ISSN 2073-9990 East Cent. Afr. J. surg. (Online)

Intestinal Obstruction at El Thowra Teaching Hospital, El Beida, Libya.

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Background: Intestinal obstruction is a condition that results in failure of the contents of the intestine to progress though the lumen of the bowel. The most common cause is a mechanical blockage resulting from adhesions, impacted faeces, tumour of the bowel, hernia, intussusception, volvulus, or the strictures of inflammatory bowel disease etc. obstruction may also be the result of pseudo obstruction or paralytic ileus. Intestinal obstruction is a common emergency condition, met at all levels of surgical management. The aim of our study was to determine the incidence, causes, presentations and management of intestinal obstruction at El Beida in the North Eastern part of Libya.
Methods: A retrospective study of intestinal obstruction was done of two years from 1st January 2009 to 31st December 2010 at El Thoura Teaching Hospital. Datas of the patients collected and analyzed including age, sex of the patient, clinical features, causes of obstruction, site of obstruction and type of the treatment offered with outcome.
Results: We analyzed 108 cases of intestinal obstruction in a span of two years from 1st January 2009 to 31st December 2010. In our series adhesions were the most common cause of intestinal obstruction. The most common causes of mechanical intestinal obstruction was adhesions which were post operative in 33.3% and non-operative adhesions in 2.8%. Other causes included faecal impaction in 19%, hernia in 18.5%, sigmoid volvulus in 6.5%, Crohn's disease in 2.8%, gall stone ileus and foreign body in 0.9%, Mesenteric vascular ischaemia accounted for 1.9%.
Conclusion: The scenario has been changing the trend of occurrence in recent years due to better surgical care. Postoperative adhesions were the most common cause of intestinal obstruction. Proper timely diagnosis and adequate treatment will have the best outcome, especially in case of Mesenteric vascular occlusion.

Introduction

The aetiology of acute intestinal obstruction, which is one of the commonest surgical emergencies, varies between countries and has also changed over the decades. The incidence of postoperative adhesive intestinal obstruction has been gradually increasing over the last few decades. The clinical presentation of intestinal obstruction is well known to all surgeons and when the patient presents with a previous history of abdominal surgery, the most likely diagnosis is adhesions[1]. The overall incidence of adhesive intestinal obstruction is 30% as shown in the studies conducted by Nemir, Perry, Bevan and Mc Entee[2,3,4]. Subsequent studies have revealed a steady rise in the incidence of intestinal obstruction to the present day incidence of about 40%[2].

Hernias are the second most common cause of small-bowel obstruction in the United States, accounting for about 25% of all cases. About half of all large-bowel obstructions are caused by colorectal cancer due to delayed diagnosis. It may be the presenting feature in case of left sided colonic cancer due to tubular or annular pattern of tumour and the solid consistency of the contents.
In Western countries, volvulus is most common among people over the age of 65. Diverticular disease, as a stricture ages and tightens, it can narrow the intestine cause obstruction of the colon.

A retrospective study of cases of intestinal obstruction seen at **at El Thowra Teaching Hospital, El Beida** was done over a period of two years from 1st January 2009 to 31st December 2010.The aim of our

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study was to determine the incidence and causes of intestinal obstruction at El Beida in the North Eastern part of Libya.

Patients and Methods

Our study was undertaken over a period of two years from 1st January 2009 to 31st December 2010, at General Surgical Department of El-Thowra Teaching Hospital, El Beida. We included all the patients admitted during a period of the study and diagnosed as mechanical intestinal obstruction. Data of the patients collected and analyzed included age, sex of the patient, clinical features, causes of obstruction, site of obstruction and type of the treatment given (Table 1).

Table 1. Shown character of the patient study.

Character of Patient	Number of the Patients	Percentage (%)
Total number	**108**	
Sex		
- **Male**	58	53.7%
- **Female**	50	46.3%
Age		
10 – 19 yrs	5	4.6%
20 – 29 yrs	15	13.9%
30 – 39 yrs	19	17.6%
40 – 49 yrs	19	17.6%
50 – 59 yrs	23	21.3%
60 – 69 yrs	27	25%
Clinical features		
- **Pain**	98	90.7%
- **Vomiting**	84	77.8%
- **Abd. Distension**	57	52.8%
- **Constipation**	43	39.8%
- **Fever (>37^{0}C)**	12	11.1%
- **Leucocytosis (>13X10^9)**	9	8.3%

The clinical diagnosis of mechanical intestinal obstruction was supported by demonstration of gas/fluid levels and bowel distension on plain abdominal X-ray films. A contrast study of gastro-intestinal tract was not performed in our patients. Serum electrolytes and blood urea were performed routinely in our patients. Abdominal ultrasound and CT scan performed in selected cases.

