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Original Research Article

EARLY VERSUS LATE LOOP ILEOSTOMY CLOSURE AND PERIOPERATIVE OUTCOMES IN A RETROSPECTIVE COHORT OF 50 PATIENTS

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ABSTRAC

Background: Closure timing for a temporary loop ileostomy must balance physiological readiness for reversal against continued exposure to stoma-related morbidity. We compared perioperative outcomes after early and late closure in a tertiary-centre cohort.

Materials and Methods: This retrospective cohort comprised 50 patients who underwent loop ileostomy closure following colorectal surgery, bowel perforation, or traumatic bowel injury. The study defined early closure as less than 3 months and late closure as at or more than 3 months after stoma creation. There were 26 early-closure and 24 late-closure patients. Exploratory unadjusted comparisons were reconstructed from reported aggregate data using Welch's t-tests and Fisher's exact tests.

Results: Mean operative duration was 76.69 ± 9.94 versus 92.46 ± 17.04 minutes for early and late closure, respectively (mean difference −15.77 minutes; 95% CI −23.85 to −7.69). Mean blood loss was 42.88 ± 40.89 versus 78.54 ± 44.66 mL (difference −35.66 mL; 95% CI −60.09 to −11.23), and mean hospital stay was 6.65 ± 1.06 versus 10.88 ± 2.88 days (difference −4.23 days; 95% CI −5.50 to −2.95). Complication categories other than no complication were recorded for 4/26 (15.4%) and 20/24 (83.3%) patients, respectively (unadjusted risk ratio 0.18; 95% CI 0.07–0.46). The early group was younger and had higher preoperative haemoglobin and albumin levels.

Conclusion: Early closure was associated with more favourable unadjusted perioperative outcomes. Baseline imbalance, non-random timing decisions, and limitations of the available source data prevent causal conclusions or identification of a universally optimal closure interval.

Keywords: Loop ileostomy; Ileostomy reversal; Closure timing; Postoperative morbidity; Retrospective cohort.

INTRODUCTION

Temporary loop ileostomy is an important surgical procedure commonly performed to divert intestinal contents following colorectal surgery, bowel resection, intestinal perforation, and selected traumatic bowel injuries. It is frequently constructed to protect a distal bowel anastomosis, reduce the consequences of anastomotic leakage, and facilitate healing following major abdominal surgery. Although loop ileostomy provides temporary faecal diversion, restoration of intestinal continuity requires a subsequent surgical procedure. The timing of ileostomy closure remains an important consideration in gastrointestinal surgery because both premature reversal and prolonged diversion may be associated with postoperative morbidity. Appropriate timing requires careful assessment of clinical recovery, nutritional status, anastomotic integrity, and the underlying surgical condition.[1] Despite its protective role, temporary ileostomy may be associated with several complications, including dehydration, electrolyte disturbances, peristomal skin irritation, stomal prolapse, parastomal hernia, and

