

Intestinal Obstruction in Adults at the Aga Khan University Hospital

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Abstract

During the period January, 1987 to June, 1991, 208 adults with mechanical bowel obstruction were managed at The Aga Khan University Hospital (AKUH). Post-operative adhesions accounted for 34% of the cases and were the most frequent cause of intestinal obstruction. External hernia (16%), malignancy (13.5%) and tuberculous stricture (10%) were the next most frequent causes. The predominance of adhesive intestinal obstruction at AKUH shows a trend towards a Western disease pattern. Socioeconomic status was a significant determinant of the cause of obstruction. The proportion of self paying to welfare patients was significantly lower in tuberculous obstruction as compared with adhesive or malignant obstruction and in obstruction caused by hernia as compared with that due to malignant disease ($P < 0.05$). The present study demonstrates the synchronal occurrence of old and new diseases in a population and points towards the epidemiological transition which is affecting urban areas in the developing world (JPMA 44:143, 1994).

Introduction

In the West, the pattern of intestinal obstruction has changed with time. External hernias accounted for 50% of 6892 cases of intestinal obstruction in Britain during the period 1925-30 and adhesions for only 7%¹. By 1955, adhesions had replaced hernias as the most common cause of intestinal obstruction in the United States². In Malaysia the cause of intestinal obstruction is related to race and by inference to socioeconomic status. Adhesive obstruction and cancer are commoner in the prosperous Chinese as compared with the less affluent Malays and Indians in whom external hernias predominate³. Adhesions and malignant lesions account for the majority of cases of intestinal obstruction in the United States⁴, United Kingdom⁵ and Japan⁶ while in Africa the spectrum is very different and external hernias are by far the commonest cause of intestinal obstruction^{7,8}.

Patients and Methods

Two hundred and eight patients were admitted from the emergency room and consulting clinics with symptoms, signs and radiological evidence of intestinal obstruction from 1st January, 1987 to 30th June, 1991. Children less than eleven years of age and patients with paralytic ileus and other non-mechanical causes of obstruction were excluded. Based on financial status patients were categorised as self-paying or welfare. Self-paying patients did not receive any financial help from the institution but for welfare patients part of the medical bill was paid by the welfare department of AKUH. Chi square analysis was used as a test of significance.

Results

Of 208 patients, 108 were males and 100 females. Adhesions, hernias, malignancy and tuberculosis accounted for 74% of all the cases of intestinal obstruction (Table I).

Table I. Causes of intestinal obstruction (n = 208).

Etiology	No. of patients	Percentage
Adhesions	71	34.0
Hernias	34	16.0
Malignancy	28	13.5
Tuberculous stricture	21	10.0
Volvulus	8	4.0
Ischemic stricture	7	3.5
Diverticular disease	6	3.0
Fecal impaction	6	3.0
Ascariasis	4	2.0
Gall stone ileus	3	1.5
Crohn disease	2	1.0
Unknown cause	18	9.0
Total	208	

Tuberculous strictures were thrice as common and adhesions nearly twice as common in patients aged 50 years or less as compared with those over 50 years. The reverse was true of cancer which was nearly twice as common in patients over 50 years of age (Table II).

**Table II. Age distribution by major causes of obstruction.
(n = 154)**

Age (years)	Adhesions	Hernias	T.B.	Cancer
< 30	20	4	4	1
31-40	10	2	8	5
41-50	15	8	4	4
51-60	10	9	3	9
> 60	16	11	2	9

Previous general surgical (65%), obstetrical gynaecological (21%), urological (10%) and other unknown procedures (4%) accounted for the cases of adhesive intestinal obstruction (n= 71). Among the hernias, there were 15 inguinal, 14 incisional, four paraumbilical and one femoral. In the group with malignant obstruction 18 had rectosigmoid carcinoma and 10 patients had widespread intra abdominal

malignant disease. The tuberculous strictures involved the ileocecal region and the terminal ileum. Although bacteriological/histological proof of tuberculosis could only be established in nine out of 21 patients, who underwent surgery, strong clinical and radiological evidence of intestinal tuberculosis was present in the other patients. Notably, diverticular disease was a rare cause of intestinal obstruction in the present series. Disease distribution was also analysed according to the financial status of the patients (Table III).

