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TO STUDY MORBIDITY AND MORTALITY RELATED TO ILEOSTOMY/COLOSTOMY CLOSURE AT TERTIARY CARE HOSPITAL

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ABSTRACT

Background and Aim: Gastrointestinal stomas main function is to divert the flow away from a difficult anastomoses or intestinal obstruction. There is now a trend toward avoiding permanent stomas, and temporary loop stomas often used to protect anastomotic or distal bowel segments in high-risk patients. The present study aimed to determine the morbidity-mortality after ileostomy or colostomy closure.

Patients and Methods: This comparative observational study investigated 42 cases of ileostomy and colostomy closure in the Surgical Unit of Jinnah Hospital, Lahore from January 2020 to January 2024. Patients were divided into two groups; Group-I (Ileostomy closure) and Group-II (Colostomy closure). Demographic details such as age and gender, Clinical details such as indications, types of stoma technique used, and operative times, length of hospital stay, morbidity, and mortality recorded. SPSS version 26 was used for data analysis.

Results: The overall mean age was 46.8±6.52 years (15-75 years). Out of 42 cases, 28 (66.7%) underwent ileostomy and 14 (33.3%) underwent colostomy closure. The most prevalent indication for closure was protection of anastomosis in both stoma groups. The interval between creation and closure of stoma was shorter (117.8 days) in Group-I than Group-II (162.4 days). The incidence of hand sewing sutures and stapled technique was 32 (76.2%) and 10 (23.8%), respectively. The Group-II patients took 107.9±5.24 minutes as operative time which was significantly higher than 82.96±8.84 minutes in Group-I. The prevalence of morbidity in Group-I and Group-II was 10.7% (n=3) and 14.3% (n=2), respectively. Prolong hospital stay was required in Group-II. No mortality case reported in both stoma groups.

Conclusion: The present study observed that Stomatal closure well tolerated procedure, with low morbidity and mortality. The results suggest that ileostomy closure is a relatively simple procedure.

Keywords: Stoma Closure, Ileostomy, Colostomy, Morbidity, Mortality.

INTRODUCTION

Closed ileostomies and colostomies are important surgical procedures aimed at restoring normal bowel function after initial reversal Temporary stomas are necessary to manage complex or high-risk cases, but the closure is critical to the patient's recovery and quality of life. Understanding the morbidity and mortality associated with ileostomy and colostomy closure in a tertiary care hospital, where advanced surgical techniques and postoperative care are available is important. Transient total fecal diversion continues to be valid in bowel surgery, although major surgeries can now often be safely performed without stomas [1–3]. Advances in surgical techniques, such as intraoperative saline lavage for tumor obstruction or emergency procedures types, enable dissection and primary anastomosis of large intestine without the need for a separate stoma. Although the indications for columnar formation have improved greatly over the years, the basic objectives have not changed. Ideally, temporary graft should minimize surgical risk, help save lives, avoid complications, and rapidly close unequivocally [4, 5]. Despite these goals, some literature reports shows a slightly higher morbidity rate after closed ileostomy or colostomy [6-8].

Recent advances in surgical practices, such as techniques and improvements in postoperative care, have affected the approach to graft closure. Despite these advances, the morbidity and mortality associated with ileostomy and for colostomy closure may vary, requiring further investigation to identify factors associated with complications [9]. The incidence of adverse outcomes aimed at this study by trial assess and provide evidence-based recommendations to enhance patient safety and surgical success. A variety of factors have been identified that influence the morbidity of column closure, including surgical experience, internal preparation, operative time, and surgical technique, but findings have been inconsistent [10-12]. To assess how changes in postoperative practice during colorectal surgery affect morbidity and mortality, we examined our institution's experience with stoma closure.

METHODOLOGY

This comparative observational study investigated 42 cases of ileostomy and colostomy closure in the Surgical Unit of Jinnah Hospital, Lahore from January 2020 to January 2024. Patients were divided into two groups; Group-I (Ileostomy closure) and Group-II (Colostomy closure). Patient's age 15-75 years of either gender with stoma closure by ileostomy or colostomy enrolled. The clinical files of the included patients were reviewed for the following data: age, sex, body mass (weight/height2), stoma indications, stoma type (ileostomy vs colostomy), interval between grafting and closure, associated infections, orientation (peristomal vs midline). , type of anastomosis (manual vs. stapler), length of operation, hospital stay, morbidity, and mortality. Operative mortality and surgical morbidity considered as complications occurring within 30 days after or during stoma closure during hospitalization. Operative mortality was considered when the patient died within 30 days of graft closure or during hospitalization due to complications.