high-output stoma. Prolonged diversion may increase the practical burden of stoma management and affect patients' physical comfort, psychological well-being, daily activities, and quality of life. Fluid and electrolyte losses are particularly important because ileostomy output may contribute to dehydration and deterioration in renal function. These problems may necessitate additional medical consultations, hospital readmissions, and supportive treatment. Therefore, limiting unnecessary exposure to stoma-related complications while maintaining adequate postoperative recovery represents an important objective in planning ileostomy reversal.[2] The optimal interval between ileostomy formation and closure remains controversial. Traditionally, reversal has often been planned approximately 8–12 weeks after the initial operation, allowing sufficient time for anastomotic healing, resolution of postoperative inflammation, and restoration of physiological stability. However, the actual timing frequently depends on multiple clinical and institutional factors. Patients recovering from complicated abdominal surgery may require delayed reversal because of persistent infection, poor nutritional status, additional treatment requirements, or incomplete healing. Similarly, patients undergoing colorectal cancer surgery may experience postponement because of adjuvant therapy or the need for further anastomotic evaluation. Consequently, the planned interval does not always correspond to the actual time of ileostomy reversal.[3] Preoperative assessment plays a central role in determining whether ileostomy closure can be performed safely. Clinical examination, laboratory investigations, nutritional evaluation, and assessment of distal bowel continuity are important components of surgical decision-making. Depending on the original operation and clinical indication, distal loopography, water-soluble contrast studies, digital rectal examination, or endoscopic assessment may be performed to evaluate anastomotic integrity and identify strictures, fistulas, or persistent leakage. Particular attention should be given to haemoglobin concentration, serum albumin, renal function, and electrolyte balance because these parameters may reflect the patient's general condition before reversal. Adequate clinical evaluation is essential to identify patients suitable for closure and avoid complications associated with unrecognized distal bowel pathology.[4] The perioperative outcomes of ileostomy closure may be influenced by several patient-related and surgery-related factors. Age, nutritional status, associated comorbidities, immunosuppressive treatment, and preoperative haematological parameters may affect postoperative recovery and the occurrence of complications. Surgical factors such as adhesions, operative technique, intestinal inflammation, and previous abdominal procedures may further influence operative duration, blood loss, anastomotic healing, and hospitalization. Because patients undergoing early and late closure may differ in their baseline clinical characteristics, the relationship between closure timing and postoperative morbidity requires careful evaluation. Distinguishing the effect of surgical timing from patient selection is particularly important in retrospective observational studies.[5] The term early ileostomy closure has been defined differently across clinical studies, ranging from reversal within the first few postoperative weeks to closure within several months. Randomized investigations have assessed accelerated reversal protocols following rectal cancer surgery, but their findings have not established a universally applicable interval. Differences in surgical indications, patient selection, anastomotic assessment, and postoperative care contribute to variations in reported outcomes. Consequently, closure during the second postoperative week cannot necessarily be considered equivalent to reversal performed within 3 months. A clearly specified interval is therefore necessary when evaluating the relationship between ileostomy closure timing and surgical outcomes.[6]

MATERIALS AND METHODS

This single-centre retrospective cohort study was conducted at Motilal Nehru Medical College and associated hospitals, Prayagraj, Uttar Pradesh, India. The supplied dissertation, submitted in 2025, reports 50 patients undergoing loop ileostomy closure. The calendar dates of patient inclusion, index operations, and closure procedures are not stated in the supplied thesis. The dissertation year is not being substituted for the study period. The study design and timing criteria require confirmation against the original approved protocol.

Eligibility and Closure Timing: Patients underwent ileostomy formation in association with colorectal surgery or bowel perforation, including traumatic bowel injury. The stated eligibility criteria required at least 3 months of follow-up after closure. Patients with inadequate follow-up or concurrent major operations affecting gastrointestinal function were excluded. The numbers of patients initially screened and excluded were not available in the supplied results. Early closure was defined as an interval of less than 3 months after stoma creation, and late closure as at or more than 3 months. Timing was not randomized and was described as dependent on clinical judgment.Actual closure dates and group-specific distributions of time to reversal were unavailable for this reconstruction. The one-row worksheet provided separately records a threshold of less than 12 weeks, which should be reconciled with the dissertation definition rather than silently substituted. Confirmation from the study records is pending as to whether study-specific informed consent was obtained or an IEC-approved waiver applied. The blank consent template in the thesis does not establish either. This statement must be finalized from the institutional records before journal submission.

Variables and Outcomes: The reported variables included age, sex, body mass index, preoperative haemoglobin, serum creatinine, sodium, potassium, and albumin, and distal loopogram findings. Operative outcomes were duration of surgery, estimated blood loss, and length of hospital stay. The source methods specified anastomotic leakage and other surgical complications within 30 days of closure. The source tables did not provide separate outcome dates or severity grades. Postoperative categories were retained as recorded: no complication, enterocutaneous fistula, fistula, ileus, leak, subacute intestinal obstruction, surgical site infection, combined surgical site infection and obstruction, and wound dehiscence. Each patient occupied one category in the published table. Any recorded complication was reconstructed as the group total minus the no-complication count. The categories do not establish the number of independent events per patient, and labels such as fistula and leak require review against original records. No numerical results for a validated quality-of-life instrument, gastrointestinal function, readmission, or survival were available. These outcomes were not analysed. Operative technique, prophylaxis, laboratory sampling time, discharge criteria, and the management of a positive loopogram require confirmation from the operative and clinical records; they have not been inferred from the single worksheet entry.

