

## Case Report

# Spontaneous intramural hemorrhage of the terminal ileum leading to bowel gangrene in a healthy 37-year-old female: a comprehensive case report

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## ABSTRACT

Spontaneous intramural intestinal hemorrhage (SIIH) is a very unusual presentation. It is only associated with anticoagulant drug therapy, trauma, or coagulopathies. Terminal ileal involvement in a patient without any predisposing factors is an extremely rare presentation, and progression to bowel gangrene is even rarer. We report a 37-year-old woman with no known comorbidities, medications, or surgical history who presented to us with acute abdominal pain and vomiting. Contrast-enhanced computed tomography (CECT) revealed hypo-enhancing distal ileal loop with free air foci, few loculated collections and enhancing peritoneum in right iliac fossa with features of subacute intestinal obstruction. Clinical deterioration ensued despite conservative management. Exploratory laparotomy, revealed a 15 cm gangrenous terminal ileal segment. Resection with end ileostomy was performed. Although SIIH usually resolves with conservative management, deterioration may lead to ischemia of the bowel segment associated with obstruction and needs timely surgical intervention. Prompt recognition and timely decision-making are critical for preventing mortality.

**Keywords:** Spontaneous intramural hemorrhage, Terminal ileum, Gangrene, Ileostomy, Acute abdomen, Small bowel ischemia

## INTRODUCTION

Spontaneous intramural intestinal hemorrhage (SIIH) represents an uncommon cause of acute abdomen and is only reported in patients receiving anticoagulant therapy or with underlying hematological disorders. Altintoprak et al. emphasized that majority of patients achieve recovery with conservative management, reserving surgery for complications such as obstruction, ischemia, or perforation.<sup>1</sup> True spontaneous cases, especially in patients without predisposing factors, represent a small subset of presentations. Jejunum is the most commonly affected segment; however, terminal ileal involvement is far less common. Progression to transmural ischemia and

gangrene is exceptionally rare.<sup>2</sup> This report presents a unique case of spontaneous terminal ileal intramural hemorrhage resulting in bowel ischemia with obstruction in a 37-year-old female, eventually requiring surgical intervention.

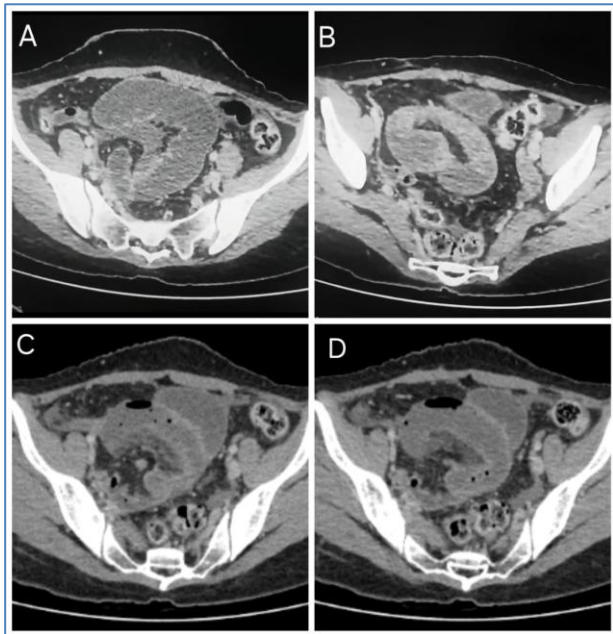
## CASE REPORT

A 37-year-old female presented to the emergency department with sudden-onset severe right lower quadrant abdominal pain associated with multiple episodes of bilious vomiting. There was no history of trauma, anticoagulant intake, non-steroidal anti-inflammatory drug (NSAID) use, oral contraceptives, steroid consumption, or previous abdominal surgery.

There was no family history of coagulopathy or hematologic disorders. At presentation, pulse rate was 110/min, blood pressure 108/70 mmHg, abdomen was protuberant, with tenderness and localized guarding in the right iliac fossa. Bowel sounds were sluggish. There were no palpable mass or signs of generalized peritonitis.

Laboratory investigations revealed leukocytosis (9110/mm<sup>3</sup>), hemoglobin of 12.4 g/dL, and platelet count within in normal range (1.5 lakhs). Coagulation parameters, including PT/INR and aPTT, were within normal limits. Renal and liver function tests, amylase and lipase levels were unremarkable.

CECT abdomen showed a hypo-enhancing distal ileal loop with free air foci, few loculated collections and enhancing peritoneum in right iliac fossa. Overall features were suggestive of gangrenous changes in distal ileum with features of perforation peritonitis. Following CECT patient was planned for exploratory laparotomy.



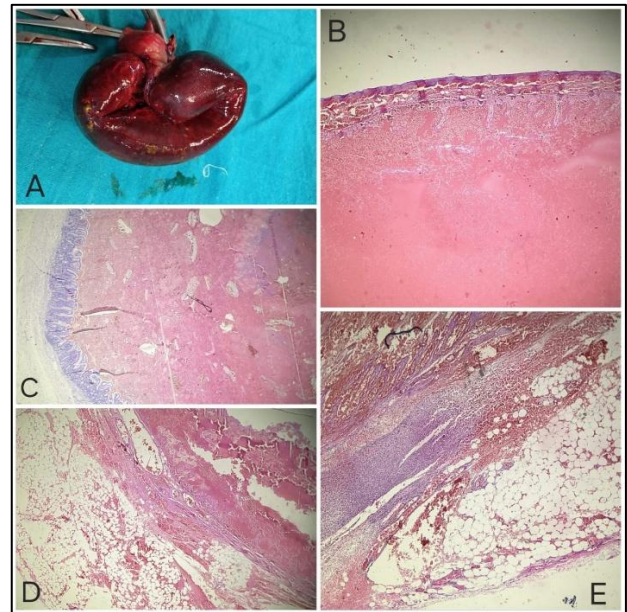
**Figure 1 (A-D): CECT whole abdomen stills (A-B) showing gangrenous ileal segment, (C-D) showing free air foci in distal ileal loop.**

