International Journal of Research in Medical Sciences
*Gawali D et al. Int J Res Med Sci. 2026 Jan;14(1):105-111*
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20254367

**Original Research Article**

# Etiological patterns, clinical outcomes and management of acute intestinal obstruction: a prospective study from a tertiary care center

**Divya Gawali*, Ajay Subhedar, Parvez Mujawar**

Department of Surgery, Shri Bhausaheb Hire Government Medical College & Hospital, Dhule, Maharashtra, India

**Received:** 28 October 2025
**Accepted:** 10 December 2025

***Correspondence:**
Dr. Divya Gawali,
E-mail: divyagawali1998@gmail.com



## ABSTRACT

**Background:** Acute intestinal obstruction represents one of the most prevalent surgical emergencies worldwide, significantly impacting healthcare systems and patient outcomes. This study aimed to comprehensively analyze the causes, clinical presentations, management approaches and outcomes of acute intestinal obstruction in a tertiary care setting in Maharashtra, India.

**Methods:** A prospective observational study was conducted over twelve months (2022-23) at Shri Bhausaheb Hire Government Medical College and Hospital, Dhule. Eighty-two consecutive patients with acute intestinal obstruction were enrolled after informed consent. Comprehensive clinical evaluation, laboratory investigations, imaging studies and surgical findings were systematically recorded. Primary outcomes included etiology identification, management approach (conservative versus surgical) and in-hospital mortality. Secondary outcomes comprised postoperative complications and hospital length of stay.

**Results:** The cohort comprised 82 patients with mean age of 48.7±22.3 years and slight male predominance (51.2%). Age distribution showed bimodal pattern with peaks in middle-aged adults (41-50 years, 26.8%) and elderly patients (71-80 years, 17.1%). Adhesions emerged as the predominant cause (35.4%), followed by obstructed hernia (15.9%), malignancy (8.5%) and tuberculous stricture (7.3%). Conservative management succeeded in 24 patients (29.3%), while 58 patients (70.7%) required surgical intervention. Postoperative complications occurred in 29.3%, with septicemia most common (8.5%). Overall mortality was 8.5%, exclusively in the surgical group. Mean hospital stay was 12.3 days.

**Conclusions:** This study demonstrates significant epidemiological transition with adhesions becoming the predominant cause of acute intestinal obstruction, replacing historically dominant obstructed hernias in developing countries. Early diagnosis, appropriate management selection and timely intervention remain critical determinants of outcome. The substantial morbidity and mortality emphasize the need for enhanced preventive strategies and optimized perioperative care protocols.

**Keywords:** Intestinal obstruction, Adhesions, Surgical emergency, Mortality, Morbidity, Developing countries

## INTRODUCTION

Acute intestinal obstruction represents one of the most frequently encountered surgical emergencies in contemporary clinical practice, constituting approximately 12-16% of all acute abdominal presentations requiring emergency surgical consultation worldwide.[1,2] This condition is fundamentally characterized by mechanical interruption of normal antegrade flow of intestinal contents, resulting in progressive proximal bowel distension, massive fluid sequestration and potentially life-threatening systemic complications including shock, sepsis and multi-organ dysfunction.[3] The global epidemiological burden varies considerably across different geographical regions and healthcare systems. In developed countries, the condition predominantly affects elderly populations with multiple comorbidities, while in developing nations, it frequently presents across diverse

age groups with varying etiological patterns reflecting local disease prevalence and healthcare accessibility.[4,5] Despite remarkable advances in diagnostic imaging, minimally invasive surgical techniques and perioperative care protocols, acute intestinal obstruction continues to impose substantial morbidity and mortality burdens globally. Contemporary literature reveals striking regional variations in clinical outcomes, with mortality rates ranging from 2-3% for simple obstructions managed in well-resourced centers to 30-40% for complicated cases in resource-limited settings.[6,7] This spectrum reflects complex interplay of patient demographics, comorbidities, specific etiology, presentation timing, diagnostic capabilities, surgical expertise and intensive care availability.