Statistical Analysis

Continuous data are reported as mean ± standard deviation, and categorical data as counts with within-group percentages. For this manuscript, exploratory unadjusted mean differences and 95% confidence intervals were calculated directly from the aggregate sample sizes, means, and standard deviations using the Welch–Satterthwaite method. Two-sided Fisher's exact tests were used for the available binary categorical comparisons. The unadjusted risk ratio for any recorded complication was calculated from the reconstructed two-by-two table, with a 95% confidence interval using the logarithmic approximation. Calculations used Python and SciPy 1.17.0. All differences refer to early minus late closure, and risk ratios compare early with late closure. P-values are exploratory and were not adjusted for multiple comparisons. The analyses assume independent observations and accurate source summaries. Patient-level normality, outliers, missingness, and duplicate records could not be assessed. No multivariable regression or Mann–Whitney analysis was performed for this version; those analyses cannot be reconstructed from the available summary statistics. These calculations supplement the dissertation tables and do not independently validate the underlying records.

Ethics: The study was approved by the Institutional Ethics Committee, MLN Medical College and Associated Hospitals, Prayagraj, India. The signed Ethical Clearance Certificate identifies the project as "Early closure vs late closure of loop ileostomy—timing of closure can be crucial for restoration of a functional digestion" and names Dr Akash Kumar as the investigator. No patient identifiers are included in this manuscript.

RESULTS

Table 1. Baseline and Preoperative Characteristics

Table 1 presents the baseline demographic and preoperative clinical characteristics of 50 patients undergoing loop ileostomy closure, comprising 26 patients in the early-closure group and 24 patients in the late-closure group. The mean age of patients was significantly lower in the early-closure group (32.50 ± 10.58 years) compared with the late-closure group (40.12 ± 11.93 years), with a statistically significant difference ($p = 0.021$). Female patients accounted for 13 (50.00%) cases in the early-closure group and 9 (37.50%) in the late-closure group, without a statistically significant difference ($p = 0.407$). The mean body mass index was 22.87 ± 2.29 kg/m² in the early-closure group and 24.82 ± 4.27 kg/m² in the late-closure group ($p = 0.055$). Preoperative haemoglobin levels were significantly higher in the early-closure group (10.84 ± 1.05 g/dL) than in the late-closure group (9.83 ± 1.18 g/dL), with $p = 0.003$. Mean serum creatinine was significantly lower in the early-closure group (1.10 ± 0.24 mg/dL) compared with the late-closure group (1.24 ± 0.26 mg/dL), with $p = 0.046$. Mean serum sodium levels were 138.84 ± 3.82 mmol/L and 137.42 ± 5.21 mmol/L in the early- and late-closure groups, respectively ($p = 0.279$), while serum potassium levels were 3.96 ± 0.48 mmol/L and 3.90 ± 0.54 mmol/L, respectively ($p = 0.670$). Neither electrolyte parameter showed a statistically significant difference between the groups. Mean serum albumin was significantly higher in the early-closure group (3.51 ± 0.34 g/dL) compared with the late-closure group (3.25 ± 0.37 g/dL), with $p = 0.012$.

Table 2. Unadjusted Operative and Hospital Outcomes

Table 2 compares the operative duration, estimated intraoperative blood loss, and length of hospital stay between patients undergoing early and late loop ileostomy closure. The mean operative duration was 76.69 ± 9.94 minutes in the early-closure group compared with 92.46 ± 17.04 minutes in the late-closure group. The early-closure group had a significantly shorter mean operative duration, with a mean difference of −15.77 minutes (95% CI: −23.85 to −7.69; $p < 0.001$). Similarly, mean intraoperative blood loss was significantly lower among patients undergoing early closure (42.88 ± 40.89 mL) compared with those undergoing late closure (78.54 ± 44.66 mL). The mean difference in blood loss was −35.66 mL (95% CI: −60.09 to −11.23), which was statistically significant ($p = 0.005$). The mean duration of hospital stay was 6.65 ± 1.06 days in the early-closure group, whereas patients undergoing late

closure had a mean hospital stay of 10.88 ± 2.88 days. The difference in hospital stay between the groups was statistically significant, with a reported mean difference of −4.22 days (95% CI: −5.50 to −2.95; p < 0.001).

