Original Research Article

Intestinal obstruction - A retrospective study of 150 cases

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Abstract

Mechanical bowel obstruction presenting acutely is a common surgical emergency and a frequently encountered problem in department of surgery. Intestinal obstruction continues to remain a challenge to surgeons despite advances in field of medicine, pathophysiology, surgical technique and conservative management. This retrospective study in patients operated for acute mechanical bowel obstruction in our department, was intended to highlight the common causes of intestinal obstruction in this geographical location of the study which had suggested measures for prevention and treatment of the condition. 150 patients who underwent exploratory laparotomy for intestinal obstruction were compared in terms of age, sex, symptoms, etiology of intestinal obstruction, site of obstruction, operative procedure performed.

Key words

Pain, Vomiting, Distension, Intestinal obstruction.

Introduction

Mechanical bowel obstruction presenting acutely is a common surgical emergency and a frequently encountered problem in abdominal surgery [1, 2]. Intestinal obstruction is a mechanical or functional obstruction of the intestines, preventing the normal transit of the feces. It can occur at any level distal to the duodenum of the small intestine and is a medical emergency. Intestinal obstruction remains a challenge to surgeons despite advances in field of medicine, pathophysiology, surgical technique and conservative management. Surgeons are concerned about bowel obstruction cases because of fear of strangulation, causing bowel ischemia, necrosis and perforation, and it is more often

than not difficult to distinguish simple obstruction from strangulation. Early recognition of intestinal strangulation in patients with mechanical bowel obstruction is important to decide whether to perform an emergency surgery or to allow safe non-operative management of carefully selected patients [1-4]. Close and careful clinical evaluation, in conjunction with laboratory and radiologic studies, is essential for the decision making in proper management of patients with acute mechanical bowel obstruction [1], a preoperative diagnosis of bowel strangulation cannot be made or excluded reliably by any known parameter, combinations of parameters, or by experienced clinical judgement [3-5]. Charles V. Mann (1994) has given, the classical clinical advice that 'sun should not both rise and set' on a case of unrelieved intestinal obstruction, unless there are positive reasons for delay [6]. We, therefore, conducted this retrospective study in patients operated for acute mechanical bowel obstruction in our department to highlight the common causes of intestinal obstruction in this rural area of Haryana which had suggested measures for prevention and treatment of the condition.

Materials and methods

This retrospective study was carried out on data obtained from 150 patients who were operated in Maharaja Agrasen Medical College, Agroha, Haryana for intestinal obstruction from December 2011 to November 2015. Patients who underwent exploratory laparotomy for intestinal obstruction were compared in terms of age, sex, symptoms, etiology of intestinal obstruction, site of obstruction either small bowel or large bowel, operative procedure done. Patients who were managed conservatively were excluded in this study as it can cause errors for the study. Data collection included - a detailed record of the patient`s history, physical examination, and necessary investigations like baseline, X-ray abdomen erect and supine in all cases, ultrasound abdomen were recorded based on the requirement for each case. A proforma was recorded of each patient with age, sex, symptom duration, past surgical and medical history, diagnostic workup, etiology of obstruction, operative information, morbidity and mortality and the final outcome of the patients.

Results

During the 4 year study period, 150 patients underwent operative procedure and the rest were excluded as they were treated conservatively.

Age and sex distribution was in the ratio 1.3:1 (male: female) and the age distribution showed that most common occurrence of intestinal obstruction was in the age group of 31-40 years (26%) and least in 1-10 years of age (4%) as per **Table – 1** and **Table - 2**.

Table - 1: Age distribution.

Age in years	No. of patients
1-10	6
11-20	8
21-30	26
31-40	39
41-50	28
51-60	26
61-70	13
71-80	4

Table - 2: Sex distribution.

Sex	No. of patients	Percentage
Male	84	56%
Female	66	44%

Amongst operated cases, small bowel was the site of obstruction in 120 cases and large bowel obstruction in 30 cases. Thus small bowel: large bowel obstruction ratio was 4:1. (**Table - 3**)

Table - 3: Site of obstruction.

Site	No. of patients (%)
Small bowel	120 (80%)
Large bowel	30 (20%)

Adhesions and bands were the most common (42%) cause of intestinal obstruction as per **Table - 4**. Other causes like obstructed hernia (10%), volvulus (4%), intussusceptions (6%), malignancy (8%), stricture (6%), worms and bezoars (4%), meckel's diverticulum (4%), TB abdomen (6%) and miscellaneous were observed. Miscellaneous group includes seven (7) patients with intestinal pseudo-obstruction. In these patients, contrast examination was not performed and a decision for laparotomy was taken based on history and clinical features.

Table - 4: Cause of obstruction.

Cause	No. of patients (%)
Adhesions and bands	63 (42%)
Obstructed hernia	15 (10%)
Malignancy	12 (8%)
Intussusception	9 (6%)
TB Abdomen	9 (6%)
Stricture	9 (6%)
Worms	6 (4%)
Meckel's diverticulum	6 (4%)
Volvulus	6 (4%)
Miscellaneous	15 (10%)

Presenting symptoms amongst which abdominal pain was the most common complaint were as per **Table - 5**.

Table - 5: Presenting symptoms.

