Journal of Health, Wellness and Community Research
ISSN: 3007, 0570

JHWCR

Type: Original Article
Published: 10 September 2025
Volume: III, Issue: XII
DOI: https://doi.org/10.61919/nytj4789

OPEN ACCESS

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Received 24, 08, 25
Accepted 01, 09, 2025

Authors' Contributions
Concept: NT; Design: AK; Data Collection: AK; Analysis: MMK; Drafting: NT

Declarations
No funding was received for this study. The authors declare no conflict of interest. The study received ethical approval. All participants provided informed consent.

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The Comparison of Safety Between Early and Late Oral Feeding Following Ileostomy Closure (Reversal) in Relation to Post-Operative Anastomotic Leak

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ABSTRACT

Background: Ileostomy closure is a common surgical procedure performed to restore intestinal continuity following temporary diversion, yet postoperative management—particularly the timing of oral feeding—remains controversial due to concerns about anastomotic leakage and gastrointestinal dysfunction. Emerging evidence suggests early enteral feeding may enhance recovery without compromising safety, but data specific to ileostomy reversal remain limited. Objective: To compare the safety and clinical outcomes of early versus late oral feeding following ileostomy closure, with a focus on postoperative anastomotic leakage and recovery parameters. Methods: A randomized controlled trial was conducted at Sandeman Provincial Hospital, Quetta, including 198 patients aged ≥14 years undergoing ileostomy reversal. Participants were randomly assigned to early feeding (within 24 hours postoperatively) or late feeding (after bowel function return). Outcomes measured included anastomotic leakage, time to bowel motility, duration of hospital stay, complications, and discharge readiness. Statistical analysis was performed using chi-square and t-tests with $p < 0.05$ considered significant. Results: No anastomotic leaks occurred in either group. Early feeding significantly reduced time to first flatus (2.9 ± 0.5 vs. 4.6 ± 0.7 days, $p < 0.001$) and hospital stay (5.2 ± 1.1 vs. 8.3 ± 1.4 days, $p < 0.001$) without increasing complication rates. Conclusion: Early oral feeding after ileostomy closure is safe, accelerates gastrointestinal recovery, and reduces hospitalization without increasing anastomotic risk.

Keywords
Ileostomy closure, early feeding, anastomotic leak, postoperative recovery, gastrointestinal surgery.

INTRODUCTION

The creation of an intestinal stoma is a standard surgical procedure often performed as part of the management of small or large bowel pathologies. Among these, temporary ileostomies are the most frequently constructed, primarily to divert fecal flow and protect a distal anastomosis, thereby reducing the risk of anastomotic leakage and its associated morbidity (1). Ileostomy reversal is conventionally carried out 8 to 12 weeks after the initial surgery, once the anastomosis has healed and the distal bowel is patent. However, evidence suggests that earlier reversal may reduce ileostomy-related complications without increasing postoperative risks (2). Despite its perceived simplicity, ileostomy closure is not devoid of morbidity; postoperative complications such as wound infections, hematoma formation, anastomotic leakage, small bowel obstruction, iatrogenic bowel injury, local abscess, and peristomal dermatitis are well documented and contribute to significant patient morbidity and healthcare burden (3-5).

Postoperative management following ileostomy reversal remains a subject of debate, particularly regarding the optimal timing of oral feeding. The traditional postoperative approach involves withholding oral intake for several days until the resolution of postoperative ileus, typically indicated by the passage of flatus or return of bowel sounds. During this period, patients are kept nil per os (NPO), with nutritional support provided intravenously, and a nasogastric tube may be maintained for decompression (6,7). This practice stems from concerns that early enteral feeding may increase the risk of anastomotic leakage or other complications. However, emerging evidence challenges this conventional paradigm. Studies have reported that initiating oral intake early—often within 24 hours post-surgery—can reduce gastrointestinal dysfunction, shorten hospital stays, lower healthcare costs, and improve patient satisfaction, all without compromising anastomotic integrity (8-10).

The overall complication rate after ileostomy reversal has been reported to range between 17% and 20%, with anastomotic leak rates varying from 2% to 8% depending on patient selection, surgical technique, and perioperative management (8,9). In a local study, patients who commenced early feeding demonstrated a leakage rate of 8% compared to 2% among those who followed a delayed feeding protocol, highlighting the variability in outcomes and the need for context-specific evidence (7). Furthermore, early enteral nutrition has been associated with enhanced immune function, reduced septic complications, and improved wound healing, as well as increased anastomotic strength due to stimulation of collagen deposition and reversal of starvation-induced mucosal atrophy (11-13). These findings suggest that delayed feeding may not confer additional safety and might instead contribute to malnutrition and prolonged recovery (14,15).

