

Original Article

Acute Abdomen at El Obeid Hospital, Western Sudan. El Bushra Ahmed Doumi¹, Mohammed Ibrahim Mohammed².

Abstract:

Background: Acute abdominal pain is the presenting complaint in emergency departments of all hospitals worldwide, resulting in a huge drain of human and non-human resources.

Objectives: To study the pattern, causes and management outcomes of patients presenting with acute abdomen to El Obeid Hospital, Western Sudan.

Patients and Methods: This was a prospective study. All patients who presented with acute abdomen to the University Surgical Unit at El Obeid Hospital between January 1999 and December 2000 were included. The patient characteristics, clinical features, investigations, management and postoperative care were recorded in a pre-designed sheet.

Results: There were 421 patients. 242 were males (57.5%). Acute appendicitis was the commonest cause accounting for 63% of the patients, followed by acute intestinal obstruction 20.4% and abdominal trauma 11.6%. One third of the patients with acute appendicitis reported with complications. The majority of acute intestinal obstruction cases were due to obstructed and/or strangulated hernia. Acute cholecystitis and perforated duodenal ulcers were not common. Perforated typhoid ulcers and tuberculous peritonitis were less frequent but had high mortality. The overall mortality was 8.5% and those deaths occurred mostly in patients presenting late with generalized peritonitis.

Conclusions: Acute abdomen was a common surgical emergency at El Obeid Hospital, Western Sudan. The leading causes were acute appendicitis, acute intestinal obstruction and abdominal trauma. Awareness of the seriousness of the condition and better hospital facilities and care may reduce an unacceptable high mortality.

Key words: Appendicitis, intestinal obstruction, abdominal trauma; Western Sudan.

Acute abdomen is a common surgical emergency accompanied with high morbidity and mortality, if not managed properly¹. The pattern of this condition is changing fast in different African countries, probably due to the new low-residue diet, the new life-style and the stress of a new developing modern society^{2, 4, 5}. In this communication, we present our experience regarding patients with acute abdominal emergencies seen in the University Surgical Unit at El Obeid Hospital, Western Sudan.

Patients and Methods:

El Obeid Hospital was founded in 1942 and is the main referral hospital in the Kordofan States of Western Sudan.

1. Consultant General Surgeon.

2. General Surgeon.

The University Surgical Unit at El Obeid Teaching Hospital, Faculty of Medicine & Health Sciences, University of Kordofan, El Obeid, Sudan.

Correspondence to: elbushradoumi@hotmail.com

This prospective study was conducted in the period between January 2004 and December 2005. All patients admitted with the diagnosis of acute abdomen to the University General Surgical Unit were included. The patients had thorough interviews, clinical examinations and relevant investigations. Interventional surgical management was carried out as indicated by each case and the outcomes were documented. The data were analyzed using the SPSS computer package version 11.5 Syntax Reference Guide SET of 2; and they were compared with previous national and regional reports.

Results:

There were 421 patients, 57.5% were males. The different causes of acute abdomen were shown in table 1.

Acute appendicitis accounted for 63% of the patients. 78% were from urban society. Perforated appendicitis was found in 54

patients (20.4%), of whom 30% had generalized peritonitis, 48% localized peritonitis and 22% appendicular abscess.

Table 1: Causes of acute abdomen.
n = 421

	No.	%
Acute appendicitis	265	63.0
Intestinal obstruction	86	20.4
Abdominal trauma	49	11.6
Tuberculous peritonitis	07	01.6
Acute cholecystitis	05	01.2
Perforated typhoid ulcer	04	01.0
Perforated duodenal ulcer	03	00.7
Ectopic pregnancy	02	00.5
Total	421	100.0

Acute intestinal obstruction was the second commonest cause of acute abdomen documented in 86 patients (20.4%). 77% were coming from far rural areas. The different causes of intestinal obstruction were listed in table 2.

Table 2: The causes of intestinal obstruction.
n = 86

	No	%
External Hernia	46	53.5
Bowel volvulus	14	16.0
Tuberculosis	08	09.3
Intussusception	06	07.0
Bands & adhesions	06	07.0
Bowel Cancer	04	05.0
Congenital	02	02.2
Total	86	100

Abdominal trauma was found in 49 patients (11.6%). Penetrating injuries were 63% (stab wounds 45% and gun-shots 18%), while blunt injuries (road traffic accidents and falls) resulted in 37% of cases. The spleen was injured in 41% of cases, the bowel in 18%, omentum in 15%, the urinary bladder in 10%, where as the liver and abdominal muscles in 8% of cases each.

