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Original Research Article

# A Clinical Study of Management of Acute Intestinal Obstruction in Adults and its Surgical Outcome

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**Abstract**

**Objectives:** Bowel blockage in patients continues to be one of the trickiest and frustrating issues that surgeons deal with today. The saying "never let the sun rise or set on a bowel obstruction" still holds true, however there has been a shift toward judicious non-operative therapy of this issue. The goals and objectives were to investigate the numerous intestinal obstruction causes and modalities of presentation and to assess the significance of various obstruction severity indicators with early recognition, diagnosis, and therefore timely abdominal exploration.

**Methodology:** A two-year prospective study was carried out at PIMS, Udaipur, Rajasthan, India. Each patient with intestinal blockage underwent evaluation using particular severity indicators, scoring, and analysis.

**Results:** Adhesions were the most frequent factor in 33.33% of cases of intestinal blockage in adults in this study series. 7 (11.67%) mesenteric ischaemia, 5 (8.33%) Koch's abdomen, 5 (8.33%) sigmoid volvulus, and 5 (8.33%) cancer were the other causes. In 45.7% of instances, resection anastomosis was the most often used method, followed by adhesiolysis in 14% of patients. Patients with a score of less than 3 were handled conservatively in 66.66% of cases, while 95.83% of patients with a score of 3 or above underwent surgery. Patients are evaluated in an effort to establish whether surgery is necessary and when to perform it, in addition to confirming the diagnosis. The time of surgery can be improved and mortality can be avoided by using specific severity indicators and rating systems.

**Keywords:** Acute intestinal obstruction, Bowel blockage, general surgery, Intestinal blockage.



## Introduction

Bowel blockage continues to be one of the most typical intra-abdominal issues general surgeons see in their practice. Intestinal blockage may be a factor in 12% to 16% of urgent abdominal situations. Intestinal obstruction of either the small or large bowel continues to be a leading source of morbidity and mortality due to its numerous etiologies. The causes of bowel blockage have varied, with volvulus accounting for 5% of cases, cancer for 5%, strangulated hernia for 20%, and adhesions for 60% of small intestinal

obstructions. The clinical issue of small bowel obstruction (SBO) is complicated and more prevalent [1-5].

The lesions that cause large bowel obstruction (LBO) typically develop in the sigmoid or rectosigmoid region and are most frequently caused by colorectal cancers. With a greater understanding of pathophysiology, advancements in diagnostic procedures, hydration and electrolyte correction, more potent anti-microbials, and expertise in critical care, the death rate from acute intestinal blockage is declining. Surgery that uses a stepwise approach may result in better results. Intestinal blockage is treated in a variety of ways, and over the past 200 years, it has seen significant modification. Early detection of obstruction, expert surgical management, correct technique during surgery, and thorough postoperative care all yield positive results [6-10].

## Methodology

This study used a 60-person sample size. The stratified random approach was used for the sampling. All patients over the age of 18 who were admitted to surgical wards with an initial diagnosis of intestinal blockage were included in the study cohort. The patient's and the relative's necessary consent was obtained. It was done to catheterize Foley and Ryle. The current study was a cross-sectional, prospective, observational investigation.

### Inclusion standards

All patients with symptoms and signs of AIO who were admitted to the general surgery department were included in the study.

### Exclusion standards

Pediatric and adynamic IO cases were excluded.

All patients with a tentative diagnosis of acute intestinal obstruction were clinically assessed after arrival. All patients underwent the requisite diagnostic and biochemical tests at the time of admission. To analyse the data, appropriate statistical parameters will be employed. The appropriate surgical procedure was used. Age, sex, symptoms, warning signals, potential contributing factors, clinical results, employed operating technique, and postoperative complications were all recorded. Data analysis was done using Microsoft excel 7.0. Percentage, Mean standard deviation, student “t” test were caculated.

## Results

50 patients above the age of 18 were enrolled in the current investigation.

**Table 1: Distribution of patients according to age and sex in Acute intestinal Obstruction.**

| Age Group | Female (N=15) | | Male (N= 35) | |
|---|---|---|---|---|
| | Number | Percentage (%) | Number | Percentage (%) |
| <20 years | 2 | 13 | 2 | 6 |
| 21-30 years | 5 | 33 | 4 | 11 |
| 31-40 years | 2 | 13 | 8 | 22 |
| 41-50 years | 3 | 21 | 9 | 26 |
| 51-60 years | 2 | 13 | 9 | 26 |
| >61 years | 1 | 7 | 3 | 9 |
| Total | 15 | 100 | 35 | 100 |

In this study, 60 patients with AIO were included. The majority of patients were in the age group 41-60 years (26 %), followed by 31-40 years (22 %) (Table 1).

