

A Study on Acute Intestinal Obstruction Etiology, Clinical features and Management

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Abstract: Patients with bowel obstruction still represent some of the most difficult and vexing problems that surgeons face today. One of the most common intra-abdominal problems faced by general surgeons in their practice remains bowel obstruction. 12% to 16% of acute abdominal emergencies may be contributed to intestinal obstruction. With its multiple etiologies, intestinal obstruction of either the small or large bowel continues to be a major cause of morbidity and mortality. 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 is 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. This study was conducted at Rajendra Institute of Medical Sciences (RIMS), Ranchi. 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. Among the total number of patients admitted with acute intestinal obstruction large intestine obstruction was found in 20 cases and small intestine obstruction was found in 80 cases. Obstructed inguinal hernia was the most common cause of acute intestinal obstruction. Conclusion is 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

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I. Introduction

One of the most common intra-abdominal problems faced by general surgeons in their practice remains bowel obstruction. 12% to 16% of acute abdominal emergencies may be contributed to intestinal obstruction. With its multiple etiologies, intestinal obstruction of either the small or large bowel continues to be a major cause of morbidity and mortality.¹ The etiology of bowel obstruction has been varied with small intestinal obstruction caused by adhesions in 60%, strangulated hernia in 20%, malignancy in 5% and volvulus in 5%.² Small bowel obstruction (SBO) is more common and a challenging clinical problem. Large bowel obstruction (LBO) is most often the result of colorectal malignancies and the lesions usually arise in the sigmoid or rectosigmoid area.³ Death due to acute intestinal obstruction is decreasing with better understanding of pathophysiology, improvement in diagnostic techniques, fluid and electrolyte correction, much potent antimicrobials and knowledge of intensive care. Surgical approaches that feature a staged approach may have a better outcome. Intestinal obstruction is one of the common acute abdominal emergencies that accounts for 20% all admissions in surgical practice.⁴ Early recognition and prompt intervention can prevent irreversible ischemia and thereby decrease the mortality and long-term morbidity. Intestinal obstruction may be classified into 2 types dynamic and adynamic.^{5,6} Adynamic obstruction is due to paralyzed bowel without any medical cause.⁷ In this study, we will discuss about the age, sex, incidence, etiology, clinical features, management, and outcomes of acute intestinal obstruction in adults. The treatment of intestinal obstruction is varied, and has changed greatly during the past two centuries. Early diagnosis of obstruction, skillful operative management, proper technique during surgery and intensive postoperative treatment carries a grateful result.

Objectives of study was to study the incidence and various etiology of intestinal obstruction, various modes of presentation, importance of early diagnosis, and management, the role of imaging studies in

determining the site and etiology and to study the mortality rate and the morbidity rate in acute intestinal obstruction.

II. Material And Methods

This prospective study was conducted in Department of General Surgery at Rajendra Institute of Medical Sciences (RIMS), Ranchi for 2 years from July 2015 to July 2017. 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.

Study Design: Prospective observational study.

Study Location: This was a tertiary care teaching hospital- based study done in Department of General Surgery, at Rajendra Institute of Medical Sciences (RIMS), Ranchi.

Study Duration: July 2015 to July 2017.

Sample Size: 100

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.
- Paediatric age group patients.

III. Result

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, 20 cases had an obstruction in the large intestine and 80 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 65% in males and 35% in females. Males are affected 1.8 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 41 cases and adhesiolysis for 26 cases. Resection and anastomosis, ostomy was done for 22 and 11 cases, respectively for patients. Table 8 shows that in most of the Patients post-operative period was uneventful. Morbidity includes wound infection (13 cases), enterocutaneous fistula (3 cases), and prolonged ileus (1 case). Six patients died in immediate post-operative period.

Table no. 1: Incidence of intestinal obstruction

Site of intestinal obstruction	No. of patients (%)
Large intestine obstruction	20(20)
Small intestine obstruction	80(80)

Table 1 showed small intestine obstruction is more common than large intestine obstruction.

Table no. 2: Age distribution

Age in years	No. of patients
11-20	4
21-30	12
31-40	11
41-50	15
51-60	25
61-70	23
71-80	10

Table 2 showed most common age group affected with intestinal obstruction was 51-60 followed by 61-70 years. Mean age of incidence is 55.5 years.

Table no. 3: Sex distribution

Sex	No. of patients
Male	65
Female	35

Table showed intestinal obstruction is more common in male.