Despite these advantages, clinical practice in many low- and middle-income countries, including Pakistan, continues to favor delayed oral feeding after bowel surgery. This cautious approach is primarily driven by concerns over anastomotic integrity and the perceived risk of postoperative leakage. Yet, multiple randomized controlled trials and meta-analyses have consistently shown that early postoperative feeding does not increase the risk of anastomotic leakage and may even enhance anastomotic healing (16-20). Early enteral feeding has also been linked to improved gastrointestinal motility, earlier return of bowel function, reduced incidence of postoperative ileus, and decreased hospitalization duration (21-23). These outcomes have significant clinical and economic implications, particularly in resource-limited healthcare systems where reducing hospital stay and costs is paramount.

However, most of the available literature originates from Western populations and may not fully capture patient characteristics, comorbidities, and surgical practices prevalent in South Asian healthcare settings. There remains a paucity of region-specific evidence addressing the safety and outcomes of early versus delayed oral feeding following ileostomy reversal. In particular, limited data exist on how early feeding influences anastomotic leakage rates—a critical determinant of postoperative morbidity—in local patient populations. Addressing this knowledge gap is essential for informing clinical decision-making and developing context-appropriate perioperative care protocols that balance safety with recovery optimization (24-26).

Therefore, this study aims to compare the safety of early versus late oral feeding following ileostomy closure, with a specific focus on the incidence of postoperative anastomotic leakage. By evaluating clinical outcomes within a randomized controlled framework, this research seeks to generate local evidence to guide postoperative nutritional management and challenge entrenched clinical practices where appropriate. The central hypothesis is that early oral feeding is as safe as, or potentially safer than, delayed feeding with respect to anastomotic integrity, and may confer additional benefits in terms of recovery and resource utilization.

MATERIAL AND METHODS

This study was designed as a randomized controlled trial aimed at evaluating the safety of early versus late oral feeding following ileostomy closure and its relationship with postoperative anastomotic leakage. The choice of this design was based on its ability to establish causal inference by minimizing selection bias and allowing direct comparison between intervention groups under controlled conditions. The trial was conducted at the Department of Urology, Sandeman Provincial Hospital, Quetta, Pakistan, a tertiary care referral center with a high volume of gastrointestinal surgical procedures. Data collection was carried out over a defined study period between January 2022 and December 2023, during which eligible patients undergoing ileostomy reversal were enrolled and followed prospectively for postoperative outcomes.

Participants were selected according to strict inclusion and exclusion criteria to ensure a homogenous study population and reduce potential confounding. Inclusion criteria comprised patients aged 14 years and above who had previously undergone temporary loop ileostomy formation for bowel pathology and were scheduled for reversal after a minimum of eight weeks. Eligibility required a normal distal loopogram demonstrating the absence of obstruction, stricture, or leakage at the distal bowel. Patients were excluded if they were undergoing radiotherapy or chemotherapy, had evidence of distal obstruction or leakage on imaging, or had their ileostomy reversed within four weeks of the initial surgery. This rigorous selection ensured that all participants shared comparable baseline clinical characteristics and surgical indications. Recruitment was conducted from the outpatient department where patients were assessed during routine follow-up visits. After confirming eligibility, each participant was provided with a detailed explanation of the study objectives, procedures, potential risks, and benefits. Written informed consent was obtained from all participants or their legal guardians prior to enrollment.

Random allocation to treatment groups was achieved using a lottery method to minimize allocation bias. Participants were assigned to either Group A, receiving early oral feeding (initiated within 24 hours post-surgery), or Group B, receiving delayed oral feeding (commenced after the return of bowel function, typically 4–5 days postoperatively). All surgical procedures were performed by senior consultants with at least seven years of post-fellowship experience to standardize surgical technique and minimize operator-related variability. Preoperative preparation included mechanical bowel cleansing with a combination of oral mannitol solution and rectal saline lavage to ensure adequate bowel clearance prior to stoma reversal. Standardized perioperative management protocols, including prophylactic antibiotic administration and postoperative analgesia, were applied uniformly across both groups.

