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Comparison of Segmental *Vs* Total Colectomy for Treatment of Crohn's Disease

Muhammad Shah[1], Jamshed Alam[2]*, Muhammad Usman[3], Imranuddin Khan[3], Shimee Shahzadi[4] and Shehzad Akbar Khan[5]

[1]Assistant Professor Surgical "B" unit Hayatabad Medical Complex Peshawar Pakistan
[2]Associate professor of Surgery Hayatabad Medical Complex Peshawar Pakistan
[3]Specialist Registrar Surgical "B" Unit Hayatabad Medical Complex Peshawar Pakistan
[4]Lecturer Anatomy Deptt Khyber Girls Medical College Peshawar Pakistan
[5]Medical Director & I/C Surgical "B" Unit Hayatabad Medical Complex Peshawar Pakistan

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***Corresponding author:** Dr. Jamshed Alam (MBBS, FCPS), Associate professor of Surgery Hayatabad Medical Complex Peshawar Pakistan, Postal address: Surgical "B" Unit Hayatabad Medical Complex Peshawar Pakistan, Email: drjamshedktk9@gmail.com

Abstract

Background: There is debate concerning segmental resection for Crohn's disease. Segmental resection is reportedly associated with a greater rate of re-resection as compared to total colectomy. This topic is rarely covered in studies, and postoperative functional result has never been documented.

Objective: In this study, the effects of resection, postoperative symptoms, and anorectal function were examined between segmental resection and total colectomy with anastomosis.

Material and Methods: This retrospective comparative study was carried out at Department of General Surgery Hayatabad Medical Complex Peshawar from July 2019 to July 2022. Total 70 patients with Crohn's disease limited to the colon or rectum underwent resection were included. Patients were grouped into one of three categories: (a) segmental disease, (b) pancolitis with rectal sparing, or (c) proctocolitis. Recurrences were identified by colonoscopy, barium enema, upper gastrointestinal tract series with small-bowel follow-through, gross examination of bowel at reoperation, or pathologic examination of tissue

Results: Total 70 patients were included in the study. Age ranged between 18-65 years with a mean of 41.5 years. There were 40(57.1%) male and 30(42.9%) female, with male to female ratio of 1.3:1. Most common presenting symptoms were pain, diarrhea and anorectal complaints. Initial diagnosis was made through colonoscopy/endoscopy in 50(71.4%) patients and by radiological study in 20(28.6%) patients. Patients were equally divided into 2 groups i.e. group 1 & 2 (35 patients in each group). Group 1 consisted total abdominal colectomy patients while group 2 comprise segmental resection patients. The sites of the cancer occurrence were similar between the two groups, i.e. the proximal colon and distal colon. In group 1, a lower frequency of recurrence was recorded 1 year following surgery when compared with group 2.

Conclusion: Although recurrence are most likely, segmental resection improves the quality of life by delaying the need for a stoma and by preserving functioning bowel.

Keywords: Crohn's Disease; Segmental; Total Colectomy

Introduction

The best surgical treatment option for Crohn's colitis is yet unknown. Recurrence rates after total proctocolectomy and ileostomy for Crohn's colitis patients may be as low as 3%, however this procedure is challenging to perform [1]. As a result, alternatives have been sought. Total abdominal colectomy with ileorectal anastomosis has been recommended as an acceptable option to nonrestorative procedures when active Crohn's disease is restricted to the colon [2]. However, recurrence rates after ileorectal anastomosis might reach 71%. 8 Furthermore, up to 65% of patients may experience inadequate functional outcomes from this surgery [3,4].

Even more debatable is how to treat Crohn's disease patients whose colon has segmental involvement. We have been treating these patients by segmental resection and primary anastomosis in order to avoid the poor functional outcomes of total abdominal colectomy with ileorectal anastomosis and the higher complications rate of total proctocolectomy with ileostomy [5,6]. Additionally, as these patients are frequently of childbearing age, we hoped that segmental colectomy could postpone the requirement for a stoma in them [7].

The aim of this study was to ascertain how frequently Crohn's disease returned in patients who had undergone segmental colectomy and whether their intestinal continuity had been restored.

Methods

This retrospective comparative study was carried out at Department of General Surgery Hayatabad Medical Complex Peshawar from July 2019 to July 2022. Patients were excluded from analysis if they had ileocolic involvement or any evidence of extra colonic gastrointestinal Crohn's disease. Criteria for the diagnosis of Crohn's disease were based on clinical, roentgenographic and histologic examination. Patients were reviewed for age at presentation, gender, method of diagnosis, location of disease (segmental disease, abdominal colon disease, or proctocolitis), duration of disease prior to surgical treatment, age at surgery, type of anastomosis or stoma, number and location of recurrences, age at recurrence, treatment of recurrences, and follow-up period. All 70 patients were followed up. Patients were grouped into three categories: (a) segmental disease, (b) pancolitis with rectal sparing, or (c) proctocolitis. Recurrences were identified by colonoscopy, barium enema, upper gastrointestinal tract series with small-bowel follow-through, gross examination of bowel at reoperation, or pathologic examination of tissue. Statistical analysis was done using SPSS 23.0 for windows. P value of ≤0.05 was considered statistically significant.

