

A Comparative Study on Small Intestinal Obstruction and Large Intestinal Obstruction in a Tertiary Care Hospital

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Abstract:

Background: The research aimed to compare minor and major intestinal blockage. Bowel blockage is one of the most prevalent causes of acute abdomen and remains a major surgical emergency to this day. It is one of the most serious crises presented to the surgeon in all aspects. They account for between 12% and 16% of surgical admissions for acute abdominal symptoms. Acute intestinal blockage symptoms might vary from a somewhat normal look with just little abdominal pain and distention to a condition of hypovolemia or septic shock (or both) necessitating an emergency procedure.

Methods: A total of 100 patients of acute intestinal blockage were admitted to all surgical wards at the Department of General Surgery SVRRGGH/SVMC between November 2020 and August 2022. The age, sex, and complete history pertinent to the etiology were recorded. Acute intestinal blockage is characterized by stomach discomfort, vomiting, constipation, and obstipation, as well as clinical symptoms such as fever and tachycardia.

Results: In this investigation, small bowel blockage was more prevalent than large bowel obstruction; men had a higher incidence of intestinal obstruction than females; and post-operative adhesions were shown to be the major cause of obstruction.

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

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Introduction

Bowel blockage is one of the most prevalent causes of acute abdomen and remains a major surgical emergency to this day. It is one of the most serious crises presented to the surgeon in all aspects. [1] They represent 12% to 16% of surgical hospitalizations for acute abdominal symptoms. Acute intestinal blockage symptoms might vary from a somewhat normal look with just little abdominal pain and distention to a condition of hypovolemia or septic shock (or both) necessitating an emergency procedure.

Obstruction of the small or large intestine, caused by various factors, remains a leading cause of morbidity and death. Bowel blockage has a variety of causes, with adhesions accounting for 60%, strangulated hernias for 20%, malignancy for 5%, and volvulus for the remaining 5%. Small bowel obstruction (SBO) is a more prevalent and difficult clinical issue. [3]

Treatment options for intestinal blockage have evolved significantly during the last 200 years.

Early detection of blockage, skilled surgical treatment, and suitable method. During surgery and extensive postoperative therapy yields a positive outcome. [4] Surgical techniques with a phased approach may provide better results. [5]

Vital markers seem normal in the early stages. Late in the illness, the patient becomes agitated and pale, with a weak quick pulse, a drop in temperature and blood pressure, and characteristic dehydration signs such dry skin, dry tongue, and sunken eyes.

The etiology of intestinal blockage has significantly changed. The most prevalent cause of blockage was post-operative adhesions, with appendectomy being the most common prior procedure that caused adhesions. [6]

Methods

A 12-month comparative prospective research was undertaken at the Department of General Surgery, SCB Medical College and Hospital, Cuttack. A total of 100 instances of acute intestinal blockage

were admitted to all surgical wards of the Department of General Surgery, SCB MCH, and Cuttack. Men and women over the age of 18 were selected, comprising 100 instances with acute intestinal blockage. Acute intestinal blockage was characterized by stomach discomfort, vomiting, constipation/obstipation, abdominal distension, and clinical symptoms such as fever (>37.2°C). Tachycardia (>100 beats per minute) and any palpable abdominal masses were noticed.

Inclusion criteria:

- Diagnoses of acute intestinal blockage.
- Age bracket of 18 to 60 years.
- Patients who agree to participate and provide written approval for the research.

Exclusion criteria:

- Subacute intestinal blockage instances

Following suitable preoperative preparation, all patients had surgical procedures suited to their condition, and preoperative pathology was documented. The etiological incidence, sex incidence, age incidence, strangulation incidence, and the usefulness of plain X-ray. The abdomen was examined in the diagnosis of acute intestinal blockage, as well as the need of early treatment.

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
2	Large bowel obstruction	27	27
	Total	100	100

Comparison between sex and bowel involvement

In the current research, 77.78% of females had minor intestinal blockage, whereas 22.28% had major bowel obstructions. 70.31% of males were found to have a mild intestinal obstruction, whereas 29.68% had a significant one. The difference between males and females was not significant,

with a P value of 0.42. Presenting Symptoms and Signs.

In the current research, all of the study participants reported stomach discomfort (100%) and abdominal distention (100%). Only 9% of the research individuals had fever.

