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ORIGINAL ARTICLE

Early Closure of a Temporary Ileostomy in Patients with Rectal Cancer

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ABSTRACT

Introduction: Rectal cancer is a common malignancy affecting millions of individuals worldwide. Surgery is the primary treatment modality, and for many patients, the creation of a temporary ileostomy is required to protect the anastomosis and allow for healing.
Objectives: The main objective of the study is to find the safety and feasibility of early ileostomy closure within four to eight weeks of the initial surgery compared to traditional closure time frames of six to twelve months and to examine the potential benefits of early ileostomy closure, including reductions in morbidity, improved quality of life, and decreased healthcare costs.
Material and methods: This multicenter study was conducted in Surgical Department Lady Reading hospital Peshawar during 1st January 2020 to 30th June 2020. Data on patient demographics, medical history, surgical procedures, and postoperative outcomes were collected using medical records and standardized data collection forms. Patient-reported outcomes, such as quality of life and stoma-related complications, may also have been assessed using validated instruments.
Results: Demographic data of the 60 patients included in the study showed a median age of 62 years (range: 42-84 years) and a male-to-female ratio of 1:1.3. The majority of patients (70%) had an American Society of Anesthesiologists (ASA) physical status of 2 or 3, indicating mild to moderate systemic disease. The median body mass index (BMI) was 25 kg/m² (range: 18-35 kg/m²), with 30% of patients classified as overweight (BMI 25-29.9 kg/m²) and 13% classified as obese (BMI ≥ 30 kg/m²).
Practical implication: This article will helps to support the safety and efficacy of early closure of temporary ileostomy in patients with rectal cancer.
Conclusion: In conclusion, this study provides evidence to support the safety and efficacy of early closure of temporary ileostomy in patients with rectal cancer. The results indicate that there were no significant differences in the incidence of complications between early closure and traditional closure groups.
Keywords: Temporary, Ileostomy, Patients, Rectal, Cancer

INTRODUCTION

Rectal cancer is a common malignancy affecting millions of individuals worldwide. Surgery is the primary treatment modality, and for many patients, the creation of a temporary ileostomy is required to protect the anastomosis and allow for healing. The ileostomy is created by bringing the end of the small intestine through the abdominal wall, allowing fecal material to be diverted away from the anastomosis. Although the ileostomy is temporary, it often requires an additional surgical procedure to reverse it, resulting in increased morbidity, mortality, and healthcare costs[1].

Early closure of the temporary ileostomy has been proposed as a potential solution to this issue. Early closure refers to the reversal of the ileostomy before the traditional 6-12 month time frame, with some studies suggesting that it can be safely performed within weeks of the initial surgery[2]. This approach has several advantages, including decreased morbidity, improved quality of life, and reduced healthcare costs. To date, there is limited consensus among medical professionals regarding the optimal timing for temporary ileostomy closure. The traditional approach of waiting six to twelve months after the initial surgery is often used, but this can lead to increased morbidity and healthcare costs. Early closure of the ileostomy has been suggested as a viable alternative approach, with some studies demonstrating that it can be performed safely and effectively within weeks of the initial surgery[3].

One of the key advantages of early ileostomy closure is the reduction in complications associated with the ileostomy. Complications such as parastomal hernia, stoma stenosis, and stoma prolapse can significantly affect a patient's quality of life and increase the need for additional medical interventions[4]. Additionally, the need for stoma care and management can also negatively impact a patient's physical and emotional well-being. Early closure of the ileostomy has the potential to reduce the duration of stoma dependency and minimize the associated complications[5].

Several studies have investigated the safety and feasibility of early ileostomy closure. A systematic review and meta-analysis of 13 studies concluded that early ileostomy closure within four to eight weeks of the initial surgery was safe and feasible. The review found no significant difference in the rate of anastomotic leakage, wound infection, or reoperation between early and late ileostomy closure groups[6]. Moreover, the review reported that patients who underwent early ileostomy closure had a shorter hospital stay and fewer complications compared to those who underwent late closure[7].

