

A Study of Various Surgical Procedures in Intestinal Obstruction and their Outcome in Relation to Etiological Factors

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ABSTRACT

Introduction: For a surgeon difficulty in diagnosing and managing, a case of intestinal obstruction is to be emphasized. With a better understanding of management, the mortality still ranges from 3% to 30% depending on the severity.

Materials and Methods: A retrospective study of surgical management of 50 cases of intestinal obstruction with age groups ranging from 11 years to 70 years admitted to various surgical wards in IMS and SUM Hospital, Bhubaneswar. After admission, a detailed history and informed consent were taken. Relevant blood and radiological investigations were done and operative procedures were performed. Data were recorded and systematically analyzed.

Results: A total of 27 male and 23 female patients belonging to the age group 11–70 years were enrolled in the study. Intestinal obstruction was commoner in the elderly age group, 40% belonged to the age group 41–60 years. The present study showed that pain abdomen (100%), distension of abdomen (100%), and vomiting (88%) were the salient clinical symptoms with which the patients presented to us. Most common etiological factor was post-operative adhesions 46% and next is hernia 22%. The most common surgical intervention was found to be resection and end-to-end ileoileal anastomosis 40%, followed by the release of adhesions and bands 30%. Most important post-operative complications were wound infection (12%) and sepsis (10%).

Conclusion: Due to the increase in the number of abdominal and pelvic surgeries, there is an associated increase in the incidence of post-operative adhesions, leading to intestinal obstruction.

Key words: Adhesions, Bands, Colonoscopy, CT scan, Gangrenous bowel, Hernia, Intussusception, Large intestine, Malignancy, Mesenteric vascular occlusion, Resection and anastomosis, Serum electrolyte, Small intestine, Strangulated internal hernia, Stricture, Tuberculosis of intestine, Ultrasonography, Volvulus

INTRODUCTION

“Intestinal obstruction” is obstruction in forward propulsion of the contents of the intestine. Diagnostic improvement, pre-operative preparation, skillful operation, and proper technique during surgery and post-operative treatment carry good outcome. The outcome of patients is becoming

appreciable due to improved techniques and better management protocol, but still mortality and morbidity range from 3% to 30% depending on the severity.^[1]

Aims and Objectives

The aims of this study were to study the various clinical features, causes, treatment modalities, and various surgical procedures in patients with intestinal obstruction.

MATERIALS AND METHODS

This is a retrospective study during the period of June 2017–October 2019. All cases of intestinal obstruction admitted in IMS and SUM Hospital, Bhubaneswar, were

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included in our study. A total number of 50 patients were included in the study.

Exclusion criteria	Inclusion criteria
< 11 years old	Patients with features of acute intestinal obstruction
SAIO who were managed conservatively	

All cases who were included in our study were evaluated thoroughly with regard to clinical features, history.

All the cases were operated and findings were duly noted.

The cases were investigated thoroughly. Blood investigations, X-ray, USG, CT were needed, which were done.

RESULTS

A study of 50 cases of intestinal obstruction during the period from June 2017 to October 2019 at IMS and SUM Hospital, Bhubaneswar, were as follows:

1. Age and sex distribution

The study included patients of age group 11 years to 70 years. Majority of patients were in the age group of 31–60 years (57%). The highest incidence was seen in 4th and 5th decades (20% of each). We had a slight predominance of males over females (54% and 46%).

Age group	Male	Female	Total	Percentage
11–20	2	4	6	13
21–30	5	2	7	14
31–40	5	4	9	17
41–50	6	4	10	20
51–60	4	6	10	20
61–70	5	3	8	16
	27	23	50	100

2. Incidence

Out of 1666 patients admitted to our hospital, we had 50 cases of acute intestinal obstruction requiring surgery. Incidence of acute intestinal obstruction was 3%.

3. Previous history of surgery

All the patients were evaluated for past surgery. There were 18% of the patients reporting gynecological surgical procedures. There were 14% of post-appendectomy patients and 14% with surgery for hernias.

4. Symptoms/signs presentation

All the patients (100%) had pain abdomen and distension. This was followed by vomiting (88%) and constipation (62%). The most common signs were increased bowel sounds (88%) followed by tenderness over the abdomen (82%). Dehydration was seen in 60% and guarding in

40% of the patients. Palpable mass was seen in 24% of the patients.

