Case Report

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A Comparative Study of Early Versus Delayed Ileostomy Closure Following Bowel Surgery

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Abstract

Introduction: Diversion stoma is very common in surgical practice.

Aim: To compare the complications following early versus delayed ileostomy closure following bowel surgeries.

Methods: This was a Hospital based comparative study on 112 patients undergoing ileostoma closure following bowel surgery from, March 2023 to February 2024 at Department of Surgery, S.P. Medical College and P.B.M Hospital, Bikaner. Patients of each gender with age >18 years, temporary loop ileostomy and temporary double barrel ileostomy of any aetiology, medically and mentally fit to undergo early stoma closure were included.

Results: Mean age of group A (Early stoma closure) was 41.54±16.56 and group B (Delayed stoma closure) was 47.6±16.13. (p=0.066). Out of total 37 patients of Group A maximum 16 (43.24%) patients had intestinal perforation, as indication of stoma creation, whereas in Group B maximum 37 (49.33%) patients had intestinal perforation, as indication of stoma creation. (p>0.05). Mean time operative time for stoma closure of group A was 71.16±5.05 and group B was 75.70±7.73. (p<0.001). In Group A, 2 (5.40%) patients died whereas 6(8%) died in group B.

Conclusion: it is preffered to EARLY STOMA CLOSURE as per patients fitness for stoma closure over unnecessarily DELAYED.

Keywords: Early Stoma Closure; Delayed Stoma Closure; Ileostomy Closure.

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INTRODUCTION

Diversion stoma is very common in surgical practice. There are several surgical indications for which a ileostomy is created. Ileostomy may be performed to prevent the spread of peritonitis in case of anastomosis leakage, in emergency cases with peritoneal contamination for faecal diversion or for protecting a rectal anastomosis etc. Intestinal anastomoses are frequently created in patients undergoing surgery for rectal cancer with simultaneous construction of a diverting ileostomy.[1]

Early closure of temporary stoma might reduce both stoma-related morbidity and patient discomfort. Restoration of intestinal continuity is generally associated with a low mortality.[2] However, stoma reversal may cause major complications ranging from 0% to 9% and minor complications varying from 4% to 30%, requiring reoperation.9The reports on early versus conventional stoma closure are conflicting.[3,4,5]

An ostomy is a heavy burden on both patient and society, and early closure is therefore desirable to counteract increased morbidity. The optimal timing for ileostomy closure remains controversial, most of the surgeons are closing ileostomy after two to three months, although ileostomy closure considered a simple procedure, it can cause significant morbidity.

The current study is aimed to compare complications and outcomes after early versus delayed ileostomy closure.

AIM

To compare the complications following early versus delayed ileostomy closure following bowel surgeries.

METHODS

This was a Hospital based comparative study on 112 patients undergoing ileostoma closure following bowel surgery from, March 2023 to February 2024 at Dept. of Surgery, S.P. Medical College and P.B.M Hospital, Bikaner. Patients of each gender with age > 18 years, temporary loop ileostomy and temporary double barrel ileostomy of any aetiology, medically and mentally fit to undergo early stoma closure were included. Patients with permanent stoma, anastomotic leak and/or wound dehiscence after index surgery, End ileostomy/colostomy were excluded from study.

Patients was divided into two groups (Group A and Group B) after matching the parameters like age, sex, co morbid conditions, using simple random sampling technique. In Group A, early stoma closure (within 8 wk) was carried out while in Group B, delayed stoma closure (after 8 wk) was done.

Patients was subjected to stoma closure after valid written informed consent. Each patient was subjected to routine investigations and distal loopogram (distal segment contrast). Prior to the day of operation each patient was undergo mechanical bowel preparation with polyethylene glycol. Closure of temporary stoma was performed under general or spinal anesthesia with a peristomal skin incision, mobilization, and a sutured anastomosis. All patients were observed in the postoperative period observed. Patients were followed up for late surgical complications every week for first 6 weeks following closure and then at 12 weeks.

Statistical Analysis

The data was collected from under study population through a pretested and semi-structured questionnaire. The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2007) and appropriate tests will be applied. For all tests, confidence level and level of significance were set at 95% and 5% respectively.