The distribution of patients in the current study by sex is shown in Table 1. The majority of the study's patients, or 35 (70%), were men. Females, or 15 (30%), made up the remaining population.

**Table 2: Table 2: Management of Acute intestinal Obstruction(AIO)**

| S. No. | Management of AIO | Number | Percentage (%) |
|---|---|---|---|
| 1 | Release of adhesions | 16 | 32 |
| 2 | Resection & anastomosis | 8 | 16 |
| 3 | HP | 11 | 22 |
| 4 | RA & HR | 3 | 6 |
| 5 | Hemicolectomy | 11 | 22 |
| 6 | Hartmann's procedure | 1 | 2 |
| 7 | Diversion stoma | - | 0 |

The most common surgical procedure was adhesiolysis and the next common procedure was hemicolectomy followed by hernioplasty (Table 2).

**Table 3: Site of Obstruction**

| Site of Obstruction | Number | Percentage (%) |
|---|---|---|
| Small intestine | 38 | 76 |
| Large intestine | 12 | 24 |

Out of the total 50 patients, 12 patients had an obstruction in the large intestine and 38 patients had an obstruction in the small intestine (Table 3).

**Table 4: Signs and symptoms in Acute intestinal Obstruction (AIO)**

| Signs & symptoms | Number | Percentage (%) |
|---|---|---|
| Pain abdomen | 48 | 96 |
| Vomiting | 32 | 64 |
| Distention | 34 | 68 |
| Constipation | 36 | 72 |
| Tenderness | 3 | 6 |

The patients' varied intestinal obstruction-related symptoms are listed in Table 4 for reference. Distension was a prevalent symptom for 34 (68 %) of the patients, along with vomiting in 32 (64%) and constipation in 36 (72 %) cases. 48 patients (96%) reported having relevant complaints of stomach pain that had lasted longer than four days. Pain in the abdomen was the commonest symptom in acute intestinal obstruction (Table 4)

**Table 5: Etiology of Acute intestinal obstruction**

| Etiology of AIO | Number | Percentage (%) |
|---|---|---|
| Post-operative Adhesion | 20 | 40 |
| Obstructed hernia | 10 | 20 |
| Malignancy | 9 | 18 |
| TB structure of ileum | 5 | 10 |
| Volvulus | 2 | 4 |
| Instusseption | 2 | 4 |
| Meckel's diverticulum | 1 | 2 |
| Mesenteric ischemia | 1 | 2 |
| Total | 50 | 100 |

The distribution of patients in Table 5 is shown in relation to the various intestinal obstruction causes. Post operated adhesions were the cause of 20 (40%) of the cases. Obstructed hernia 20%,

Malignancy 18% and Other causes were TB (10%), Instusseption (4%), volvulus (4%), and mesenteric ischemia (2%).

**Table 6: prevalence of mortality and morbidity**

| Prevalence of | YES | | NO | |
|---|---|---|---|---|
| | Number | Percentage (%) | Number | Percentage (%) |
| Mortality | 2 | 5 | 48 | 95 |
| Morbidity | 10 | 20 | 40 | 80 |

In the study, the morbidity rate was 20% and the mortality rate was 2% (Table 6).

## Discussion

Intestinal Obstruction is a significant cause of morbidity, monetary loss, and admissions to emergency surgery departments in hospitals all around the world. IO has been discovered to occur in all age groups and has a diverse aetiology. In the past 200 years, there have been many advancements in the treatment of intestinal blockage. A successful outcome is influenced by early diagnosis of obstruction, expert surgical management, appropriate technique during surgery, and intensive postoperative care. The goal of this study was to assess the many IO causes and manifestations and to determine the prevalence of different severity indicators that would provide an early prediction and a more effective therapeutic approach [11-13].

People over 61 were shown to be the most at risk for IO, with people over 40 being at the next level of risk. In a study conducted by Shivakumar *et al*, who observed an increased occurrence in adults >60 years of age, a similar greater incidence of IO in the likely age range was recorded. In a research by Gayathri *et al*., patients over 50 years old had the highest incidence of IO. Additionally, Thampi *et al*. reported that IO existed in all groups, with persons over 50 being the group most likely to experience it [1,3,14].

This study found that men were more likely than women to experience IO, with a prevalence of 68.3%, while women made up just 31.7% of the patient population. Numerous researchers also noted an IO incidence that was probably predominately male. In their examination of 50 cases, Shivakumar *et al*. clearly showed that males outnumbered females in terms of the incidence of IO. 33 male patients (66%) and 17 female patients (34%), both with IO, were described in their study. In their investigation, the male to female ratio was 1.95:1. Additionally, Nasiruddin *et al*. observed that the prevalence of IO in men peaked at 66.5 percent [1,5].

Tiwari and others also found recorded that IO was occur predominantly in males (65%) compared to females (35%) [13].

