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Mucosal Hypoenhancement in a Diverticular Segment, A Key Imaging Feature of Ischemic Colitis: A Case Report

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Abstract | **Case Report**

Ischemic colitis is the most common vascular disorder affecting the colon, particularly among the elderly. While the condition often follows a benign course, its subtle forms—especially when localized to diverticular segments—can challenge even experienced clinicians. This case report underscores the pivotal role of contrast-enhanced CT imaging in diagnosing non-occlusive ischemia and identifies mucosal hypoenhancement as an underrecognized but vital marker. The discussion highlights the particular vulnerability of diverticular segments to ischemic insult and the imperative need for early radiological assessment to guide conservative management and avoid unnecessary interventions. Recognizing mucosal hypoenhancement in diverticular segments may help avoid misdiagnosis and prevent overtreatment in elderly patients presenting with nonspecific abdominal symptoms.

Keywords: Ischemic Colitis, Diverticular Segments, Non-Occlusive Ischemia, Mucosal Hypoenhancement, Contrast-Enhanced CT Imaging.

INTRODUCTION

Ischemic colitis accounts for approximately 1 in 2000 hospital admissions and is the most common form of gastrointestinal ischemia. Ischemic colitis is the leading cause of colonic vascular compromise, with a predilection for the left colon, especially the sigmoid and splenic flexure—so-called "watershed" zones due to their limited collateral blood supply [1]. Though its clinical spectrum ranges from mild self-limiting disease to life-threatening necrosis, atypical presentations, particularly those involving diverticular segments, can obscure the diagnosis. In such contexts, contrast-enhanced CT imaging assumes a critical role. We report a compelling case of ischemic colitis confined to a diverticular segment, where early CT findings—especially focal mucosal hypoenhancement—enabled timely and effective treatment.

CASE REPORT

A 75-year-old man with no prior gastrointestinal history presented with left lower quadrant abdominal pain, tenesmus, and moderate rectal bleeding. His medical history included anticoagulant therapy (rivaroxaban) for an unspecified cardiac condition.

On admission, he was hemodynamically stable (BP: 130/85 mmHg, HR: 82 bpm, SpO_2: 97%) and afebrile. Laboratory tests revealed a mild elevation in C-reactive protein (6 mg/L), moderate leukocytosis (11,000/mm³), and hemoglobin of 11.5 g/dL. Serum lactate was not assessed; electrolyte levels were within normal limits.

A contrast-enhanced abdominopelvic CT performed 12 hours after symptom onset demonstrated circumferential wall thickening of the sigmoid colon (13 mm over ~10 cm), focal mucosal hypoenhancement, absence of abscess or lymphadenopathy, and mild mesorectal and mesosigmoid fat stranding. Segmental diverticulosis was evident without signs of diverticulitis.

Figures: 3D contrast-enhanced abdominal CT image showing segmental circumferential thickening of the sigmoid colon with focal mucosal hypoenhancement, mild surrounding fat stranding, and diverticula

Colonoscopy performed shortly thereafter revealed superficial, non-necrotic mucosal ulcers without features of advanced colitis. The patient responded well to conservative treatment—bowel rest, hydration, and monitoring—with full clinical recovery within one week.

DISCUSSION

Pathophysiology

Ischemic colitis arises from an acute imbalance of metabolic demand of the colonic mucosa compared to blood flow to it is possible to have an acute mismatch without actual arterial occlusion [1-8]. In the colon, some locations, such as the sigmoid and splenic flexure are at exceptionally higher risk due to the terminal supply they receive [3]. In non-occlusive forms, contrast-enhanced CT is instrumental. Although not pathognomonic, mucosal hypoenhancement is frequently the earliest and most suggestive sign. It reflects localized hypoperfusion, even in the absence of frank thrombosis—especially in elderly or anticoagulated patients [3-8].

Diverticulated Segments: Anatomical Vulnerability?

Diverticulated segments are focal points of weakness in the bowel wall and are frequently associated with age. These segments have altered compliance, increased intraluminal pressure, and decreased vascular propriety. If ischemia occurs in diverticular segments, it is often more pronounced or earlier, even without inflammation [2]. Our case illustrates this anatomical potential, which turned into ischemic changes limited to a segment of the diverticulum without signs of diverticulitis.

Differential Diagnosis

Distinguishing ischemic colitis from diverticulitis can be difficult, especially in moderate presentations [2]. Certain clinical and imaging clues help guide differentiation:

Table: Key clinical and imaging differences between ischemic colitis and diverticulis

Feature	Ischemic Colitis	Diverticulitis
Fever	Rare	Frequent
CRP/Leukocytosis	Mild to moderate	High
Mucosal hypoenhancement	Frequent	Rare
Wall thickening	Diffuse, segmental	Focal, peridiverticular
Mesenteric fat infiltration	Mild, homogeneous	Intense, focal
Abscess formation	Rare	Possible
Initial management	Conservative	Often includes antibiotics

Acute-phase endoscopy, if feasible, provides diagnostic clarification [6].

Contributing Factors

Numerous risk factors predispose to ischemic colitis: advanced age, anticoagulant use (e.g., rivaroxaban), dehydration, hypotension, and aortic atherosclerosis [3-7]. In recurrent or young-onset cases, coagulation profiles and thrombophilia screening are recommended [7].

Management

Treatment is generally conservative, involving bowel rest, rehydration, and close monitoring. According to Gandhi *et al.,* benign forms usually resolve without complication, whereas severe forms may require emergency surgery [5]. Antibiotics are reserved for secondary infection or severe disease [4]. A follow-up colonoscopy is advised after 4 to 6 weeks to rule out underlying neoplasia [3].

CONCLUSION

In this case, we illustrate a unique case of ischemic colitis affecting a diverticular segment with no evidence of superimposed diverticulitis. The absence of infection-related features, hemodynamic stability and evidence of localized mucosal hypoenhancement strongly argue for a diagnosis of uncomplicated ischemic colitis. This case should remind practitioners of the propensity of diverticular segments to be more susceptible to ischemia and the implications of CT with contrast in their diagnostic performance in this setting.

Radiologists and clinicians should systematically search for mucosal hypoenhancement in elderly patients with known diverticulosis, even in the absence of classical signs of diverticulitis. A follow-up colonoscopy at 4–6 weeks remains essential to exclude underlying neoplasia, as recommended by current guidelines.

Conflict of Interest: the autors declare no conflicts of interest.

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