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Surgical Outcome of Inflammatory Bowel Disease - Experience of a Tertiary Center

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Rezumat

Rezultatele tratamentului chirurgical la pacienţii cu boli inflamatorii intestinale - experienţa unui centru terţiar

Obiective: Un număr mare de pacienţi cu boli inflamatorii intestinale necesită chirurgie în ciuda progreselor tratamentului medical. Ne-am propus să evaluăm eficacitatea şi rezultatele intervenţiilor chirurgicale la pacienţii cu boală inflamatorie intestinală cronică.
Pacienţi şi metode: Am analizat retrospectiv şi prospectiv baza de date a 221 de pacienţi internaţi în institutul nostru în perioada 2009-2012 (3 ani) cu diagnosticul de boală inflamatorie intestinală. Dintre aceştia, 55 (24,88 %) au fost diagnosticaţi cu boala Crohn, iar restul de 166 de pacienţi (75,11%) cu colită ulcerativă.
Rezultate: 17 din 55 de pacienţi cu boala Crohn (30,91%) au necesitat intervenţie chirurgicală înainte sau pe perioada studiului. 9 dintre pacienţi cu boala localizată proximal de colonul transvers au fost supuşi rezecţiilor segmentare (enterale sau colonice) cu anastomoză primară, fără morbiditate. Alţi 8 pacienţi cu boala Crohn localizată distal de colonul transvers, au necesitat rezecţii colonice segmentare (2 cu anastomoză primară, 3 cu stomă temporară) sau rezecţii colonice majore-colectomie subtotală cu ileostomie (1 caz) şi proctocolectomie cu ileostomie (2 cazuri). 16 din 166 de pacienţi cu colită ulcerativă (9,64%) au necesitat intervenţie chirurgicală înainte sau pe durata studiului. Procedurile chirurgicale alese au fost proctocolectomie totală cu ileostomie definitivă (3 cazuri) şi colectomie totală cu ileostomie (13 cazuri). 7 pacienţi din 13 au avut reintervenţie chirurgicală de restabilire a tranzitului intestinal după colectomia totală, la 1 pacient nu s-a reuşit din cauza pediculului vascular scurt, iar 5 pacienţi au refuzat reintervenţia rămânând cu ileostomie terminală. Frecvenţa medie a numărului de scaune pe zi după intervenţia reconstructivă a fost de 7 scaune/zi (medie 3-12).
Concluzii: Pentru pacienţii cu boala Crohn localizată proximal de colonul transvers, rezecţiile segmentare cu anastomoză primară sunt sigure. Rezecţiile colonice majore (colectomie subtotală sau totală) sunt indicate dacă boala este localizată distal de colonul transvers iar anastomozele primare trebuie evitate. Datorită calităţii nesatisfăcătoare a vieţii după chirurgia reconstructivă în colita ulceroasă (frecventă mare a scaunelor zilnice), proctocolectomia totală sau colectomia totală cu ileostomie terminală rămâne o alternativă viabilă.

Cuvinte cheie: boală Crohn, colita ulcerativă, colectomie subtotală, proctocolectomie, rezecţie segmentară

Abstract

Backgrounds/Aim: Despite advances in medical treatment, a large number of patients with inflammatory bowel disease (IBD) require surgery. We aim to evaluate the efficacy and outcome of surgical interventions in patients with chronic inflammatory bowel diseases.
Material and Methods: We retrospectively analysed the medical records from 221 patients admitted to our institution between 2009-2012 with the diagnosis of IBD. Out of these patients, 55 (24.88 %) were diagnosed with Crohn's disease, while the remaining 166 patients (75.11%) had ulcerative coli-

