



Original Article

Current Spectrum of Intestinal Obstruction in a Teaching Hospital

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Abstract

Intestinal Obstruction is a common surgical emergency and constitutes a major cause of morbidity and financial expenditure in hospitals around the world. This study aimed to provide the current spectrum of intestinal obstruction in a tertiary care hospital with a special view to identify any change in the aetiological pattern. This prospective observational study was carried out in all four surgical units of Rajshahi Medical College Hospital from September 2010 to August 2011. The study included 250 adult patients with clinical and radiological evidence of complete intestinal obstruction. Out of 250 consecutive patients ranging between (13-90) years with a male to female ratio of 2.1:1, the maximum cases were within (31-40) years and (51-60) years of age group. In this study 175 cases (70%) were presented with small bowel and 75 cases (30%) with large bowel obstruction. The main causes of obstructions were bands and adhesions (44%) followed by volvulus (18%), external hernias (16%), neoplasm (12%), intussusceptions (3.2%), intestinal tuberculosis (2.8%) and miscellaneous (4%). Approximately, 86% patient with adhesive obstructions had previous laparotomy while 42% needed surgical exploration for failed conservative management. The overall mortality was 8%; mainly owing to strangulating obstruction and old age. Varying degrees of wound infections were the common post-operative complications.

There was a significant change in the aetiological pattern of intestinal obstruction. Post operative adhesions were the commonest cause of obstruction and appendectomy was the most common previous operation causing adhesion.

Key Words: Intestinal Obstruction, etiology, adhesion.

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Introduction

Intestinal obstruction remains one of the commonest causes of acute abdomen worldwide that accounts for approximately 5% of emergency surgical admissions.¹

The common aetiological factors include adhesion, malignancy, strangulated hernias and volvulus.³

The pattern of intestinal obstruction varies from country to country and also varies from time to time in the same country. Epidemiological factors for mechanical intestinal obstruction are related to acquired or congenital anatomic differences, dietary habits, life expectancy, socio-economic conditions and sophistication of the local medical services.^{9,10}

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A continuous increase in the number of major abdominal operations together with earlier detection and elective treatment of groin hernias and intra abdominal malignancy has resulted in a considerable alteration in the spectrum of intestinal obstruction encountered in the Western society and other developed countries over the past 50 years when strangulated hernias accounted for half the total cases. In under developed and developing countries the ratio of volvulus and strangulated hernia is still high.^{3,9}

During the last few years, a change in the aetiology of intestinal obstruction has been noted in the developing countries and adhesion appears to be the most common cause in the Western world as well as in parts of Asia and Middle East.^{3,6,19,20}

This study is conducted to identify and analyze the clinical presentations, aetiology, management and outcome as well as to determine any change in the pattern of intestinal obstruction.

Materials and Methods

This study was designed as a prospective observational study of 250 adult (13 years and above) patients with intestinal obstruction

Results

The information recorded on 250 cases with intestinal obstruction was analyzed and presented here. Incidence of intestinal obstruction was 2.06% of total surgical admissions.

Age of the patient ranged from 14-80 years. Irrespective of sex the maximum number of patients were found in the age group of 31-40 years. The male to female ratio was 2.1:1.

About (70%) patients suffered from small intestinal obstruction and (30%) patients presented with large intestinal obstruction.

Bands & adhesions 110 (44%), volvulus 45 (18%), external hernia 40 (16%), neoplasm 30 (12%) constitutes maximum causes of intestinal obstruction and intussusception 8, intestinal tuberculosis 7, other rare causes 10 (mesenteric vascular occlusion, internal hernia, diverticulum and sigmoid megacolon) constitutes the rest cases.(Figure 1)

Among 110 cases of bands and adhesion, 95 (86%) were due to previous operation, majority were following appendicectomy and gynaecological operations.

out of 45 cases of volvulus, sigmoid volvulus was the commonest 35(77.77%) among them. The other site included small intestine 5, caecum 3, compound volvulus 2 cases.