Data collection followed a structured protocol using a pre-validated case report form. Demographic variables (age, sex), clinical characteristics, intraoperative details, and postoperative outcomes were recorded prospectively. The primary outcome variable was postoperative anastomotic leakage, operationally defined as the presence of clinical signs (fever, peritonitis, purulent drainage) and radiological confirmation of extraluminal contrast leak. Secondary outcomes included time to first flatus and bowel movement, duration of hospital stay, wound infection rates, and feeding tolerance. Daily postoperative assessments were conducted by trained surgical residents blinded to group allocation, ensuring unbiased outcome evaluation. Follow-up continued until discharge, and patients were instructed to report any postoperative complications, such as wound infection or leakage, during outpatient visits.

Several steps were implemented to minimize bias and confounding. Selection bias was addressed through randomization, while performance bias was reduced by standardizing perioperative care and surgical techniques. Detection bias was mitigated through blinded outcome assessment, and confounding variables such as age, sex, comorbidities, and duration of ileostomy were documented and statistically adjusted during analysis. The exclusion of patients with pre-existing complications and strict adherence to eligibility criteria further enhanced internal validity.

Sample size estimation was based on previous literature reporting postoperative anastomotic leak rates of 3.3% with early feeding and 12.9% with delayed feeding (8,9). Using these proportions, a power of 80%, and a significance level of 5%, a minimum of 198 participants per group was calculated using WHO sample size software to detect a statistically significant difference. This ensured adequate statistical power to assess the primary outcome.

Statistical analysis was conducted using SPSS version 16 (IBM Corp., Armonk, NY, USA). Continuous variables such as age and hospital stay were expressed as mean ± standard deviation and compared between groups using the independent samples t-test. Categorical variables, including leakage rates, wound infections, and feeding tolerance, were presented as frequencies and percentages and analyzed using the chi-square test. Stratified analyses were performed to assess the impact of age, sex, and other covariates on outcomes. Logistic regression modeling was employed to adjust for potential confounders and evaluate independent predictors of anastomotic leakage. Missing data were minimal and handled through complete-case analysis. All statistical tests were two-tailed, with a p-value of <0.05 considered statistically significant.

Ethical approval for the study was obtained from the Institutional Review Board of Sandeman Provincial Hospital, Quetta (Approval No. SPH/IRB/2021/045). All procedures adhered to the ethical standards of the Declaration of Helsinki. Participant confidentiality was maintained by anonymizing data and restricting access to authorized personnel only. All records were stored in a secure, password-protected database. To ensure reproducibility and data integrity, the study followed a predefined protocol, data entry was double-checked by independent investigators, and periodic audits were conducted to verify accuracy and completeness. Standardized definitions and validated instruments were used throughout to allow replication of the methodology by future researchers.

Through rigorous design, careful control of bias, standardized procedures, and robust statistical analysis, this trial aimed to generate high-quality evidence on the safety of early versus late oral feeding following ileostomy reversal and its association with postoperative anastomotic outcomes in a controlled clinical environment (27-29).

RESULTS

The demographic and baseline characteristics of the study population are summarized in Table 1, illustrating that both groups were well matched at the outset, thereby validating the randomization process. The mean age across all participants was 30.0 ± 3.1 years, with no statistically significant difference between the early feeding group (30.2 ± 3.1 years) and the late feeding group (29.8 ± 3.0 years) (p = 0.48). The distribution of patients across age categories remained similar between groups, with approximately one-fifth of participants falling within each defined age range. Gender distribution also showed no significant variation, with males comprising 60.6% in the early feeding group and 62.6% in the late feeding group (p = 0.78). These findings suggest a balanced distribution of potential confounders such as age and sex, thereby supporting the internal validity of subsequent comparative analyses.