RESULTS

Out of total 37 patients in group A Early stoma closure there were total 26 males (70.27%) and 11 (29.73%) were females. Out of total 75 patients in group B (Delayed stoma closure) there were total 52 males (69.33%) and 23 (30.67%) were females. Male to female ratio was 2.36:1 in Group A and 2.26:1 in Group B patients. (p=0.919) Mean age of group A (Early stoma closure) was 41.54±16.56and group B (Delayed stoma closure) was 47.6±16.13. (p=0.066)

Mean BMI of group A (Early stoma Closure (n=37)) was 20.72±1.81 and Mean BMI of group B (Delayed stoma closure (n=75) was 21.12±1.48. (p=0.214).

Table 1: Gender wise distribution of patients (n=112)

Gender	Group A Earlystoma Closure (n=37)		Group B Delayed stoma closure (n=75)		p-value
	No.	Percentage (%)	No.	Percentage (%)	
Male	26	70.27%	52	69.33%	0.919
Female	11	29.73%	23	30.67%	
Mean Age	41.54	16.56	47.6	16.13	0.066
Mean BMI	20.72	1.81	21.12	1.48	0.214

Out of total 37 patients of Group A 4 (10.81%) had abdominal trauma, 16 (43.24%) patients had intestinal perforation, 10 (27.02%) patients had intestinal obstruction, 7(18.91%) patients had malignancy as indication of stoma creation. Out of total 75 patients of Group B 3 (4%) had abdominal trauma, 37 (49.33%) patients had intestinal perforation, 23 (30.66%) patients had intestinal obstruction, 12(16%) patients had malignancy as indication of stoma creation. (p>0.05)

