

## Original Research Article

# Management and post operative complication of acute intestinal obstruction

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## ABSTRACT

**Background:** Intestinal obstruction remains one of the most common intra-abdominal problems faced by general surgeons in their practice. Its early recognition and aggressive treatment in patients of all ages, including neonates, can prevent irreversible ischemia and transmural necrosis, thereby decreasing mortality and long-term morbidity. Objective of the study was to study the etiological factors, various modes of clinical presentation and management of intestinal obstruction.

**Methods:** Study was conducted by selection of consecutive 50 cases presenting with symptoms and signs suggestive of acute intestinal obstruction from Chigateri General Hospital and Bapuji Hospital attached to J.J.M. Medical College, Davangere during the period from June 2009 to May 2011.

**Results:** In our series, the maximum incidence is in the age group of 41-50 years. The occurrence of acute intestinal obstruction was common in male compared to female. Small bowel obstruction is more common. The commonest presenting symptom was abdominal pain followed by vomiting, distention of abdomen and absolute constipation. Adhesive obstruction (56%) was the commonest cause of acute intestinal obstruction, followed by Obstructed Hernia (18%), Malignancy (6%), Volvulus (4%), Intussusceptions (6%) and TB stricture (6%). Release of adhesions and bands was done in 22 cases. Resection and end-to-end anastomosis was done in 16 cases, which included cases of intussusception, adhesions, stricture, Ileo-caecal growth, colonic growth.

**Conclusions:** Most common etiological factor for intestinal obstruction is postoperative adhesions. Release of adhesions and bands was the most common surgery done.

**Keywords:** Adhesive obstruction, Intussusceptions, Intestinal obstruction, Laparoscopic adhesiolysis, Malignancy, Release of adhesions, Resection and end to end anastomosis

## INTRODUCTION

Intestinal obstruction is defined as any hindrance to the passage of intestinal contents. This obstruction can involve only the small intestine (small bowel obstruction), the large intestine (large bowel obstruction)

or via systemic alterations, involving both the small and large intestine (generalized ileus).<sup>1</sup>

Bowel obstruction remains one of the most common intra-abdominal problems faced by general surgeons in their practice.

Whether caused by adhesions, hernia and neoplasm or related to biochemical disturbances, intestinal obstruction of either small or large bowel continues to be a major cause of morbidity and mortality. Its early recognition and aggressive treatment in patients of all ages including neonates can prevent irreversible ischemia and transmural necrosis, thereby decreasing mortality and long term morbidity. Despite many recent advances in our diagnostic and therapeutic armamentarium, intestinal obstruction will continue to occur.<sup>1</sup>

Mortality and morbidity are dependent on early recognition and correct diagnosis of obstruction. If untreated, strangulated obstruction causes death in 100% of patients. If surgery is performed within 36 hours, the mortality decreases to 8%.

The mortality rate is 25% if surgery is postponed beyond 36 hours in these patients. Patients with a bowel obstruction still represent some of the most difficult and vexing problems that surgeons face with regard to the correct diagnosis, the optimal timing of therapy and the appropriate treatment. Ultimate clinical decisions regarding the management of these patients dictate a thorough history and workup and a heightened awareness of potential complications.<sup>2</sup>

The purpose of this study was to find out the frequency of the conditions leading to acute small bowel and large bowel obstruction in the given setting. This will highlight the commonest causes of intestinal obstruction in the geographical location of the study which will suggest measures for prevention and treatment of the condition. Hence the present study was undertaken to study the management and post-operative complications of intestinal obstruction.

## METHODS

A clinical study of acute intestinal obstruction was selected because in routine practice every surgeon has to come across this surgical emergency and treatment would largely depend on early diagnosis and skilful management. Permission for the study was obtained from the College authorities prior to commencement.

The prospective study was undertaken with the aim of evaluating the etiology, mode of presentation, clinical features and management. Cases for the Study was sourced from admissions to Bapuji Hospital and Chigateri general hospital attached to J.J.M. Medical College, Davangere, Karnataka.

A minimum of 50 consecutive cases presenting with acute intestinal obstruction in Bapuji Hospital and Chigateri general hospital was selected for the study. This is a prospective study of 50 cases presenting with symptoms and signs suggestive of acute intestinal obstruction. The period of study was from May 2009 to June 2011.

A detailed structured Proforma was used to collect this information. All data was entered on master chart for analysis.