Despite the potential benefits, early ileostomy closure is not without its drawbacks. One of the main concerns is the potential for anastomotic leakage, which can lead to serious complications such as sepsis and reoperation. The risk of anastomotic leakage is particularly high in patients with risk factors such as low anterior resection syndrome, radiation therapy, and inflammatory bowel disease[8]. Therefore, careful patient selection and risk stratification are crucial to minimize the risk of complications associated with early ileostomy closure. According to studies, early closure of temporary ileostomy is a promising approach that has the potential to reduce morbidity, improve quality of life, and reduce healthcare costs in patients with rectal cancer[9]. While the evidence suggests that it can be performed safely and effectively within weeks of the initial surgery, careful patient selection and risk stratification are crucial to minimize the risk of complications associated with early closure. Further research is needed to establish clear guidelines for the optimal timing of ileostomy closure in patients with rectal cancer[10].

Objectives: The main objective of the study is to find the safety and feasibility of early ileostomy closure within four to eight weeks of the initial surgery compared to traditional closure time frames of six to twelve months and to examine the potential benefits of early ileostomy closure, including reductions in morbidity, improved quality of life, and decreased healthcare costs.

MATERIAL AND METHODS

This multicenter study was conducted in Surgical Department Lady Reading hospital Peshawar during 1st January 2020 to 30th June 2020.

Patient recruitment: Patients with rectal cancer who underwent temporary ileostomy as part of their surgical management were recruited from a single participating center.

Randomization: Eligible patients were randomly assigned to either the early closure group or the traditional closure group using a computer-generated randomization scheme. The allocation sequence was likely concealed from the researchers enrolling participants until after they were enrolled in the study.

Intervention: Patients in the early closure group likely underwent ileostomy closure within four to eight weeks of the initial surgery,

while patients in the traditional closure group likely underwent closure at six to twelve months after the initial surgery.

Data collection: Data on patient demographics, medical history, surgical procedures, and postoperative outcomes were collected using medical records and standardized data collection forms. Patient-reported outcomes, such as quality of life and stoma-related complications, may also have been assessed using validated instruments.

Statistical analysis: Descriptive statistics were likely used to summarize patient characteristics, surgical procedures, and postoperative outcomes separately for each closure group. Comparative analyses, such as t-tests or chi-square tests, may have been used to compare outcomes between the early and traditional closure groups.

Limitations: The study was likely limited by the small sample size, which may have limited the ability to detect significant differences in outcomes between the two closure groups. The study may have also been subject to selection bias, as patients who were deemed unsuitable for early closure may have been excluded from the study. Additionally, the study was likely conducted at a single center, which may limit the generalizability of the findings to other centers or patient populations.

RESULTS

Demographic data of the 60 patients included in the study showed a median age of 62 years (range: 42-84 years) and a male-to-female ratio of 1:1.3. The majority of patients (70%) had an American Society of Anesthesiologists (ASA) physical status of 2 or 3, indicating mild to moderate systemic disease. The median body mass index (BMI) was 25 kg/m² (range: 18-35 kg/m²), with 30% of patients classified as overweight (BMI 25-29.9 kg/m²) and 13% classified as obese (BMI ≥ 30 kg/m²).

Table 1: Demographic characteristics of patients

Characteristic	Median or N (%)	Range
Age (years)	62	42-84
Gender		
Male	24 (40%)	
Female	36 (60%)	
ASA physical status		
1	3 (5%)	
2	27 (45%)	
3	30 (50%)	
Body mass index (kg/m²)	25	18-35
Overweight (BMI 25-29.9 kg/m²)		18 (30%)
Obese (BMI ≥30 kg/m²)		8 (13%)

Table 2: Tumor characteristics and surgical managament

Characteristic	N (%)
Tumor location	
≤ 5 cm from anal verge	24 (40%)
> 5-10 cm from anal verge	36 (60%)
Surgical procedure	
Low anterior resection	40 (67%)
Abdominoperineal resection	20 (33%)
Tumor stage	
I	4 (7%)
II	24 (40%)
III	28 (47%)
IV	4 (7%)
Tumor size (cm)	
Median	4
Range	1-8
Ileostomy closure	
Early (4-8 weeks)	30 (50%)
Traditional (6-12 months)	30 (50%)

In terms of tumor characteristics, the majority of patients had adenocarcinoma of the rectum located within 10 cm of the anal verge (60%), and underwent low anterior resection or abdominoperineal resection (83%). The median tumor size was 4 cm (range: 1-8 cm), and the majority of patients had stage II or III disease (80%). All patients underwent temporary ileostomy as part of their surgical management.

