

A Study of Prevalence and Pattern of Acute Intestinal Obstruction in a Tertiary Care Centre

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Abstract:

Background: Intestinal obstruction is a common cause of acute abdomen worldwide. It is the leading cause of morbidity and mortality from all causes of acute abdomen¹⁷. In spite of tremendous advances in medicine, bowel obstruction still remains a question of good clinical acumen.

Bowel obstruction poses great dilemma in both diagnosis and management. The pattern of intestinal obstruction varies between communities and in different age groups¹.

Materials and Methods: This retrospective study is conducted on the cases presented with pain and distension of abdomen with constipation/obstipation to K R hospital for a period of 1 year from June 2020 to May 2021. This study includes patients with intestinal obstruction managed with surgical intervention.

Results: Majority of the intestinal obstruction in our scenario are caused by postoperative adhesions followed by malignancies. Diagnosis of bowel malignancies at early stage itself can reduce the complications and ensure a better prognosis. Obstructed hernia is the 3rd most common cause of intestinal obstruction according to this study. Although its incidence is decreasing yet patients need to be educated about the complications of hernia and thus advised to get surgical opinion at early stages itself.

Conclusion: Majority of the intestinal obstruction in our scenario are caused by postoperative adhesions followed by malignancies. So better operative care and techniques need to be employed in primary laparotomy so as to reduce the chances for development of post-operative adhesions. Obstructed hernia is the most 3rd most common cause of intestinal obstruction according to this study.

Key word: Etiologies, adhesions, sigmoid carcinoma, obstructed inguinal hernia.

Date of Submission: 01-09-2021

Date of Acceptance: 15-09-2021

I. Introduction

Intestinal obstruction is a common cause of acute abdomen worldwide. It is the leading cause of morbidity and mortality from all causes of acute abdomen¹⁷. In spite of tremendous advances in medicine, bowel obstruction still remains a question of good clinical acumen.

Bowel obstruction poses great dilemma in both diagnosis and management. The pattern of intestinal obstruction varies between communities and in different age groups¹. Besides differing from place to place, the pattern of intestinal obstruction has been observed to be changing over time in the same location. These changes have been linked to several factors which includes change in lifestyle, especially diet, improved level of education, increased accessibility to and improvement in health care facilities³.

Impairment to the oral passage of intestinal contents can result from either a mechanical obstruction to the bowel or even failure of normal intestinal motility in the absence of an obstructing lesion.

With more external hernias being electively repaired, adhesive intestinal obstruction has gradually emerged as the leading cause of mechanical intestinal obstruction in places where external hernias had been the most common⁴. Colonic neoplasms have been on the increase as a cause of intestinal obstruction and the lesions are found to arise usually in the sigmoid or rectum. Very often, the decision about whether to operate on the patient or to continue with the non-operative management finally rests upon the treating doctor.

The surgeon's competence is also tested on deciding on when to go for intervention¹². The ultimate morbidity and mortality may finally depend on the timely decisions of the treating team. In many countries, where abdominal operations are common, adhesions and bands form the most common causes for small intestinal obstruction. Peritoneal adhesions are common after laparotomy and are exacerbated by intra-abdominal infection, the tissue ischemia associated with wound closure, external beam radiation, and the inevitable presence of foreign material such as sutures.

Lower abdominal or pelvic operations have a higher risk for bowel adhesion formation than do upper abdominal procedures⁹. Other rare causes for bowel obstruction include intussusception, bands and malrotation. Commonly sigmoid colon and rarely caecum are found to be involved by volvulus also.

From the standpoint of aetiology and management strategies, small bowel obstruction and large bowel obstruction require quite distinctive and separate approaches. It is useful to distinguish if the obstruction is in the small bowel or large bowel when approaching a patient who appears on clinical grounds to have bowel obstruction.

The prognosis for non-ischemic cases of small bowel obstruction is good with low mortality rates, while prognosis for small bowel obstruction associated with ischemia is fairly high.

The purpose of this study is to evaluate the various etiological factors of intestinal obstruction, the various clinical presentations of the disease and the demographic profile of patients admitted with this condition in our tertiary care centre.

II. Materials and Methods

Research design was that of a hospital based retrospective observational study. The study setting was the General Surgery department of Government Medical College hospital, Mysore. Study was carried out for a period of 1 year, from June 2020 to May 2021. This study is conducted on patients presented to casualty with pain and distension of abdomen with constipation/obstipation diagnosed as intestinal obstruction and admitted in the General surgical wards of Government Medical College, Mysore. This study includes patients managed with surgical intervention.

