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ORIGINAL RESEARCH ARTICLE

A COMPARATIVE STUDY ON SMALL INTESTINAL OBSTRUCTION AND LARGE INTESTINAL OBSTRUCTION IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: The objective of the study was to compare small intestinal obstruction and large intestinal obstruction. Bowel obstruction is one of the most common causes of acute abdomen and also a common surgical emergency till date. It is one of the gravest emergencies presenting to the surgeon in all aspects. 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.

Methods: A total of 100 cases of acute intestinal obstruction admitted in all surgical wards, Department Of General Surgery SVRRGGH/ SVMC, between November 2020 and August 2022. The Age, Sex detailed History relevant to the etiology were noted. The characteristic clinical features of acute intestinal obstruction were abdominal pain, vomiting, constipation, obstipation, Abdominal distension and clinical signs including Fever and tachycardia are noted.

Results: In this study, Small bowel obstruction was more common than Large bowel obstruction, the incidence of intestinal obstruction is more common in males compared to females, post operative adhesions was found to be the leading cause of obstruction in this study.

Keywords: Bowel obstruction, small bowel obstruction, large bowel obstruction

INTRODUCTION

Bowel obstruction is one of the most common causes of acute abdomen and also a common surgical emergency till date. It is one of the gravest emergencies presenting to the surgeon in all aspects.(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.(2)

With its multiple etiologies ,intestinal obstruction of either the small or large bowel continues to be a major cause of morbidity and mortality. The etiology of bowel obstruction has been varied with small intestinal obstruction caused by adhesions in 60%,strangulated hernia in 20%,malignancy in 5% and volvulus in 5%. Small bowel obstruction (SBO) is more common and a challenging clinical problem.(3)

The treatment of intestinal obstruction is varied, and has changed greatly during the past two centuries. Early diagnosis of obstruction, skillful operative management, proper technique

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE 01, 2024

during surgery and intensive postoperative treatment carries a grateful result.(4) Surgical approaches that feature a staged approach may have a betteroutcome.(5)

The vital parameters are normal in the early stages. Late in the disease, the patient becomes anxious and pale, with a feeble rapid pulse, falling temperature and blood pressure, and typical dehydration symptoms such as dry skin, dry tongue, and sunken eyes.

There was a significant change in the etiologic pattern of intestinal obstruction. Post-operative adhesions were the commonest cause of obstruction and appendicectomy was the most common previous operation causing adhesion.(6)

METHODS

A hospital based comparative prospective study was conducted in the Department of General Surgery, SVRRGG Hospital, Tirupati over a period of 12 months

A total of 100 cases of acute intestinal obstruction admitted in all surgical wards, Department Of General Surgery SVRRGGH. Both men and women more than 18 years of age totaling 100 cases with features of acute intestinal obstruction were chosen.

The characteristic clinical features of acute intestinal obstruction were abdominal pain, vomiting, constipation/obstipation, Abdominal distension and clinical signs including Fever (>37.2°C). Tachycardia (>100/min), Palpable abdominal mass if any were noted.

Inclusion Criteria: 1. Diagnosed cases of acute intestinal obstruction. 2. Age group between 18 and 60 years. 3. Patient who are willing to participate and give written consent for study.

Exclusion Criteria: 1. Subacute Intestinal obstruction cases

After adequate preoperative preparation, all patients were subjected to surgical procedures appropriate to the condition and preoperative pathology were noted. The etiological incidence, Sex incidence, Age incidence, incidence of strangulation, value of plain X-ray Abdomen in diagnosis of acute intestinal obstruction, importance of early treatment were studied.

RESULTS

AGE AND SEX DISTRIBUTION OF CASES

In the current study, majority 34% of patients belong to 41-50 years and next common presenting age group was 51-60years.The least common presenting age group was 21-30 years with 13%.

