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Original Research Article

A Study of Clinico-Epidemiological Profile, Management and Outcome of Acute Intestinal Obstruction in a Tertiary Care Hospital

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Abstract

Introduction: Acute intestinal obstruction (AIO) is a common surgical emergency characterized by the partial or complete blockage of the intestines, leading to impaired passage of intestinal contents and significant morbidity if not promptly managed.

Aims: Acute intestinal obstruction is a common surgical emergency requiring prompt diagnosis, perioperative management, and surgical skill to achieve favorable outcomes. This study aimed to evaluate the causes, clinic-epidemiological features, and severity indicators of intestinal obstruction, as well as to assess patient outcomes following conservative and surgical management.

Materials & Methods: This was a prospective clinical study conducted at Midnapore Medical College and Hospital, Midnapore, from 1st April 2021 to 1st October 2022. The study included a total of 100 patients diagnosed with acute intestinal obstruction.

Result: The most frequent diagnosis was obstructed hernia in 35 patients (35%), followed by adhesions in 18 patients (18%), sigmoid volvulus in 12 patients (12%), growths in 14 patients (14%), ileal strictures/TB in 8 patients (8%), intussusception in 6 patients (6%), small gut gangrene in 3 patients (3%), and other causes in 4 patients (4%) ($p < 0.00001$). In our study, postoperative complications were observed in a minority of patients, with 64 patients (64%) experiencing no complications. Wound infection occurred in 20 patients (20%), wound gaping in 10 patients (10%), and death was reported in 6 patients (6%)it was highly statistically significant ($p < 0.0001$).

Conclusion: We conclude that, the most common diagnosis was obstructed hernia, followed by adhesions, sigmoid volvulus, neoplastic growths, ileal strictures/TB, intussusception, small gut gangrene, and other less frequent causes. Postoperative complications were relatively uncommon, with the majority of patients experiencing an uneventful recovery. The most frequently observed complications included wound infection, wound dehiscence, and mortality. Overall, the outcomes suggest that while surgical intervention carries inherent risks, most patients recover without significant postoperative complications.

Keywords: Acute intestinal obstruction, Hernia, Adhesions, Bowel obstruction and Wound infection.

Introduction

Acute intestinal obstruction (AIO) is a common surgical emergency characterized by the partial or complete blockage of the intestines, leading to impaired passage of intestinal contents and significant morbidity if not promptly managed. It affects patients across all age groups, with a higher incidence in males and peak occurrence between 20 and 60 years [1]. The etiology is multifactorial, with obstructed hernias, postoperative adhesions, volvulus, tumors, and strictures being the most frequent causes [2,3]. Clinically, patients present with abdominal pain, vomiting, distension, and obstipation, while examination may reveal high-pitched bowel sounds, tenderness, and visible peristalsis [3]. Management involves early resuscitation, conservative measures, and timely surgical intervention based on the underlying cause, with outcomes dependent on prompt diagnosis and perioperative care [4]. Understanding the clinic-epidemiological profile, management strategies, and outcomes of AIO is essential for optimizing patient care and reducing associated morbidity and mortality. Whether brought on by hernia, tumour, adhesions, or biochemical changes, intestinal

obstruction of either the small or large bowel continues to be a major cause of morbidity and mortality. It is one of the most frequent intra-abdominal issues encountered by general surgeons in their practise. They represent 12% to 16% of admissions for surgery for sudden abdominal pain. Acute intestinal obstruction symptoms might range from a very normal appearance with only little abdominal pain and distension to a condition of hypovolemic or septic shock (or both) necessitating an emergency procedure. The number of fatalities brought on by acute intestinal obstruction is declining as pathophysiology is better understood. Improvements in diagnostic methods, hydration and electrolyte management, very effective antimicrobials, and critical care skills.

The majority of fatalities involve elderly patients who seek therapy too late and have co-occurring conditions including diabetes mellitus, heart disease, or pulmonary disease. Early detection of obstruction, expert surgical management, correct technique during surgery, and thorough postoperative care all yield positive results. Study aims acute intestinal obstruction is a common surgical emergency requiring prompt diagnosis, perioperative management, and surgical skill to achieve favourable outcomes. This study aimed to evaluate the causes, clinic-epidemiological features, and severity indicators of intestinal obstruction, as well as to assess patient outcomes following conservative and surgical management.

