

## "Predicting the Need of Laparoscopic Total Proctocolectomy with Ileoanal Anastomosis in Ulcerative Colitis: A Critical Appraisal of Clinical Parameters"

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### **Abstract:**

**Aim:**The aim is to predict the need of laparoscopic total proctocolectomy with ileoanal anastomosis in patient of ulcerative colitis with help of clinical parameters like weight gain, frequency of stool,frequency of blood in stool and hemoglobin percentage.

**Material and Methods:** Patients presenting with histopathologically proven ulcerative colitis were including in the study (jan 19 to june 19).Surgery consisted of laparoscopic total proctocolectomy with ileoanal anastomosis with a diverting split end ileostomy which was closed after 4 to 6 weeks.All parameters measured before laparoscopic procedure and after 1 month of ileostomy closure.

### **Results:**

A total of 30 cases ( male 21,female 9) were operated as laparoscopic total proctocolectomy with illeoanal anastomosis with diverting split end ileostomy.All patient showed improved results in the form of parameters like weight gain, frequency of stool per day,frequency of blood in stool and hemoglobin percentage as measured before and after 1 month of laparoscopic procedure.

**Conclusion:** Laparoscopic total proctocolectomy with ileoanal anastomosis with a diverting split end ileostomy (closed after 4 to 6 w) is worthwhile in patients needing surgical management of ulcerative colitis in terms of parameters like weight gain, frequency of stool,frequency of blood in stool and hemoglobin percentage.

**Keywords:**ileoanal anastomosis, laparoscopic total proctocolectomy, end ileostomy,ulcerative colitis

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### **I. Introduction**

Ulcerative colitis is a chronic inflammatory bowel disease of unknown aetiology.<sup>1</sup>Indians are more vulnerable to extensive disease compared to other Asian populations. <sup>2</sup> Incidence of ulcerative colitis in India is roughly six cases per 100000 population per year and prevalence being approximately 44 cases per 100000.<sup>1</sup>Patients of ulcerative colitis are initially managed medically. However, some patients develop complications like haemorrhage, perforation or near perforation and toxic megacolon,and may require surgery<sup>3</sup>.The ultimate goal of the surgeon should be to achieve a total proctocolectomy (TPC) with ileal pouch-anal anastomosis (IPAA), which has become a gold surgical standard for ulcerative colitis.<sup>4</sup>With the advancements of minimal-invasive surgery this demanding operation is increasingly being performed laparoscopically.<sup>5</sup>Laparoscopic proctocolectomy is likely one of the most challenging laparoscopic procedures for the colon and rectal surgeon as it involves operating in multiple quadrants of the abdomen as well as performing pelvic dissection<sup>6</sup>.Such an approach confers the advantages or early return to routine activity, better cosmesis and, possibly, lower long-term wound and adhesion related complications as compared with the open procedure.<sup>7</sup>

The main concern of the patient was whether they will have blood free stool,decrease frequency of stool, weight gain...etc.Working on this area of concern,we would like to present our data of laparoscopic total proctocolectomy with ileoanal anastomosis to predict the need of surgery in ulcerative colitis with the help of parameters compared like weight gain, frequency of stool per day, and the hemoglobin percent ,the frequency of blood in stool per day etc.

### **II. Materials And Methods**

All planned laparoscopic total proctocolectomy with ileoanal anastomosis with diverting end ileostomy was carried out . After confirming integrity of anastomosis, 6 -8 weeks later,ileostomy closure was done.All parameters measured after the ileostomy closure procedure.All the operations were performed by the same surgeon.

**Sample size:**30 patients

**Study duration:** January 2019 to May 2019

**Inclusion criteria:** All medically refractory histologically proven ulcerative colitis and all cases presenting to us for surgical management were offered the laparoscopic treatment on routine basis.Procedure was performed like any other laparoscopic colorectal procedure

**Exclusion criteria:** Patients who were unfit for general anaesthesia due to cardiopulmonary problems were excluded.

Pre-operative bowel preparation was carried out on the day before the surgery. The patient was catheterised; Ryle's tube was inserted .

