Abscess Formation Secondary to Bowel Perforation as Initial Presentation of Crohn's Disease: A Case Report

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ABSTRACT

Crohn's Disease is a gastrointestinal disorder that is more prevalent in the Asian population. Clinical features, such as diarrhea, abdominal pain, and hematochezia, are common manifestations of Crohn's Disease. A 23-year-old male patient presented with a 2-month history of abdominal pain and a mass-like appearance in the right flank. A colonoscopy was performed, which suggests Crohn's Disease. Abdominal CT scan revealed abscess formation. Clinical improvement was not achieved despite the optimization of 5-ASA treatment and the addition of steroids. Abscess drainage was performed, which later revealed ileo-colon perforation with severe adhesion, which was treated with ileo-colon resection, followed by double barrel ileo-colostomy. The pain was improved after surgery and optimization of 5-ASA, steroids, and azathioprine. Intestinal abscess formation should be considered one of the manifestations of Crohn's Disease, which also needs to be investigated for possibilities of perforation. Adequate surgical and medical management can be used to achieve and maintain remission and prevent another intestinal complication. This case report aims to raise awareness of intestinal abscesses due to bowel perforation in Crohn's disease patients.

Keywords: *Abdominal abscess, crohn's disease, intestinal perforation*

ABSTRAK

Penyakit Crohn adalah penyakit gastrointestinal yang lebih umum ditemukan di populasi Asia. Manifestasi klinis yang umum ditemukan adalah diare, nyeri abdomen, dan hematochezia. Kolonoskopi merupakan modalitas diagnostik utama Inflammatory Bowel Disease (IBD). Seorang laki-laki berusia 23 tahun datang dengan keluhan nyeri perut sejak 2 bulan disertai massa pada regio lumbar dekstra. Hasil kolonoskopi sugestif untuk Penyakit Crohn. CT abdomen menunjukkan adanya abses. Pasien tidak membaik meski diberikan 5-ASA dosis optimal dengan steroid. Setelah itu, dilakukan drainase abses. Ditemukan adanya perforasi ileokolon dengan adhesi berat, sehingga dilakukan reseksi ileokolon yang dilanjutkan dengan ileokolostomi double barrel. Nyeri membaik setelah dilakukan operasi disertai pemberian 5-ASA, steroid, dan azathioprine .Abses intestinal harus dipertimbangkan sebagai salah satu manifestasi klinis Penyakit Crohn. Selain itu, harus dievaluasi adanya komplikasi perforasi. Terapi surgikal dan medikamentosa yang adekuat dapat membantu pasien mencapai dan mempertahankan remisi, serta mencegah komplikasi intestinal lainnya. Tujuan dari laporan kasus ini adalah agar klinisi dapat mengenali abses intestinal akibat perforasi usus yang merupakan komplikasi dari penyakit Crohn.

Kata Kunci: *Abses abdomen, penyakit Crohn, perforasi intestinal*

INTRODUCTION

Crohn's disease is a gastrointestinal disease with an increasing prevalence rate in the Asian population. Uncontrolled chronic inflammation mechanism in Crohn's Disease can lead to complications which require long periods of treatment and intense monitoring. Transmural inflammation with skip lesions are the process underlying the disease development. Common clinical features related with this disease are abdominal pain, diarrhea, fever, with some cases manifested as bloody stool. The main goal of disease treatment is to achieve clinical remission, with continuation of pharamacologic treatment is the most appropriate treatment, with follow up colonoscopy is sometimes required to evaluate disease progression or remission.[1]

Colonic stricture, fistula formation, and neoplasia are structural complications that can occur in uncontrolled Crohn's Disease.[1] Below is a report about a case of a young man who presented with a mass-like appearance on his right flank with abdominal pain, which was later revealed to be due to ileo-colon perforation, which can occur in Crohn's Disease. This case report aims to raise awareness of this important complication of Crohn's Disease.

CASE ILLUSTRATION

A 23-year old male presented with progressive abdominal pain for two months and a mass-like appearance in the right flank. The patients also reported watery stool twice per day, without blood, and unintentional weight loss (5 kg in 2 months). The patient later underwent an abdominal CT scan, which revealed a thickening colon in the caecum and ascending colon. A colonoscopy was performed, which showed inflammation suggestive of Crohn's Disease or abdominal tuberculosis. A tissue biopsy was collected, which revealed a non-specific colitis. The result of Polymerase Chain Reaction test to detect TB was negative. Diagnosis of Crohn's Disease was made, and the patient received sulfasalazine 2 x 1000 mg. The patient did not attend routine check-ups for one year because of self-reported clinical improvement.