Table 3. Postoperative Complication Categories

Table 3 presents the distribution of postoperative complications among patients undergoing early and late loop ileostomy closure. Of the 26 patients in the early-closure group, 22 (84.62%) had no recorded postoperative complications, compared with only 4 (16.67%) of the 24 patients in the late-closure group. Overall, postoperative complications were recorded in 4 (15.38%) patients undergoing early closure and 20 (83.33%) patients undergoing late closure. In the early-closure group, surgical site infection was the most frequently recorded complication, affecting 3 (11.54%) patients, followed by enterocutaneous fistula in 1 (3.85%) patient. No cases of fistula, ileus, leak, subacute intestinal obstruction, combined surgical site infection and obstruction, or wound dehiscence were recorded in this group. In contrast, the late-closure group demonstrated a higher frequency of several postoperative complication categories. Surgical site infection was the most commonly recorded complication, affecting 9 (37.50%) patients, followed by postoperative ileus in 3 (12.50%) patients. Fistula, leak, and subacute intestinal obstruction were each reported in 2 (8.33%) patients. Combined surgical site infection and obstruction was recorded in 1 (4.17%) patient, while wound dehiscence occurred in 1 (4.17%) patient. No enterocutaneous fistula was recorded in the late-closure group. The unadjusted risk ratio for any recorded postoperative complication was 0.18 (95% CI: 0.07–0.46), with a statistically significant difference between the groups (Fisher's exact test, p < 0.001).

Table 1: Baseline and preoperative characteristics

Variable	Early n = 26	Late n = 24	P value
Age (years)	32.50 ± 10.58	40.12 ± 11.93	0.021
Female n (%)	13 (50.0)	9 (37.5)	0.407
Body mass index (kg/m²)	22.87 ± 2.29	24.82 ± 4.27	0.055
Haemoglobin (g/dL)	10.84 ± 1.05	9.83 ± 1.18	0.003
Creatinine (mg/dL)	1.10 ± 0.24	1.24 ± 0.26	0.046
Sodium (mmol/L)	138.84 ± 3.82	137.42 ± 5.21	0.279
Potassium (mmol/L)	3.96 ± 0.48	3.90 ± 0.54	0.670
Albumin (g/dL)	3.51 ± 0.34	3.25 ± 0.37	0.012

Table 2: Unadjusted operative and hospital outcomes

Outcome	Early n = 26	Late n = 24	Difference (95% CI)	P value
Operative duration (minutes)	76.69 ± 9.94	92.46 ± 17.04	−15.77 (−23.85 to −7.69)	<0.001
Blood loss (mL)	42.88 ± 40.89	78.54 ± 44.66	−35.66 (−60.09 to −11.23)	0.005
Hospital stay (days)	6.65 ± 1.06	10.88 ± 2.88	−4.22 (−5.50 to −2.95)	<0.001

Table 3: Postoperative complication categories

Source category	Early n (%)	Late n (%)
No complication	22 (84.6)	4 (16.7)
Enterocutaneous fistula	1 (3.8)	0 (0.0)
Fistula	0 (0.0)	2 (8.3)
Ileus	0 (0.0)	3 (12.5)
Leak	0 (0.0)	2 (8.3)
Subacute intestinal obstruction	0 (0.0)	2 (8.3)
Surgical site infection	3 (11.5)	9 (37.5)
Surgical site infection and obstruction	0 (0.0)	1 (4.2)
Wound dehiscence	0 (0.0)	1 (4.2)
Total	**26 (100)**	**24 (100)**

DISCUSSION

The present retrospective cohort study evaluated 50 patients undergoing loop ileostomy closure, including 26 patients in the early-closure group and 24 patients in the late-closure group. Significant differences were observed in baseline characteristics, operative outcomes, hospital stay, and postoperative complications. The mean age was significantly lower in the early-closure group (32.50 ± 10.58 years) compared with the late-closure group (40.12 ± 11.93 years; p = 0.021). Preoperative haemoglobin (10.84 ± 1.05 vs. 9.83 ± 1.18 g/dL; p = 0.003) and serum albumin (3.51 ± 0.34 vs. 3.25 ± 0.37 g/dL; p = 0.012) were also significantly higher in the early-closure group. Waterland et al. (2015) conducted a retrospective study involving 170 patients undergoing defunctioning ileostomy following anterior resection, with a median age of 69 years. Of these, 127 (74.71%) underwent reversal, while 63 experienced delayed closure beyond 6 months. The principal reasons for delayed reversal included adjuvant chemotherapy in 22 (34.92%), medical complications in 14 (22.22%), and surgical complications in 13 (20.63%) patients. Their findings demonstrate that delayed reversal frequently occurs in patients with additional treatment requirements or medical problems. Similarly, the baseline differences

