

Small bowel adenocarcinoma in a Crohn's disease patient presenting as small bowel obstruction: a case report

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ABSTRACT

Background: Small bowel adenocarcinoma (SBA) is a rare but dreaded complication of Crohn's disease with a poor prognosis. The evidence has concluded that it is difficult to differentiate between SBA and benign strictures. Intraoperative and pathological diagnosis is the mainstay of treatment. **Case presentation:** The current case involves a 40-year-old male with a 12-year history of Crohn's disease who presented with symptoms of small bowel obstruction, which were confirmed by an abdominal C.T. scan. An exploratory laparotomy revealed a stricture, which raised the possibility of malignant disease. Histology revealed a well-differentiated adenocarcinoma. **Conclusion:** The rarity of small bowel adenocarcinoma in Crohn's disease patients necessitates a high index of suspicion in patients presenting with features of small bowel obstruction or strictures.

Keywords: Crohn's disease; Small bowel; Adenocarcinoma.

BACKGROUND

Small bowel adenocarcinoma (SBA) is sporadic, and they make up only 1-3% of all malignant gastrointestinal neoplasms (1). These neoplasms include carcinoid, adenocarcinoma, lymphoma, and sarcoma. SBA accounts for only one-third of all small bowel malignancies (2). Approximately half of SBA are located in the duodenum (3). SBA symptoms include abdominal pain, anorexia, and weight loss, which can be mistaken for IBD flares [4]. Small bowel cancers are a diagnostic challenge because they lack specific physical findings. (4).

Patients with inflammatory bowel disease (IBD), ulcerative colitis (U.C.), and Crohn's disease (CD) are at high risk of various malignancies, the most common being SBA.(5). Patients with CD are reported to have 60 times more risk for SBA than the general population (6). Some risk factors for SBA in CD patients reported in the literature include long disease duration, young age at disease onset, male gender, distal localization, and use of immunosuppressive therapy (7).

Preoperative diagnosis of SBA in CD patients is rare, and most cases are only diagnosed incidentally in surgery done for benign complications or during routine histopatho-

logical examination (8, 9). Previous studies showed that most CD-related SBA could not be diagnosed preoperatively. The clinical presentation is similar, and imaging studies such as C.T. and MRI show no differences. Furthermore, the prognosis of SBA in CD patients is dismal, with only a 20-30% 5-year survival rate (10). We present a patient with a 12-year history of CD who was incidentally found to have SBA following surgery done for obstructive symptoms.

Case presentation

A 40-year-old male patient with a 12-year history of Crohn's disease was treated with azathioprine, 5-aminosalicylic acid, and prednisolone. The patient presented to the hospital complaining of sudden onset lower abdominal discomfort, nausea, and progressive abdominal distention for 12 days. He was admitted to a nearby hospital and treated conservatively with hydration, IV antibiotics, and analgesia. An abdominal C.T. with IV contrast was performed, revealing signs of incomplete obstruction. The patient was then referred to our hospital for additional care.

Upon admission, vital signs were stable. Abdominal examination revealed a hugely distended abdomen, hyper resonant on percussion with sluggish bowel sounds on auscultation. Initial lab results showed a white

blood cell count of $6.6 \times 10^3/L$, hemoglobin 11.4 g/dL, and platelet count of $419.7 \times 10^3/L$. Serum sodium was 140 mEq/L, serum potassium was 2.57 mEq/L, blood urea nitrogen was 4.8 mg/dL, creatinine was 0.3 mg/dL, and CRP was 42.9.

An abdomen C.T. scan with IV contrast showed evidence of bowel perforation, extensive intra-abdominal collection, multiloculated abscesses, and dilated small bowel.

Initially, the patient was managed conservatively with total parenteral nutrition and kept NPO; significant clinical improvement was noted for a couple of days, after which he had another attack of abdominal pain, distention, and vomiting. A follow-up C.T. scan showed a focally severely dilated small bowel segment (up to 6.5cm) with distal luminal

narrowing, a segment of small bowel with severe dilatation (up to 6.5 cm), with distal luminal narrowing, air-fluid level, and significant wall thickening (extending along a 20 cm), features of small bowel loop stricture with significant proximal dilatation (Figure 1). Based on the patient's clinical and radiological status, he was taken for laparotomy.

Laparotomy revealed severely dilated small bowel loops proximal to a mid-jejunal stricture. The patient underwent adhesiolysis, small bowel resection, and anastomosis, and the specimen was sent for routine histopathology, which later showed well-differentiated SBA (Figure 2). The postoperative profile was unremarkable, and the patient was scheduled to start oncologic therapy.