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Results

Table 2. Mechanical intestinal obstruction in 108 patients.

Causes of mechanical obstruction Number of patients and percentage		Types of treatment		
		Conservative treatment		Surgical treatment
		Successful cases	Unsuccessful cases	Laparotomy
		Number of case (%)	Number of cases (%)	Number of cases (%)
Postoperative adhesions	36 (33.3%)	25 (78%)	7 (22%)	4 (11.1%)
Non-operative adhesions	3 (2.8%)			3 (2.8%)
Faecal impaction	21 (19.4%)	18 (85.7%)	3 (14.3%)	
External hernia	20 (18.5%)	5 (25%)		15 (75%)
Tumors (Colon)	14 (13%)			14 (100%)
Sigmoid Volvulus	7 (6.5%)	3 (42.8%)		4 (57.1%)
Crohn's disease	3 (2.8%)			3 (100%) (Rt.Hemicolectomy)
Gall stone ileus	1 (0.9%)			1 (100%)
Foreign body (Bezoar)	1 (0.9%)			1 (100%)
Mesenteric ischemia	2 (1.9%)			

Thirty two (88.9%) of the post operative adhesion patients were treated conservatively; 25(78%) of them recovered and 7 (22%) cases failed, in whom laporotomy was performed. The remaining 4 (11.1%) patients were subjected to laparotomy after resuscitation with evidence of strangulation (severe pain, fever, leucocytosis, abdominal tenderness).

Nonoperative adhesive intestinal obstruction was found in 3 (2.8%) of the patients in our study. They had undergone laparotomy soon after resuscitation, because the cause of obstruction was not clear.
Faecal impaction accounted 21 (19%) of cases; among them 18 (85.7%) were treated conservatively and 3 (14.3%) treated by evacuation under anaesthesia. There were 20 (18.5%) cases of Hernia (12

ISSN 2073-9990 East Cent. Afr. J. surg. (Online)

paraumbilical hernia, 6 Inguinal and 2 incisional hernia); among them 15 (75%) were treated surgically and bowel resection was necessary in 3 (15%) cases. 5 (25%) patients with obstructed hernia were treated successfully conservatively.

Fourteen (13%) cases of Large bowel tumour (9 left colon and 5 right colon); were treated surgically with resection and primary anastomosis. Seven (6.5%) cases of sigmoid volvulus were recorded; 5 of them treated surgically and 2 patients responded to conservative treatment. Three (2.8%) cases of Crohn's disease; were treated surgically by right hemicolectomy. One (0.9%) case each of Gall stone ileus and foreign body (Intestinal bezoars) underwent laparotomy and enterotomy. Two (1.9%) cases of Mesenteric ischemia; both patients expired before surgical intervention, because of delayed diagnosis. Overall mortality rate in our patients 1.9% represented by two patients with mesenteric occlusion. In our study we found adhesions to be the most common cause of intestinal obstruction. Obstructed hernias and colorectal malignancies constituted the next common offending causes of intestinal obstruction, which may be associated with volvulus in some cases apart from fecal impaction.

Discussion

Intestinal obstruction is a common surgical emergency that carries a favourable prognosis if recognized and treated promptly. High morbidity and mortality rates may result, when the patients present late, or go undiagnosed or resuscitated inadequately, before surgery[5,6]. Mechanical intestinal obstruction is of two types, according to the presence or absence of adequate blood supply. The strangulated intestinal obstruction is more serious and requires urgent surgical correction[5-8].

In the developed World, the most common causes of mechanical intestinal obstruction are postoperative adhesions, external hernia, tumour then miscellaneous (foreign bodies, parasites, gall stone ileus, inflammatory bowel disease etc)[5-8]. There are several reports on intestinal obstruction demonstrated that adhesive obstruction is the most common cause[9,10]. Similarly it was found in our patients, where 33.3% of patients in our study, had history of different abdominal surgeries like appendicectomy and caesarean section etc. performed earlier.

The fibrinous adhesion of different degrees are formed intraperitonealy following abdominal surgery; as an attempt to revascularize an ischaemic area of surgical anastomosis, reepithelize raw post-traumatic organ or inflammatory process intraperitonealy, also as defence against foreign body[5,6,7,8,10].
Previous studies, considered that appendicectomy is the most common cause of intestinal adhesion followed by traumatic laparotomy[11-16]. In this series we found mostly following appendicectomy then caesarean section and post inflammatory adhesion.

