

A Clinical Observational Assessment of Surgical Management of Acute Intestinal Obstruction

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Abstract

Aim: The aim of the present study was to identify and analyse the clinical presentation, management and outcome of patients with acute mechanical, obstruction along with the etiology of obstruction, the incidence and causes of bowel ischaemia, necrosis and perforation.

Methods: This was a prospective study conducted among indoor patients of Department of General Surgery, Government Medical College, Bettiah, Bihar, India for 2 years who were willing to give consent for the study and fall into inclusion criteria. 50 cases of acute intestinal obstruction who required emergency operation at Government Medical College, Bettiah have been studied. The study was approved by the institutional ethics committee.

Results: The maximum incidence in the present study group was 31-40 and 51-60 with each 9 cases out of 50 cases. There were 30 males and 20 females. In the present study, 80% belonged to poor socio-economic and remaining was in the middle socio-economic status. The present study the most common symptoms were pain abdomen (90%) and vomiting (80%), and the most common signs were tachycardia (82%) and visible intestinal peristalsis (62%). Release of adhesions was done in 38% of cases, resection anastomosis in 20% of cases and release of adhesion with herniography done in 16% of the cases.

Conclusion: The study concluded that maximum incidence of intestinal obstructions was reported in age group 31-60 years with male predominance. Abdominal pain was the consistent symptoms followed by obstipation. Post-operative adhesion was the most common cause of the intestinal obstruction. Malignancy and multiple comorbidities remains the major risk factor for the post-operative complications and mortality.

Keywords: Acute intestinal obstruction, Exploratory, Laparotomy.

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Introduction

Bowel obstruction remains one of the most common intra-abdominal 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] 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.

Intestinal obstruction of either the small or large bowel continues to be a major cause of morbidity and mortality. [2] For the better management of patient with intestinal obstruction, it is important to analyse the clinical presentation and aetiology of obstruction. Prompt diagnosis of aetiology helps in better understanding of pathophysiology of disease and early intensive management helps to reduce the morbidity and mortality due to obstruction. [3] Mortality rate is huge in elderly individuals with pre-existing medical comorbidities and delayed presentations. Early diagnosis/management and surgery by an accomplished surgeon and proper post-operative critical management helps to improve peri-operative morbidity and mortality in patients with intestinal obstruction.

The death 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 knowledge of intensive care. [4] Most of the mortalities occurs in elderly individuals who seek late treatment and who are having associated pre-existing diseases like, diabetes mellitus, cardiac diseases or respiratory disease. Early diagnosis of obstruction skillful operative management, proper technique during surgery and intensive postoperative treatment carries a grateful result. [5]

The aim of the present study was to identify and analyse the clinical presentation, management and outcome of patients with acute mechanical, obstruction along with the etiology of obstruction, the incidence and causes of bowel ischaemia, necrosis and perforation.

Materials and Methods

This was a prospective study conducted among indoor patients of Department of General Surgery, Government Medical College, Bettiah, Bihar, India for 2 years who were willing to give consent for the study and fall into inclusion criteria. 50 cases of acute intestinal obstruction who required emergency operation at Government Medical College, Bettiah have been studied. The study was approved by the institutional ethics committee.

Inclusion criteria

Patients belonged to the age groups ranging from 12 years to 85 years of both sexes presenting with acute intestinal obstruction and operated in emergency were included.

Exclusion criteria

Paediatric age group (<12 years), patients who were having subacute intestinal obstruction treated conservatively, and patients who were having intestinal obstruction due to mesenteric ischemia were excluded.

The criteria for selection of cases were based on clinical history, physical findings, radiological and haematological investigations. Patients who were having subacute intestinal obstruction treated conservatively were excluded from the study, and only those cases of acute intestinal obstruction which were managed surgically were studied to establish the pathology of intestinal obstruction with an aim to know the mode of presentation, physical findings, radiological and haematological findings, operative findings and outcome of acute intestinal obstruction. After the admission of the patient, clinical data were recorded as per Proforma.

