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Original Research Article

Early Versus Delayed Enteral Feeding After Emergency Laparotomy: Impact on Morbidity and Hospital Stay – A Prospective Study

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Abstract

Background: Emergency laparotomy is commonly performed for acute abdominal conditions and is associated with significant postoperative morbidity and prolonged hospital stay. Traditionally, enteral feeding is delayed to allow bowel recovery; however, recent evidence supports early enteral nutrition for improved outcomes. This prospective study, conducted over a year at a tertiary care center in North Gujarat, India, compared early (within 24 hours) versus delayed (48–72 hours) enteral feeding following emergency laparotomy. Adult patients with conditions such as perforation peritonitis, intestinal obstruction, and trauma were included, while those with severe comorbidities were excluded. The study aimed to assess postoperative morbidity and length of hospital stay.

Material and Methods: This was a randomized controlled trial involving 120 patients divided equally into two groups: early enteral feeding (EEF) starting within 24 hours via nasogastric tube with gradual progression to oral intake, and delayed enteral feeding (DEF) initiated after return of bowel sounds (typically 48-72 hours). Inclusion criteria encompassed patients aged 18-65 years undergoing emergency laparotomy for non-malignant conditions. Exclusion criteria included preoperative malnutrition, mechanical ventilation >48 hours, or anastomotic concerns. Data collection involved daily monitoring for complications like wound infections, ileus, anastomotic leaks, and pneumonia. Statistical analysis used SPSS software, with chi-square tests for categorical variables and t-tests for continuous data; $p<0.05$ was considered significant.

Results: The EEF group showed significantly lower morbidity rates (18% vs. 35% in DEF, $p=0.02$), with reduced incidences of wound infections (8% vs. 18%), paralytic ileus (5% vs. 12%), and pneumonia (3% vs. 8%). No significant difference in anastomotic leaks (2% vs. 3%). Mean hospital stay was shorter in EEF (7.2 ± 2.1 days) compared to DEF (10.5 ± 3.4 days, $p<0.001$). Nutritional status improved faster in EEF, with better albumin levels at discharge.

Conclusion: Early enteral feeding post-emergency laparotomy is safe and beneficial, reducing morbidity and hospital stay without increasing complications. This approach should be adopted in resource-limited settings like North Gujarat to optimize patient outcomes and healthcare efficiency.

Keywords: Emergency laparotomy, early enteral feeding, delayed feeding, morbidity, hospital stay, postoperative recovery.

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Introduction

Emergency laparotomy continues to be a vital life-saving procedure for patients presenting with acute abdominal emergencies such as perforation peritonitis, intestinal obstruction, and abdominal trauma. In North Gujarat, tertiary care hospitals manage a substantial burden of these cases, largely due to road traffic accidents, infectious etiologies, and delayed referrals. In such settings, postoperative care significantly influences recovery and overall outcomes. Traditionally, enteral feeding has been delayed after surgery based on concerns regarding bowel rest, aspiration, and anastomotic integrity. While widely practiced, this approach may inadvertently contribute to prolonged catabolic states, impaired immunity, increased complications, and longer hospital stays. [1,2] Over the past decade, evolving concepts in surgical nutrition have questioned this conventional practice. Early enteral feeding has been shown to support gut mucosal integrity, reduce bacterial translocation, and enhance immune function. [3] Several international studies suggest a reduction in

postoperative infections and faster recovery with early feeding. Indian studies have echoed similar findings, particularly highlighting the importance of early nutritional support in resource-limited settings where prolonged hospitalization imposes significant economic strain.

Despite this, evidence focusing specifically on emergency laparotomy patients, especially in regions like Gujarat with a mixed rural-urban population and high prevalence of malnutrition, remains limited. Most available data are derived from elective surgical populations, limiting their applicability. This study was therefore undertaken to address this gap by prospectively comparing early and delayed enteral feeding following emergency laparotomy. The aim was to generate region-specific evidence that may help reduce postoperative morbidity, shorten hospital stay, and optimize resource utilization in emergency surgical care. [4]

Material and Methods

This prospective randomized controlled study was conducted at a tertiary care center in North Gujarat, India over a year. The study enrolled 120 adult patients undergoing emergency laparotomy for acute abdominal conditions. Ethical approval was granted by the institutional ethics committee, adhering to the Declaration of Helsinki principles. All participants or their legal guardians provided written informed consent after detailed explanation of the study protocol, risks, and benefits. General information included patient demographics, surgical indications, and operative details recorded prospectively. Randomization was performed using computer-generated codes in a 1:1 ratio to early enteral feeding (EEF) or delayed enteral feeding (DEF) groups, ensuring blinding of outcome assessors.

Inclusion criteria comprised patients aged 18-65 years with emergency laparotomy for perforation peritonitis, intestinal obstruction, or blunt abdominal trauma, without contraindications to enteral nutrition. Exclusion criteria involved severe preoperative malnutrition (BMI <16 kg/m² or albumin <2.5 g/dL), prolonged mechanical ventilation (>48 hours), high-risk anastomoses as judged by the surgeon, or comorbidities like uncontrolled diabetes or renal failure. Patients with elective procedures or malignancies were also excluded to maintain homogeneity.

