

Intestinal Obstruction-A Clinical Study In Semi Urban Hospital.

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Abstract

Background

Intestinal obstruction is one of the common general surgical emergencies which require prompt diagnosis and appropriate management to prevent complications. Mortality due to intestinal obstruction is on the decline especially in urban areas with improved access to health care, but the same may not be true in semi urban and rural populations due to delay in presentation and lack of awareness. Providing easy access to quality surgical care to these populations can reduce the morbidity due to intestinal obstruction.

Objectives

To study the etiological trends, presenting features, management and outcomes of intestinal obstruction.

Methodology

The study is conducted prospectively for a 2 year period from January 2015 to December 2017 in the Mediciti Institute Medical sciences which is a teaching hospital in a semi urban setting. All the cases of intestinal obstruction which are admitted in the hospital and managed surgically are included in the study. There are a total of 40 cases.

Results

Majority of the patients with intestinal obstruction are in the age range of 30 to 60 years. The main clinical features of presentation are pain abdomen, vomiting, abdominal distension and constipation. Small bowel obstruction is more common than large bowel obstruction. Post operative adhesions are the commonest etiological factor and hernia is the second commonest cause. Malignancy causing obstruction is more common in large bowel than small bowel. Correction of fluid and electrolyte imbalances, naso gastric aspiration, antibiotics and prompt surgical management are the main treatment modalities. A decreasing trend is observed in the mortality of intestinal obstruction.

Conclusion

Changing trends are observed in the frequency of some causes of the intestinal obstruction with post operative adhesions becoming the main etiology replacing hernia to second most common cause. Measures to prevent adhesion formation after surgery may result in the reducing incidence of intestinal obstruction.

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I. Introduction

Intestinal obstruction is an important general surgical emergency which causes significant morbidity and mortality. Expedient diagnosis and appropriate management is essential to prevent irreversible ischemia to bowel and reduce morbidity and mortality.

It is mainly classified as dynamic (mechanical) obstruction and adynamic (functional) obstruction. It can also be classified according to the level of obstruction in to small bowel obstruction and large bowel obstruction or according to the etiology. Bowel obstruction has varied etiology, small bowel accounting for most of the obstructions. Adhesions cause 60% of the small intestinal obstructions currently. Hernia, malignancy and volvulus are among the remaining causes. Colorectal malignancies cause most of the large intestinal obstructions.

Mortality due to acute intestinal obstruction is decreasing due to improved access to quality health care, improvement in diagnostic techniques, better understanding of pathophysiology and correction of fluid and electrolyte abnormalities. Surgical intervention plays a prominent role in the management of the intestinal obstruction. Improvements in surgical techniques and post surgical intensive care are resulting in reducing the morbidity of patients.

Over the years it is observed there is a change in the relative frequencies of different aetiologies and demographic patterns. Probably it is reflection of change in dietary habits of population groups as well as easy

access to the surgical management of some ailments. The main objective of the current study is to analyze the pattern of intestinal obstruction cases in a semi urban healthcare setting.

AIMS AND OBJECTIVES

1. To study relative frequencies of various causes of intestinal obstruction.
2. To study various modes of presentation and diagnosis of intestinal obstruction.
3. To study the surgical and non surgical management employed for the management of cases and their outcomes in relation to the aetiology.

II. Materials And Methods

The present study is conducted for a two year period in Medici Institute of Medical Sciences (MIMS) from January 2015 to December 2017. MIMS is a semi urban based teaching hospital. All the patients who are admitted in surgical department of MIMS with features of intestinal obstruction during the above mentioned period constitute the clinical material for the study. A total of 40 cases of intestinal obstruction were managed in the hospital with patient's age ranging from 11 to 90 years. The diagnosis of intestinal obstruction is made mainly on the basis of clinical features and imaging investigations. The initial management of patients constituted naso gastric decompression by means of Ryle's tube placement and maintenance of fluid and electrolyte balance by infusion of appropriate IV fluids. All patients were routinely administered broad spectrum antibiotics.

The following investigations are done in all cases.

- Haematological investigations: Hb percentage, total and differential leukocyte count, ESR, Blood urea, serum creatinine, serum electrolytes, blood grouping and Rh typing.
- Complete urine examination.
- Imaging investigations: Plain X-ray abdomen erect and supine/lateral decubitus. CT scan abdomen in selective cases.
- Histopathological examination of resected specimen is done when ever required.

Inclusion criteria:

- All the patients presenting with features of intestinal obstruction in whom surgical management proposed.
- Patient's age ranging from 11 to 90 years.

