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Original Research Article

A clinical study of etiology and management of acute intestinal obstruction

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ABSTRACT

Background: Acute intestinal obstruction is one of common abdominal emergency and is associated with significant morbidity and mortality. Early diagnosis of obstruction, skilful operative management, proper technique during surgery and intensive postoperative treatment carries better results. The aim of this study was to identify the etiology, clinical presentation, management and outcomes of patients with acute intestinal obstruction presenting in GIMS, Gulbarga.
Methods: This is a prospective study carried out in the department of general surgery A unit at Gulbarga Institute of Medical Sciences, Gulbarga, from May 2014 to January 2018. 50 patients with acute intestinal obstruction coming to the OPD and emergency department were included in study and data was analysed.
Results: A total of 50 patients, presented with acute intestinal obstruction during the period of the study. Mean patient age was 46.5 years with peak incidence in 50-59 years. Small intestinal obstruction was seen more commonly than large intestinal obstruction. Most common etiology of intestinal obstruction was due to adhesion and bands (40%).
Conclusions: Present study concluded that Intestinal obstruction is seen more commonly in middle age group. Males were affected twice as common as females. Abdominal pain was the most common symptom, while tenderness was the most common sign. Post-operative adhesion caused most cases of small bowel obstruction while large bowel obstruction was caused most commonly by malignancy. Earlier the presentation better will be the outcome.

Keywords: Intestinal obstruction, Post-operative adhesions, Sigmoid volvulus

INTRODUCTION

Bowel obstruction remains one of the most common intra-abdominal problems faced by general surgeons in their practice. Bowel obstruction occurs when the normal propulsion and passage of intestinal contents does not occur.[1] Intestinal obstruction can be classified as dynamic (mechanical) or adynamic (pseudo obstruction). Mechanical obstruction is characterised by blockage of bowel (luminal, mural, extramural), resulting in increased intestinal contractility as a physiologic response to relieve the obstruction. Pseudo obstruction is characterised by absence of intestinal contractility.[2,3]

Mode of presentation is same in all, but underlying cause varies in each age group. It can pose diagnostic and treatment challenges with its varied presentation and multiple management options. The surgeon needs to use astute judgment to spot the diagnosis and plan the line of management. The management needs to be individualized for each patient considering his clinical state and progress of the disease pathology.[4]

METHODS

This prospective study is conducted in the Department of General Surgery, A unit at Gulbarga Institute of Medical

Sciences, Gulbarga, Karnataka, India. A total number of 50 cases of acute intestinal obstruction have been studied from May 2014 to January 2018. Study was done in selected patients who attended to General surgery A unit OPD and emergency department at Gulbarga Institute of Medical Sciences, Gulbarga, with history and clinical picture suggestive of acute intestinal obstruction.

Inclusion criteria

- All Patients admitted to department of general surgery with symptoms and signs of acute intestinal obstruction.

Exclusion criteria

- Infants with intestinal obstruction.
- Adynamic intestinal obstruction.

All patients with provisional diagnosis of acute intestinal obstruction were assessed clinically in detail after admission. On admission, relevant pathological and biochemical investigations were carried out in all cases. Plain X-ray erect abdomen was carried out in almost all patients. Ultrasonography and CT abdomen was done in some cases whose diagnosis by X-ray was inconclusive.

Prior to surgery stabilization of patients with shock, correction of electrolyte imbalance and nasogastric decompression was done. Patients were informed about surgical procedures and consent was taken. The analysis of data will be made by appropriate statistical parameters. Appropriate surgical procedure was carried out. Postoperative patients were followed up for a period ranging 4 months to 3 years from time of discharge. One patient was not regular in their follow up visits. The results were tabulated according to age, sex, symptoms, signs, probable causative factors, operative findings, operative procedure adopted and post-operative complications.

RESULTS

The occurrence of acute intestinal obstruction was more common in male (66%) with comparison to female (34%).

Table 1: Age distribution.

Age in years	No. of cases	Percentage
<20	1	2
20-29	6	12
30-39	8	16
40-49	11	22
50-59	13	26
60-69	10	20
>70	1	2
Total	50	100

There were 33 male and 17 females with male to female ratio 1.95:1 (Table 1).

