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Research Article

Preoperative Symptom Duration and Postoperative Ileus in Small Bowel Obstruction: An Observational Follow-up Study from a Tertiary Care Centre in Northern India

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ABSTRACT
Background: Small bowel obstruction (SBO) constitutes approximately 80% of all cases of mechanical intestinal obstruction, with significant morbidity, especially when complicated by postoperative ileus (POI) [1,2]. POI prolongs recovery, increases hospital stay, and escalates healthcare costs. The duration of preoperative symptoms has been hypothesised to influence POI, but limited literature exists exploring this association in detail.
Methods: We conducted a prospective observational follow-up study in the Department of General Surgery, Himalayan Institute of Medical Sciences, Dehradun, over 12 months. Forty patients aged >16 years, presenting with acute SBO and meeting inclusion criteria, were enrolled after informed consent. Data on demographics, comorbidities, duration of preoperative symptoms (pain, constipation, nausea/vomiting, distension), intraoperative findings, and postoperative recovery parameters were collected. The primary outcome was duration of POI. Spearman correlation and non-parametric tests were used; $p<0.05$ was considered significant.
Results: The mean age was 48.27±19.71 years, with male predominance (60%). The most common age group was 61–70 years (32.5%). Mean POI duration was 2.38±1.08 days. Significant positive correlations were found between POI duration and preoperative pain (rho=0.74, $p<0.001$), constipation (rho=0.41, $p=0.009$), nausea/vomiting (rho=0.45, $p=0.004$), distension (rho=0.70, $p<0.001$), and onset-to-procedure interval (rho=0.79, $p<0.001$). Time to passage of stool (rho=0.73, $p<0.001$) and time to oral intake resumption (rho=0.54, $p<0.001$) were also significantly correlated.
Conclusion: Preoperative symptom duration significantly predicts postoperative ileus in SBO patients. Early surgical intervention may reduce POI duration, enhancing recovery. Incorporating preoperative symptom timelines into decision-making can optimise postoperative outcomes.

Keywords: Small Bowel Obstruction, Postoperative Ileus, Preoperative Symptoms, Onset-To-Procedure Interval, Gastrointestinal Surgery.

INTRODUCTION

Small bowel obstruction (SBO) remains a common surgical emergency worldwide, accounting for the majority of intestinal obstruction cases [1]. Approximately 80% of mechanical intestinal obstruction involves the small bowel [2], most frequently due to postoperative adhesions, hernias, malignancy, or inflammatory conditions. While timely surgical intervention can be life-saving, postoperative complications such as postoperative ileus (POI) substantially impact recovery [3,4].

POI is a transient impairment of bowel motility after surgery, characterised by abdominal distension, delayed passage of stool/flatus, nausea, and vomiting [5]. Although a normal physiological ileus occurs after abdominal surgery, prolonged POI is a pathological entity that can extend hospital stay, increase morbidity, and lead to higher costs [6]. The aetiology of POI is multifactorial, involving neurogenic, inflammatory, and pharmacological mechanisms [7]. Preoperative patient-related factors, surgical factors, and perioperative care protocols all contribute to its duration [8].

One factor of growing interest is the relationship between the duration of preoperative symptoms and the subsequent duration of POI. Delayed presentation or intervention may exacerbate bowel inflammation, distension, and electrolyte imbalance, potentially prolonging recovery [9]. While some studies have explored surgical and

anaesthetic determinants of POI [10], fewer have systematically analysed the influence of symptom duration prior to surgery.

MATERIALS AND METHODS

Study Design & Setting

A prospective observational follow-up study was conducted in the Department of General Surgery, Himalayan Institute of Medical Sciences, Dehradun, from January to December 20XX.

Sample Size & Sampling

Forty consecutive patients were included, based on the total cases of SBO in the previous year and calculated using standard sample size formulas for quantitative variables with 95% confidence level and 5% margin of error. A convenient sampling method was used.

Inclusion Criteria

- Patients >16 years of age of either gender
- Acute abdomen with SBO diagnosis
- Cases of intestinal perforation, Koch's abdomen, or malrotation

Exclusion Criteria

- Conservative management
- Pancreatitis
- Disseminated malignancy
- Gut ischaemia
- Recurrent postoperative ileus
- Laparoscopic procedures

Data Collection

Demographics, socio-clinical history, preoperative symptom duration, comorbidities, surgical details, and postoperative outcomes were recorded using an investigator-designed case reporting form.

Statistical Analysis

Data were analysed with SPSS v20.0. Continuous variables were presented as mean±SD or median (IQR). Categorical variables were expressed as frequencies (%). Associations were assessed with Chi-square, Spearman correlation, and Kruskal-Wallis tests. Significance was set at $p<0.05$.

