

# Clinical Study of Acute Intestinal Obstruction

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## Abstract

**Background:** Acute intestinal obstruction is one of the most common surgical emergencies. There are many causes of acute intestinal obstruction like bands and adhesions, neoplasms, strictures etc. **Aims and objectives:** In this study we have tried to find out common clinical presentation, aetiology and treatment of acute intestinal obstruction. **Materials and Methods:** This is a prospective study conducted at department of General Surgery, Dr. Vasant Rao Pawar Medical College, Hospital and Research Centre, Nashik, Maharashtra in which we have studied 45 cases of acute intestinal obstruction to find out the clinical presentation, aetiology and treatment of acute intestinal obstruction. **Conclusions:** Acute intestinal obstruction is more common in females than in males. Small intestinal obstruction is more common than large intestinal obstruction. The commonest cause of intestinal obstruction is adhesions. The next most common cause is Tubercular stricture. Malignancy is most common cause of large intestinal obstruction. Most of the patients having large bowel obstruction required laparotomy.

**Keywords:** Acute Intestinal Obstruction, Large Intestinal Obstruction, Small Intestinal Obstruction, Tubercular Strictures

## 1. Introduction

Acute intestinal obstruction is a common cause of acute abdomen. It accounts for about 12–16% of surgical admission for acute abdomen<sup>1</sup>. Presentation of the patients varies according to the aetiology, site of obstruction, duration of the disease etc. Some patient responds to conservative management were as some require surgery. In this study we have studied 45 cases of acute intestinal obstruction to find out the common way of presentation, common aetiological factor and treatment.

## 2. Aims and objectives

To find out common clinical presentation, aetiology and treatment of acute intestinal obstruction.

## 3. Materials and Methods

It was prospective study conducted at a medical college and tertiary care hospital. All newly diagnosed patients admitted in the medical college were included in the study. Study was conducted from August 2011 to December 2013.

### 3.1 Inclusion Criteria

Patients of acute intestinal obstruction diagnosed clinically and on radiological investigations.

### 3.2 Exclusion Criteria

Patients not giving consent for the study and patients with previous history of intestinal obstruction who had undergone laparotomy for the same.

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### 3.3 Methodology

The study was conducted in surgery department of Dr. Vasantrao Pawar Medical College, Hospital and Research Centre, Nashik, Maharashtra. Appropriate approval was taken from the Institutional Ethical Committee. Written and informed consent was taken from all the participants. Total 45 patients clinically and radiologically diagnosed to have acute intestinal obstruction were included in the study after satisfying the inclusion and exclusion criteria.

A patient was said to have intestinal obstruction clinically on following criteria – pain in abdomen, nausea and vomiting, abdominal distension, constipation or obstipation. A patient was said to have acute intestinal obstruction radiologically on following criteria X-ray abdomen standing showing significant air fluid levels, ultrasonography abdomen pelvis showing dilated bowel loops with to and fro peristalsis movements. CT scan abdomen and pelvis was done only when required.

History and examination finding were noted in prescribed format. All routine blood investigations were done. X-ray abdomen standing and Ultrasonography of abdomen and pelvis was done all patients. CT scan

abdomen and pelvis was done only when required. The findings of the investigations were also noted in the proforma.

Depending on patients clinical conditions and investigations patients were given conservative treatment or operative treatment. During surgery the intra operative findings were noted. Post-operative complications if any was noted and most of the patients were followed up for the period of approximate 3 months.

## 4. Observations and Results

### 1. Age distribution

It was found that among 45 cases, 10 were from the age group of below 10 years followed by 7 cases among 11 to 20 year olds (Table 1).

### 2. Sex Incidence

Intestinal obstruction was more common in males. There were 32 males and 13 females. The male:female ratio was 2.6:1

### 3. Level of Obstruction

Intestinal obstruction was more common in small intestine (31) as compared to large intestine (13).

**Table 1.** Age distribution

Age	Total cases
0-10	10
11-20	07
21-30	05
31-40	06
41-50	06
51-60	08
61-70	01
71-80	02
81-90	01

#### 4. Symptoms and Signs

**Table 2.** Symptoms and signs of acute intestinal obstruction

Sr No	Symptom/Sign	Number	Percentage
1	Pain in abdomen	36	85
2	Vomiting	30	71
3	Abdominal distention	22	52
4	Constipation	20	47
5	Tenderness	18	42
6	Hyperperistalsis	10	23
7	Absent bowel sound	9	21
8	Sluggish bowel sound	19	20
9	Groin swelling	4	1
10	Guarding	18	42
12	Rigidity	2	4
13	Palpable mass	3	6

As seen from table 2, most common presenting complaint was pain in abdomen (85%) followed by vomiting (71%).

