

A Comprehensive Study of Intestinal Obstruction

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ABSTRACT

The commonest cause of intestinal obstruction in the adults in this study series was obstructed Hernia (42%) followed by postoperative adhesions (30%). Tenderness, guarding, rigidity, rebound tenderness and shock are the cardinal feature of strangulated obstruction. The second most common type of intestinal obstruction was due to postoperative adhesions. Salient features were pain. Postoperative adhesions constituted about 30% of the total cases studied. Volvulus of the sigmoid was 4% in this series, all the cases were undergone laparotomy due to failure in the recovery of symptoms. In all cases where there was vascular compromise, resection and anastomosis was done. Malignancy of the large bowel was seen in 7 cases constituting 14% of cases. 65% of the cases diagnosed as malignancy were in the age group 35 -75 years. Of these 2 cases were managed with Hartman's procedure and remaining cases was managed with transverse loop colostomy Most of the deaths occurred in malignancy. Although pulmonary tuberculosis more prevalent in India due to advent use of antitubercular drugs incidence of abdominal tuberculosis is becoming less. In our study incidence of ileocaecal tuberculosis was 4% and both were managed with resection and anastomosis.

Key words: Hernia, Laparotomy, Antitubercular drugs, Ileocaecal tuberculosis

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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 good appearance with only slight abdominal discomfort and distension to a state of hypovolemic or septic shock (or both) requiring an emergency operation.

To analyse the etiology, management, and outcome of patents with intestinal obstruction

[2]. 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. Most of the mortalities occur in elderly individuals who seek late treatment and associated pre-existing diseases like, diabetes mellitus, cardiac diseases, or respiratory disease. Early diagnosis of obstruction, proper technique during surgery and intensive postoperative treatment carries a grateful result.

MATERIALS AND METHODS

Type of study: Prospective observational study.

Study Period: March 2017–September 2018.

Study Population: 50 patients.

Inclusion criteria

All patients diagnosed to have intestinal obstruction by clinical & radiological method and were intervened surgically irrespective of age group admitted in SBMCH were included in this study.

Exclusion criteria

Patients with intestinal obstruction who were not able to comply with the treatment. Patients who were not consenting for the study. During hospital stay if the patient is decided to put on conservative management were excluded, for the want of definitive intra op diagnosis.

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 hematological 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 hematological and radiological examinations.

RESULTS

The incidence of acute intestinal obstruction in all age group was studied from the cases admitted in Department of Surgery of Sree Balaji medical college and hospital during the period March 2017 to September 2018. The data regarding the symptoms and signs and laboratory investigations has been adopted in 50 cases during the study period.

During the period of 19 months, (studied 50 cases in 19 months) the total number of admissions in surgery were 14,236 cases. Of which 120 cases of acute intestinal obstruction were treated during these periods which comprise 0.95% of total number of admissions among these surgically treated cases, 50 cases were randomly selected for the present study. Total number of emergency surgeries done in

the department of Surgery were 1,569 and acute intestinal obstruction in this group consisted of about 14.53% of these surgeries.

As per the below table and bar chart, the maximum incidence in the present study group is 51 -60 and 61-70 with 17 and 14 cases out of 50 cases (Table 1 and Figure 1). Male patients were more commonly affected when compared to female patients in the below table (Table 2 and Figure 2). Table 3 and Figure 3 represents socio-economic status.

In the present study of 50 cases, 32 patients were taking non-vegetarian which contains more of fatty diets. The remaining 18 patients were vegetarian which only contained high fiber diet (Table 4 and Figure 4).

The present study the most common symptoms were pain abdomen (88%) and vomiting (78%), and the most common signs were tachycardia (80%) and tenderness (28%) (Table 5 and Figure 5).

INCIDENCE OF DIFFERENT AETIOLOGY

The most common cause of intestinal obstruction in our study was Obstructed hernia. The next common was Postoperative Adhesions. Other conditions include malignancy, tuberculosis, intussusception, volvulus, mesenteric ischemia in descending frequency (Table 6 and Figure 6).

In our study of 50 cases as accordingly with the etiology the management and the surgical procedure was done as shown in the table and pie diagram, release of adhesion with hernioplasty done in 32% of the cases, release of adhesions only done in 30% cases & resection anastomosis in 18% of cases (Table 7 and Figure 7).