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tis.
Results: Seventeen of 55 patients with Crohn's disease (30.91%) required surgical management before or during this period. Nine with disease proximal to the transverse colon underwent segmental resections (enteral or colonic) with primary anastomosis, without morbidity. The other 8 patients, with disease distal to the transverse colon, underwent segmental colonic resections (two with primary anastomosis, three with stoma formation) or major colonic resection- subtotal colectomy with ileostomy (1 case) and total proctocolectomy with ileostomy (2 cases). Sixteen of 166 patients with ulcerative colitis (9.64%) required surgery before or during this period. The surgical procedure used included total proctocolectomy with definitive ileostomy (3 cases) and total colectomy with ileostomy (13 cases). 7 of the 13 patients had restorative surgery after total colectomy, 1 remaining with definitive ileostomy due to short vascular pedicle and 5 patients refused restorative surgery. Median daily stool frequency after reconstructive surgery was 7 (range 3–12).
Conclusion: For patients with Crohn's disease proximal to the transverse colon, limited resection with primary anastomosis is safe. Major colonic resection (subtotal colectomy or proctocolectomy) is indicated if the disease is located distal to the transverse colon and primary anastomosis should be avoided. Due to unsatisfactory quality of live after reconstructive surgery (stool frequency remains high), total proctocolectomy with end-ileostomy remains a viable alternative for patients with ulcerative colitis.

Key words: Crohn's disease, ulcerative colitis, subtotal colectomy, proctocolectomy, segmental resection

Introduction

The incidence and prevalence of inflammatory bowel disease (IBD) are rapidly increasing worldwide, indicating its emergence as a global disease (1). Despite the fact that medical management has showed an impressive development during the last decade, 80% of patients with Crohn's disease (CD) and approximately 25–35% of patients with ulcerative colitis (UC) require surgery during their lifetime (2) and the timing of surgery is critical. Although the indications for operative management of IBD and its complications are clear, controversies regarding the best surgical option still remain.

We aim to evaluate the efficacy and outcome of surgical interventions in patients with chronic bowel diseases.

Material and Methods

The medical records of 221 patients admitted between January 1st 2009 and January 1st 2012, in the "Octavian Fodor" Gastroenterology and Hepatology Institute, Cluj-Napoca, Romania with the diagnosis of IBD were retrospectively reviewed. All patients with IBD disease were treated using steroids, azathioprine, 5-aminosalicylic acid (5-ASA) and occasionally antibiotics. Infliximab was not used during the study period. Out of the 221, a group of 33 patients (14.93 %) underwent surgery for IBD.

After resectional surgery for Crohn's disease, medical management was continued by maintaining the intake of azathioprine and/or 5-ASA. Patients undergoing surgery for Crohn's disease were divided into two groups, based on predominant location of the disease. The first group, consisting of 9 patients, has the disease located proximal to the transverse colon. Group 2 included 8 patients with significant disease located in the distal colon (inferior mesenteric artery distribution).

Patients undergoing surgery for ulcerative colitis were also divided into two groups (with or without proctectomy). The postoperative morbidity and requirement for subsequent surgical interventions were recorded. Patients undergoing surgery for ulcerative colitis and reconstructive surgery were assessed for functional outcome (daily stool frequency).

The median follow-up period was 20 (range 4–36) months.

Results

General data

Out of 221,55 patients (20 male, 35 female) were diagnosed with Crohn's disease and 166 (89 male, 77 female) with ulcerative colitis.

Out of 55 patients diagnosed with Crohn's disease, a group of 17 patients (30.91 %) underwent surgery. Indication for surgery included failure of medical treatment (2 cases), diffuse colon bleeding (1 case), presence of fistula complications (entero-enteral – 3 cases, entero-vaginal – 1 case, complex perianal fistulas – 2 case), stenotic complication (ileal stenosis - 2 cases, sigmoid stenosis – 4 cases), inter-ileal abscess (1 case) and presence of malignancy (1 case).

The mean age for this group was 41.75 (range 21-55) years old. Predominance of female gender (63.64%), romanian ethnicity (85.20 %) and urban residence (75.92 %) was also noted. 53% of this group (9 patients) were smokers, of which 29.5% (5 patients) smoked more than 1 pack of cigarettes / day. Eleven patients (64.7%) had prior minor surgery (appendectomy, tonsillectomy) in their personal history and 5 patients were known with allergies.