### *Inclusion criteria*

Patients admitted with history of pain in abdomen, abdominal distention, vomiting and constipation with X-Ray and USG abdomen showing evidence of intestinal obstruction were included in the study.

### *Exclusion criteria*

All cases of sub acute intestinal obstruction and Patient with acute intestinal obstruction who are unfit for general anesthesia were excluded from the study.

All patients are subjected to required preoperative biochemical investigations. Plain X-ray erect abdomen was carried out in almost all patients except in obstructed inguinal hernias. Ultrasonography of abdomen was done in some cases whose diagnosis by X-ray was inconclusive. Patients who showed reduction in abdominal distention and improvement in general condition especially in individuals with postoperative adhesions, a chance of conservative management was taken (by extending the supportive treatment) for further 12 to 24 hours; those who showed improvement by moving bowels, reduction in pain and tenderness was decided for conservative treatment, such individuals were excluded in this study.

Patients with clear-cut signs and symptoms of acute obstruction were managed by appropriate surgical procedure after resuscitation. The nature of obstruction and the cause of obstruction were noted at laparotomy. A detailed structured Proforma was used to collect this information. All data was entered on master chart for analysis.

### *Statistical analysis*

Descriptive statistical characteristics and variables of the patients will be described. All data was entered on microsoft excel for analysis. Percentage was calculated. P-value<0.05 was considered as the level of significance.

## RESULTS

A clinical study of 50 cases of acute intestinal obstruction was studied during period from May 2009 to June 2011 at Bapuji Hospital and Chigateri general hospital attached to J.J.M. Medical College, Davangere, Karnataka. The study was done in all age groups ranging from newborn to 85yrs. In our series, the maximum incidence was in the age group of 41-50 years.

The occurrence of acute intestinal obstruction was common in male (64%) in comparison with female (36%). There were 32 male and 18 female with male to

female ratio 1.78:1 (2:1). There were more cases of small bowel obstruction 84% (42) when compared to large bowel obstruction 16% (8).

**Table 1: Presenting symptoms.**

Symptoms	Number of patients (n=50)	Percentage
Pain abdomen	50	100
Vomiting	46	92
Distention of abdomen	42	84
Obstipation	30	60

**Table 2: Etiology of intestinal obstruction.**

Etiology of Intestinal Obstruction	Number of patients (n=50)	Percentage
Adhesion and bands	28	56
Hernia	9	18
Malignancy	3	6
Volvulus	2	4
T.B stricture	3	6
Intussusceptions	3	6
Mesenteric ischemia	1	2
Non specific stricture	1	2

**Table 3: Types of operation.**

Types of operation	Number of patient (n=50)	Percentage
Release of adhesions and bands	22	44
Resection and end-to-end anastomosis	13	26
Untwisting of volvulus with colostomy	2	4
Herniorrhaphy	6	12
Resection and anastomosis with Herniorrhaphy	3	6
Hemicolectomy	2	4
Ileo-transverse anastomosis	1	2

The commonest presenting symptom was abdominal pain (100%) followed by vomiting (92%), distention of abdomen (84%) and absolute constipation (60%) Table 1. In this study, Adhesive obstruction (56%) was the commonest cause of acute intestinal obstruction, followed by Obstructed Hernia (18%), Malignancy (6%), Volvulus (4%), Intussusceptions (6%), TB stricture (6%), Mesenteric ischemia (2%) and non specific inflammatory stricture (2%) (Table 2). Plain X-ray erect abdomen was done in 44 cases out of 50 cases and all 44 cases showed multiple air fluid levels. Release of adhesions and bands was done in 22 cases.

Resection and end-to-end anastomosis was done in 16 cases, which included cases of intussusception, adhesions, stricture, ileocaecal growth, colonic growth. In cases of hernia with strangulation and gangrene of bowel; resection and repair of hernia was done depending upon the type i.e., Bassini's repair in inguinal, Lotheissen operation in femoral hernia (Table 3).

In 8 of our patients wound infection was present, ranging from stitch abscess to superficial gaping. 1 case of mesenteric ischemia developed Short bowel syndrome which was managed with parenteral nutritional support. Enterocutaneous fistula developed in 2 cases; one case re-exploration and resection of unhealthy segment and re-anastomosis was done after 6 weeks and for second case of mesenteric ischemia fistula closure occurred spontaneously following conservative management for 4 wks. Wound dehiscence in 2 cases managed with tension sutures. 3 patients had septicaemia and died (Table 4).