Table III. Financial status of the patients.

Major causes	No. of self-paying patients (SP)	No. of welfare patients (WP)	Ratio SP/WP
Cancers	19	9	2.1
Adhesions	44	27	1.6
Hernias	15	19	0.79*
T.B. stricture	7	14	0.5**

*Ratio lower than in cancers ($P < 0.05$).

**Ratio lower than in cancers and adhesions ($P < 0.05$).

The ratio of self paying to welfare patients was significantly lower ($P < 0.05$) for tuberculous obstruction as compared with adhesions or malignancy and for obstruction due to hernia as compared with malignancy. The need for surgical intervention was high in patients with cancer and external hernia. Only 43% of patients with adhesive obstruction and obstruction due to tuberculosis underwent surgery (Table IV).

Table IV. Mode of management according to cause of obstruction.

Cause of obstruction	Conservative treatment		Surgical intervention	
	No.	(%)	No.	(%)
Adhesions	41	(57.7)	30	(42.3)
Hernias	7	(20.6)	27	(79.4)
Malignancy	0	(0)	28	(100)
Tuberculous stricture	12	(57.0)	9	(43.0)

Discussion

AKUH is a private hospital in Karachi where the majority of patients pay for clinical services. The pattern of intestinal obstruction at this hospital during the period January, 1987- June, 1991 was such that post-operative adhesions were by far the commonest cause accounting for a third of 208 cases and obstructed external hernias were next in frequency occurring in 16% of the cases. By contrast the Jinnah Postgraduate Medical Centre (JPMC) which caters for non-affluent class in Karachi serves as

indigent population. The commonest cause of intestinal obstruction at JPMC during the period January, 1988-December, 1990, was external hernias accounting for a third of 295 cases while post-operative adhesions occurring in 19% cases, were next in frequency⁹ (Table V).

Table V. Patterns of intestinal obstruction at AKUH, JPMC and Mayo Hospital.

Cause of obstruction	AKUH	% Cases JPMC	Mayo Hospital
	Jan '87-June '91 n = 207	Jan '88-Dec '90 n = 295	Jan '91-June '92 n = 66
Adhesions	33	19	19
External hernia	16	32	18
Cancer	13	9	0
Tuberculosis	10	15	4

Whereas the occurrence of post-operative adhesions reflects the availability of surgical facilities to a community, the occurrence of obstructed external hernias, with the possible exception of obstructed incisional hernias, has an opposite connotation. It seems as though there are two distinctive communities in Karachi: the affording who patronize the AKUH have a higher incidence of adhesive obstruction and a lower incidence of obstructed external hernias while the poor who go to the JPMC present a reverse disease pattern. This is an example of the epidemiological transition which is affecting urban areas in the developing world, Epidemiological transition is a complex phenomenon and is dependant on demographic and socio-economic transition as well as a transition in the status of health services. Pakistan is in the midst of a demographic transition, the life expectancy of its population having increased from 50 to 60 years over a span of three decades¹⁰. With an aging population more cases of malignant disease are likely to be encountered. A diet rich in animal fat and refined sugars is available to the affluent and is likely to contribute to the incidence of colorectal cancer¹¹. The frequency of colorectal cancer as a cause of intestinal obstruction was slightly higher at AKUH (13% cases) as compared with JPMC (9% cases). In another series from Mayo Hospital in Lahore¹² which also caters to an indigent population, not a single case of mechanical intestinal obstruction was due to cancer (Table Y). Socioeconomic status affects the disease pattern in a community in more than one way. Poor living conditions and negative vaccination status contribute to a higher rate of tuberculosis in the deprived as compared with the affluent members of society. The difference between the two series AKUH and JPMC in terms of intestinal obstruction due to tuberculosis was small (AKUH 10% cases; JPMC 15% cases). However, within AKUH a significantly lower ratio of self paying to welfare patients was discerned in tuberculous obstruction as compared with adhesive or malignant obstruction. As Pakistan's cities are going through an epidemiological transition, urban hospitals face the double burden of the old and the new diseases. The differences in disease pattern between the poor and the rich sections of the community are however, not sharply defined. Both private and government hospitals will need to prepare themselves to deal with a double burden in the foreseeable future. Government hospitals certainly will be hard pressed to muster the necessary resources.

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