Case report

Change in paradigm: impact of an IBD medical home on the outpatient management of acute severe ulcerative colitis

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SUMMARY

A 72-year-old man presents with acute severe ulcerative colitis (ASUC), initially partially responsive to intravenous steroids and infliximab over a 3-day hospital stay. Following discharge and over the course of 15 days, his care was coordinated by the inflammatory bowel disease medical home team, who conducted clinical laboratory assessments and two outpatient flexible sigmoidoscopies to evaluate endoluminal disease activity and treatment response prior to proceeding with a laparoscopic total abdominal colectomy and creation of end ileostomy following medical failure. He was admitted to the hospital for a total of only 7 days, which included attempted medical management of ASUC, surgery and postoperative recovery.

BACKGROUND

Inflammatory bowel disease (IBD), a chronic condition characterised by periods of exacerbation and remission, is responsible for at least \$14 billion in healthcare expenditures in the USA.¹ Approximately one-fifth of patients with ulcerative colitis (UC) will require inpatient hospitalisation for an acute flare, which requires prompt multidisciplinary management by gastroenterologists, intensivists and surgeons.² Severe presentation with acute severe ulcerative colitis (ASUC) often requires escalating treatments with intravenous steroids as a first-line therapy. While 15% of patients with ASUC do not respond to treatment, randomised controlled trials have demonstrated the efficiency of infliximab and cyclosporine treatment as ASUC rescue therapies.

ASUC is defined using the Truelove and Witts criteria³ (stool frequency of more than six/day, frequent blood in stool, temperature of >37.5°C, pulse rate of >90 beats/min, haemoglobin level of <105 g/L and erythrocyte sedimentation rate (ESR) of >30 mm/hour) and the European Crohn's and Colitis Organisation criteria,⁴ which includes C reactive protein (CRP) of >30 mg/L.

In the traditional evaluation and treatment for ASUC, close inpatient daily monitoring after initiation of intravenous steroids for up to 5 days before declaring medical failure is recommended.⁵ However, evidence has also shown safe administration of steroids for up to 10 days for delayed responders.⁶ A common induction regimen of infliximab is 10 mg/kg at 0, 2 and 6 weeks. Patients are reassessed with endoscopic evaluation of

endoluminal disease, laboratory parameters and clinical progression.

Regardless, typical management includes prolonged hospitalisation, which places patients at risk of nosocomial infections, multidrug-resistant organisms and venous thromboembolism, among other preventable complications.^{7–10} Additionally, prolonged duration of preoperative medical treatment correlates with poorer outcomes after surgery for ASUC.¹¹

An IBD medical home is an efficient, high-quality, patient-centred model of care that addresses patients' medical and psychosocial needs across the continuum of care. Furthermore, it avoids segmentation and fragmentation of IBD management. The IBD medical home comprises a multidisciplinary team, including a gastrointestinal (GI)–IBD specialist responsible for a cohort of patients.¹²

We aimed to demonstrate that balance can be achieved between safe monitoring with attempted salvage medical management and early recognition of medical failure with prompt referral for surgery, all in the context of efficacious resource allocation (the IBD medical home). We present a case of a patient with refractory ASUC who was safely managed with an abbreviated inpatient hospitalisation followed by close outpatient management, which ultimately resulted in surgical resection.

CASE PRESENTATION

A 72-year-old man with a history of mild UC diagnosed the prior year, previously in clinical remission on oral mesalamine, re-presented to his GI–IBD specialist with clinical symptoms of ASUC.

He had initially presented 12 months previously with bowel habits alternating between constipation and diarrhoea consisting of four to five non-bloody bowel movements per day. He was found to have a mild-to-moderate sigmoid colitis on colonoscopy with biopsies. His medical history was significant for nephrolithiasis and depression and knee and shoulder arthroscopies. He was a well-nourished, highly active patient with excellent functional capacity, performing more than seven metabolic equivalents. He was treated with mesalamine, beginning with 4.8 g daily, tapering down to 2.4 g daily, which was continued chronically.

