorphonuclear leukocytes and yeast, identified as *Candida glabrata* on culture. The patient was resuscitated with isotonic saline, norepinephrine, and was transfused with three units of packed red blood cells. Nasogastric suction revealed bilious fluid. Initially, he was empirically treated with broad-spectrum antibiotics, specifically metronidazole and ciprofloxacin. *Candida glabrata* in the urine was regarded as a contaminant.

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Blood cultures, stool culture, stool for *Clostridium difficile* toxin assay, and chest x-ray were all normal. Adrenal insufficiency was not considered on presentation as his admission diagnosis was presumed to be urinary sepsis.

Computerized tomography (CT) of the abdomen and pelvis displayed pericolic and perirectal fat stranding. Further evaluation with a flexible sigmoidoscopy revealed necrotic mucosa with subepithelial hemorrhage and bullous mucosal lesions starting in the rectum and ending at 35 cm in the sigmoid colon (Fig. 1). Microscopic examination of the rectal biopsy specimen suggested changes consistent with ischemic proctosigmoiditis, including mucosal necrosis with acute inflammation, loss of the surface epithelium and crypts, edema of the lamina propria, and vascular congestion (Fig. 2). The patient improved over the next 24 h and had only one more episode of bloody diarrhea. A specific source of infection could not be established in spite of detailed investigation. Antibiotic therapy was continued for 2 weeks, and the patient recovered without any further events. He was subsequently discharged to a nursing home for rehabilitation and continued to do well 6 months after his hospitalization.

DISCUSSION

The rectum derives its blood supply from a network of arteries formed by branches of the mesenteric, internal iliac, and internal pudendal arteries. Ischemic proctosigmoiditis accounts for 3%-5% of all cases of ischemic disease of the large bowel.^{1,2} In most cases, it is precipitated by extensive aorto-iliac surgery, radiotherapy, vascular intervention, or major hemodynamic compromise.^{3,4} Acute ischemia of the rectosigmoid colon is more common in elderly patients who have other co-morbid conditions, e.g., atherosclerotic disease, abdominal aortic aneurysm, and peripheral vascular dis-

Figure 1. Sigmoidoscopy showing necrotic mucosa with subepithelial hemorrhage and bullous mucosal lesions (arrow).

Figure 2. Pathology showing vascular congestion, mucosal hemorrhage (arrow), necrosis, acute inflammation, loss of epithelium, and crypts.

ease.³⁻⁶ Kilpatrick et al. and Bharucha et al. each reported ten cases of ischemic proctitis; the mean age at presentation was 65-70 years.^{4,5} Systemic factors such as shock, sepsis, heart failure, cardiac dysrhythmia, and myocardial infarction were hypothesized to be the precipitating factor for the ischemia in the majority of these patients.^{4,5} In another case series, Nelson et al. reported six patients with acute ischemic proctitis, of which four cases occurred after direct arterial interruption, one after accidental embolization of the blood supply to the rectum, and another from local tumor edema.³ Bloody diarrhea was the most common symptom, and loss of anal sphincter tone was an early sign noted in three of the six patients.³ In a recent case series by Sharif et al., aorto-iliac surgery was the precipitating factor for ischemic proctitis in 8 out of 15 cases.⁷ Based on our review of the literature, the symptoms may include one or more of the following: crampy abdominal pain, heme positive stool or rectal bleeding, and diarrhea.³⁻⁷ Table 1 lists the different causes of hematochezia that need to be considered when a patient presents with rectal bleeding.

The pathologic changes of ischemic proctosigmoiditis include mucosal congestion, multiple small superficial ulcerations, and epithelial necrosis with or without the presence of pseudomembranes on sigmoidoscopy.⁵ The presence of inflammatory infiltrate and destruction of crypts are common in both acute ischemic proctosigmoiditis and inflammatory bowel

Table 1. Causes of Hematochezia

Diverticular bleeding
Internal hemorrhoids
Ischemic colitis
Rectal ulcers
Inflammatory bowel disease
Angiomas
Rectal varices
Ischemic proctitis
Anal fissures
Upper gastrointestinal bleeding

disease. However, the presence of marked mucosal necrosis, hemorrhage, and edema in the submucosa as well as the absence of basal lymphoplasmacytosis in acute ischemic proctosigmoiditis can help make the distinction between the two.^{4,6} CT findings in ischemic proctosigmoiditis are non-specific^{8,9} and may include increased mural thickness and perirectal fat stranding confined to the recto-sigmoid portion of the colon.¹⁰ Arteriography is of limited utility unless acute mesenteric ischemia is suspected or active bleeding continues.

The underlying mechanism leading to ischemic proctosigmoiditis is not completely understood. Thoren et al. observed that physiologic vasoconstriction from central hypovolemia reduced intestinal mucosal perfusion in a controlled experiment.¹¹ This hypoperfusion, superimposed on atherosclerotic narrowing of the aortoiliac vessels, may contribute to the pathogenesis of proctosigmoid ischemia.¹¹

The management of acute ischemic proctosigmoiditis depends on the degree of ischemia, categorized as either full-thickness (transmural) or partial thickness (mucosal) ischemia.⁷

The initial clinical presentation combined with CT and endoscopic findings helps determine the severity of this condition. Early restoration of the patient's blood volume and optimization of the cardiac output is of paramount importance in the initial management of these patients. Mild ischemic proctosigmoiditis can be managed conservatively with close observation for signs of sepsis or perforation. Conversely, full thickness bowel wall necrosis or perforation is associated with high mortality, and surgical resection becomes necessary in such situations.⁷ Stricture formation after ischemia of the rectum is rare due to its large caliber lumen.⁷

CONCLUSION

The rectum is rarely involved in ischemic colitis because of its abundant collateral blood supply. We have described an uncommon case of acute ischemic proctosigmoiditis, which was precipitated by a transient low flow ischemic state of the colon from hypotension. Acute ischemic proctosigmoiditis should be considered in the differential diagnosis of elderly

patients with multiple co-morbidities presenting with hematochezia. The characteristic appearance of the recto-sigmoid mucosa during endoscopy, radiological findings and histopathologic features help guide the diagnosis of acute ischemic proctosigmoiditis. The prompt and correct diagnosis is essential for appropriate intervention. Mild cases of proctosigmoiditis can be managed conservatively, while severe cases often require surgical intervention.

Conflict of Interest: None disclosed.

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