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Case Report Open Access

Segmental Ischaemia of the Terminal Ileum: A Diagnostic Dilemma during Emergency Laparotomy?

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Abstract

The macroscopic appearances of focal segmental ischaemia of the terminal ileum may be deceptively similar to acute Crohn's disease. Although a rare clinical scenario, this potential diagnosis should be borne in mind during emergency laparotomy where acute inflammation of the terminal ileum is encountered.

Keywords: Non-occlusive mesenteric ischaemia; Crohn's Disease; Terminal ileum

Introduction

Focal segmental ischaemia of the terminal ileum mimicking Crohn's disease represents an unusual clinical dilemma [1]. We describe such a case, highlighting the need for increased awareness of this potential diagnosis when performing ileocolic resections for presumed inflammatory bowel disease in the emergency setting.

Case Report

A 61-year-old woman with a past medical history of stable myelodysplastic syndrome presented as an emergency with lower abdominal pain. Clinical features were suggestive of acute diverticulitis, with localized peritonitis in the form of tenderness, rebound tenderness and raised inflammatory markers of White Cell Count at 20 thousand and CRP of 114. Abdominal ultrasonography revealed a thickened loop of bowel in the left iliac fossa, consistent with the clinical diagnosis; therefore a conservative treatment was instituted. The patient failed to respond to treatment with broad-spectrum intravenous antibiotics, and developed increasing abdominal pain and distension. A plain abdominal radiograph and CT scan done 72 hours after admission revealed multiple distended loops of small bowel. The clinical diagnosis was therefore revised to one of small bowel obstruction. In light of the clinical picture of worsening sepsis and small bowel obstruction in the absence of previous abdominal surgery, it was elected to proceed to laparotomy.

At laparotomy, the terminal ileum was grossly inflamed, with macroscopic appearances suggestive of acute Crohn's disease. There was obvious distension of the small bowel proximal to the acutely inflamed segment. This was decompressed through an enterotomy. An ileo-colic resection was performed, with a sutured end-to-end anastomosis.

Intra-operatively, the patient was profoundly haemodynamically unstable, requiring inotropic support, and subsequent admission to the intensive care unit. Her condition continued to deteriorate despite aggressive treatment with antibiotics and inotropes, and a second laparotomy was performed on the fifth post-operative day. At operation, the entire small bowel and proximal large bowel appeared dusky. Small bowel content was leaking from the enterotomy site, the anastomosis and a further small perforation in the ileum, which appeared ischemic and had not been present at the initial operation. The anastomosis was taken down, and a double-barreled stoma fashioned in the right iliac fossa. The ileal perforation and enterotomy sites were over sewn. The patient required prolonged inotropic support and renal replacement therapy in the intensive care unit. She eventually made a full recovery and was discharged home.

Inspection of the resected specimen revealed extensive mucosal ulceration. Histological examination showed a marked transmural acute inflammatory cell infiltrate, focally amounting to abscess formation. The remaining mucosa showed widespread loss of superficial epithelium and gland destruction, and the submucosa was oedematous and congested. The muscular wall showed a similarly heavy, acute inflammatory cell infiltrate with resulting atrophy of the muscle fibers. Fibrin thrombi were present within some vessels in the submucosa. It is not clear whether these represented a cause or an effect of the ischaemia. The histological features were consistent with small bowel ischaemia and not with Crohn's disease.

Discussion

Focal segmental ischaemia of the terminal ileum is rare, but has been reported in the setting of renal failure [2], amyloidosis [3], diabetes [4], and cocaine addiction [5]. Only one other report of intraoperative misdiagnosis of terminal ileal ischaemia as Crohn's disease has been identified in the published literature [1]. In this report, histological examination of the resected ileum revealed some features suggestive of inflammatory bowel disease in addition to the more dominant ischemic features. Histologically, all of these cases were characterized by the absence of frankly occlusive disease in the mesenteric circulation, although it is acknowledged that a degree of chronic mesenteric ischaemia may have been present in some. In myelodysplastic disorders venous thrombosis is a factor which may cause ischemia but in our case no major venous thrombosis was revealed in the resected specimen.

The terminal ileum is not usually regarded as one of the ischaemia-prone vascular "watersheds" of the gastrointestinal tract, but this situation may be compromised by recognized or occult pathological

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processes such as amyloidosis, resulting in a chronic subclinical reduction in regional perfusion. Further reduction in cardiac output, as a result of sepsis, may then result in critical reduction of terminal ileal blood flow, resulting in non-occlusive ischaemia. No clear predisposing cause for mesenteric ischaemia was identified in our patient. It is unclear whether her pre-existing myelodysplastic disorder may have influenced the development of her condition; however, such a relationship has not been described previously.

Conclusion

Although Crohn's disease is more common than terminal ileal ischaemia, surgeons should consider the possibility of a localised ischaemic process when unusual appearances are encountered during emergency laparotomy for suspected inflammatory bowel disease. If terminal ileal ischaemia is recognised or suspected intra-operatively, particular attention should be paid to the anastomotic blood supply, and consideration should be given to exteriorising the divided ends of bowel.

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