Original article

Acute Intestinal Obstruction in El Obeid Hospital, Western Sudan.

El Bushra Ahmed Doumi and Mohammed Ibrahim Mohammed

Abstract:

Objectives: To study the pattern, causes and management outcomes of acute intestinal obstruction in El Obeid Teaching Hospital, Western Sudan.

Patients and Methods: This is a descriptive retrospective study. The medical records of all patients admitted to the University Surgical Unit in El Obeid Teaching Hospital, with the diagnosis of acute intestinal obstruction in a 10-year period were studied. The data were analyzed for gender, locality, causes, operative findings and outcomes.

Results: There were 198 patients (152 males and 46 females). The age ranged from one day to 85 years with the mean age of 38.9 ± SD 21.9 years. Strangulated external hernias were the commonest cause (35.6%), followed by intestinal adhesions (18.2%) and sigmoid volvulus (11.6%). Indirect inguinal hernias were more frequently seen (70%), followed by para-umbilical (22.9%). Previously performed emergency operations as appendecectomy, Caesarean section and abdominal trauma were the commonest causes of intestinal adhesions. The overall mortality was 13.6%, mainly due to late presentation and scarce health facilities.

Conclusions: Acute intestinal obstruction is a serious surgical emergency. In the current situation, the hospital facilities were scarce. A welcoming health delivery system providing mass elective hernia repair with health education will reduce this mortality and a lot of unnecessary morbidity.

Key words: bowel obstruction, strangulated hernia, sigmoid volvulus, intussusception, post-operative adhesions, Western Sudan.

Intestinal obstruction is a serious general surgical emergency word wide, with considerable morbidity and mortality[1, 2]. The situation was considered to be worse in developing countries where health facilities were scarce and health education was lacking, that many patients present late to hospitals after trials with local remedies were exhausted. The pattern of the disease was found to vary in different parts of the world and even in different areas in the same country, due to local factors[3-5]. The aetiology and outcomes of the disease change as the society and its health delivery system develop [6-8].

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Previous reports from studies performed in Sudan showed high mortality [9, 10], in spite of being carried out in tertiary care hospitals with the best available resources in the country. In this study, we report our local experience in the Western part of Sudan, where economic and social development has been progressing rapidly over the last few decades.

Patients and Methods:

This is a descriptive retrospective study. The medical records of all patients admitted to the University Surgical Unit (A) in El Obeid Teaching Hospital, with the diagnosis of acute intestinal obstruction for 10 years between Jan 1996 and December 2005 were studied.

The age, gender, locality, causes of the obstruction, initial treatment, operative findings and the post operative outcomes

were evaluated. The data collected were analyzed using SPSS computer package system.

Results

There were 198 patients in this study, 152 males (76.8%) and 46 females (23.2%) with a male: female ratio = 3.6:1. The age ranged from 1 day to 85 years (mean = 38.9 ± SD 21.9). Neonates and infants accounted for 6.6% of the patients. The majority of the patients (77.1%) came from rural areas. Acute abdominal pain, vomiting and absolute constipation were the commonest symptoms, while abdominal tenderness and abdominal distension were the leading signs.

The causes of acute intestinal obstruction in this series were shown in table 1.

Table (1): Causes of intestinal obstruction in

Diagnosis	No. of Patients	%
Strangulated hernia	70	35.6
Adhesive obstruction	36	18.2
Sigmoid volvulus	23	11.6
Peritonitis	21	10.6
Bowel tumours	16	08.0
Intussusceptions	12	06.0
Congenital	12	06.0
Faecal impaction	08	04.0

El Obeid Hospital, Western Sudan.

Strangulated external hernias were the commonest cause found in 70 (35.6%) patients. Indirect inguinal hernias were thecommonest variety to strangulate in 49 (70%) cases, followed by para-umbilical hernia in 16 (22.9%) cases, incisional hernia in 3 (4.3%) cases and femoral hernia in 2 (2.8%) cases.

Figure I-III showed photos of the clinical presentation and the operative findings and treatment of some cases.

Comparisons between the findings in series of patients admitted with intestinal obstruction reported by different authors were shown in table 2.

