Original research article

A Clinical Study of Surgical Management of AcuteIntestinal Obstruction

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Abstract

Background and objectives: 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. To identify and analyse the clinical presentation, management and outcome of patients with acute mechanical, obstruction along with the etiology of obstruction , the incidence and causes of bowel ischaemia, necrosis and perforation. The objectives areto study the:

*various modes of presentation, various causes, importance of early recognition, diagnosis and management.

*Influence of various factors like age, sex, diet and socio-economic status in the pathogenesis of acute intestinal obstruction.

*Morbidity and mortality rates in acute intestinal obstruction.

Methods: The materials for the clinical study of intestinal obstruction were collected from cases admitted to various surgical wards. Fifty cases of intestinal obstruction have been studied. Patients belonged to the age groups ranging from 12 years to 85 years, paediatric age group is excluded from this study. The criteria for selection of cases was based on clinical history, physical findings, radiological and haematologicalinvestigations.

Conclusion: Acute intestinal obstruction remains an important surgical emergency in the Field of surgery. 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. Postoperative adhesions are the common cause of intestinal obstruction. Clinical radiological and operative findings put together can diagnose the intestinal obstruction. Mortality is still significantly high in acute intestinal obstruction.

Keywords: Blood pressure; Computed tomography; Central venous pressure, Superior mesenteric artery, Acute inguinal obstruction, Gastrointestinal, Extra cellular fluid, Intravenous.

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].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. To identify and analyse the clinical presentation, management and outcome of patients with acute

mechanical , obstruction along with the etiology of obstruction and the incidence and causes of bowel ischaemia, necrosis and perforation.[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[3]. Most of the mortalities occurs in elderly individuals who seek late treatment and who are having associated pre-existing diseases like, diabetes mellitus, cardiac diseases or respiratory disease. Early diagnosis of obstruction skillful operative management, proper techniqueduring surgery and intensive postoperative treatment carries a grateful result[4].

Objectives

1. To study the influence of various factors like age, sex, diet and socio-economic status in the pathogenesis of acute intestinal obstruction.
2. To study the morbidity and mortality rates in acute intestinal obstruction.
3. To study the various causes of intestinal obstruction

Material and Methods

The materials for the clinical study of intestinal obstruction were collected from cases admitted to various surgical wards in Darbhanga Medical College and Hospital Darbhnaga Laheriasarai, Bihar. Study duration of Two Years. fifty cases of intestinal obstruction have been studied. Patients belonged to the age groups ranging from 12 years to 85 years, paediatric age group is excluded from this study. The criteria for selection of cases was based on clinical history, physical findings, radiological and haematological investigations. 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 haematological 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 haematological and radiological examinations. A complete history was obtained from the patient and the complaints entered in the proforma in a chronological order. Each complaint in the history of presentingillness was documented in detailed enquiry.

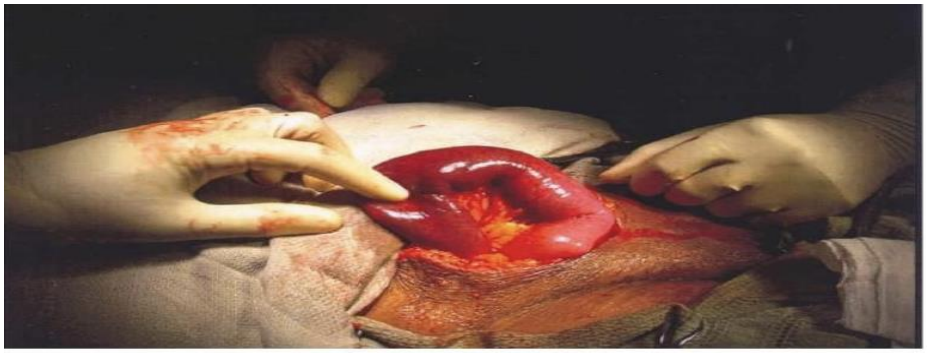
(i) General physical examination – evidence of dehydration and the severity of it were looked into it and vital parameters were recorded.