Among 40 patients of hernia, 34 cases had inguinal hernia (70% right sided), five cases had incisional hernia and one patient with femoral hernia was

admitted in the four surgical units of RMCH during the period from September 2010 to August 2011 for one year. All patients with clinical, radiological evidence of Intestinal obstruction were included and Cases diagnosed as paralytic ileus, treated by non-surgical method were excluded from the study.

The diagnosis was established on the basis of history, clinical features, supported by radiological evidence and confirmed where appropriate during operation and biopsy in some cases.

Majority of the patients were undergone immediate resuscitation followed by definitive operative management where needed. Conservative therapy was typically advocated for the patients with a pre operative diagnosis of post operative bands and adhesions when physiological parameters were within normal limits. Operative details recorded included cause and site of obstruction and nature of the operative procedure performed.

Post-operative mortality was defined as death within 30 days of surgery during hospital stay while post-operative morbidity was defined in terms of duration of hospital stay.

Obstruction due to intraabdominal malignancy occurred in 30 patients.

Maximum causes of obstructions are due to recto sigmoid carcinoma which was accounted for 59.99%. Primary small intestinal neoplasm was found in only one cases. In two cases primary site cannot be detected due to dissemination.

Obstruction due to intussusception occurred in 8 cases and ileo-ileal variety was commonest among the intussusceptions. Half of the total cases had a demonstrable lead point.

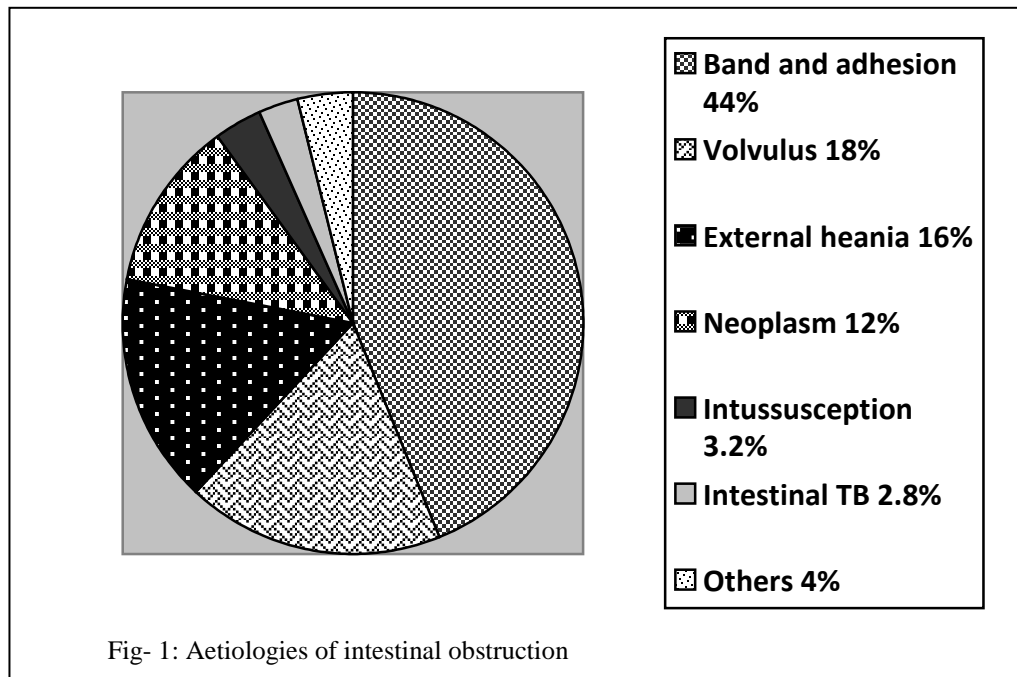


Table: 1 Causes of bands and adhesion. (n=110)