Materials and Methods

Type of Study: Prospective Clinical Study

Place of Study: Midnapore Medical College and Hospital, Midnapore

Study Duration

1st April 2021 to 1st October 2022

Sample Size: 100 Acute Intestinal Patients

Inclusion criteria

- Patients of all ages and both sexes presenting with features suggestive of acute intestinal obstruction.
- Patients diagnosed with intestinal obstruction based on clinical evaluation, radiological imaging, or both.
- Patients admitted to the tertiary care hospital for surgical management of intestinal obstruction.
- Patients who provided informed consent for participation in the study.
- Patients undergoing either emergency or elective surgery for confirmed causes of intestinal obstruction.

Exclusion criteria

- Patients with chronic or partial intestinal obstruction without acute presentation.
- Patients managed entirely on an outpatient basis without hospital admission.
- Patients with severe comorbidities and only managed conservatively.
- Patients who refused to give informed consent for participation in the study.
- Patients with incomplete clinical or radiological records preventing proper evaluation.

Study variables

- Age
- Sex
- Presenting symptoms
- Clinical signs
- Causes of obstruction

Statistical analysis

Data were entered into excel and analyzed using SPSS and graphpad prism. Numerical variables were summarized using means and standard deviations, while categorical variables were described with counts and percentages.

Two-sample t-tests were used to compare independent groups, while paired t-tests accounted for correlations in paired data. Chi-square tests (including fisher's exact test for small sample sizes) were used for categorical data comparisons. P-values ≤ 0.05 were considered statistically significant.

Result

Table 1: Distribution of Age group

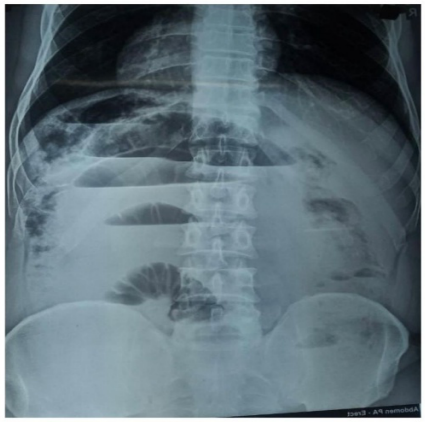
Age Group	Number of Patients	Percentage (%)	p- value
10–19	4	4%	.0005
20–29	13	13%	
30–39	17	17%	
40–49	15	15%	
50–59	20	20%	
60–69	17	17%	
70–79	14	14%	

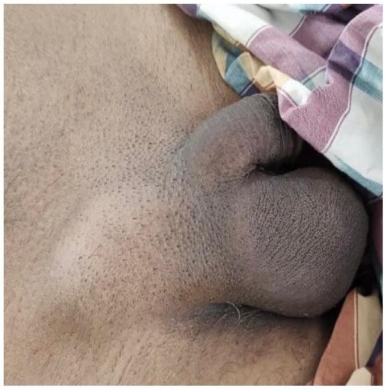
Table 2: Distribution of Sex-wise distribution of Patients

Sex	Number of Patients	Percentage (%)	p- value
Male	68	68%	< .0001
Female	32	32%	

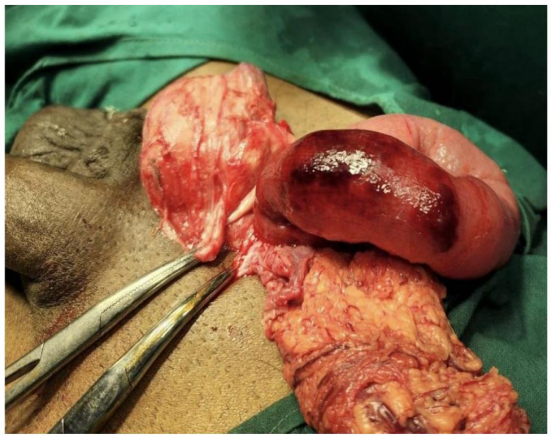
Table 3: Distribution of Clinical Symptoms, Signs, Disease Spectrum