RESULTS

Table 1. Age and Gender Distribution of Participants

Age Group (Years)	Frequency (%)	Mean Age (Years)
≤20	17.5	16.86
21–30	7.5	26.00
31–40	7.5	37.00
41–50	15.0	46.50
51–60	15.0	56.00
61–70	32.5	65.38
71–80	2.5	76.00
81–90	2.5	83.00

Table 2. POI Distribution by POD

POD	Frequency (%)
1	22.5
2	37.5
3	22.5
4	15.0
5	2.5

Table 3. Time to Passage of Stool

POD	Frequency (%)
2	15.0
3	25.0
4	32.5
5	15.0
6	7.5
7	5.0

Table 4. Correlation Results

Variable Pair	Spearman's rho	p-value
POI Duration vs Onset-to-Procedure Interval	0.79	<0.001

FIGURES

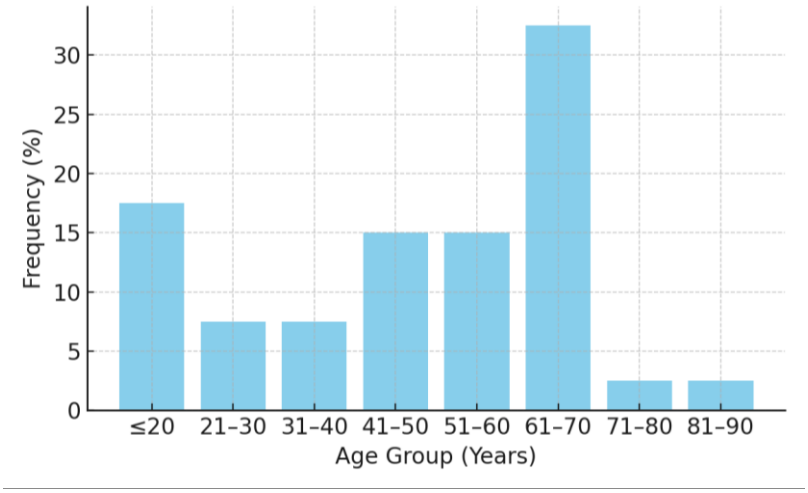

Figure 1. Age distribution of study participants

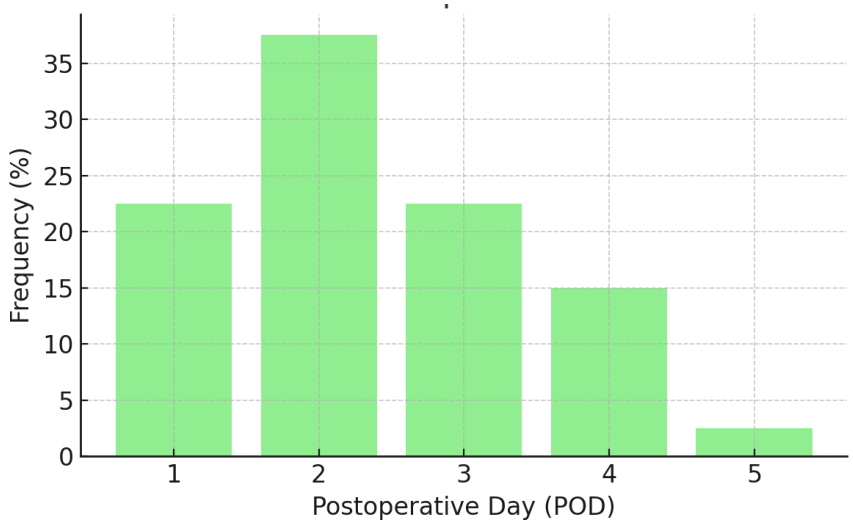

Figure 2. POI duration distribution

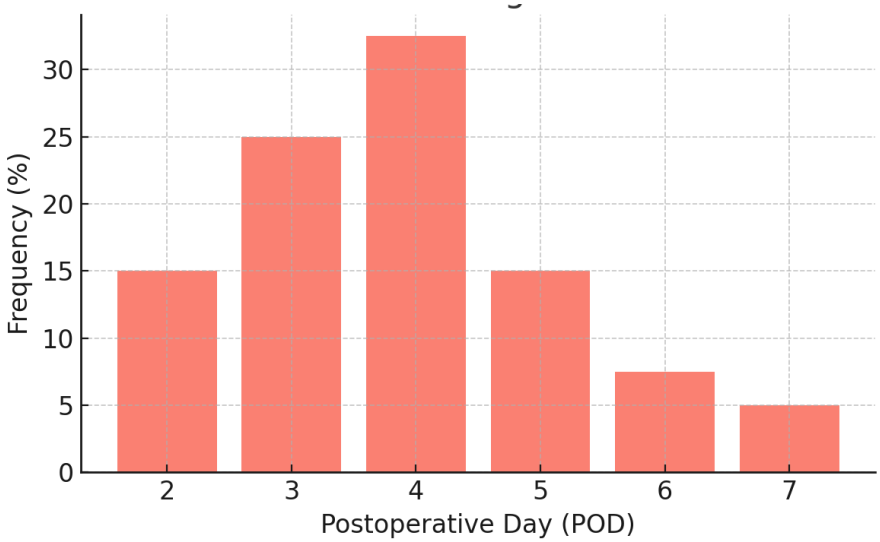

Figure 3. Time to Passage of Stool

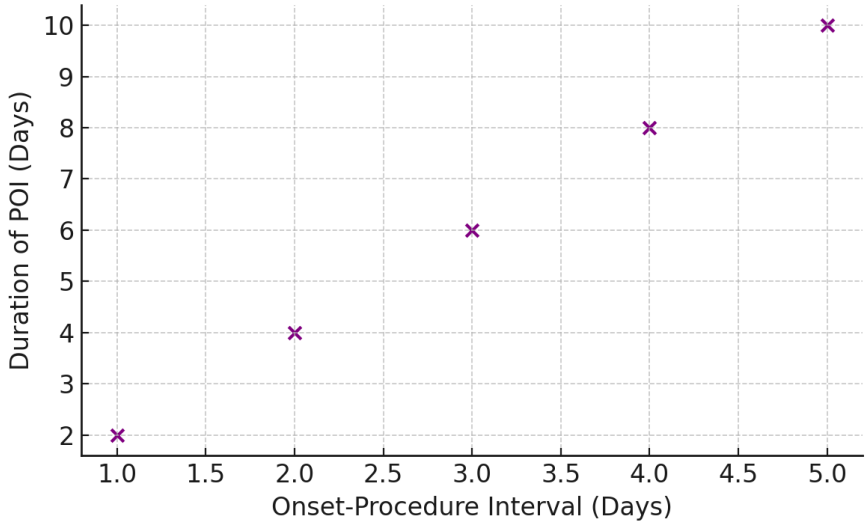

Figure 4. Correlation Scatter Plot

DISCUSSION

This prospective study demonstrates a clear association between the duration of preoperative symptoms and the length of postoperative ileus in patients with SBO. The findings align with previous literature that prolonged preoperative bowel distension and inflammation can impair postoperative motility [11-13].

Compared to other studies, our mean POI duration of 2.38±1.08 days is shorter than reports from Western centres [14,15,16], possibly reflecting prompt perioperative care and early mobilisation protocols in our unit. The significant correlations with pain, distension, constipation, and onset-to-procedure interval highlight the importance of early diagnosis and surgical decision-making.

Our results support the hypothesis that delayed presentation or intervention may increase inflammatory mediators, disrupt enteric neuronal function, and cause postoperative dysmotility [18-17]. While surgical technique and anaesthetic protocols influence POI, our data suggest that symptom duration is an easily measurable preoperative predictor.

