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Original Article

Clinico Pathological Profile in Patients of Acute Intestinal Obstruction

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ABSTRACT

Background: Acute intestinal obstruction is a common surgical emergency associated with significant morbidity and mortality. Early diagnosis and timely management are essential to prevent complications such as bowel ischemia and gangrene.
Aim: To study the clinico-pathological profile, etiology, diagnostic modalities, and management outcomes in patients with acute intestinal obstruction.
Materials and Methods: This prospective observational study was conducted in the Department of General Surgery at Integral Institute of Medical Sciences and Research, Lucknow, from January 2024 to March 2025. A total of 100 patients diagnosed with intestinal obstruction were included. Detailed clinical evaluation, laboratory investigations, and radiological imaging (X-ray, ultrasonography, and CT scan when indicated) were performed. Patients were managed conservatively or surgically based on clinical condition. Data were analyzed using SPSS version 25.0.
Results: The majority of patients were in the 41–60 years age group (36%) with male predominance (64%). Abdominal pain (96%) was the most common symptom. Adhesions (32%) were the leading cause, followed by hernia (24%) and malignancy (16%). Small bowel obstruction was more common (68%). Radiological findings, especially CT scan, showed high diagnostic accuracy. Conservative management was successful in 42% of cases, while 58% required surgery. Gangrenous bowel was found in 34.5% of operated cases. Postoperative complications occurred in 46.5% of patients, with a mortality rate of 9%.
Conclusion: Acute intestinal obstruction requires early diagnosis and prompt management. Adhesions remain the most common cause. Timely surgical intervention in indicated cases significantly reduces complications and improves patient outcomes.

Keywords*: Acute intestinal obstruction, Adhesions, Small bowel obstruction, Clinico-pathological profile, Bowel gangrene, Surgical management, Radiological diagnosis, Postoperative complications.*

INTRODUCTION

Acute intestinal obstruction is one of the most common surgical emergencies encountered in clinical practice and continues to contribute significantly to morbidity and mortality worldwide, particularly in developing countries (1). It is defined as the interruption in the normal flow of intestinal contents due to either mechanical or functional causes. The condition can affect both the small and large intestine and presents with a constellation of symptoms including abdominal pain, vomiting, distension, and constipation (2).

The etiology of intestinal obstruction varies with geographic location, age, and clinical setting. In developed countries, postoperative adhesions are the leading cause, whereas in developing regions, obstructed hernias, malignancies, and volvulus remain significant contributors (3,4). Early diagnosis and timely management are crucial in preventing

complications such as bowel ischemia, gangrene, perforation, and sepsis, which are associated with increased mortality (5).

Clinical evaluation remains the cornerstone of diagnosis; however, laboratory and radiological investigations play an essential supportive role. Parameters such as leukocytosis, electrolyte imbalance, and elevated serum markers may indicate severity and complications (6). Imaging modalities like plain abdominal X-ray, ultrasonography, and contrast-enhanced computed tomography (CECT) have improved diagnostic accuracy and help in identifying the level, cause, and complications of obstruction (7,8).

Management strategies for intestinal obstruction include both conservative and surgical approaches. While many cases of adhesive obstruction can be managed non-operatively, prompt surgical intervention is warranted in cases with suspected strangulation, ischemia, or failure of conservative treatment (9). Despite advances in surgical techniques and perioperative care, postoperative complications and mortality remain concerns, particularly in late presentations (10).

This study was undertaken to evaluate the clinico-pathological profile of patients with acute intestinal obstruction, analyze etiological patterns, assess diagnostic modalities, and determine management outcomes in a tertiary care center.

MATERIALS AND METHODS

Study Design and Setting

This was a prospective observational study conducted in the Department of General Surgery at Integral Institute of Medical Sciences and Research (IIMSR), Lucknow, Uttar Pradesh, India.

Study Duration

The study was carried out over a period of 15 months, from January 2024 to March 2025.

Sample Size

A total of 100 patients diagnosed with acute intestinal obstruction were included in the study.

Study Population

All patients presenting to the surgical emergency or outpatient department with clinical features suggestive of intestinal obstruction were evaluated. Patients fulfilling the inclusion criteria were enrolled after obtaining informed consent.

Inclusion Criteria

- Patients of all age groups diagnosed with acute, subacute, or chronic intestinal obstruction
- Patients willing to participate in the study

Exclusion Criteria

- Patients with intestinal obstruction due to congenital causes (especially infants)
- Patients managed on an outpatient basis
- Patients who refused consent
- Terminally ill patients
- Previously operated cases of intestinal obstruction during the same admission

Data Collection

A detailed clinical evaluation was performed for all enrolled patients, including:

- Demographic data (age, sex)
- Clinical history (pain abdomen, vomiting, distension, constipation)
- Physical examination findings
- Etiology and type of obstruction

All patients underwent relevant investigations, including:

- Laboratory investigations: Complete blood count (CBC), serum electrolytes, renal function tests, and serum amylase
- Radiological investigations:
    - Plain X-ray abdomen (erect and supine)
    - Ultrasonography (USG) abdomen
    - Contrast-enhanced CT scan (when indicated)

Management Protocol

Upon admission, all patients were initially managed conservatively with:

- Nil per oral (NPO)
- Nasogastric decompression
- Intravenous fluid resuscitation
- Broad-spectrum antibiotics

Patients were monitored clinically with serial examinations.

