# **Original Research Article**

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# Study of clinical spectrum and management of acute intestinal obstruction

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### **ABSTRACT**

**Background:** Acute intestinal obstruction is one of the major surgical emergencies. Intestinal obstruction is defined as partial or complete interference with forward flow of small or large intestinal contents. Intestinal obstruction of either small or large bowel continues to be a major cause of morbidity and mortality. Study aims to find the aetiology, diagnosis and management of acute intestinal obstruction.

**Methods:** A total of 135 patients of acute intestinal obstruction was studied from November 2013 to October 2015 in government medical college, Nagpur. Study was done in patients in OPD of this tertiary centre. Inclusion criteria being patients coming to the hospital with features suggestive and further confirmed of acute intestinal obstruction. Patients included were in, age group of 18 years to 80 years giving written informed consent. Patient of pseudo obstruction were excluded from the study.

**Results:** A total of 135 patients, presented with acute intestinal obstruction during the period of the study. Mean patient age was 45.87 years with peak incidence in those aged 21-30 years. The foremost signs and symptoms were constipation (85.93%) and abdominal pain (91.11%). Adhesions and bands (61.9%) was the leading causes of intestinal obstruction.

**Conclusions:** Present study concluded that small bowel obstruction is more common than large bowel obstruction. Abdominal pain, constipation and distension are the most common symptoms, while increased bowel sounds, tachycardia and tenderness is most common sign. Post-operative adhesion in small bowel and malignancy in large bowel is major cause of acute intestinal obstruction.

Keywords: Adenocarcinoma, Colorectal, Carcinoma, Colonoscopy, Retrospective

#### INTRODUCTION

Acute intestinal obstruction is one of the major surgical emergencies. Intestinal obstruction is defined as partial or complete interference with forward flow of small or large intestinal contents. Intestinal obstruction of either small or large bowel continues to be a major cause of morbidity and mortality. 2

With time, better understanding of pathophysiology, improvement in radiological techniques of diagnosis,

high degree of refinement in correction of fluid and electrolyte imbalance, introduction of antibiotics with effective bacteriological control, introduction of techniques in gastrointestinal decompression, new surgical principles in bowel obstruction, introduction of table lavage and resection and primary anastomosis, has replaced staged procedures and lessened the number of days in hospital stay which has helped in better management of patients. Aim and objectives of the study is to find out aetiology and clinical presentation of acute intestinal obstruction. To study the role of imaging

studies in determining the aetiology and intervention in acute intestinal obstruction. To study various modalities of treatment and their outcome in acute intestinal obstruction.

#### **METHODS**

A total of 135 patients of acute intestinal obstruction was studied from November 2013 to October 2015 in Government Medical College, Nagpur. Study was done in patients in OPD of this tertiary centre.

#### Inclusion criteria

- Patients coming to the hospital with features suggestive of acute intestinal obstruction.
- Patients included were in age group of 18 years to 80 years.
- Patients were informed about the study prior to inclusion and were included after written consent.

#### Exclusion criteria

Patient of pseudo obstruction were excluded

All patients with features of acute intestinal obstruction were assessed. pathological and biochemical test were conducted. Plain x ray erect abdomen, ultrasound and CECT abdomen was done. All patients were stabilised prior to surgery. Appropriate surgical intervention was done. Post-operative follow up was done.

#### **RESULTS**

Out of total 135 cases in the present study maximum cases were seen in 21-30 years age group 61-70 years age group. Incidence of small bowel obstruction was more in age less than 50 years while incidence of large bowel obstruction was more in age group above 50 years.



Figure 1: Small bowel obstruction secondary to adhesion.

In present study of acute intestinal obstruction in adults, out of total 135 cases, clear male predominance was seen with total 98 cases (72.6%) compared to females 37 cases (27.4%).

Also, in both small and large bowel obstruction, males were more affected compared to females. Males: females in present study is 2.65:1 ratio.

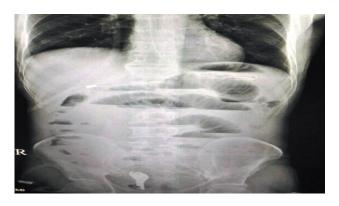


Figure 2: X-ray abdo erect showing features of small bowel obstruction with air fluid level.

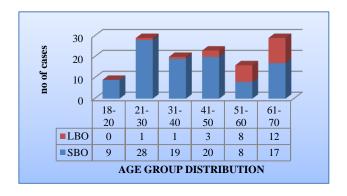


Figure 3: Age wise distribution of small bowel and large bowel obstruction.

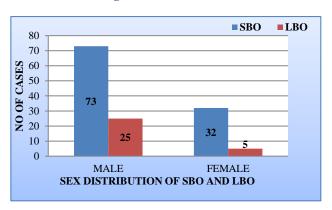


Figure 4: Distribution of sex for small and large bowel obstruction.