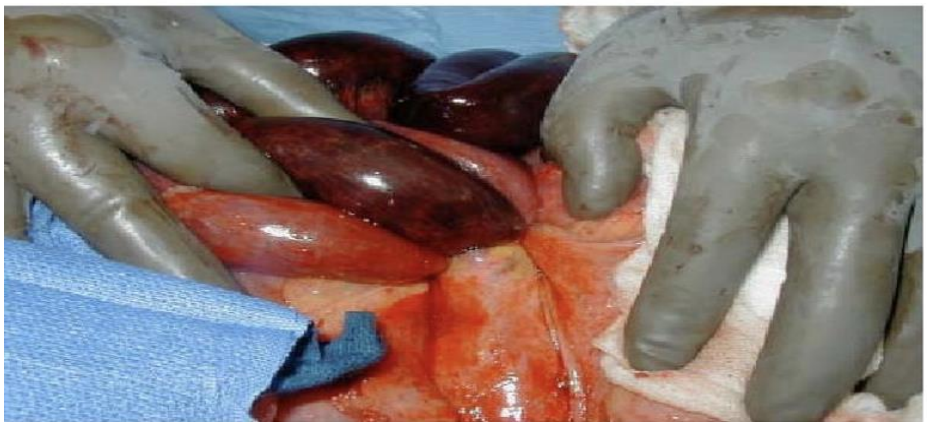
Local examination – Abdominal examination was done under standard headings inspection, palpation, percussion Immediately after the admission along with above procedure resuscitation with IV fluids especially ringer lactate and normal saline infusion started till the hydration and urine output become normal. Nasogastric decompression with Ryles tube carried out and antibiotic prophylaxis started. And close observation of all bedside parameters (like pulse rate, BP, RR, urine output, urine output, abdominal girth, bowel sounds and tenderness and guarding) was done. Blood transfusion was given in required cases. Patients who showed reduction in abdominal distension and improvement in general condition especially in individuals with postoperative adhesions conservative management was confined (by extending the supportive treatment) for next 24 hours, those who showed improvement by moving bowels, reduction in pain/tenderness were decided for conservative treatment, such individuals are excluded from this study. Patients with clear-cut signs and symptoms of acute obstruction were managed by appropriate surgical procedure after

resuscitation. Surgery adopted and criteria for deciding the procedure were noted, e.g. release of a band or adhesion, reduction and caecopexy for intussusception, resection and anastamosis for gangrenous bowel and release and repair for strangulated obstruction.

Results

The incidence of acute intestinal obstruction in adult age group was studied from the cases admitted in Department of Surgery of DMCH, Darbhanga. The data regarding the symptoms





***Obstructed inguinal hernia lleal loop obstructed**

***Strangulated hernia**

and signs and laboratory investigations has been adopted in 50 cases during the study period. During the period of 12 months, the total number of admissions in surgery were 4133 cases. Of which 73 cases of acute intestinal obstruction were treated during these period which comprise 1.9% 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 502 and acute intestinal obstruction in this group consisted of about 14.53% of these surgeries.

Table 1: Age incidence

Age (years)	Male	Female	Total
12 to 20	5	1	6
21 to 30	5	3	8
31 to 40	7	3	10
41 to 50	3	1	4
51 to 60	8	2	10
61 to 70	5	3	8
71 to 80	2	1	3

81 to 90	1	0	1
Total	36	14	50

As per the above table and bar chart, the maximum incidence in the present study group is 31-40 and 51-60 with each 10 cases out of 50 cases.

Table 2: Socio-economic status

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

In the present study of 50 cases, 32 patients were taking non-vegetarian which contains more of fatty diets. The remaining 18 patients were vegetarians who oftenly consumed high fibre diet.

Table 3: 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	13	26
Rigidity	13	26
Mass	12	24
Visible peristalsis	30	60

The present study the most common symptoms were pain abdomen (88%) and vomiting (78%), and the most common signs were tachycardia (80%) and visible intestinal peristalsis (60%). The most common cause of intestinal obstruction in our study was postoperative adhesions. The next common was obstructed hernia. Other conditions include volvulus, intussusception, tuberculosis, malignancy, mesenteric ischaemia, indescending frequency.

Table 4: Management

Management	Number of cases	Percentage
ROA	20	40
Ra and H	4	8
DVS	2	4
Reduction	1	2
RA	11	22
Hart	2	4
Roa and H	9	18

TLC	1	2
Total	50	100

In our study of 50 cases as accordingly with the aetiology the management and the surgical procedure was done as shown in the table and pie diagram. Release of adhesions was done in 40% of cases, resection anastamosis in 22% of cases and release of adhesion with herniography done in 18% of the cases. In the present study group there were 5 cases of septicemia, 2 cases of respiratory tract infection and 2 cases of wound infection. In the present study of 50 cases, about 7 patients died with the percentage of 14%. The majority of deaths due to complications like septicemia, peritonitis, respiratory infection.