Results

Total 70 patients were included in the study. Age ranged between 18-65 years with a mean of 41.5 years. There were 40(57.1%) male and 30(42.9%) female, with male to female ratio of 1.3:1. Most common presenting symptoms were pain, diarrhea and anorectal complaints. Initial diagnosis was made through colonoscopy/endoscopy in 50(71.4%) patients and by radiological study in 20(28.6%) patients. Patients were equally divided into 2 groups i.e. group 1 & 2 (35 patients in each group). Group 1 consisted total abdominal colectomy patients while group 2 comprise segmental resection patients. The sites of the cancer occurrence were similar between the two groups, i.e. the proximal colon and distal colon.

In group 1, a lower frequency of recurrence was recorded 1 year following surgery when compared with group 2.

No mortalities occurred following 1 year of surgery, indicating oncological safety in each of the two groups and for each surgical method. However, patients in group 1 had more complications than those in group 2. Complications noted in group 1 was 10(28.6%) and 6(17.1%) in group 2. Most common complication noted was intestinal obstruction, followed by intra-abdominal abscess (Table 1).

Complication	Group 1 N=10	Group 2 N=6	P value
Intestinal obstruction	3 (8.6%)	2(5.7%)	0.91
Intra-abdominal abscess	2(5.7%)	2 (5.7%)	0.8
Wound infection	1(2.8%)	1(2.8%)	0.8
Small bowel stump leakage	2(5.7%)	0 (0%)	0.041
Microperforation	1(2.8%)	1(2.8%)	0.8
Anastomotic leak	1(2.8%)	0(0%)	0.031

Table 1: Postoperative complications.

In group 1 cosmetic outcome was rated by 35.5%, 39.4%, 25.0% and 11.2% patients, respectively. in group 2, the above ratings of 4 1 were given by 51.1%, 29.2%, 19.7% and 0% patients respectively (Table 2). Functional outcome in group 2 revealed better results when compared with group 1. Number of bowel movements per day in group 2 was 4 while in group 1 was 6 ($p<0.021$).

Regarding the items assessing rectal incontinence (e.g., soiling, particularly at night, incidental passive incontinence, perianal skin irritation, ability to distinguish between flatus and feces), in group 2 had significantly better results when compared with group 1. Between the two groups, no differences regarding anorexia and episodes of bowel discomfort were observed.

Outcome	Group 1	Group 2
Excellent (7-8)	35.50%	51.10%
Good (6-6.9%)	39.50%	29.10%
Fair (score 5-5.9)	20.80%	19.80%
Poor (<5)	4.20%	0.00%

Table 2: Aesthetic Outcome.

Discussion

Patients with colonic Crohn's disease who come to surgery comprise about 25% of all patients with large bowel involvement requiring resection [8]. The role of segmental resection in patients with localised disease is contentious since while compared with more radical operations it offers better function and quality of life, it may be associated with a higher recurrence rate [9-11]. Patients after total abdominal colectomy however, were more likely to require re-operation at a shorter time interval than those having segmental resection. This apparent benefit, however, needs to be interpreted with caution because of the limitations inherent in the available published studies included in this research [12]. When subgroup analysis was performed on censored observations for medical and surgical recurrence, there was no significant difference between segmental resection and abdominal colectomy, although the number of patients enrolled in these studies were small [13,14].

A retrospective study by Rodriguez B et al concluded that in patients who had received segmental correction of Lynch syndrome, the risk of metachronous colon cancer was 19 at 10 years, 47 at 20 years and 69% at 30 years [15]. Various other studies also indicated that segmental resection was only performed in those cases in which total colectomy are not recommended. However, the choice of surgery in those cases varied from patient to patient, which was also reported by You YN 16 However, to date, no research study or clinical trial has concluded that extensive resection is a better treatment option than segmental resection. A study performed by De Vos T, et al. revealed that in early stages of crohn's disease, segmental resection or less extended surgery is better than TAC, as the 5 year survival rate was higher in the former group [17].

In the light of the limited number of comparative studies evaluating outcomes between segmental resection and abdominal colectomy, the present study, supports the argument that in well selected patients with segmental involvement of the colon with Crohn's disease, segmental colectomy may be an attractive alternative to total abdominal colectomy since it shares similar morbidity and recurrence rate with probably less functional problems. For patients with colonic Crohn's disease which extends across two or more segments, the meta-regressive data suggested that colectomy with a ileorectal anastomosis may favour segmental colectomy although the difference did not reach statistical significance [18].

It appears that patients who have segmental disease not involving the rectum have a less fulminant form of colitis and benefit from a segmental resection. In patients with total abdominal colitis, a more aggressive form of disease is involved, and these patients benefit most from a total abdominal colectomy or perhaps even a proctocolectomy, when indicated [19].

The results of the current study concluded that segmental resection is the preferred surgical procedure for treating Crohn's disease. The study also revealed that the segmental method had a better functional outcome than whole abdominal collectomy.

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