The etiological spectrum has undergone remarkable transformation over recent decades, particularly in developing countries experiencing healthcare modernization. Historically, obstructed external hernias dominated in resource-limited settings due to limited access to elective repair, poor health-seeking behaviors and socioeconomic barriers.[8,9] However, recent studies suggest progressive shift toward adhesive obstruction as the predominant cause, mirroring patterns in developed countries. This epidemiological transition reflects broader improvements including increased surgical volumes, improved access to elective procedures, enhanced training programs and changing demographics with urbanization.[10,11] Simultaneously, adhesive obstruction emergence presents new challenges related to prevention, diagnosis and management requiring evidence-based approaches tailored to local contexts.

Modern management has evolved from purely surgical approaches to sophisticated individualized algorithms incorporating advanced imaging, selective conservative protocols and risk-stratified interventions.[12,13] The traditional dictum "never let the sun set on bowel obstruction" has been refined through evidence-based principles supporting judicious conservative management in selected patients while maintaining vigilance for deterioration requiring urgent intervention.

Current paradigms emphasize aggressive resuscitation with fluid replacement and electrolyte correction, nasogastric decompression for symptom relief and aspiration prevention, systematic monitoring with serial assessments and evidence-based decision-making regarding intervention timing.[14,15] Integration of advanced imaging, particularly contrast-enhanced CT, has revolutionized diagnostic accuracy and enabled precise risk stratification.

### *Study rationale and objectives*

Given documented regional variations and ongoing healthcare transitions in developing countries, there exists critical need for contemporary prospective studies examining local patterns and outcomes. Understanding regional characteristics is essential for developing appropriate protocols, resource allocation strategies and preventive interventions tailored to specific contexts.

This study aimed to provide comprehensive insights into current intestinal obstruction management at our tertiary institution. Specific objectives were to determine contemporary etiological distribution in our population, to analyze clinical presentations and diagnostic findings, to evaluate management approaches and success rates, to assess comprehensive outcomes including mortality and morbidity and to identify factors associated with adverse outcomes to inform quality improvement initiatives.

## METHODS

### *Study design and setting*

This prospective observational study was conducted at Shri Bhausaheb Hire Government Medical College and Hospital, Dhule, Maharashtra, India, over twelve months from January 2022 to December 2023. The institution serves as a major tertiary referral center for predominantly rural population across northern Maharashtra, providing comprehensive surgical services including emergency surgery, trauma care and specialized procedures.

### *Ethical considerations*

The study protocol received Institutional Ethics Committee approval prior to commencement, ensuring compliance with ethical guidelines. Written informed consent was obtained from all participants or legally authorized representatives. For pediatric patients, appropriate assent was obtained when feasible, in addition to parental consent.

### *Study population*

Consecutive patients presenting with clinical and radiological evidence of acute intestinal obstruction were systematically screened.

### *Sample size*

A total of 82 patients fulfilling eligibility criteria were enrolled for the study.

### *Inclusion criteria*

Clinical diagnosis based on classical symptoms, radiological confirmation through imaging, age >1 month and informed consent provision.

### *Exclusion criteria*

It includes consent refusal, previous obstruction with surgical intervention, pure paralytic ileus, incomplete records and transfer before treatment completion.

### *Data collection*

A standardized proforma captured demographics, clinical presentation, examination findings, vital parameters, laboratory results, imaging findings, management details, operative findings and outcomes. All collection was performed by trained medical officers under senior supervision with regular quality checks.

Each patient underwent comprehensive evaluation following standardized protocol. Detailed history focused on symptom onset and characteristics, previous medical/surgical history, medications and family history. Physical examination included general assessment, vital signs, systematic abdominal examination emphasizing cardinal obstruction signs and evaluation for complications including dehydration, sepsis or peritonitis.

All patients underwent standardized laboratory evaluation including complete blood count, comprehensive metabolic panel, renal and liver function tests and blood glucose. Additional tests included lactate levels for suspected ischemia, blood cultures for febrile patients and coagulation studies for surgical candidates. Plain abdominal radiographs in erect and supine positions were universal. Abdominal ultrasonography assessed bowel dilatation, peristalsis and complications. Contrast-enhanced CT was selectively performed based on clinical indications for detailed anatomical evaluation.

### *Management protocols*

Treatment followed evidence-based protocols adapted to local resources. All patients received standardized supportive care including IV fluid resuscitation, nasogastric decompression, urinary monitoring and electrolyte correction. Conservative management was attempted in appropriate candidates without strangulation signs, peritonitis or complete obstruction. Surgical intervention was indicated for strangulation/peritonitis signs, conservative management failure after 24-48 hours or clinical deterioration. Approaches were individualized based on patient factors, pathology and operative findings.