In the present study group there were 5 cases of septicemia, 2 cases of respiratory tract infection and 2 cases of wound infection (Table 8 and Figure 8).

Table 1: Age incidence.

Age (years)	Male	Female	Total
11 to 20	Nil	Nil	Nil
21 to 30	1	3	4
31 to 40	6	3	9
41 to 50	4	1	5
51 to 60	11	6	17
61 to 70	7	7	14
71 to 80	1	0	1
Total	30	20	50

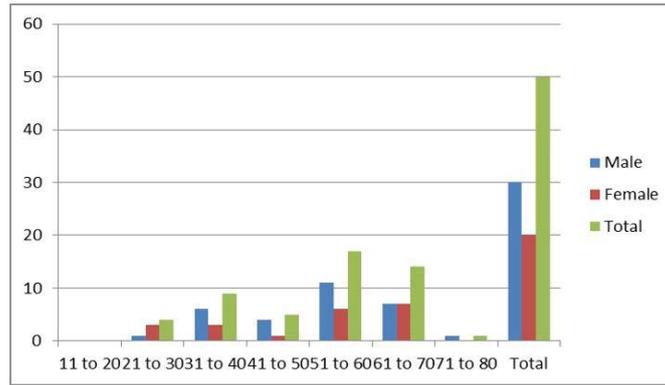


Figure 1: Age incidence.

Table 2: Sex incidence.

Sex	Number of cases	Percentage
Female	20	40
Male	30	60

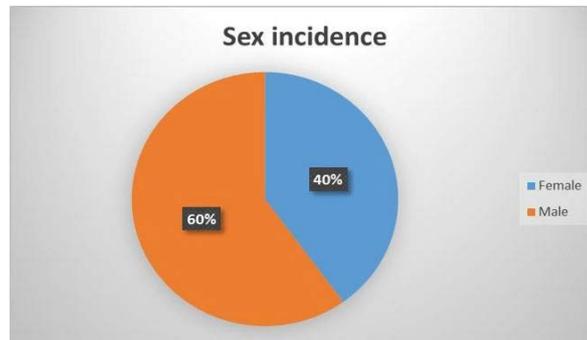


Figure 2: Sex incidence.

Table 3: Socio-economic status.

Socio-economic	Number of cases	Percentage
Poor	38	76
Middle	12	24
Upper	0	0
Total	50	100

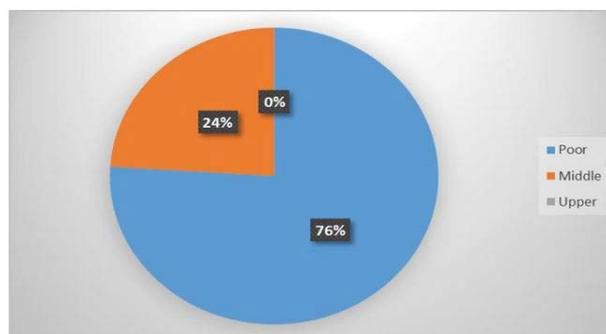


Figure 3: Socio-economic status.

Table 4: Diet.

Diet	Number of Cases	Percentage
Veg	18	36
Non-veg	32	64
Total	50	100

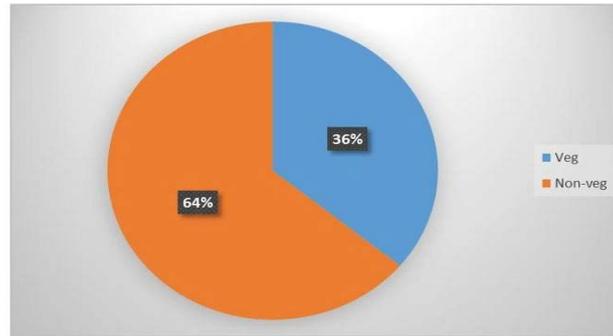


Figure 4: Diet.

Table 5: Symptoms and signs.