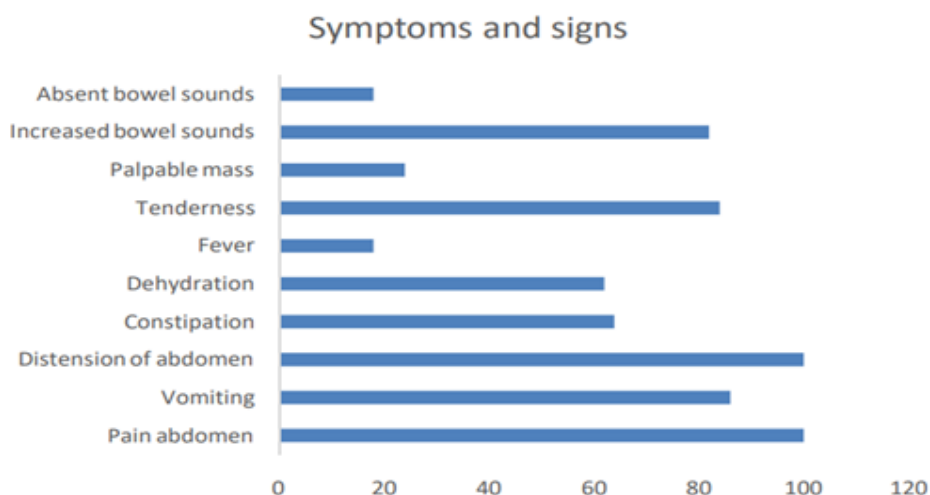


Figure 1: Symptoms and sign

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

Diagnosis

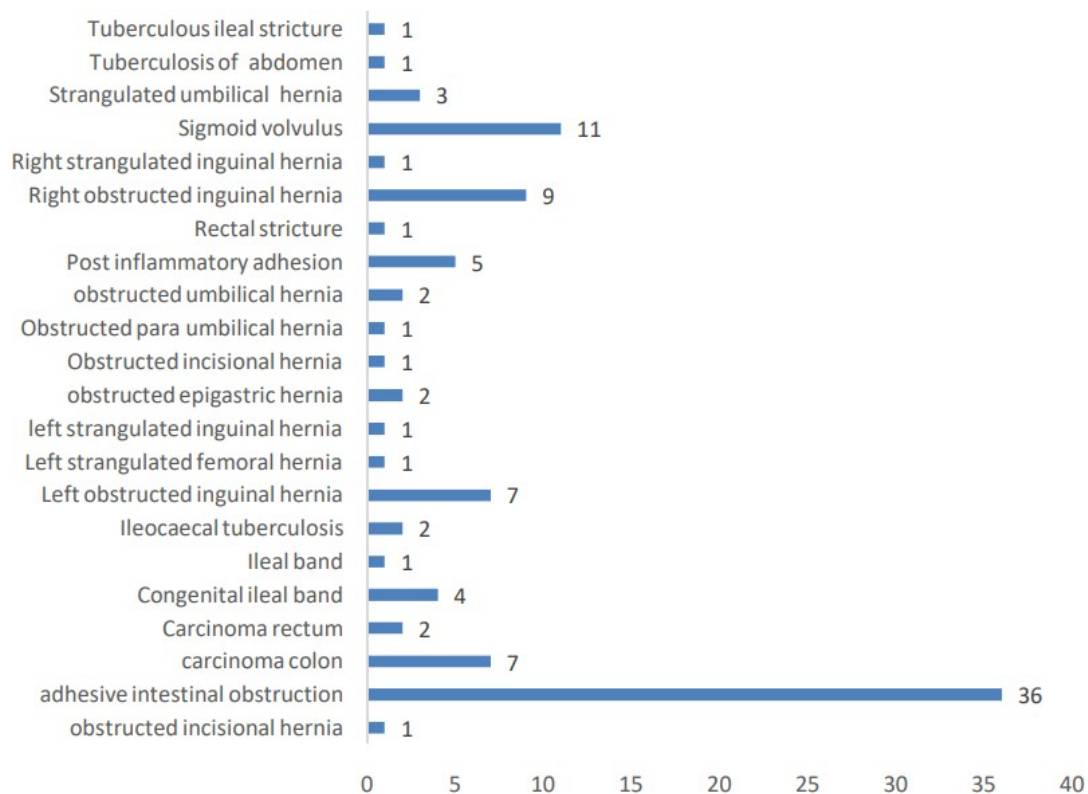


Figure 2: Comparison of Etiology between Small and Large Bowel Obstruction

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

The most prevalent cause of small intestine obstruction in this research was adhesive intestinal obstruction, whereas the most common cause of large bowel obstruction was sigmoid volvulus.

Previous Surgery History: In the present research, surgical history comprised H/O Appendicectomy in

8%, TB in 8%, Hernias in 8%, TAH&BSO in 7%, and Gastrojejunostomy in 6%, Tubectomy, and TAH&BSO in 6%. Wertheim’s hysterectomy in 4%, vaginal hysterectomy in 4%, LSCS in 4%, and tubectomy in 4%. 4% had hernioplasty.

In 37% of cases, prior history was insignificant.

