Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/23e0t256

CLINICAL SPECTRUM AND MANAGEMENT OUTCOMES OF ACUTE INTESTINAL OBSTRUCTION: A CROSS-SECTIONAL STUDY AT A TERTIARY CARE CENTRE

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Abstract:
Background: Acute intestinal obstruction (AIO) is a common surgical emergency with variable clinical presentations and outcomes. Understanding its etiology and management patterns in different regions can help tailor timely interventions.
Objectives: To evaluate the etiological factors, clinical features, treatment modalities, and outcomes of patients presenting with AIO.
Methods: A hospital-based cross-sectional study was conducted at a tertiary care center over 18 months, including 146 patients aged 10–80 years presenting with signs of acute intestinal obstruction. Detailed history, clinical evaluation, radiological, and biochemical investigations were undertaken. Management approaches were categorized into conservative and surgical, and outcomes were analyzed statistically.
Results: The most affected age group was 51–60 years (21.2%), with a male predominance (57.5%). Abdominal pain (87.0%), vomiting (61.0%), and obstipation (59.6%) were the leading presenting complaints. Adhesions (23.3%), tuberculosis (14.4%), and malignancy (12.3%) were the leading causes. Conservative management was sufficient in 51.4% of cases, especially in subacute and tuberculosis-related obstructions. Surgical intervention (48.6%) was mostly required for malignancy, obstructed hernia, and perforations. A statistically significant association was noted between etiology and management modality ($P<0.001$).
Conclusion: Adhesions and tuberculosis continue to be major causes of AIO in developing countries. Early diagnosis and tailored treatment significantly influence outcomes. A structured protocol considering etiology-based management can reduce morbidity and mortality.

Keywords: Acute intestinal obstruction, adhesions, surgical emergencies, conservative management, intestinal tuberculosis

Introduction:
Acute intestinal obstruction (AIO) remains a prevalent and challenging emergency in surgical practice, particularly in resource-limited settings. Despite advancements in diagnostics and surgical techniques, AIO contributes significantly to patient morbidity and mortality. It is characterized by interruption of normal intestinal flow, leading to a complex pathophysiological cascade involving fluid imbalance, bowel distension, ischemia, and potential perforation. The etiologies vary geographically and with socioeconomic status, with adhesions, hernias, malignancies, and infections like tuberculosis being prominent causes.
In developing countries like India, tuberculosis still contributes significantly to abdominal surgical emergencies. AIO often presents with nonspecific symptoms like abdominal pain, vomiting, distension, and constipation, making early diagnosis challenging without adequate imaging support. Management depends on the underlying cause, with conservative treatment preferred in partial or resolving obstructions, while surgical intervention is often necessary in cases of strangulation, malignancy, or failure of non-operative management.
Aims and Objectives:
To evaluate the spectrum of clinical presentations, etiological profiles, management approaches, and outcomes in patients presenting with AIO at a tertiary care hospital in North India.
Materials and Methods:
This cross-sectional observational study was carried out in the Department of General Surgery at Shri Mahant Indresh Hospital (SMIH), Patel Nagar, Dehradun, under the aegis of Shri Guru Ram Rai Institute of Medical and Health Sciences (SGRRIM&HS). The study was conducted over a period of 18 months.
Inclusion Criteria:
Age >10 Years And <80 years and patients Who Present with the Symptoms of Acute Intestinal Obstruction.
Exclusion Criterial
Patients with chronic intestinal obstruction. Patients with a history of recent abdominal trauma or surgery unrelated to intestinal obstruction.
Data Collection: Clinical examination, radiological imaging (X-ray, USG, CECT), and lab tests (CBC, RFT, LFT, CRP, ABG) were done. Data were recorded using a structured proforma.
Statistical Analysis: The statistical analysis was done using SPSS software version 23. Categorical variables were expressed as percentages, and continuous variables were expressed as mean ± standard deviation. The association between categorical variables was estimated using Pearson‘s chi-square test or the Fisher exact test. Comparisons between continuous variables were performed using the unpaired Student's t-test and ANOVA with suitable post hoc analysis. A p-value of less than 0.05 was considered statistically significant.
Results:
In this study, 146 patients with acute intestinal obstruction were analyzed. The majority of patients belonged to the 51–60 years age group (21.2%), followed by 61–70 years (19.2%) and 41–50 years (15.1%), with a mean age of 49.19 ± 19.2 years. Males outnumbered females, accounting for 57.5% of the cohort. The most common presenting symptom was abdominal pain (87.0%), followed by vomiting (61.0%), obstipation (59.6%), and abdominal distension (54.8%).
A significant proportion had a history of previous abdominal surgery (38.4%), with other comorbidities including diabetes (16.4%), hypertension (9.6%), and past pulmonary tuberculosis (8.2%). 76 The most frequent etiology was adhesions or bands (23.3%), followed by undetermined causes (19.2%), KOCH‘s abdomen (14.4%), and malignancy (12.3%). Conservative management was employed in 51.4% of cases, particularly in patients with undetermined etiology, adhesions, and KOCH‘s abdomen, while surgical intervention (48.6%) was more common in malignancy, gastrointestinal perforation, and obstructed hernia. The association between diagnosis and management was statistically significant (P<0.001).