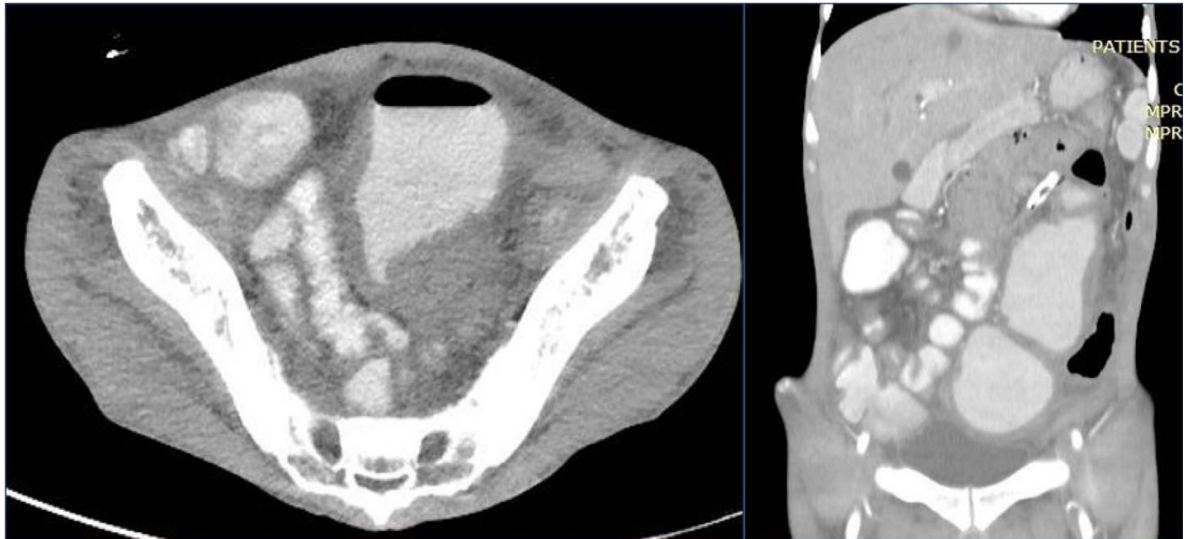


Figure (1): Abdominal CT scan, coronal and axial views showing features of small bowel stricture.

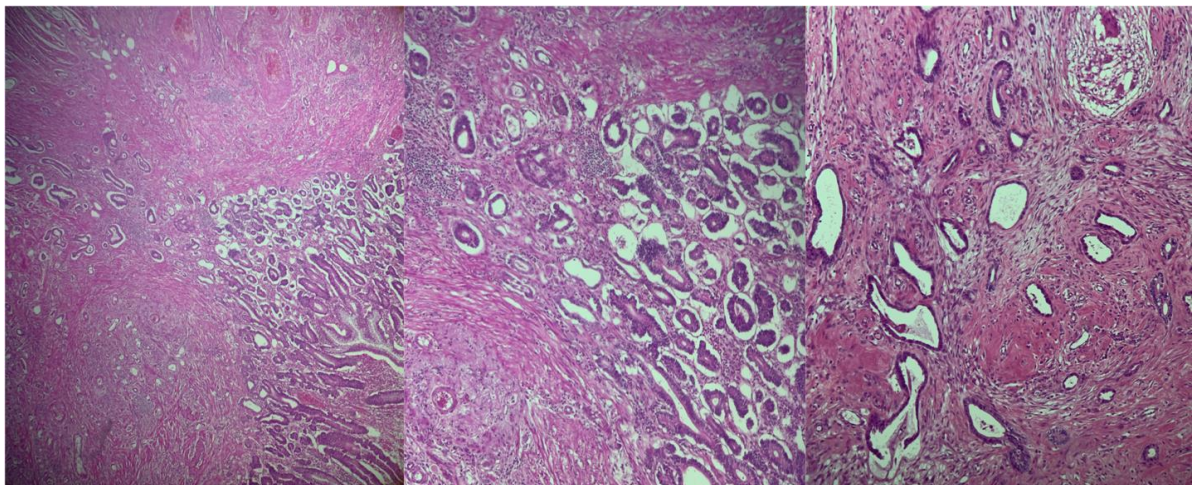


Figure (2): Histopathology of the stricture showing malignant glands invading the small bowel wall.

DISCUSSION

SBA is rare. The reported prevalence in Crohn's disease (CD) patients is only 1.6% (11). It is a dreaded complication with a poor survival rate (10). The pathophysiology behind SBA is related to ongoing inflammatory processes and the dysplasia-carcinoma sequence (12, 13).

Three cases reported SBA occurring at the site of stricturoplasty (13-15). A case-control study by Lashner (16) concluded that hazardous exposure, proximal small bowel disease, and 6-mercaptopurine therapy were significantly associated with small bowel cancer in CD patients. Small bowel obstruction refractory to medical therapy and long periods of relative quiescence were reported as significant clinical indicators of malignancy in CD patients (17).

Distinguishing SBA and small bowel strictures is difficult as they present in most cases with non-specific symptoms. Moreover, there are no distinguishing radiological signs, and they are not accessible for diagnostic evaluation (10). Most cases are thus diagnosed at advanced stages.

Only 3.1% of cases were diagnosed preoperatively; on the other hand, the majority (61.5%) were only diagnosed during or after surgery (18).

CONCLUSION

We reported a case initially managed as small bowel obstruction and diagnosed with a small bowel stricture during surgery. A histopathological examination later revealed SBA. This highlights the importance of high clinical suspicion of SBA in CD patients presenting with occlusive symptoms.