### *Outcome measures*

Primary outcomes included etiology identification, management approach and in-hospital mortality. Secondary outcomes comprised postoperative complications, hospital stay and adverse outcome predictors. Patients were followed throughout hospitalization with systematic documentation of progress, complications and final outcomes.

### *Statistical analysis*

Data were analyzed using SPSS software trial version. Descriptive statistics were used for baseline characteristics and outcomes. Continuous variables were expressed as means±standard deviation, categorical variables as frequencies and percentages and compared using chi-square test. A p-value less than 0.05 was considered statistically significant.

## RESULTS

### *Demographics and baseline characteristics*

Eighty-two patients were enrolled with mean age 48.7±22.3 years (range 1-80). Age distribution showed distinctive bimodal pattern with largest group aged 41-50 years (26.8%) and second peak at 71-80 years (17.1%). Additional substantial groups included 51-60 years (15.9%) and 61-70 years (14.6%). Combined elderly population (>60 years) represented 31.7%. Pediatric and young adult populations were less affected: 0-10 years (9.8%), 11-20 years (1.2%), 21-30 years (4.9%) and 31-40 years (9.8%). Gender showed slight male predominance with 42 males (51.2%) and 40 females (48.8%), ratio 1.05:1.

### *Clinical presentation*

All patients (100%) presented with abdominal pain and complete obstipation, confirming these as universal features. Abdominal distension occurred in 79 patients (96.3%), vomiting in 76 (92.7%) and tenderness in 78 (95.1%). Guarding and rigidity were present in 65 patients (79.3%), suggesting significant peritoneal involvement. Auscultatory findings revealed increased bowel sounds in 70 patients (85.4%), typically representing hyperperistalsis. Decreased sounds occurred in 10 (12.2%) and absent sounds in 2 (2.4%), usually indicating advanced obstruction or ischemia. Systemic compromise signs including peripheral pulse loss and cold extremities were each present in 7 patients (8.5%).

### *Laboratory findings*

Mean hemoglobin was 10.6±2.0 g/dl with 65% showing anemia. Serum creatinine was elevated at 2.4±0.9 mg/dl, indicating renal impairment from dehydration. Liver function remained preserved with mean bilirubin 0.9±0.2 mg/dl. Electrolyte abnormalities were common: mean sodium 143.4±5.7 mEq/l (range 122-156), potassium 4.0±0.8 mEq/l (range 2-6). Blood glucose showed stress elevation at 132.7±14.8 mg/dl (range 122-233).

### *Imaging results*

Plain radiographs demonstrated air-fluid levels universally (100%). Additional findings included dilated small bowel loops (19.5%), distended colon (14.6%), string-of-beads appearance (14.6%) and coffee-bean sign (1.2%).

Ultrasonography revealed distended small bowel loops with increased peristalsis in 70 patients (85.4%), while absent or decreased peristalsis occurred in 12 (14.6%). Growth causing luminal compromise was identified in 7

(8.5%), herniating bowel loops in 13 (15.9%) and compromised viability in 3 (3.7%).

***Etiological distribution***

Intraoperative and clinical findings revealed adhesions as predominant cause in 23 patients (28.0%), followed by obstructed hernia in 13 (15.9%), malignancy in 7 (8.5%) and tuberculous stricture in 6 (7.3%). Additional causes included gangrenous bowel (2.4%), appendicular lump with adhesions (2.4%) and rare conditions including volvulus, intussusception and congenital anomalies (each 1.2%).

***Management and outcomes***

Conservative management was initially attempted and succeeded in 24 patients (29.3%). Surgical intervention was required in 58 (70.7%). Common procedures included adhesiolysis (22.0%), resection and anastomosis (13.4%), hernia repair (11.0%) and combined procedures (4.9%).

