

Incidence, patterns and clinical presentation of acute appendicitis in adults at Zewditu Memorial hospital (ZMH)

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A total of 277 cases of acute appendicitis admitted from January 1st to December 31st 1998 at Zewditu Memorial Hospital (ZMH) were reviewed. Sixteen (5.8%) had presented with a right lower quadrant mass, which was managed conservatively while 261 (94.2%) had emergency surgery. At operation, it was found that 184 (70.6%) had simple appendicitis, 45 (17.4%) had perforated and 25 (9.5%) gangrenous appendices. Seven (2.5%) had appendicular abscesses with amputated stump left.

The male to female ratio was 2.6:1. The patients' ages ranged between 13 and 75 with the peak occurring between 13-30 years. The most common symptoms were abdominal pain, (100%) and vomiting (76.9%). The commonest signs were localized tenderness in right lower quadrant (92.4%) with rebound tenderness (70.4%). Digital rectal examination was done in 127 patients in whom tenderness was elicited in 80 (63%) of them. The approach to the appendix in 78.9% of operations was through a transverse incision at McBurney's point. In ZMH, appendectomy was found to be the

commonest emergency abdominal operation accounting for 46.7% of cases and carried a postoperative mortality rate of 1.2%.

Introduction

Acute appendicitis is one of the commonest surgical emergencies encountered both in adults and children^{1,2,3}. The aetiology of the disease is not yet clearly defined though most authorities associate it with low fibre diet intake based on the high incidence observed in affluent society^{3,4}. Some reports from Africa indicate that the disease is rare in Africa^{1,2} while other studies do not confirm this^{1,2}. Studies carried out in Kenya, Sudan and Nigeria showed that appendicitis was the most common indication for acute abdominal emergency operations^{1,3,6}. Little work has been done on appendicitis in Ethiopia. Two studies done among children in the Ethio-Swedish Children Hospital and another one on all ages in North Western Ethiopia showed that the disease is rare in that part of Africa^{7,8}. The aim of this study was to determine the incidence, clinical presentation and outcome of surgery in adults presenting with acute appendicitis at Zewditu Memorial Hospital in Addis Ababa, Ethiopia.

Patients and methods

The records of all patients who had emergency appendectomy and who presented with an appendicular mass and were managed conservatively at Zewditu Memorial Hospital (ZMH) from January 1st, 1996 to December 31st, 1998 were retrieved and analysed. The patients' ages, sex, place of residence, duration of symptoms, clinical presentation, laboratory findings, operative procedure and findings were recorded. The data retrieved was entered on a special data-collecting format. Epi-Info statistical software was used for analysing the findings.

Results

During the three years of study, a total of 742 emergency operations were performed of which 653 (88.0%) were emergency abdominal emergencies. There were 305 patients presenting at ZMH with acute appendicitis Table 1. Out of these, the records of 277 patients were retrieved for analysis (retrieval rate of 90.8%). The results presented are based on the 277 cases. Sixteen (5.8%) of the patients had appendicular masses and were managed conservatively while 261 (94.2%) had emergency surgery for acute appendicitis. The males constituted 201 (72.6%) of cases. There were 76 (27.4%) females. The male to female sex ratio was 2.6:1.

A total of 164 (59.5%) of the patients were resident of Addis Ababa, 26 (9.4%) came from outside Addis Ababa and in 87 (31.4%), the place of residence was not recorded. The patients ages ranged between 13 and 75 years with a mean, median and mode ages of 25.6, 30 and 20 years respectively. The majority of cases (76.5%) were aged between 13 and 30 years (Table 2).

In 164 (59.2%) of cases, the time interval between onset of symptoms and presentation to hospital was 1 to 3 days. Only 47 (17.7%) presented in the first 24 hours of onset of symptoms. The pattern of clinical presentation pattern is shown in table 3. Shifting abdominal pain (80.5%) and vomiting (76.9%) were the commonest symptoms. Constipation and diarrhoea were recorded in 6.9% and 7.6% respectively. Right lower quadrant tenderness (92.4%) and rebound tenderness (70.4%) were the most frequent signs.