Table 1

S NO	Age group	Male	Female	Total	Percentage
1	21-30	8	5	13	13
2	31-40	10	10	20	20
3	41-50	16	16	34	34
4	51-60	28	5	33	33
	Total	64	36	100	

FREQUENCY DISTRIBUTION OF CASES ACCORDING TO TYPE OF BOWEL INVOLVED

In the current study, 73% of study subjects found to be Small bowel Obstruction and 27% of large bowel Obstruction

Table 2

S.no	Type of bowel involved	Frequency	Percentage
1	Small bowel obstruction	73	73

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE 01, 2024

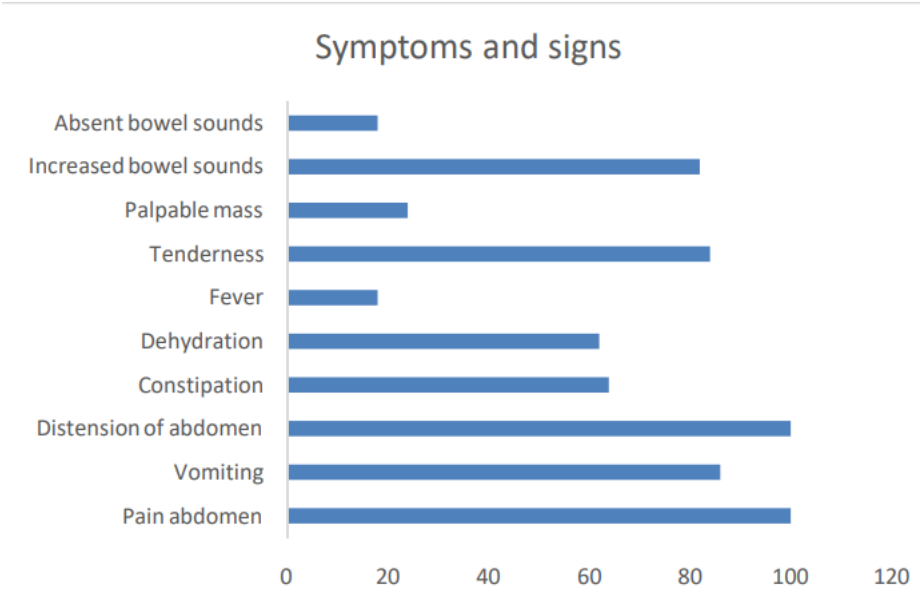
2	Large bowel obstruction	27	27
	Total	100	100

Comparison between sex and Bowel involvement

In the present study, among Female found to be small bowel obstruction 77.78% and 22.28% were large bowel obstruction. Among Male Found to be small bowel obstruction 70.31% and 29.68% were large bowel obstruction. The difference between male and female was not significant and The P Value was 0.42.

PRESENTING SYMPTOMS AND SIGNS

In the present study, all the study subjects were presented with abdominal pain (100%) and distension of abdomen (100%). Only 9% of study subjects were presented with fever.



COMPARISON OF VIABILITY OF BOWEL BETWEEN SMALL AND LARGE BOWEL OBSTRUCTION

In the present study, among small bowel obstruction was found to be 76.71% patients had viable bowel during surgery and 23.29% patients had non-viable bowel. Among large bowel obstruction was found to be 77.79% patients had viable bowel during surgery and 22.21% patients had non-viable bowel. The difference between small and large bowel obstruction was not significant and the P value was 0.91.

