

Original Research Article

Surgical management of acute intestinal obstruction study of 50 cases operated in emergency

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ABSTRACT

Background: Intestinal obstruction is one the major cause that patients underwent emergency operations and which might lead to complications that could be turn fatal. Prompt evaluation and treatment prevents mortality and morbidity of post-operative patients.

Methods: Prospective study conducted between 01 April 2020 to 31 March 2022 in 50 patients of intestinal obstruction operated in emergency according to inclusion criteria. Pre-operative, intraoperative, and post-operative assessment and recording of data done.

Results: In 50 cases of intestinal obstruction, commonest age group is 41 to 60 years, pain and obstipation remains major presenting symptoms and tenderness, guarding and rigidity were most common signs. The commonest cause of intestinal obstruction in the adults in this study was postoperative adhesions (44%) followed by Koch's abdomen (30%). Malignancy of the large bowel was seen in 6 cases constituting 12% of cases, obstructed hernia in 5 cases (10%), intussusception in 3 cases (6%) and gut malrotation in 1 case (2%). Comorbidity like hypertension and diabetes were main causes of post-operative complications.

Conclusions: Maximum incidence of intestinal obstructions were reported in Age group 41-60 years with male predominance. Abdominal pain was the consistent symptoms followed by obstipation. Post-operative adhesion were the most common cause of the intestinal obstruction. Malignancy and multiple comorbidity remains the major risk factor for the post-operative complications and mortality.

Keywords: Acute intestinal obstruction, Exploratory, Laparotomy

INTRODUCTION

Intestinal obstruction is one of the most common condition in patient attending surgical casualty. Various causes include adhesions, hernia, neoplasm or electrolytes abnormalities.

Intestinal obstruction of either the small or large bowel continues to be a major cause of morbidity and mortality.¹

For the better management of patient with intestinal obstruction, it is important to analyse the clinical presentation and aetiology of obstruction.

Prompt diagnosis of aetiology helps in better understanding of pathophysiology of disease and early intensive management helps to reduce the morbidity and mortality due to obstruction.²

Mortality rate is huge in elderly individuals with pre-existing medical comorbidities and delayed presentations.

Early diagnosis/management and surgery by an accomplished surgeon and proper post-operative critical management helps to improve peri-operative morbidity and mortality in patients with intestinal obstruction.

Aim of the study

Aim of the study was to establish the pathology of intestinal obstruction in surgically operated patients with an aim to know the mode of presentation, clinical findings, radiological findings, operative findings and outcome of acute intestinal obstruction.

METHODS

This was a prospective study conducted among indoor patients of general surgery department of SMIMER, Surat between 01 April 2020 to 31 March 2022 (2 years) who are willing to give consent for the study and fall into inclusion criteria. 50 cases of acute intestinal obstruction who required emergency operation at SMIMER Hospital have been studied. The study was approved by the institutional ethics committee.

Inclusion criteria

Patients belonged to the age groups ranging from 12 years to 85 years of both sexes presenting with acute intestinal obstruction and operated in emergency were included.

Exclusion criteria

Paediatric age group (<12 years), patients who were having subacute intestinal obstruction treated conservatively, and patients who were having intestinal obstruction due to mesenteric ischemia were excluded.

Methods

After the admission of the patient, clinical data were recorded. The diagnosis mainly based on history taking, clinical examination and supported by haematological and radiological examinations.

In all cases emergency surgical procedure had been done after proper explanation of treatment to the patients and their relatives. Written as well as informed consent of patients and their relatives prior to surgery. The data of pre-operative, per-operative and post-operative events of each case were recorded.

Statistical data analysed by statistical package for the social sciences (SPSS) version 20 software.

RESULTS

The incidence of acute intestinal obstruction in various age group was studied from the cases admitted in department of surgery of SMIMER, Surat during the period from 01 April 2020 to 31 March 2022.

Demographic data

There were total 50 cases which includes 32 males and 18 females (Table 1). In the present study the maximum

incidence was in 51-60 years of age group (15 cases). Male patients were more commonly affected when compared to females in the ratio of 3:2 in Table 1.

Table 1: Age and sex distribution.

Age (years)	Male	Female	Total
12 to 20	2	0	2
21 to 30	2	5	7
31 to 40	4	3	7
41 to 50	7	5	12
51 to 60	11	4	15
61 to 70	4	1	5
71 to 80	1	0	1
>80	1	0	1
Total	32	18	

In the present study most common symptoms were abdominal pain (100%) followed by obstipation (90%) (Table 2).

Table 2: Symptoms.

Symptoms	Number of cases	Percentage
Pain abdomen	50	100
Vomiting	33	66
Distension	37	74
Obstipation	45	90
Fever	16	32

In the present study most common signs were tenderness (86%) followed by distension (80%) and guarding (50%) (Table 3).

Table 3: Signs.

Signs	Number of cases	Percentage
Distension	40	80
Tenderness	43	86
Guarding	25	50
Rigidity	5	10
Previous scar	25	50
Mass	2	4

The commonest aetiology was postoperative adhesions (44%). The next common was tuberculosis (26%). Other conditions include intussusception, obstructed hernia, malignancy, gut malrotation in descending frequency (Table 4).

Co-morbidity in patients with acute intestinal obstruction

In present study 19 patients were diabetic (38%), 14 patients were hypertensive (28%) and tuberculosis in 12 patients (24%). In our study adhesiolysis (44%) was the most commonly done surgical procedure followed by resection anastomosis (36%), reduction of hernia (10%) and release of band (2%) (Table 5).