Digital rectal examination was done only in 127 patients (45.8%), out of which 80 (63%) of the patients had tenderness to palpation while 47 (27 %) patients had no tenderness. Results of white blood cell count (WBC) in 217 patients was analysed out of which 19 (8.6%) had a count of less than 6000 cells per millimetre cube (mm^3), 88 (40.6 %) had a count of between 6000 and 11000 cells per mm^3 and 110 (50.7%) more than 11000 cells per mm^3 .

Table 1. Frequency distribution of emergency operations: 1996-1998.

Year	Total emergency operations	Emergency abdominal Operations	Cases of Acute Appendicitis	
			No.	%
1996	269	220	86	39.1
1997	203	193	82	42.5
1998	270	240	137	57.1
Total	742	653	305	46.7

Table 2. Age distribution in years

Age in yrs	No of cases	%
13-20	112	40.5
21-30	100	36.1
31-40	44	15.9
41-50	14	5.0
>50	7	2.5
Total	277	100

Table 3. Intra-operative findings

Operative findings	No. of cases	%
Simple appendicitis	184	70.6
Perforation	45	17.4
Gangrenous	25	9.5
Abscess	7	2.5
Total	261	100

Approach to the appendix was through a transverse abdominal incision at McBurney's point in 206 (78.9%) of patients while in the rest (21.1%) mid-line or paramedian abdominal incisions were used. The latter incisions were utilized mostly in female patients and in patients presented with generalized peritonitis. Intra-operative findings were as shown in table 3. The perforation and gangrenous rates were 17.24% and 9.6% respectively. In 7 (2.5%) of patients, appendicular abscesses with amputated stumps of the appendix were found. Three patients died during the post-appendectomy period (1.2% mortality rate). All the three fatalities had presented with generalized peritonitis more than four days after the onset of symptoms.

Discussion

This study has shown that acute appendicitis is not a rare disease in Africa and this is in agreement with previous studies^{1,3,6}. The male preponderance

and the commonest age of presentation of 13-40 years were in agreement with other studies^{1,3,5,6}. The clinical findings of abdominal pain in all patient with a shift in 80.5% of cases and associated vomiting in 76.9%, in addition localized tenderness in 92.4% with rebound tenderness in 70.4 % found on examination are similar to the studies by other investigators^{5,6}. Diarrhoea and constipation were found in 7.6% and 6.9% respectively. Ahmed⁶ reported incidences of 10% for diarrhoea and 13% for constipation while in Kenya, the findings were 10% and 15% respectively¹. Tenderness on rectal examination was elicited in 63% of cases. Our findings indicated that a positive (tender) rectal examination is not diagnostic of appendicitis and a negative finding does not exclude the disease. That only 45.8% of our cases underwent this examination indicates that most clinicians are reluctant to do digital rectal examination in patients with suspected acute appendicitis.

Analysis of the white blood cell count in relation to diagnosis of a cute appendicitis in most studies end up with controversial results and may either be non specific minimally supportive⁶. We found that 50% of patients had WBC count above 11,000. A high count is supportive but a low or normal count does not rule out appendicitis or its complications since some patients with complicated appendicitis were found to have a normal WBC count, while others with marked elevation were found to have simple inflammation.

Gridiron incision was utilized in 78.9% of the patients, which was in agreement with the 78 % reported by Ahmed⁶. A perforation rate of 17.2% in this study correlates well with findings in other studies done in adults^{1,6}. The mortality rate of 1.2% was lower than previously reported from Ethiopia^{5,7,8}. This could be as a result of better awareness of the people since most are from the capital city as well as absence of paediatrics age group in this study.

In conclusion acute appendicitis is the most common emergency acute abdominal operation performed in Zedwitu Memorial Teaching Hospital and we believe that there are similar high incidence rates in other hospitals in Addis Ababa. Therefore, a high index of suspicion should be born in mind by the clinicians in patients presenting with acute abdominal pain in order to reach an early diagnosis, avoid complication and reduce the mortality and costs associated with complicated appendicitis.

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