Symptoms and signs	Number of cases	Percentage
Pain abdomen	44	88
Vomiting	39	78
Distension	33	66
Constipation	27	54
Tachycardia	40	80
Previous surgical scar	22	44
Tenderness	14	28
Rigidity	13	26
Mass	12	24
Visible peristalsis	4	8

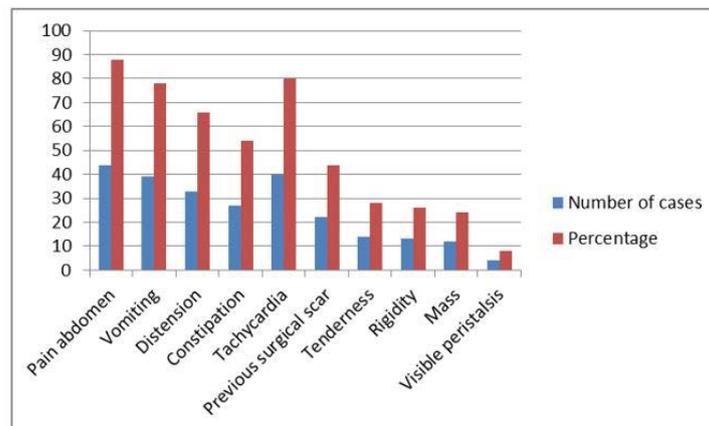


Figure 5: Symptoms and signs.

Table 6: Causes of intestinal obstruction in adults.

Clinical condition	Number of cases	Percentage
Obstructed hernia	21	42
Postoperative Adhesions	15	30
Volvulus	2	4
TB abdomen	2	4
Malignancy	7	14
Intussusception	2	4
Mesenteric ischaemia	1	2
Total	50	100

In the present study of 50 cases, about 7 patients died with the percentage of 14%. Most deaths due to complications like septicemia, peritonitis, respiratory infection (Table 9 and Figure 9).

In the present study 7 persons died during postoperative period. The analysis of cause of death is shown below (Table 10). Table 11 explains the follow up status.

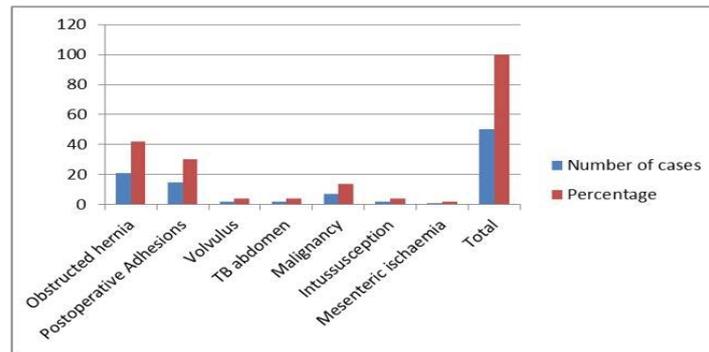


Figure 6: Causes of intestinal obstruction in adults.

Table 7: Management.

Management	Number of cases	Percentage
Release of adhesions & hernioplasty	16	32
Release of adhesions	15	30
Derotation of Volvulus & Sigmoidopexy	2	4
Resection & Anastomosis	9	18
Hartman's procedure	2	4
Resection Anastomosis and Herniorrhaphy	5	10
Transverse Loop Colostomy	1	2
Total	50	100

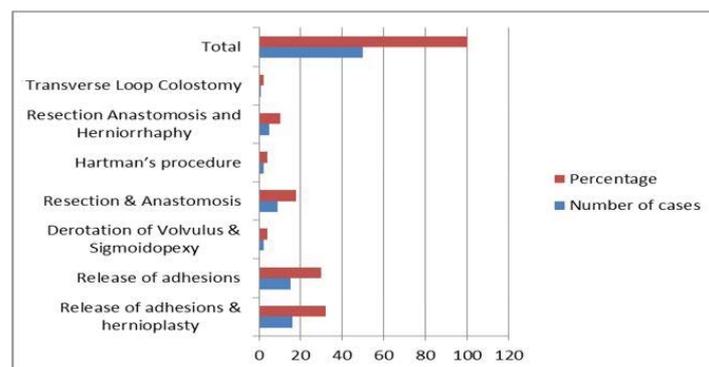


Figure 7: Management.

Table 8: Postoperative complications.

