

Isolated Colonic Stricture Due to Crohn's Disease: Diagnostic Dilemma and Management

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Abstract

Crohn's disease is characterized by chronic inflammation of the gastrointestinal tract, often leading to strictures predominantly in the small bowel. However, colonic involvement, particularly isolated transverse colon strictures, is exceedingly rare. We present the case of a 20-year-old female presenting with acute intestinal obstruction secondary to an isolated long segment transverse colon stricture due to Crohn's disease. Despite initial conservative management, surgical intervention was necessary, leading to a laparoscopic-assisted extended right hemicolectomy. Histopathological examination confirmed severe active colitis consistent with Crohn's disease. This case highlights the rarity of isolated colonic strictures in Crohn's disease and underscores the importance of considering such presentations in the differential diagnosis of intestinal obstructions. Additionally, it emphasizes the need for close monitoring and individualized management strategies, including surgical intervention and pharmacotherapy, in these uncommon yet clinically significant cases.

Keywords: Crohn's Disease; Strictures; Isolated Colonic Stricture; Obstruction; Malignant Transformation; Chronic Inflammation; Fibrosis; Laparoscopic Surgical Intervention.

Introduction

Crohn's disease is a chronic inflammatory condition which can affect any part of the gastrointestinal tract from mouth to anus.¹ It is characterised by transmural inflammation with variable, asymmetric, and segmental involvement of the bowel. Patients with Crohn's disease often present with abdominal pain and altered bowel habits secondary to the bowel inflammation. Among them, more than 50% of patients will develop stricturing or penetrating complications within the first 10 years after diagnosis.² Strictures in Crohn's disease are often seen in the small bowel and rarely in colon.³ Here we present a rare case of acute intestinal obstruction due to Crohn's disease with isolated long segment transverse colon stricture.

Case Report

We present a 20 year old homemaker who came with sudden onset severe abdominal pain for 5 days that is colicky in nature associated with intermittent non bilious vomiting. She also had obstipation for 2 days.

Earlier, she had increased frequency of stools with occasional mild dull aching pain in upper abdomen for last 8 months. Her stools were not associated with mucus or blood. She had lost weight of approximately 6kgs in 8 months. She was evaluated with colonoscopy (figure 1) which showed ulceration with circumferential luminal narrowing at transverse colon and scope couldn't be negotiated beyond and her biopsy was non-specific colitis. Her CECT abdomen (figure 2) revealed long segment stricture of transverse colon with adjacent fat stranding with upstream proximal bowel dilatation.

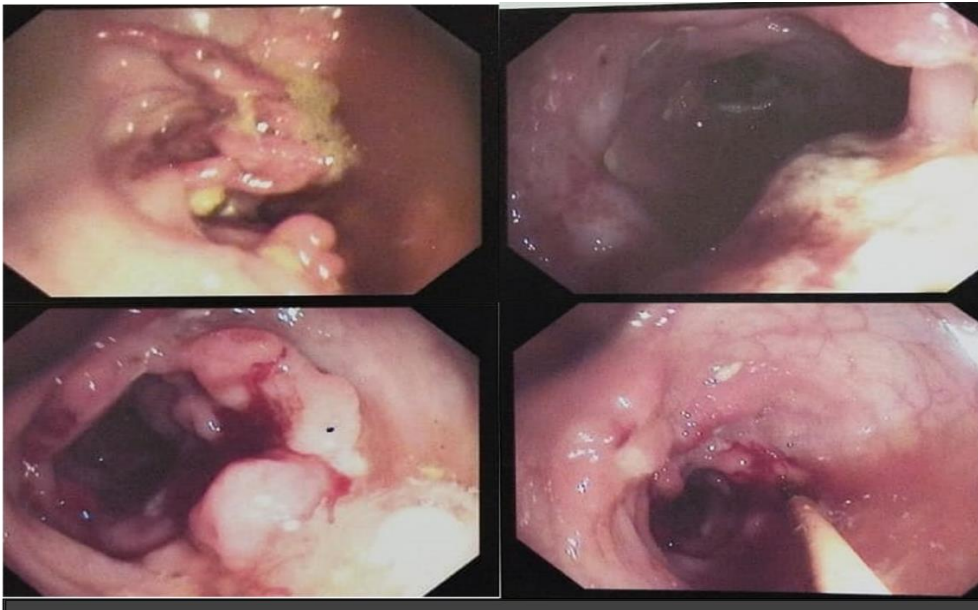


Figure 1: Colonoscopy showing mucosal nodularity with structuring lesion extending from splenic flexure to distal transverse colon, scope couldn't be passed beyond.