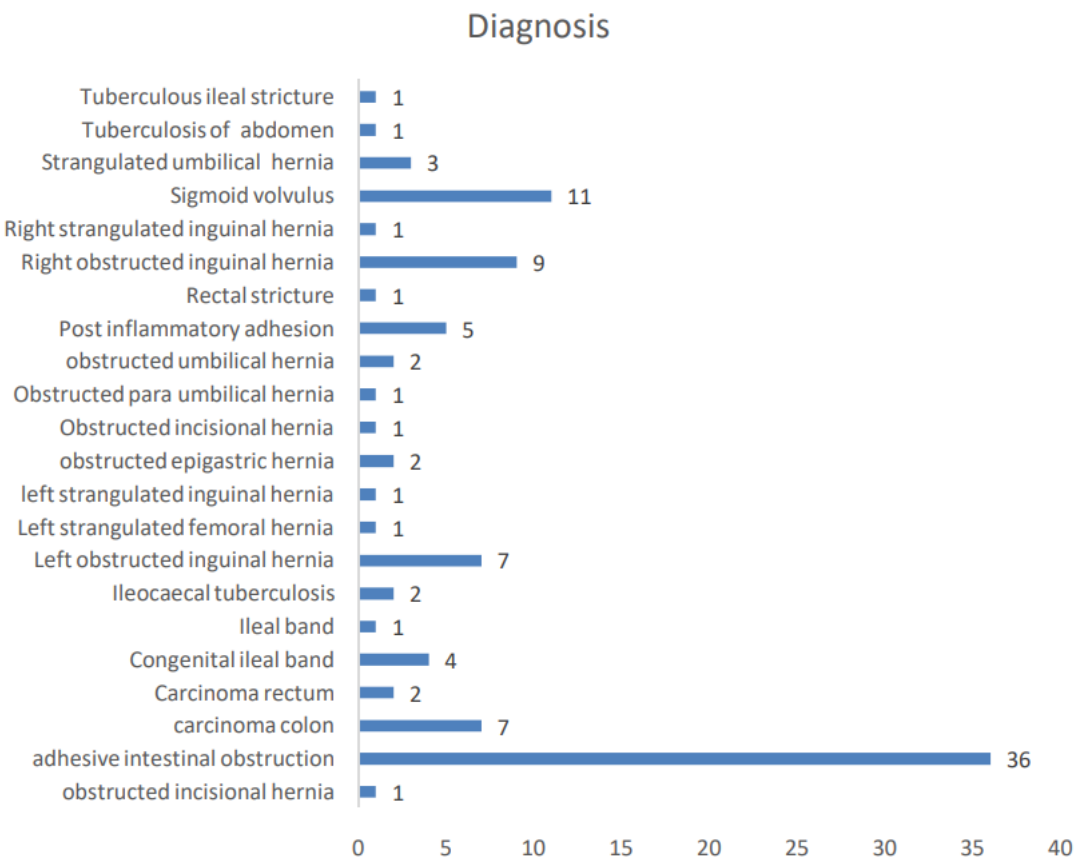
Table 3

S.no	Bowel condition	Small bowel obstruction	Percentage	Large bowel obstruction	Percentage
1	Viable	56	76.71	21	77.79
2	Non viable	17	23.29	6	22.21
	Total	73	100	27	100

ETIOLOGY OF INTESTINAL OBSTRUCTION

In the current study, Bulk of the cases were due to adhesions / bands followed by hernia, malignancy and TB stricture. In the present series 42% of the cases of obstruction are due to adhesion and bands. Among adhesion and bands 61.9% are due to post-operative adhesion, 23.8% are due to inflammatory adhesions and 15.3% are due to congenital bands

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE 01, 2024



COMAPRISON OF ETIOLOGY BETWEEN SMALL AND LARGE BOWEL OBSTRUCTION

Table 4

S.no	Diagnosis	Small bowel obstruction	Large bowel obstruction
1	Obstructed incisional hernia	1	0
2	Adhesive intestinal obstruction	34	2
3	Carcinoma colon	0	7
4	Carcinoma rectum	0	2
5	Congenital ileal band	4	0
6	Ileal band	1	0
7	Ileocaecal tuberculosis	0	2
8	Left obstructed inguinal hernia	6	1
9	Left strangulated femoral hernia	1	0
10	left strangulated inguinal hernia	1	0
11	obstructed epigastric hernia	2	0
12	Obstructed incisional hernia	1	0
13	Obstructed para umbilical hernia	1	0
14	obstructed umbilical hernia	2	0
15	Post inflammatory adhesion	5	0
16	Rectal stricture	0	0
17	Right obstructed inguinal hernia	9	0
18	Right strangulated inguinal hernia	1	0
19	Sigmoid volvulus	0	11