Among the 71 surgically treated patients, postoperative complications included fever (11.3%), wound infection and prolonged ileus (8.5% each), septicemia (7.0%), fecal fistula and burst abdomen (2.8% each), and short bowel syndrome (1.4%).

Table 1: Age Distribution of Patients

Age Group (Years)	Frequency	Percentage
≤20	18	12.3%
21-30	17	11.6%
31-40	12	8.2%
41-50	22	15.1%
51-60	31	21.2%
61-70	28	19.2%
>70	18	12.3%
Total	146	100%

Table 2: Gender Distribution

Gender	Frequency	Percentage
Male	84	57.5%
Female	62	42.5%

Table 3: Presenting Complaints

Symptom	Frequency	Percentage
Abdominal Pain	127	87.0%
Vomiting	89	61.0%
Obstipation	87	59.6%
Abdominal Distension	80	54.8%

Figure 2: Pie Chart of Etiological Distribution

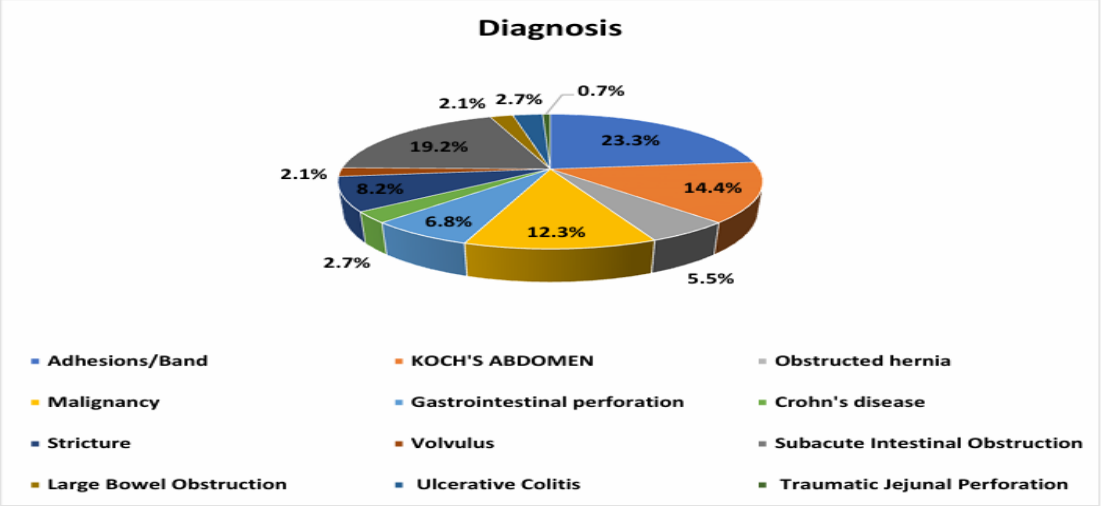

Table 5: Management Modality

Modality	Frequency	Percentage
Conservative	75	51.4%
Surgical	71	48.6%

Table 6: Association Between Etiology and Management

Diagnosis	Conservative	Surgical	P-value
Adhesions/Bands	20	14	<0.001
Koch's Abdomen	17	4	
Malignancy	4	14	
Obstructed Hernia	0	8	
Perforation	0	10	
Others	Varied	Varied	

