

ASSESSMENT AND MANAGEMENT OF INTESTINAL OBSTRUCTION IN PATIENTS ATTENDING TERTIARY CARE INSTITUTE

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Abstract

Background and Aim: Bowel obstruction is the most common intra-abdominal problem faced by general surgeons in their practice. Therefore better understanding of pathophysiology, improvement in diagnostic techniques, fluid and electrolyte correction, much potent antibiotics and knowledge of intensive care is required. present study was undertaken to study the management and post-operative complications of intestinal obstruction.

Material and Methods: This is a prospective study of 97 cases presenting with symptoms and signs suggestive of acute intestinal obstruction. All patients are subjected to required preoperative biochemical investigations. 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.

Results: The occurrence of acute intestinal obstruction was common in male in comparison with female. The commonest presenting symptom was abdominal pain (100%) followed by vomiting (92.7%), distention of abdomen (87.6%) and absolute constipation (53.6%). In this study, Adhesive obstruction (56.7%) was the commonest cause of acute intestinal obstruction. Release of adhesions and bands was done in 43 cases. Resection and end-to-end anastomosis was done in 25 cases, which included cases of intussusceptions, adhesions, stricture, ileocaecal growth, colonic growth.

Conclusion: Most common etiological factor for intestinal obstruction is postoperative adhesions. Obstructed Inguinal Hernia is second most common cause of intestinal obstruction. Clinic radiological and operative findings put together can bring about the best and accurate diagnosis of intestinal obstruction.

Key Words: Abdominal pain, Adhesions, Bands, Bowel obstruction, Inguinal Hernia,

Introduction

Acute intestinal obstruction is a failure of aboral progression of intestinal contents. Bowel obstruction remains one of the most common intraabdominal problems faced by general surgeons in their practice whether caused by hernia, neoplasm, adhesions or related to biochemical disturbances. Intestinal obstruction of either the small or large bowel continues to be a major cause of morbidity and mortality.^{1,2} 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.³⁻¹⁰

Symptoms of intestinal obstruction includes abdominal pain (colicky), vomiting, abdominal distension and obstipation.¹¹ Visible peristalsis may be seen in thin patients while in others distention may be prominent.

Its early recognition and aggressive treatment in patients of all ages including neonates can prevent irreversible ischemia and trans mural necrosis, thereby decreasing

mortality and long term morbidity. Despite many recent advances in our diagnostic and therapeutic armamentarium, intestinal obstruction will continue to occur.¹² Mortality and morbidity is 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.¹³

Early diagnosis of obstruction, skillful operative management, proper technique during surgery and intensive postoperative treatment carries a good result.

Hence the present study was undertaken to study the management and post-operative complications of intestinal obstruction.

Material and Methods

The prospective study was undertaken with the aim of evaluating the etiology, mode of presentation, clinical features and management. Ethical approval was taken from the institutional ethical committee and written informed consent was taken from all the participants.

A minimum of 97 consecutive cases presenting with acute intestinal obstruction at Tertiary care in was selected for the study. This is a prospective study of 97 cases presenting with symptoms and signs suggestive of acute intestinal obstruction. The period of study was for one and half year. A detailed structured Proforma was used to collect this information.

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: Patients who refused surgical intervention were excluded and Patients those who were treated conservatively for sub-acute intestinal obstruction.

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.

Statistical analysis

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 study was done in all age groups ranging from newborn to 87 years. In our series, the maximum incidence was in the age group of 40-49 years. The occurrence of acute intestinal obstruction was common in male in comparison with female. There were 62 male and 35 female with male to female ratio around 2:1. There were more cases of small bowel obstruction 82% when compared to large bowel obstruction 18%.

The commonest presenting symptom was abdominal pain (100%) followed by vomiting (92.7%), distention of abdomen (87.6%) and absolute constipation (53.6%) (Table 1). In this study, Adhesive obstruction (56.7%) was the commonest cause of acute intestinal obstruction, followed by Obstructed Hernia (18.5%), Malignancy (5.15%), Volvulus (4.1%), Intussusceptions (5.15%), TB stricture (6.1%), Mesenteric ischemia (2.19%) and nonspecific inflammatory stricture (2.19%) (Table 2). Release of adhesions and bands was done in 43 cases.

