

## Original Research Article

# Clinical study and surgical management of acute intestinal obstruction in the adults

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## ABSTRACT

**Background:** The aim of this study was to evaluate the treatment protocol of intestinal obstruction in adults.

**Methods:** A total of 60 patients diagnosed with intestinal obstruction were included in the study. All the patients with the provisional diagnosis of the intestinal obstruction were assessed clinically after the admission. Appropriate surgical procedures were implemented on the patients with clear signs and symptoms of acute abdominal obstruction. Surgery adopted and criteria for deciding the procedure were noted.

**Results:** For the management of small bowel obstruction. Adhesiolysis was done in 14 patients, resection and anastomosis was done in 8 patients, in 4 patients the band release procedure was performed, hernia repair was done in 8 patients, followed by resection, hernia repair, volvulus derotation and Mekels diverticulectomy was done in 2 patients respectively. For the management of large bowel obstruction the Colostomy was done in 8 cases, resection and anastomosis in 4 cases, intussusception milking in two cases, volvulus derotation was done in 2 cases and right hemicolectomy was done in 4 cases of CA ascending colon.

**Conclusions:** Success in the treatment of acute intestinal obstruction depends largely upon early diagnosis skilful management and treating the pathological effects of the obstruction just as much as the cause itself. Postoperative adhesions are the common cause to produce intestinal obstruction. Clinical radiological and operative findings put together can diagnose the intestinal obstruction. Mortality is still significantly high in acute intestinal obstruction.

**Keywords:** Adhesions, Intestinal obstruction, Large bowel, Small bowel, Treatment

## INTRODUCTION

Bowel obstruction remains one of the most common intra-abdominal problems faced by general surgeons in their practice.<sup>1</sup> Abdomen is like a magic box, an aptly said statement because any case admitted in the surgical ward as acute abdomen is dilemma to operating surgeon unless the box is opened.<sup>2</sup>

It is defined as obstruction in forward propulsion of the contents as obstruction in the intestine either due to mechanical or neurological cause. It is predisposed by

varying underlying anomalies and diseases, which are difficult to define preoperatively.<sup>3</sup> Though intestinal obstruction can be diagnosed easily, the underlying cause except postoperative adhesions and external hernias are difficult to be diagnosed preoperatively.<sup>4</sup>

They account for 12% to 16% of surgical admissions for acute abdominal complaints. Manifestations of acute intestinal obstruction can range from a fairly good appearance with only slight abdominal discomfort and distension to a state of hypovolemic or septic shock (or both) requiring an emergency operation.<sup>5</sup> To identify and

analyse the clinical presentation, management and outcome of patients with acute mechanical, obstruction along with the etiology of obstruction and the incidence and causes of bowel ischaemia, necrosis and perforation.<sup>6</sup>

The diagnosis and management of the patient with intestinal obstruction is one of the more challenging emergency that a general surgeon can come across. Although the mortality due to acute intestinal obstruction is decreasing with better understanding of pathophysiology, improvement in diagnostic techniques, fluid and electrolyte correction, much potent anti microbials and surgical management, but still mortality ranges from 3% for simple obstruction to as much as 30% when there is vascular compromise or perforation of the obstructed bowel.<sup>4,7,8</sup>

Early diagnosis of obstruction skillful operative management, proper technique during surgery and intensive postoperative treatment carries a grateful result. Hence the aim of the study was to evaluate the treatment protocol of intestinal obstruction in adults.

## METHODS

The present cross-sectional study was done with the aim of evaluation of surgical management of the intestinal obstruction and its associated complications at the tertiary care institute of Gujarat from July 2019 to December 2019. The study was done in the OPD and the emergency department of the medical institute. The ethical committee of the institute was informed about the study and the ethical clearance certificate was obtained from them before the start of the study.

A total of 60 patients diagnosed with intestinal obstruction were included in the study. The period of study was approximately 2 years.

### *Inclusion criteria*

The patients with history and clinical picture suggestive of intestinal obstruction, also the patients who had hernia with recent onset of irreducibility, pain, vomiting and constipation were also included in this study.

### *Exclusion criteria*

Patients having dynamic or sub-acute intestinal obstruction who were treated with conservation were excluded from the study.

All the patients with the provisional diagnosis of the intestinal obstruction were assessed clinically after the admission. The history recording was done, relevant biochemical and pathological investigations were done in all the cases. Radiological examination was done. Plain x-ray of erect abdomen was done. The results of the patients who were inconclusive on the x-ray were subjected to ultrasonography of abdomen. Some of the

selected cases were subjected to CT scan abdomen. To provide hydration and normalize the urine output the i.v. fluids with ringer lactate solution and normal saline was administered once the admissions of the patients were done. Nasogastric decompression with Ryle's tube was carried out and antibiotic prophylaxis started. Close observation of all bedside parameters was done.

All those patients in whom there was reduction in distension of abdomen and there was improvement in general condition, the extended conservative treatment was administered for further 24 hours and who showed improvement in movement of bowels and reduction in pain were excluded in the study.

Appropriate surgical procedures were implemented on the patients with clear signs and symptoms of acute abdominal obstruction. Surgery adopted and criteria for deciding the procedure were noted. Histopathological examination of the specimen of resection/biopsy was done whenever necessary. The postoperative period was monitored carefully and all parameters were recorded hourly or four hourly basis depending upon the patients general condition and toxemia.

Postoperative follow up period ranged between 2-6 months from time of discharge, some patients were not regular in their follow up visits. The results were tabulated mostly stressing on following points i.e. age, sex, symptoms, signs, investigations, probable causative factors, operative findings and operative procedure adopted. Chi-square test has been used to find the significant of proportion of postoperative complications in association with etiology of intestinal obstruction.