DISCUSSION

Acute intestinal obstruction (AIO) remains a significant surgical emergency with considerable morbidity and mortality, especially in low- and middle-income countries. In this study involving 146 patients, the clinical profiles, underlying etiologies, management strategies, and outcomes were systematically analyzed.

In our study the mean age of the patients was 49.19±19.2. The majority of patients were male (57.5%). Our findings were comparable to the findings of Patil MR et al who did a study and reported that 98 patients underwent surgery for acute intestinal obstruction. The majority were from the age group 40-60 years (57.14 %), were male (60.2 %). Mariam TG et al reported that of 227 patients, 89 (39.2%) were within 5–40 years, the largest age group. The minimum age of the patients was 3 days, and the maximum was 85 years, with a mean = 37.21 years, a median = 38 years, and SD = 21.44. The majority (72.2%) of patients were males.

Abdominal pain (87%), vomiting (61%), and obstipation (59.6%) were the most common presenting symptoms, aligning with standard clinical presentations documented in both local and international literature. These findings emphasize the classical symptomatology of AIO and reinforce the importance of detailed clinical history and physical examination for early diagnosis.

Adhesions and bands (23.3%) were identified as the most common cause of intestinal obstruction, followed by KOCH's abdomen (14.4%) and malignancy (12.3%). This trend is in agreement with multiple studies, including those by Shivakumar CR et al, Patil AM et al, and Ghezzi TL et al, which also reported adhesions as the leading cause. The notable prevalence of tuberculosis-related

obstruction (KOCH's abdomen) reflects the endemic nature of abdominal TB in the Indian subcontinent and highlights the need for heightened clinical suspicion in chronic or subacute obstruction cases.

Malignancies were a significant cause of large bowel obstruction and were more likely to require surgical intervention. This finding corresponds with observations from Syam D et al, where malignancy was the leading cause of dynamic intestinal obstruction necessitating surgery. In contrast, cases with adhesions or KOCH's abdomen were more often managed conservatively, emphasizing the role of individualized treatment planning based on etiology and patient condition.

Surgical intervention was required in 48.6% of patients, while 51.4% were successfully managed conservatively. This balanced distribution underlines the importance of conservative therapy in stable patients, especially in partial obstructions and adhesive etiologies, as supported by studies from Prakash GV et al. and Patanaik SK et al., who demonstrated favorable outcomes with non-operative approaches in selected patients. However, the need for surgery was significantly higher in patients with malignancy, perforation, or strangulated hernia ($P < 0.001$), which necessitates timely surgical judgment to prevent complications such as ischemia or sepsis.

The association between specific etiologies and treatment modalities was statistically significant, reiterating the importance of precise etiological diagnosis in determining the management pathway. These results underscore the utility of imaging modalities like contrast-enhanced CT in identifying the site, cause, and complications of obstruction, thereby guiding treatment decisions.

This study also highlights a notable proportion of patients with undetermined etiology (19.2%), stressing the limitations in preoperative diagnostic capabilities and the need for enhanced imaging and possibly diagnostic laparoscopy in ambiguous cases.

Overall, our findings reflect the evolving trends of intestinal obstruction in developing regions, with an increasing role of malignancy and tuberculosis alongside the traditionally dominant post-operative adhesions. The outcomes observed are consistent with recent literature, with mortality largely confined to patients presenting late or with comorbidities.

