INTESTINAL OBSTRUCTION: A SPECTRUM OF CAUSES

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ABSTRACT

Objective: *To study the spectrum of causes of acute intestinal obstruction in local set up.*

Material and Methods: *This was a descriptive study, conducted in the Department of Surgery Hayatabad Medical Complex Peshawar Pakistan. Study included patients admitted in General Surgery Ward, with acute intestinal obstruction from January 2004 to June 2008. Detailed history, physical examination and necessary investigations (baseline, and x-ray abdomen erect and supine in all cases and ultrasound and CT scan in selected cases) were carried out. Informed written consent was taken from every patient and was counseled about his or her condition and prognosis. After resuscitation all patients were explored through midline laparotmy incision. Operative information of every case was recorded on proforma. Frequency and pattern of different causes of intestinal obstruction were recorded and analyzed.*

Results: *Total number of patients was 576. Male patients were 352 (61.1%) while female were 224 (38.9%). Ileus secondary to intraperitoneal sepsis was noted in 31.25 % (n=180) cases, ileus due to spinal injury in 3.47% (n=20), ileus due to ileal gangrene in 4.86% (n=28), volvulus in 24.31% (n=140), tumours in 12.15% (n=70), hernias in 10.76% (n=62), Ileal stricture in 6.94% (n=40), feacal impaction in 4.16% (n=24) and adhesion in 0.69% (n=4) patients. No definite cause was found in 1.38% (n=8) cases.*

Conclusion: *Adynamic obstruction due to intraperitoneal sepsis has come out to be the most common cause of intestinal obstruction. Volvulus and tumour were not uncommon, but hernias and adhesions were seen less frequently.*

Key Words: *Intestinal Obstruction, intra-peritoneal sepsis, causes*

INTRODUCTION

Intestinal obstruction is defined as any hindrance to the passage of intestinal contents.[1] It is one of the most common conditions resulting into hospital admissions. The clinical features of intestinal obstruction include abdominal pain, vomiting, distention and absolute constipation. [2-4] Intestinal obstruction may be of acute or chronic onset. It may be classified as dynamic (mechanical) and adynamic obstruction (paralytic ileus and pseudo-obstruction). It may also be classified as small and large bowel obstruction.[5]

The etiology of small bowel obstruction varies with different geographical locations. In the developing world, external hernias account for more than half of all cases of small bowel obstruction, whereas in the UK and USA the most common cause of small bowel obstruction is adhesions resulting from previous surgery.[5]

Other causes of small bowel obstruction include neoplasms, inflammatory bowel disease, internal hernias, volvulus and a variety of small bowel strictures.[5] Large bowel obstruction may be caused by cancer, diverticulitis, volvulus or feacal impaction.[6-9]

The purpose of this study was to find out the frequency of the conditions leading to acute small bowel and large bowel obstruction in the given setting. This will highlight the commonest causes of intestinal obstruction in the geographical location of the study which will suggest measures for prevention and treatment of the condition.

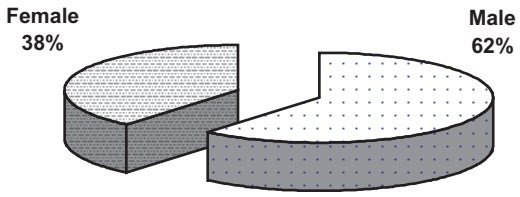

Figure : Gender distribution in intestinal obstruction

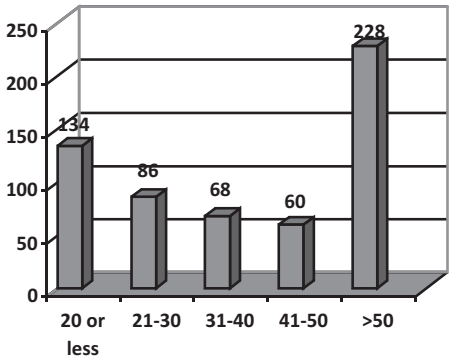

Figure : Age distribution in acute intestinal obstruction

MATERIAL AND METHODS

The study was conducted in Surgical Unit, Postgraduate Medical Institute, Hayatabad Medical Complex, Peshawar, from January 2004 to June 2008. Patients admitted with acute intestinal obstruction were included in the study. Detailed history, physical examination and necessary investigations (baseline, and x-ray abdomen erect and supine in all cases and ultrasound and CT scan in selected cases) were carried out. Informed written consent was taken from every patient and was counseled about his or her condition and prognosis.

