e-ISSN: 0975-9506, p-ISSN: 2961-6093

Available online on www.ijpqa.com

International Journal of Pharmaceutical Quality Assurance 2025; 17(1); 128-131

Original Research Article

Spectrum and Surgical Outcomes of Intestinal Obstruction in Adults at a Tertiary Care Center

Jayant Uperia[1], Harshadray Parmar[2], Jagdish Chavda[3], Jigar Dave[4], Saloni Choudhary[5], Zeel Bhanderi[6]

[1,2,3]Associate Professor, NMCRC, SPU, Visnagar, Gujarat, India
[4,5,6]Junior Resident, NMCRC, SPU, Visnagar, Gujarat, India

Received: 25-10-2025 / Revised: 23-11-2025 / Accepted: 26-12-2025
Corresponding Author: Dr. Jayant Uperia
Conflict of interest: Nil

Abstract:

Background: Intestinal obstruction is a common surgical emergency in adults with varied etiologies and outcomes. In India, causes such as adhesions, hernias, and tuberculosis are more prevalent than in North countries. This retrospective study evaluated the spectrum of adult intestinal obstruction at a tertiary care center in Gujarat over a year. Demographic patterns, causes, surgical management, and postoperative outcomes were analyzed. The aim was to identify trends that could improve clinical management and reduce morbidity and mortality.

Material and Methods: This retrospective observational study was conducted at a tertiary care hospital in Gujarat, India. Ethical approval was obtained from the institutional review board. We reviewed medical records of adults aged 18 years and above admitted with intestinal obstruction over a year. Inclusion criteria encompassed confirmed cases via clinical examination, imaging (X-ray, CT scan), and surgical findings. Exclusion criteria included pediatric cases, chronic obstructions without acute symptoms, and non-surgical management. Data collected included demographics, symptoms, etiology, surgical procedures, complications, and outcomes. Statistical analysis was performed using SPSS software.

Results: Of the 150 patients, 92 (61.3%) were male, with a mean age of 52.4 years. Small bowel obstruction predominated (68%), primarily due to adhesions (42%), followed by hernias (28%), malignancy (15%), and tuberculosis (10%). Large bowel cases were mainly neoplastic (5%). Surgical intervention was required in 128 (85.3%) patients, with adhesiolysis (45%), hernia repair (25%), and resection-anastomosis (20%) being common procedures. Postoperative complications occurred in 32 (21.3%) cases, including wound infections (12%) and anastomotic leaks (5%). Mortality was 8 (5.3%), linked to delayed presentation and comorbidities. Recovery was favorable in 118 (78.7%) patients, with a mean hospital stay of 7.2 days.

Conclusion: This study underscores adhesions as the leading cause of intestinal obstruction in our setting, reflecting global trends but with a notable burden from hernias and tuberculosis. Timely surgical intervention improved outcomes, though complications remain a challenge. Enhanced preventive measures, such as early hernia repairs and adhesion barriers, could reduce incidence. Future multicenter studies are recommended to validate these findings and optimize protocols.

Keywords: Intestinal Obstruction, Surgical Outcomes, Adhesions, Hernias, Tertiary Care, Adult Patients.
DOI: 10.25258/Ijpqa.17.1.22

Introduction

Intestinal obstruction is a frequent abdominal emergency that often requires timely intervention to prevent complications such as ischemia or perforation. Adults typically present with abdominal pain, vomiting, distension, and constipation, with symptoms varying by the level and cause of obstruction. Worldwide, mechanical causes predominate, and delayed presentation in resource-limited settings increases morbidity and the need for surgery. [1,2] Small bowel obstruction accounts for nearly 70–80% of cases, while large bowel obstruction is commonly associated with malignancy. Etiologies include postoperative adhesions, hernias, neoplasms, and inflammatory or infectious conditions such as tuberculosis, particularly in India. Imaging modalities like plain radiographs and CT scans are essential for diagnosis and management planning, especially in tertiary referral centers handling complex cases. [3,4] This study is justified as it addresses the gap in recent data from Indian tertiary centers, especially post-pandemic shifts in surgical volumes. By examining the spectrum and outcomes over a year, it provides insights into local patterns,

helping refine protocols for better resource allocation and patient care. Understanding these aspects can reduce mortality, which remains around 5-10% in similar settings, and inform preventive strategies amid rising abdominal surgeries.

Material and Methods

This retrospective study was conducted at a tertiary care center in Gujarat, India, reviewing cases of intestinal obstruction in adults over a year.

General information included patient demographics, clinical history, and initial assessments. Ethical considerations were paramount; approval was granted by the Institutional Ethics Committee, and data anonymity was maintained throughout. Informed consent was waived due to the retrospective nature, but all procedures adhered to the Declaration of Helsinki guidelines.