Statistical analysis was performed using descriptive statistics (mean, range, and proportion). Fisher exact test and Mann-Whitney U test were used for statistical analysis. Statistical significance was considered when the p-value was less than 0.05.

RESULTS

The overall mean age was 46.8±6.52 years (15-75 years). Out of 42 cases, 28 (66.7%) underwent ileostomy and 14 (33.3%) underwent colostomy closure. There were 24 (57.1%) male and 18 (22.9%) female. The most prevalent indication for closure was protection of anastomosis in both stoma groups. The interval between creation and closure of stoma was shorter (117.8 days) in Group-I than Group-II (162.4 days). The incidence of hand sewing sutures and stapled technique was 32 (76.2%) and 10 (23.8%), respectively. The Group-II patients took 107.9±5.24 minutes as operative time which was significantly higher than 82.96±8.84 minutes in Group-I. The prevalence of morbidity in Group-I and Group-II was 10.7% (n=3) and 14.3% (n=2), respectively. Prolong hospital stay was required in Group-II. No mortality case reported in both stoma groups. Diabetes mellitus was the most prevalent associated disease found in 6 (14.3%) followed by cardiopathy 4 (9.5%), anemic syndrome 4 (9.5%),

chronic steroid use 3 (7.1%), malnutrition 2 (4.8%), and renal disease 2 (4.8%) as illustrated in Figure-1. Demographic details is shown in Table-I. Indication for stoma creation shown in Table-II. Most Frequent Diagnoses Leading to Loop Stoma Creation presented in Table-III.

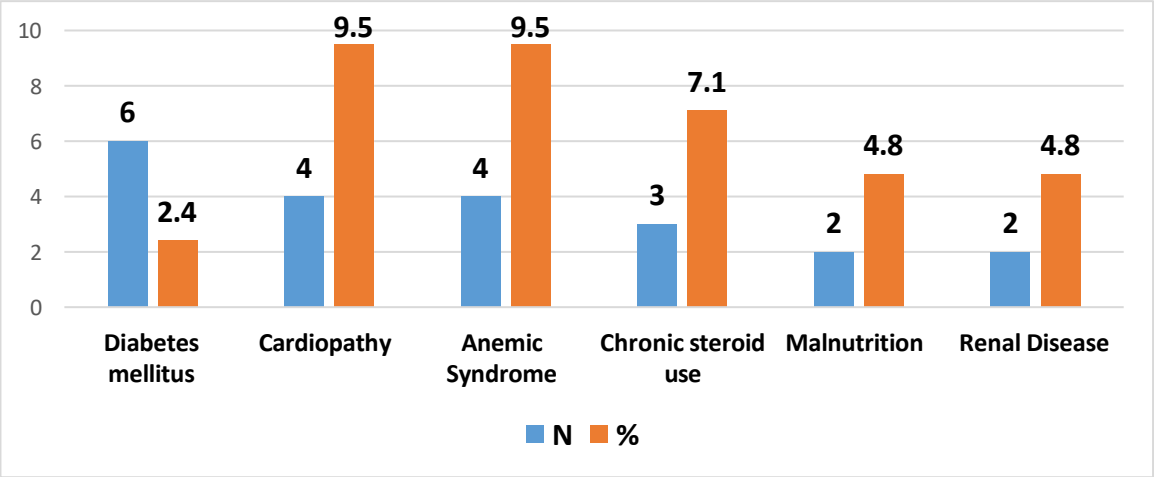

Figure-1 Associated disease (N=42)

Table-I Demographic details (N=42)

Parameters	**Value N (%)**
Age (years)	46.8±6.52
Age group (years)	
15-30	4 (9.5%)
31-45	13 (31%)
46-60	19 (45.2%)
61-75	6 (14.3%)
Gender	
Male	24 (57.1%)
Female	18 (22.9%)
Body mass index (Kg/m2)	23.8±1.4

Table-II Indication for stoma creation (N=42)

Indications	**Group-I (Ileostomy) N=28**	**Group-II (Colostomy) N=14**
Elective		
Protection of Anastomosis	17 (60.7%)	2 (14.3%)
Anastomotic Dehiscence	1 (3.6%)	1 (7.1%)
Fistula	1 (3.6%)	0
Other	1 (3.6%)	0
Emergency		
Protection of Anastomosis	4 (14.3%)	6 (42.9%)
Colonic Perforation	2 (7.1%)	0
Fistula	1 (3.6%)	2 (14.3%)
Fecal Contamination	0	3 (21.4%)
Unknown	1 (3.6%)	0