Out of all 166 patients diagnosed with ulcerative colitis, a group of 16 patients (9.64%) required surgery. Indication for surgery for these patients included failure of medical treatment (8 cases), presence of toxic megacolon (5 cases) or malignancy (3 cases).

The mean age for this group was 44.39 (range 21-62) years old. Predominance of male gender (53.6%), romanian ethnicity (85.5%) and urban residence (68.7%) was also noted. More than half of the patients of this group (56%) were smokers, of which 8 patients smoked more than 1 pack of cigarettes/day. Eight patients (50%) had prior minor surgery (appendectomy, tonsillectomy) in their personal history and 2 patients were known with allergies.

Surgical procedures and postoperative outcome in patients with Crohn's disease

All surgical procedures used for patients with Crohn's disease are summarized in *Table 1*. For patients in group 1 (proximal disease), there was no postoperative morbidity and no further surgical interventions were required, except for the patient who underwent small bowel resection with terminal ileostomy, in whom restoration of continuity was made after 10 months.

Patients in group 2 (distal disease) were managed either by major colonic resection (total proctocolectomy – 2 cases or subtotal colectomy with ileostomy – 1 case), or by more limited segmental colonic resection (*Table 1*).

Patients who underwent total proctocolectomy were completely asymptomatic on minimal medical therapy at 24 months after surgery. The patient who had subtotal colectomy with ileostomy developed symptoms from the retained rectum after 24 months and proctectomy had to be added.

Limited colonic segmental resection was performed in 5 patients (3 cases with stoma formation and 2 cases with anastomosis). None enjoyed respite from intensive medical therapy (including steroids) and 4 patients required further surgery (conversion to subtotal colectomy due to failure of medical therapy – 2 cases, other segmental resections due to malignization – 2 cases). One of the two patients who underwent limited colonic segmental resection with anastomosis developed an anastomotic fistula that required surgery.

Surgical procedures and postoperative outcome in patients with ulcerative colitis

Surgical procedures and staged reconstructive surgical option used for patients with ulcerativ colitis are summarized in *Table 2*. In one case, the reconstructive anastomosis was abandoned due to excessive tension on the ileal vascular pedicle. The recons-tructive ileo-anal anastomosis was performed after abdominal proctectomy was done (rectum was transected at the level of the levatorisani muscle). All ileoanal anastomoses were protected by a temporary diverting ileostomy (which was closed after 3-4 months).

The 5 patients with ileo-rectal anastomosis continue to require medical maintenance therapy (for their rectal disease). They reported a median stool frequency of 6 per day. The patients with ileo-anal anastomosis reported a poor quality of life with a median stool frequency of 9.5 per day and poor control of defecation.

Discussion

Most patients with inflammatory bowel disease will require surgery at some point in the evolution of their disease (l,2). Although recurrence of Crohn's disease following surgery is common, surgery is potentially curative for patients with ulcerative colitis (l). As a result, the surgical management of those diseases may be quite different.

For patients with Crohn's disease, there are data in the literature showing that limited bowel resections with primary anastomosis up to transverse colon were associated with minimal surgical morbidity (3,4). According to this, we classified patients with Crohn's disease into two groups based on the presence or absence of significant distal colitis. Our results were similar with literature data (3,4). We had no post-operative morbidity in group 1, showing that limited resections up to transverse colon with primary anastomosis are safe in patients with Crohn's disease.

Group 2 consisted of patients with distal colonic involvement. This group was subdivided according to the type of colonic resection (major colonic resection vs limited colonic resection). Despite small series of patients with distal colonic involvement of Crohn's disease, our results suggest a better postoperative outcome after major colonic resection; we also suggest avoidance of anastomosis. The same results are presented by some authors (3,5,6), while others have expressed a contrary opinion (7,8).