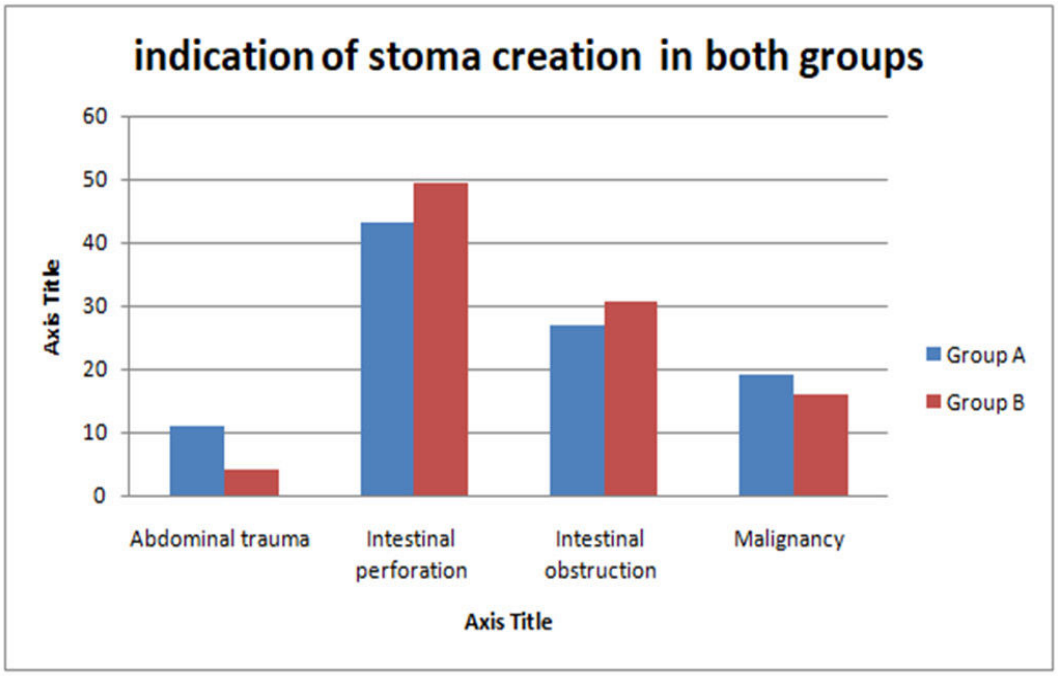


Fig. 1: indication of stoma creation in both groups

Table 2: Comparison of post-operative complications among both groups

Sr. No.	Complication	Group A (n=37)	Group B (n=75)	p-value
1	Wound infection	6 (16.22%)	8 (10.67%)	0.544
2		31 (83.78%)	67 (89.33%)	
3	Incisional Hernia	1 (2.7%)	2 (2.67%)	1.000
4		36 (97.3%)	73 (97.33%)	
5	Anastomotic leak	2 (5.41%)	6 (8%)	1.000
6		35 (94.59%)	69 (92%)	
7	Electrolyte imbalance	7 (18.92%)	6 (8%)	0.118
8		30 (81.08%)	69 (92%)	
9	Ileus	1 (2.7%)	2 (2.67%)	1.000
10		36 (97.3%)	73 (97.33%)	
11	Obstruction	2 (5.41%)	4 (5.33%)	1.000
12		35 (94.59%)	71 (94.67%)	
13	Intra-abdominal collection	5 (13.51%)	13 (17.33%)	0.605
14	32 (86.49%)	32 (86.49%)	62 (82.67%)	

Mean time operative time for stoma closure of group A was 71.16±5.05 and group B was 75.70±7.73. (p<0.001)

In Group A maximum 7(18.91%) patients had electrolyte imbalance followed by 6 (16.21%) had wound infection, whereas in Group B maximum 13 (17.33%) patients had intra abdominal collection followed by 8 (10.67%) had wound infection.

Mean time to stoma closure of group A was 41.29±6.26 and group B was 104.68±60.98. (p<0.001). Mean hospital duration of group A was 12±3 and group B was 15±5. (p<0.01).

Table 3: Comparison of Mean time to stoma closure among two groups

Groups	Mean time to stoma closure (days)	SD	p-value
Group A (n=37)	41.29	6.26	<0.001
Group B (n=75)	104.68	60.98	
Total (n=112)	83.59	58.21	
Mean hospital duration (days)			
Group A (n=37)	12	3	0.001
Group B (n=75)	15	5	
Total (n=112)	14	4	

Out of 37 total patients of Group A, 2 (5.40%) patients died and 35(94.60%) patients were discharged home Out of total 75 patients of Group B, 6(8%) patient died and 69(92%) patients were discharged home. Statistically there was no significant difference in terms of outcome and mortality between both groups. (p=1.000)

Table 4: Comparison of outcome among two groups

Outcome	Group A (n=37)	Group B (n=75)	Total (n=112)	p-value
Discharge	35 (94.59%)	69 (92%)	104	1.000
Death	2 (5.41%)	6 (8%)	8	

DISCUSSION

Out of total 37 patients in group A Early stoma closure there were total 26 males (70.27%) and 11 (29.73%) were females. Out of total 75 patients in group B (Delayed stoma closure) there were total 52 males (69.33%) and 23 (30.67%) were females. Male to female ratio was 2.36:1 in Group A and 2.26:1 in Group B patients. (p=0.919) Mean age of group A (Early stoma closure) was 41.54±16.56and group B (Delayed stoma closure) was 47.6±16.13. (p=0.066). Similar results were seen by Uttam mandal et al 2022.[6]

Recently, there is an incline towards early closure to decrease the mortality and morbidity specially adhesions developed 3 months after late stoma closure. Alves et al, developed an early stoma reversal on postoperative 8 days during same hospital admission to improving the patients' quality of life and preventing possible stoma-related complications with good results. Mengaux et al, also reported the same results with early ostomy reversal within 10 days.[7]

However, some favors a late reversal later 3 months after surgery; they develop a higher morbidity rate in comparison to early reversal before 8.5 weeks, due to edema of the ileostomy and still-firm intra-abdominal adhesions.[8]

Although there are lots of data about stoma reversal after colorectal surgery, there is less data about stoma reversal following GIT surgery. According to our knowledge, this is the first report about early stoma closure (same admission) in our department we discuss postoperative stoma-related complications, in comparison to preoperative complications after late stoma reversal.[9]

CONCLUSION

Patients undergoing EARLY CLOSURE following bowel surgey had lower incidence of anastomosis related complication (anastomotic leak, intraabdominal collection and wound infection rates etc.) and eventually lower morbidity and mortality rates in comparison to those with DELAYED STOMA CLOSURE, But these differences were not statistically significant in our study as well as in various many previous studies. DELAYED STOMA CLOSURE did not show a significant advantage in reducing the incidence of postoperative anastomotic leakage, morbidity & mortality. So it is preffered to EARLY STOMA CLOSURE as per patients fitness for stoma closure over unnecessarily DELAYED.

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