Conclusion:

The present study concluded that intestinal obstruction is seen more commonly in the middle-aged group, although no age is immune. Males were affected more than the females. Abdominal pain was the most common symptom followed by constipation and vomiting. adhesions or bands, followed by intestinal obstruction with undetermined etiology and KOCH'S abdomen. Most of the cases were managed conservatively by bowel rest, fluid resuscitation, appropriate antibiotics and analgesics, and other supportive measures; followed by surgical approach. The association 77 between early diagnosis and management was found to be significant, indicating that specific clinical profile influenced the choice of treatment. The most common post operative complication was fever, followed by wound infection and prolonged ileus. Septicemia occurred in 7.0% of patients. Overall, the study reinforces the need for a tailored, evidence based approach to managing acute intestinal obstruction, while identifying areas for further research, such as long-term outcomes and optimizing interventions for specific etiologies. This knowledge has practical implications for enhancing clinical care and reducing complications in patients presenting with this common surgical condition.

Conflict of Interest: None declared.

Funding: None.

Ethical Approval: Approved by IEC, SGRRIM&HS, Dehradun.

References:

1. Wilson MS, Ellist H, Menziest D, Moran BJ, Parker MC, Thompson JN. A review of the management of small bowel obstruction. Ann R Coll Surg Engl. 1999; 81:320–328.
2. Akigun Y, Yilmaz G, Akbayin H. Causes and Effective Factors on Mortality of Intestinal Obstruction in the South East Anatolia. Turk J Med Sci. 2002; 32:149–154.

3. Kapan M, Onder A, Polat S, Aliosmanoglu I, Arikanoglu Z, Taskesen F, Girgin S. Mechanical bowel obstruction and related risk factors on morbidity and mortality. Journal of Current surgery. 2012;2(2):55–61.
4. Margenthaler JA, Longo WE, Virgo KS, Johnson FE, Grossmann EM, Schifftner TL, Henderson WG, Khuri SF. Risk Factors for Adverse Outcomes Following Surgery for Small Bowel Obstruction. Ann Surg. 2006; 243:456–464.
5. Frasure SE, Hildreth A, Takhar S, Stone MB. Emergency department patients with small bowel obstruction: What is the anticipated clinical course? World J Emerg Med 2016; 7:35-9.
6. Tegegne A. Small intestinal volvulus in adults of Gonder region, northwestern Ethiopia,‖ Ethiopian Medical Journal. 1992;30(2):111–117.
7. Patil MR, Borle SS, Kelkar HS, Huzurbazar SM. Study of clinical profile & surgical management of acute intestinal obstruction in adults at a tertiary hospital. J Cardiovasc Dis Res. 2023;14(1):439-444.
8. Mariam TG, Abate AT, Getnet MA. Surgical management outcome of intestinal obstruction and its associated factors at University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia. Surg Res Pract. 2019; 6417240.
9. Shivakumar CR, Shoeb MFR, Reddy AP, Patil S. A clinical study of etiology and management of acute intestinal obstruction. Int Surg J. 2018;5(9):3072-3077.
10. Patil AM, Wagh DD. A study on clinical profile & management of acute intestinal obstruction. WIMJOURNAL. 2017;4(1):11.
11. Ghezzi TL, Moschetti L, Corleta OC, Abreu GP, Abreu LP. Analysis of the video laparoscopy potentiality in the surgical treatment of the bowel obstruction. Arq Gastroenterol. 2010;47(2):148-51.
12. Syam D, Badekila H, Francis J. A study of clinical profile and surgical management of dynamic intestinal obstruction in a tertiary care hospital in Karnataka, India. J Univer Surg. 2020;8(4):4.
13. Prakash GV, Purushotham G, Babu KA, Kumar K, Reddy R, Reddy S, et al. A descriptive study on conservative management of subacute intestinal obstruction and its outcome in Tirupati. J Evid Based Med Healthc. 2021;8(33):3150-3155.
14. Patanaik SK, Pattanayak C, Srivastava V, Sarkar S. Clinical profile and outcome of subacute intestinal obstruction: a hospital based prospective observational study. Biomed Pharmacol J. 2020; 13(3): 1563-1571.