**Table 1: Distribution of patients according to age.**

| Age in years | Frequency (n=82) | % |
|---|---|---|
| **0-10** | 8 | 9.76 |
| **11-20** | 1 | 1.20 |
| **21–30** | 4 | 6.10 |
| **31–40** | 8 | 9.76 |
| **41–50** | 22 | 26.83 |
| **51–60** | 13 | 15.85 |
| **61–70** | 12 | 14.63 |
| **71–80** | 14 | 17.07 |
| **Total** | 82 | 100 |

**Table 2: Distribution of patients according to Clinical presentation.**

| Clinical presentation | Frequency (n=82) | % |
|---|---|---|
| **Abdominal Pain** | 82 | 100 |
| **Abdominal distention** | 79 | 96.34 |
| **Vomiting** | 76 | 92.68 |
| **Tenderness** | 78 | 95.12 |
| **Guarding and rigidity** | 65 | 79.27 |
| **Obstipation** | 82 | 100 |
| **Increased bowel sounds** | 70 | 85.50 |
| **Absent bowel sounds** | 2 | 2.40 |
| **Decreased bowel sounds** | 10 | 12 |
| **Significant per rectal findings** | 3 | 3.65 |
| **Loss of distal pulses** | 7 | 8.50 |
| **Cold clammy extremities** | 7 | 8.50 |

**Table 3: Distribution of patients according to X-ray Findings.**

| X-ray finding | Frequency (n=82) | % |
|---|---|---|
| **Air fluid level present** | 82 | 100 |
| **Air fluid level absent** | 0 | 0 |
| **Dilated small bowel loops with effacement of volvulae conniventes** | 6 | 7.30 |
| **Dilated small bowel loops with prominent volvulae conniventes** | 10 | 12.19 |
| **Distended colon with air fluid levels** | 12 | 14.63 |
| **Coffee bean sign** | 1 | 1.20 |
| **String on bead appearance** | 12 | 14.63 |

Postoperative complications occurred in 24 patients (29.3%). Septicemia was most common (8.5%), followed by respiratory infections (6.1%), surgical site infections (4.9%), wound dehiscence (4.9%) and anastomotic leak (4.9%). Overall mortality was 8.5% (7 patients), all occurring in surgical group. Hospital stays ranged 9-22 days (mean 12.3). Distribution showed 54.9% stayed 9-12 days, 29.3% stayed 13-14 days, 12.2% stayed 15-17 days and 3.6% required 18-22 days.

**Table 4: Distribution of patients according to USG finding (dilated bowel loops).**

| USG findings | Frequency (n=82) | % |
|---|---|---|
| Distended small bowel loops with marked increased peristalsis | 70 | 85.80 |
| Distended small bowel loops with absent peristalsis | 2 | 2.40 |
| Distended small bowel loops with markedly decreased peristalsis | 10 | 12.19 |
| Distended large bowel loops with marked increased peristalsis | 10 | 12.19 |
| Growth within bowel loop protruding within the lumen or stricture causing luminal compromise | 7 | 8.53 |
| Bowel in bowel appearance | 1 | 1.20 |
| Dilated loops consistent with sigmoid | 1 | 1.20 |
| Herniating bowel loop from abdominal defect with proximal dilatation | 13 | 15.85 |
| Diminished vascularity with bowel wall necrosis or gangrene with absent peristalsis | 3 | 3.65 |

**Table 5: Distribution of patients according to postoperative complication.**

| Postoperative complication | Cases (n=82) | % |
|---|---|---|
| Surgical site infection | 4 | 2.4 |
| Septicemia | 7 | 8.50 |
| Respiratory tract infection | 5 | 6.09 |
| Wound dehiscence | 4 | 2.40 |
| Anastomotic leak | 4 | 2.40 |

**Table 6: Distribution of patients according to intraoperative findings.**

| Finding | Frequency (n=82) | % |
|---|---|---|
| Adhesion | 23 | 35.36 |
| Obstructed hernia | 13 | 15.85 |
| Growth | 7 | 8.50 |
| Gangrenous bowel | 2 | 2.40 |
| Appendicular lump with adhesions | 2 | 2.40 |
| Tb stricture | 4 | 4.70 |
| Volvulus | 1 | 1.20 |
| Tubo ovarian mass with adhesion bands | 1 | 1.20 |
| Congenital hypertrophic pyloric stenosis | 1 | 1.20 |
| Intussusception | 1 | 1.20 |
| Imperforate anus | 1 | 1.20 |
| Meconium ileus | 1 | 1.20 |
| Meckel's diverticulum | 1 | 1.20 |