Indications for Surgical Intervention

Surgical management was undertaken in patients with:

- Failure of conservative treatment
- Clinical suspicion of bowel strangulation or ischemia
- Signs of peritonitis
- Hemodynamic instability despite resuscitation

Intraoperative and Postoperative Assessment

Intraoperative findings were recorded, including:

- Cause of obstruction
- Site and type of obstruction
- Presence of gangrene or perforation

Postoperatively, patients were monitored for:

- Complications (wound infection, sepsis, anastomotic leak, etc.)
- Duration of hospital stay
- Final outcome (recovery/mortality)

Outcome Measures

The primary outcomes assessed were:

- Etiological spectrum of intestinal obstruction
- Incidence of bowel ischemia/gangrene
- Surgical vs conservative management outcomes
- Postoperative complications and mortality

Statistical Analysis

All collected data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) software version 25.0 (IBM Corp., Armonk, NY, USA). Continuous variables such as age and laboratory values were expressed as mean ± standard deviation, while categorical variables such as gender, etiology, and clinical features were presented as frequencies and percentages. Statistical comparisons were performed using the Student's t-test for continuous variables and the Chi-square test for categorical variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS TABLES

Table 1: Demographic Profile of Patients (N = 100)

Variable	Category	Number (n)	Percentage (%)
Age (years)	**0–20**	**8**	**8%**
	21–40	**28**	**28%**
	41–60	**36**	**36%**
	>60	**28**	**28%**
Gender	**Male**	**64**	**64%**
	Female	**36**	**36%**

Table 2: Clinical Presentation

Clinical Feature	Number (n)	Percentage (%)
Abdominal pain	**96**	**96%**
Vomiting	**84**	**84%**
Abdominal distension	**82**	**82%**
Constipation	**78**	**78%**

Table 3: Etiology of Intestinal Obstruction

Etiology	Number (n)	Percentage (%)
Adhesions	**32**	**32%**

Hernia	**24**	**24%**
Malignancy	**16**	**16%**
Volvulus	**10**	**10%**
Intussusception	**6**	**6%**
Others	**12**	**12%**

Table 4: Type of Obstruction

Type	Number (n)	Percentage (%)
Small bowel	**68**	**68%**
Large bowel	**32**	**32%**

Table 5: Laboratory Parameters

Parameter	Mean ± SD	Abnormal (n)	Percentage (%)
Hemoglobin (g/dL)	**10.8 ± 2.1**	**40**	**40%**
TLC (/mm³)	**13,500 ± 4,200**	**62**	**62%**
Platelets (lakhs/mm³)	**2.6 ± 0.8**	**18**	**18%**
Serum Sodium (mEq/L)	**134 ± 6**	**36**	**36%**
Serum Potassium (mEq/L)	**3.8 ± 0.7**	**30**	**30%**
Blood Urea (mg/dL)	**48 ± 18**	**42**	**42%**
Serum Creatinine (mg/dL)	**1.4 ± 0.6**	**28**	**28%**
Serum Amylase (U/L)	**110 ± 45**	**20**	**20%**

Table 6: Radiological Findings
(A) X-ray Abdomen (N = 100)

Finding	Number (n)	Percentage (%)
Air-fluid levels	**88**	**88%**
Dilated bowel loops	**82**	**82%**
Step-ladder pattern	**60**	**60%**
Absent distal gas	**55**	**55%**

(B) Ultrasonography (USG) Findings (N = 100)

Finding	Number (n)	Percentage (%)
Dilated loops	**78**	**78%**
Altered peristalsis	**70**	**70%**
Free fluid	**45**	**45%**
Cause identified	**52**	**52%**

(C) CT Scan Findings (n = 60)

Finding	Number (n)	Percentage (%)
Level identified	**55**	**91.7%**
Cause identified	**50**	**83.3%**
Bowel wall thickening	**30**	**50%**
Mesenteric edema	**25**	**41.7%**
Ischemia signs	**18**	**30%**

Table 7: Management Approach

Management Type	Number (n)	Percentage (%)
Conservative	**42**	**42%**
Surgical	**58**	**58%**

Table 8: Indications for Surgery (n = 58)

Indication	Number (n)	Percentage (%)
Failed conservative treatment	**20**	**34.5%**
Suspected strangulation/ischemia	**18**	**31.0%**
Peritonitis	**12**	**20.7%**
Hemodynamic instability	**8**	**13.8%**

Table 9: Intraoperative Findings (n = 58)

Finding	Number (n)	Percentage (%)

Viable bowel	**38**	**65.5%**
Gangrenous bowel	**20**	**34.5%**

Table 10: Postoperative Complications (n = 58)

Complication	Number (n)	Percentage (%)
Wound infection	**14**	**24.1%**
Sepsis	**9**	**15.5%**
Anastomotic leak	**4**	**6.9%**
No complications	**31**	**53.5%**

Table 11: Outcome of Patients

Outcome	Number (n)	Percentage (%)
Recovered	**91**	**91%**
Mortality	**9**	**9%**

DISCUSSION

In the present study, the majority of patients belonged to the 41–60 years age group (36%), with a male predominance (64%). This is consistent with previous studies that report higher incidence among middle-aged males, possibly due to increased exposure to risk factors such as previous surgeries and hernias (1,3).