At re-presentation, he reported a 4-week history of diarrhoea characterised by 10 bloody bowel movements throughout the day with significant

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Figure 1 Initial patient presentation with fulminant colitis. Colonoscopy shows diffuse severe inflammation in the (A) rectum and (B) sigmoid colon.

urgency. He denied any fever, chills, nausea or vomiting but revealed losing 10–12 pounds over the past month. Therefore, he was admitted to the hospital's inpatient floor for treatment of an acute flare. He had stable vital signs: temperature of 36.0°C, heart rate of 74 beats/min, blood pressure of 127/82 mmHg and oxygen saturation of 97% on room air.

INVESTIGATIONS

Admission laboratory tests revealed a white blood cell count of 6400/mm³, haemoglobin level of 126 g/dL, creatinine level of 1.0 mg/dL, ESR of 65 mm/hour and CRP of 7.5 mg/L. An inpatient colonoscopy revealed diffuse severe inflammation with adherent blood, altered vascularity, congestion, erosions, erythema and friability, and mucous in his rectum, sigmoid colon and descending colon (figure 1). CT scanning showed severe proctocolitis with colon wall thickening involving the descending colon, sigmoid and rectum without pneumatosis or evidence of perforation or obstruction.

TREATMENT

On hospital day 1, he was immediately started on intravenous hydration and treated with intravenous solumedrol 20 mg every 8 hours. Additionally, he received his first infliximab dose of 10 mg/kg as an inpatient. He showed moderate clinical recovery with improved abdominal pain and less frequent episodes of diarrhoea. He remained haemodynamically stable during his hospital stay and was discharged on posthospital day 3 on a clear liquid diet and oral prednisone 40 mg daily and 6-mercaptopurine (6-MP) 60 mg daily. Outpatient management and re-evaluation was coordinated by the IBD medical home team.

Via telephone follow-up, the patient reported transient improvement and was feeling well with five non-bloody bowel movements over the next 24 hours. However, this progressed up to 25–30 blood bowel movements per day that prevented him from leaving the house. Four days after discharge, he was seen in the outpatient IBD centre for a flexible sigmoidoscopy, which revealed diffuse erythema and ulceration of the distal rectum with hundreds of pseudopolyps and ulcerated mucosa that were not seen during the first scope (figure 2). Stenosis in the sigmoid

Figure 2 First outpatient re-evaluation after 1 week of medical treatment, which included intravenous steroids and infliximab. Flexible sigmoidoscopy shows improved inflammation but persistent diffuse ulceration and pseudopolyps of the (A) rectum and (B) sigmoid colon.

Figure 3 Second outpatient re-evaluation after an additional week of medical treatment including infliximab, oral steroids and 6-mercaptopurine. Flexible sigmoidoscopy shows minimal interval improvement in the friable mucosa and pseudopolyps of the (A) rectum and (B) rectosigmoid junction.

colon with a 10 mm patent lumen was noted. Overall, his subjective endoluminal disease activity had improved substantially compared with the prior week. He received his second dose of infliximab as an outpatient and was instructed to return for outpatient evaluation in 1 week.

Seven days later, he was re-evaluated with a second outpatient flexible sigmoidoscopy, which again showed significant damage with diffuse severe ulceration with friable mucosa, contact bleeding and innumerable pseudopolyps, along with a persistent sigmoid stenosis (figure 3). The findings were improved from 2 weeks previously when he was an inpatient, but not significantly better than 1 week previously. In addition, his laboratory work was notable for a prealbumin level of 8 mg/dL and a rise in both ESR to 81 and CRP to 15.3. Due to a lack of significant improvement in the endoluminal disease activity, inflammatory parameters and persistent clinical symptoms, the patient was deemed ASUC refractory to medical therapy. A multidisciplinary outpatient team visit (team members included the patient, a GI-IBD specialist, a colorectal surgeon and an enterostomal therapy nurse) was conducted, and following a thorough discussion of the risk and benefits, the decision was made to pursue a laparoscopic hand-assisted total abdominal colectomy with creation of end ileostomy. The patient was instructed to stop taking his prednisone and 6-MP.

OUTCOME AND FOLLOW-UP

The patient was taken to the operating room the following day for a laparoscopic hand-assisted total abdominal colectomy with end ileostomy. His postoperative course was uneventful and followed an enhanced recovery after surgery pathway leading to discharge on postoperative day 4. He was seen for his postoperative visit 2 weeks following discharge; he was recovering well with minimal rectal drainage and a healthy, functioning stoma. His port site and utility incisions healed well without evidence of superficial or deep surgical site infection.

