Prevalence of appendectomy at Alwahda hospital in city of Derma, Libya. Cross-sectional survey.

(Original Research Article)

[1]**Hussien.M.A. alfakakre**, [1]**Yousef.A.S. ballow**, [2*]**Ashraf.S.elzer**
[3]**Fathi.A.alshalwi**, [3]**Mustafa mosabihah** , [4]**Yousef.E. Estieta**.

[1] Surgery Department, Almakhaili general hospital, Derna,Libya.
[2]Clinical Research, College of Medical Technology Derna ,libya .
[4]Surgery Department, Qurina hospital, shihat and Almakhaili general hospital,Libya
[5]Surgery Department, Alwahda hospital.
***Corresponding address**: Dr.Ashraf Elzer, College of Medical Technology, Derna, Libya.
Email; ashrafsmelzer@yahoo.com

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Abstract

Background: Acute appendicitis (AA) is a major common disease that need urgent surgical treatment. Appendectomy is the right choice treatment for AA. The aim of our study was to assess the prevalence of acute appendicitis and the associated risk factors at Alwahda hospital patients in Derna city, Libya.

Material and Methods: This is a cross sectional study. All patients who attend to general surgery department at Alwahda hospital and undergoing to surgical operations with different reasons from December 2020 to December 2021 were included in this study. Demographic and clinical data on patient's age, sex, and symptoms were collected.

Result: Out of 403 patients were underwent general surgery at Alwahda hospital in period of the study. The most common reasons for surgery were GBS 116 (28.7%), appendectomy 96 (23.8%) and Brest surgery 46(11.4%). Out of 96 patients with suspect acute appendicitis, 36(37.5%) were males and 60(62.5%) were females. The incidence of AA most occurs in patients with age groups between 11-20 year 51 (53.1%) and age groups 3-10 years 32(33.3%), respectively. Most common clinical findings were abdominal pain 94(97.9%), vomiting86 (89.6%), and fever 52(54.2%). Positive Ultrasound report was 33 (34.4%), and complications of appendicitis were (19.8%). Negative rate of appendectomy was (16.6%).

Conclusion: The study shows high Prevalence rate of acute appendicitis in younger

patients with high incidence of complications, which lead us to have deep thinking in way that will help in early diagnosis of acute appendicitis and to reduce the complications and negative rate of appendectomy.
Keywords: Appendectomy, appendicitis, incidence rate, Libya.

Introduction

Acute appendicitis (AA) is major common diseases that need urgent surgical treatment [1]. Appendectomy is the right choice treatment for AA [2]. Early diagnosis of AA will increase the success rate of appendectomy and will reduce the development of complications such as peritonitis, perforation and gangrene [3,4]. These complications may expose the patients for life threating situations. Several laboratory and images studies have shown that uses of some serum inflammatory markers such as C-reactive protein and White blood cell count and uses of ultrasonography and CT scan images may have an advantage in accuracydiagnosis of AA and so reducing the related complication and safe the patient's life [5-9]. Clinical assessments of patients still the more reliable method in diagnosis of AA. Multiples scoring system have been reported in establishing of diagnosis of AA. Alvarado scoring system considered one of the most common scoring systems that have been widely used and it depend mainly on the physical examination and some laboratory investigations [10-12]. However, the definitive diagnosis for AA can only be confirmed by histopathology examination after appendectomy.250,000 cases of acute appendicitis were annually reported in United States of America [13]. Brunicardi F C et al (2012), he reported that the prevalence of a cute appendicitis during lifetime is approximately 7% [14]. Another study by Rothrock SG et al (2000), shown that acute appendicitis is a more common occur in childhood and approximately 1-8% of children with acute abdominal pain requiring appendectomy [15]. Prevalence of acute appendicitis is worldwide difference and range from 4.9% to 8.6%. [16]. The incidence of acute appendicitis is more likely occur in age group 15-24years, however, it is reported that 5% of old people (over 60 years) may expose to AA [17]. Data on prevalence of acute appendicitis in Libya are very few. Our objective for this study was to assess the prevalence of acute appendicitis in Derna city and to determine some risk factors that may help in diagnosis and management of acute appendicitis.

Materials and Methods

This is a cross sectional study was conducted at Alwahda hospital located in Derna city, Libya from December 2020 to December 2021.All patients who attend to general surgery department at Alwahda hospital and undergoing to surgical operations with different reasons were included in this study. Only war cases were excluded from this study, as it is not usually daily work. The ethical committee of Alwahda Hospital approved the study protocol. Informed consent was taken from all participants' patients and family for child patients.

Inclusion criteria:

1-All patient who attend to general surgery department at Alwahda hospital and undergoing to surgical operation with different reason were including in this study.

2-Race: all races and ethnicities are eligible for study enrollment.

3-Gender: males and females offered to participate in this study.

Exclusion criteria: only war cases were excluded from this study

Sample size: All patients with inclusion criteria who underwent surgical operation at Alwahda hospital through the study period were included.

Study protocol: All data including the demographic information, history, physical examination, and laboratory data such as leukocytosis, ultrasound and histopathological reports gathered from the all-participants' files.

