



Assessment the Incidence, Pattern and Clinical Presentation of Acute Appendicitis at ATAT Hospital

Dengela TA*

Lecturer at Africa Medical College and St Lidata Health Science and Business College, Ethiopia

***Corresponding author:** Takele Achalu Dengela, Lecturer at Africa Medical college and St Lidata Health Science and Business College, Ethiopia, Tel: +251911597754; Email: takeleachalu@gmail.com

Research Article

Volume 5 Issue 2

Received Date: July 27, 2023

Published Date: November 06, 2023

DOI: 10.23880/aii-16000178

Abstract

Background: Acute appendicitis is one of the commonest surgical Emergency encountered in both children and adults. The life time risk of developing appendicitis in the USA is 8.6% for males and 6.7% for females with the highest incidence in the second and third decades. The incidence in the United Kingdom is about 52per 100,000 population (Mike, 2015; John, 2008 and Addis, 1990). It is relatively a rare disease in Africa. The incidence is estimated to be less than 9 per 100,000population in South Africa (Richard, 2014). The incidence of the disease is now thought to have increased in African populations which are probably due to the adoption of more western patterns of life. However few studies were done in Ethiopia A retrospective analysis was undertaken on 200 cases of acute appendicitis surgically managed at Yirgalem Hospital from January 1997 to December 1999. During this period the disease accounted for 27.9% of the operations for acute abdominal emergencies and for 1.1% of total hospital admissions. The overall mortality rate of 0.2-0.8% is attributed to the complications of the disease other than surgical interventions .the mortality rate rise above 20% in patients older than 70 years, primarily because of diagnostic and therapeutic delay.

Objective: The study aims to assess the incidence, pattern and clinical presentation of acute appendicitis at ATAT Hospital, from december30-january12.

Methodology: A retrospective cross sectional study will be conducted at ATAT hospital GURAGE zone surgical patients who were admitted to the surgical ward with the diagnosis of acute appendicitis from meskerem 2009- Pagume 2011E.C. The data will be conducted by reviewing records and data will be analyzed manually.

Result: The result will be compared with other studies and will be presented using tables. During the two years of study a total of 342 emergency abdominal emergencies. There were 128 patients presenting at Atat Hospital with acute appendicitis. Out of these, the records of 114 (89.06%) patients were retrieved for analysis remaining cards couldn't be traced. 8 (7.01%) Of patients had appendicular masses and were managed conservatively, While 106 (92.6%) had emergency surgery for acute appendicitis.

Conclusion and Recommendation: Acute appendicitis is the most common cause among all emergency acute abdominal operations performed in Atat hospital. Efficient information, Education and communication strategy needs to be designed to increase the knowledge of the community about appendicitis. Further studies should be made concerning appendicitis during pregnancy.

Keywords: Acute appendicitis; physical examination; emergency operations

Introduction

Background information

Acute appendicitis refers to the inflammation of the vestigial vermiform appendix. It is a frequent reason for emergency hospital admission. Appendectomy, removal of the appendix, is one of the most common emergency procedures performed in contemporary medicine. In most cases, delay in seeking medical attention and misdiagnosis were reasons for occurrence of complicated appendicitis and associated rate of increased morbidity and mortality. Early diagnosis remains most important and can be made primarily on the basis of history and physical examination.

Statement of the problem

Acute appendicitis is one of the commonest surgical emergencies encountered in both children and adults. The etiology of the disease is not yet defined though most speculate its association with low fiber diet intake based on the high incidence observed in affluent society. Although the disease is thought to be rare in Africa, the findings are controversial since different studies from Africa haven't substantiated this.

For instance, studies carried out in some parts of Africa like Kenyatta-National Hospital, Nairobi, in children and adults, in Khartoum as well as in Nigeria by different authors indicated that appendicitis is most common cause of acute abdominal emergency operations [1,2-4].

However, few studies were done in Ethiopia. To date, two studies were conducted on children in Ethio-Swedish Children Hospital [4,5] and one on all age groups in North West of Ethiopia, Gondar Hospital [5] all of which confirm the reports, which have shown that appendicitis is a rare disease in Africa. Thus, knowledge on prevalence, etiology and complications of this disease would enable better preparation for preventive work as well as for reduction of morbidity, mortality and cost of health care. This study has attempted to determine the pattern, clinical presentation and outcome of surgical intervention in children and adult patients presented with acute abdominal problem and a settled diagnosis of acute appendicitis was made at ATAT Hospital.

Significance of the study

As mentioned in the literature review, appendicitis is not well studied in Africa and even less in Ethiopia. So this research is significant as it will explore the epidemiologic and clinical presentation of acute appendicitis at ATAT hospital. And also it will be helpful in pointing out when to have a

high index of suspicion and has correlated the pre-operative clinical judgment with that of intra-operation finding.