His final surgical pathology showed active chronic colitis extending from the rectum to the transverse colon and separately involving the cecum. No dysplasia was evident. By 2 months post-surgery, he had regained 11 lb and was back to his preoperative functional status. He experienced mild bloody rectal drainage and was started on mesalamine suppositories. At 3 months, he continued to have mild bloody rectal drainage and was switched to hydrocortisone suppositories, but otherwise was clinically well. The patient was hesitant to undergo a laparoscopic completion proctectomy with intersphincteric perineal resection. Plans were made to evaluate the patient regularly with yearly flexible proctoscopies to closely surveil his rectum and to reconsider a completion proctectomy if his rectal drainage became burdensome on his quality of life or if he developed histopathological endoluminal evidence of dysplasia and/or cancer.

DISCUSSION

We present a case of a 72-year-old man with ASUC who was initially partially responsive to intravenous steroids and infliximab over a 3-day hospital stay. Following discharge and over the course of 15 days, his care was coordinated by the IBD medical home team, who conducted clinical laboratory assessments and two outpatient flexible sigmoidoscopies to evaluate endoluminal disease activity and treatment response prior to proceeding with a laparoscopic total abdominal colectomy and creation of end ileostomy following medical failure. He was admitted to the hospital for a total of only 7 days, which included attempted medical management of ASUC, surgery and postoperative recovery.

Conventional algorithms for inpatient evaluation and treatment would have led to a total hospital stay of 22 days for our patient. Prolonged hospitalisations for IBD are detrimental to patient outcomes and costly for societies. Over 50 000 hospitalisations occur for Crohn's disease and UC in the USA per year, with a median cost of US\$8873 per hospitalisation,¹³ demonstrating the significant burden of IBD on healthcare resources.¹⁴

In the setting of poor baseline nutritional status and immunosuppressive therapy, patients with IBD are at high risk particularly for nosocomial complications. For example, *Clostridium difficile* infection is now the leading cause of nosocomial infection, with a concurrent upsurge among patients with IBD.⁷ Additionally, hospitalised patients with IBD are at an increased risk of multi-drug-resistant organisms compared with inpatients with general medical and non-GI-IBD, such as those with methicillin-resistant *Staphylococcus aureus*.¹⁰ Furthermore, the higher prevalence of vancomycin-resistant *Enterococcus* among patients with IBD is independently associated with higher hospital charges and lengthening hospital stays.⁹

The presented patient ultimately required surgical resection after a course of attempted medical management. While his treatment course did not prevent surgery, he benefited from an IBD medical home by having access to a closely coordinated team of specialists and close monitoring of clinical progress in the outpatient setting. This permitted him to have a prompt preoperative consultation and workup after determination of medical failure and, within days, a surgery. Instead of a 22-day hospital stay during the course of the patient's medical treatment between his medical management and multiple scopes, he was admitted for only 7 days, sparing him the morbidity of nosocomial infections.

While ASUC is traditionally treated with long inpatient hospitalisations, select patients who demonstrate a partial response to medical management may be candidates for outpatient management following a short inpatient hospitalisation. This necessitates a multidisciplinary team as part of an IBD medical home with continuity of care between the inpatient and outpatient settings, reliable follow-up of the patient and a robust referral pattern to a colorectal surgeon should the disease prove refractory. Minimising prolonged hospitalisations will likely reduce nosocomial complications in this vulnerable population and improve resource allocation with significant cost savings. This management strategy would only be feasible in experienced centres with close coordination between multidisciplinary disciplines and would not be advised in remote or low-volume centres without prompt access to a surgeon. This case report will hopefully lead

to additional reports of similar treatment strategies permitting a future case series to evaluate the safety of this approach for a sick group of patients.

Learning points

- ▶ Select patients who partially respond to medical management for acute severe ulcerative colitis may be candidates for abbreviated inpatient hospitalisations.
- ▶ Compliant patients who can reliably undergo follow-up may be candidates for outpatient management to minimise the risks of nosocomial complications.
- ▶ Continuity of care between inpatient and outpatient providers is imperative for optimal management of patients with chronic gastrointestinal diseases.
- ▶ Robust referral patterns and multidisciplinary teams of gastroenterologists and colorectal surgeons ensure timely interventions to improve patient outcomes.

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