A different number of surgical procedures was described for ulcerative colitis. Total proctocolectomy with end ileostomy

Table 1. *Surgical procedures performed for patients with Crohn's disease*

Surgical procedure - Crohn's disease (n= 17)			
Proximal disease – Group 1 (n=9)		*Distal disease – Group 2 (n=8)*	
Small bowel resection	4	Total proctocolectomy	2
Right hemicolectomy	2	Subtotal colectomy	1
Extended hemicolectomy			
(to the last 40 cm of terminal ileum)	1	Limited segmental resection with stoma formation	3
Small bowel resection/ ileostomy	1	Limited segmental resection with anastomosis	2
Small bowel resection/ vaginalsuture	1		

Table 2. *Surgical procedures and type of restorative surgery performed for patients with ulcerative colitis*

Surgical intervention - ulcerative colitis (n= 16)			
Total proctocolectomy with end ileostomy	3	Total colectomy with ileostomy	13
Reconstructive surgery impossible	3	Ileo-rectal anastomosis	5
		Ileo-anal anastomosis	2
		Definitive ileostomy (due to technical difficulties)	1
		Refusing surgery	5

remains the operative standard against which all other resections for ulcerative colitis are compared (9), because it removes all disease and eliminates the risk of colorectal cancer (10). Although it is generally considered a safe procedure, total proctocolectomy with end ileostomy is still associated with significant morbidity (stomarelated complication, sexual dysfunction, infertility, altered bladder function) (11). We did not encounter any of these complications and despite the small number of patients we share the opinion that total proctocolectomy with end-ileostomy remains a viable alternative of care for patients with ulcerative colitis.

Total abdominal colectomy with primary ileorectal anastomosisis considered an option for the treatment of ulcerative colitis in a certain selection of patients, although it is not a common procedure (10). We have not used it in any of our patients.

Literature data have shown that total abdominal colectomy with ileostomy is a feasible and safe procedure for patients with ulcerative colitis, especially in emergency, with a postoperative morbidity rate of 23%-33% and low mortality (0%-4%)(6,12). Despite our small number of patients we share the same opinion. Reconstructive surgery can be done either by ileorectal anastomosis or by ileo-anal anastomosis. As an alternative to proctectomy, the ileo-rectal anastomosis provides an excellent functional outcome, but required long-term treatment for proctitis and endoscopic surveillance for cancer (3, 10). Our study reports the need for maintenance therapy and a medium level of satisfaction regarding stool frequency.

Ileo-anal anastomosis is still advocated by some experts (13,14). Although our experience is limited, we reported a poor quality of life with a median stool frequency of 9.5 per day and poor control of defecation.

Most authors consider that surgical treatment of ulcerative colitis has been revolutionised by the introduction of restorative proctocolectomy with ileal pouch-anal anastomosis (IPAA), which is considered to be the gold standard in the surgical management of ulcerative colitis (2,3,10). Although the morbidity of IPPAis still considerable (anastomotic separation, ileal pouch-vaginal fistulas, pouchitis, decreased female fertility), the procedure has great advantages (maintains a normal pathway for defecation, avoids the perineal wound and permanent stoma and provides acceptable stool frequency with near normal continence) (3,10,15,16). We have not used it in any of our patients.

Literature data suggest that open surgical procedures used for treatment of inflammatory bowel disease can be performed by laparoscopic approach. Although the safety and feasibility of these procedures, for appropriately selected patients, has been proven by various studies, one has to keep in mind that minimal invasive surgery should be performed by qualified and experienced surgeons in major colorectal centers (10,17).

Conclusion

For patients with Crohn's disease proximal to the transverse colon, limited resection with primary anastomosis is safe. If the disease is located distal to the transverse colon, major colonic resection (subtotal colectomy or proctocolectomy) is indicated and primary anastomosis should be avoided. Due to unsatisfactory quality of live after reconstructive surgery (stool frequency remains high), total proctocolectomy with end-ileostomy remains a reliable procedure for patient with ulcerative colitis. Further large, prospective, randomised study are needed to confirm the best surgical option in patients with inflamatory bowell diseases.

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