Discussion

Acute intestinal obstruction continues to be the most common surgical emergency. In our study a total number of 4133 patients were admitted in the surgery department, A total of 73 patients presented with features of acute intestinal obstruction. Among these 50 cases of operated cases were randomly selected for the present study[5]. In our clinical study incidence of acute intestinal obstruction is 1.9% 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 postoperative adhesions followed by obstructed/ strangulated inguinal hernia, malignancy, intussusception, volvulus, tuberculosis and mesenteric ischaemia[6]

Although in developing countries like India, the commonest cause used to be obstructed/strangulated hernia, in our study commonest cause was adhesions followed by obstructed/strangulated hernia as second cause. The decrease in the incidence of obstructed hernias indicate a changing trend towards early operation before hernia gets complicated[7]. The data of the present series is comparable to Souvik Adhikari series, Cole series and Jahangir-Sarwar Khan series. Souvik Adhikari et al. (2010)44 reported an incidence of 9.87%, Bhargava and Anderson series reported an incidence of 3%. In our hospital 502 cases of total emergency surgeries were done. which 73 cases of intestinal obstruction comprising of 14.3% incidence were present. Among these 50 cases were selected as random study group. Intestinal obstruction although occurs in all age groups, the age spectrum in our clinical study, with the spectrum age group of 15 years to 85 years. The study showed the peak incidence is in the age group 31-40 of 20% and 51-60 years of 20% which is comparable with the previous study groups Souvik Adhikari et al., Cole GJ et al[8]. group, which are almost similar to our clinical study of intestinal obstruction. The mean age is our current study is 45 years where as Souvik Adhikari et al.44 shows mean age of 44 years, Jahangir Sarwar Khan45 series shows mean age is 33 years In the present clinical study about 76% of the patients were poor socio- economic class and remaining 24% were middle class which does not yield much statistical significance. But our hospital being a private hospital, which is serving most of the poor socio-economic status hence the percentage of poor socio-economic status are high. The diet pattern in this study showed 64% non-vegetarians and 36% were vegetarians which did not indicate any significance in relation to the disease. In the present study, postoperative adhesion is the commonest cause of intestinal obstruction, which is comparable with the other study groups Playforth et al[9]. with 54% and Arshad Malik et al. with 41%. Although the incidence of obstructed/ strangulated hernia is more in the developing countries in this study group it is the second common aetiology for obstruction. It may be because the awareness of public, the availability of surgical facilities in the periphery for the hernia repair, the hernias are treated early

Study group	Pain abdomen	Vomiting	Distension	Constipation
Present study	88%	78%	66%	64%
Souvik Adhikari[10]	72%	91%	93%	82%
Jahangir-Sarwar Khan[11]	100%	92	97	97

In the present study, the clinical features of pain abdomen was 88%, vomitingwas 78% which comparable with the other study group. Souvik Adhikari et al. and Jahangir Sarwar Khan et al[11]. 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 move in Malignancy and ileocaecal tuberculosis. Visible peristalsis is present in 60% of the intestinal obstruction cases. The rectal examination did not reveal any abnormality except in four cases of intussusception (8%) and 2 cases of malignancy (4%) where in red current Jelly and rectal growth were the per rectal findings respectively. 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 ischaemia 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.

Morality rate in various studies

Studie	Yea	No. of studied	Mortalit
Present study	2012	50	14%
Souvik Adhikari[10]	2005	367	7.35%
Safian Matsu Moto[12]	1975	171	19%
Jahangir-Sarwar Khan[11]	2001	100	7%
Ramachandran CS[13]	1982	417	12.7%

The mortality rate in the present study is much comparable to Ramachandran CS et al. study but it is more when compared to Souvik Adhikari et al., Jahangir et al. studies. The mortality rate in the present study is much comparable to Ramachandran CS et al[13]. study but it is more when compared to Souvik Adhikari et al[10]., Jahangir et al. 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 carries a high role in progress as well as the mortality.

Conclusion

- Acute intestinal obstruction remains an important surgical emergency in thesurgical field.
- Success in the treatment of acute intestinal obstruction depends largely upon early diagnosis skilful 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.
- Postoperative adhesions are the common cause to produce intestinal obstruction.
- Clinical radiological and operative findings put together can diagnose the intestinal obstruction.
- Mortality is still significantly high in acute intestinal obstruction.

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