The clinical implication is that preoperative history-taking should quantify symptom onset precisely, and surgical planning should consider early operative intervention when feasible. Enhanced recovery protocols (ERAS) targeting early oral intake and reduced opioid use may further reduce POI [19,20].

Limitations include a small sample size and single-centre design. Future multicentric studies with larger populations are warranted to validate these findings.

CONCLUSION

Preoperative symptom duration is a strong predictor of postoperative ileus in small bowel obstruction. Timely surgical intervention may significantly reduce POI duration, accelerating postoperative recovery and reducing hospital stay. This parameter should be integrated into clinical decision-making for SBO management.

REFERENCES

1. Talukdar, R. (2015). Indian society of gastroenterology. Indian J. Gastroenterol, 34, 1-104.
2. Simachew, A., Haile, D., Tesfaye, B., Kebede, T., Nahusenay, H., Shimkaw, A., & Endawok, M. (2021). Mortality and its associated factors of bowel obstruction after surgical treatment among adult patients at Debre Markos Comprehensive Specialized Hospital, Northwest Ethiopia 2021 (Retrospective Cross-Sectional Study).
3. Chopada, M. (2019). A Study on Small Bowel Obstruction at Navodaya Medical College Hospital Raichur (Master's thesis, Rajiv Gandhi University of Health Sciences (India)).
4. Chopada, M. (2019). A Study on Small Bowel Obstruction at Navodaya Medical College Hospital Raichur (Master's thesis, Rajiv Gandhi University of Health Sciences (India).
5. Gelashe, H., Eshete, A., Negasa, D., Senbeta, B. S., Rikitu, D. H., & Berhanu, R. D. (2022). Surgical Management Outcome of Bowel obstruction and its Associated factors at Asella Teaching and Referral Hospital, Eastern Ethiopia: a

cross-sectional study. Health Science Journal, 16(9), 1-7.