**Table 7: Association of various variables with outcome.**

| Variable | Category | Deaths | Recovered | Total | P value |
|---|---|---|---|---|---|
| Gender | Male | 5 | 37 | 42 | 0.433 |
| | Female | 2 | 38 | 40 | |
| Distension | Present | 6 | 69 | 75 | 0.029* |
| | Absent | 1 | 6 | 7 | |
| Vomiting | Present | 6 | 6 | 76 | 0.031* |
| | Absent | 1 | 70 | 6 | |
| Obstipation | Present | 7 | 74 | 81 | 0.023* |
| | Absent | 0 | 1 | 1 | |
| Tenderness | Present | 7 | 71 | 78 | 1 |
| | Absent | 0 | 4 | 4 | |
| Guarding & rigidity | Present | 7 | 58 | 65 | 0.335 |

Continued.

| Variable | Category | Deaths | Recovered | Total | P value |
|---|---|---|---|---|---|
| | Absent | 0 | 17 | 17 | |
| **Loss of peripheral pulse** | Present | 7 | 0 | 7 | $2.63\times10^{-10}$* |
| | Absent | 0 | 75 | 75 | |
| **Cold clammy extremities** | Present | 7 | 0 | 7 | $2.63\times10^{-10}$* |
| | Absent | 0 | 75 | 75 | |
| **Management** | Conservative | 3 | 21 | 24 | 0.014* |
| | Surgical | 4 | 54 | 58 | |

*p value<0.05, significant association.

## DISCUSSION

This study demonstrates significant epidemiological shift with adhesions emerging as predominant cause (28%), replacing historically dominant obstructed hernias in developing countries. This transition reflects increased surgical activity, improved access to elective hernia repair and healthcare modernization. The finding aligns with contemporary literature showing adhesions as primary etiology in urban tertiary centers.[16,17]

The substantial obstructed hernia proportion (15.9%) remains significant, indicating persistent preventive healthcare challenges. The relatively high tuberculous stricture incidence (7.3%) reflects regional endemic patterns and ongoing infectious disease burden. Universal presence of abdominal pain and obstipation confirms their diagnostic reliability. High frequency of guarding and rigidity (79.3%) suggests many patients presented with advanced disease, potentially limiting options and contributing to morbidity. Biochemical abnormalities revealed significant dehydration with elevated creatinine levels indicating prerenal azotemia requiring aggressive resuscitation. Electrolyte disturbances were common, emphasizing correction importance for optimal outcomes.[18,19]

Conservative management success rate (29.3%) aligns with literature for adhesive obstruction. High surgical intervention rate (70.7%) may reflect severe presentations or institutional practices. Absence of conservative group mortality suggests appropriate patient selection. Postoperative complication rate (29.3%) represents substantial burden requiring extended care. Septicemia as most serious complication (8.5%) often resulted from perforation or anastomotic complications, reflecting emergency procedure nature and patient comorbidities. Overall mortality (8.5%) falls within contemporary literature ranges but represents significant burden given potentially preventable nature with earlier intervention. Concentration in surgical group highlights higher risk while validating conservative management safety.

Findings have important implications for healthcare planning. Adhesion predominance suggests need for prevention strategies during surgical procedures, including gentle tissue handling and adhesion barriers when available. Persistent hernia burden indicates continued need for preventive programs and improved elective repair access. Substantial morbidity and mortality emphasize specialized surgical services, intensive care capabilities and multidisciplinary team importance. Training programs should ensure adequate preparation for complex case management across healthcare levels.[20,21]

### *Limitations*

Single-center design may limit generalizability to other settings. Modest sample size may have limited statistical power for detecting associations. Long-term follow-up data unavailable for assessing recurrence rates or quality of life outcomes.

## CONCLUSION

This prospective study of 82 patients demonstrates that adhesions have emerged as the predominant cause of acute intestinal obstruction (28%), followed by obstructed hernias (15.9%), representing a significant epidemiological shift in developing countries. This transition reflects increased surgical activity and improved access to elective hernia repair, while persistent hernia-related obstruction indicates ongoing preventive healthcare challenges.

Clinical presentation consistently featured the classical triad of abdominal pain, distension and vomiting. Critically, systemic signs of circulatory compromise particularly peripheral pulse loss and cold extremities proved more predictive of mortality than localized abdominal findings. This underscores intestinal obstruction as a systemic emergency where vascular compromise significantly worsens prognosis. Surgical intervention was required in 70.7% of patients, with overall mortality of 8.5% concentrated exclusively in the surgical group. Conservative management succeeded in 29.3%, validating its role in carefully selected patients without peritoneal signs or systemic compromise.