Exclusion criteria:

- Patients presenting with subacute intestinal obstruction.
- Patients in the pediatric age group of 0 to 10 years.

The patient's data is collected in terms of age, sex, presenting complaints and their duration, investigations, diagnosis, management; post operative complications and final outcome.

III. Results

The study of 40 cases is as follows

TABLE1: AGE AND SEX DISTRIBUTION-

AGE GROUP	MALE	FEMALE	TOTAL	PERCENTAGE
11-20	1	0	1	2.5%
21-30	2	0	2	5%
31-40	4	5	9	22.5%
41-50	3	7	10	25%
51-60	8	4	12	30%
61-70	2	2	4	10%
71-80	1	0	1	2.5%
81-90	1	0	1	2.5%
TOTAL	22	18	40	

GRAPH1: AGE AND SEX DISTRIBUTION-

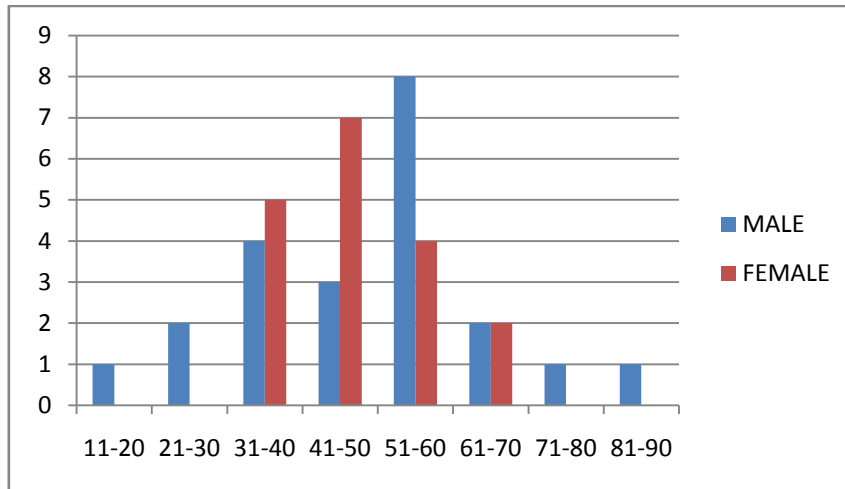


TABLE2: PRESENTING SYMPTOMS AND SIGNS:

S.NO	CLINICAL FEATURE	NO OF CASES	PERCENTAGE
1	PAIN ABDOMEN	40	100
2	VOMITING	38	95
3	ABDOMINAL DISTENTION	36	90
4	CONSTIPATION	38	95
5	TENDERNESS	30	75
6	MASS	4	10
7	ICREASED BOWEL SOUNDS	30	75
8	ABSENT BOWEL SOUNDS	3	7.5

GRAPH 2: PRESENTING SYMPTOMS AND SIGNS

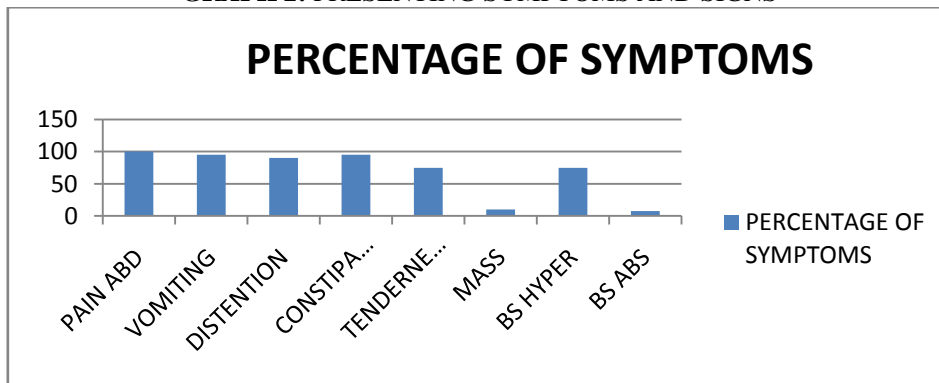


TABLE 3: ETIOLOGY OF INTESTINAL OBSTRUCTION

ETIOLOGY	NUMBER OF PTS	PERCENTAGE
1. ADHESIONS	14	35%
2. HERNIA	12	30%
3. IC TB & STRICTURE	7	17.5%
4. MALIGNANCY	5	12.5%
5. VOLVULUS	1	2.5%
6. SMA SYNDROME	1	2.5%

Obstructed hernia includes inguinal (6), para umbilical (2), incisional(4)and malignancy includes adenocarcinoma colon(3), adenocarcinoma ileum(1).