The patient came again to the hospital with recurrent abdominal pain and a non-resolving right flank mass. The patient underwent a second colonoscopy **(Figure 1)** which revealed a worsening of inflammation on the ascending colon and polypoid mass in the caecum. Crohn's Disease Activity Index (CDAI) score evaluation was also elevated to 323 (moderate activity). Since then, the patients received

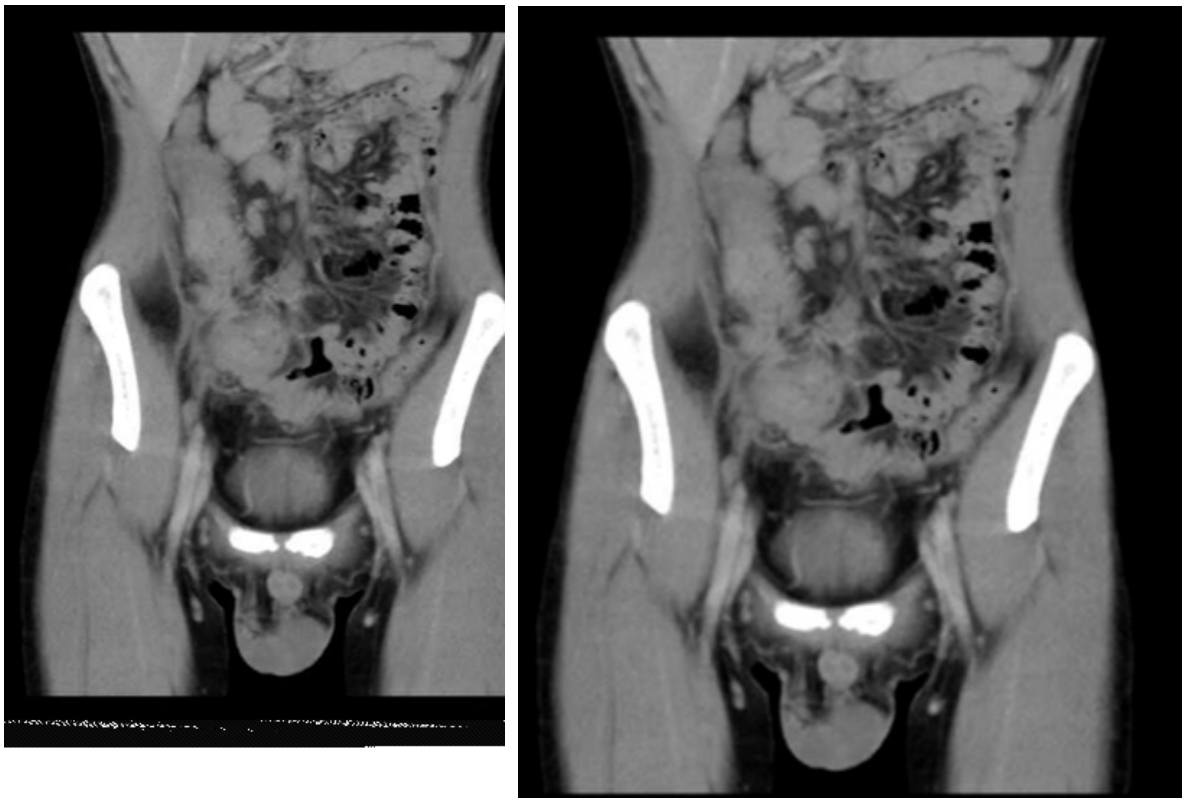

Figure 1. Colonoscopic features in the patient after one year of lost-to-follow-up revealed a polypoid mass in the caecum suggestive of worsening Crohn's Disease *(left)***. Initial abdominal CT scan showed a thickening of the ascending colon (ileocaecal segment to hepatic flexure part of the ascending colon)** *(right)*

increasing doses of sulfasalazine, combined with methylprednisolone 3 x 16 mg (with tapering-off). Abdominal pain still occurred, along with the growing size of the right flank mass. Abdominal CT was performed, as shown in **Figure 1** and **Figure 2**, which revealed abscess formation involving multiple areas (major psoas muscle, lumbar quadratus muscle, right iliac muscle, right gluteal), and later needed to be drained. When the patient underwent abscess drainage, suspicions of other causes were considered, as only a tiny amount of pus can be drained. Open laparotomy was performed after, which revealed severe adhesion of omentum and colon caudally, with exposed right retroperitoneal area and perforation in the terminal ileum and caecum. Based on this finding, ileo-colon resection was performed in this patient, followed by double barrel ileo-colostomy. These procedures were performed when CDAI scores still showed active disease. After the surgery, the patient continued medical treatment with sulfasalazine, tapered-down methylprednisolone, and azathioprine initiation as steroid-sparing agents until the latest outpatient visit. In his last visit, abdominal pain was improved, and he is scheduled to undergo further colonoscopy to evaluate the endoscopic features of Crohn's Disease after surgery and treatment optimization.

