

PATTERN OF DYNAMIC INTESTINAL OBSTRUCTION IN ADULTS

Ismail, Mumtaz Khan, S. Aslam Shah and Nisar Ali

Department of Surgery
Pakistan Institute of Medical Sciences Islamabad and
Post Graduate Medical Institute ,Lady Reading Hospital, Peshawar.

ABSTRACT

Objective: To evaluate the causes of dynamic intestinal obstruction at PIMS Islamabad.

Material and Methods: This was a prospective study of 75 consecutive cases of dynamic intestinal obstruction, conducted in department of surgery at Pakistan Institute of Medical Sciences, Islamabad from 1st August 1998 to 31st December 1999. Those patients who improved with conservative treatment and did not undergo laparotomy were excluded from the study. All patients who underwent laparotomy for management of their disease were included. Laparotomy findings were recorded and where necessary specimen was taken for histopathology for confirmation of final diagnosis.

Results: In this study of 75 cases, 100% patients presented with pain and distension of abdomen, other symptoms were less in frequency. Males were 38 and females were 37 with male to female ratio of 1.01:1. Tuberculosis was the leading cause of (36%) dynamic intestinal obstruction followed by carcinoma of the large gut and postoperative adhesions. Only two patients had small bowel malignancy and intussusception, and one patient was with meckle's diverticulum.

Conclusion: Tuberculosis is emerging as a leading cause of dynamic intestinal obstruction. Therefore it is time to run more efficiently the tuberculosis control programme in Pakistan, before it is too late.

Key Words: Intestinal Obstruction, Dynamic Obstruction, Mechanical Obstruction, Tuberculosis.

INTRODUCTION

Intestinal obstruction refers to interference of cephalocaudal transit of intestinal contents. It is classified into two types.

1. **Dynamic obstruction:** In this type peristalsis is working against an obstructing agent i.e. adhesions and malignancy etc.
2. **Adynamic obstruction:** In this type no true peristalsis is seen as in paralytic ileus and mesenteric vascular occlusion.

Other classification are according to:-

A. SITE OF OBSTRUCTION:

- i. Jejunal
- ii. Ileal
- iii. Colonic

B. NATURE OF OBSTRUCTION

- i. Simple
- ii. Strangulated

C. MORPHOLOGY OF OBSTRUCTION

- i. Causes in the lumen of gut
- ii. Causes in the wall of gut
- iii. Causes outside the wall of gut

The causes of dynamic intestinal obstruction are usually adhesions, hernias, volvulus, malignancies, tuberculosis, crohn's disease and intussusception.¹ The causes of dynamic bowel obstruction vary from country to country and the frequency of various etiological factors appear to alter from time to time.^{2,3} This make it essential that studies are made periodically in every region to define local causes with the idea of improving surgical health services.

Pattern of intestinal obstruction vary from country to country and even within smaller geographic areas, and it has definite relationship with the development and health care facilities available in that country.^{4,5,6} The pattern of mechanical bowel obstruction is changing in most developing countries, as awareness, surgical case and access of patients to the hospitals is improving.⁵

AGE AND SEX DISTRIBUTION OF THE PATIENTS

Age in years	Male	Female	Total
13-19 years	10	7	17 (22.7%)
20-29 years	11	12	23 (30.7%)
30-39 years	4	4	8 (10.7)
40-49 years	6	4	10 (13.3%)
50-59 years	0	3	3 (4.0%)
60-69 years	5	7	12 (16.0%)
70 years and Above	2	0	2 (2.6%)
Total	38	37	75 (100%)

Table 1

MATERIAL AND METHODS

This was a prospective descriptive study conducted in the department of general surgery at Pakistan Institute of Medical Sciences Islamabad from 1st August 1998 to 31st December 1999 (1 ½ years).

This study included 75 consecutive cases of dynamic intestinal obstruction affecting both small and large gut. The patients were from both sexes and aged 13 years and above.