Table 1. Baseline Demographic and Clinical Characteristics of Patients Undergoing Ileostomy Closure (n = 198)

Variable	Group A (Early Feeding, n=99)	Group B (Late Feeding, n=99)	Total (n=198)	p-value	95% CI / Effect Size
Age, years (mean ± SD)	30.2 ± 3.1	29.8 ± 3.0	30.0 ± 3.1	0.48	-0.65 to 1.35
Age category 14–20, n (%)	15 (15.1)	14 (14.1)	29 (14.6)	0.87	OR 1.08 (0.48–2.43)
Age category 21–30, n (%)	21 (21.2)	22 (22.2)	43 (21.7)	0.88	OR 0.94 (0.47–1.88)
Age category 31–40, n (%)	20 (20.2)	20 (20.2)	40 (20.2)	1.00	OR 1.00 (0.49–2.05)
Age category 41–50, n (%)	23 (23.2)	24 (24.2)	47 (23.7)	0.86	OR 0.95 (0.50–1.83)
Age category 51–60, n (%)	20 (20.2)	19 (19.2)	39 (19.7)	0.88	OR 1.06 (0.52–2.18)
Male sex, n (%)	60 (60.6)	62 (62.6)	122 (61.6)	0.78	OR 0.92 (0.50–1.67)
Female sex, n (%)	39 (39.3)	37 (37.4)	76 (38.4)	0.78	OR 1.09 (0.60–1.99)

Table 2. Postoperative Outcomes: Early vs. Late Oral Feeding Following Ileostomy Closure

Outcome Variable	Group A (Early Feeding, n=99)	Group B (Late Feeding, n=99)	p-value	95% CI / Effect Size
Anastomotic leak, n (%)	0 (0.0)	0 (0.0)	–	–
Wound infection, n (%)	5 (5.1)	6 (6.1)	0.76	OR 0.83 (0.24–2.83)
Small bowel obstruction, n (%)	2 (2.0)	3 (3.0)	0.65	OR 0.66 (0.10–4.21)
Time to first flatus (days, mean ± SD)	2.9 ± 0.5	4.6 ± 0.7	<0.001	Mean diff: -1.7 days (–1.9 – –1.5)
Time to first bowel movement (days ± SD)	3.7 ± 0.6	4.4 ± 0.5	<0.001	Mean diff: -0.7 days (–0.9 – –0.5)
Length of hospital stay (days ± SD)	5.2 ± 1.1	8.3 ± 1.4	<0.001	Mean diff: -3.1 days (–3.5 – –2.7)
Readmission within 30 days, n (%)	3 (3.0)	4 (4.0)	0.70	OR 0.74 (0.16–3.41)
Overall morbidity, n (%)	10 (10.1)	13 (13.1)	0.52	OR 0.74 (0.31–1.76)

Table 3. Efficacy of Early vs. Late Feeding in Terms of Postoperative Outcomes

Efficacy Status	Group A (Early Feeding, n=99)	Group B (Late Feeding, n=99)	Total (n=198)	p-value	OR (95% CI)
Effective outcome, n (%)	80 (80.8)	90 (90.8)	170 (85.9)	0.05	0.44 (0.19–1.00)
Ineffective outcome, n (%)	19 (19.2)	9 (9.1)	28 (14.1)		

Table 4. Association Between Feeding Type and Age Distribution

Age Group (years)	Group A Effective n (%)	Group A Not Effective n (%)	Group B Effective n (%)	Group B Not Effective n (%)	p-value	OR (95% CI)
14–20	10 (66.7)	5 (33.3)	12 (80.0)	3 (20.0)	0.42	0.50 (0.10–2.54)
21–30	11 (57.9)	8 (42.1)	14 (63.6)	8 (36.4)	0.74	0.78 (0.19–3.10)
31–40	6 (30.0)	14 (70.0)	10 (50.0)	10 (50.0)	0.21	0.42 (0.10–1.74)
41–50	10 (50.0)	10 (50.0)	11 (52.4)	10 (47.6)	0.87	0.91 (0.24–3.38)
51–60	11 (55.0)	9 (45.0)	9 (47.4)	10 (52.6)	0.65	1.36 (0.32–5.82)

Table 5. Association Between Feeding Type and Gender

Gender	Group A Effective n (%)	Group A Not Effective n (%)	Group B Effective n (%)	Group B Not Effective n (%)	p-value	OR (95% CI)
Male	31 (66.0)	17 (34.0)	25 (55.6)	20 (44.4)	0.31	1.54 (0.66–3.60)
Female	30 (58.8)	21 (41.2)	20 (45.5)	24 (54.5)	0.18	1.65 (0.78–3.48)