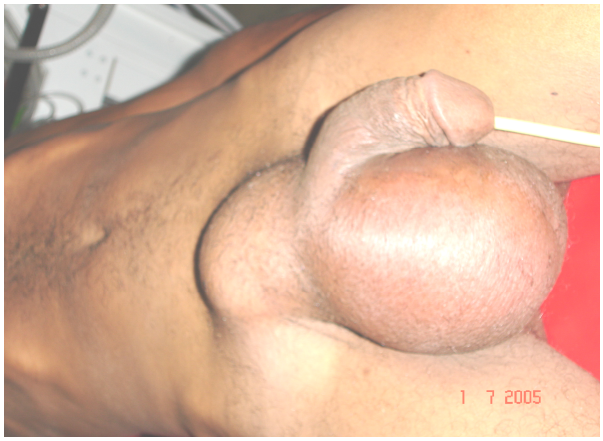

Figure I showed a photo of the abdomen of a patient with a strangulated right indirect inguinal hernia as received in the emergency room

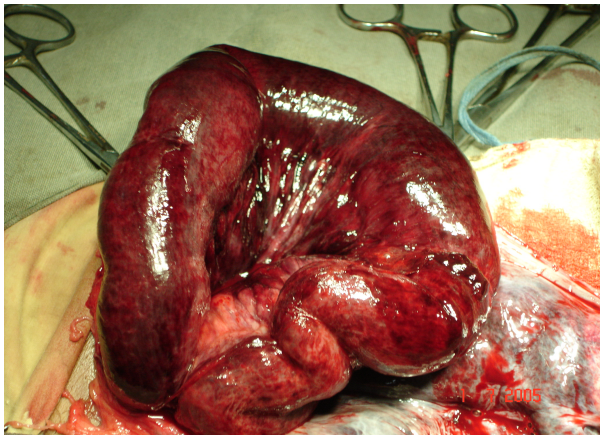

Figure II showed the operative findings in the same patient with gangrenous small bowel at laparotomy.

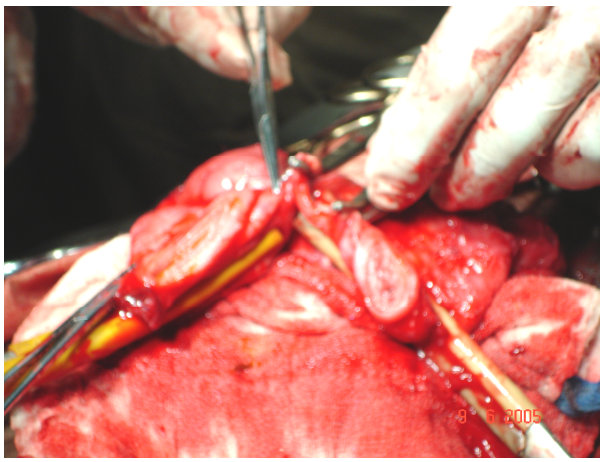

Figure III showed resection and anastomosis done for the same patient during the operation.

Table (2): Comparisons between the findings in series of patients admitted with intestinal obstruction reported by different authors.

Author	Date	Country	Case No.	Hernia %	Adhesions %	Mortality %
El Masri SH[1]	1976	Sudan	138	33.3	18.8	27.6
Mc Entee G[5]	1987	U.K.	228	25.0	32.0	11.4
Kuruvilla MJ[3]	1987	Libya	114	30.7	28.0	07.0
Lee SH[7]	1991	Malaysia	100	25.0	35.0	04.0
Fuzun M[6]	1991	Turkey	582	23.9	44.0	-
Steitiyeh MR[8]	1993	Jordan	201	29.0	25.0	08.0
Sourkati EO[2]	1996	Sudan	238	27.7	21.0	19.7
Jastaniah S[10]	1996	Saudi Arabia	052	00.0	57.0	00.0
Adesunkanmi A[9]	1996	Nigeria	142	16.9	41.5	08.4
Adisa AC[15]	2001	Nigeria	-	59.3	-	-
Alayat KM[11]	2002	Libya	095	43.0	32.0	05.2
Doumi EA*	2006	Sudan	198	35.6	18.2	13.6

* The present study.