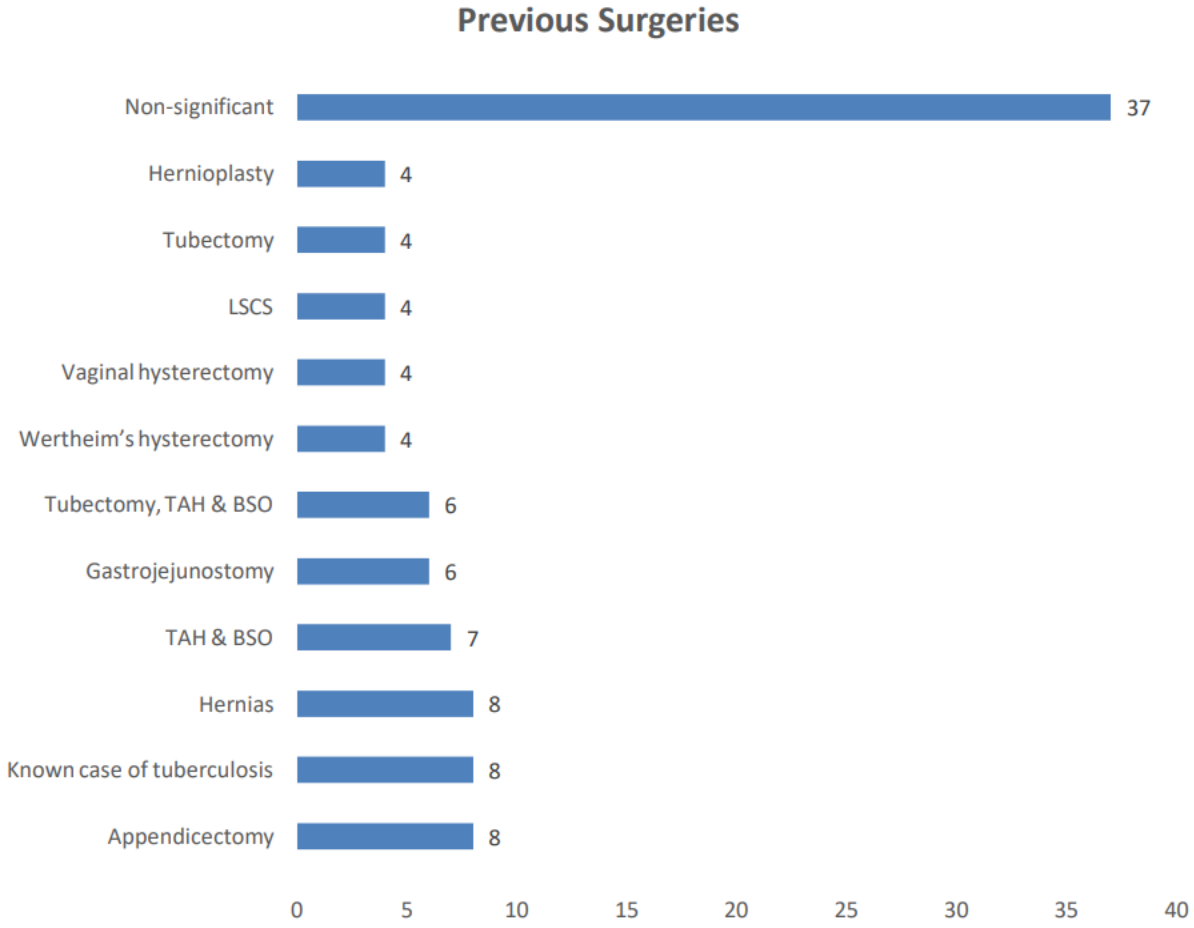
ISSN: 0975-3583, 0976-2833 VOL15, ISSUE 01, 2024

20	Strangulated umbilical hernia	2	1
21	Tuberculosis of abdomen	1	0
22	Tuberculous ileal stricture	1	0
		73	27

In the present study, the most common cause of small bowel obstruction was Adhesive Intestinal obstruction and most common cause of large bowel obstruction was sigmoid volvulus.

Previous Surgeries History

In the current study ,past surgical history included H/O Appendicectomy seen in 8%, known case of TB in 8%, Hernias in 8%, TAH& BSO in 7%, Gastrojejunostomy in 6%,Tubectomy ,TAH&BSO in 6%.wertheims hysterectomy in 4%,vaginal hysterectomy in 4%, LSCS IN 4%,Tubectomy in 4%. Hernioplasty in 4%.nonsignificant previous history in 37%.



Postoperative complications

Most common post-operative complication was wound infection 74.07% and the least common post-operative complication was burst abdomen

Table 5

S.no	Postoperative complications	Small bowel obstruction	Percentage	Large bowel obstruction	Percentage
1	Anastomotic leak	3	15.79	1	12.5
2	Burst abdomen	1	5.26	0	
3	Hematoma	2	10.53	0	

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE 01, 2024

4	Wound infection	13	68.42	7	87.5
	Total	19	100	8	100

comparison of outcome between Small and Large bowel obstruction

Among small bowel obstruction cases 4.11% cases were expired, 76.71% cases were discharged early and 19.18% cases were discharged delayed. Among large bowel obstruction cases 22.22% cases were expired, 62.96% cases were discharged early and 14.81% cases were discharged delayed.