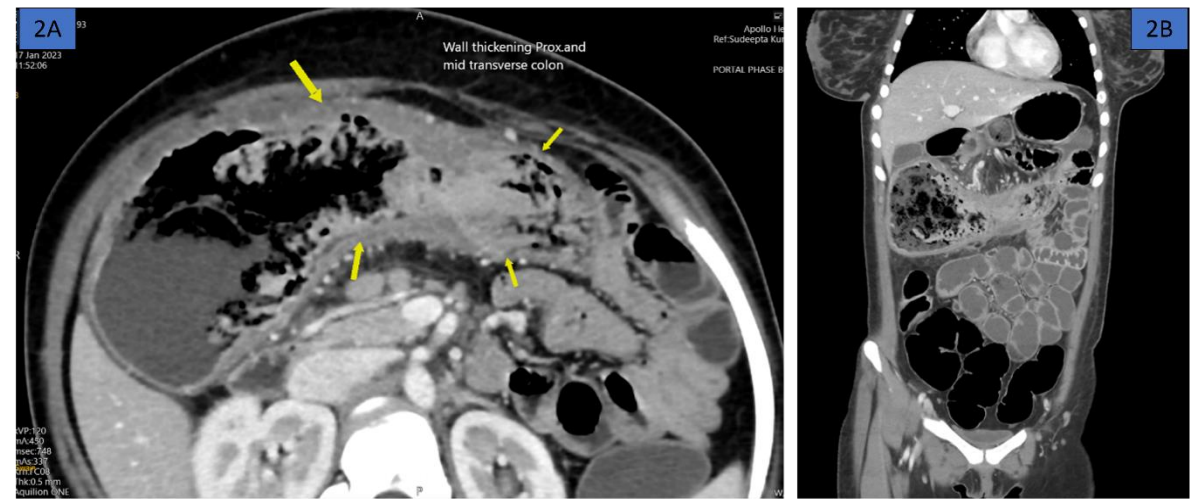


Figure 2: (a) CECT abdomen-axial section showing thickened wall of transverse colon with adjacent inflammatory fat stranding. (b) Coronal section showing long segmental stricture with proximal bowel dilatation.

She was initially managed conservatively with nasogastric tube insertion, Intravenous fluids and analgesics. Her symptoms did not subside and her pain worsened. In view of progressive intestinal obstruction, she was taken up for emergency surgery. Intraoperatively, long segment stricture was noted at mid transverse colon with dilatation of proximal colon and distal ileal loops. There were multiple enlarged mesenteric nodes. She underwent laparoscopic assisted extended right hemicolectomy. Her post-operative period was uneventful. She received Total parenteral nutrition in the perioperative period for improving her nutritional status. She was started on oral liquids from POD1 which was upgraded to soft solid diet by POD5. Her histopathology (figure 3) was reported as severe active colitis with fissuring ulceration, transmural inflammation, non-caseous granulomas and lymphoplasmacytic infiltrate. These findings were consistent with Crohn's disease. She was started on azathioprine and aminosaliclates. She is doing well and on regular follow up.

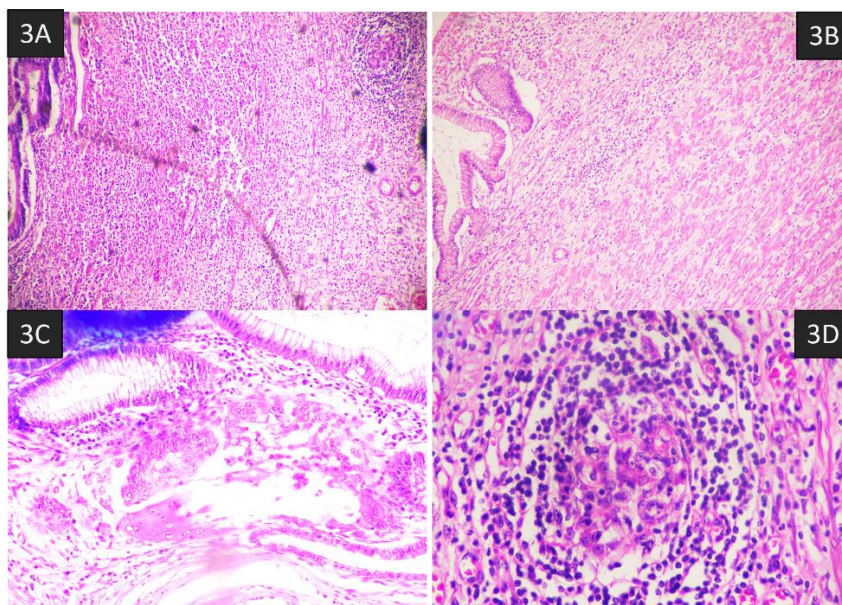


Figure 3: Histopathology images (a) transmurial inflammation, (b) fissuring ulceration, (c) giant cells, and (d) granuloma.