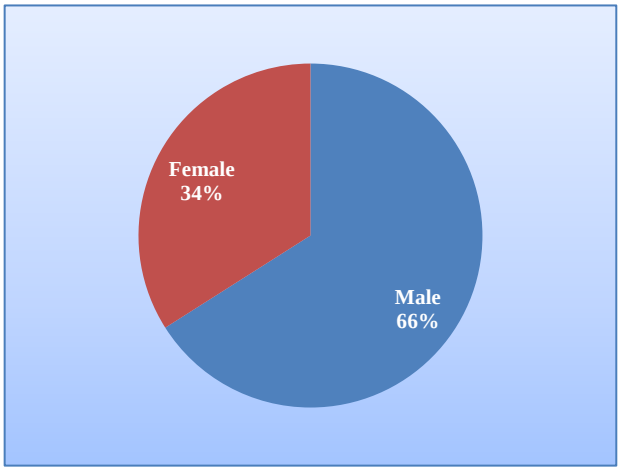

Figure 1: Sex incidence.

Patients of intestinal obstruction where mainly from age group 50-59 years (26%) (Figure 1). The patients of intestinal obstruction mostly commonly present in range of 2-4 days (62%) (Table 2).

Table 2: Duration of symptoms.

Duration of symptoms	No. of patients	Percentage
<48 hours	13	26
48 - 96 hours	31	62
>4 days	6	12

The present study of acute intestinal obstruction showed that abdominal pain seen in 47 patients (94%), was the most common symptom followed by distension of abdomen seen in 43 patients (86%), and vomiting seen in 34 patients (68%). The most common sign encountered was tenderness, seen in 37 patients (74%) (Table 3).

Table 3: Symptoms and signs.

Symptoms and signs	Number of cases	Percentage
Pain abdomen	47	94
Vomiting	34	68
Distension	43	86
Constipation	32	64
Tenderness	37	74
Mass per ABD	09	18
Visible peristalsis	08	16
PR structure/growth	1	2

Small intestinal obstruction was seen more commonly than large intestinal obstruction (Figure 2).

Most common etiology of intestinal obstruction was due to adhesion and bands (40%) followed by obstructed hernia (22%) and Malignancy (18%) (Table 4).

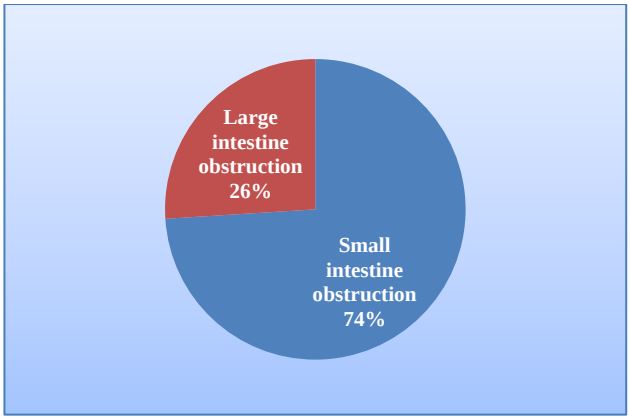

Figure 2: Site of obstruction.

Table 4: Aetiology of intestinal obstruction.

Clinical conditions	No. of cases	Percentage
Post-operative adhesions	20	40
Obstructed hernia	11	22
Malignancy	9	18
TB Stricture of ileum	4	08
Volvulus	2	4
Intusseption	2	4
Meckel's diverticulum	1	2
Mesenteric ischemia	1	2

Most common procedure done in intestinal obstruction in present study was laparotomy and release of adhesions or bands (38%) followed by laparotomy and resection and anastomosis (34%). Hernioplasty was performed in 18 % of cases (Table 5).

Table 5: Management.

Management	No. of cases	Percentage
Release of adhesions	19	38
Resection and anastomosis	07	14
HP	09	18
RA and HR	02	4
Hemicolectomy	10	20
Hartmann's procedure	01	2
Diversion stoma	2	4

Surgical site infection was most common complication encountered (16%) followed by Septicemia seen in 8 % of cases.

Table 6: Postoperative complications.

Postoperative complications	No. of cases	Percentage
Surgical site infection	8	16
Septicemia	4	08
Respiratory tract infection	2	04
Wound dehiscence	1	02
Anastomotic leak	2	04
Total	17	34

Respiratory infection was the seen in 4 % of cases. Anastomotic leak and wound dehiscence were seen in 4 % and 2 % of cases respectively (Table 6).