In our patients, abdominal pain was shown to be the most frequent IO symptom, occurring in 91.7% of cases, followed by vomiting (18.3%), distension, constipation, and soreness in that order. An earlier study found that stomach pain was one of the more frequent symptoms. Abdominal distension, on the other hand, was discovered to be the second most frequent symptom. However, the occurrence of stomach discomfort, vomiting, distension, constipation, and tenderness were accounted for, as were the more prevalent symptoms. Similar to our analysis, another study identified abdominal discomfort as the most typical symptom, with vomiting coming in at number two. But in their investigation, Tiwari *et al*. discovered that the most common symptom was the peak incidence of abdominal distension [1,5,13,14].

The small intestine was more frequently the site of obstruction than the big intestine. Shivakumar *et al*. showed a comparable rise in the incidence of small intestinal obstruction. Sharma *et al*. also noted an increase in small intestine blockage, which had a larger incidence rate (76%) than large intestine obstruction (24%). Furthermore, it was found that the prevalence of major bowel obstruction rose with advancing age and peaked at about 60. Another study among IO patients similarly indicated that there were more cases of small intestinal obstruction [1,15].

Postoperative adhesions are the most common cause of IO when the causes are analysed. The next more common cause was cancer and an obstructed hernia. The most frequent cause of IO, according to Shivakumar *et al*., was surgical adhesion, followed by hernia obstruction. Postoperative adhesion was listed by Thampi *et al*. as the primary cause of IO. According to Malik *et al* prospective descriptive analysis, postoperative adhesions were the main cause of cases, followed by abdominal TB and various types of obstructed/strangulated hernias. As a result, there has been a noticeable change in the aetiology of AIO, with abdominal TB and surgical adhesions now being more frequently found than blocked inguinal hernias. It was also suggested that a shift in the inclination toward early surgery before the situation becomes troublesome is indicated by rises in adhesive obstruction and a corresponding decline in the prevalence of obstructed hernias. Abdominal tuberculosis was increasingly a factor in AIOs [1,16,17].

Fibrous bands that span two or more intra-abdominal organs and/or the inner abdominal wall, abdominal adhesions arise following abdominal surgery. Adhesions may develop as a result of inflammatory conditions in the abdomen even in the absence of prior abdominal surgery or as a result of abdominopelvic radiotherapy. A clinically significant portion of people with intra-abdominal adhesions will experience adhesive disease, an asymptomatic condition that can vary from mild and ambiguous to severely unpleasant and even life-threatening [18].

Adhesion release was the most popular treatment for treating IO, followed by hemicolectomy and hernioplasty (HP). Eleven of 13 patients with an occluded hernia underwent surgery with HP. According to the previous study, laparotomy with adhesion removal was the most common treatment for IO, followed by laparotomy with resection and anastomosis. Hemicolectomy was utilised to treat colon cancer patients. HP was also carried out. The other two cases of strangulated hernias were treated with resection, anastomosis, and herniorrhaphy. According to a presumably earlier study by Kishore kumar, the most common surgical technique was hernia reduction and repair, which included inguinal, femoral, incisional, and para umbilical hernia surgeries. The second most frequent procedure was adhesiolysis, which was then followed by resection and anastomosis/colostomy [1,19,20].

In our investigation, a morbidity rate as low as 28.3% was noted. According to earlier studies, operative site infection followed by septicemia was the more common reason for IO morbidity. In addition to wound dehiscence, respiratory infections and anastomotic leaks were recognised as sources of IO morbidities. Anastomotic leak and septicaemia rank as the most common causes of the morbidities indicated above. Additionally, it was claimed that presentation timing affected morbidity rates. Higher incidence of morbidities are found when IO patients appear at later dates. In a study conducted by Sharma *et al*., it was also found that patients with a bad prognosis were more likely to arrive at the hospital late [1,15].

Additionally, the death rate (6.7%) was reported in lower figures. The death rate was similar to that which had been observed in other research [21,22].

The length of a hospital stay also affected the mortality and morbidity rates related to IO.

The disparity in IO results might be explained by patients' prolonged hospital stays as a result of their ignorance of the seriousness and repercussions of the issue. The lower fatality rate in our study may be due to early obstruction removal before problems develop and adequate preoperative resuscitation, both of which are expected to lower mortality [16].

## Conclusion

The most frequent causes of acute intestinal blockage are adhesions and blocked hernias. The length of the patient's sickness prior to surgery, the length of their hospital stay following surgery, and any comorbidities were all significant determinants of the surgical treatment outcome for intestinal blockage. Early diagnosis, adequate preoperative hydration, quick diagnostics, and early operational intervention have all been shown to increase survival in patients with intestinal blockage.

**Ethical approval:** The study was approved by the Institutional Ethics Committee

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