Methodology

Study area and period

The study will be conducted in the surgical department in ATAT Hospital, Gurage Zone, 170km south west of Addis Ababa. It is one of the biggest hospitals in the region. It is responsible for more than 500,000 people with a very wide catchment area which is 17,500km².

The hospital has four major, five minor departments and follow-up clinics for chronic illnesses. The Surgical department, one of the major departments in the hospital, handles all major surgical problems. It is organized in such a way that it has one OPD, two wards, each containing separate male and female wards and one referral clinic working three times per week.

- The study period will be from December 30-January 12 (2020)

Study design

Retrospective cross-sectional study

Source population

All patients who were admitted with diagnosis of surgical cases in surgical ward within two years. (3102).

Study population

All patients who were admitted with diagnosis of acute abdomen and for whom, appendicitis was confirmed in two-year period.

The sample size will be calculated using the following formula.

$$n = \frac{(za/2)^2}{d^2} p(1-p)$$

Where
 n- minimum sample size
 p- Is estimate of the prevalence rate for the proportion which is 50%
 d- Margin of sampling error to be tolerated 0.05
 - Standard deviation corresponding to confidence intervals of 95%

Since the total population is < 10,000

$$nc = \frac{n}{1 + n/N}$$

$$nc = 342$$

N= source population 3102

Variables

Dependent variable

Clinical presentation of acute appendicitis

Independent variables

- Age, Sex, Occupation, Time at presentation

Quality Measures

Data collectors were Nurses working at the surgical ward who were trained for one day. Close supervision will be taken by the principal investigator during data collection.

Data collection

Data will be collected by the principal investigator and trained collectors by record reviewing methods using pencils and structured questionnaire.

Data analysis

After the data collected, it will be cleared and analyzed, by the principal investigator and will be presented using graphs and tables.

Ethical consideration

As this study involves review of records, permission letter from students' research program will be forwarded to the record office of the hospital. The patients' records were kept confidential as their names weren't depilated in the questionnaire or in the final report.

Limitations

Poor recording keeping, missed cards and illegible handwriting were some of our limitations.

Results

During the two years of study a total of 342 emergency abdominal emergencies. There were 128 patients presenting at Atat Hospital with acute appendicitis. Out of these, the records of 114 (89.06%) patients were retrieved for analysis remaining cards couldn't be traced. 8 (7.01%) Of patients had appendicular masses and were managed conservatively, While 106 (92.6%) had emergency surgery for acute appendicitis.

The males constituted 108 (94.7%) of cases. There were 6 (5.26%) females, making male to female sex ratio of (18:1). The patients ages ranged between 11 and 50 with a mean, median and mode ages of 25.6, 30 and 18 years respectively.

Majority of cases (94.7%) were aged between 13-30yrs.

None of the women were pregnant at the time of presentation.

Age in year	No of cases	%
<20 year	56	49.10%
20-30	52	45.60%
31-40	4	3.50%
41-50	2	1.75%
>50	0	0%
Total	114	100%

Table 1: Age group distribution of cases of appendicitis at Atat Hospital from meskerem 2010 to Pagume.

In 90(78.9%) of cases, the time interval between onset of symptoms and presentation to the hospital was 1 to 3days. Only 24 (21%) presented in the first 24 hours of onset of symptoms.

Time in hours

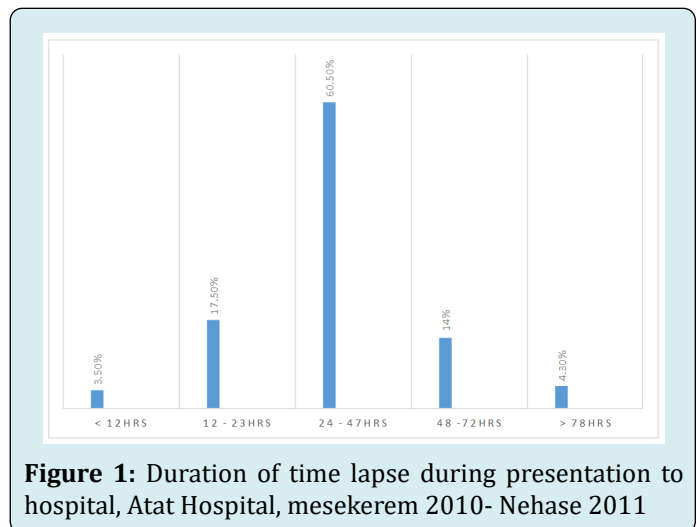


Figure 1: Duration of time lapse during presentation to hospital, Atat Hospital, mesekerem 2010- Nehase 2011

As it's shown in figure 2, shifting abdominal pain and nausea were the commonest symptoms. Diarrhea was recorded in 11 patents. RLQ tenderness in 105 patients and rebound tenderness in 100 patients were the most frequent signs. Rectal digital examination was done in 24 (21%) of patient.