Cause	No. of cases	Percentage
Previous operation	95	86.00
▪ Appendicectomy	30	31.5
▪ Hysterectomy	14	14.7
▪ Repair of DU Perforation	14	14.7
▪ caesarian section	8	8.4
▪ Laparotomy for intestinal obstruction	7	7.3
▪ Laparotomy for abdominal trauma	5	5.2
▪ Colonic resection	5	5.2
▪ Cholecystectomy	5	5.2
▪ >1 operation	4	4.2
▪ Repair of ileal perforation	2	2.1
▪ Salpingoophorectomy	1	1.05
Intraperitoneal abscess	6	5.45
Idiopathic	8	7.27
Band from omentum	1	0.90

Table 2: Affected sites of neoplasm (n = 30).

Sites of tumours	No. of cases	Percentage
Rectum and rectosigmoid junction	10	33.33
Sigmoid colon	8	26.66
Transverse colon	3	10.00
Caecum	2	6.66
Ascending colon	1	3.33
Right colic flexure	2	6.66
Left colic flexure	1	3.33
Small gut	1	3.33
Disseminated intra abdominal malignancy.	2	6.66

Table 3: Operative procedures adopted (n = 194).

Operative procedures	Number of patients	Percentage
Resection and anastomosis	55	28.35
Lysis of bands and adhesion	58	29.89
Ileostomy	48	24.7
Herniotomy & herniorrhaphy	35	18.04
Right hemicolectomy	17	8.76
Colostomy	13	6.70
Hartman's procedure	11	5.67
Derotation of volvulus with sigmoidopexy	6	3.09
Left hemicolectomy	3	1.54

Table 4: Mortality in relation to type of obstruction (n = 20).

Type of obstruction	Total no. of cases	Mortality		P value
		No.	Percentage	
Simple (non-strangulating)	167	7	4.19	0.008
Strangulating	83	13	15.66	

Out of 250 cases, 55(22%) patients were managed conservatively. All of them were diagnosed as postoperative bands and adhesions. About 57.6% of postoperative adhesive obstructions were palliated conservatively.

Resection, anastomosis and lysis of bands, adhesions were the commonest procedure adopted. No definitive procedure was done in two patients due to diffuse intraabdominal malignancy. More than one procedure was done in some patients. (Table 3)

Among the 83 cases of strangulating obstruction, volvulus were the commonest cause of strangulation, obstructed segments of bowel were completely devitalized in 71 cases and in 12 cases viability of the segments of intestine were recorded after removal of the cause of obstruction.

Out of 194 operative cases 100 (51.54%) patients suffered from post-operative complications. Among them 15 patients have more than one complications. Most frequent complications were varying degrees of wound infections.

The overall mortality rate was about 8%. Highest mortality rate was above 7th decade of life. Death due to strangulating obstruction was much higher (15.66%) than that of simple obstruction (4.19%). The presence of strangulation had a statistically significant effect on mortality (Table 4).

Discussion

Global as well as regional variations in the pattern of the disease from time to time needs periodic studies to evaluate the aetiological factors and behavior of the disease.^{3,7,12} A continuous increase in the number of major abdominal operations together with earlier detection and elective treatment of hernias and intra abdominal malignancy has resulted in a considerable alteration in the spectrum of intestinal obstruction encountered in western society as well as the developing world. disease.^{3,8} The present study focused on the incidence, aetiologic pattern, clinical presentation, management and outcome of intestinal obstruction.

In the present series, intestinal obstruction constitutes about 2.06% of total surgical admissions which is quite similar to a study of Canada where over 3% of emergency surgical admissions were due to acute intestinal obstruction.²³

Adhesion, hernia and large bowel neoplasm constitute the most frequent causes of obstruction worldwide, of which adhesion trended to be the most common one.^{3,6,7,12,16,20} Nearly similar results also found in this study .