The present study revealed that though an acute condition, the time at which the patients reported in casualty was more than 48-72 hours.

Maximum that is out of total 135 cases, 67 (49.63%) cases reported after 72 hours of onset of complaints and 53(39.26%) cases reported within 48-72 hours. 13 cases (9.63%) reported within 24-48 hours.

Table 1: Time of presentation of patients.

Time of presentation	No. of patients	Percentage
Less than 24 hours	2	1.48
24-48 hours	13	9.63
48-72 hours	53	39.26
More than 72 hours	67	49.63
Total no. of patients	135	100

Table 2: Distribution on the basis of clinical features.

Signs and symptoms	No. of patients	Percentage
Abdominal pain	123	91.11
Constipation	116	85.93
Abdominal distension	100	74.07
Nausea and vomiting	96	71.11
Anorexia	23	17.04
Weight loss	20	14.81
Haematochezia	14	10.37
Tenderness	98	72.6
Guarding and rigidity	48	35.56
PR growth/stricture	6	4.45

The present study of acute intestinal obstruction showed that abdominal pain (91.11%), constipation (85.93%) and abdominal distension (74.07%) were the most common symptoms with which patients presented to us in emergency department.

Table 3: Features seen on x-ray abdomen erect.

Findings	Cases	Percentage
Dilated small bowel loops with effacement of valvulae	8	5.93
conniventes		
Dilated small bowel loops with prominent valvulae conniventes	14	10.37
Dilated small bowel loop with		
multiple air fluid levels with	43	31.85
abscent colonic gases		
String of beads sign	18	13.33
Bent inner tube sign	11	8.15
Distended colon with air fluid level	16	11.85

X-ray abdomen erect was done in all cases. The most common finding observed was distended small bowel loops with air fluid levels with absent colonic gas in 43 (31.85%) patients. Thus, X-ray abdomen erect was found useful in total 110 (81.48%) cases.

Most common finding on ultrasound was dilated bowel loop with marked peristalsis (74.07%) cases suggestive of intestinal obstruction from any cause. 20 (14.81%) cases had distended loops with no peristaltic movements, more likely because of adynamic obstruction or vascular occlusion causing bowel ischemia. Herniation of bowel

loops through abnormal abdominal defect with obstructive features was observed in 28 (20.75%) patients. Luminal narrowing caused by stricture was seen in 7 (5.19%) cases. Growth within bowel wall obstructing the lumen suggestive of neoplastic etiology was seen in 9 (6.67%) cases.

Table 4: Features seen on ultrasound.

Findings	Cases	Percentage
Distended small bowel loops with absent peristalsis	20	14.81
Distended small bowel loops with marked peristalsis	100	74.07
Growth within bowel wall protruding within lumen or stricture causing luminal compromise	16	11.85
Luminal obstruction by foreign bodies, gallstone or other causes	3	2.22
Bowel in bowel appearance	1	0.74
Dilated loop consistent with sigmoid	10	7.40
Herniating bowel loop form abdominal defect with proximal dilatation	28	20.75
Diminished vascularity with bowel wall necrosis or gangrene with absent peristalsis	10	7.40

**Table 5: Etiological factors causing obstruction.** 

Aetiology	Cases	Percentage
Adhesion	60	44.44
Obstructed hernia	28	20.74
Malignancy	19	14.07
Tuberculosis	12	8.89
Volvulus	10	7.4
Arterial thrombus with bowel gangrene	4	2.96
Intussuception	1	0.74
Miscellaneous	10	7.4

Total 60 patients with various types of adhesions causing bowel obstruction were identified. 42 out of 60 (70%) cases were operated previously for various causes. Obstructed hernia was second most common causes identified leading to obstructive symptoms in our study accounting for 28(20.75%) cases. Malignancy in the form of growth or stricture or metastases leading to obstruction was next most common cause found in present study.

In our present study adhesiolysis procedure was carried out in 38(28.15%) cases. Single loop/band adhesions were separated easily followed by adhesiolysis of dense adhesion upto the level which relieves obstruction was done. In 4 patients of Koch's abdomen, adhesiolysis was done. Resection and anastomosis was carried out in 48

(35.56%) cases most commonly in large bowel obstruction.

Table 6: Different operative intervention in acute intestinal obstruction.

Operative procedure	Cases	Percentage
Adhesiolysis	38	28.15
Resection and anastomosis	48	35.56
Enterostomy	20	14.81
Hernioplasty	28	20.74
Adhesiolysis with perforation closure	1	0.74
Exteriorization of involved segment	1	0.74

In case of sigmoid volvulus, 5 non gangrenous and 2 gangrenous patient underwent sigmoid resection followed by colorectal anastomosis. In cases of adhesion from any cause, 7 cases had ischemic small bowel loops in which resection of the involved segment followed by anastomosis was done. In cases with adhesion with stricture formation, adhesiolysis with resection of stricture with anastomosis was carried out. In 1 case of mesenteric cyst with ileal rotation with ischemia, excision of involved segment along with cyst followed by ileo-ileo anastomosis was done. 1 case of meckel diverticulum, segmental resection with ileo-ileal anastomosis was done.