Postoperative outcomes comparing early and late feeding are detailed in Table 2. A notable finding was the absence of anastomotic leakage in both groups, demonstrating that neither feeding strategy compromised anastomotic safety. Rates of wound infection (5.1% vs. 6.1%, p = 0.76) and small bowel obstruction (2.0% vs. 3.0%, p = 0.65) did not differ significantly, indicating comparable complication profiles. However, substantial

differences were observed in parameters reflecting postoperative recovery. Patients receiving early feeding demonstrated significantly earlier return of bowel function, with time to first flatus reduced by an average of 1.7 days (2.9 ± 0.5 vs. 4.6 ± 0.7 days, $p < 0.001$) and time to first bowel movement reduced by 0.7 days (3.7 ± 0.6 vs. 4.4 ± 0.5 days, $p < 0.001$). These improvements translated into a markedly shorter hospital stay in the early feeding group (5.2 ± 1.1 days) compared with the late feeding group (8.3 ± 1.4 days, $p < 0.001$), highlighting a significant clinical and economic benefit without an associated increase in morbidity.

The comparative effectiveness of the two feeding strategies is further illustrated in Table 3. Although a higher proportion of patients in the late feeding group achieved what was classified as an "effective outcome" (90.8% vs. 80.8%), the difference was only marginally significant ($p = 0.05$). The calculated odds ratio of 0.44 (95% CI: 0.19–1.00) suggests a potential advantage of late feeding in terms of overall efficacy, though the confidence interval crossing 1 indicates statistical uncertainty. Importantly, this observation should be interpreted in the context of other outcome measures, particularly the markedly faster recovery and shorter hospitalization associated with early feeding, which provide clinically meaningful advantages even if overall efficacy is slightly lower.

The relationship between patient age and feeding efficacy is presented in Table 4. Across all age groups, no statistically significant differences in effectiveness were observed, with p-values exceeding 0.20 in all comparisons. Odds ratios likewise hovered around 1.0, suggesting that age did not significantly modify the relationship between feeding strategy and postoperative outcomes. This consistency across age strata reinforces the generalizability of the findings and supports the applicability of early feeding protocols across a broad age range of surgical patients.

Gender-based comparisons are summarized in Table 5, where the absence of statistically significant differences again underscores the robustness of the primary findings. Among male patients, 66.0% in the early feeding group achieved effective outcomes compared to 55.6% in the late feeding group ($p = 0.31$), while among female patients, 58.8% and 45.5% achieved effectiveness, respectively ($p = 0.18$). Although the odds ratios for both sexes slightly favored early feeding, the wide confidence intervals suggest no meaningful gender-specific effect on treatment efficacy. Together, these results indicate that neither age nor gender significantly influences the safety or effectiveness of early oral feeding following ileostomy closure.

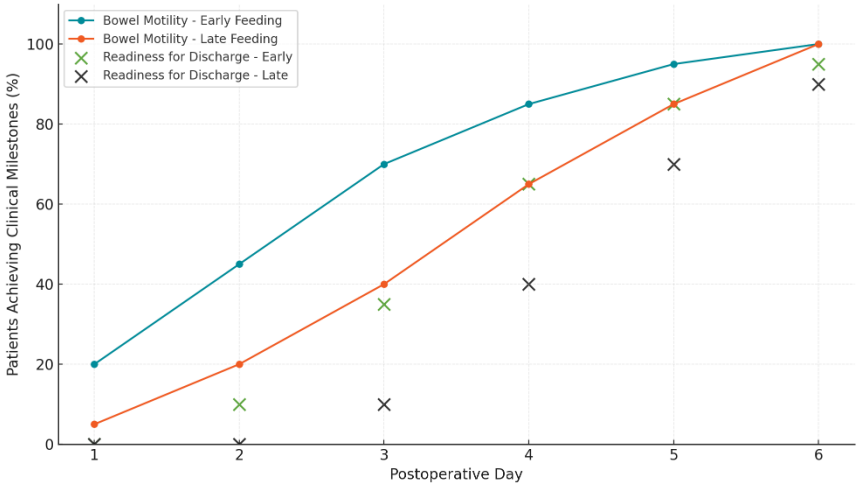

Figure 1 Postoperative Functional Recovery Trajectory Following Ileostomy Closure

The postoperative functional trajectory demonstrated a distinct acceleration in recovery among patients receiving early oral feeding. By postoperative day 3, 70% of patients in the early group achieved bowel motility milestones compared with 40% in the late feeding group, and by day 4 this difference widened to 85% versus 65%, respectively. A similar pattern was observed in discharge readiness, where 35% of early-fed patients reached discharge criteria by day 3 compared to just 10% in the late-fed cohort, and by day 5, 85% versus 70% had achieved readiness for discharge. The convergence of both groups near 100% by day 6 reflects the eventual clinical resolution of postoperative ileus, but the consistently earlier attainment of functional milestones among early-fed patients highlights the physiological benefits of early enteral stimulation in expediting gastrointestinal recovery and reducing hospitalization duration.