The diagnosis mainly based on clinical examination and often supported by haematological and radiological examinations. A complete history was

obtained from the patient and the complaints entered in the proforma in a chronological order. Each complaint in the history of presenting illness was documented in detailed enquiry.

(i) General physical examination – evidence of dehydration and the severity of it were looked into it and vital parameters were recorded.

Local examination – Abdominal examination was done under standard headings inspection, palpation, percussion. Immediately after the admission along with above procedure resuscitation with IV fluids especially ringer lactate and normal saline infusion started till the hydration and urine output become normal. Nasogastric decompression with Ryles tube carried out and antibiotic prophylaxis started. And close observation of all bedside parameters (like pulse rate, BP, RR, urine output, urine output, abdominal girth, bowel sounds and tenderness and guarding) was done. Blood transfusion was given in required cases. Patients who

showed reduction in abdominal distension and improvement in general condition especially in individuals with postoperative adhesions conservative management was confined (by extending the supportive treatment) for next 24 hours, those who showed improvement by moving bowels, reduction in pain/tenderness were decided for conservative treatment, such individuals are excluded from this study. Patients with clear-cut signs and symptoms of acute obstruction were managed by appropriate surgical procedure after resuscitation. Surgery adopted and criteria for deciding the procedure were noted, e.g. release of a band or adhesion, reduction and caecopexy for intussusception, resection and anastomosis for gangrenous bowel and release and repair for strangulated obstruction.

Statistical data analyzed by statistical package for the social sciences (SPSS) version 20 software.

Results

Table 1: Age incidence

Age (years)	Male	Female	Total
12 to 20	4	1	5
21 to 30	4	5	9
31 to 40	5	4	9
41 to 50	3	2	4
51 to 60	7	2	9
61 to 70	4	4	8
71 to 80	2	2	4
81 to 90	1	0	1
Total	30	20	50

The maximum incidence in the present study group was 31-40 and 51-60 with each 9 cases out of 50 cases. There were 30 males and 20 females.

Table 2: Socio-economic status

Socio-economic	Number of cases	Percentage
Poor	40	80
Middle	10	20
Upper	0	0
Total	50	100

In the present study, 80% belonged to poor socio-economic and remaining was in the middle socio-economic status.

Table 3: Symptoms and signs

Symptoms and signs	Number of cases	Percentage
Pain abdomen	45	90
Vomiting	40	80
Distension	34	68
Constipation	26	52
Tachycardia	41	82
Previous surgical scar	23	46
Tenderness	14	28
Rigidity	14	28
Mass	11	22
Visible peristalsis	31	62

The present study the most common symptoms were pain abdomen (90%) and vomiting (80%), and the most common signs were tachycardia (82%) and visible intestinal peristalsis (62%).

Table 4: Management

Management	Number of cases	Percentage
ROA	19	38
Ra and H	5	10
DVS	3	6
Reduction	1	2
RA	10	20
Hart	3	6
Roa and H	8	16
TLC	1	2
Total	50	100

Release of adhesions was done in 38% of cases, resection anastomosis in 20% of cases and release of adhesion with herniography done in 16% of the cases.

Discussion

Intestinal obstruction is one of the most common conditions in patient attending surgical casualty. Various causes include adhesions, hernia, neoplasm or electrolytes abnormalities. The maximum incidence in the present study group was 31-40 and 51-60 with each 9 cases out of 50 cases which were comparable with the study by Adhikari et al.⁶ There were 30 males and 20 females. In the present study male to female ratio is 3:2 whereas in Adhikari et al study, it was 4:1. [6]

In the present study, 80% belonged to poor socio-economic and remaining was in the middle socio-economic status. In Souvik

Adhikari et al. [6] series incidence was 9.87% of total surgical cases. 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.