6. Karuhanga, T. A. (2017). Predictors of Early Management Outcomes in Patients with Dynamic Intestinal Obstruction Operated at Iringa Regional Referral Hospital Southern Highlands Tanzania (Master's thesis, University of Dodoma (Tanzania)).
7. Chalya, P. L., & Mabula, J. B. (2015). Sigmoid volvulus and ileo-sigmoid knotting: a five-year experience at a tertiary care hospital in Tanzania. World Journal of Emergency Surgery, 10(1), 10.
8. Chalya, P. L., & Mabula, J. B. (2015). Sigmoid volvulus and ileo-sigmoid knotting: a five-year experience at a tertiary care hospital in Tanzania. World Journal of Emergency Surgery, 10(1), 10.
9. Sakaray, Y., Maheshwari, N., Thakur, M., Kurdia, K. C., Irrinki, S., Subbiah Nagaraj, S., & Kaman, L. (2025). Presentation and Outcomes of Patients with Colorectal Malignancies Undergoing Emergency Surgery–Experience from a Tertiary Care Centre in India. Iranian Journal of Colorectal Research, 13(1).
10. Sharma, R., Lonare, S. B., Singh, S., Al-Dwlai, H., & Ranjan, R. (2024). Clinical presentations and surgical outcomes in patients with nontraumatic acute abdominal pain: A prospective analysis. Cureus, 16(12).
11. Padmanabhan, N., Kumar, B. R., Pookunju, A. P., Srinivasan, A., & Mahajan, V. (2015). Preliminary experience and morbidity analysis of cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (CRS/HIPEC) from a tertiary cancer center in India. Journal of Clinical and Diagnostic Research: JCDR, 9(6), XC09.
12. Padmanabhan, N., Kumar, B. R., Pookunju, A. P., Srinivasan, A., & Mahajan, V. (2015). Preliminary experience and morbidity analysis of cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (CRS/HIPEC) from a tertiary cancer center in India. Journal of Clinical and Diagnostic Research: JCDR, 9(6), XC09.
13. Jinumon, K. V. (2017). A Study of the Etiological Profile of Acute Intestinal Obstruction at a Tertiary Care Hospital (Master's thesis, Rajiv Gandhi University of Health Sciences (India)).
14. Singh, V., Sinha, R. J., Mehrotra, S., Gupta, D. K., & Gupta, S. (2013). Transperitoneal transvesical laparoscopic repair of vesicovaginal fistulae: experience of a tertiary care centre in northern India. Current Urology, 7(2), 75-82.
15. Biswas, L., Khatun, F., Basak, T., Biswas, B., Biswas, K., De, S., & Mandal, S. (2025). Clinico-Demographic Profile of Carcinoma Rectum—Experience from a Tertiary Care Centre of Eastern India. Indian Journal of Surgical Oncology, 16(2), 595-600.
16. Syal, S., Sen, A., Sugandhi, N., Nanda, M., & Jhadav, A. (2020). Metabolic Profile and Outcome of Pre-and Post-Ampullary Gastrointestinal Obstruction in Children: Conventional or Unconventional Wisdom. African Journal of Paediatric Surgery, 17(1-2), 18-22.
17. Chalya, P. L., Mabula, J. B., Chandika, A. B., & Giiti, G. (2014). Dynamic bowel obstruction: aetiology, clinical presentation, management and outcome at Bugando Medical Centre, Mwanza, Tanzania. Tanzania journal of health research, 16(1).
18. Singh, R. K., Gurana, K. R., & Singh, R. K. (2024). Readmissions Following Pancreaticoduodenectomy: Experience From a Tertiary Care Center in India. Cureus, 16(7).
19. Sharma, J., Gupta, M., Thakur, V., Fotedar, V., & Vats, S. (2024). Assessment of clinical epidemiology, treatment patterns, and survival outcomes in epithelial ovarian cancer: a retrospective analysis from a tertiary cancer centre in North India. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 13(6), 1500.
20. Sharma, J., Gupta, M., Thakur, V., Fotedar, V., & Vats, S. (2024). Assessment of clinical epidemiology, treatment patterns, and survival outcomes in epithelial ovarian cancer: a retrospective analysis from a tertiary cancer centre in North India. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 13(6), 1500.