**Table 4: Age distribution of patients.**

Postoperative complications	Number of patients (n=50)	Percentage
Wound infection	8	16
Short bowel syndrome	1	2
Enterocutaneous fistula	2	4
Wound Dehiscence	2	4
Deaths (Septicaemia)	3	6

## DISCUSSION

Intestinal obstruction continues to be a frequent emergency, which surgeons have to face (1-4% of emergency operations). In the present series small bowel obstruction contributed to 84% and large bowel obstruction 16%. This is comparable with reports of Michel and Becker where small bowel obstruction constituted to 80% and large bowel obstruction constituted 20%.<sup>3,4</sup>

The delay in the treatment will lead to high mortality. Since the advancement in understanding the anatomy/physiology, fluid and electrolyte management along with modern antibiotics and intensive care unit; the mortality has been decreasing consistently. The associated medical problems (like respiratory cardiac or metabolic diseases) and advanced age carries a considerable contribution in adding the mortality.

Though intestinal obstruction occurs in all age groups, here the youngest patient was 9 months and oldest patient was 85 years. In this study 70% belongs to 21-60 years age group, previous study by Shakeeb, who noticed age distribution from birth to 85 years with an average of 50.7 years. A study by Gill Eggleston<sup>5</sup> has reported 17% of cases in the age group of 50-54 years and 60% of the cases of intestinal obstruction occur in the age group of

30-60 years. These studies almost correlate with the present study. In present study, there are 32 male and 18 females. Male and female are in 1.78:1 ratio. The male preponderance is consistent with series reported from other part of the world. Fuzan and Lee reported 2:1 male to female ratio. Budharaja study a ratio of 4:1 between male and female.<sup>6-8</sup>

The most common etiological factor in the present study is adhesion which included postoperative, nonspecific and congenital bands. In the present series 56% of the cases of obstruction were due to adhesion and bands, 46% were due to post operative adhesions, 10% congenital bands. Perry et al, found that 79% were post operative adhesions, 18% inflammatory and 28% were congenital.<sup>9</sup>

On review of the earlier Indian studies 10% of intestinal obstruction were related to adhesion and more recent studies in 1982 reports 23%. The rise in the incidence of adhesions related obstructions are attributed to increased number of abdominopelvic surgeries. In the Western studies the adhesion related obstruction range from 40-60%. Developing countries like Virginia also reported 40% of the obstructions related to adhesions.

All the cases of our study were subjected to surgery. Most common operation performed was release of adhesions and bands; was done in 44% of cases. Resection and anastomosis of bowel was done in 26% cases, Hemicolectomy in 6% cases, reduction and hernia repair in 12% cases.

Resection and anastomosis with herniorraphy was done in 6% cases. Untwisting of Volvulus in 4% of cases and Ileo-transverse anastomosis in 2% of cases. Postoperatively IV fluids and nasogastric decompression and antibiotics were given till the good bowel movements appeared. The factors that limit adhesions formation are good surgical technique, washing of the peritoneal cavity with saline to remove clots and debris, minimal contact with gauze, covering the anastomotic and raw peritoneal surface with omentum.

**Table 5: Mortality comparison with other world series.**

Author Year	No. of cases studied	Mortality %
Gill and Eggleston <sup>5</sup>	147	16
C. S. Ramachandran <sup>10</sup>	417	12.7
Cheadle et al <sup>11</sup>	300	9
Present study	50	6

The mortality in intestinal obstruction is high in individuals who develop strangulation and gangrene of the bowel, those present beyond 72 hours and in those are having pre-existing associated diseases and elderly people, though early treatment can reduce the mortality,

advanced age and associated metabolic, cardiopulmonary diseases, still leads to high rate of mortality.

Hence the predisposing causes like hernia should be promptly attempted early in elderly individuals before they go for complication. So, it is quite evident that the duration of symptoms, age, general condition of the patient and associated diseases and operative procedures adopted has a definite role on the prognosis and mortality.

## CONCLUSION

Most common etiological factor for intestinal obstruction is postoperative adhesions. Obstructed Inguinal Hernia is second most common cause of intestinal obstruction. Release of adhesions and bands was the most common surgery done. Laparoscopic adhesiolysis in expert hands is said to be helpful in simple mechanical obstruction and open surgeries can be avoided.

## Limitation

Sample size was small. So we could not implicate this study to whole population.

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