#### 5. Aetiology of Acute Intestinal Obstruction

##### A. Small Bowel Obstruction

Most common aetiological factor for small bowel obstruction was found to be adhesions and tubercular strictures. (Table 3)

**Table 3.** Aetiological factors for Small bowel obstruction

Aetiology	Number of cases	Percentage
Adhesions	7	23
Obstructed hernia	4	12
Small bowel volvulus	1	3
Bands	6	20
Tuberculous stricture	7	23
Worm ball formation	2	6
Intussuception	4	12

## B. Large Bowel Obstruction

Most common aetiology for large bowel obstruction was neoplasms followed by Hirschsprung disease (Table 4)

**Table 4.** Aetiological factors for large bowel obstruction

Aetiology	Number of cases	Percentage
Neoplasms	6	42
Hirschsprung	3	22
Volvulus	2	15
Intussusception	3	21

## 6. Management

### A. Small Bowel Obstruction

Out of the 31 cases of small bowel obstruction, 25 required surgical intervention (Table 5); while 6 cases were conservatively managed (Table 6)

**Table 5.** Operative procedures for small bowel obstruction

Type of surgery	No of cases
Adhesiolysis	3
Resection anastomosis	8
Release of band	5
De-rotation of volvulus	2
Hernia repair	5
Enterotomy and worm removal	2
Total	25

**Table 6.** Conservative management for small bowel obstruction and its aetiology

Cause	No of cases
Paralytic ileus	2
Abdominal tuberculosis	2
H/O of recent surgery and adhesions	2
Total	6

## B. Large Bowel Obstruction

All 14 cases of large bowel obstruction required operative management (Table 7)

**Table 7.** Operative procedures for large bowel obstruction

Type of surgery	No of cases
Resection and anastomosis	7
Colostomy	3
Reduction of intussusception	4
Total	14

## 7. Post-operative Complications

Most common post-operative complications included wound infection, wound dehiscence. Two deaths were reported during the post-operative follow-up due to septicemia and respiratory failure (Table 8)

**Table 8.** Post-operative complications

Complication	No of cases
Wound infection	8
Wound dehiscence	4
Fecal fistula	2
Chest infection	6
Death	2
Total	22

## 5. Discussion

Intestinal obstruction is commonly encountered surgical entity. Earliest references of this disease appear in the code of Hammurabi written around 2200 BC. Hippocrates mentioned about intestinal obstruction. He mentioned treatment of the ileus with enemas and inflation of rectum.

“Sushrut Samhita” mentions the treatment of intestinal obstruction with incision and extraction of any concretions of foreign body and replacement of part after moistening them with honey and butter and sewing up incision.

Presentation of acute intestinal obstruction varies from patient to patient. Patient generally present with combination of pain in abdomen, vomiting, distention of abdomen and constipation. Patient can be treated with conservative treatment or laparotomy depending on the clinical presentation.

The observations in our study are as follows

### 1. Incidence

In our study intestinal obstruction was common in small intestine. Small bowel obstruction contributed to 69% large bowel obstruction to 31%. Length of the small intestine is more than large intestine and small intestine

is more mobile than the large intestine, these may be the reason for obstruction in small intestine. Our results are comparable with most of the studies. Mechel<sup>2</sup> and Becker<sup>3</sup> where small bowel obstruction constituted to nearly 70% and large bowel obstruction constituted 30%.

## 2. Age of Presentation

Acute intestinal obstruction can occur in all age groups. The age distribution in our series of 45 patients ranges from new born to 85 years with mean age of 35.4 years. Maximum incidence was seen between 0-10 years (22%).

A study done by Buddharaja<sup>4</sup> reported 13% cases of acute intestinal obstruction below 12 years.

Fuzan<sup>5</sup> reported mean age of 56 years. Ramchandran<sup>6</sup> in his study reported the maximum incidence between 21- 40 years.

## 3. Sex Incidence

In our study the incidence of intestinal obstruction in male was 32 (72%) and that of female was 13 (28 %). Male to female ratio was 2.6: 1.

Male prepondence is seen in all studies reported from the other part of word.

Fuzan<sup>5</sup> and Lee<sup>7</sup> reported 2:1 male to female ratio.

## 4. Aetiology

In our study following aetiological factors were found

Adhesions	16%
Hernias	09%
Volvulus	07 %
Bands	13 %
Ca colon	13%
Intussusception	16 %
Hirschsprung's	06 %
Tubercular stricture	16 %
Worm ball formation	04 %

Bands and adhesions are most common cause of acute intestinal obstruction in most of the series on acute intestinal obstruction as reported by Jain and Prasad<sup>8</sup>, Ti and Young<sup>9</sup> and Fuzan<sup>5</sup>.

In our study 4 patients (9%) were having intestinal obstruction due to hernia. 2 patients were having strangulated inguinal hernia and required resection and anastomosis.

## 5. Volvulus

Volvulus was responsible for intestinal obstruction in 7% (3 cases). Out of these 3 cases 1 was small bowel volvulus and 2 cases were of sigmoid volvulus.