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2007) and then exported to data editor page of SPSS version 15 (SPSS Inc., Chicago, Illinois, USA). For all tests, confidence level and level of significance were set at 95% and 5% respectively.

## RESULTS

The present clinical study was done in the medical institute for the period of two years. A total of 60 cases diagnosed with intestinal obstruction and those who require the surgical intervention were included in the study. The data obtained was evaluated and analysed for the statistical analysis.

The study was done in all age groups ranging from newborn to 75 years with a mean age of 35.9 years. The occurrence of intestinal obstruction was common in male (80%) with comparison to female (20%). There were 42 male and 18 females with male to female ratio with 2:1. There were more of small bowel obstructions (73%) when compared to large bowel obstruction (27%).

The analysis of the sign and symptoms showed that tenderness was the major symptoms seen in the patients, next symptoms was vomiting followed by abdomen in pain. Other symptoms and signs analysed in patients are distension, constipation of stomach, increased in bowel sounds. Plain x-ray erect abdomen was done in 50 cases out of 60 cases. Positive interpretation was when it correlated with exact site of pathology and negative when it did not.

**Table 1: Sign and symptoms of the patients with intestinal obstruction.**

Sign and symptoms	No. of cases
Abdominal tenderness	56
Vomiting	50
Abdominal pain	48
Abdominal distension	44
Constipation	36
Increases bowel sounds	26
Decreased or absent bowel sounds	14
Groin swelling	8
Abdominal rigidity	10

**Table 2: Management of large bowl obstruction.**

Causes	No. of cases (20)
Colostomy	8
Right hemicolectomy	4
Resection and anastomosis	4
Volvulus derotation	2
Milking of intussusceptions	2

**Table 3: Management of small bowl obstruction.**

Causes	No. of cases (40)
Adhesiolysis	14
Hernia repair	8
Resection and anastomosis	8
Band release	4
Volvulus derotation	2
Resection	2
Mekels diverticulectomy	2

The management of the intestinal obstruction was done as follows. The small bowl obstruction was seen in 40 patients and in 20 patients the large bowl obstruction was diagnosed. For the management of small bowl obstruction adhesiolysis was done in 14 patients, resection and anastomosis was done in 8 patients, in 4 patients the band release procedure was performed, hernia repair was done in 8 patients, followed by resection, hernia repair, volvulus derotation and Meckel's diverticulectomy was done in 2 patients respectively. For the management of large bowl obstruction the colostomy was done in 8 cases, resection and anastomosis in 4 cases, intussusception milking in two cases, volvulus derotation

was done in 2 cases and right hemicolectomy was done in 4 cases of CA ascending colon.

## DISCUSSION

Acute intestinal obstruction continues to be the most common surgical emergency. Acute intestinal obstruction is a major cause of morbidity and financial expenditure in hospitals around the world.<sup>9</sup> In our study a total number of 60 patients were admitted in the surgery department with the diagnosis of intestinal obstruction were included. In our clinical study incidence of acute intestinal obstruction is 1.9% of total surgical cases. In Adhikari et al series incidence was 9.87% of total surgical cases.<sup>9</sup> In Bhargava Anderson's series incidence was 3% of total surgical cases. The commonest cause was found to be postoperative adhesions followed by obstructed/strangulated inguinal hernia, malignancy, intussusception, volvulus, tuberculosis and mesenteric ischaemia.<sup>10</sup>

The involvement of small bowel in obstruction is much more common than that of large bowel (Sufian and Mostsumoto). The delay in the treatment will lead to high mortality. The mortality has reduced significantly by instituting the treatment at the earliest period. 1-4% of mortality in emergency surgeries is contributed by acute intestinal obstruction.<sup>11</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, associated medical problems (like respiratory cardiac or metabolic diseases) and advanced age carries a considerable contribution in adding the mortality.<sup>12,13</sup>

In our study the incidence of intestinal obstruction in males was 42 and that of females was 18. Male to female ratio is 2:1. The male preponderance is consistent with series reported from other part of world. Fuzan and Lee reported 2:1 male to female ratio. In our study also, adhesions remain the most common cause of intestinal obstruction. Our study results are comparable with other study groups like Thampi et al and Playforth et al.<sup>1</sup> A study conducted by Adhikari et al in eastern India showed that hernias were the most common cause of intestinal obstruction.<sup>14</sup>

The surgical management for the present study group includes release of adhesions for postoperative adhesions 40%, resection of anastomosis for many of the cases of obstructed/strangulated hernia where the viability of the bowel was doubtful and also for ischaemic bowel 22%, release of constricting agents and herniorrhaphy was done in 18% of the obstructed/strangulated hernia cases. Derotation of volvulus and sigmoidopexy was done in 4% of the cases. Resection anastomosis and herniorrhaphy done in 8% of the cases. Reduction of intussusception in

one case. Two cases were managed with Hartman's procedure and one case with transverse loop colostomy.

As present study was done in small sample size with limited geographical distribution, So further research is required involving longitudinal study on the same target population to see the maximum impact.

## CONCLUSION

Acute intestinal obstruction remains an important surgical emergency in the surgical field. Success in the treatment of acute intestinal obstruction depends largely upon early diagnosis skilful management and treating the pathological effects of the obstruction just as much as the cause itself. Erect abdomen x-ray is valuable investigation in the diagnosis of acute intestinal obstruction. Postoperative adhesions are the common cause to produce intestinal obstruction. Clinical radiological and operative findings put together can diagnose the intestinal obstruction. Mortality is still significantly high in acute intestinal obstruction.

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