Postoperative complications	Number of cases
WI	2
RTI	2
Wound dehiscence	-
Faecal fistula	-
Septicaemia	5

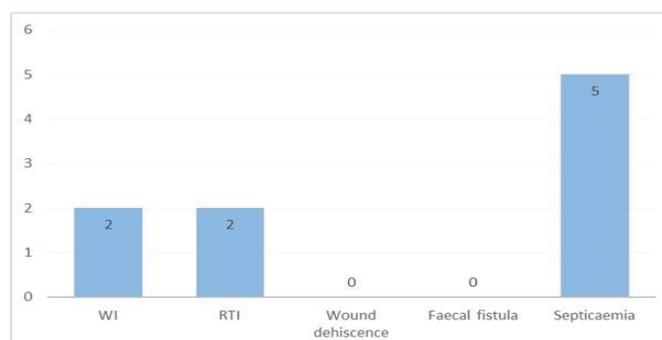


Figure 8: Postoperative complications.

Table 9: Mortality.

Mortality	Number of cases	Percentage
Cured	43	86
Dead	7	14

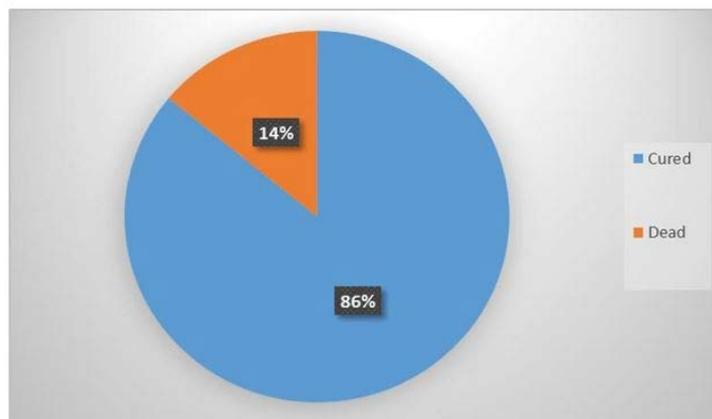


Figure 9: Mortality.

Table 10: Analysis of cause of death.

Age and sex	Symptoms prior to admission	Operative Findings	Operative procedure	Cause of Death
55/F (Case No. 8)	3 days	Carcinoma sigmoid colon	Resection and anastomosis	Septicaemic Shock
72/M (Case No.11)	8 days	Carcinoma Rectum	Hartman's Procedure	RTI
65/M (Case No.21)	5 days	Mesenteric Ischaemic	Resection anastomosis	Septicaemic Shock
45/M (Case No.36)	3 days	Carcinoma Caecum	Resection and anastomosis	RTI
58/F (Case No. 37)	5 days	Carcinoma ovary with sigmoid colon Infiltration	Transverse loop colostomy	Septicaemic Shock
63/M (Case No.39)	3 days	Carcinoma Rectum	Hartman's Procedure	Septicaemia
55/M (Case No.43)	4 days	Carcinoma Colon	Resection and anastomosis	Septicaemia

Table 11: Follow-up status.

Follow-up complications	Follow-up status		
	One month	3rd Month	6th Month
A. Wound infection	1	Nil	Nil
B. Septicemia	Nil	Nil	Nil
C. Enterocutaneous Fistula	Nil	Nil	Nil
D. Prolonged ileus	Nil	Nil	Nil
E. Fever	2	3	Nil
F. Respiratory infection	2	1	Nil
G. Death	Nil	Nil	Nil
H. Recurrent obstruction	Nil	Nil	Nil

DISCUSSION

Obstructed hernia continues to be the most common surgical emergency. A total of 120 patients presented with features of acute intestinal obstruction. Among these 50 cases of operated cases were randomly selected for the present study.

Disease incidence

In our clinical study incidence of acute intestinal obstruction is 0.95% of total surgical cases. In Souvik Adhikari et al. 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 obstructed/ strangulated hernia, followed by post-operative adhesions, malignancy, intussusception, volvulus, tuberculosis and mesenteric ischaemia. In developing countries like India, the commonest cause used to be obstructed/strangulated hernia.