These patients were admitted to surgical wards and after detail history and clinical examination, underwent investigations including blood complete picture, blood sugar, blood urea, serum creatinine, serum electrolytes, urine analysis, chest and abdominal radiographs (erect and supine) and abdominal ultrasonography.

Simultaneously conservative measures were started in the form of.

- Nothing per oral
- Nasogastric aspiration
- Rehydration according to state of dehydration and serum electrolytes.
- Broad spectrum antibiotics and metronidazol.

- Input and output chart.

Those patients who improved with conservative treatment and did not undergo laparotomy were excluded from the study. Only those cases were included who underwent laparotomy for the management of their obstruction and tissue was obtained for histopathology to confirm the final diagnosis and plan the subsequent management.

RESULTS

Table No 1 shows age and sex distribution of the patients. Out of 75 patients male were 38 and female were 37(49.3%) with male to female ratio of 1.01:1. The age of patients ranged between 13-75 years. Forty (53.3%) patients were aging below 30 years, 18(24%) were aging 31-50 years and remaining 17(22.7%) were aging above 50 years.

Table 2 shows the symptoms and their duration.

All the patients (100%) presented with pain and distension of abdomen, while 73 (97.3%) patients presented with absolute constipation and 60 (80%) had vomiting.

58 (77.3%) patients presented within one week of start of symptoms, while remaining 17

SYMPTOMS AND DURATION OF THE DISEASE

Duration	Pain	Distension	Constipation	Vomiting
Up to 24 hours	5	5	5	5
1-2 days	15	15	15	15
2-3 days	12	12	12	12
3-4 days	3	3	3	3
4-5 days	8	8	8	5
5-6 days	7	7	7	5
6-7 days	8	8	6	3
More than 7 day	17	17	17	12
Total	75	75	73	60
Percentage	100%	100%	97%	80%

Table 2

CAUSES OF SMALL GUT OBSTRUCTION AND THEIR INCIDENCE (N = 53)

Pathology	Average age (years)	Total n = 53	Male	Female
Tuberculosis	25.8	27(50.94%)	15	12
Adhesions	29.9	20(37.73%)	10	10
Strictures	22.5	7(13.2%)	5	2
Post-op adhesions	31.4	18(33.96%)	10	8
Appendicular	30.0	3(5.96%)	2	1
Malignant tumours	29.0	2(3.77%)	1	1
Intussusception	18.5	2(3.77%)	2	0
Meckel's diverticulum	24.0	1(1.89%)	1	0

Table 3

(22.7%) presented after more than one week.

Table No3 shows causes of dynamic small bowel obstruction. Out of the total of 75 patients, 53(70.7%) had small bowel obstruction. In 27 (36%) patients the cause of obstruction was tuberculosis (confirmed on histopathology). Of these 27 patients 20 were due to adhesions and 7 due strictures. Eighteen (24%) were with postoperative adhesions. Three (4%) patients were due to appendicular adhesions, band or mass. Two (2.7%) patients had small bowl malignancy and intussusception each and 1 (1.3%) patient was with Meckle's diverticulum.

Table No.4 shows causes of large gut obstruction. Out of total 75 patients 22 (29.3%) were with large gut obstruction. Twenty were due to carcinoma of colon, of these 5 were male and 15 were female with male to female ratio of 1:3.

Two patients (both male) had volvulus of sigmoid colon.

DISCUSSION

In this study 100% patients presented with pain and distension, 97.3% with constipation and 80% with vomiting. These findings are consistent with those reported by Manzoor A et al in a study of 120 patients from Quetta in 1997⁷ and of Gardezi in a study of 70 patients from Services Hospital Lahore in 1993⁸.

CAUSES OF LARGE GUT OBSTRUCTION AND THEIR INCIDENCE (N = 22)

Parameters	Carcinoma colon	Sigmoid volvulus
No. of cases	20	2
Age range	28-75 Years	65-70 years
Average age	57.5 Years	67.5 Years
Male	5	2
Female	15	-

Table 4

Manzoor A et al actually reported pain in 100%, distension in 71.8%, absolute constipation in 83.3% and vomiting in 90%. These non significant differences may be due to involvement of different part of gastrointestinal tract and time of presentation.