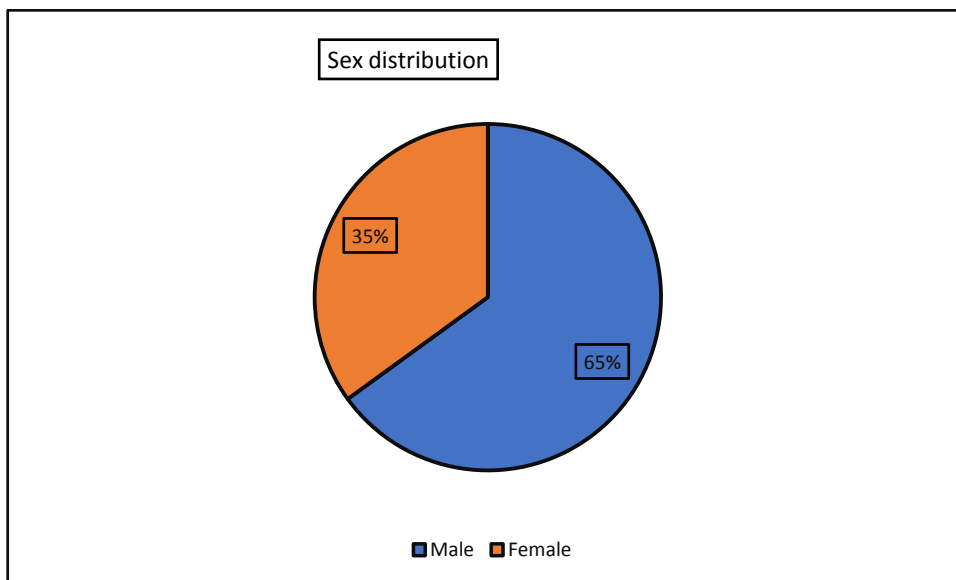


Figure shows age distribution among intestinal obstruction patients.

Table no. 4: Etiology of intestinal obstruction

Etiology	No. of patients
Obstructed inguinal hernia	30
Adhesive obstruction	28
Ileocecal tuberculosis	4
Umbilical/paraumbilical hernia	7
Incisional hernia	9
Femoral hernia	1
Intussusception	1
Ascending and descending colon growth	3
Sigmoid colon growth	3
Rectum/anal canal growth	5
Sigmoid volvulus	7
SMA syndrome	1
Internal hernia	1

Table showed obstructed inguinal hernia is most common cause for intestinal obstruction.

Table no. 5: Clinical features

Clinical features	No. of patients
Abdomen pain	90
Vomiting	68
Constipation	60
Abdomen distention	54

Table showed Abdominal pain is most common feature followed vomiting, constipation and abdominal distension.

Table no.6: Radiological findings

X-ray findings	No. of patients
Multiple- air fluid levels	79
Dilated bowel loops	50
Bent inner tube appearance	7

Table no. 7: Surgical treatment

Procedure	No. of patients
Hernia repair	41
Adhesiolysis	26
Resection and anastomosis	22
Ostomy	11

Table no. 8: Outcome

Outcome	No. of patients
Uneventful recovery	74
Morbidity	17
Mortality	9

Table showed most of treatment outcome were uneventful with mild mortality and morbidity.

IV. Discussion

Out of the 100 cases, the site of obstruction was small bowel in 80 cases and large bowel in 20 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.⁸

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 2010,⁹ Saravanan et al. in 2016.¹⁰

Out of the 100 patients with acute intestinal obstruction, 65% were males and 35% were females which are consistent with sex incidence of similar studies conducted by Miller et al.¹¹ 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 30% of cases. Second most common cause was found to be adhesions which accounted for 28% of cases. Obstructed incisional and umbilical/paraumbilical hernia contributes 9% and 7% of total cases, respectively. Similar results have been noted in a study conducted by Adhikari et al. in East India in 2010.⁹ Although postoperative 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 (90%), followed by vomiting (68%), constipation (60%), and abdominal distension (54%) which was comparable to the study conducted by Khan et al. in 2007¹² and Adhikari et al.⁹

The most common radiological finding was multiple air-fluid levels seen in plain X-ray abdomen erect view. This finding was seen in 79 patients followed by dilated bowel loops seen in 50 patients and bent inner tube appearance in 7 patients. The observations are comparable to a similar study conducted by Malik et al. in 2010.¹³

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 (74%). Infection was the major case of morbidity and was seen in 17% of patients. Mortality was 9% and was commonly seen in patients with strangulation and increased age. Nine deaths were due to sepsis. This observation is comparable to a similar study conducted by Adhikari et al.⁶ and Ramachandran.¹⁴

V. 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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