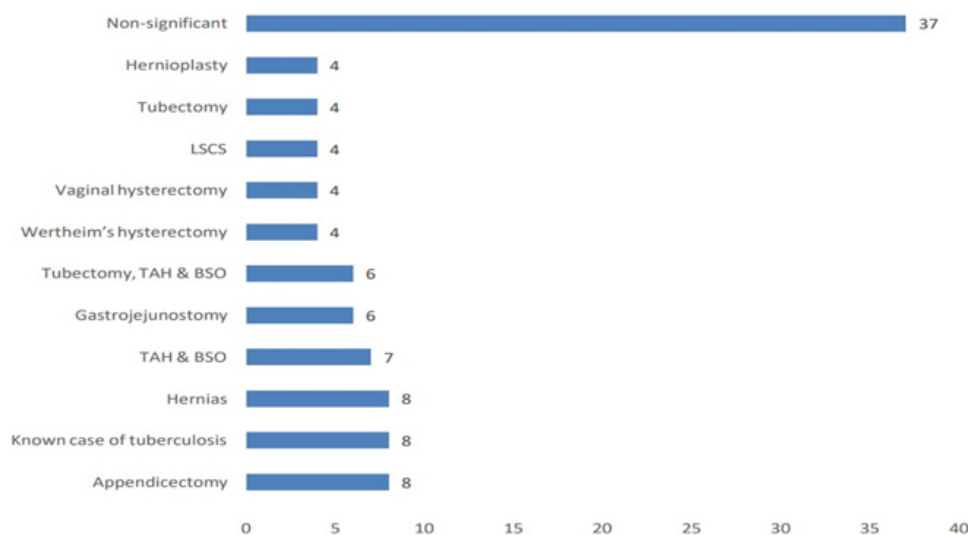


Figure 2:

Postoperative complications: Most common post-operative complication was wound infection 74.07% and the least common post-operative complication was burst abdomen comparison of outcome between small and large bowel obstruction.

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

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 blockage is a common emergency for surgeons (1-4% of all emergency surgeries). According to Sufian and Mostsumoto, the small bowel is far more often involved in blockage than the big gut. [7] Delays in treatment may lead to significant fatality rates. Since the improvement in understanding the anatomy/physiology, hydration, and electrolyte management, combined with modern antibiotics and critical care unit, the death rate has constantly decreased. [8].

The related medical conditions (such as respiratory, cardiac, or metabolic illnesses), as well as old age, all contribute significantly to increased mortality. [9] The related medical conditions (such as respiratory, cardiac, or metabolic illnesses), as well as old age, all contribute significantly to increased mortality. [10] The research included 64 male and 36 female participants. The male-female ratio is around 1:2. Most of the patients were aged 41 to 50 years. The main manner of presentation was abdominal discomfort, vomiting, and constipation. Distension of the abdomen, pain, and hyper peristaltic noises were prevalent in the patients. [11] Adhesions/bands were the leading cause of cases, followed by hernias, malignancies, and TB strictures.

In the present investigation, resection and end-to-end ileo-ileal primary anastomosis were performed in 8 instances, which comprised cases of adhesion, stricture, ileocaecal growth, and volvulus of small intestine. Adhesiolysis was performed in 30 patients, including surgical adhesions, inflammatory adhesions, and constricting bands [12]. Anatomical hernia repair was performed in 29 instances, including 7 inguinal hernias and 3 incisional hernias. In two instances, the sigmoid volvulus was untwisted, and in four cases, hemicolectomy was performed [13].

The most prevalent post-operative consequence was wound infection (74.07%), Anastomotic Leak (14.81), Hematoma (7.41), and Burst Abdomen (14.81).

Etiology of postoperative complications: 13 patients had adhesions and bands, 8 patients had hernias, 4 had malignancy, and 2 had volvulus.

Multiorgan failure, ARDS, peritonitis, and septicaemia were the causes of death in the postoperative period [14].

Wound infection, fever. Respiratory infections were the most prevalent follow-up problems in the first month, followed by fever and respiratory infections in the third month. Nil were noted in the sixth month. 49 male patients were released early, 8 were discharged late, and 7 passed away due to complications. 24 female patients were released early, 10 were discharged late, and two passed away due to complications.

Conclusion

Small bowel blockage was more prevalent than large bowel obstruction, with acute intestinal obstruction being more common in those aged 40 to 60. Large bowel obstruction is mostly a condition of the elderly. Intestinal blockage is more prevalent in men than in women. Pain in the belly, vomiting, distension, and constipation are the four cardinal symptoms of intestinal blockage that appear in most patients.

Tenderness, guarding, stiffness, rebound tenderness, and shock are all signs of strangulated intestinal blockage. Post-operative adhesions were shown to be the major cause of blockage in this investigation. Morbidity was caused by SSI, anastomotic leak pneumonia, and wound dehiscence. Early diagnosis and surgical intervention is the key to reducing mortality.

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