DECLARATIONS

Ethics approval and consent to participate

The University IRB has approved to conducting and publish the manuscript

Consent for publication

No written consent to publish was obtained from the patient. However, verbal consent was obtained from the patient. IRB was also obtained

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions

M.S: wrote the manuscript. **A.B:** performed the surgery. **A.R:** performed the surgery. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests

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REFERENCES

- 1) Zonča, P. Peteja, M. Richter, V. Vávra, P. & Ihnát, P. (2016). [Primary malignant small bowel tumors]. *Rozhl Chir.* 95(9). 344-9.
- 2) Raghav, K. Overman, M.J. (2013). Small bowel adenocarcinomas--existing evidence and evolving paradigms. *Nat Rev Clin Oncol.* 10(9). 534-44.
- 3) Bilimoria, KY. Bentrem, D.J. Wayne, J.D. Ko, C.Y. Bennett, CL. & Talamonti, MS. (2009). Small bowel cancer in the United States: changes in epidemiology, treatment, and survival over the last 20 years. *Ann Surg.* 249(1). 63-71.
- 4) Abu-Hamda, EM. Hattab, EM. & Lynch, PM. (2003). Small bowel tumors. *Curr Gastroenterol Rep.* 5(5). 386-93.
- 5) Annese V, Beaugerie L, Egan L, Biancone L, Bolling C, Brandts C, Dierickx D, Dummer R, Fiorino G, Gornet JM, Higgins P, Katsanos KH, Nissen L, Pellino G, Rogler G, Scaldaferrri F, Szymanska E, Eliakim R; ECCO. (2015). European Evidence-based Consensus: Inflammatory Bowel Disease and Malignancies. *J Crohns Colitis.* 9(11). 945-65.

- 6) Jess, T. Winther, KV. Munkholm, P. Langholz, E. & Binder, V. (2004). Intestinal and extra-intestinal cancer in Crohn's disease: follow-up of a population-based cohort in Copenhagen County, Denmark. *Aliment Pharmacol Ther.* 19(3). 287-93.
- 7) Laukoetter MG, Mennigen R, Hannig CM, Osada N, Rijcken E, Vowinkel T, Krieglstein CF, Senninger N, Anthoni C, Bruewer M. (2011). Intestinal cancer risk in Crohn's disease: a meta-analysis. *J Gastrointest Surg.* 15(4). 576-83.
- 8) Drukker, L. Edden, Y. Reissman, P. (2012). Adenocarcinoma of the small bowel in a patient with occlusive Crohn's disease. *World J Gastrointest Oncol.* 4(7). 184-6.
- 9) Hussain T, Jeganathan NA, Karagkounis G, Stocchi L, Shawki S, Holubar SD, Gordon I, Hull T, Liska D. (2020). Small bowel adenocarcinoma in Crohn's disease: a rare but devastating complication. *Tech Coloproctol.* 24(10). 1055-62.
- 10) Feldstein, RC. Sood, S. & Katz, S. (2008). Small bowel adenocarcinoma in Crohn's disease. *Inflamm Bowel Dis.* 14(8). 1154-7.
- 11) Shaukat, A. Virnig, DJ. Howard, D. Sitaraman, SV. Liff, JM. & Lederle, FA. (2011). Crohn's disease and small bowel adenocarcinoma: a population-based case-control study. *Cancer Epidemiol Biomarkers Prev.* 20(6). 1120-3.
- 12) Schottenfeld, D. Beebe-Dimmer, JL. & Vigneau, FD. (2009). The epidemiology and pathogenesis of neoplasia in the small intestine. *Ann Epidemiol.* 19(1). 58-69.
- 13) Greenstein, AJ. & Janowitz, HD. (1975). Cancer in Crohn's disease. The danger of a by-passed loop. *Am J Gastroenterol.* 64(2):122-4.
- 14) Menon, AM. Mirza, AH. Moolla, S. & Morton, DG. (2007). Adenocarcinoma of the small bowel arising from a previous strictureplasty for Crohn's disease: report of a case. *Dis Colon Rectum.* 50(2). 257-9.
- 15) Partridge, SK. & Hodin, RA. (2004). Small bowel adenocarcinoma at a strictureplasty site in a patient with Crohn's disease: report of a case. *Dis Colon Rectum.* 47(5). 778-81.
- 16) Lashner, BA. (1992). Risk factors for small bowel cancer in Crohn's disease. *Dig Dis Sci.* 37(8). 1179-84.
- 17) Widmar, M. Greenstein, AJ. Sachar, DB. Harpaz, N. Bauer, JJ. & Greenstein, AJ. (2011). Small bowel adenocarcinoma in Crohn's disease. *J Gastrointest Surg.* 15(5). 797-802.
- 18) Dossett, LA. White, LM. Welch, DC. Herline, A.J. Muldoon, RL. Schwartz, DA. Wise, PE. (2007). Small bowel adenocarcinoma complicating Crohn's disease: case series and review of the literature. *Am Surg.* 73(11). 1181-7.