Resection and end-to-end anastomosis was done in 25 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. 2 case of mesenteric ischemia developed Short bowel syndrome which was managed with parenteral nutritional support. Enterocutaneous fistula developed in 3 cases; two case reexploration and resection of unhealthy segment and reanastomosis was done after 6 weeks and for second case of mesenteric ischemia fistula closure occurred spontaneously following conservative management for 4 weeks.

Table 1: Symptoms wise distribution of study participants

Symptoms	Number of Patients (97)	Percentage (%)
Abdominal Pain	97	100
Vomiting	90	92.7
Distention of abdomen	85	87.6
Obstipation	52	53.6

Table 2: Etiology of intestinal obstruction

Etiology of Intestinal Obstruction	Number of Patients (97)	Percentage (%)
Adhesion and bands	55	56.7
Hernia	18	18.55
Malignancy	5	5.15
Volvulus	4	4.1
T.B stricture	6	6.1
Intussusceptions	5	5.15
Mesenteric ischemia	2	2.19
Nonspecific stricture	2	2.19

Table 3: Types of operation

Types of operation	Number of Patients (97)	Percentage (%)
Release of adhesions and bands	43	44.3
Resection and end-to-end anastomosis	25	25.7
Untwisting of volvulus with colostomy	3	3.09
Herniorrhaphy	11	11.3
Resection and anastomosis with Herniorrhaphy	5	5.15
Hemicolectomy	3	3.09
Ileo-transverse anastomosis	2	2.19

Discussion

Acute intestinal obstruction is one of the most common surgical emergencies. The overall mortality and morbidity of bowel obstruction is substantial.^{14,15} Brewer et al analysed 1000 consecutive abdominal surgeries and reported an incidence of 2.5%.¹⁶

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%.^{17,18}

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 87 years. In this study 67% belongs to 22-64 years age group, previous study by Shakeeb, who noticed age distribution from birth to 85 years with an average of 50.¹⁹ years. Cole GJ et al. group, which are nearly similar to our clinical study of acute intestinal obstruction. Jahangir Sarwar Khan series shows a mean age of 33 years. These studies are almost comparable with our current clinical study.²⁰⁻²¹

Male and female are around 2:1 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.^{18,19}

The most common etiological factor in the present study is adhesion which included postoperative, nonspecific and congenital bands. In the present series 56.7% of the cases of obstruction were due to adhesion and bands, 46.5% were due to post-operative adhesions, around 10% due to congenital bands. Perry et al, found that 79% were post-operative adhesions, 18% inflammatory and 28% were congenital.²² Although the incidence of obstructed/strangulated hernia is more in developing countries, in this study group, it is the second most common aetiology for the intestinal obstruction. It may be because of the awareness of public, the availability of good surgical facilities in the periphery for the hernia repair, the hernias are managed early.²³⁻²⁵

All the cases of our study were subjected to surgery. Most common operation performed was release of adhesions and bands; was done in 44.3% of cases. Resection and anastomosis of bowel was done in 25.7% cases, Hemicolectomy in 3.09% cases, reduction and hernia repair in 11.3% 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. In a study by Mohamed et al in Saudi Arabia, surgical intervention was necessary in 61 patients (73%) while 23 patients (27%) responded to conservative treatment.²⁶ In a study by Chaib E et al, complications occurred in 15.7% of patients following operative intervention; wound infection was the most common postoperative complication.²⁷ Similar results shown in the study done by Madziga.²⁸

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.

Conclusion

Most common etiological factor for intestinal obstruction is postoperative adhesions. Obstructed Inguinal Hernia is second most common cause of intestinal obstruction. Clinicoradiological and operative findings put together can bring about the best and accurate diagnosis of intestinal obstruction. Early diagnosis and operative treatment followed by proper postoperative management is necessary to prevent mortality and morbidity. Early operation is mandatory to avoid the development of peritonitis and systemic sepsis associated with multi-system organ failure.

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