Table-III Most Frequent Diagnoses Leading to Loop Stoma Creation

Diagnosis	**N (%)**
Elective Ileostomy	**N=20**
Chronic Nonspecific Ulcerative Colitis (CUCI)	9 (45%)
Familial Adenomatous Polyposis	2 (10%)
Crohn's Disease	1 (5%)
Colon Cancer	3 (15%)
Others	5 (25%)
Elective Colostomy	**N=3**
Colorectal Cancer	1 (33.3%)

Chronic Nonspecific Ulcerative Colitis (CUCI)	1 (33.3%)
Abdominal Sepsis	1 (33.3%)
Emergency Ileostomy	**N=8**
Diverticulitis	4 (50%)
Appendicitis	1 (12.5%)
Colonic Perforation	1 (12.5%)
Others	2 (25%)
Emergency Colostomy	**N=11**
Gunshot Wound	2 (18.2%)
Diverticulitis	2 (18.2%)
Colocutaneous Fistula	1 (9.1%)
Rectal Perforation	1 (9.1%)
Others	5 (45.5%)

DISCUSSION

The present study mainly investigated the morbidity and mortality rate of stoma closure cases by either ileostomy or colostomy and found that stoma closure was a well-accepted procedure, with low morbidity and no mortality. Although there was no difference in morbidity and mortality, the results support that loop ileostomy closure is a simpler procedure and results in shorter hospital stay compared with loop colostomy closure. The highest percentage indication for a loop stoma in is elective surgical protection of the anastomosis, and the most common condition causing this is chronic nonspecific ulcerative colitis (CUCI). This perhaps reflects the current preference for ease of closure of stoma. These finding resemble the earlier study findings [13-16].

Although no significant difference in morbidity was observed in this series after stoma closure, the significantly shorter time between loop ileostomy and closure suggests less morbidity in ileostomy. It is difficult to one type of stem will be classified as superior to another, especially if both are done appropriately with medical judgment and good surgical technique. A loop ileostomy is preferred over colostomy because it is a less invasive procedure that requires a shorter hospital stay, which represents a better cost-benefit ratio for the patient. Our series is consistent with those already published in the literature, and we found a shorter hospital stay for ileostomy closure [17-19].

Several risk factors have been examined for their effect on complications after stoma closure, including surgical experience, underlying disease, location of stoma, surgical technique, and elapsed time between primary surgery and stump closure. However, findings have been inconsistent across studies [20, 21]. The type of anastomosis, whether manual (with or without endotomy) or mechanical (with a linear stapler) were discussed. In this case, no statistically significant difference found.

The morbidity rate in the present study was 10.7% in ileostomy group, which was lower than 14.3% in colostomy group. There was no significance difference in regarding the morbidity of stoma closure through either procedure. No mortality case was reported in either groups. These findings resembles the previously reported statistics regarding morbidity and mortality rate in stoma closure procedures [22, 23].

We found few complications, with intestinal obstruction being the main case. The disproportionate number of ileostomy and colostomy closure groups may limit studies, but this reflects the current surgical trend towards ileostomy alone and the use of staplers for closure is a recent development, which explains the observed rate. Studies on the morbidity and mortality associated with ileostomy and colostomy closure have not been well developed with evidence-based medicine. These procedures are routinely performed in the hospitals.

CONCLUSION

Stomatal closure is well-tolerated procedure, with low morbidity and mortality. The results suggest that ileostomy closure is a relatively simple procedure.