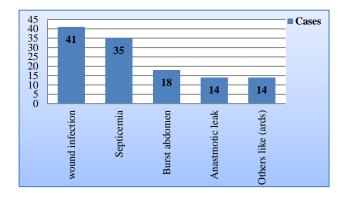


Figure 5: Results of post-operative complications.

All patients were assessed for post-operative complications. Total 53 (39.25%) developed complications.

Table 7: Co morbidity and complications in relation with mortality.

Co morbidity /complication	Cases expired	Percentage
Anastomotic leak	17	77.27
Septicaemia	08	36.36
Burst abdomen	03	13.64
Pulmonary tuberculosis	03	13.64

Total 41 (30.37%) patients developed minor wound infection in the form of pus discharge. These wounds

were taken care by local wound care in the form of daily dressings. 14 (10.37%) patients developed anastomotic leak out of which 3 with Koch's abdomen were managed conservatively. 35 (25.93%) patients developed septicaemia.

Anastomotic leak (77.72%) and septicaemia (36.36%) were the major cause of mortality in our present study.

#### DISCUSSION

Acute intestinal obstruction is one of the most common surgical emergencies. The dictum of never let the sun set or rise in small bowel obstruction, has made early surgical intervention necessary for acute intestinal obstruction.<sup>3</sup>

In present study the age group was from 18 to 80 years with most common age groups affected were, 21-30 years and 61-70 years with mean age being 45.87 years. This was in concordance with the studies conducted by Sarvanan PS et al, Ooko PB et al, Adhikari et al and E o Ojo et al in which the cases of acute intestinal obstruction occur commonly in age group 30-50 years, 31-40 years, 30-50 years and 20-40 years respectively.<sup>4-7</sup> In study conducted by GJ Cole et al most common age group affected was 31-40 years.<sup>8</sup>

The present study on acute intestinal obstruction in adults shows clear pre-ponderance of male sex over female sex with 98 (72.59%) males and 37 (27.41%) females. Ratio of male: female in our study is 2.65:1. Souvik and Hossein et al in their study reported male incidence 75.2% while female incidence 24.79% with male: female ratio as 3:1.6

In our present study, most common case of obstruction was post-operative adhesions (61.9%) which is comparable with study by Naveen et al in which the incidence of adhesion was 42% cases.<sup>9</sup>

The present study of acute intestinal obstruction showed that abdominal pain (91.11%), constipation (85.93%) and abdominal distension (74.07%) were the most common symptoms with which patients presented to us in emergency department. Markogianonakis H et al in their study showed that abdominal pain (74%), vomiting (78.6%) and constipation (90%) formed the major symptoms while the major signs included increase bowel sound (66%), abdominal distention (65.3%) and guarding (37.3%).<sup>10</sup>

The present study showed that plain abdominal radiography is useful in diagnosis of bowel obstruction in 81.48% cases. Ultrasound of abdomen was found more useful in diagnosis of bowel obstruction. Most common finding on ultrasound was dilated bowel loop with marked peristalsis (74.07%). Lassandro F et al reported in their study that bowel loop dilatation is the most common

finding in SBO in both X ray erect abdomen (71.2%) and abdominal ultrasound (48.5%).<sup>11</sup>

The various methods used for treating the cases acute intestinal obstruction was compared with studies of Souvik et al.<sup>6</sup>

Septicaemia (25.93%) and wound infection (30.37%) are the most common complication which is well comparable with study by Souvik, Hossein et al.<sup>6</sup> Present study revealed overall mortality of 16.3% with septicaemia (77.27) and anastomotic leak (36.36%) were the major complications leading to mortality. Souvik et al reported overall mortality rate of 7.35% while Naveen et al reported overall mortality of 10% cases.<sup>6,9</sup>

#### **CONCLUSION**

Present study concluded that small bowel obstruction is more common than large bowel obstruction. Abdominal pain, constipation and distension are the most common symptoms, while increased bowel sounds, tachycardia and tenderness are the most common signs. Post-operative adhesion in small bowel and malignancy in large bowel is major cause of acute intestinal obstruction. X ray abdomen erect and ultrasound is helpful in diagnosis for majority of cases. Patients with no associated co morbidities and sepsis, can undergo primary definitive procedure like resection and anastomosis, adhesiolysis and hernioplasty. minor wound infection is the most common complication while sepsis is a life threatening complication affecting prognosis of patient.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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