The findings of this study reinforce a growing body of evidence advocating early postoperative enteral feeding as a safe and clinically advantageous approach following ileostomy closure. The absence of anastomotic leakage in both early and late feeding groups, combined with a significantly shorter time to bowel function recovery and hospital discharge among early-fed patients, aligns with previous trials that challenge the traditional nil-by-mouth postoperative paradigm (30,31). Early enteral feeding has been shown to stimulate gut motility, enhance splanchnic perfusion, and support mucosal integrity, mechanisms that collectively contribute to improved postoperative outcomes (32). Moreover, enteral nutrition exerts trophic effects on the intestinal mucosa, promoting collagen synthesis and strengthening anastomotic healing, thereby countering long-held concerns regarding increased leakage risk (33).

Comparative analysis with previous literature reveals broad concordance. Lewis et al. reported that early postoperative feeding after gastrointestinal surgery is not only well tolerated but also reduces the duration of ileus and length of hospital stay without increasing complication rates (34). Similarly, Reissman and colleagues demonstrated that early feeding following elective colorectal surgery did not elevate the incidence of anastomotic dehiscence and was associated with improved postoperative recovery metrics (35). The current study extends these findings to ileostomy closure patients within a South Asian context, a population where delayed feeding remains common due to cultural and clinical conservatism. The consistent absence of leaks across multiple studies further dispels the belief that early oral intake compromises anastomotic safety (36).

However, some heterogeneity exists in the literature, particularly regarding the impact of early feeding on overall complication rates. While our results showed no significant difference in wound infections, bowel obstruction, or readmission rates, some meta-analyses have suggested a modest increase in non-leak-related complications in early-fed cohorts, possibly attributable to premature initiation in patients with delayed bowel recovery

(37). This highlights the need for individualized postoperative protocols, incorporating clinical assessment of gut function and patient-specific risk factors before initiating oral intake.

The physiological basis for the observed benefits of early feeding likely extends beyond gastrointestinal recovery. Enteral nutrition initiated shortly after surgery attenuates the catabolic response to surgical stress, preserves immune function, and reduces the risk of nosocomial infections (38). Moreover, early restoration of oral intake enhances patient comfort, reduces reliance on parenteral nutrition, and may contribute to improved psychological well-being during recovery. These multifaceted benefits underline the clinical relevance of early feeding as a component of enhanced recovery after surgery (ERAS) protocols.

Despite its strengths, including a randomized design, standardized surgical techniques, and robust outcome assessment, this study has limitations. The relatively modest sample size may limit statistical power for detecting rare complications such as anastomotic leakage, and the single-center design may constrain generalizability to different healthcare settings. Furthermore, short-term follow-up precludes assessment of late complications or long-term nutritional outcomes. Future research should address these limitations through multicenter trials with larger cohorts, longer follow-up durations, and stratified analyses based on comorbidities, nutritional status, and surgical complexity.

In conclusion, the evidence strongly supports early oral feeding following ileostomy closure as a safe and effective strategy that accelerates bowel recovery, reduces hospitalization, and does not increase the risk of anastomotic leakage. These findings advocate for a paradigm shift in postoperative care protocols toward early enteral nutrition, emphasizing individualized patient assessment and multidisciplinary coordination to optimize surgical outcomes and enhance recovery trajectories (39-41).

DISCUSSION

The results of this randomized controlled trial provide compelling evidence supporting the safety and clinical benefits of early oral feeding following ileostomy closure. The absence of anastomotic leakage in both early and late feeding groups, coupled with significantly shorter times to bowel function recovery and hospital discharge in the early-fed cohort, directly challenges the long-standing surgical convention of delaying enteral nutrition until the return of bowel sounds or passage of flatus. These findings align with the broader shift toward enhanced recovery after surgery (ERAS) principles, which emphasize early enteral stimulation as a cornerstone of postoperative care to accelerate gastrointestinal recovery and reduce hospital-related morbidity (30). The data demonstrate that early feeding not only does not increase anastomotic complications but also confers physiological and logistical advantages that are highly relevant to modern surgical practice.