Results of WBC count was analyzed in 100 cases, out of which (46.5%) had a count of between 4000/mm³ -11000/mm³ and (53.5%) had a count of >11000/mm³. Ultrasound examination was performed in 5 patients that presented with abdominal mass, showing appendicular mass.

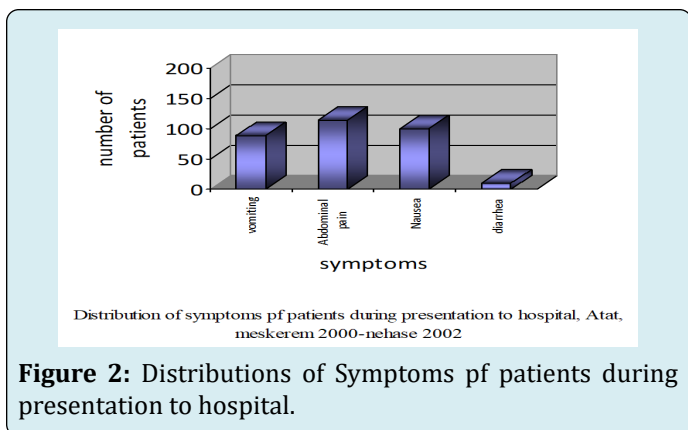


Figure 2: Distributions of Symptoms of patients during presentation to hospital.

Out of the 114 clinically diagnosed cases of acute appendicitis (92.9%) were operated and 8 were found to have mass at RUQ on examination. The later were managed conservatively and discharged with improvement and advised to come back for interval appendectomy.

Approach to the appendix was through transverse incision at mc Burney's point and mid line incisions were used. Mid line incisions were utilized mostly in female patients and those presenting with peritonitis.

Intra operative finding were shown on Figure 3 below. Accordingly perforation rates were 3(2.8%), and 5 patients found to have abscess intra operatively. In the later the abscess was drained and the appendix was concomitantly removed. There was no report of removal of normal appendix after operating for presumed appendicitis.

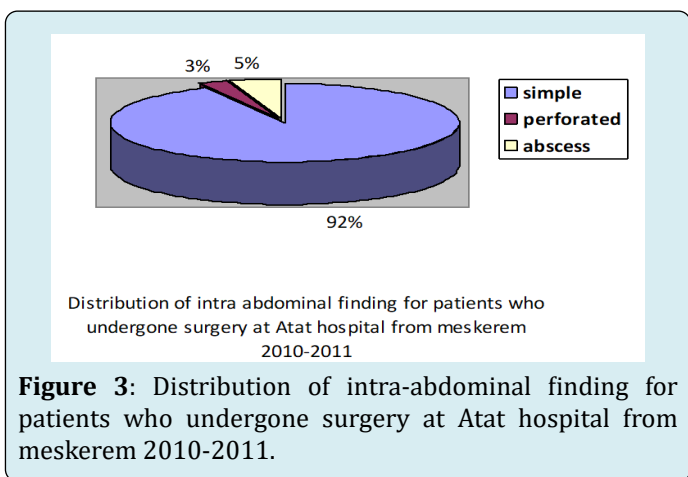


Figure 3: Distribution of intra-abdominal finding for patients who undergone surgery at Atat hospital from meskerem 2010-2011.

Seven patients had post-operative complications and all were cases of wound infection. There was no death.

Discussion

There are very few studies done on the general pattern of acute abdomen in Ethiopia and few studies on specific cases

of acute abdomen. Acute appendicitis is a clinical condition which needs surgical treatment as soon as possible, if ignored it may get complicated and increase morbidity and mortality. The male preponderance and the commonest age of presentation (13-40 years) are in agreement with other studies in Ethiopia and some African countries [2-16].

The clinical presentation of abdominal pain in all patients with a shifting pain of 114 cases and associated vomiting is 89 patients. In addition, localized tenderness in 105 with rebound tenderness in 100 patients at the right lower quadrant was found on examination and is similar to studies by other investigators [5,16]. Diarrhea was found in 11 patients. This is also in agreement with low incidence of diarrhea (10.0%), reported by Ahmed [3].

Rectal digital examination was done in 24 (21%) of patient. This compared to other studies has a wide variation this indicates that most physicians might be reluctant to do digital rectal examination in patients with suspected acute appendicitis.

Analysis of the WBC in relation to diagnosis of acute appendicitis as in most studies end up with controversial results [3]. It was found that 53.5% of patients had WBC count above $11,000/\text{mm}^3$, which is above normal. A high count is supportive to clinical diagnosis but a normal count ($4000-1100/\text{mm}^3$) cannot rule out appendicitis since the rest 46.5% of cases with proven appendicitis found to lie in the latter group.