Table 7: Incidence of complications with time of presentation.

Time of presentation	Morbidity	Percentage of morbidity	Mortality
<48 hours	2	4	0
>48 hours	15	30	3

Rate of complications was more when patient presented late to the hospital. Morbidity was seen in 2 patients who presented less than 48 hours, while it was seen in 15 patients who presented after 48 hours (Table 7).

Table 8: Outcome.

Outcome	No. of cases	Percentage
Cured	47	94
Dead	3	6
Total	50	100

Mortality rate in present study was 6 %. Among them, one patient had mesenteric ischemia; other two patients were suffering from malignancy with metastasis (Table 8).

DISCUSSION

Bowel obstruction has been documented throughout history with cases detailed in the Praxagorus in 350 BC and by Hippocrates.[1]

It constitutes a major cause of morbidity and financial expenditure in hospitals around the world and a significant cause of admissions to emergency surgical departments.[5,6]

Intestinal obstruction although occurs in all age groups. In present clinical study, it includes all the age groups except infants. The study showed the peak incidence in the age groups of 50-59 years (28%) followed by 40-49 years (22%), 60-69 years (20%) which is comparable with the previous study groups Gill SS et al, Sreekantha et al.[7,8] The mean age in present current study is 46.5 years which no different from those in studies by Adhikari S et al which shows mean age of 44 years.[9]

The present study on acute intestinal obstruction in adults shows clear pre-ponderance of male sex over female sex with 33 patients (66%) males and 17 patients (34%) females. Ratio of male: female in present study is 1.95:1. This was in concordance with the studies conducted by in Osuigwe AN et al and Phillipo L Chalya et al study where male to female ratio was 2:1.[10]

The patients of intestinal obstruction most commonly presented in range of 2-4 days (62%). 26% patients

presented within 2 days and 12 % of patients presented after 4 days.

The present study of acute intestinal obstruction showed that abdominal pain seen in 47 patients (94%), was the most common symptom followed by distension of abdomen seen in 43 patients (86%), and vomiting seen in 34 patients (68%). The most common sign encountered was tenderness, seen in 37 patients (74%). These findings are comparable with studies done by Tahir et al, Venugopal K et al and Budharaja.[11-13]

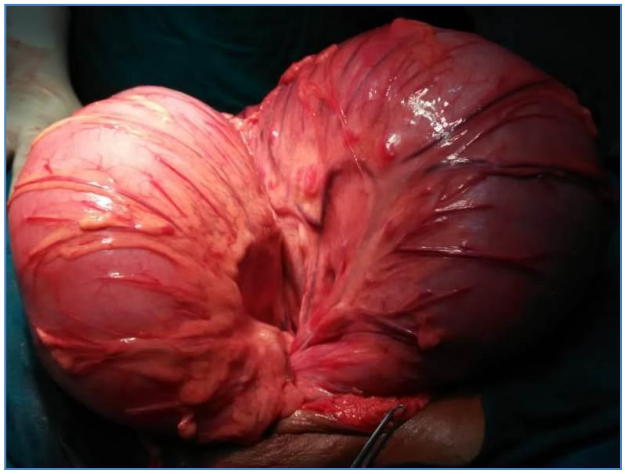

Figure 3: Volvulus of sigmoid colon.

Causes of bowel obstruction include adhesions, hernias, volvulus (Figure 3), endometriosis, inflammatory bowel disease, appendicitis, tumors (Figure 4), diverticulitis (Figure 5), ischemic bowel, tuberculosis, and intussusception.[14,15]

Figure 4: Resected right hemicolectomy specimen showing malignant stricture in ascending colon.

In present study, most common case of obstruction was post-operative adhesions seen in 20 patients (40%) followed by obstructed hernia seen in 22 % of patients. Similar observation was reported in the study conducted by Sreekantha et al, Malik AM et al, Naveen et al and Fuzan et al.[8,16-18]

Abdominal adhesions are fibrous bands that span two or more intra-abdominal organs and/or the inner abdominal wall which typically form after abdominal surgery. Adhesions may also form secondary to inflammatory conditions of the abdomen in the absence of prior abdominal surgery or as a sequela of abdomino-pelvic radiation. Although the majority of patients with intra-abdominal adhesions remain asymptomatic, a clinically significant subset of patients will develop "adhesive disease", a symptomatic state ranging from mild and/or vague to highly distressing and even life-threatening symptoms.[19,20]