Table 6

S.no	Outcome of surgery	Small bowel obstruction	Large bowel obstruction	Total
1	Early Discharge	56	17	73
2	Delayed Discharged	14	4	18
3	Expired	3	6	9
	Total	73	27	100

Comparison of follow up complications between Small and Large bowel obstruction

In the current study, among small bowel obstruction 50% of follow up complications were Respiratory tract infections and among large bowel obstruction 37.5% of follow up complications were Respiratory tract infection and Fever.

Table 7

S.no	Follow up complications	Small bowel obstruction	Large bowel obstruction
1	Wound infection	1	2
2	Fever	1	3
3	Respiratory Infection	2	3
	Total	4	8

DISCUSSION

Intestinal obstruction continues to be a frequent emergency, which surgeons have to face (1-4% of emergency operations). The involvement of small bowel in obstruction is much more common than that of large bowel (Sufian and Mostsumoto)[7]

The delay in the treatment will lead to high mortality. Since the advancement in understanding the anatomy/physiology, fluid and electrolyte management along with modern antibiotics and intensive care unit, the mortality has been decreasing consistently[8]. The associated medical problems (like respiratory cardiac or metabolic diseases) and advanced age carries a considerable contribution in adding the mortality.[9] .The associated medical problems (like respiratory cardiac or metabolic diseases) and advanced age carries a considerable contribution in adding the mortality.[10]

In the current study there were 64 male and 36 female patients were there. The male and females are nearly in 1:2 ratio. Majority of the patients were belongs 41-50 years age group.

Main mode of presentation was in terms of pain abdomen, vomiting and constipation. Distension of abdomen, tenderness and hyper peristaltic sounds were common finding in the patients.[11]

Bulk of the cases were due to adhesions / bands followed by hernia, malignancy and TB stricture.

In the current study Resection and end-to-endileo-ileal primary anastomosis was done in 8 cases, which included cases of adhesion, stricture, Ileocaecal growth, volvulus of small

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE 01, 2024

intestine. Adhesiolysis was done in 30 cases which included postoperative adhesions, inflammatory adhesions & constricting bands[12]. Anatomical hernia repair was done in 29 cases of which 7 were inguinal hernia and 3 were incisional hernia. Untwisting of sigmoid volvulus was done in 2 cases & hemicolectomy was done in 4 cases[13].

The most common Post-operative complication was wound infection (74.07%),Anastomotic Leak(14.81),Hematoma (7.41),Burst Abdomen (14.81)

Etiology with post operative complications, 13 Patients had adhesion and bands, 8 patients had hernia, 4 had malignancy, 2 had volvulus.

Cause of Death in postoperative period was Multiorgan failure, ARDS, Peritonitis and septicemia[14]

Wound infection ,fever ,Respiratory Infections was common follow up complications in first month, fever and respiratory infection was common in 3 rd months follow up .Nil was observed in 6th month.

49 male patients discharged early, 8 male patients discharged late and 7 are expired due to complications.

24 female patients discharged early, 10 female patients discharged late and 2 are expired due to complications.

CONCLUSION

Small bowel obstruction was more common than Large bowel obstruction, Acute Intestinal obstruction is more common in the age group of 40-60 years. Large bowel obstruction is primarily a disease of elderly. The incidence of intestinal obstruction is more common in males compared to females. Pain abdomen, vomiting , distension and constipation are the four cardinal features of intestinal obstruction which are present in the most of the cases.

Tenderness, guarding ,rigidity ,rebound tenderness and shock are the features suggestive of strangulated intestinal obstruction. Post operative adhesions was found to be the leading cause of obstruction in this study.Morbidity was due to SSI, Aanastamotic leak Pneumonia, and wound dehiscence. Early diagnosis and early surgical intervention is the key to reduce the mortality

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Conflict of interest: None declared

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

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ISSN: 0975-3583, 0976-2833 VOL15, ISSUE 01, 2024

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