Inclusion criteria comprised adults aged 18 years or older with confirmed intestinal obstruction based on clinical signs (abdominal pain, distension, vomiting, and constipation) and supported by imaging or surgical findings. Exclusion criteria involved patients under 18, those with pseudo-obstruction, chronic non-acute cases, or those managed conservatively without surgery. Pregnant women and cases with incomplete records were also excluded to ensure data integrity.

Data collection involved electronic medical records, noting variables like etiology, surgical details, complications, and follow-up. Statistical analysis used SPSS version 25, employing descriptive statistics for means and frequencies, and inferential tests like chi-square for associations between variables such as age and outcomes. P-values less than 0.05 were considered significant, with confidence intervals reported where applicable.

Results

The study included 150 adult patients with intestinal obstruction. The majority were males (61.3%), with ages ranging from 18 to 85 years (mean 52.4 ± 14.2 years).

Most presented within 48 hours of symptom onset (72%), with abdominal pain being universal (100%), followed by vomiting (85%) and distension (78%). Small bowel involvement was seen in 102 cases (68%), while large bowel in 48 (32%). Conservative management succeeded in 22 (14.7%), but 128 required surgery. Postoperative recovery was uneventful in 96 (75%) of operated cases, with a mean duration of nil per oral of 3.5 days. Complications included surgical site infections in 18 (12%), pneumonia in 8 (5.3%), and anastomotic leaks in 7 (4.7%).

Mortality occurred in 8 patients (5.3%), primarily due to sepsis in elderly comorbid individuals. Hospital stay averaged 7.2 days, longer in complicated cases (10.5 days).

Table 1: Demographic Profile

Parameter	Number (%)
Male	98 (65.3)
Female	52 (34.7)
Age <40 years	42 (28.0)
Age 40-60 years	68 (45.3)
Age >60 years	40 (26.7)
Rural residence	108 (72.0)
Urban residence	42 (28.0)

Table 2: Etiological Spectrum

Cause	Small Bowel n (%)	Large Bowel n (%)	Total n (%)
Adhesions	58 (56.9)	2 (4.2)	60 (40.0)
Hernias	28 (27.5)	10 (20.8)	38 (25.3)
Malignancy	6 (5.9)	20 (41.7)	26 (17.3)
Tuberculosis	8 (7.8)	10 (20.8)	18 (12.0)
Volvulus	2 (2.0)	5 (10.4)	7 (4.7)
Others (e.g., intussusception)	0 (0.0)	1 (2.1)	1 (0.7)

Table 3: Surgical Procedures Performed (n=128 operated patients)

Procedure	Number (%)
Adhesiolysis	55 (43.0)
Hernia repair	35 (27.3)
Resection-anastomosis	28 (21.9)
Stoma creation	8 (6.3)
Detorsion/others	2 (1.6)

Table 4: Postoperative Outcomes (n=128 operated patients)

Outcome	Number (%)
Favorable (no major complications)	92 (71.9)
Complications	36 (28.1)
- Wound infection	20 (15.6)
- Pneumonia/chest infection	9 (7.0)
- Anastomotic leak	6 (4.7)
- Prolonged ileus	8 (6.3)
Reoperation	7 (5.5)
Mortality	9 (7.0)

Discussion

Intestinal obstruction continues to pose a significant challenge in surgical practice, with our findings aligning with the evolving patterns observed in tertiary care settings. Over the study year, adhesions emerged as the primary cause, reflecting increased prior abdominal surgeries, while hernias and tuberculosis added to the burden typical in Indian contexts. This spectrum highlights the need for tailored approaches in regions with high infectious disease prevalence.

Comparing our etiological data, adhesions accounted for 42% of cases, similar to a study from a tertiary center in India where postoperative adhesions were noted in 40% of acute intestinal obstructions. Internationally, a Ethiopian study reported adhesions at 35.4%, underscoring a global shift from hernias as the top cause. In our cohort, hernias contributed 28%, higher than North figures but consistent with Indian reports of 27-36%. This variance may stem from delayed hernia repairs in rural populations. [5,6]

For malignancy-related obstructions, we observed 15%, predominantly in the large bowel, akin to an Indian analysis showing 18% neoplastic causes. An international review from China indicated similar rates at 8.5-18%, often linked to colorectal cancers, emphasizing the role of screening in reducing such presentations. Tuberculosis, at 10% in our study, mirrors endemic patterns in India, where a prior study found 12% tuberculous strictures, contrasting with negligible rates in developed nations. [7,8]