### Surgical management

Exploratory laparotomy revealed a 15 cm gangrenous segment of the terminal ileum rotated on its own axis causing obstruction. There was minimal peritoneal collection. The proximal intestinal segment was dilated but the bowel appeared viable. The distal bowel segment appeared collapsed and healthy.

Resection of the gangrenous ileal segment was performed, followed by creation of an end ileostomy. Abdomen was closed en bloc over drain after wash and hemostasis.

Histopathological examination reported thickening of the intestinal wall with marked intraluminal and intramural hemorrhage along with areas of coagulative necrosis, mixed inflammatory cell infiltrate and serositis. Attached mesentery showed areas of hemorrhage, mixed inflammatory cell infiltrate and congested blood vessel. However, no thrombus identified in sections examined.



**Figure 2 (A-E): (A) Excised segment of ileum. H and E section examined from ileum showing (B) Intramural hemorrhage, (C) Intraluminal hemorrhage, (D) Intramural hemorrhage with areas of infraction, (E) serositis.**

\*Note- B-E sections are 10x magnified.

### DISCUSSION

SIIH represents a rare clinical entity, mostly associated with anticoagulation therapy particularly with warfarin accounting for more than 60% of reported cases.<sup>3-5</sup> Other reported etiological factors include abdominal trauma, haematological malignancies, thrombocytopenia, coagulopathies, vasculitis (such as Henoch-Schönlein purpura), and pancreatic disorders that result in enzymatic injury.<sup>1,3,5</sup> Despite this, a small but important subset of cases present without any identifiable predisposing factors, reflecting the idiopathic nature of the condition in otherwise healthy individuals, as observed in our patient. Such occurrences are exceedingly rare and therefore pose a diagnostic challenge due to their nonspecific presentation.<sup>3,5,6</sup>

Jejunum remains the most commonly affected (69%) segment owing to its anatomical and physiological characteristics-specifically, abundant vascularity and greater mobility within the abdominal cavity.<sup>3-5</sup> In contrast, haemorrhages involving the ileum are less frequently documented (38%). The terminal ileum, being relatively fixed and less prone to mechanical stress, is

therefore an uncommon site, making our case particularly unusual.<sup>3,5</sup>

A key complication of intramural haemorrhage formation is the risk of luminal obstruction along with compromised mesenteric perfusion. As the haemorrhage expands within the submucosal layer, it exerts extrinsic pressure on adjacent mesenteric vessels thereby produces tamponade effect by reducing blood flow and predisposing the bowel wall to ischemia.<sup>3,4</sup> If unrecognized, the vascular compromise may progress to irreversible transmural necrosis and subsequent gangrene, as seen in this patient. This highlights the importance of maintaining a high index of suspicion for ischemic progression, even in initially stable patients.<sup>4</sup>

Abbas et al emphasized the diagnostic value of CT imaging, which typically reveals segmental, circumferential and hyperdense bowel wall thickening, luminal narrowing, and occasionally the “coiled spring” sign, features characteristic of intramural haemorrhage.<sup>3,4</sup> CT also plays a crucial role in differentiating SIIH from other causes of acute abdomen such as Crohn’s disease, neoplasms, or mesenteric ischemia.<sup>3-5,7</sup> Nonetheless, radiological findings must always be interpreted alongside clinical progression.

In the absence of complications, management is primarily non-operative and includes bowel rest, supportive care, and correction of coagulation abnormalities where relevant, with close clinical surveillance, with excellent reported outcomes.<sup>4,5</sup> Altintoprak et al stressed that unnecessary surgical intervention should be avoided in clinically stable patients, as most haemorrhages resolve spontaneously within 1-2 weeks.<sup>1</sup> However, strict monitoring is essential to detect early deterioration.<sup>5,6</sup>

Operative management is indicated in patients demonstrating clear evidence of ischemia, perforation, hemodynamic instability, or failure of conservative treatment.<sup>1,5,7</sup> In the present case, despite initial conservative management, the patient’s rapid progression to increasing abdominal signs and systemic compromise necessitated urgent surgical exploration. Resection of the gangrenous segment prevented further life-threatening complication such as sepsis and peritonitis.<sup>1,5,7</sup>

Thus, our case highlights a critical clinical message that while SIIH is often benign and non-surgical in its course, vigilance is required in atypical presentations or when the clinical picture worsens. Contrast Enhanced Computed Tomography is essential for diagnosis. Early identification of ischemia and immediate surgical intervention remain the key determinants of favourable outcomes.<sup>1,4,5,7</sup>

## CONCLUSION

Spontaneous intestinal intramural hemorrhage of the terminal ileum in a healthy individual without risk factors is exceptionally rare. Although conservative management is effective in most cases, clinical deterioration should prompt urgent surgical intervention due to the risk of bowel ischemia and gangrene. Early diagnosis and timely decision-making are essential to reduce morbidity and mortality.

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