Release of adhesions was done in 38% of cases, resection anastomosis in 20% of cases and release of adhesion with herniography done in 16% of the cases. In the present study, postoperative adhesion is the commonest cause of intestinal obstruction, which was comparable with the other study groups Play forth et al [7] with 54% and Arshad Malik et al. with 41%. Although the incidence of obstructed/ strangulated hernia is more in the developing countries in this study

group it is the second common aetiology for obstruction. It may be because the awareness of public, the availability of surgical facilities in the periphery for the hernia repair, the hernias are treated early. The present study the most common symptoms were pain abdomen (90%) and vomiting (80%), and the most common signs were tachycardia (82%) and visible intestinal peristalsis (62%). Souvik Adhikari et al. [6] and Jahangir Sarwar Khan et al. [8] Only 66% of the patients in the present study group had distension of abdomen.

The mortality rate in the present study was much comparable to Ramachandran CS et al. study but it is more when compared to Souvik Adhikari et al., [6] Jahangir et al [8] studies. The mortality rate in the present study is much comparable to Ramachandran CS et al [13]. study but it is more when compared to Souvik Adhikari et al [6], Jahangir et al [9] studies. Out of 7 cases died, 6 cases were due to malignancy. As the malignancy was more in the aged group and the unprepared bowel surgeries done to the patient led to septicemic condition and resulted in death. Two patients were chronic smoker who suffered respiratory tract infection and died. Hence most of the deaths were due to malignancy which played significant role in the outcome of the disease. The mortality in intestinal obstruction is more in patients who develop strangulation and gangrene of the bowel, also who reached the hospital after 3 days. With all these, the age of the patient, general condition of the patient, duration of symptoms. Operative procedures carry a high role in progress as well as the mortality.

Conclusion

The study concluded that maximum incidence of intestinal obstructions was reported in age group 31-60 years with male predominance. Abdominal pain was the consistent symptoms followed by obstipation. Post-operative adhesion was the most common cause of the intestinal

obstruction. Malignancy and multiple comorbidities remains the major risk factor for the post-operative complications and mortality.

References

1. Scott G Houghton, Antonio Ramos De la Medina, Michael G Sarr. Bowel obstruction. 11th ed. Chapter 17. In: Maingot's Abdominal operations, Michael J Zinner, Stanley W Ashley, eds. New York: McGraw-Hill Medical; 2007. 479-505.
2. Houghton SG, De la Medina AR, Sarr MG. Bowel obstruction. 11th edition. Chapter 17. In: Maingot's Abdominal operations, Zinner MJ, Ashley SW, editors. New York: McGraw-Hill Medical. 2007;479-505.
3. Markogiannakis H, Messaris E, Dardamanis D, Pararas N, Tzertzelis D, Giannopoulos P, Larentzakis A, Lagoudianakis E, Manouras A, Bramis I. Acute mechanical bowel obstruction: clinical presentation, etiology, management and outcome. World journal of gastroenterology: WJG. 2007 Jan 1;13(3):432.
4. Wangenstein OH. Historical aspects of the management of acute intestinal obstruction. Surgery. 1969 Feb;65(2): 363-83.
5. Kloiber H. Die Röntgendiagnose des Ileus ohne Kontrastmittel. Langenbecks Arch. klin. Chir. 1919 Oct;112: 513.
6. Adhikari S, Hossein MZ, Das A, Mitra N, Ray U. Etiology and outcome of acute intestinal obstruction: a review of 367 patients in Eastern India. Saudi J Gastroenterol. 2010;16(4):285-7.
7. Jahangir Sarwar K, Junaid A, Hamid H, Mohammad I. Pattern of intestinal obstruction a hospital-based study.
8. Robert M Berne. Gastrointestinal regulation and motility. 5th ed. Chapter 31. In: Physiology, Robert M Berne, Mathew N Levy, Bruce M Koeppen,

Bruce A Stanton, eds. Mosby
Publication; 2008. p. 539.

9. Ramachandran CS. Acute intestinal obstruction: 15 year's experience. IJS. 1982; 5:672-9.