Although laparotomy following trauma is common in our hospital; only 5(13.9%) of patients presented with adhesive intestinal obstruction post-operatively following abdominal trauma. There is an agreement with other reports[10-16] that; post surgical adhesion is more in cases performed by less experienced trainee surgeons; where, appendicectomy and caesarean section performed by resident training level surgeon, while traumatic laparotomy and major elective surgeries are performed by specialists.

Majority of post operative adhesive intestinal obstruction respond to conservative treatment in other studies too[12,14,17,18]. Most of our patients 75% patients were successfully treated conservatively. Surgical treatment was necessary in patients who failed conservative treatment or had evidence of bowel strangulation. Whereas cause of adhesions in non-operative cases are not obvious[10, 19,20.]. We had 3 (2.8%) similar cases that were treated surgically. Faecal seedling impaction resulted in pseudoobstruction[5,7,8,14,16,21] of the intestine; was considered as a second most cause of mechanical

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intestinal obstruction (19%), almost all of them treated conservatively and only a few case under gone evacuation under anaesthesia.

There is controversy regarding hernia induced mechanical intestinal obstruction, in many studies[5,7,8,16,21,22] in developing countries, where external hernia is the commonest cause of obstruction. While external hernia was considered the 3rd most common cause of mechanical intestinal obstruction.

Although incidence of colonic cancer remain high, this disease is presently responsible for adhesion with acute intestinal obstruction[5,6,7,8,23]. In this series 14 (13%) of patients presented with mechanical intestinal obstruction, who were treated surgically by primary resection and anastomosis. Sigmoid volvulus is a common benign condition of the colon and is frequently responsible for acute intestinal obstruction in developing countries[24-26]. In our study 7 cases presented with sigmoid volvulus, 5 of them treated surgically and 2 cases conservatively[5-8]. Crohn's disease as chronic inflammatory bowel disease contributed 3.3% of mechanical intestinal obstruction in our study.

In our study; there are two rare cases of mechanical intestinal obstruction, due to gall stone ileus and foreign body (bezoar)[27,28,29]. Ninety percent of gall stones enter to intestinal tract through biliary-enteric fistula but pass without symptoms[30]. When the symptoms occur the most common site of intestinal obstruction is terminal ileum, which manifest as mechanical intestinal obstruction confirmed by Riglevs triad on X-ray-film (fluid level, pneumobilia and radio-opaque shadow at lower part of abdomen). The next site of intestinal obstruction by gall stones is duodenum (Bourneet syndrome)[30,31].

Bezoar is a gastro-intestinal tract foreign body formed by accumulation of indigestible swollen material in the stomach. It may complicate by ulceration, perforation or intestinal obstruction, as seen in our case. Both cases have undergone laparotomy, enterotomy and removal of foreign body or gall stone[29-32]. Mesenteric occlusion is a serious condition which become more common than before[12,33]. We recorded two cases in our study; both of them expired during resuscitation period. They are responsible for 1.9% of mortality.

Conclusion

1. There is an agreement that postoperative adhesion is the most common cause of mechanical intestinal obstruction, although appendicectomy is a minor surgical procedure remains the commonest cause of adhesion. We should manoeuvre the postoperative adhesion by minimizing and avoiding unnecessary bowel handling during laparotomy, cleaning the peritoneal cavity by lavage when there is peritoneal contamination and by covering the surgical anastomosis with omentum.
2. Pattern of mechanical intestinal obstruction in Libya has changed dramatically, where the external hernia became third and tumour as fourth common cause. These are due to improvement in surgical services with early diagnosis and treatment of disorders before it causes intestinal obstruction.
3. Mesenteric bowel ischaemia is a serious disorder, always diagnosed late with gangrenous changes of gut. This should specifically suspected in elderly patients with atherosclerotic changes.

Conclusion

Intestinal obstruction is one of the commonest surgical emergencies encountered all over the World. Early presentation of the patient, proper diagnosis and timely adequate treatment helps to reduce morbidity and mortality.

We have carried out our study for last two years and analyzed vividly. We have encountered 108 cases of intestinal obstruction. The most common causes of mechanical intestinal obstruction was post operative adhesions majority are following appendicectomy and caesarean section. Fecal impaction, hernia and tumor were other causes of majority of intestinal obstruction. 75% of post operative adhesion cases responded to conservative treatment. Whereas 75% cases of hernia, volvulus, all cases of Crohn's disease, gall stone ileus and foreign body are treated surgically. 2 cases of mesenteric ischaemia expired before surgery due to delayed diagnosis.

This changing trend of intestinal obstruction is due to improved surgical care. Early diagnosis and timely surgical intervention can save the life of the patients with mesenteric vascular ischaemia.

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