Discussion

Crohn's disease is a chronic, progressive and transmurial inflammatory disorder of the gastrointestinal tract. Based on the Montreal classification system, behaviour of the disease can be categorized into nonstricturing/nonpenetrating, stricturing, and penetrating phenotypes.¹ Individuals with Crohn's disease are susceptible to the formation of fibrosis-related intestinal strictures, potentially leading to bowel obstructions and complications.³ It appears that only 10% of patients are initially diagnosed with an intestinal stricture, and the risk of developing a stricture increases over time. After 5 years of diagnosis, upto 50% of patients will develop a stricture, and after 10 years, this percentage increases to around 70%.⁴

Despite the numerous studies conducted in recent decades which have provided new insights into the pathogenesis, the mechanism underlying the development of intestinal strictures remains incompletely understood. Currently, there are no dedicated anti-fibrotic therapies available to prevent or reverse the progression of intestinal fibrosis.⁵ The chronic inflammation of bowel causes ulcerations which eventually heals by disorganized deposition of extracellular matrix.⁵ Because of the transmurial inflammation in Crohn's disease, fibrosis can involve the full thickness of the bowel wall. The ECM is mainly composed of collagen subtypes I, III and V which are deposited in the submucosal and in muscular layers, facilitated by an increased number of activated fibroblasts and myofibroblasts.²

Strictures are more commonly seen in Crohn's disease compared with ulcerative colitis. According to the CONSTRICT criteria, stricturing on endoscopy refers to the inability to pass an adult colonoscope through the narrowed area without prior endoscopic dilatation with a reasonable amount of pressure applied.³ Approximately 25% of Crohn's disease patients have experienced at least one small bowel stricture, and only 10% have encountered colonic stricture.⁶ The majority of these patients may need at least one surgical procedure in their lifetime for strictures mostly due to obstruction caused by them. Despite the advent of biologics, the incidence of surgery for management of intestinal stricture in Crohn's disease has not demonstrated a substantial decrease.¹

The most frequent site for stricture in Crohn's disease is small bowel, although strictures can manifest anywhere in the GI tract and are often seen as the segmental involvement.³ About 80% of patients with Crohn's disease will have small bowel involvement especially in the distal ileum. Approximately 20% of patients have disease limited to large bowel.⁷ Nearly one half of Crohn's disease patients with colitis will have sparing of rectum in contrary to ulcerative colitis. Colonic strictures, in particular, require a special attention due to higher risk of dysplasia/ malignancy compared to small bowel strictures. In Crohn's disease patients, colonic stricture is often

associated with small bowel strictures. In Crohn's disease, colonic strictures possess high malignancy rate about 6.8% while comparing to small bowel strictures where adenocarcinoma rate is less than 1%.

Colonic stricture in Crohn's disease has a colorectal cancer risk of 3.6% at 5 years and 4.9% at 10 years.⁸ Conversely, in ulcerative colitis, the incidence of colorectal stricture ranges from 1.5% to 11.2%, with the risk of cancer reported between 0% and 33%. Surprisingly, even with negative results from endoscopic biopsies or brushings, 3.5% of colonic strictures in individuals with inflammatory bowel disease may harbour dysplasia or malignancy, as revealed through histopathologic evaluation following surgical resection. Colonic strictures are usually dealt with surgical resection either as a subtotal colectomy or a segmental resection. Stricturoplasty has also been described for large bowel strictures but are not routinely performed.⁹ Endoscopic balloon dilatation or endoscopic stricturotomy may be attempted in patients with single and short colonic strictures.¹⁰

Patients with acute bowel obstruction requires hospitalization. Complications like free perforation, abscess, fistulizing disease or malignancy should be excluded by rapid evaluation with a physical examination and especially cross-sectional imaging (CECT enterography). GI decompression with a naso-gastric tube, hydration and electrolyte replacement are the mainstay of initial management, followed by close monitoring of the clinical status and abdominal X-rays. Although corticosteroid therapy is generally used in this setting, evidence is limited. Often, endoscopic or surgical interventions are required.

Laparoscopic surgery may have advantages by reducing postoperative adhesion formation. However, disease-related complications can increase the operative time and the conversion rates for a laparoscopic approach. Regrettably, there is a high incidence of postoperative recurrence of strictures, particularly at the site of ileocolonic anastomosis. The estimated risk of requiring re-operative management within 10 years after the initial resection for Crohn's disease is approximately 35%. The occurrence of an isolated colonic stricture in Crohn's disease is uncommon, and thus, we present this case to underscore its rarity.

Conclusion

In Crohn's disease, intestinal stricture formation is common. Isolated colonic stricture is possible, even though rare. These strictures carry a small risk of malignancy as compared to small bowel strictures. Minimally invasive surgical intervention relieves obstruction but they need regular follow up with medications.

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