Early diagnosis, aggressive resuscitation and timely intervention remain critical outcome determinants. Future strategies must focus on adhesion prevention during surgery, improved access to elective hernia repair, enhanced early recognition systems and prompt intervention before systemic deterioration. With these measures, the substantial morbidity and mortality associated with this common surgical emergency can be meaningfully reduced.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Markogiannakis H, Messaris E, Dardamanis D. Acute mechanical bowel obstruction: clinical presentation, etiology, management and outcome. World J Gastroenterol. 2007;13(3):432-7.
2. Hayanga AJ, Bass-Wilkins K, Bulkley GB. Current management of small-bowel obstruction. Adv Surg. 2005;39:1-33.
3. Menzies D, Ellis H. Intestinal obstruction from adhesions-how big is the problem? Ann R Coll Surg Engl. 1990;72(1):60-3.
4. 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):285-7.
5. Malik AM, Shah M, Pathan R, Sufi K. Pattern of acute intestinal obstruction: is there a change in the underlying etiology. Saudi Med J. 2010;31(7):772-6.
6. Zielinski MD, Eiken PW, Heller SF. Prospective, observational validation of a multivariate small-bowel obstruction model to predict the need for operative intervention. J Am Coll Surg. 2011;212(6):1068-76.
7. Fevang BT, Fevang J, Stangeland L. Complications and death after surgical treatment of small bowel obstruction: A 35- year institutional experience. Ann Surg. 2000;231(4):529-37.
8. Jena SK, Sharma NK, Vakil H. Changing patterns of etiology and management of intestinal obstruction over 23 years at a tertiary care center in India. Indian J Surg. 2021;83(1):128-34.
9. Pradeepkumar KS, Rudraswamy AC, Parameshwarappa AK. A clinical study of mechanical intestinal obstruction. Int Surg J. 2017;4(6):1843-8.
10. Soressa U, Mamo A, Hiko D, Fentahun N. Prevalence, causes and management outcome of intestinal obstruction in Adama Hospital, Ethiopia. BMC Surg. 2016;16(1):38.
11. Madziga AG, Nuhu AI. Causes and treatment outcome of mechanical bowel obstruction in north eastern Nigeria. West Afr J Med. 2008;27(2):101-5.
12. Deshmukh SN, Jain SS, Borle N. An observational study of etiology, clinical features and outcome of intestinal obstruction at tertiary care hospital. Int J Res Med Sci. 2017;5(2):500-3.
13. Frago R, Ramirez E, Millan M, Kreisler E, del Valle E, Biondo S. Current management of acute malignant large bowel obstruction: a systematic review. Am J Surg. 2014;207(1):127-38.
14. Shih SC, Jeng KS, Lin SC. Adhesive small bowel obstruction: how long can patients tolerate conservative treatment? World J Gastroenterol. 2003;9(3):603-5.
15. Cappell MS, Batke M. Mechanical obstruction of the small bowel and colon. Med Clin North Am. 2008;92(3):575-97.
16. Maglinte DD, Balthazar EJ, Kelvin FM, Megibow AJ. The role of radiology in the diagnosis of small-bowel obstruction. AJR Am J Roentgenol. 1997;168(5):1171-80.
17. Foster NM, McGory ML, Zingmond DS, Ko CY. Small bowel obstruction: a population-based appraisal. J Am Coll Surg. 2006;203(2):170-6.
18. Di Saverio S, Coccolini F, Galati M. Bologna guidelines for diagnosis and management of adhesive small bowel obstruction. World J Emerg Surg. 2013;8(1):42.
19. Catena F, Di Saverio S, Coccolini F. Adhesive small bowel obstruction: evolutions in diagnosis, management and prevention. World J Gastrointest Surg. 2016;8(3):222-31.
20. Silva AC, Pimenta M, Guimaraes LS. Small bowel obstruction: what to look for. Radiographics. 2009;29(2):423-39.
21. Jancelewicz T, Vu LT, Shawo AE. Predicting strangulated small bowel obstruction: an old problem revisited. J Gastrointest Surg. 2009;13(1):93-9.

**Cite this article as:** Gawali D, Subhedar A, Mujawar P. Etiological patterns, clinical outcomes and management of acute intestinal obstruction: a prospective study from a tertiary care center. Int J Res Med Sci 2026;14:105-11.