observed in the present study suggest that patients selected for late closure may have differed in clinical condition and preoperative readiness.[7] In the present study, mean operative duration was significantly shorter in the early-closure group (76.69 ± 9.94 minutes) compared with the late-closure group (92.46 ± 17.04 minutes), with a mean difference of −15.77 minutes (95% CI: −23.85 to −7.69; $p < 0.001$). Mean intraoperative blood loss was also significantly lower following early closure (42.88 ± 40.89 mL) than late closure (78.54 ± 44.66 mL; $p = 0.005$). These results are comparable to the retrospective study conducted by Sauri et al. (2021), which included 405 patients undergoing protective ileostomy closure following low anterior resection for rectal cancer. Among these patients, 97 underwent closure within 3 months, while 308 underwent closure after 3 months. The reported operative durations were 87.5 minutes in the early group and 105 minutes in the late group ($p = 0.001$). Similarly, reported blood loss was 10 mL and 25 mL, respectively ($p = 0.001$). However, hospital stay was 6 days in both groups, without a statistically significant difference ($p = 0.14$).[8] The mean postoperative hospital stay in the present study was 6.65 ± 1.06 days following early closure and 10.88 ± 2.88 days following late closure, representing a statistically significant mean difference of approximately 4.22 days ($p < 0.001$). Postoperative complications were also recorded less frequently in the early group, affecting 4/26 (15.38%) patients compared with 20/24 (83.33%) patients undergoing late closure. Werner et al. (2022) retrospectively analysed 409 patients undergoing protective loop ileostomy closure, including 229 patients undergoing closure within 150 days and 180 undergoing closure after 150 days. Postoperative complications occurred in 39 (17.00%) early-closure patients compared with 57 (31.67%) late-closure patients ($p < 0.001$). The median hospital stay was also significantly shorter after early closure, at 6 days compared with 6.5 days following late closure ($p = 0.0087$). Additionally, postoperative ileus or subileus was observed in 4.80% of early-closure patients and 12.80% of late-closure patients ($p = 0.004$). The present study similarly recorded no ileus in the early group and three cases (12.50%) in the late group.[9] Postoperative surgical site infection was the most frequently recorded complication in the present study, occurring in 3 (11.54%) patients undergoing early closure and 9 (37.50%) patients undergoing late closure. Other complications in the late-closure group included postoperative ileus in 3 (12.50%), fistula in 2 (8.33%), anastomotic leak in 2 (8.33%), and subacute intestinal obstruction in 2 (8.33%) patients. In contrast, Fukudome et al. (2021) conducted a retrospective study involving 47 patients undergoing ileostomy reversal after low anterior resection, with 29 patients undergoing early closure within 90 days and 18 undergoing late closure. Overall postoperative complications occurred in 14/29 (48.28%) early-closure patients and 5/18 (27.78%) late-closure patients. Superficial surgical site infection was reported in 5 (17.24%) early-closure patients compared with 1 (5.56%) late-closure patient, demonstrating a different pattern from the present study. However, severe complications classified as Clavien–Dindo grade III or higher occurred in 20.70% and 16.70% of early- and late-closure patients, respectively, without a statistically significant difference ($p = 1.000$).[10] The present study demonstrated a significantly lower proportion of patients with any recorded postoperative complication following early closure (15.38%) compared with late closure (83.33%), with an unadjusted risk ratio of 0.18 (95% CI: 0.07–0.46; $p < 0.001$). These findings are directionally consistent with the multicentre randomized controlled EASY trial conducted by Danielsen et al. (2017), which investigated early ileostomy closure 8–13 days after rectal cancer surgery compared with closure after more than 12 weeks. The trial enrolled 127 patients from eight surgical departments in Denmark and Sweden, of whom 112 were available for analysis. The mean number of complications during the 12-month follow-up period was significantly lower in the early-closure group (1.2 complications per patient) compared with the late-closure group (2.9 complications per patient; $p < 0.0001$). The investigators reported that early closure could be performed safely in carefully selected patients without clinical or radiological evidence of anastomotic leakage. Although the present study also demonstrated fewer complications in the early group, its outcome represented the proportion of patients with recorded complications rather than the mean number of events per patient.[11] The favourable association between early closure and postoperative outcomes in the present study contrasts with findings from certain randomized controlled trials. Bausys et al. (2019) conducted a randomized trial comparing ileostomy closure at 30 days with standard closure at 90 days following rectal cancer surgery. The study included 86 patients, with 43 allocated to each group. Overall 30-day postoperative morbidity was significantly higher in the early-closure group (27.90%) compared with the standard-closure group (7.90%; $p = 0.024$). Severe postoperative complications, classified as Clavien–Dindo grade III or higher, occurred exclusively in the early-closure group, affecting 5 (11.63%) patients. The trial was terminated prematurely because of safety concerns. In comparison, the present study recorded anastomotic leak in none of the 26 early-closure patients and in 2 (8.33%) of the 24 late-closure patients, while surgical site infection occurred in 11.54% and 37.50%, respectively. These contrasting findings may be related to differences in patient selection, surgical indications, clinical status, and the interval selected for closure. Importantly, closure within 3 months in the present cohort cannot be considered equivalent to routine reversal at 30 days.[12] The occurrence of postoperative leakage, obstruction, and other serious complications also