After resuscitation all patients were explored through midline laparotomy incision. Operative information of every case was recorded on proforma. Frequency and pattern of different causes of intestinal obstruction were recorded and analyzed.

RESULTS

During this study a total of 576 patients with acute intestinal obstruction were received. Male patients were 352 (61.1%) while female were 224 (38.9%). Male to female ratio was 1.6:1 as shown in fig.1. A total of 134 patients belonged to 20 years or less age group, 86 patients were from 21-30 years, 68 patients from 31-40 years age group, 60 from 41-50 years and 240 were of above 50 years age group as shown in fig.2

Patients with dynamic obstruction were 340 and with adynamic obstruction were 228.In 8 patients no definite cause was established because either death or relief of obstruction.

Among those who had dynamic obstruction, 116 patients were found to have small bowel obstruction (40 cases of inguinal hernias, 20 cases of para-umbilical hernia,40 cases of ileal strictures, 2 cases of diaphragmatic hernia, 10 cases of small bowel tumors and 4 cases of ileal

CAUSES OF ACUTE INTESTINAL OBSTRUCTION

Dynamic Obstruction			Adynamic Obstruction		
Diagnosis	**Number of cases (n=340)**	**%age**	**Diagnosis**	**Number of cases(n=228)**	**%age**
Sigmoid volvulus	120	20.83%	Ileal perforation	100	17.36%
Large gut tumors	60	10.45%	Duodenal perforation	52	9.03%
Ileal stricture	40	6.94%	Pelvic abscess	24	4.17%
Fecal Impaction	24	4.17%	Post-op retained gauze	04	0.69%
Ileal Bands	04	0.69%	Ileal Gangrene	28	4.86%
Inguinal hernia	40	6.94%	Paralytic ileus (Spinal injuries)	20	3.47%
Para-umbilical hernia	20	3.47%			
Diaphragmatic hernia	02	0.35%			
Cecal volvulus	20	3.47%			
Small gut tumor	10	1.74%			

Table 1

COMPARISON OF PAKISTANI STUDIES WITH RESPECT TO CAUSES OF INTESTINAL OBSTRUCTION

Author	Year	Location	Total cases	Most common cause	Second most common cause	Other causes
Present study	2008	Peshawar	576	Ileus (39.58%)	Volvulus (24.31%)	Tumours (12.15%)
Jehangir	2007	Rawalpindi	100	Hernias	Adhesions	
Mehmood[18]	2005	Karachi	257	TB (38%)	Hernias (26%)	Adhesions(17%), Malignancy(10%), Volvulus(6%)
Ismail[19]	2005	Islamabad	75	TB (36%)	Tumors	
Tazeen[20]	2004	Karachi	50	TB (72%)		
Ahmad[21]	2004	Lahore	74	Adhesion (26%)	TB (20%)	Tumors(19%)
Mohammad[22]	2002	Quetta	77	Adhesions		
Naseer[23]	2001	Bahawalpur	116	TB (29%)	Hernias (27%)	Adhesions(17%), Volvulus(13%)

Table 2

bands adhesion) and 224 had large bowel obstruction (120 cases of sigmoid volvulus, 20 of cecal volvulus, 60 of large bowel tumor, 24 of faecal impaction).

