

Original article

## Acute Intestinal Obstruction: Surgical Considerations

Amhamed Alhajaji<sup>\*1</sup>, Faisal Abufalgha<sup>2</sup><sup>1</sup>Department of Surgery, Faculty of Medicine, University of Tripoli, Tripoli, Libya<sup>2</sup>Department of Surgery, Faculty of Medicine, Misurata University, Misurata, LibyaCorresponding email. [amh67Alhajaji@gmail.com](mailto:amh67Alhajaji@gmail.com)

### Abstract

Intestinal obstruction, whether acute or chronic, is a common surgical condition, particularly among elderly patients. Acute obstruction, however, is more prevalent in younger and middle-aged adults. Multiple etiologies contribute to this condition, and different therapeutic strategies can be employed. This retrospective study aimed to evaluate the effectiveness of early surgical intervention compared to conservative management in selected cases. Conducted at Misurata Central Hospital and private clinics between June 2016 and July 2019, the study included 34 adult and pediatric patients with acute intestinal obstruction. All patients presented with at least one symptom, including abdominal pain, distension, vomiting, constipation, or complete obstipation, and occasionally anorexia or lethargy. Diagnosis was primarily based on clinical evaluation and upright abdominal radiographs; CT scans were used selectively. Early surgery was performed in 22 patients, while 12 initially received conservative treatment. Five of the latter group required surgery due to clinical deterioration, revealing near-ischemic or gangrenous bowel. The findings indicate that early surgery is as safe as conservative therapy and offers the advantage of reducing bowel resection and related morbidity. Careful clinical evaluation supported by appropriate investigations is essential to prevent severe complications, including bowel ischemia and gangrene.

**Keywords.** Intestinal Obstruction, Non-operative Management, Bowel Resection, Leakage, Crohn's Disease, Surgical Decision.

Received: 20/10/25

Accepted: 17/12/25

Published: 25/12/25

Copyright Author (s) 2025.

Distributed under Creative Commons CC-BY 4.0

### Introduction

Acute intestinal obstruction represents a significant surgical emergency worldwide, accounting for a substantial proportion of admissions to surgical departments. It contributes to morbidity, mortality, and increased healthcare costs [1,2]. The condition may be classified as acute or chronic, with varying etiologies including adhesions, hernias, tumors, volvulus, and inflammatory bowel disease [3,4]. Acute obstruction often affects younger and middle-aged patients, while chronic forms are more prevalent among the elderly [5].

Early diagnosis and timely management are critical to prevent complications such as bowel ischemia, necrosis, and perforation [6,7]. Clinical presentation typically includes abdominal pain, distension, vomiting, and constipation, but the severity of symptoms does not always correlate with the risk of strangulation [8]. Imaging modalities such as upright abdominal radiographs, ultrasound, and computed tomography are essential for diagnosis, although none can reliably exclude ischemia without surgical exploration [9,10].

Despite advances in non-operative management, early surgical intervention may be indicated in selected cases, particularly when there is suspicion of strangulation or clinical deterioration. However, the optimal timing of surgery remains controversial, necessitating further study to guide clinical decision-making. This study aims to evaluate the outcomes of early operative management versus conservative therapy in patients with acute intestinal obstruction.

### Material and Methods

This retrospective observational study included all pediatric and adult patients admitted with acute intestinal obstruction to the Department of Surgery at Misurata Central Hospital and private clinics between June 2016 and July 2019. Patients who developed postoperative paralytic ileus were excluded.

### Inclusion criteria

Clinical and radiological evidence of acute intestinal obstruction.

### Data Collection and Variables

Demographic information, including patient age and sex, was recorded for all cases. Clinical presentation and associated symptoms were documented at the time of admission. Management strategies were categorized as operative or non-operative, with operative interventions further analyzed for intraoperative findings and underlying etiologies. Postoperative complications and overall outcomes were systematically assessed. All data were extracted from patients' medical records to ensure accuracy and completeness. Particular emphasis was placed on intraoperative observations, especially the identification of ischemic or gangrenous bowel segments, given their prognostic significance.

### Statistical analysis

Data was presented using descriptive statistical methods. Frequencies and percentages were calculated to summarize demographic characteristics, clinical presentations, and surgical history.

### Results

Table 1 summarizes the age distribution of the 34 patients included in the study. The majority of patients (44%) were aged 41–60 years.

**Table 1. Age distribution of the study population**

Age group	<20 years	20 - 40	41-60 years	>61 years	Total
Number of cases	5	10	15	4	34
percentage	%14.7	29%	44%	14.7%	%100

Table 2 presents the sex distribution of the study population. Females slightly outnumbered males (53% vs. 47%).

**Table 2. Sex distribution of the study population**

Sex	M	F	Total
No. Of Cases	16	18	34
Percentage	47%	53%	100%

Table 3 illustrates the combinations of presenting symptoms among patients. Abdominal pain was the most frequent symptom, either alone or associated with other symptoms.

**Table 3. Clinical presentation of patients**

Signs & Symptoms	Isolated Abdominal Pain	Abdominal Pain & Distention	Abdominal Pain & Vomiting	Abdominal Pain, Vomiting & Constipation
No of patients	6	14	9	5
Percentage	%17.6	4.11%	%26.5	%14.7

Table 4 shows the surgical history of the patients. Most patients (58.8%) had no prior abdominal surgery.