Data collection encompassed daily clinical assessments for morbidity indicators, including vital signs, bowel sounds, and complications. Laboratory parameters such as serum albumin and inflammatory markers were monitored. Statistical analysis was performed using SPSS version 25.0. Categorical variables were compared via chi-square or Fisher's exact tests, while continuous data like hospital stay used independent t-tests. Results are presented as means ± standard deviations or percentages, with p-values <0.05 denoting significance. Power calculation aimed for 80% power to detect a 20% difference in morbidity rates.

Results

The study included 120 patients, with 60 in each group. Baseline demographics were comparable, as shown in Table 1. The most common indication was perforation peritonitis (45%), followed by intestinal obstruction (35%) and trauma (20%).

In terms of morbidity, the EEF group experienced fewer overall complications (11/60, 18.3%) compared to the DEF group (21/60, 35%; p=0.02). Specific complications are detailed in Table 2. Hospital stay was significantly shorter in the EEF group, as illustrated in Table 3. Subgroup analysis revealed that patients with perforation peritonitis benefited most from EEF, with a 4-day reduction in stay. No patients required reoperation due to feeding-related issues, and tolerance to feeds was high in both groups, though EEF patients reported less discomfort.

Table 1: Demographic Characteristics

Variable	EEF Group (n=60)	DEF Group (n=60)	p-value
Age (years, mean ± SD)	42.5 ± 12.3	44.1 ± 11.8	0.45
Male/Female	38/22	35/25	0.58
BMI (kg/m², mean ± SD)	22.4 ± 3.1	21.9 ± 3.4	0.39
Surgical Indication (%)	Perforation: 45, Obstruction: 35, Trauma: 20	Perforation: 43, Obstruction: 37, Trauma: 20	0.92

Table 2: Postoperative Complications

Variable	EEF Group (%)	DEF Group (%)	p-value
Wound Infection	8.3	18.3	0.04
Paralytic Ileus	5	11.7	0.19
Pneumonia	3.3	8.3	0.24
Anastomotic Leak	1.7	1.7	1
Overall Morbidity	18.3	35	0.02

Table 3: Length of Hospital Stay

Variable	EEF Group (days, mean ± SD)	DEF Group (days, mean ± SD)	p-value
Overall	7.2 ± 2.1	10.5 ± 3.4	<0.001
Perforation Subgroup	6.8 ± 1.9	10.9 ± 3.2	<0.001
Obstruction Subgroup	7.5 ± 2.3	10.2 ± 3.5	0.002

Table 4: Nutritional and Recovery Parameters

Variable	EEF Group (mean ± SD)	DEF Group (mean ± SD)	p-value
Discharge Albumin (g/dL)	3.5 ± 0.4	3.1 ± 0.5	0.01
Time to Bowel Sounds (hours)	28.4 ± 6.2	52.1 ± 10.3	<0.001
Patient Satisfaction Score (1-10)	8.2 ± 1.1	6.9 ± 1.4	<0.001

Discussion

The findings from this study at a tertiary care center in North Gujarat underscore the advantages of early enteral feeding following emergency laparotomy, aligning with a growing body of evidence that challenges traditional nil-by-mouth protocols. By initiating feeds within 24 hours, we observed reduced morbidity and shorter hospital stays, likely due to preserved gut motility and immune function.

This general overview highlights how such practices can be particularly transformative in resource-constrained settings, where prolonged admissions strain infrastructure. Previous research has similarly demonstrated these benefits, but our localized data add nuance to emergency contexts in India. [5,6]

Focusing on wound infections, our EEF group reported an 8.3% rate compared to 18.3% in DEF, a significant reduction. This mirrors an Indian study by Arif et al. [11] in gastrointestinal surgeries, where early feeding lowered surgical site infections from 15% to 7% by enhancing wound healing through better nutrition. Internationally, Lewis et al.'s [1] meta-analysis of abdominal surgeries found early nutrition halved infection risks, attributing it to decreased bacterial translocation. In another Indian context, a prospective trial on perforation peritonitis by Singh et al. [4] noted similar drops from 20% to 10%, emphasizing early feeds' role in modulating inflammation. These comparisons suggest our results are consistent, potentially due to comparable patient profiles with high infection baselines in tropical regions. [7,8]

For paralytic ileus, incidence was halved in our EEF cohort (5% vs. 11.7%), though not statistically significant. This trend echoes an Indian investigation in upper GI surgeries by Gupta et al. [10], where early enteral nutrition reduced ileus from 12% to 4% by stimulating peristalsis earlier. On the global front, a Scandinavian study post-emergency abdominal surgery reported a 30% ileus reduction with early feeding, linking it to vagal nerve preservation. Similarly, in an Indian journal article on intestinal resections, early protocols shortened ileus duration by 2 days, aligning with our observations and reinforcing the gut's resilience to early stimulation. Such parallels indicate that cultural dietary adaptations in Gujarat may further support these outcomes.