Symptoms	No. of patients (%)
Abdominal pain	150 (100%)
Vomiting	147 (98%)
Abdominal distension	142 (94.6%)
Constipation	140 (93.3%)
Peritonitis	18 (12%)

Timing and the type of surgery done in cases of intestinal obstruction were as per **Table – 6** and **Table - 7**. Surgery was performed within the first 24 hours in the majority of patients 117 (78%), and the rest within the next 4 days. The selection criteria of the surgical procedure were based on the intra-operative findings. Obstructed hernia was managed by resection of the involved gut whenever gangrenous followed by anastomosis along with a primary repair of the hernia. Malignant disease was most common in the large bowel and was managed by primary resection or bypass or stoma creation. Patients with malignancy were subjected to further treatment on an elective basis later on. Adhesions were managed by adhesiolysis and resection of the gut whenever gangrenous. Intestinal TB resulting in perforation was managed by resection of the gut with anastomosis or ileostomy. Volvulus was managed by primary resection and anastomosis or Hartmann's procedure. Surgery for intussusception was done in all cases (8 cases) and other conditions classed as miscellaneous were managed appropriately.

Table - 6: Timing of surgery.

Timing	No of patients (%)
Within 24 hours	117 (78%)
More than 24 hours	33 (22%)

Table - 7: Type of surgery.

Type of surgery	No of patients (%)
Adhesiolysis	58 (38.6%)
Resection and anastomosis	25 (16.6%)
Resection and colostomy	21 (14%)
Stricturoplasty	13 (8.6%)
Hernia repair	10 (6.6%)
Hemicolectomy	9 (6%)
Others	14 (9.6%)

Complications in the postoperative period occurred in 45 patients (30%). Of these, 18 patients (12%) had a single complication while the remaining 27 (18%) had more than one complication. Wound infection was the most common complication, occurring in 21 patients (14%), and of these, 9 patients (6%) required application of secondary sutures. Burst abdomen requiring emergency closure of abdomen occurred in 9 cases (6%). Small bowel fistula

developed in 6 patients (4%) and 6 (4%) required second operative intervention (**Table – 8, Table - 9**).

Table - 8: Postoperative complication.

Post-op complication		**No. of patients (%)**	
Present	Single	45 (30%)	18 (12%)
	Multiple		27 (18%)
Absent		105 (70%)	

Table - 9: Type of postoperative complications.

Type of postoperative complication	**No of patients (%)**
Wound infection	21 (14%)
Basal atelectasis	15 (10%)
Burst abdomen	9 (6%)
Sepsis	6 (4%)
Small bowel fistula	6 (4%)

Mortality

In our study, the mortality rate was 6% (9 patients). Two deaths occurred in the immediate postoperative period as a result of cardiac arrest following acute myocardial infarction. Seven patients who developed sepsis in the postoperative period expired because of multi-organ failure.

Discussion

Acute intestinal obstruction is a major cause of morbidity and financial expenditure in hospitals around the world. The etiology varies. However, adhesions appear to be the most common cause in the Western world as well as in parts of Asia and Middle East [7, 8]. In our study also, adhesions remain the most common cause of intestinal obstruction. Intestinal tuberculosis also appeared to be an important factor in the etiology given the high prevalence of tuberculosis in the Indian subcontinent as well as the rising incidence of HIV in the Indian population [9, 10]. In our study, most cases of large bowel obstruction were due to malignancy. No case of small bowel malignancy was seen. Incidence of worm obstruction and bezoars was observed in 6 (4.0%) cases due to worm bolus or bezoars obstructing the lumen. Thus incidence of worm obstruction and bezoars ranges between 4-16% amongst cases of intestinal obstruction; similar findings were noted by other authors [11].

The gender discrepancy in our patients with males outnumbering females can be possibly accounted for obstructed inguinal hernia, and in our country we mostly have males who suffer from this condition. Also, women in rural India are mostly housewives which limit their exposure to tubercle bacilli in contrast to males. Also, volvulus and malignant disease of the gastrointestinal tract are more common in males as compared to females.

The mean age of 43.08 years in our study is also consistent with age incidence in many similar reports [12-14].

The majority of our study group presented with acute mechanical small bowel obstruction. This has also been found in other studies with small bowel obstruction accounting for about 80% of total obstruction cases [5, 8, 15].

The mortality and morbidity in our study was high compared to other similar studies [7, 8]. Most of our patients were from a poor socioeconomic status with a high prevalence of malnutrition; therefore, the morbidity and mortality are likely to be higher. Comparison of most common cause of intestinal obstruction with other studies [16-19] was as per **Table – 10**.

Conclusion

In conclusion, we have found that adhesions are becoming an ever increasing underlying cause of bowel obstruction. A trend of elective hernia surgery has reduced the number of patients of hernias presenting with obstruction of bowel. Intestinal tuberculosis is also important in this part of the country as a cause for obstruction. Success in the treatment of acute intestinal obstruction depends largely upon early diagnosis, skillful management Improvements in surgical

and anesthetic techniques have reduced the mortality in intestinal obstruction. However recognition of strangulation in intestinal obstruction remains important problem for surgeons even today.

Table – 10: Comparison of most common cause of intestinal obstruction.

Author	Year	Total no. of case	Most common cause
Present study	2015	150	Adhesions and bands
Sinha S [16]	2002	97	Mechanical obstruction (Adhesions)
Arshad M [17]	2010	229	Intestinal tuberculosis
Souvik Adhakari [18]	2010	367`	Mechanical obstruction (Adhesions)
Madziga AG [19]	2008	376	Obstructed hernia

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