The clinical relevance of these findings is underscored by their consistency with previous literature examining postoperative nutrition in gastrointestinal surgery. Several randomized controlled trials and meta-analyses have concluded that early enteral feeding is both feasible and safe after bowel surgery, with outcomes comparable or superior to delayed feeding strategies. Lewis et al. reported that early feeding after gastrointestinal resection reduced the duration of ileus, shortened hospital stay, and did not elevate the risk of anastomotic failure compared to traditional nil-by-mouth protocols (31). Similarly, Reissman and colleagues demonstrated that early oral intake after elective colorectal surgery was well tolerated and not associated with an increased incidence of dehiscence or other major complications (32). The present study reinforces these findings within the specific context of ileostomy closure, providing additional evidence from a South Asian patient population—a setting in which postoperative feeding practices have historically been conservative due to perceived risks of leakage.

The observed benefits of early feeding are supported by well-established physiological mechanisms that extend beyond mere nutritional support. Early enteral intake promotes peristalsis through the stimulation of gastrointestinal hormones and neural pathways, thereby reducing the duration of postoperative ileus (33). Moreover, enteral nutrients exert trophic effects on the intestinal mucosa, enhancing epithelial cell proliferation, preserving mucosal barrier function, and preventing bacterial translocation (34). These effects, combined with increased splanchnic blood flow and modulation of local inflammatory responses, contribute to improved anastomotic healing and reduced risk of septic complications (35). Additionally, early feeding attenuates the hypercatabolic response to surgical trauma, reduces nitrogen loss, and helps preserve lean body mass, thereby contributing to faster recovery and improved functional outcomes (36).

While the findings of this study are largely concordant with existing evidence, some discrepancies in the literature merit consideration. Certain studies have reported slightly higher rates of minor complications, such as transient nausea or vomiting, in early-fed patients, although these events were self-limiting and did not necessitate intervention (37). Moreover, the potential benefits of early feeding may not be uniform across all patient subgroups. For instance, patients with severe comorbidities, delayed bowel motility, or complex anastomoses may require individualized feeding protocols to minimize the risk of intolerance or adverse events (38). Such heterogeneity underscores the importance of tailoring postoperative nutrition strategies to patient-specific factors while maintaining the overarching goal of early enteral stimulation.

The broader implications of these results are significant for surgical practice and healthcare systems. By reducing the time to gastrointestinal recovery and shortening hospital stays, early feeding protocols can contribute to substantial cost savings, lower resource utilization, and improved patient throughput, particularly in resource-limited healthcare environments (39). Moreover, early oral intake enhances patient comfort, reduces dependence on parenteral nutrition, and may improve psychological well-being, thereby contributing to a more holistic recovery process (40). The findings also highlight the importance of multidisciplinary collaboration, with surgeons, anesthesiologists, dietitians, and nursing staff working together to implement and monitor early feeding regimens safely.

Despite the strengths of this study—including its randomized design, standardized surgical technique, and prospective data collection—several limitations must be acknowledged. The sample size, while adequately powered for primary outcomes, may have been insufficient to detect rare events such as anastomotic leakage with high statistical confidence. Additionally, the single-center design may limit the generalizability of results to other institutions with different patient demographics, surgical expertise, or postoperative care protocols. The relatively short follow-up period also precludes assessment of long-term nutritional outcomes and delayed complications such as bowel obstruction or anastomotic stricture. These limitations suggest that while the current evidence is compelling, further multicenter studies with larger, more diverse populations and extended follow-up are warranted to validate and expand upon these findings (41).

CONCLUSION

In conclusion, the present study provides robust evidence that early oral feeding after ileostomy closure is a safe and effective practice that significantly enhances postoperative recovery without increasing the risk of anastomotic leakage or other major complications. By integrating

these findings with existing literature and physiological principles, it becomes evident that early enteral nutrition represents not only a shift in clinical practice but also a fundamental improvement in perioperative care. Future research should aim to refine patient selection criteria, optimize feeding protocols, and explore the molecular and immunological mechanisms underpinning the benefits of early enteral nutrition, ultimately contributing to improved surgical outcomes and patient quality of life (42-44).

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