This study shows, majority of postoperative adhesions were following appendicectomy (31.5%) and gynaecological operations (24.15%) which was also found in others work.^{7,19,24}

But this results differ from other studies in Canada and Washington D.C. where colorectal surgery was the commonest previous procedure due to earlier detection and increasing number of elective operation.^{21,22}

Volvulus (18%) is the second most common cause of intestinal obstruction and commonest cause of large bowel obstruction in this study. This result was closely comparable to other observations especially of developing countries^{9,12,16,1} but widely differed from the study of the industrialized countries.^{3,6,7} This variation may be due to dietary factors (high intake of fiber and vegetables), anatomic differences and geographic variations.

Table 5: Comparison of different studies on causes of intestinal obstruction

Author	Year published	Location	Total cases	Most common causes	Second most causes	Other causes	Mortality
Present study	2018	Bangladesh	250	Adhesion 44%	Volvulus 18%	Hernia 16%	8%
Kukuk HF	2010	Turkey	134	Adhesion 45.5%	Neoplasm 33%	Volvulus 7.4%	-
Adhikari S	2010	Eastern India	-	Hernia 35.96%	Neoplasm 16.62%	Adhesion, Intestinal TB.	7.35%
Akhter MS	2009	Pakistan (Rawalpindi)	100	Adhesion 33%	Hernia 12%	Neoplasm 2.9%	4%
Chen XZ	2008	China	705	Adhesion 62%	Neoplasm 23.7%	Hernia 3.7%	1.6%
Khandaza TW	2007	Pakistan (Hyderabad)	171	Intestinal TB 41%	Adhesion 33%	Hernia 12%	-
Yeboah O	2006	Ghana	652	Hernia 63%	Adhesion 27%	Neoplasm, Volvulus,	12%
LawalOO	2005	Nigeria	99	Adhesion 44%	Volvulus 15%	Hernia 11%	14%
Akgun Y	2002	Turkey	699	Volvulus 28.6%	Adhesion 25.3%	Hernia, Intestinal TB	1.3%
Lee SH	1991	Malaysia	100	Neoplasm 39%	Adhesion 35%	Hernia, 25%	4%
McEntee	1987	UK	228	Adhesion 32%	Neoplasm 26%	Hernia 25%	11.4%

External hernias decline to the 3rd most common cause of intestinal obstruction in this study, which is in accordance with other results as there is a global change of the aetiologic pattern due to earlier detection and elective repair.^{3,6,7,8,9,11,16,20}

There is a decline in the incidence of tuberculosis as a cause of obstruction (2.8%), may be due to widespread immunization programme, people awareness with fear about pulmonary tuberculosis which compels them for early treatment and patient compliance of anti-TB drugs. In a study of India¹⁰, it was

14.17% and some studies of Pakistan showed that tuberculosis was one of the commonest cause of intestinal obstruction.^{13,15}

In this study, strangulation rate (33.2%) was relatively higher because of delayed presentation. Similar result also found in the studies of some developing countries.^{8,12,18}

A total of 57.6% patients of adhesive obstructions responded with complete recovery in this study which is closely comparable to other observations where about (40-70)% patients responded to conservative therapy.^{6-8,13,17,21} The morbidity in this study seems to be quite high compared to other similar studies while mortality was nearly comparable.

In the literatures, morbidity ranges from 6% to 47% whereas mortality ranges from 2% to 19%.^{6-10,16-18,25}

The presence of strangulation, duration of symptoms and old age are determined to be the factors affecting mortality and morbidity.

Conclusion

The aetiological transition to adhesive obstruction also found in this study like other developed and some developing countries. If the incidence of the obstruction due to malignancy or external hernia is to be further reduced, a more aggressive policy aimed at earlier detection and elective surgical interventions should be needed.

With increasing numbers of both elective and emergency laparotomies, it is also likely that despite a greater understanding of the aetiology of adhesion formation, the problem of adhesive obstruction will assume even greater proportions which demand the need for routine preventive measures against adhesion formation.

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