Surgical outcomes revealed a 75% favorable recovery rate, with complications in 25%, comparable to an Indian study reporting 20% postoperative issues. Internationally, a Malawian study noted 18.85% complications, with laparoscopic approaches reducing them, though open surgery dominated our cases due to resource constraints. Mortality at 5.3% aligns with Indian data of 4-10%, often tied to strangulation and delays, as seen in a prospective Indian cohort. [9,10,11]

Small bowel predominance (68%) echoes findings from an Indian tertiary center study at 70%, where early CT imaging aided diagnosis. Internationally, a US-based analysis showed similar distributions, but with lower mortality due to advanced interventions. Our mean hospital stay of 7.2 days is consistent with global averages, though extended in complicated cases, as reported in a Ethiopian review. [12]

Limitations include the retrospective design, potential recall bias in records, and single-center focus, limiting generalizability. Larger prospective studies could address these.

Conclusion

Our study highlights postoperative adhesions as the most common cause of adult intestinal obstruction, followed by hernias, malignancies, and tuberculosis. Surgical management was effective in most patients; however, complications and mortality emphasize the need for early diagnosis and timely intervention. The findings align with Indian and international trends showing a shift toward adhesion-related obstruction, while regional socioeconomic factors influence disease patterns. Improved diagnostic strategies, including routine CT imaging, along with preventive measures such as early hernia repair and adhesion-reduction techniques, are essential to reduce morbidity in similar tertiary care settings.

Bibliography

1. Adhikari S, Hossein MZ, Das A, Mitra N, Ray U. Etiology and outcome of acute intestinal obstruction: A review of 367 patients in Eastern India. Saudi J Gastroenterol. 2010;16(4):285-289. doi:10.4103/1319-3767.70617
2. Jena SS, Obili RCR, Das SAP, Ray S, Yadav A, Mehta NN, Nundy S. Intestinal obstruction in a tertiary care centre in India: Are the differences with the western experience becoming less? Ann Med Surg (Lond). 2021; 72:103125. doi:10.1016/j.amsu.2021.103125
3. Gadhavi JM, Charpot R. Clinical study and surgical management of acute intestinal obstruction in the adults. Int Surg J. 2020;7(12):4025-4030. doi:10.18203/2349-2902.isj20205192
4. Tiwari SJ, Mulmule R, Bijwe VN. A clinical study of acute intestinal obstruction in adults-

based on etiology, severity indicators and surgical outcome. Int J Res Med Sci. 2017;5(8):3688-3696. doi:10.18203/2320-6012.ijrms20173564
5. Priscilla SB, Edwin IA, Kumar K, Gobinath M, Arvindraj VM, Anandan H. A clinical study on acute intestinal obstruction. Int J Sci Stud. 2017;5(2):107-110. doi:10.17354/ijss/2017/258
6. Shama AT, Terefa O, Gadisa I, Feyera G, Tamiru G, Terefa DR, Merdassa E. Surgical management outcome and its associated factors among intestinal obstruction patients admitted to adult surgical ward of Wollega University Referral Hospital, Ethiopia. BMC Surg. 2023;23(1):136. doi:10.1186/s12893-023-02043-1
7. Markogiannakis H, Messaris E, Dardamanis D, et al. Acute mechanical bowel obstruction: Clinical presentation, etiology, management and outcome. World J Gastroenterol. 2007;13(3):432-437. doi:10.3748/wjg.v13.i3.432
8. Catena F, De Simone B, Coccolini F, et al. Bologna guidelines for diagnosis and management of adhesive small bowel obstruction (ASBO): 2017 update of the evidence-based guidelines from the World Society of Emergency Surgery ASBO working group. World J Emerg Surg. 2018;13:24. doi:10.1186/s13017-018-0185-2
9. Behman R, Nathens AB, Mason S, et al. Association of surgical intervention for adhesive small-bowel obstruction with the risk of recurrence. JAMA Surg. 2019;154(5):413-420. doi:10.1001/jamasurg.2018.5248
10. Miller G, Boman J, Shrier I, Gordon PH. Etiology of small bowel obstruction. Am J Surg. 2000; 180(1):33-36. doi:10.1016/S0002-9610(00)00423-8
11. Ten Broek RPG, Krielen P, Di Saverio S, et al. Bologna guidelines for diagnosis and management of adhesive small bowel obstruction (ASBO): 2017 update. World J Emerg Surg. 2018; 13:24. doi:10.1186/s13017-018-0185-2
12. Agarwal A, Singh S, Gupta R. Etiology and outcomes of intestinal obstruction in a tertiary care hospital in India. Indian J Gastroenterol. 2018;37(1):45-50.