Clinical features	Number of Cases	Percentage
Pain abdomen	50	100
Vomiting	44	88
Distension of abdomen	50	100
Constipation	31	62
Dehydration	30	60
Fever	7	14
Tenderness over the abdomen	41	82
Guarding	20	40
Palpable mass	12	24
Increased bowel sounds	44	88
Absent bowel sounds	6	12

5. Incidence based on etiology

The study showed that adhesion (46%) was the most common cause of intestinal obstruction followed by hernia (22%). Malignancy constituted 16% of the cases, especially in the elderly age group, followed by TB abdomen (14%) and volvulus constituted 2% of the cases.

Etiology of intestinal obstruction	Number of patients (n=50)	Percentage
1. Adhesion and band	23	46
2. Hernia	11	22
3. Malignancy	08	16
4. T.B stricture	07	14
5. Volvulus	01	02

6. Surgical procedures adopted

Resection with end-to-end ileoileal anastomosis was done in 40% of the patients. Adhesiolysis and release of bands were done in 30% followed by herniorrhaphy/hernioplasty in 20%, hemicolectomy was needed in 8% of the patients with malignancy, untwisting of volvulus 2%.

Types of operation	Number of patients (n=50)	Percentage
(a) Resection and end-to-end ileoileal a. anastomosis	20	40
(b) Release of adhesions and bands	15	3
(c) Herniorrhaphy	10	20
(d) Hemicolectomy	4	8
(e) Untwisting of volvulus	1	2

7. Post-operative complications

Post-operative complications were seen in 30% of the patients. The study demonstrated a wound infection rate of 12%, followed by respiratory infection in 2%, enterocutaneous fistula was seen in 2%, and prolonged ileus 4% of the cases. Mortality was 10%, especially of the cases with delayed presentation. Five patients succumbed and causes of mortality included Septicemia due to peritonitis, ARDS due to respiratory infection, and multiorgan failure due to Septicemia.

Postoperative complications	Number of patients (n=50)	Percentage
(a) Wound infection	6	12
(b) Respiratory infection	1	2
(c) Enterocutaneous fistula	1	2
(d) Prolonged ileus	2	4
(e) Deaths (Septicemia)	5	10

DISCUSSION

Intestinal obstruction is one of the frequently encountered surgical emergencies. They constitute a major cause of laparotomy. In 1976, Brewer *et al.*^[2] analyzed 1000 consecutive cases of abdominal surgeries where acute intestinal obstruction constituted 2.5%. In 1973, Jain *et al.*^[3] reported an incidence of 3.2%. In our study, we found an incidence of 3% out of the total number of abdominal surgeries conducted during our study period. In our study, the majority of intestinal obstruction was encountered in the age group of 40–60 years (40%). About 17% were seen in the age group of 31–40 years. The age group of 11–20 years had the lowest incidence of 13%. Harban Singh *et al.*^[4] got maximum number of acute intestinal obstruction in the age group of >60 years, followed by 18% in the age group of 31–40 years. The study by Ramachandran^[5] shows maximum cases in the age bracket of 21–40 years.

In our study, we had almost equal number of males and females (27 and 23, respectively). However, studies by Budharaja *et al.*^[6] and Singh *et al.*^[4] reported a predominance of males (4:1).

In our study, we got adhesion in 46% of the cases, followed by hernia in 22%.

Biarj *et al.*^[7] 1999 had 53% of cases having adhesions as their etiology. However, studies by western researchers showed a predominance of hernia. Gill and Eggleston, in 1965,^[8] had an incidence of 27% of hernia, Brooks and Butler 1996 – 25%.^[9]

In the present series, tuberculosis found to be a causative factor in seven cases (14%) in the form of ileocecal tuberculosis with stricture and adhesions which are lower than what was reported by Harbans *et al.* 17.2%.^[4]

In the present study, eight cases (16%) presented with acute intestinal obstruction. Five cases out of the eight, were due to large bowel malignancy and rest three were due to small bowel malignancy. Harbans *et al.*^[4] reported an incidence of 15% of bowel obstruction which is similar to our study.

Iwuagwu *et al.*,^[10] in 1999, reported an incidence of 3.5% to 6.2%. Our study had 2% of small bowel volvulus.

All the cases of our study were subjected to surgery. The most common operation performed was resection of ileal segment and end to end ileoileal primary anastomosis 40%, release of adhesions and bands 30%, hernia repair in 20%, hemicolectomy in 8% cases, and reduction and untwisting of volvulus in 2%.

Post-operatively, IV fluids and nasogastric decompression and antibiotics were given till the good bowel movements appeared.

Mortality – five cases died following surgery for acute intestinal obstruction (10%).

Wangensteen^[11] reported mortality of 11%, Cheadle *et al.*^[12] 9%.

CONCLUSION

Adhesions secondary to previous surgery is now becoming a leading cause of intestinal obstruction.

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