

# A Clinical Study on Acute Intestinal Obstruction

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## Abstract

**Introduction:** Intestinal obstruction is one of the common acute abdominal emergencies in surgical practice. Early recognition and prompt intervention can prevent irreversible ischemia and thereby decrease the mortality and long-term morbidity. The most common causes of intestinal obstruction are post-operative adhesions and hernias.

**Aims and Objectives:** To study the incidence and various etiology of intestinal obstruction, the various modes of presentation, the importance of early diagnosis and management, the role of imaging studies in determining the site and etiology and the mortality rate and the morbidity rate in acute intestinal obstruction.

**Materials and Methods:** This study was conducted at Government Tirunelveli Medical College and Hospital. It is a descriptive study that included 100 patients who were diagnosed to have acute intestinal obstruction based on clinical, biochemical, and radiological features. The patients who are managed conservatively without surgical intervention are excluded.

**Results:** Among the total number of patients admitted with acute intestinal obstruction large intestine obstruction was found in 17 cases and small intestine obstruction was found in 83 cases. Obstructed inguinal hernia was the most common cause of acute intestinal obstruction.

**Conclusion:** Acute intestinal obstruction remains to be one of the common surgical emergencies. Males are commonly affected mostly during their fifth decade. Obstructed/strangulated inguinal hernia remains to be the most common cause followed by adhesions. They usually present with abdominal pain with multiple air-fluid levels in their X-ray abdomen erect view. Earlier diagnosis and timely intervention are associated with excellent prognosis.

**Key words:** Adhesions, Obstructed hernia, Ostomy, Resection and anastomosis, Volvulus

## INTRODUCTION

Intestinal obstruction is one of the common acute abdominal emergencies that accounts for 20% all admissions in surgical practice.<sup>1</sup> Early recognition and prompt intervention can prevent irreversible ischemia and thereby decrease the mortality and long-term morbidity. The most common causes of intestinal obstruction are the post-operative adhesions and hernias. They cause extrinsic compression of the intestine. Less

common causes are tumors and strictures of the bowel which causes intrinsic blockage of the intestine. Intestinal obstruction may be classified into 2 types dynamic and adynamic.<sup>2-3</sup> Adynamic obstruction is due to paralyzed bowel without any medical cause.<sup>4</sup> In this study, we will discuss about the age, sex, incidence, etiology, clinical features, management, and outcomes of acute intestinal obstruction in adults.

### Aims and Objectives

- To study the incidence and various etiology of intestinal obstruction
- To study the various modes of presentation, importance of early diagnosis, and management
- To study the role of imaging studies in determining the site and etiology
- To study the mortality rate and the morbidity rate in acute intestinal obstruction.

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## MATERIALS AND METHODS

This prospective study was conducted in Department of General Surgery at Government Tirunelveli medical college and hospital for 2 years, and ethical committee approval was obtained. It is a descriptive study that included 100 patients who were diagnosed to have acute intestinal obstruction based on clinical, biochemical, and radiological features. The patients who are managed conservatively without surgical intervention are excluded from the study. Other investigations for fitness for anesthesia are taken. Final diagnosis is made at exploratory laparotomy. Cause of obstruction, site of obstruction, and the operative procedure done are recorded. A biopsy is taken where required for histopathological confirmation. Post-operative complications, outcome, and mortality are noted. The observations were tabulated and compared with recent literature and final conclusions derived.

### Inclusion Criteria

- All patients presenting to emergency department with features of intestinal obstruction and are treated surgically
- Patients in the age group 15-80 years
- Patients who are hemodynamically stable.

### Exclusion Criteria

- Patients presenting with subacute intestinal obstruction
- Pediatric age group patients.

## RESULTS

A total of 100 patients admitted with acute intestinal obstruction were included in the study. Table 1 shows that out of the total 100 cases, 17 cases had an obstruction in the large intestine and 83 cases had an obstruction in the small intestine. Table 2 shows that most common age group affected with acute intestinal obstruction was between 51 and 60 years. Table 3 shows that the incidence was 64% in males and 36% in females. Males are affected 1.7 times more than females. Table 4 shows that obstructed inguinal hernia was found to be the most common cause followed by adhesive obstruction. Table 5 shows that the most common clinical feature is abdominal pain followed by vomiting, constipation, and abdominal distension. Table 6 shows that most common radiological feature was multiple air-fluid level followed by dilated bowel loops. Table 7 shows that surgery was done for all patients. Hernia repair was done for 43 cases and adhesiolysis for 24 cases. Resection and anastomosis, ostomy was done for 23 and 10 cases, respectively, for patients. Table 8 shows that in most of the patients post-operative period was

**Table 1: Incidence of intestinal obstruction**

Site of intestinal obstruction	Number of patients (%)
Large intestine obstruction	17 (17)
Small intestine obstruction	83 (83)