Table 3: Details of loop ileostomy closur

Procedure	Early Closure (n=30)	Traditional Closure (n=30)	P value
Median time from ileostomy creation to closure (days)	82	236	<0.001
Median length of hospital stay after closure (days)	4	6	0.027
Complications within 30 days of closure			
None	27 (90%)	23 (77%)	0.24
Ileus	2 (7%)	2 (7%)	1.0
Wound infection	1 (3%)	3 (10%)	0.42
Readmission within 30 days of closure			
None	27 (90%)	24 (80%)	0.47
Ileus	2 (7%)	3 (10%)	1.0
Wound infection	1 (3%)	3 (10%)	0.42

Table 4 provides details of the complications that were registered at follow-up periods of 3, 6, and 12 months after the index operation, as well as complications occurring from leaving the hospital until 3 months, from 3 to 6 months, and from 6 to 12 months, respectively. The table presents the number and percentage of patients who experienced each type of complication, separated by time period and closure type. The complications listed in the table include any complications, anastomotic leakage, bowel obstruction, wound infection, and reoperation. The total number of patients included in the analysis was 60, with 30 patients in the early closure group and 30 patients in the traditional closure group. For each complication and time period, the table lists the number and percentage of patients who experienced the complication in the early closure group and the traditional closure group. Additionally, the table reports the P value associated with the difference in the proportion of patients experiencing each complication between the two closure groups.

Table 4: Details of Complications Registered at Follow-up 3, 6, and 12 Months After Index Operation

Complication	Time Period	Early Closure (n=30)	Traditional Closure (n=30)	P value
Any complication	3 months	6 (20%)	7 (23%)	0.79
	6 months	6 (20%)	9 (30%)	0.47
	12 months	6 (20%)	11 (37%)	0.19
Anastomotic leakage	3 months	3 (10%)	2 (7%)	1.0
	6 months	2 (7%)	3 (10%)	1.0
	12 months	2 (7%)	5 (17%)	0.63
Bowel obstruction	3 months	2 (7%)	3 (10%)	1.0
	6 months	1 (3%)	3 (10%)	0.42
	12 months	1 (3%)	4 (13%)	0.67
Wound infection	3 months	2 (7%)	3 (10%)	1.0
	6 months	1 (3%)	2 (7%)	1.0
	12 months	1 (3%)	3 (10%)	0.77
Reoperation	3 months	1 (3%)	1 (3%)	1.0
	6 months	0 (0%)	2 (7%)	0.50
	12 months	0 (0%)	2 (7%)	0.50

DISCUSSION

The results of this study indicate that early closure of temporary ileostomy in patients with rectal cancer is a safe and effective option, with no significant differences observed in the incidence of complications between the early closure and traditional closure groups. This finding is consistent with previous studies that have also reported comparable complication rates between early and traditional closure of ileostomies[11].

The study also highlights the importance of careful patient selection for early closure of ileostomies. In this study, patients who met certain criteria, such as adequate healing of the anastomosis and absence of postoperative complications, were considered eligible for early closure. This approach appears to have contributed to the low rate of complications observed in the early closure group[12]. It is worth noting that the sample size of this study was relatively small, with 60 patients included in the analysis. Further studies with larger sample sizes would be valuable for confirming the safety and efficacy of early closure of ileostomy. Temporary ileostomies can cause significant physical and emotional distress for patients, and can have a negative impact on their quality of life[13]. Early closure of ileostomy may help alleviate some of these issues and improve patient outcomes. Furthermore, the reduction in the duration of hospitalization can also lead to substantial cost savings, which can be important for healthcare providers and payers[14].

In addition to these benefits, early closure of ileostomy may also have implications for the timing of adjuvant therapy1[5]. Delayed initiation of adjuvant therapy is associated with worse outcomes for patients with rectal cancer. Early closure of ileostomy may allow for earlier initiation of adjuvant therapy, potentially improving outcomes for patients. Overall, while the primary focus of this study was on the safety and efficacy of early closure of temporary ileostomy, it is important to recognize the potential benefits beyond the reduction in complications[16-17]. Early closure of ileostomy may have important implications for improving quality of life, reducing healthcare costs, and optimizing timing of adjuvant therapy for patients with rectal cancer[18].

CONCLUSION

In conclusion, this study provides evidence to support the safety and efficacy of early closure of temporary ileostomy in patients with rectal cancer. The results indicate that there were no significant differences in the incidence of complications between early closure and traditional closure groups. The findings highlight the importance of careful patient selection and monitoring to ensure optimal outcomes. Overall, early closure of temporary ileostomy may be a beneficial option for select patients, but further research is needed to confirm these findings.

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