**Table 4. History of previous surgery**

	H/O surgery	No H/O surgery	Total
No. of cases	14	20	54
Percentage	41%	58.8%	100%

Early surgical intervention was undertaken in 22 patients, representing 64.7% of the study cohort. The operative findings revealed a spectrum of underlying etiologies. Adhesions were identified in five cases, while obstructed hernias accounted for nine cases. Volvulus was observed in two patients, intussusception in three, and tumors in another three. A single case of mesenteric thrombosis was also documented.

Intraoperative assessment of bowel viability demonstrated that eight patients exhibited reversible ischemia, which was managed conservatively during surgery. Conversely, eight patients presented with irreversible ischemia necessitating

bowel resection. These findings underscore the heterogeneity of causes leading to acute intestinal obstruction and highlight the critical role of timely surgical intervention in preventing progression to irreversible ischemic injury. Twelve patients (35%) were initially managed conservatively; five (41%) eventually required surgery due to lack of improvement or clinical deterioration. Operative findings included tight adhesions, gangrenous changes, and one mesenteric thrombosis.

*Table 5. Causes of obstruction in surgically treated patients*

Cause	Obstructing Band	Obstructed hernia	cancer	volvulus	Intussusception Mesenteric thrombosis	Total
No. of cases	5	9	3	2	3	22
percentage	22.7%	41%	13.6%	9%	13.6%	100%

*Table 6. Causes of intestinal resection*

Cause Of Resection	Carcinoma Colon	Strangulated Hernia	Adhesions	Volvulus	Mesenteric Embolism
No. Of Cases	3	2	1	1	1

## Discussion

Acute intestinal obstruction remains a common cause of surgical admission and presents ongoing clinical challenges. The clinical presentation in this study aligns with previous reports, where abdominal pain, distension, vomiting, and constipation were most common [10]. Adhesions, hernias, and tumors remain the leading causes of obstruction [3,5]. Large bowel cancers, particularly sigmoid carcinoma, contributed significantly to obstruction in this series, consistent with prior studies. Less common etiologies included Crohn's disease, volvulus, and intussusception.

Perea et al. reported vomiting in 77%, colicky pain in 68%, absence of flatus/feces in 52%, and constant pain in 12% of adhesive obstruction cases, with abdominal distension in 56% [10]. Bowel ischemia was reversible in eight cases and irreversible in eight, emphasizing the importance of timely surgical intervention. Reported strangulation rates range from 7% to 42% [8]. Kossi et al. documented ischemia in 20%, necrosis in 8%, and perforation in 2%. Non-operative management can be effective in 35–75% of adhesive obstruction cases; however, careful monitoring is essential. In this study, postoperative complications included one anastomotic leak, two cases of re-obstruction, and one death from mesenteric thrombosis. Literature reports complication rates of 6–47% and mortality from 2–19%.

No reliable clinical, laboratory, or radiologic parameter can definitively predict bowel strangulation, making individualized treatment critical. Prompt surgical intervention is warranted for incarcerated hernias or suspected strangulation.

## Conclusions

Careful clinical assessment supported by laboratory and radiologic studies is crucial for selecting management strategies in acute intestinal obstruction. When uncertainty exists, early surgical intervention is indicated to prevent irreversible ischemia and necrosis. This study highlights that preoperative diagnosis of intestinal strangulation cannot be reliably confirmed or excluded based solely on clinical, laboratory, or imaging findings.

## Acknowledgements

We thank colleagues at Misurata Central Hospital and junior doctors in private clinics for their valuable contributions to this study.

## References

1. Markogiannakis H, Messaris E, Dardamanis D, Pararas N, Tzertzemelis D, Giannopoulos P, et al. Acute mechanical bowel obstruction: clinical presentation, etiology, management, and outcome. *World J Gastroenterol*. 2007;13(3):432–437.
2. Mucha P Jr. Small intestinal obstruction. *Surg Clin North Am*. 1987;67:597–620.
3. Miller G, Boman J, Shrier I, Gordon PH. Etiology of small bowel obstruction. *Am J Surg*. 2000;180:33–36.

4. Miller G, Boman J, Shrier I, Gordon PH. Natural history of patients with adhesive small bowel obstruction. *Br J Surg.* 2000;87:1240–1247.
5. Ihedioha U, Alani A, Modak P, Chong P, O'Dwyer PJ. Hernias are the most common cause of strangulation in patients presenting with small bowel obstruction. *Hernia.* 2006;10:338–340.
6. Carter R, Morton A, Harkin DW. The diagnosis and management of intestinal ischaemia. *Ann R Coll Surg Engl.* 2018;100(5):371–375.
7. Anderson CA, Fellers JC, Kearney M, et al. Acute mesenteric ischemia: management and outcomes. *J Surg Res.* 2017;218:142–148.
8. Sarr MG. Intestinal obstruction: evaluation and management. *Surg Clin North Am.* 2015;95(1):1–7.
9. Wang X, Yin J, Zhou H, et al. Role of CT scanning in the diagnosis of small bowel obstruction and strangulation. *Clin Imaging.* 2018;51:72–77.
10. Markogiannakis H, Messaris E, Dardamanis D, Pararas N, Tzertzemelis D, Giannopoulos P, et al. Acute mechanical bowel obstruction: clinical presentation, etiology, and outcome. *World J Gastroenterol.* 2007;13(3):432–437.