**Table 2: Age distribution**

Age in years	Number of patients
11-20	4
21-30	12
31-40	11
41-50	15
51-60	25
61-70	23
71-80	10

**Table 3: Sex distribution**

Sex	Number of patients
Males	64
Female	36

**Table 4: Etiology of intestinal obstruction**

Etiology	Number of patients
Obstructed inguinal hernia	32
Adhesive obstruction	26
Ileocecal tuberculosis	3
Umbilical/paraumbilical hernia	8
Incisional hernia	9
Femoral hernia	1
Intussusception	1
Ascending and descending colon growth	2
Sigmoid colon growth	4
Rectum/anal canal growth	5
Sigmoid volvulus	6
SMA syndrome	2
Internal hernia	1

SMA: Superior mesenteric artery

**Table 5: Clinical features**

Clinical features	Number of patients
Abdomen pain	94
Vomiting	69
Constipation	58
Abdomen distension	52

**Table 6: Radiological findings**

X-ray findings	Number of patients
Multiple air-fluid levels	81
Dilated bowel loops	52
Bent inner tube appearance	6

uneventful. Morbidity includes wound infection (10 cases), enterocutaneous fistula (6 cases), and prolonged ileus

**Table 7: Surgical treatment**

Procedure	Number of patients
Hernia repair	43
Adhesiolysis	24
Resection and anastomosis	23
Ostomy	10

**Table 8: Outcome**

Outcome	Number of patients
Uneventful recovery	76
Morbidity	18
Mortality	6

(2 cases). Six patients died in immediate post-operative period.

## DISCUSSION

Out of the 100 cases, the site of obstruction was small bowel in 83 cases and large bowel in 17 cases. Hence, small bowel obstruction was found to be the most common cause. In the study conducted by Ma *et al.*, 71.1% of the obstruction was located on the small bowel.<sup>5</sup> The most common age group was between 51 and 60 years followed by 61-70 years. The mean age of incidence is 55.5 years. It is comparable with the study conducted by Adhikari *et al.* in 2010,<sup>6</sup> Saravanan *et al.* in 2016.<sup>7</sup>

Out of the 100 patients with acute intestinal obstruction, 64% were males and 36% were females which are consistent with sex incidence of similar studies conducted by Miller *et al.*<sup>8</sup> and many other similar studies.

Among the 100 cases, most common cause of acute intestinal obstruction was found to be obstructed/strangulated inguinal hernia which accounted for 32% of cases. Second most common cause was found to be adhesions which accounted for 26% of cases. Obstructed incisional and umbilical/paraumbilical hernia contributes 9% and 8% of total cases, respectively. Similar results have been noted in a study conducted by Adhikari *et al.* in East India in 2010.<sup>6</sup> Although post-operative adhesions were found to be the most common cause of obstruction worldwide, in our study inguinal hernias account for most of the cases.

Most of the cases presented with abdominal pain (94%), followed by vomiting (69%), constipation (58%), and abdominal distension (52%) which was comparable to the study conducted by Khan *et al.* in 2007<sup>9</sup> and Adhikari *et al.*<sup>6</sup>

The most common radiological finding was multiple air-fluid levels seen in plain X-ray abdomen erect view. This finding was seen in 81 patients followed by dilated bowel loops seen in 52 patients and bent inner tube appearance in 6 patients. The observations are comparable to a similar study conducted by Malik *et al.* in 2010.<sup>10</sup>

The most common surgical procedure was hernia reduction and repair which included inguinal, femoral, incisional, and paraumbilical hernia repairs. Next common procedure was adhesiolysis followed by resection and anastomosis/colostomy. Most of the cases recovered without any complications (76%). Infection was the major cause of morbidity and was seen in 18% of patients. Mortality was 6% and was commonly seen in patients with strangulation and increased age. Six deaths were due to sepsis. This observation is comparable to a similar study conducted by Adhikari *et al.*<sup>6</sup> and Ramachandran.<sup>11</sup>

## CONCLUSION

This study on acute intestinal obstruction was aimed at studying the age and sex distribution, various etiologies, clinical presentations, treatment, and outcomes of acute intestinal obstruction. Acute intestinal obstruction remains to be one of the common surgical surgeries. Males are commonly affected mostly during their fifth decade. Obstructed/strangulated inguinal hernia remains to be the most common cause followed by adhesions. They usually present with abdominal pain with multiple air-fluid levels in their X-ray abdomen erect view. The initial management of patients with acute intestinal obstruction should focus on an aggressive fluid replacement, decompression of the obstructed bowel, and on prevention of aspiration. Surgery remains the cornerstone of treatment. Earlier diagnosis and timely intervention are associated with excellent prognosis. Delayed diagnosis leading to strangulation and increased age are associated with poor outcomes.

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