No age group was particularly prone to intestinal obstruction, however the frequency become low in patients above 50 years of age. (77.3% below 50 years and 22.6% above 50). This may be due to lower life expectancy of people in this region. The mean age in this study was 37.5 years which is closer to that reported by Manzoor A et al⁷ (Mean age 42.5 years). Alvi AR from Mayo Hospital Lahore reported the mean age as 44.5 years.

In this study the male to female ratio was 1.03:1 which is nearer to that reported by Adesun Kamni⁹ (M:F=1.7:1) from Africa, however it is not supported by other workers Manzoor A (M:F=3:1)⁷ and Alvi AR. (M:F=4.84:1)¹.

This may be due to increased occurrence of carcinoma colon in females (75%) as compared to males (25%) in the present study, thus increasing the overall female ratio of dynamic intestinal obstruction.

In the current study tuberculosis was the leading cause of dynamic intestinal obstruction (36%) followed by carcinoma of the large gut (26.7%) and postoperative adhesions (24%).

This is in contrary to most of the studies in developing countries where strangulated hernias are leading cause of intestinal obstruction.^{1,2,7,10} while in the developed countries the postoperative adhesions and malignant tumours are the main causes.¹¹⁻¹⁶

Surprisingly no single case was recorded during this period with obstructed hernia. It may be due to an increased awareness among the people about hernia and its elective repair before it

gets obstructed or strangulated specially in capital city where people are more keen to have elective repair of their hernias.

However these findings are supported by Abdullah SI and Parwaiz I in a study of 47 patients at Dow Medical College Karachi in 1998¹⁷ where tuberculosis was found to be the leading cause of intestinal obstruction (44.6%).

In most other studies from Pakistan, Tuberculosis is the third common cause of dynamic intestinal obstruction.¹⁷⁻²⁰ This shift towards tuberculosis may be due to overall increase in the incidence of tuberculosis during the present decade, and its is expected to rise further.²¹ This reemergence of tuberculosis has occurred after 35 years of decline. In most parts of the developed world human immunodeficiency virus (HIV) infection has given rise to increase in the incidence of tuberculosis while in our country multidrug resistant tuberculosis may be the contributing factor.²²

In this study 20(26.7%) patients presented with adenocarcinoma of colon, 5(25%) were males and 15(75%) were females. This female preponderance is supported upto to some extent by Runkel NS,²³ reporting a shift of female preponderance in emergency group of carcinoma of large intestine from 49% to 65%. However the present study may not be the true presentation of carcinoma of large intestine as only 15% of colorectal carcinoma present as colonic perforation or obstruction.^{24,25} 18(24%) patients presented with postoperative adhesions which is less than the figure of 40% reported in European literature.²⁶ This may be due to less number of laparotomies performed in this region as compared to Europe. However this is in comparison with some of the national studies.¹⁸⁻²⁰

CONCLUSION

Pakistan is a developing country and the causes of mechanical bowel obstruction are changing in their pattern from time to time, because of better health facilities, early access to hospitals and increasing rate of early surgical intervention.

Once again the pattern has changed in this study due to reemergence of tuberculosis in recent years. As the pattern of mechanical bowel obstruction is changing day by day, studies are essential in smaller geographical areas to identify local causes and to plan for their more effective management.

Tuberculosis is emerging as a leading cause of dynamic intestinal obstruction. Therefore it is time to run more efficiently the tuberculosis

control programme in Pakistan, before it is too late. This can be done by:

- a. Mass-education
- b. Early diagnosis
- c. Efficient and free treatment programmes.
- d. Identification and effective treatment with second line drugs of multidrug resistant tuberculosis cases.

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Address for Correspondence

Dr. Ismail
Saidu group of Teaching Hospital,
Swat NWFP Pakistan