Previous studies reported an incidence of 9.87%, Bhargava and Anderson series reported an incidence of 3%. In our hospital 1569 cases of total emergency surgeries were done in March 2017 to September 2018, of which 120 cases of intestinal obstruction comprising of 0.95% incidence were present. Among these 50 cases were selected as random study group.

Clinical features

The clinical feature of intestinal obstruction pain abdomen, vomiting distension of abdomen and constipation are not present in all cases. Pain abdomen was present in 88% of the cases in the present study, whereas the vomiting was present in 78% of the cases. Whereas distension was present in 66% and constipation was present in 54% of the cases. The comparative table showing percentage of clinical features by various other study group are as follows.

In the present study, the clinical features of pain abdomen were 88%, vomiting was 78% which comparable with the other study group. Souvik Adhikari et al. and Jahangir Sarwar Khan et al. Only 66% of the patients in the present study group had distension of abdomen. It may be due to early approach to the hospital by patients in the present study.

The mass per abdomen on palpation is present in 24% of the total study, present mostly in Malignancy and ileocaecal tuberculosis. Visible peristalsis is present in 8% of the intestinal obstruction cases. The rectal examination did not reveal any abnormality except in 2 cases of intussusception (4%) and 7 cases of malignancy (14%) where in red currant Jelly stools and rectal growth were the per rectal findings respectively.

Laboratory investigation

Among the total study population 30% of the cases were having Anaemia otherwise the basic haematological investigation did not yield much statistical significance.

Radiology

The Erect abdomen X-ray helps us in the diagnosis of intestinal obstruction as well as in differentiating the small bowel with large bowel obstruction. Multiple air fluid level can be seen in small multiple intestinal obstruction whereas only gas shadows seen in large bowel observation until the ileocaecal valve is competent. Taneja et al. report shows 90% of cases with multiple air fluid level and Savage et al. reports 95% cases with significant findings. In the present study of the 50 cases 60% of X-ray shows multiple air blood levels. Contrast study of barium enema may help to locate the obstruction in the colon but in our study contrast study was not done.

Surgical management

The surgical management for the present

study group includes resection anastomosis and herniorrhaphy for many of the cases of obstructed/strangulated hernia where the viability of the bowel was doubtful and also for ischemic bowel which is around 10%, release of constricting agents and hernioplasty was done in 32% of the obstructed/strangulated hernia cases, release of adhesions for postoperative adhesions was done in 30% cases. Two cases were managed with Hartman's procedure and one case with transverse loop colostomy.

Complications

In the present study group out of 50 cases, complications like septicemia 5 cases, respiratory tract infection 2 cases, wound infection in two cases occurred. The complication of septicemia was more in the cases of malignancy and one case of mesenteric ischemia case where in there was already sepsis at the time of admission, and for these cases bowel surgeries were done which were unprepared. Two cases one with obstructed inguinal hernia and one with the case of carcinoma rectum, the patients had prior comorbid conditions of COPD were suffered from respiratory tract infection.

Mortality

Frequency of mortality in our study is 14% i.e. 7 cases out of 50 cases. Among these 6 cases were due to malignancy and one due to mesenteric ischaemia. The mortality rate in the present study is much comparable to Ramachandran CS et al. study but it is more when compared to previous 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 [3-39].

CONCLUSION

Acute intestinal obstruction remains an important surgical emergency in the surgical field. Success in the treatment of acute intestinal obstruction depends largely upon early diagnosis, skillful management and treating the pathological effects of the obstruction just as much as the cause itself. Erect abdomen X-ray is valuable investigation in the diagnosis of acute intestinal obstruction.

Obstructed hernias are the common cause to produce intestinal obstruction. Clinical radiological and operative findings put together can diagnose the intestinal obstruction. Etiology – P value- 0.001(<0.05), hence the percentage of people with obstructed hernia, post op adhesions, volvulus, TB abdomen and intussusception have higher cure rates when diagnosed early, when compared with malignancy and mesenteric ischemia which has lower cure rates, and the difference is statistically significant. There is no statistically significant difference between cure rates and death rates due to various surgeries, probably because our sample size was small. P value 2.0(>0.05). Mortality is still significantly high in acute intestinal obstruction if the time of presentation to hospital is late, old age and if the diagnosis and intervention is delayed.

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ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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