Out of those 228 patients with adynamic obstruction there were 180 cases of intraperitoneal sepsis (52 perforated duodenal ulcers, 100 cases of peritonitis due to perforation in ileum, 24 cases of post-operative pelvic collection or abscess and 4 case of intraperitoneal sepsis due to retained gauze) and 28 cases of gangrene of ileum and 20 cases were of paralytic ileus due to spinal injury as shown in Table No.1

DISCUSSION

The spectrum of etiology of acute intestinal obstruction has been an issue of research in many developed and developing countries. Review of the available literature shows that the spectrum of causes of intestinal obstruction varies demographically.[10,11]

According to Muyembe[12] five leading causes of intestinal obstruction in Nyeri, Kenya, are: sigmoid volvulus, external herniae, adhesions and bands, ileocolic intussusception and small bowel volvulus. Another study[13] from a developing country has described adhesions (75%) and neoplasms (11%) to be the most common causes. Another study[15] from Greece has described Adhesions, hernias, and large bowel cancer to be the most common causes of intestinal obstruction. However this study considered only the mechanical causes. A study carried out in Poland has described hernias and adhesions to be most common cause[16]. A study[17] done in Chandi Gharh India has described adhesions and hernias to be the most common and second most common cause of intestinal obstruction respectively.

The local studies done in Pakistan have different stories to tell. According to Mehmood Z [18], Ismail[19], Zahra T[20] Tuberculosis is the most common cause of intestinal obstruction. Others [21-23] have considered only mechanical bowel obstruction in their studies and they have found adhesions, and tuberculosis to be the most common causes in their studies respectively. According to Jehandgir et al[24] hernias followed by adhesions were the most common cause of obstruction.

In the present study a spectrum of etiology of acute intestinal obstruction was observed which is quite different from both trends. The most common cause of acute intestinal obstruction observed in the present study came out to be adynamic obstruction caused by different pathologies like intraperitoneal sepsis due to viscus perforation and paralytic ileus due to spinal injuries etc. Results of the present study show that neither hernias nor the adhesions are common as etiology of intestinal obstruction in our set-up, however tumors are as commonly present in this location as in other areas.

Sigmoid volvulus also presents here quite commonly as in other areas, though, perhaps a little more frequently than other areas. However the most striking observation of the fact that adynamic obstruction has caused the biggest percentage of cases warrants some attention. This observation might just indicate higher prevalence of infective diseases causing perforation in this location e.g. typhoid fever, tuberculosis etc. It may also indicate that many of the peptic ulcer cases

COMPARISON OF INTERNATIONAL STUDIES ON CAUSES OF INTESTINAL OBSTRUCTION

Author	Year Published	Location	Total cases	Most common cause	Second most common cause	Other causes
Present study	2008	Peshawar (Pakistan)	576	Ileus 39.58%	Volvulus 24.31%	Tumours 12.15%
Markogiannakis[15]	2007	Athens (Greece)	150	Adhesions 64%	Hernias 14%	Tumors (13%)
Ohene-Yeboah M[10]	2006	Kumasi, Ghana	652	Hernias (63%)	Adhesions (27%)	Volvulus, Tumors, Strictures
Dervisoglou[14]	2005	Piraeus, Greece.	369	Adhesions (76%)	Tumors (11%)	Hernia, ischemia, bezoar, bile stone
Lawal[11]	2005	Nigeria	99	Adhesions 44%	Volvulus 15%	Hernias (11%) tumor (10%)
Sinha S[17]	2002	Chandigarh, India	97	Adhesions (27%)	Hernias (22%)	
de la Garza-Villaseñor[12]	2001	Mexico	452	Adhesion (58%)	Hernias (16%)	Tumors (13%)
Wysocki A[16]	2001	Poland	468	Hernias	Adhesions	
Archampong EQ[4]	2000	Accra, Ghana	139	Hernias	Adhesions	
Muyembe VM[13]	2000	Nyeri, Kenyq		Volvulus	Hernias	Adhesions

Table 3

are not being adequately treated pharmacologically leading to higher number of complicated peptic ulcer disease. Does it also mean that hernias are being adequately treated in time, these days?

Comparison of our study with different national and international studies are shown in Tab.No.2 and 3.

CONCLUSION

A different pattern of causes of acute intestinal obstruction has been observed in the present study indicating that adynamic obstruction caused by different pathologies like intraperitoneal sepsis (typhoid perforations, perforated ulcers and abscesses) and paralytic ileus due to spinal injuries are causing intestinal obstruction in many more number of cases than showed by most other studies. Volvulus and tumors are also common but hernias and adhesions have been found relatively less frequently.

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