GRAPH 3: ETIOLOGY OF INTESTINAL OBSTRUCTION:

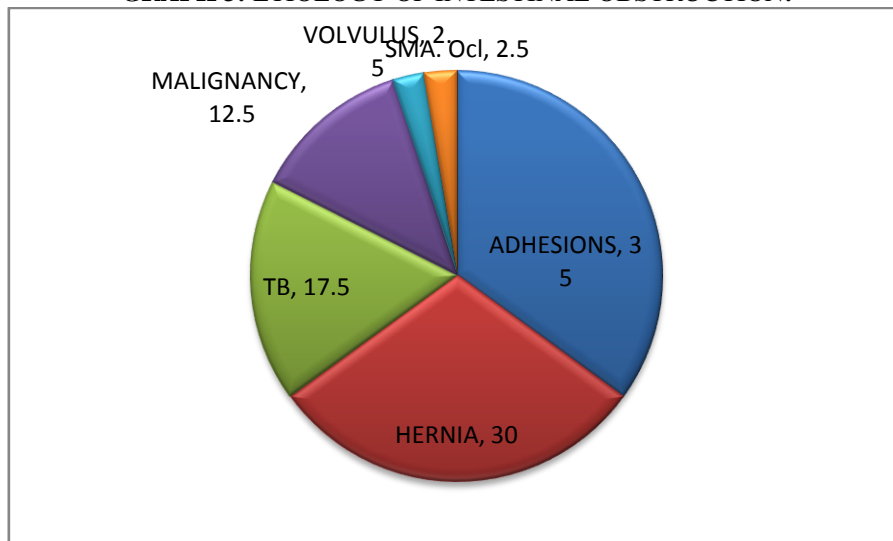


TABLE 4: TYPES OF OPERATION:

TYPE OF OPERATION	NUMBER OF PTS	PERCENTAGE
1.RESECTION ANASTAMOSIS	14	35%
2.ADHESIOLYSIS	12	30%
3.HERNIA REPAIR	8	20%
4.HEMICOLECTOMY	4	10%
5. UNTWISTING OF VOLVULUS	1	2.5%
6. RESECTION AND STOMA	1	2.5%

GRAPH 4: TYPE OF OPERATION

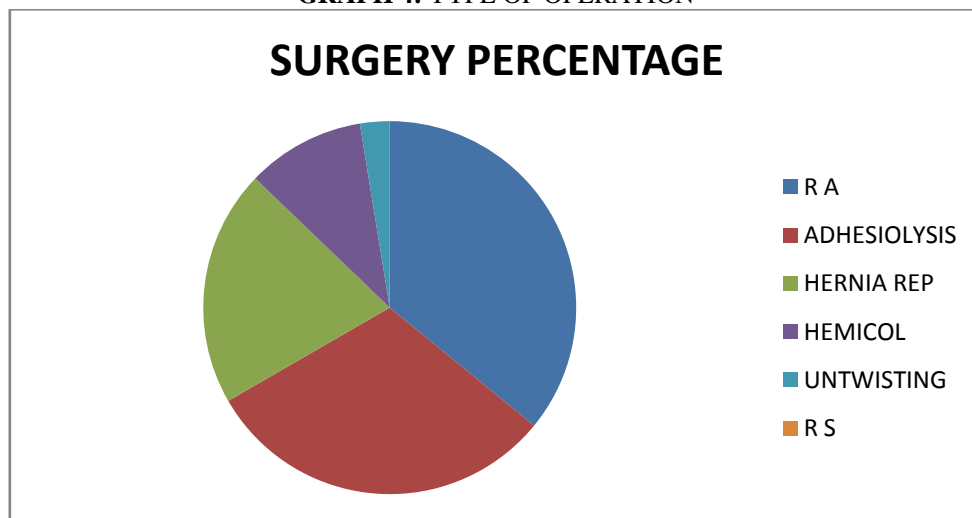


TABLE5: NUMBER OF PATIENTS WITH PREVIOUS SURGERIES

S.NO	TYPE OF SURGERY	NUMBER OF CASES	PERCENTGE
1	TUBECTOMY	5	31.25%
2	APPENDECTOMY	4	25%
3	HERNIA	2	12.5%
4	TAH	2	12.5%
5	LSCS	1	7.25%
6	CHOLECYSTECTOMY	1	7.25%
7	RESECTION ANASTAMOSIS	1	7.25%
TOTAL		16	

A total of 16 patients of 40 (25%) underwent surgical procedures previously with tubectomy being the most common procedure.