Abdominal pain (96%) was the most common presenting symptom, followed by vomiting (84%), distension (82%), and constipation (78%). These findings are comparable to earlier studies where abdominal pain is reported as the most consistent symptom in intestinal obstruction (2,5). The classical symptom triad remains clinically relevant for early suspicion.

Adhesions were identified as the most common cause of obstruction (32%), followed by hernia (24%) and malignancy (16%). This aligns with global trends showing a shift toward adhesions as the leading cause, even in developing countries (3,4). However, the relatively higher incidence of hernia in this study reflects delayed presentation and limited access to elective surgical care in certain populations.

Small bowel obstruction (68%) was more common than large bowel obstruction (32%), which is in agreement with most surgical literature (6). The predominance of small bowel involvement is largely attributed to postoperative adhesions and hernias.

Laboratory findings showed leukocytosis in 62% of patients and electrolyte imbalance in a significant proportion, indicating dehydration and systemic response to obstruction. Elevated serum urea and creatinine levels suggested associated renal impairment due to hypovolemia (6,7). These parameters are important indicators of disease severity and guide resuscitation.

Radiological investigations played a crucial role in diagnosis. Plain X-ray abdomen revealed air-fluid levels in 88% of cases, making it a useful initial screening tool. Ultrasonography was helpful in identifying dilated loops and altered peristalsis, while CT scan showed high accuracy in detecting the level (91.7%) and cause (83.3%) of obstruction. CT findings such as bowel wall thickening and mesenteric edema were valuable indicators of ischemia (7,8).

In terms of management, 42% of patients were managed conservatively, while 58% required surgical intervention. The higher surgical rate may be attributed to delayed presentation and presence of complications. The most common indication for surgery was failure of conservative treatment (34.5%), followed by suspected strangulation (31%) and peritonitis (20.7%). These findings are consistent with established surgical guidelines (9).

Intraoperative findings revealed gangrenous bowel in 34.5% of operated cases, which is relatively high and indicates late presentation. Early surgical intervention is essential to prevent progression to gangrene and reduce morbidity (5,9).

Postoperative complications were observed in 46.5% of patients, with wound infection being the most common (24.1%), followed by sepsis (15.5%). The overall mortality rate was 9%, which is comparable to other studies but still significant. Mortality is often associated with delayed diagnosis, bowel gangrene, and systemic sepsis (10).

Overall, this study highlights the importance of early diagnosis, appropriate use of imaging, and timely surgical intervention in improving outcomes in patients with acute intestinal obstruction.

CONCLUSION

Acute intestinal obstruction is a common surgical emergency, most frequently affecting middle-aged males, with adhesions as the leading cause. Clinical evaluation supported by laboratory and radiological investigations, especially CT scan, is

essential for early diagnosis. While many cases can be managed conservatively, timely surgical intervention is crucial in complicated cases. Early diagnosis and prompt management are key to reducing morbidity and mortality.

REFERENCES

1. Ellis H. The clinical significance of adhesions: focus on intestinal obstruction. *Eur J Surg Suppl.* 1997;577:5–9.
2. Maung AA, Johnson DC, Piper GL, et al. Evaluation and management of small bowel obstruction. *J Trauma Acute Care Surg.* 2012;73(5):S362–S369.
3. Miller G, Boman J, Shrier I, Gordon PH. Natural history of patients with adhesive small bowel obstruction. *Br J Surg.* 2000;87(9):1240–1247.
4. Markogiannakis H, Messaris E, Dardamanis D, et al. Acute mechanical bowel obstruction: clinical presentation and management. *World J Gastroenterol.* 2007;13(3):432–437.
5. Sarr MG, Bulkley GB, Zuidema GD. Preoperative recognition of intestinal strangulation. *Am J Surg.* 1983;145(1):176–182.
6. Bower KL, Lollar DI, Williams SL, et al. Small bowel obstruction. *Surg Clin North Am.* 2018;98(5):945–971.
7. Maglinte DD, Balthazar EJ, Kelvin FM, Megibow AJ. The role of radiology in bowel obstruction. *AJR Am J Roentgenol.* 1997;168(5):1171–1180.
8. Frager D, Baer JW. Role of CT in evaluating patients with small bowel obstruction. *Semin Ultrasound CT MR.* 1995;16(2):127–140.
9. Ten Broek RPG, Krielen P, Di Saverio S, et al. Bologna guidelines for management of adhesive small bowel obstruction. *World J Emerg Surg.* 2018;13:24.
10. Schraufnagel D, Rajaee S, Millham FH. How many sunsets? Timing of surgery in bowel obstruction. *J Trauma Acute Care Surg.* 2013;74(1):181–187.