Transverse and vertical incision at MC-Burney's point was utilized in (87.9%) of the patients, which is higher in our study compared with 78.0% found by Ahmed [3]. This may be due to cosmetic effect perceived by mid line incision and due to relatively shorter duration of presentation which reduces the chance of complication.

A perforation rate of 3 in this study correlates well with other studies done in adult age groups reported by Ahmed [3]. In this study there was no report of normal appendix intra-operatively, which contradicts studies done somewhere else [3,17-19]. This could be either too specific diagnostic and admission criteria of appendicitis which result in false negative diagnosis or too sensitive diagnostic criteria in other countries. There were no pregnant women diagnosed with acute appendicitis.

There was no postoperative death which is low when compared to other studies in this country [1,2,10]. This could be as a result of better awareness and early treatment seeking behavior of the people and most of all the high index of suspicion. And also the absence of pediatric age group in this study.

Conclusion

Acute appendicitis is the most common cause among all emergency acute abdominal operations performed in Atat hospital. Males outnumber females which mirrors the incidence of appendicitis more in males. Most of the patients presented early to the hospital which reflects the lesser frequency of complications. Early diagnosis, adequate preoperative resuscitation and proper post-operative care help to reduce the morbidity and mortality.

Recommendation

Accurate and complete record keeping must be enforced by the department and the hospital. Any physician should be concerned about the patient's record and document the accurate history, physical finding and intra op finding clearly. Efficient information, Education and communication strategy needs to be designed to increase the knowledge of the community about appendicitis. Further studies should be made concerning appendicitis during pregnancy.

References

1. Upto date version 17.3
2. Birhanu K, Gashaw M (1996) Acute appendicitis in Ethiopia. *East Afr Med J* 73(4): 251-252.
3. Ahmed hI E (1987) Acute Appendicitis in I<hartoum, pattern and clinical presentation. *E Afr hled J* 64(3): 202-205.
4. Schwartz SI (1994) Appendix. *Principles of Surgcry*. In: Schmartz SI, Shires GT, et al. (Eds.) 6th (edn.) I\IcGraal-Hill, Inc. Nen York; XIcGran-Hill, Inc, pp: 1307-1331.
5. Ochola Abila P (1979) Appendicitis in children and adults at Icenyatta national Hospital, Nairobi. *E Afr Xled J* 56(8): 368-374.
6. Out AA (1998) Tropical surgical abdominal emergencies: acute appendicitis. *Trop Geogr Med* 41(2): 118-122.
7. Abraham Deneke, Birhanu Tadesse (2003) Pattern and Clinical Presentation of Acute Appendicitis in Adults in Zewditu Memorial Hospital 13(2).
8. Addiss DG, Shaffer N, Fowler BS, Tauxe RV (1990) The epidemiology of appendicitis and appendectomy in the United States. *Am J Epidemiol* 132(5): 910-925.
9. Ogbonna BC, Obekpa PO, Momoh JT, Ige JT, Ihezue CH (1993) Another look at acute appendicitis in tropical Africa and the value of laparoscopy in diagnosis. *Trop Doctor* 23(2): 82-84.
10. Ephrem D, Desalegn M (1991) Childhood appendicitis; Factors associated with its incidence and perforations in Ethiopian children. *Ethiop Med J* 29(1): 15-19.
11. Walker AR, Richardson BD, Walker BF, Woolford A (1973) Appendicitis, fibre intake and boIvel behaviour in ethnic pups in South Africa. *Postgad XIed J* 49(570): 243-249.
12. Umerah B, Obadike G (1987) Acute abdomen in the Zambian African. *East Afr Med J* 55(2): 77-80.
13. Muthuphei MN, Morwamoche P (1998) The surgical pathology of the appendix in South African blacks. *Center Afr J Med* 44(1): 9-11.
14. Johnson O, Afen-ork XI, Habre AH (1981) Appendicitis in childhood. *Ethiopian Hled J* 19(1): 1-7.
15. Madiba TE, Haffejee AA, Mbele DL, Chaithrain H, John J (1998) Appendicitis among African patient at King Edward VIII Hospital, Durban, South Africa: a review. *East Afr Med J* 75(2): 81-88.
16. Mourad J, Elliott JP, Erickson L, Lisboa L (2000) Appendicitis in pregnancy: New information that contradicts long-held clinical beliefs. *Am J Obstet Gynecol* 182(5): 1027-1029.
17. Popkin CA, Lopez PP, Cohn SM, Brown M (2002) The incision of choice for pregnant women with appendicitis is through McBurney's point. *Am J Surg* 183(1): 20-22.
18. Kakende I, Kuvuma J, Kayando J (1978) Appendicitis in Mulago Hospital. *East Afr Med* 55(4) 172-174.
19. Scwartz S, Shires GT, Spencer F (1999) *Principles of Surgery*. 7th (Edn).