Less common causes of acute abdomen were tuberculous peritonitis 7 patients (1.6 %), acute cholecystitis 5 patients (1.2%), perforated typhoid ulcers 4 patients (1.0%), perforated duodenal ulcers 3 patients (0.7%), and ectopic pregnancy 2 patients (0.5 %).

The mortality rate was 2.3% for acute appendicitis, 20% for acute intestinal obstruction, 10% for abdominal trauma, 75% for perforated typhoid ulcer and 70% for tuberculous peritonitis. The overall mortality rate was 36 patients (8.5 %).

Discussion:

Acute appendicitis was the commonest cause of surgical abdomen in the developed world². It was also the most common cause of acute abdominal emergency (63%) in this study. That contradicted previous reports describing the condition as uncommon in Western Sudan two to three decades ago^{3, 4}. This dramatic change was probably due to the change in the life style of the people especially the town inhabitants; in particular consumption of a low-residue diet and the stress of a new modern society^{4, 5}. Most of the patients (78%) were town dwellers, many of whom were brought to urban life by drought, desertification, displacement, tribal conflicts and war. Acute appendicitis was reported to account for 47% to 22.4% of surgical admissions for acute abdominal pain at similar developing communities⁶⁻⁸. It was the most frequent diagnosis in patients presenting with acute abdominal pain worldwide⁹.

In this study a third of patients presenting with acute appendicitis were found suffering from complications of the disease. The frequency of perforated appendicitis was 20.4%, much higher than reported from Khartoum (13.9%)^{2, 3}. 10% of the patients with acute appendicitis had appendicular mass. They were treated conservatively and booked later for elective appendicectomy. Only 4.5% of the appendices removed were found to be clinically normal, compared to 9.6% in a similar society³.

Many patients presented late due to poor awareness about the condition and its seriousness among the people, but many others were misdiagnosed at primary health care settings and were under treatment for malaria and colitis before being seen at the surgical casualty¹⁰⁻¹². The easy access to self medication compounded the problem. The undue delay in diagnosis and mis- diagnosis often resulted in serious life threatening complications^{13, 14}. Alvarado postulated a clinical score to eliminate possible diagnostic errors^{15, 16}. Its value in our situation and similar developing communities can not be over stressed.

Six patients reporting in late peritonitis died post-operatively, accounting for 2.3% of all patients with acute appendicitis. However, they constitute 11.1% of those with perforated appendicitis and 37.5% of those with generalized peritonitis. The mortality in Khartoum was 1.5% of all patients with acute appendicitis and 28.5% of those with generalized peritonitis³; the difference can be attributed to the better health facilities in Khartoum.

In this study acute intestinal obstruction was the second cause of acute abdomen (20%), much commoner than reported from some African countries⁷⁻⁹. The pattern of the disease was similar to previous reports from Khartoum^{17, 18}. However, the frequency of external herniae was more common in El Obeid, where as bands and adhesions were commoner in Khartoum, due to more elective surgery performed there. The high mortality (20%) may be reduced if active plans for elective hernia repair in a user-friendly style were adopted¹⁹⁻²¹.

The features and complications of sigmoid volvulus in this community were discussed before^{21, 22}. Intestinal obstruction due to malignancy was less frequently seen in El Obeid than in Khartoum²¹. Bowel obstruction due to abdominal tuberculosis was still prevalent in this community (9.3%) and should be included in the differential diagnosis. Tuberculous peritonitis was more common in children²³ and the elderly²⁴, where

as intestinal tuberculosis was more seen in patients between 30 and 60 years old²⁴.

Patients with traumatic acute abdomen in our study (11.6%), were more than the reported from Ghana (8.3%)⁸. Stab wounds (45%) were less than those reported from Khartoum (67%)³; whereas gun-shots (18%) were more common than in Khartoum (3.3%)³. This was due to the easy availability of guns in our community and the common frequency of their use in fights and social ceremonies. Many victims were injured in other parts of the body, which was out of the scope of this study. Some victims were so seriously injured that they never reach hospital care. Blunt abdominal injures were 37% compared to 29% in Khartoum study. The spleen was most commonly injured in our study (41%) while the small bowel was more frequently injured (41.9%) in Khartoum³.

The overall mortality of acute abdomen in this study was 8.5%. It was higher than that reported from Khartoum (6.2%)³. The difference can be explained by the late presentation of patients in El Obeid and the better health facilities and surgical care in Khartoum. In a similar study conducted in a developed community, the overall mortality of acute abdominal pain admissions was 0.4%²⁵. The gap between the outcomes can only be narrowed by more awareness of the people about the seriousness of acute abdomen, by training health providers at primary health care settings to refer patients to nearby surgical firms promptly and by the provision of efficient and welcoming health care facilities in hospitals.