		Number of Patients	Percentage (%)	p- value
Clinical Symptoms	Abdominal Pain	100	100%	< .00001
	Vomiting	81	81%	
	Distension	67	67%	
	Obstipation	52	52%	
Clinical Signs	Bowel Sounds	79	79%	< .00001
	Ballooning on DRE	53	53%	
	Visible Peristalsis	10	10%	
Diagnosis	Obstructed Hernia	35	35%	< .00001.
	Adhesion	18	18%	
	Sigmoid Volvulus	12	12%	
	Growth	14	14%	
	Ileal Strictures / TB	8	8%	
	Intussusception	6	6%	
	Small Gut Gangrene	3	3%	
	Others	4	4%	
Type of Hernia	Inguinal	29	82.80%	< .00001
	Incisional	3	8.60%	
	Femoral	2	5.70%	
	Epigastria	1	2.90%	





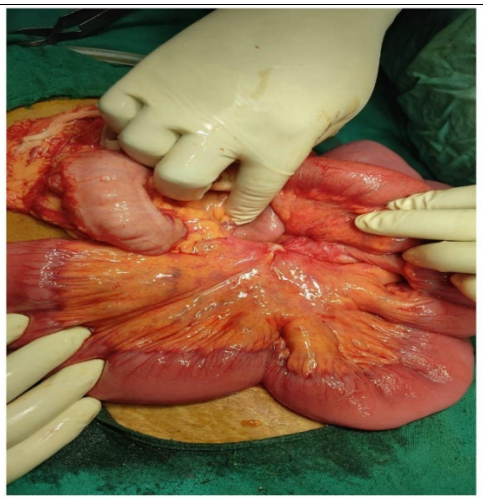
Right sided obstructed inguinal hernia



Right sided obstructed inguinal hernia (intra op)

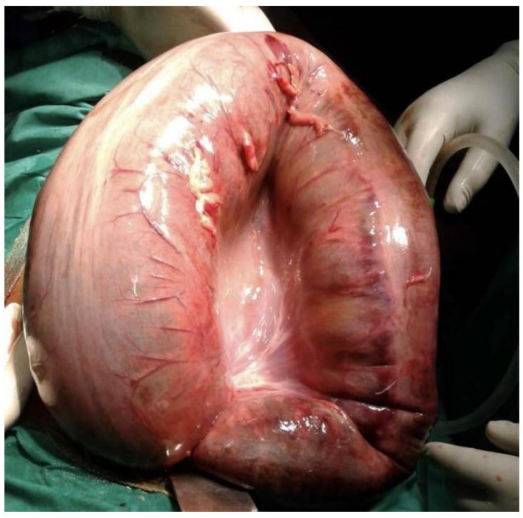
Strangulated incisional hernia

Strangulated incisional hernia (intra op)



Intestinal obstruction due to band adhesion

Coffee bean sign



Sigmoid volvulus(intra op)

Table 4: Distribution of Management

Treatment	Number of Cases	Percentage (%)	p- value
Reduction and Hernia Repair	30	30%	< .00001
Adhesiolysis	17	17%	
Resection and Anastomosis	13	13%	
Sigmoidectomy	11	11%	
Right Hemicolectomy	5	5%	
Hartman Procedure	4	4%	
Ileostomy	4	4%	
Double Barrel Ileostomy	3	3%	
Others	13	13%	

Table 5: Distribution of Complications

Complication	Number of Patients	Percentage (%)	p- value
No Complications	64	64%	< .0001
Wound Infection	20	20%	
Wound Gaping	10	10%	
Death	6	6%	