Surgery consisted of mobilisation of terminal ileum, cecum, ascending colon, hepatic flexure, and the right half of transverse colon. The pedicles of ileocolic, right colic, and middle colic vessels are divided accordingly.

Next mobilisation of the rectum, sigmoid colon and descending colon done.Division of the rectum in the pelvis is carried out with ligation of inferior mesenteric pedicle and taking care of left ureter.After mobilisation of the splenic flexure and left half of the transverse colon, specimen is taken out .Finally ileoanal anastomosis and split end ileostomy is done.

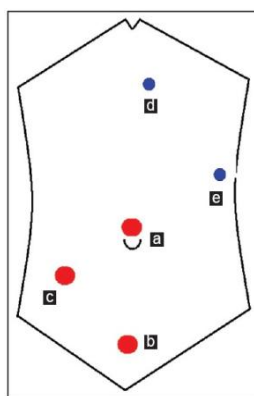


Fig: port position for surgery

Ports A–C are 10 mm ports , Port C is for stapler . D and E are 5 mm working ports.Surgeon stands on the left of the patient; the camera through port B.The monitor is opposite the operating surgeon. The dissection begins by mobilising the cecum and appendix and ligation of ileocaecal pedical .The ascending colon is lifted from the retroperitoneum and its lateral attachmentsdissected . The bowel divided near the ileocecal junction.The dissection of the hepatic flexure and the right half of the transverse colon is done .The hepatic flexure and the right half of the transverse colon are mobilised, and its mesocolon divided .

Pelvic dissection of the rectum is done as the operating surgeon stands on the right side of the patient, the camera surgeon on his left.The monitor is placed facing the operating surgeon. The patient is placed in a steep Trendelenburg position.Transsection of the distal rectum is carried out using a staplers. port position

The patient was kept nil by mouth till ileostomy is functional.Oral feed started as soon as the ileostomy starts .Once the ileostomy is functioning properly the patient is discharged once.After 6-8 weeks and ileostomy closure is performed.

All parameters measured before laparoscopic procedure and after 1 month of ileostomy closure. During the follow up ,1m after ileostomy closure, special parameters like weight gain after surgery, frequency of blood in stool, frequency of stool per day,and hemoglobin percentage are taken in consideration

### III. Results

In our study,30 patients of ulcerative colitis presented to us for surgical management of disease.

Patient underwent laparoscopic total proctocolectomy with illeoanal anastomosis with diverting split end ileostomy was carried out . Ileostomy closure was done after 6-8 weeks.

There was 21male, and 9 female in our study.

With this slight male preponderance, all patient had undergone multiple colonoscopies with biopsy proven disease status.

All the patients were taken as planned surgeries after adequate bowel preparation.

After the surgery, all were initially shifted to surgical ICU for 2days and then shifted to ward.

All procedure was uneventful.Specimen were sent for histopathological examination.All the patients were called for follow-up after 1 month after closure of stoma.

**TABLE 1.1** Comparison between two means of haemoglobin level before and after surgical intervention.

		Mean	N	Std. Deviation	Std. Error Mean
Hemoglobin gm %	Hb gm% before	8.6733	30	0.92994	0.16978
	Hb gm% after	10.5000	30	1.28841	0.23523

**TABLE 1.2:** Two-Sided Confidence Interval of the Mean Difference of haemoglobin level

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% confidence interval of the Difference				
					Lower	upper			
Hemoglobin gm %	Hb gm% before - Hb gm% after	-1.82667	1.00856	0.18414	-2.20327	-1.45006	-9.920	29	0.000

Table (1.1) and (1.2) suggests there is strong evidence ( $t = -9.920$ ,  $p = 0.000$ ) that the laparoscopic surgical intervention improves patient's haemoglobin level. The 95% confidence interval for the difference is (-2.2, -1.45).