Conclusions:

Acute abdomen was a common surgical emergency at El Obeid Hospital, Western Sudan; expectedly draining great deal of resources. As the society was changing fast the pattern of the disease has also changed. Acute appendicitis, acute intestinal obstruction and abdominal trauma were the leading causes. Late presentation and inaccuracy in the prompt diagnosis of acute

appendicitis were associated with increased morbidity and mortality.

Health education and active plans for mass hernia repair may reduce the incidence, morbidity and mortality of acute intestinal obstruction.

References:

- Hobsely M. An approach to the acute abdomen. In: Pathways in Surgical Management. 1986; 2nd edition. P. 293-307. London. Edwrd Arnold.
- Ellis, H. Appendicitis. Postgraduate Doctor-Africa. 1988; 10; 122-27.
- Ahmed ME. Acute abdomen in Khartoum. E Afr Med J. 1986; 63(7): 458-62.
- Ahmed ME. Acute appendicitis in Khartoum: Pattern and clinical presentation. E Afr Med J. 1987; 64:202-06.
- Ndungu, J. M. Appendicitis. E Afr Med J. 1990; 67: 597-98.
- Al-Mulhim AA. Emergency general surgical admissions. Prospective institutional experience in non-traumatic acute abdomen: implications for education, training and service. Saudi Med J. 2006; 27(11): 1674-79.
- Naaeder SB, Archampong EQ. Clinical spectrum of acute abdominal pain in Accra, Ghana. West Afr J Med. 1999; 18(1): 13-16.
- Ohene-Yeboah M. Acute surgical admissions for abdominal pain in adults in Kumasi, Ghana. ANZ J Surg. 2006; 76(10): 898-903.
- Caterino S, Cavallini M, Meli C, Murante G, Schiffino L, Lotito S, Toncher F. Acute abdominal pain in emergency surgery. Clinical epidemiologic study of 450 patients. Ann Ital Chir. 1997; 68(6): 807-817.
- Nmadu PT, Dawam D. Childhood appendicitis in Zaria: A retrospective study. E Afr Med J. 1993; 70: 240-42.
- Kakande I, Nehra MK. Appendicectomy in Consolata Hospital, Nyeri: Analysis of operative and histological findings. E Afr Med J. 1990; 67: 573-76.
- Daniel E, Mersha D. Childhood appendicitis: factors associated with its incidence and perforation in Ethiopian children. Ethiop Med J. 1991; 29(1): 15-19.
- Rothrock SG, Skeoch G, Rush JJ, et al. Clinical features of misdiagnosed appendicitis in children. Ann Emerg Med 1991; 20(1): 45-50.
- Doumi EA, Abdelrahman IH. Acute Appendicitis: Still a Missed Diagnosis in El Obeid, Western Sudan. Sudan JMS. 2007; 2(1): 07-08.
- Alvarado A. A practical score for the early diagnosis of acute appendicitis. Ann Emerg Med 1986; 15(5): 557-64.
- Subotic AM, Sijacki AD, Dugalic VD, Antic AA, Vukovic GM, Vukojevic VS, et al. Evaluation of the Alvarado score in the diagnosis of acute appendicitis. Acta Chir Jugosl. 2008; 55(1): 55-61.
- El Masri SH, Khalil T. Patterns of intestinal obstruction in Khartoum. International Surgery. 1976; 61:240.
- Sourkati,E.O.M., Fahal,A.H., Suliman,S.H., Razig,S.A. and Arabi,Y.E. Intestinal obstruction in Khartoum. E Afr Med J. 1996; 73: 5, 31-33.
- Allen PIM, Zager M, Goldman M. Elective repair of groin hernias in elderly. Br J Surg. 1987; 74: 987.
- Stebbing WSL, Gilmore OJA. Inguinal hernias. Postgraduate Doctor-Middle East. 1990; 13(3): 144-148.
- Doumi EA, Mohamed MI. Acute Intestinal Obstruction in El Obeid Hospital, Western Sudan. Sudan JMS. 2008; 3(3): 191-95.
- Doumi EA, Mohamed MI, Abakar AM, Bakheit MY. Emergency Laparotomy for Acute Sigmoid Volvulus in El Obeid, Western Sudan. Sudan JMS. 2007; 2 (3):173-74.
- Ibrahim SA, Karrar ZA, Bashar S. The pattern of childhood tuberculosis in Khartoum. Sud Med J. 1993; 31(2): 1-15.
- El Hassan AM. Abdominal tuberculosis. Postgraduate Doctor- Middle East. 1994; 718-722.
- Bjerkset T, Havik S, Aune KE, Rosseland A. Acute abdominal pain as cause of hospitalization. Tidsskr Nor Laegeforen. 2006; 126(12): 1602-4.