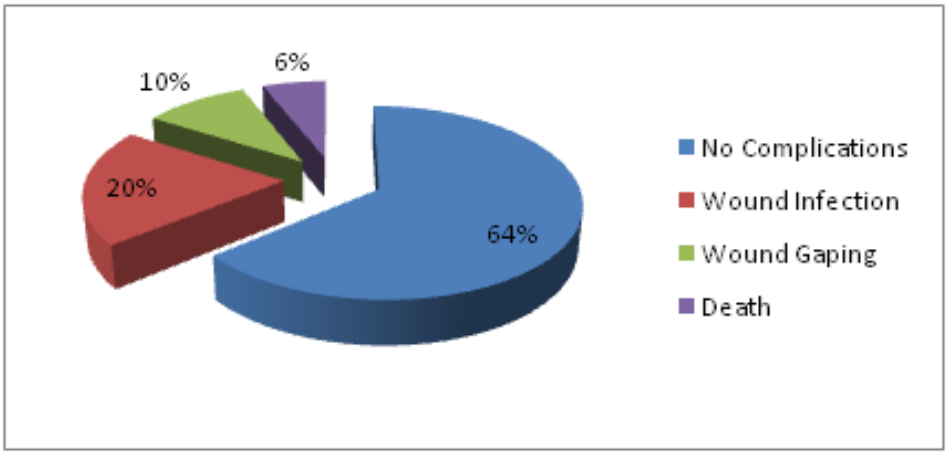


Figure 1: Distribution of Complications

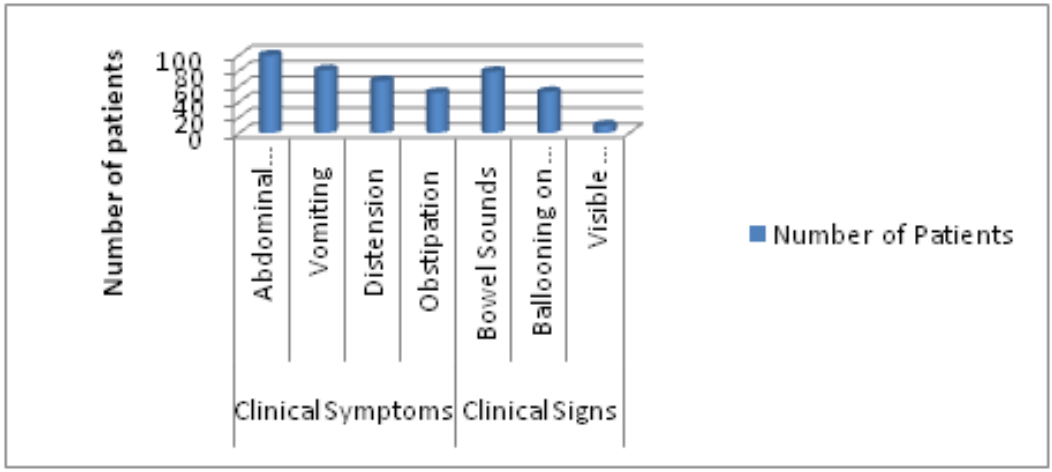


Figure 2: Distribution of: Clinical Symptoms and Signs

In our study, the age distribution of patients showed that the majority were in the 50–59 years group, with 20 patients (20%), followed by 17 patients (17%) each in the 30–39 and 60–69 years age groups. Fifteen patients (15%) were aged 40–49 years, 14 patients (14%) were in the 70–79 years group, 13 patients (13%) were 20–29 years, and the least number of patients, 4 (4%), were in the 10–19 years group. The age distribution was statistically significant ($p = 0.0005$). In our study, the majority of patients were male, with 68 patients (68%), while females accounted for 32 patients (32%). This difference in sex distribution was highly statistically significant ($p < 0.0001$). In our study, the most common clinical symptom was abdominal pain, present in all 100 patients (100%), followed by vomiting in 81 patients (81%), abdominal distension in 67 patients (67%), and obstipation in 52 patients (52%) ($p < 0.00001$). Clinical signs included bowel sounds in 79 patients (79%), ballooning on digital rectal examination in 53 patients (53%), and visible peristalsis in 10 patients (10%) ($p < 0.00001$). The most frequent diagnosis was obstructed hernia in 35 patients (35%), followed by adhesions in 18 patients (18%), sigmoid volvulus in 12 patients (12%), growths in 14 patients (14%), ileal strictures/TB in 8 patients (8%), intussusception in 6 patients (6%), small gut gangrene in 3 patients (3%), and other causes in 4 patients (4%) ($p < 0.00001$). Among types of hernia, inguinal hernia was predominant in 29 patients (82.8%), followed by incisional hernia in 3 patients (8.6%), femoral hernia in 2 patients (5.7%), and epigastria hernia in 1 patient (2.9%) it was highly statistically significant ($p < 0.0001$). In our study, the most common treatment was reduction and hernia repair, performed in 30 patients (30%), followed by adhesiolysis in 17 patients (17%), resection and anastomosis in 13 patients (13%), sigmoidectomy in 11 patients (11%), right hemicolectomy in 5 patients (5%), Hartman procedure in 4 patients (4%), ileostomy in 4 patients (4%), double barrel ileostomy in 3 patients (3%), and other procedures in 13 patients (13%) it was highly statistically significant ($p < 0.0001$). In our study, postoperative complications were observed in a minority of patients, with 64 patients (64%) experiencing no complications. Wound infection occurred in 20 patients (20%), wound gaping in 10 patients (10%), and death was reported in 6 patients (6%)it was highly statistically significant ($p < 0.0001$).