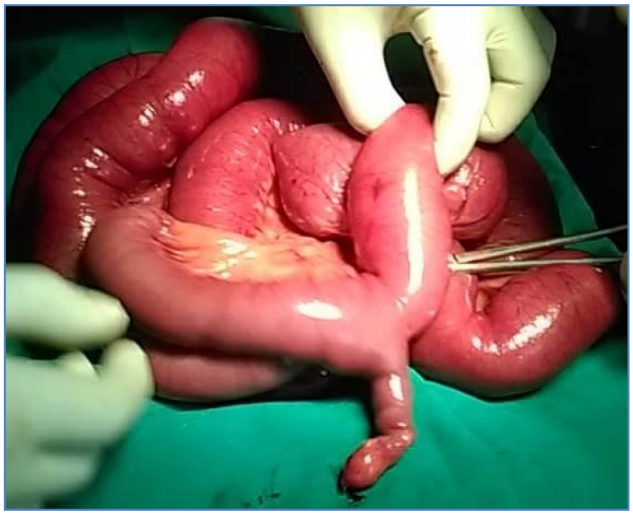

Figure 5: Meckel's diverticulum causing intestinal obstruction.

Small intestinal obstruction was observed more frequently, seen in 37 patients (74%). Large bowel obstruction was seen in 13 patients (26%). Malignancy was the most common cause of large bowel obstruction seen in 9 patients accounting for 70% of cases.

Most common procedure done in intestinal obstruction in present study was laparotomy with release of adhesions or bands (38%) followed by laparotomy with resection and anastomosis (34%). Patients having carcinoma colon were managed by hemicolectomy Hernioplasty was performed in 9 of 11 of cases of hernia. Other two cases of strangulated hernia were managed by resection and anastomosis followed by herniorrhaphy.

Colostomy with resection of sigmoid colon was done in two cases of sigmoid volvulus. Hartmann's procedure and debulking of metastatic ovarian tumour was done in a case of acute intestinal obstruction due to carcinoma rectum with multiple metastases.

Surgical site infection was most common complication encountered (16%) followed by Septicemia, seen in 8 % of cases, which is well comparable with study by Souvik et al.[9] Respiratory infection was the seen in 4 % of cases. Anastomotic leak and wound dehiscence were seen in 4 % and 2 % of cases respectively. Septicaemia and anastomotic leak were responsible for major morbidity. One patient of mesenteric ischemia died due to

anastomotic leak and sepsis. All patients of carcinoma were referred to oncology centre, among them two patients died after 1 year due to multiple metastases. Present study revealed overall mortality 6 %. Souvik et al reported overall mortality rate of 7.35%.[9]

Rate of complications was more when patient presented late to the hospital. Morbidity was seen in 2 patients who presented less than 48 hours, while it was seen in 15 patients who presented after 48 hours.

Intestinal obstruction requires a quick and correct diagnosis as well as immediate, rational and effective therapy.[21] Accurate early recognition of intestinal strangulation in patients with mechanical bowel obstruction is important to decide on emergency surgery or to allow safe non-operative management of carefully selected patients.[22] Management of intestinal obstruction is directed at treating the cause, correcting physiologic derangements caused by the obstruction.[23]

The optimal outcome for patients presenting with intestinal obstruction is influenced by several factors, such as whether the obstruction is partial or complete, the presence of ischemic or gangrenous bowel, perforation, duration of symptoms, development in the early postoperative period, the admitting service, and etiology.[24,25]

CONCLUSION

Present study concluded that intestinal obstruction is seen more commonly in middle age group although no age is immune. Males were affected twice as common as females. Abdominal pain was the most common symptom, while tenderness was the most common sign. Average time of presentation of patient of obstruction was 2-4 days. Small bowel obstruction is more common than large bowel obstruction. Post-operative adhesion caused most cases of small bowel obstruction while large bowel obstruction was caused most commonly by malignancy. Plain X-ray erect abdomen is the single important diagnostic tool for diagnosing intestinal obstruction and its level of obstruction.

In present study it had been observed that early diagnosis, adequate preoperative hydration, prompt investigations and early operative intervention improves survival in patients of intestinal obstruction.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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