A study conducted by Shankaran<sup>9</sup> reported 24 cases of volvulus in south India out of which sigmoid volvulus constituted 50% of cases.

Buddharaja<sup>4</sup> series revealed that 18.2% of intestinal obstruction are due to volvulus, small bowel volvulus 11.9% and large bowel volvulus 6.19%.

Ramchandran<sup>6</sup> in his study mentioned that volvulus is second commonest cause of small bowel obstruction.

## 6. Bands

In our study intestinal obstruction due to bands accounted for 13% of acute intestinal obstruction.

A study series of 147 cases by Gill and Eggleston<sup>11</sup> reported that 6.8% of small intestinal obstruction are due to bands.

## 7. Malignancy

In our study, 13% (6 cases) of acute intestinal obstruction were due to malignancies. Ca rectum – 2 cases, Ca transverse colon 2 cases, Ca ascending colon 1 and Ca caecum 1. In were malignancies of large bowel. In most of the studies it is mentioned that acute intestinal obstruction due to malignancies is due to large bowel malignancies.

## 8. Intussusception

In our study 45 cases, 7 cases

(16%) obstructions were due to intussusception. Out of this 3 were in small intestine and 4 were in large intestine. All were below 10 years.

Ti<sup>9</sup> in his study of 261 cases mentions the incidence of intussusception 6.3% (17 cases). In this 17 cases 14 were infants and 3 were adults.

## 9. Hirschsprung's Disease

Hirschsprung's disease accounted for 7% (3cases) in our study.

## 10. Tubercular Stricture

In our study 1% (7 cases) of obstruction were due to tubercular stricture.

## 11. Worm Ball Formation

Worm ball formation was seen in 2 cases (4%)

## 12. Clinical Features

Pain in abdomen – 85 % (36 cases)

Vomiting – 71 % (30 cases)

Abdominal distention – 52 % (22 cases).

Constipation – 47 % (20 cases).

The commonest features were pain in abdomen, vomiting, abdominal distention and constipation.

Asbun 50 in his retrospective analysis of 105 patients of acute intestinal obstruction found that the incidence

of pain in abdomen 82%, vomiting 88%, distention of abdomen 56% and constipation 28%.

Buddharaja<sup>4</sup> reported the order of symptoms according to their frequency are pain in abdomen 95%, distention of abdomen 82%, vomiting 75% and constipation 50%.

### 13. Small vs Large Bowel Obstruction Symptoms

Constipation and distention of abdomen were predominant symptoms in large bowel obstruction. Pain in abdomen and vomiting were predominant symptoms in small bowel obstruction.

### 14. Management

Management of patient with intestinal obstruction depends on many factors like age of the patient, clinical presentation, general condition and investigations.

- Out of 45 patients, 39 patients required surgery, 25 patients of small intestinal obstruction and 14 patients of large intestinal obstruction

- Out of the 31 patients of small intestinal obstruction, 6 patients were managed conservatively.

- All patients of large bowel obstruction required surgery.

### 15. Post-operative Complications

**Table 9.** Post-operative Complications

Wound infection	5
Chest infection	5
Faecal fistula	1
Wound dehiscence	2
Septicemia	2
Multi organ failure	2
Death	4

## 6. Conclusion

Following conclusions are derived from study of 45 cases of acute intestinal obstruction in a tertiary health care center

- Acute intestinal obstruction affects all age groups, from new born to elderly.

- In our study intestinal obstruction was found more common in first decade this is because being tertiary health care center more number of pediatric patients are referred to our center.

- The incidence of acute intestinal obstruction was more in male (33 cases) compared to female (22 cases)

- Depending on the age the aetiology differs. In pediatric age patients the common causes were Hirschsprung's and intussusception, in adults

- common causes were bands and adhesion, in elderly the common cause was malignancy.

- Small bowel obstruction (31 cases 61%) was more common than large bowel obstruction

- (14 patients 31%)

- Adhesions was the most common cause of small bowel obstruction (16%) the other most common cause was Tubercular structure (16%).

- Malignancies were most common cause of large bowel obstruction.

- Mode of presentation depends on the level of obstruction–small bowel obstruction mainly presents with abdominal pain and vomiting, were as large bowel obstruction presents as abdominal distention and constipation.

- Clinical history and clinical examination help in reaching the diagnosis of intestinal obstruction.

- Plain X–ray abdomen taken in erect position is the most important investigation in diagnosing intestinal obstruction and its level, distal the obstruction, greater the accuracy.

- Early diagnosis and intervention are important in preventing morbidity and mortality.

- Complications and death were due to anastomotic leak, sepsis and chest infection - Prognosis was poor in elderly patients and newborns, associated comorbid conditions, strangulated bowel and the patients coming late to the hospital (table 9).

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