REFERENCES

1. Bada-Yllán O, García-Osogobio S, Zárate X, Velasco L, Hoyos-Tello CM, Takahashi T. Morbimortalidad asociada al cierre de ileostomía y colostomía en asa [Morbi-mortality related to ileostomy and colostomy closure]. Rev Invest Clin. 2006 Nov-Dec;58(6):555-60.
2. Angenete E, Thornell A, Burcharth J, Pommergaard HC, Skullman S, et al. Laparoscopic Lavage Is Feasible and Safe for the Treatment of Perforated Diverticulitis With Purulent Peritonitis: The First Results From the Randomized Controlled Trial DILALA. Ann Surg. 2016;263:117–122
3. Singh OP. Assessment of morbi-mortality related to ileostomy and colostomy closure. Cancer.;28:0-1.
4. Oliveira RAN, Oliveira PG, Nobrega dos Santos AC, de Sousa JB. Morbidade e mortalidade associadas ao fechamento de colostomias e ileostomias em alça acessadas pelo estoma intestinal. Rev Col Bras Cir 2012;39(05):389–393
5. Chow A, Tilney HS, Paraskeva P, Jeyarajah S, Zacharakis E, Purkayastha S. The morbidity surrounding reversal of defunctioning ileostomies: a systematic review of 48 studies including 6,107 cases. Int J Colorectal Dis 2009;24(06):711–723
6. Poskus E, Kildusis E, Smolskas E, Ambrazevicius M, Strupas K. Complications after loop ileostomy closure: a retrospective analysis of 132 patients. Viszeralmedizin 2014;30(04):276–280
7. Rubio-Perez I, Leon M, Pastor D, Diaz Dominguez J, Cantero R. Increased postoperative complications after protective ileostomy closure delay: An institutional study. World J Gastrointest Surg 2014;6(09):169–174
8. Sharma A, Deeb AP, Rickles AS, Iannuzzi JC, Monson JRT, Fleming FJ. Closure of defunctioning loop ileostomy is associated with considerable morbidity. Colorectal Dis 2013;15(04):458–462
9. Holmgren K, Kverneng Hultberg D, Haapamäki MM, Matthiessen P, Rutegård J, Rutegård M. High stoma prevalence and stoma reversal complications following anterior resection for rectal cancer: a population-based multicentre study. Colorectal Dis 2017;19(12):1067–1075
10. Sharma B, Narendra NS. MORBI-MORTALITY RELATED TO ILEOSTOMY AND COLOSTOMY CLOSURE AT TERTIARY CARE HOSPITAL BIKANER. Cancer.;16:53-33.
11. Danielsen AK, Park J, Jansen JE, et al. Early closure of a temporary ileostomy in patients with rectal cancer – A multicenter randomized controlled trial. Ann Surg 2017;265(02):284–290
12. Löffler T, Rossion I, Gooßen K, et al. Hand suture versus stapler for closure of loop ileostomy–a systematic review and meta-analysis of randomized controlled trials. Langenbecks Arch Surg 2015;400 (02):193–205
13. Gong J, Guo Z, Li Y, et al. Stapled vs hand suture closure of loop ileostomy: a meta-analysis. Colorectal Dis 2013;15(10):e561–e568
14. Markides GA, Wijetunga IU, Brown SR, Anwar S. Meta-analysis of handsewn versus stapled reversal of loop ileostomy. ANZ J Surg 2015;85(04):217–224.
15. Waterland P, Goonetilleke K, Naumann DN, Sutcliff M, Soliman F. Defunctioning ileostomy reversal rates and reasons for delayed reversal: does delay impact on complications of ileostomy reversal? A study of 170 defunctioning ileostomies. J Clin Med Res 2015;7(09):685–689
16. Zhen L, Wang Y, Zhang Z, et al. Effectiveness between early and late temporary ileostomy closure in patients with rectal cancer: A prospective study. Curr Probl Cancer 2017;41(03):231–240
17. Antolovic D, Reissfelder C, Koch M, Mertens B, Schmidt J, et al. Surgical treatment of sigmoid diverticulitis--analysis of predictive risk factors for postoperative infections, surgical complications, and mortality. Int J Colorectal Dis. 2009;24:577–584
18. Mbelle PJ, Kizigina S, Mwashambwa M. Indications for Stoma Creation and Early Outcome Predictors of Stoma Closure at Universtiy of Dodoma Teaching Hospitals. Int J Biomed Res Prac. 2024;4(2):1-2.

19. Khan A, Haris M, Rehman M, et al. Early Postoperative Complications and Surgical Anatomy After Ileostomy Reversal Among the Population of Khyber Pakhtunkhwa, Pakistan. Cureus. 2021; 13: 17-22.
20. Mehboob A, Perveen S, Iqbal M, et al. Frequency and Complications of Ileostomy. Cureus. 2020; 12: 10-14.
21. Krishnamurty DM, Blatnik J, Mutch M. Stoma Complications. Clinics in Colon and Rectal Surgery. 2017; 30: 193-200.
22. Aktaş A, Kayaalp C, Ateş M, et al. Risk factors for postoperative ileus following loop ileostomy closure. Turk J Surg. 2020; 36: 333-339.
23. Poskus E, Kildusis E, Smolskas E, et al. Complications after loop ileostomy closure: A retrospective analysis of 132 patients. Viszeralmedizin. 2014; 30: 276-280.