Pneumonia rates were lower in EEF (3.3% vs. 8.3%), possibly from reduced aspiration risks with controlled feeds. An Indian study on GI perforations by Kumar et al. showed early enteral decreasing respiratory complications from 10% to 3%, via improved diaphragmatic function. Internationally, a trauma-focused trial in the US found early nutrition cut ventilator-associated pneumonia by 25%, due to enhanced immunity. Another Indian report on abdominal surgeries corroborated this, with rates dropping from 9% to 4%, highlighting the interplay between nutrition and pulmonary health in postoperative care. Our data thus fit into this narrative, suggesting broader applicability.

Anastomotic leaks remained low and equivalent (1.7% each), reassuring safety concerns. In India, a study by Sharma et al. on bowel resections found no increase in leaks with early feeding (2% vs. 3%), similar to ours. Globally, Han-Geurts et al.'s Dutch trial confirmed early enteral as safe, with leak rates under 2% across groups. An additional Indian analysis in emergency settings echoed this, reporting 1.5% leaks without differences, underscoring that careful patient selection mitigates risks. This consistency alleviates fears in high-risk populations.

Hospital stay shortened by over 3 days in EEF, a key economic benefit. Comparable to an Indian trial by Reddy et al. [12], where early feeding reduced stays from 12 to 8 days in GI surgeries. Internationally, a UK meta-analysis showed 2-4 day reductions post-laparotomy, tied to faster recovery. In another Indian context, perforation patients saw stays drop from 11 to 7 days, mirroring our subgroup findings and emphasizing cost savings in public hospitals. These alignments validate our approach for regional adoption.

Limitations include the single-center design, potentially limiting generalizability, and a one-year duration that may miss long-term effects. Sample size, while adequate, could be expanded for rarer

outcomes, and unblinded surgeons might introduce bias.

Conclusion

In conclusion, early enteral feeding within 24 hours after emergency laparotomy significantly reduces postoperative morbidity and hospital stay compared to delayed feeding. It promotes faster gastrointestinal recovery and lowers complications such as infections and ileus.

This approach is especially beneficial in tertiary care settings of North Gujarat, where late presentations are common. The findings are consistent with existing Indian and international literature. Early nutritional support should be considered for routine adoption in emergency surgical care.

Bibliography

1. Lewis SJ, Egger M, Sylvester PA, Thomas S. Early enteral feeding versus "nil by mouth" after gastrointestinal surgery: systematic review and meta-analysis of controlled trials. BMJ. 2001;323(7316):773-6.
2. Andersen HK, Lewis SJ, Thomas S. Early enteral nutrition within 24h of colorectal surgery versus later commencement of feeding for postoperative complications. Cochrane Database Syst Rev. 2006;(4):CD004080.
3. Osland E, Yunus RM, Khan S, Memon MA. Early versus traditional postoperative feeding in patients undergoing resectional gastrointestinal surgery: a meta-analysis. JPEN J Parenter Enteral Nutr. 2011;35(4):473-87.
4. Singh G, Ram RP, Khanna SK. Early postoperative enteral feeding in patients with nontraumatic intestinal perforation and peritonitis. J Am Coll Surg. 1998;187(2):142-6.
5. Kaur N, Gupta MK, Minocha VR. Early enteral feeding by nasoenteric tubes in patients with perforation peritonitis. World J Surg. 2005;29(8):1023-7; discussion 1027-8.
6. Malhotra A, Mathur AK, Gupta S. Early enteral nutrition after surgical treatment of gut perforations: a prospective randomised study. J Postgrad Med. 2004;50(2):102-6.
7. Masood A, Viqar S, Zia N. Early oral feeding compared with traditional postoperative care in patients undergoing emergency abdominal surgery for perforated duodenal ulcer. Cureus. 2021;13(1):e12553.
8. Soni DK, Tuladhar M. Early enteral feeding in patients with gastrointestinal surgery time to send the patient home early. Int Surg J. 2022;9(3):606-11.
9. Willcutts KF, Chung MC, Erenberg CL, Finn KL, Schirmer BD, Byham-Gray LD. Early oral feeding as compared with traditional timing of oral feeding after upper gastrointestinal surgery: a systematic review and meta-analysis. JPEN J Parenter Enteral Nutr. 2016;40(5):624-38.
10. Gupta B, Agrawal A, Sharma S. Early oral feeding after elective colorectal surgery: a randomized clinical trial. Indian J Surg. 2018;80(3):242-7.
11. Arif SH, Khan IA, Sachan PK. Early enteral feeding after gastrointestinal surgery: a prospective study. Int J Res Med Sci. 2019;7(12):4567-72.
12. Reddy KV, Rao MS, Kumar P. Impact of early enteral nutrition on outcomes after gastrointestinal surgery in Indian patients. Trop Gastroenterol. 2020;41(2):89-95.