Study design: Retrospective observational study

Study Location: Mysore Medical College and Research Institute, India

Study Duration: 12 months. June 2020 to May 2021

Sample Size: 150 patients

Inclusion Criteria:

1. Diagnosed cases of intestinal obstruction (more than 3 air-fluid levels on plain X ray abdomen)
2. Age more than 18 years.
3. Either sex

Exclusion Criteria:

1. Patients below 18 years of age.
2. Patients managed conservatively

Procedure methodology

Immediately after the admission, resuscitation initiated with intravenous crystalloid fluids, especially ringer lactate and normal saline infusion till the hydration and urine output become normal. Decompression of bowel done with securing naso-gastric tube. Antibiotic prophylaxis started.

Close observation of all the vital parameters (pulse rate, blood pressure, respiration, urine output, abdominal girth and bowel sounds) was carried out continuously. Blood transfusion was done in required cases. Those patients who showed reduction in abdominal distension and improvement of general condition, especially in those with postoperative adhesions were continued with conservative management. CECT abdomen done for stable patients.

Patients with clear-cut signs and symptoms of progressive bowel obstruction were planned for appropriate surgical procedure after resuscitation. During the surgery, the findings and procedure adopted were recorded. The patients underwent various operative procedures depending on the intraoperative findings: e.g. release of a bands and adhesions, reduction of intussusceptions, resection and anastomosis for gangrenous bowel etc. Histopathological examination of the specimen of resection/biopsy was done whenever necessary.

Throughout the postoperative period, the patients were monitored carefully in the post-operative intensive care units or wards depending on the patients' general condition and toxemia. Postoperatively Ryle's tube aspiration, intravenous fluids and antibiotics were continued and tapered or removed on an individual case basis.

Study variables included name, age, gender, history of previous surgeries, intra-operative findings, CECT abdomen findings and histopathological findings.

III. Results

Out of the 150 patients studied in this study, 96patients (64.2%) were males and 54(35.8%) were females. Regarding the duration of illness, 99 (66.5%) cases presented longer than 24 hours after the onset of IO symptoms until undergoing operation. This study also shows 36(24%) patients had a previous history of abdominal surgery, and 20% of all IO cases had at least one diagnosed comorbid condition of cardiovascular diseases, lung diseases, diabetes mellitus, or other chronic disorders as documented in their medical records.

Table no 1: Sociodemographic characteristics of IO patients.

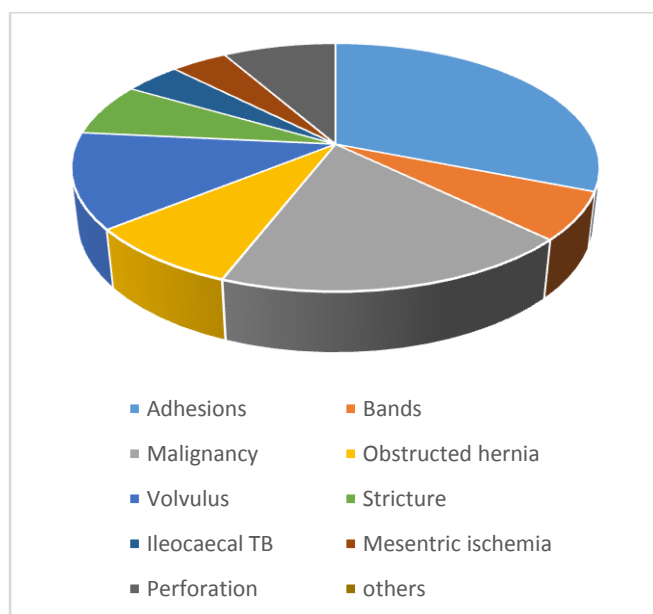
Variable	Category	Frequency
Age	21 - 30	21
	31 - 40	12
	41 - 50	39
	51 - 60	45
	61 - 70	22
	71 - 80	8
Sex	Male	99
	female	54
Residence	Rural	136
	Urban	14

Table no 2: History of previous surgeries

Variable	Number	Percentage
History of previous surgery	Yes	24
	no	66

Small bowel obstruction was seen in 102patients (67.4%), while large bowel obstruction was seen in 45 patients (30.42%). 45 patients (30.42%) were diagnosed to have adhesions. Malignancy was diagnosed in 27 patients (18.2%). 12 patients (8.92%) had obstructed hernia. Volvulus was the reason for obstruction in 18 patients (12%). Band was seen in 9 patients (5.8%). 12 patients found to have perforations (8.92%). Mesenteric ischemia was seen in 6 patients.(4.1%). Other diagnoses caused obstruction in 21 patients (14%). Adhesion was seen in a male to female ratio of 2.75:1 (33 male patients against 12 female patients). 6 male patients were diagnosed with obstructed hernia against 6 female patients²⁰. Malignancy was seen in 15 male patients against 12 female patients, with a male to female ratio of 1.25:1. Volvulus was seen in 9 male patients and 9 female patients.