TABLE 6: POST OPERATIVE COMPLICATIONS:

COMPLICATION	NUMBER OF PATIENTS	PERCENTAGE
WOUND INFECTIONS	8	20%
RESPIRATORY INFECTIONS	4	10%
PROLONGED ILEUS	3	7.5%
ENTERO CUTANEOUS FISTULA	1	2.5%
SEPTICEMIA(DEATH)	1	2.5%

GRAPH5: POST OPERATIVE COMPLICATIONS

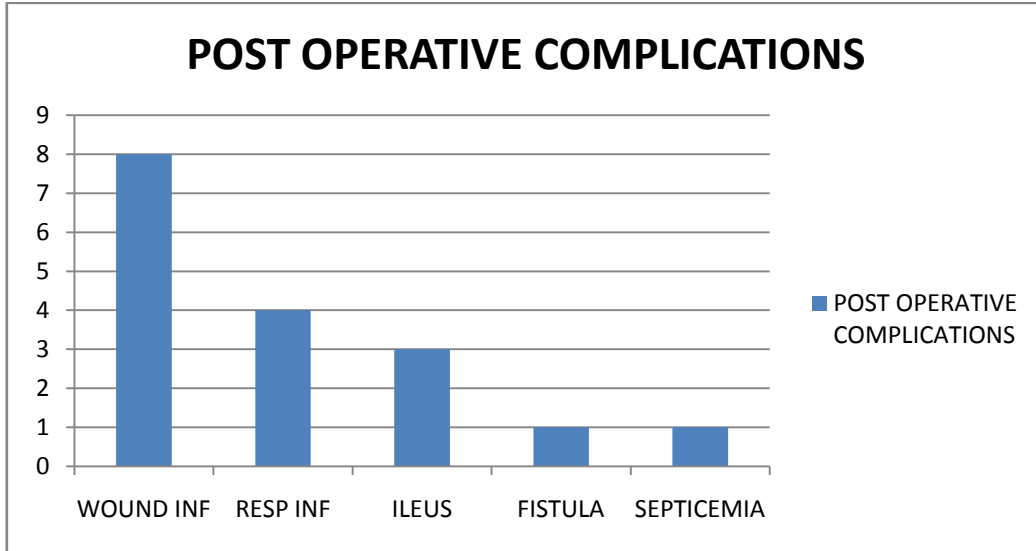
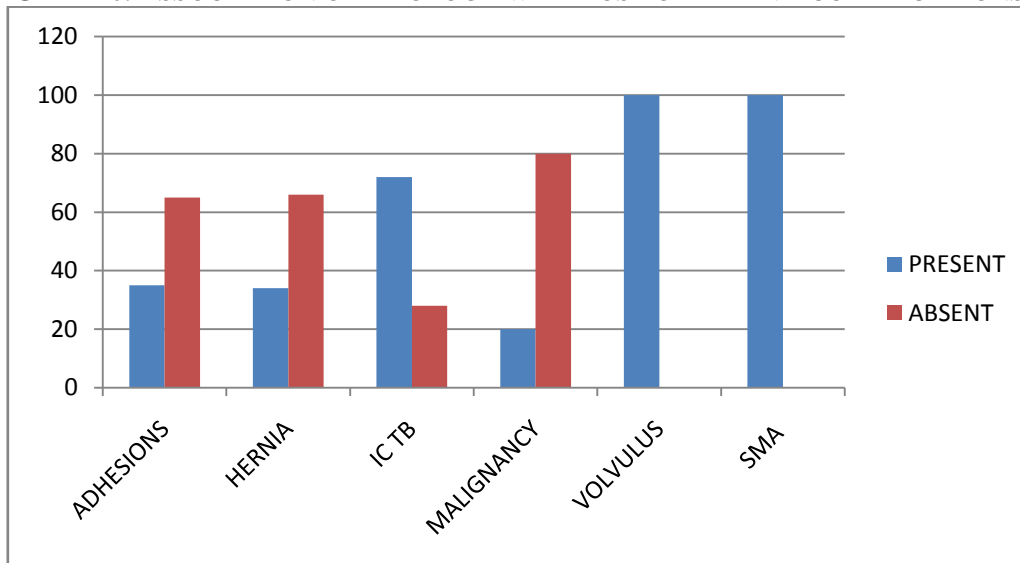


TABLE7: ASSOCIATION OF ETIOLOGY WITH COMPLICATIONS:

ETIOLOGY	POST OPERATIVE COMPLICATIONS		TOTAL
	PRESENT	ABSENT	
1 ADHESIONS	5	9	14
2 HERNIA	4	8	12
3 IC TB	5	2	7
4 MALIGNANCY	1	4	5
5 VOLVULUS	1	0	1
6 SMA THROMBOSIS	1	0	1

GRAPH6: ASSOCIATION OF ETIOLOGY WITH POST OPERATIVE COMPLICATIONS



IV. Discussion

Intestinal obstruction is one of the major general surgical emergencies with significant morbidity and mortality in all populations. In our study conducted at MIMS hospital with a semi urban setting there are 1052 abdominal surgeries conducted from January 2015 to December 2017. Out of these 40 cases were of intestinal obstruction constituting 3.8%. Jain et al analyzed 1000 abdominal surgeries in 1973 reported an incidence of 3.2%². Brewer et al analyzed 1000 consecutive abdominal surgeries in 1976 and reported an incidence of 2.5%³.

Obstruction at the level of small bowel is more common than the large bowel. In our study small bowel obstruction constituted 23 (65.85%) cases and large bowel obstruction 13 (34.15%) cases. This is in conformity with other studies (Sufian and Mostsumoto)³.

There are 22 male patients and 18 females in our study, indicating the sex ratio is nearly equal. Other studies reported sex ratios varying between 4:1 (Harban Singh et al⁶) to 1:1 (Sufian, Shakeed et al⁹).

The youngest patient in our study is 11 years and the oldest is 87 years. Majority of patients in our study (72.5%) are in the age range of 30 to 60 years and 30 % belong to the age group 50 to 60 years. Similar intestinal obstruction morbidity is reported by Gill SS, Eggleston FC⁵. In their study 27% cases fall in the age group 50 to 60 years and 70% cases between 30 to 60 years. However a study done by Ramachandran CS⁷ and Harban Singh⁶ reported the maximum number of patients are in the age range 21 to 40 years with obstructed hernia as the main aetiological factor. The variation of their observation from our study probably reflects the easy accessibility to surgical management of our study population which tends to reduce incidence of obstructed hernias and increase adhesive obstruction.

Adhesions are the commonest aetiological factor in our study which accounted for 35% of cases. Among these adhesions 75% are post operative adhesions 15% are inflammatory adhesions (post appendicitis and cholecystitis) and 10% are miscellaneous. It is estimated that 93% of abdominal surgeries will result in the formation of adhesions¹⁰. Among these one third patients will have one or other clinical signs or symptoms related to adhesions and 5% will develop acute intestinal obstruction.

Earlier Indian studies reported 10 to 15% intestinal obstructions are due to adhesions^{5, 8}, but in more recent studies the adhesions accounted for 23%⁷. In our study the adhesions are responsible for 35% of cases and are in line with increasing trend which is observed in recent studies. This increased trend is attributed to the increase in number of people undergoing abdomino pelvic surgeries.

All the cases in our series are managed surgically. The most common surgical procedure they underwent is resection and end to end anastomosis of small bowel (ileum) which is accounted for 35% of cases (14 patients). Simple release of adhesions required in 30% of cases (12 patients) and reduction of hernia and repair in another 20% cases (8 patients). Hemicolectomy is done in 10% of cases (4 patients), untwisting of volvulus done in 2.5% of cases (1 patient) and resection with ileostomy in 2.5% of cases (1 patient).

Mortality occurred in our series in only one case (2.5%). It is a case of superior mesenteric artery occlusion (thrombosis) with large segments of small bowel gangrene. It required resections of multiple segments of small bowel and end to end anastomosis. The case expired due to ARDS, sepsis and co morbidities. A decreasing trend in mortality is observed in various studies^{5, 7, 13}. This is probably due to increased availability and access to quality surgical care and also improved understanding of patho physiology of intestinal obstruction/gangrene. Our present study is also in line with that trend.

V. Conclusion

Intestinal obstruction is a common surgical emergency. Early diagnosis and prompt management prevents morbidity and mortality. Obstructed hernia as cause of intestinal obstruction is decreasing in incidence due to increasing number of people undergoing elective hernia surgery whereas post operative adhesions are increasingly being implicated in intestinal obstruction. Malignancy as a cause of large bowel obstruction is also increasing in significance. All these trends appear to be a reflection of increasing access and affordability of surgical care to populations. Measures to reduce formation of adhesions after abdominal surgery like gentle tissue handling/minimal access surgery and preventive measures/screening/early recognition of large bowel malignancies may have an impact in reducing overall incidence of intestinal obstruction.

DISCLOSURE: The authors declare no conflicts of interest.

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