Discussion

We found that in our study, the most common age group among patients was 50–59 years, comprising 20 individuals (20.0%), a finding that was statistically significant ($p < 0.0001$). In similar study byZhang J et al. observed a continuous increase in the incidence of inguinal, femoral, and abdominal hernias among older adults from 1990 to 2021, with a notable rise in cases among those aged 60 and above [5].

We found that in our study, the male population was higher, with 68 patients (68.0%) compared to 32 females (32.0%), in a male-to-female ratio of 2.1:1; however, this difference was statistically significant ($p < 0.0001$). In other study by Zarokosta M et al., where 280 males (68.6%) and 128 females (31.4%) were reported in a cohort of 408 patients undergoing inguinal hernia repair [6].

We found that abdominal pain was the universal presenting symptom in all 100 patients (100%), followed by vomiting in 81 patients (81%), abdominal distension in 67 patients (67%), and obstipation in 52 patients (52%), highlighting their importance in identifying intestinal obstruction. Clinical signs such as bowel sounds were present in 79 patients (79%), ballooning on digital rectal examination in 53 patients (53%), and visible peristalsis in 10 patients (10%), supporting the clinical diagnosis. Obstructed hernia was the most frequent diagnosis in 35 patients (35%), followed by adhesions in 18 patients (18%), growths in 14 patients (14%), sigmoid volvulus in 12 patients (12%), ileal strictures/TB in 8 patients (8%), intussusception in 6 patients (6%), small gut gangrene in 3 patients (3%), and other causes in 4 patients (4%). Among hernia types, inguinal hernia predominated in 29 patients (82.8%), followed by incisional hernia in 3 patients (8.6%), femoral hernia in 2 patients (5.7%), and epigastric hernia in 1 patient (2.9%). These findings were highly statistically significant ($p < 0.0001$).In similar study by Bajracharya S et al. observed that abdominal pain (93%), vomiting (74%), and abdominal distension (65%) were the most common presenting symptoms in patients with intestinal obstruction, which aligns with our findings.[7] We observed that the most common treatment in our study was reduction and hernia repair, performed in 30 patients (30%), followed by adhesiolysis in 17 patients (17%), resection and anastomosis in 13 patients (13%), and sigmoidectomy in 11 patients (11%). Less frequently performed procedures included right hemicolectomy in 5 patients (5%), Hartman procedure in 4 patients (4%), ileostomy in 4 patients (4%), and double barrel ileostomy in 3 patients (3%), while other procedures accounted for 13 patients (13%). These treatment patterns were highly statistically significant ($p < 0.0001$). In similar study by 3. Bajracharya S et al.observed that hernia repair was the most frequently performed procedure (28%), followed by adhesiolysis (20%) and resection with anastomosis (15%) among patients with intestinal obstruction [7]. We found that the majority of patients, 64 (64%), experienced no postoperative complications. Wound infection occurred in 20 patients (20%), wound gaping in 10 patients (10%), and death was reported in 6 patients (6%). These outcomes were highly statistically significant ($p < 0.0001$). In similar study by Le ST, et al. (2025) highlighted postoperative complication rates in intestinal obstruction surgery [8]

Conclusion

We concluded that, acute intestine blockage is still a major surgical emergency that primarily affects patients between the ages of 50 and 59, with a small male preponderance. The most common presenting symptom was abdominal discomfort, which was often accompanied by vomiting, distension, and constipation. The diagnosis was made easier by clinical examination results including bowel sounds and ballooning on digital rectal examination. Adhesions and obstructed hernias were the main causes, with inguinal hernias being the most common form. The most frequent surgical techniques were reduction and hernia repair, with adhesiolysis and resection added where necessary. Although wound infection, wound gaping, and mortality happened in a small percentage of patients, the majority experienced an uneventful postoperative course. In order to maximize results for patients with intestinal obstruction, these data highlight the significance of early detection, prompt surgical intervention, and careful perioperative care.

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