Table no 3: Aetiological factors of Intestinal obstruction



Diagnosis	Number	Percentage
Adhesions	45	30.42
Bands	9	6.8
Malignancy	27	18.2
Obstructed hernia	12	8.92
Volvulus	18	12
Stricture	10	6
Ileocaecal TB	6	4.4
Mesenteric Ischemia	6	4.4
Perforation	12	8.92
Other	5	3.3
	150	100

Table no 4: Aetiological factors of Intestinal Obstruction with respect to gender.

Diagnosis	Male	Female
Obstructed hernia	6	6
Malignancy	15	12
Adhesions	33	12
Volvulus	9	9
Mesenteric Ischemia	6	0
Bands	6	3
Perforation	9	3
Ileocaecal TB	6	0
Stricture	6	4
others	1	4
	96	49

Out of the 12 hernia cases, 6(50%) were inguinal hernias and all of them were male patients. 5 patients (41.6%) had incisional hernia and all of them were females. Femoral hernia contributed 1 case (8.3%). Of the 45 patients with adhesive intestinal obstruction, 36(24%) patients had a previous history of abdominal surgeries like appendectomy, midline laparotomy for perforation, gynaecological procedures. Of the 27 malignancies which caused bowel obstruction, carcinoma sigmoid constituted the majority: 15 cases (55.5%). Carcinoma rectum was the next with 6 cases (22.27%). Carcinoma colon caused 14.88% of the malignancies which caused bowel obstruction (4 cases).

Table no 5 - Pattern of malignancies in Intestine obstruction

Type of Malignancy	Number	Percentage
Ca sigmoid	15	55.5
Ca rectum	6	22.2
Ca colon	4	14.8
Ca small bowel	2	7.4
	27	100

IV. Discussion

A total of 150 patients were studied and out of this postoperative adhesions contributed to 30.42% of the cases with intestinal obstruction⁹. Malignancy formed the next important reason, contributing to 18.2% of causes. Obstructed hernia was the third reason for intestinal obstruction with 8.92% of total number of cases. According to two studies by Miller et al and Foster et al³, hernia caused less than 10% to intestinal obstruction. Our study is comparable to these studies. As per majority of the available studies, adhesions, incarcerated hernias and large bowel cancers constitute the most frequent causes for bowel obstruction.

Of the 150 cases studied, small bowel obstruction was seen in 102 patients (67.4%) and large bowel was seen in 45 cases only (30.42%). It is estimated that 80-90% of bowel obstruction happens in small bowel and 10-20% in large bowel. The statistics in this study almost compares with that of the international studies due to the fact that adhesions contributed to majority of the cases. 96 patients (64.2%) in the study group were male and 54 (34.8%) were female. Adhesion was seen in a male to female ratio of 2.75:1 (33 male patients against 12 female patients). Obstructed hernia also showed no sex predilection. Malignancy also showed almost equal predilection as colon cancer is seen more among females and rectal cancer is more among males.¹⁹

Of the 27 malignancies causing intestinal obstruction, carcinoma sigmoid colon constituted 59.2% of cases followed by carcinoma rectum (25.27%) If the level of growth is more proximal, intestinal obstruction wouldn't manifest as the faecal matter is more liquid in consistency. So it is logical that distal colonic malignancies would present as obstruction earlier than proximal lesions.

The limitations of our study included the fact that the study was carried out in a tertiary care centre, so it reflected a population in whom the treatment could not be done in a primary or secondary healthcare facility. Hence it cannot be taken as representative enough of the entire community.

V. Conclusion

As a summary, majority of the intestinal obstruction in our scenario are caused by postoperative adhesions followed by malignancies². So better operative care and techniques need to be employed in primary laparotomy so as to reduce the chances for development of post-operative adhesion. Obstructed hernia is the most 3rd most common cause of intestinal obstruction according to this study. Although its incidence is decreasing yet patients need to be educated about the complications of hernia and thus advised to get surgical

opinion at early stages itself. Also important is to assess in detail those patients presenting with significant bowel symptoms and to evaluate them for malignancy. Diagnosis of bowel malignancies at early stage itself can reduce the complications and ensure a better prognosis.

To conclude, acute intestinal obstruction remains an important surgical emergency in the surgical field, with significant morbidity as well as mortality. Great caution should be taken for the treatment of patients with acute mechanical bowel obstruction since the incidence of bowel ischemia, necrosis, and perforation is significantly high. Clinical as well as radiological findings put together can diagnose intestinal obstruction adequately. Though a major proportion of these patients can be managed non-operatively, substantial portions do require immediate operative intervention. Success in the management of acute intestinal obstruction depends largely upon prompt diagnosis, adequate resuscitation and skillful management.

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Dr. Chandrashekar S, et. al. "A Study of Prevalence and Pattern of Acute Intestinal Obstruction in a Tertiary Care Centre." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(09), 2021, pp. 57-61.