Discussion

This is the first study for the pattern of the disease and its management outcomes from the western Sudan, where the society is changing fast and many socio-demographic factors like drought, tribal conflicts and displacement are prevalent.

Strangulated hernias constituted 35.6% of cases and adhesive obstruction 18.2%. Similar figures were reported by El Masri three decades ago from Khartoum[9]. Sourkati 20 year later, reported a slight decrease in strangulated hernias (27.7%) and a slight increase in adhesive obstruction (21%), from the same hospital in Khartoum[10]. These observations were in line with other reports from other developing countries[11-16]. A 57% adhesive obstruction and no strangulated hernia among 56 patients were reported in a district hospital from Saudi Arabia[8]. Such a high rate of adhesive obstruction was also reported from the developed countries[16], together with marked decrease of strangulated hernias, indicating that complications of hernia may be reduced with health education and elective hernia repair[17]. That can only be achieved if the health delivery system is welcoming and the service was offered in a friendly-user style.

The types of strangulated hernias in this study were similar to the findings of Sourkati in Khartoum[10]. Indirect inguinal hernias were commonest to strangulate (Fig.), followed by Para-umbilical hernias. A recent study confirmed this observation and found bowel resection was necessary in 37.5% of cases with 6.25% mortality rate[18], compared to bowel resection in 24.1% of cases and a mortality rate of 6.2% in Ghana[19]. Strangulation was described to be associated with up to 10-fold increase in intra and post-operative mortality[20].

Appendectomy, Caesarean section and abdominal trauma laporatomies were the commonest causes for adhesive intestinal obstruction. The reason is probably because those operations were performed as emergences at incontinent times by the junior staff. Although a conservative approach was globally adopted for the treatment of adhesive intestinal obstruction, but symptoms like continuous abdominal pain and fever; signs of toxaemia, tachycardia, rebound tenderness, rigidity and absent bowel sounds may indicate

the development of critical ischemia and/or gangrene.

Acute sigmoid volvulus was found in 23 patients (11.6%). The clinical features and management outcomes of the condition in this community were discussed previously[21]. Intestinal obstruction due to peritonitis occurred in 21 patients (10.6%). Intra-abdominal sepsis mainly resulted in patients with perforated appendix or typhoid ulcers[22]. Bowel tumours were not uncommon accounting for 16 cases (8%) mainly at the recto sigmoid with late presentation, while intussusceptions resulted in 12 cases of bowel obstruction (6%). The clinical presentations of acute intussusceptions in this society were outlined elsewhere[23].

In this study; 46 patients (23%) had gangrenous bowel at operation (Fig. II), for which resections and anastomoses were done (Fig. III). In a similar society 32.4% of patients with gangrenous gut needed immediate resection and the procedures resulted in a mortality of 17.3%[24]. Recently in a developed community it was reported that ischaemia, necrosis and perforations accounted collectively for 28.6% of patients with bowel obstruction[25].

The majority of patients with intestinal obstruction presented late; more than 78% had received anti-spasmodic and anti-malarial drugs. The overall morality was 27 (13.6%) patients. In eight patients resuscitation failed and they died before surgical intervention, all of them were at the extremities of age i.e. neonates, infants and elderly. Nineteen patients died during or after surgery. Out of these three were elderly males who developed pneumonia, two were infants with generalized peritonitis and the rest (14) were found to have had gangrenous bowels for which resections and anastomoses were done, accounting for almost 14% of bowel resections. In a similar setting Ohene-Yeboah et al reported a mortality of 12% in patients who underwent emergency bowel resections due to ischaemia[26]. The most probable causes of death were electrolyte imbalance and septic shock. Postoperative morbidity was mainly wound infection with prolonged hospital stay. Two patients had burst abdomen and another female patient developed an incisional hernia.

Conclusion: Acute intestinal obstruction is a serious surgical emergency. Strangulated external hernias, adhesions and sigmoid volvulus were the leading causes, similar to patterns reported many decades ago from elsewhere. Less common causes were peritonitis, large bowel tumors and intussusceptions. The high rate of strangulated hernias, the considerable morbidity and the high mortality reflected a poor health delivery system. This challenging situation can only be bettered by friendly and welcoming health care facilities including active plans for mass elective hernia repair.

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