**TABLE 2.1** Comparison between two means of weight of the patients before and after surgical intervention.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Weight before	47.0267	30	5.07420	0.92642
	weight after	53.3267	30	4.58971	0.83796

**TABLE 2.2** Two-Sided Confidence Interval of the Mean Difference of weight of the patients.

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% confidence interval of the Difference				
					Lower	upper			
Pair 1	Weight before – weight after	-6.30000	2.35343	0.42968	-7.17878	-5.42122	-14.662	29	0.000

Table (2.1) and (2.2) indicates that weight gain after surgical intervention is statistically significant ( $t = 14.662$ ,  $p = 0.000$ ). The 95% confidence interval for the difference is (-7.18, -5.42).

**TABLE 3.1** Comparison between two means of frequency of the stool per day in patients before and after surgical intervention

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Frequency of stool per day before	14.8333	30	3.35367	0.61229
	Frequency of stool per day after	6.2000	30	1.39951	0.25551

**TABLE 3.2** Two-Sided Confidence Interval of the Mean Difference of frequency of the stool per day

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% confidence interval of the Difference				
					Lower	upper			
Pair 1	Frequency of stool per day before – Frequency of stool per day after	8.63333	3.04544	0.55602	7.49615	9.77052	15.527	29	0.000

The above (3.1) and (3.2) shows that there is a reduction in frequency of stool per day after surgical intervention which is statistically significant ( $t = 15.527$ ,  $p = 0.000$ ). The 95% confidence interval for the difference is (7.50, -9.77).

**TABLE 4.1** Comparison between two means of frequency bloody stool per day before and after surgical intervention.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Frequency of bloody stool per day before	9.8667	30	2.11291	0.38576
	Frequency of bloody stool per day before after	0.6667	30	0.71116	0.12984

**TABLE 4.2** Two-Sided Confidence Interval of the Mean Difference of frequency bloody stool per day.

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% confidence interval of the Difference				
					Lower	upper			
Pair 1	Frequency of bloody stool per day before – Frequency of bloody stool per day before after	9.20000	2.21904	0.40514	8.37140	10.02860	22.708	29	0.000

From the above table (4.1) and (4.2) we can say that there is significant reduction in the frequency of bloody stool ( $t=22.708$ ,  $p=0.000$ ). The 95% confidence interval for the difference is (8.37, 10.03).

#### IV. Discussion

Laparoscopic surgery for ulcerative colitis is both safe and feasible. Patients are able to tolerate oral intake earlier, and have a shorter hospitalization.<sup>8</sup> Particularly for female patients, a laparoscopic approach may be considered the procedure of choice.<sup>7</sup> Ulcerative colitis patients are often debilitated, hypoproteinemic and immunosuppressed owing to the severity of their disease or the medications that they are taking to control it.<sup>9</sup> They can derive the maximum benefit from minimal access technique, with a reduced rate of post-operative morbidity, faster recovery and earlier return to normal activity.<sup>10</sup> In our study we planned laparoscopic total proctocolectomy with ileoanal anastomosis with diverting end ileostomy and ileostomy closure after 4-6 weeks. Special parameters like weight gain after surgery, frequency of blood in stool, frequency of stool per day, and hemoglobin percentage are taken in consideration. Laparoscopic proctocolectomy is feasible in acute as well as non-acute setting in patients needing surgical management of ulcerative colitis.<sup>11</sup> Similar results were also seen in our study. We found that laparoscopic proctocolectomy was a safe and positive in terms of such parameter. Indications for surgery included failure of medical therapy to adequately control the disease, progression of the disease in spite of medical therapy, development of complications of ulcerative colitis. Other authors have also reported performing this surgery for similar indications<sup>12</sup>. However in our study we found that laparoscopic surgery is certainly feasible in patients with ulcerative colitis. Laparoscopy can be used safely; it provides good quality of life and better cosmetic results, and the long-term rate of complications is lower as compared to open surgery<sup>13</sup>. There are controversies regarding its impact on the length of hospital stay, overall morbidity and mortality. However, literature supports its positive impact on patient satisfaction, cosmesis, positive body image, and overall satisfaction.<sup>8</sup>

#### V. Conclusion

Laparoscopic total proctocolectomy with ileoanal anastomosis with a diverting split end ileostomy (closed after 4 to 6 w) is worthwhile in patients needing surgical management of ulcerative colitis in terms of parameters like weight gain, frequency of stool, frequency of blood in stool and hemoglobin percentage.

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