Table 4: Aetiology of intestinal obstruction in adults.

Clinical condition	Number of cases	Percentage
Postoperative adhesions	22	44
Koch's abdomen	13	26
Intussusception	3	6
Obstructed hernia	5	10
Malignancy	6	12
Gut malrotation	1	2
Total	50	100

Table 5: Management.

Management	Number of cases	Percentage
Adhesiolysis	22	44
Resection and anastomosis	18	36
Resection and stoma creation	6	12
Hernia reduction	5	10
Release of band	1	2

Postoperative complications

Total post-operative complications were recorded in 20

patients out of which most common was surgical site infection (SSI) in 9 patients (45%) followed by septicaemia in 7 patients (35%) and respiratory tract infection in 4 patients (20%).

Final outcome

In the present study of 50 cases, 7 patients died due to one or other causes. The majority of deaths are due to complications like septicaemia, peritonitis, respiratory infection and late presentation to hospital.

Present study shows postoperative adhesion is most common aetiology mainly seen in age group between 41-50 years followed by tuberculosis (Table 6).

Complications related to comorbidity

In our study surgical site infections were observed in 9 patients out of which 5 patients were diabetic 1 patient was hypertensive and 3 patients were having both of them.

Septicaemia observed in total 6 patients out of which 2 were diabetic and 4 were hypertensive and diabetic both.

Respiratory tract infections were observed in total 4 patients out of which 2 patients were diabetics and 2 patients were diabetics and hypertension both.

Table 6: Aetiology related to age.

Age (years)	Aetiology					
	Post-op adhesion	Tuberculosis	Intussusception	Obstructed hernia	Gut malrotation	Mass
12-20	1	1	0	0	0	0
21-30	5	1	0	0	1	0
31-40	4	3	0	0	0	0
41-50	7	5	1	0	0	1
51-60	4	2	1	3	0	3
61-70	1	1	1	0	0	2
71-80	0	0	0	1	0	0
>80	0	0	0	1	0	0

DISCUSSION**Age incidence**

Intestinal obstruction occurs in all age groups, the age spectrum in our clinical study, with the spectrum age group of 16 years to 85 years.

The study showed the peak incidence is in the age group 51-60 years (30%) and 41-50 (24%) which is comparable with the study by Adhikari et al which are almost similar for age group 41-50 to our clinical study but half for age group 51-60 years.⁷

The mean age in our current study is 47 years where as Adhikari et al shows mean age of 44 years.⁷ These studies are almost comparable with our current study.

Sex incidence

In the present study male to female ratio is 3:2. Whereas in Adhikari et al study, it was 4:1 and in Osuigwe et al study it was 2:1.⁷

Comparison of aetiology with other studies

In the present study, post-operative adhesion (44%) is the commonest cause of intestinal obstruction, which is

comparable with the other study groups Jahangir⁸ with 49% and Malik et al with 41%.

Tuberculosis is the second most common cause (26%) which is comparable with Malik study (24%).

Clinical features

The clinical features of intestinal obstruction are pain in abdomen, vomiting distension of abdomen and constipation, all three together are not present in all cases.

Table 7: Comparison of clinical features with other studies.

Study group	Pain abdomen (%)	Vomiting (%)	Distension (%)	Constipation (%)
Present study	100	66	74	90
Adhikari et al⁷	72	91	93	82
Khan et al⁸	100	92	97	97

Pain in abdomen was present in 100% of the cases; in the present study, whereas vomiting in 66% of the cases; abdominal distension in 74% and constipation in 90% of the cases in present study.

Radiology

In the present study of the 50 cases 88% of X-ray abdomen standing shows multiple air fluid level.

Study by Taneja et al reports 90% of cases with multiple air fluid level in X-ray abdomen erect and Savage et al reports 95% cases with similar findings.

Surgical management

Out of 50 cases, 45 were operated through midline and 5 were through inguinal incision.

The surgical management for the present study group includes release of adhesions for postoperative adhesions 40%, resection anastomosis 36%, release of constricting ring was done in 10% of the obstructed hernia cases, resection anastomosis and stoma done in 12% of the cases.

Reduction of intussusception in one case and in one case releasing of constricting band was done.

Complications

In the present study group out of 50 cases, complications like septicaemia in 7 cases, respiratory tract infection in 4 cases, wound infection in 9 cases occurred.

The complication of septicaemia was more in the cases of malignancy and immunocompromised patients.

Patients with pre-existing co-morbidity had more complications.

Mortality rate in various studies

Mortality in our study is 14% i.e. 7 cases out of 50 cases. Most of the deaths were due to malignancy which played significant role in the outcome of the disease.

The mortality rate in the present study is much comparable to study by Ramachandran et al which was 12.7% but it is more when compared to Adhikari et al (7.35%), Jahangir et al studies (7%).^{7,8,10}

Limitations

This study includes the fact that it is based on patients recruited from a single setting. our sample size may not be adequate to determine potential confounders.

CONCLUSION

The study concluded that maximum incidence of intestinal obstructions was reported in age group 41-60 years with male predominance. Abdominal pain was the consistent symptoms followed by obstipation. Post-operative adhesion was the most common cause of the intestinal obstruction. Malignancy and multiple comorbidity remains the major risk factor for the post-operative complications and mortality.

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