requires consideration when comparing early and late ileostomy closure. In the present study, anastomotic leak was recorded in 2 (8.33%) late-closure patients and none undergoing early closure. Similarly, postoperative ileus and subacute intestinal obstruction were recorded in 3 (12.50%) and 2 (8.33%) late-closure patients, respectively, while no corresponding events were recorded in the early group. Elsner et al. (2021) conducted a multicentre randomized controlled trial comparing ileostomy closure at 2 weeks and 12 weeks following rectal cancer resection. The trial included 71 randomized patients, comprising 37 in the early-closure group and 34 in the late-closure group, and was discontinued because of safety concerns. Colonic anastomotic leakage was significantly more frequent following early closure (19.00% vs. 0.00%; p = 0.012), while combined colonic or ileal anastomotic leakage occurred in 24.00% and 0.00%, respectively (p = 0.002). Reintervention was also significantly more frequent following early closure (16.00% vs. 0.00%; p = 0.026). Intraoperative adhesions were greater in the early group, with visual analogue scores of 61.3 versus 46.2 (p = 0.034). These findings contrast with the present study, in which recorded complications were more frequent after late closure. However, the present study did not provide standardized complication severity grading, individual closure intervals, or detailed assessment of intraoperative adhesions.[13] Although the present study demonstrated significant reductions in operative duration, intraoperative blood loss, hospitalization, and recorded postoperative complications among patients undergoing early closure, these findings should not be interpreted as evidence of improved long-term gastrointestinal function or health-related quality of life. Park et al. (2018) evaluated health-related quality of life in the randomized EASY trial involving 112 patients after rectal cancer resection. Early closure was performed at 8–13 days, while late closure occurred after more than 12 weeks. Quality of life was assessed at 3, 6, and 12 months using the EORTC QLQ-C30, EORTC QLQ-CR29, and SF-36 questionnaires. Questionnaire response rates were generally 82–95%, except for the EORTC QLQ-C30 assessment at 12 months, for which response rates were approximately 54–55%. Despite the lower complication burden reported in the earlier EASY trial analysis, no clinically significant differences in health-related quality-of-life questionnaire scores were observed between early- and late-closure groups at any assessment point. In the present study, validated quality-of-life scores, gastrointestinal function measurements, readmission data, and long-term functional outcomes were unavailable. Moreover, the sample size was limited to 50 patients, and differences in age, haemoglobin, albumin, and other baseline characteristics were not adjusted through multivariable analysis. Therefore, the observed perioperative advantages should be interpreted as exploratory associations rather than causal effects of closure timing.[14]

Limitations: The study is limited by its small sample, single-centre retrospective design, non-random timing decisions, and baseline imbalance. The present reconstruction used aggregate results, which prevented verification of selection, exclusions, missingness, distributions, and outcome dates. Adjustment for confounding was not possible. Only patients who underwent reversal were represented, so outcomes of permanent or unreversed stomas are not addressed. Actual intervals to reversal and detailed index-operation data were unavailable, and the exact 3-month boundary remains unspecified. Multiple exploratory comparisons increase the chance of incidental findings. These limitations prevent a causal interpretation and require resolution of source-record questions before final journal submission.

CONCLUSION

In this 50-patient cohort, loop ileostomy closure before 3 months was associated with shorter operative duration, lower recorded blood loss, shorter hospitalization, and fewer recorded postoperative complications than later closure. The groups differed at baseline, and timing was not randomized. The findings support further investigation of patient selection and timely reversal but do not establish early closure as universally safer or define an optimal interval for all indications.

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