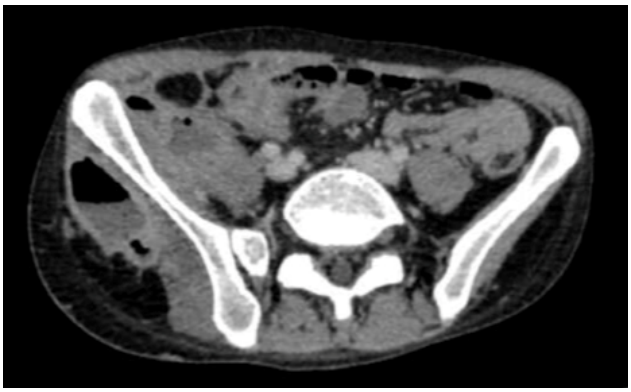

Figure 2. Abdominal CT scan showed abscesses adjacent to the right colon (marked by X signs)

DISCUSSION

Crohn's Disease is a chronic inflammatory disease in the gastrointestinal system, involving areas not limited to the colon.[1] Endoscopic examination (upper or lower) can be used to diagnose the disease. To confirm the diagnosis, infection should be excluded first because it can cause similar clinical features. Infection should be treated before considering another cause. Endoscopic features can be distinguished between Crohn's Disease and Ulcerative Colitis. Skip lesion appearance (irregular pattern of inflamed mucosa, with normal mucosa findings in between the inflammed area) is the most common finding in Crohn's Disease.[2]

Many clinical presentations can occur in Crohn's Disease. Diarrhea, lower GI bleeding, and abdominal pain are the most common clinical features of Crohn's Disease. Extraintestinal manifestations can occur in patients with Crohn's Disease, involving the musculoskeletal, dermatological, ocular, and hepatobiliary systems.[2] Complications can arise in active Crohn's Disease, such as abscess formation, fistula, or intestinal perforation.[2] Around 1-3% of cases reported intestinal perforation as a major complication found in Crohn's Disease patients. Ileocolonic areas are the most common location of inflammation, which also contributes to complications from Crohn's Disease.[3,4]

Abscess can form as a result of fistula development from Crohn's Disease. Inflammatory response from Crohn's Disease involves T-cells, B-cells, and macrophages, which can produce TNF-α. This process triggers the transition of epithelial to mesenchymal cells, which contributes to decreased intestinal epithelial cell adhesion and formation of mesenchymal cells in the intestine. This cell type will degrade the extracellular matrix, resulting in deeper penetration and fistula formation.[5]

Percutaneous abdominal drainage was preferred as the initial management for patients presenting with abscesses, although perforation occurred. After successful drainage (symptoms resolution after 48 hours, decreased need for follow-up surgery), elective surgery should be considered in some populations (stoma placement, risk of future abscess recurrence, fistula development). [6,7]

In patients who have not responded with 5-ASA as a treatment for Crohn's Disease, step-up approach management should be considered with a target of maintenance of remission. Steroids, azathioprine, or biological agents, such as vedolizumab, can be considered as alternative therapy for Crohn's Disease, depending on the clinical status, Crohn's Disease activity, and other comorbidities. However, infection should be excluded and treated if they exist before starting the immunosuppressive treatments. The risk of infection should be considered, as abscess formation is mainly caused by bacterial colonization.[8] It is proposed that male gender, active smoking, and extraintestinal manifestation are risk factors for Crohn's Disease progression, based on a study conducted by Kayar et al. [9]

Carvalho et al. proposed a treatment algorithm for patients who developed abscesses secondary to Crohn's Disease. For abscesses with a size of less than 4 cm, medical treatment, such as intravenous antibiotic administration (combination of ciprofloxacin and metronidazole), is commonly used, with a high consideration of IV steroids. When clinical improvement occurs (decreased size of abscess), additional treatment (immunomodulator, biologic agents) can be administered to the patients as the infection risk is lower after the antibiotic course. Otherwise, if antibiotic and steroid treatment are ineffective, immediate surgery with drainage, resection, and stoma creation should be considered.[10] Feagins et al. also proposed a similar treatment approach, which considered abscess > 3 cm with fistula formation or patients on steroids for treatment, antibiotics, and percutaneous drainage, with evaluation after five days of treatment.[11,12]

In some cases, an abscess can form with a size of more than 4 cm, which require a more invasive approach, such as percutaneous drainage as source control, with consideration of antibiotics administration. However, the surgical approach should be considered once a larger abscess is found. Conservative approaches, such as anti- TNF-alpha agents, are considered in younger patients without previous abdominal surgery, although larger abscesses need to be treated surgically.[13] Endoscopic drainage was also considered as a treatment approach for short, superficial perianal fistula, where intraabdominal or pelvic abscesses were not suitable in this approach due to bowel involvement and the need for bowel repair.[14,15]

CONCLUSION

Crohn's disease is an intestinal disorder that can rarely cause intraabdominal abscess due to intestinal perforation. Clinical presentations include abdominal pain and abdominal mass-like appearance. Colonoscopy is useful to provide information about the intraluminal appearance, abnormalities, and specimen collection to provide additional information about underlying disease. Surgical management combined with appropriate medical management, are needed to achieve and maintain remission status with a long-term goal of preventing intestinal complications.

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