Statistical analysis: We made our statistical analysis by using The Statistical Package for social Sciences; SPSS version 22.0 (SPSS Inc., Chicago, IL) and descriptive results are presented as mean ± standard deviation in tables.Appropriate tests were used at p value≤0.05.

Result: Out of 403 patients were underwent general surgery at Alwahda hospital in period of the study. The most common reasons were GBS 116 (28.7%), appendectomy 96 (23.8%) and Brest surgery 46(11.4%).

Characteristic of patients with suspected acute appendicitis (N=96)

The mean age of our sample was 14.04 years with SD ±8.11(range of age was 3-50 years. It shows that the age was significance difference between both genders with p-value 0.02 using T-test (mean age for male 11.7 years with SD ±5.8 and for female 8.9 with SD ±8.95). Out of96 [60 (62.5%) females and 36(37.5%) males], patients with lower right abdominal pain underwent an operation for suspected appendicitis (appendectomy). 16(16.7%) had a diagnostic on opening surgery with a normal appendix, 59(61.5%) had acute appendicitis, 12(12.5%) had gangrene, and 9(9.4%) had perforated appendicitis, figure (1). All patients who underwent surgery were discharged home. The Most common age group for the patient was 11-20 years (53.1%) followed by age group 3-10years (33.3%), where female patient consisted most of affected gender 63.3% (table1).

Table (1): agegroup related to the gender

Age group by years	Male (%)	Female (%)	Total (%)
3-10	19 (52.8%)	13 (21.7%)	32 (33.3%)
11-20	13 (36.1%)	38 (63.3%)	51 (53.1%)
21-30	4 (11.1%)	5 (8.3%)	9 (9.3%)
31-50	0	4 (6.7%)	4 (4.1%)
Total	36	60	96

Complications of appendicitis: As shown in tables (2,3,4).They showed that the rate of complication was (21.8%) and male patients have more likely to report complication than female patients (Odd radio (OR=1.1). Also, they showed that most common complications were gangrene and perforated (57.1%, and 42.8%), respectively. Children patient within age group 3-10 years (57.1%) were more likely to report complications. Moreover, it seen that the complications most occur in patients who had Alvarado score between 6 to 7 score.

Table (2). Compilations related to gender

Complications	Male (%)	Female (%)	Total (%)
Gangrene	7 (19.4%)	5 (8.3%)	12 (57.1%)
Perforated	5 (13.9%)	4 (6.7%)	9 (42.8%)
Total	12 (57.1%)	9 (42.8%)	21

Table (3). Compilations related to age

Age group by years	Gangrene (%)	Perforated (%)	Total (%)
3-10	6 (50%)	6 (66.7%)	12 (57.1%)
11-20	3 (25%)	2 (22.2%)	5 (23.8%)
21-30	1 (8.3%)	0	1 (4.7%)
31-50	2 (16.7%)	1 (11.1%)	3 (14.2%)
Total	12	9	21

Table (4). Compilations related to Alvarado score.

Alvarado score	Appendicitis		Complications	
	Yes	NO	Gangrene	Perforated
3	4	2	0	0
4	16	3	0	0
5	2	3	0	0
6	19	6	3	3
7	39	2	9	6
Total	80	16	12	9

Negative rate of appendectomy: As shown in Table 5. It showed that negative rate of appendectomy was (16.6%). Females' patient more likely to have negative rate of appendectomy than male patients, odd ratio (OR=3.0).

Table (5). Negative appendectomy rate related to the gender

Appendicitis	Male (%)	Female (%)	Total (%)
Present	33 (91.7%)	47 (78.3%)	80 (83.3%)
Normal	3 (8.3%)	13 (21.7%)	16(16.6%)
Total	36 (37.5%)	60 (62.5%)	96

Clinical and Laboratory finding: As shown in table 6.It showed that right lower quadrant tenderness, vomiting and anorexia are the most common clinical finding in patient with suspected acute appendicitis (94(97.9%); 86(89.6%); and 82(85.4%), respectively. Also, it noticed that raised White Blood cell (WBC) and C-reactive protein (CRP) were seen in most of patients (68.3%; 72.9%), respectively

Table (6). Clinical and laboratory parameter

Clinical and Laboratory parameter	Patients (N=%)
Migratory pain	69(71.9%)
Nausea and or vomiting	86(89.6%)
Fever> 38 °C	52(54.2%)
Anorexia	82(85.4%)
Right lower quadrant tenderness	94(97.9%)
Rebound tenderness	67(69.8%)
WBC > 10,000/ml	66(68.3%)
CRP ≥1.17 mg/dL	70(72.9%)

Ultrasound Result: As shown in Table 7. It showed that positive ultrasound result was seen in only one third of patients with suspected appendicitis (34.4%) and the other third with suspicious acute appendicitis (29.2%).

Table (7). Ultrasound result.

Ultrasound report	Patients (N=%)
Positive acute appendicitis (AA)	33(34.4%)
Negative AA	35(36.5%)
Suspicious AA	28(29.2%)
Total	96

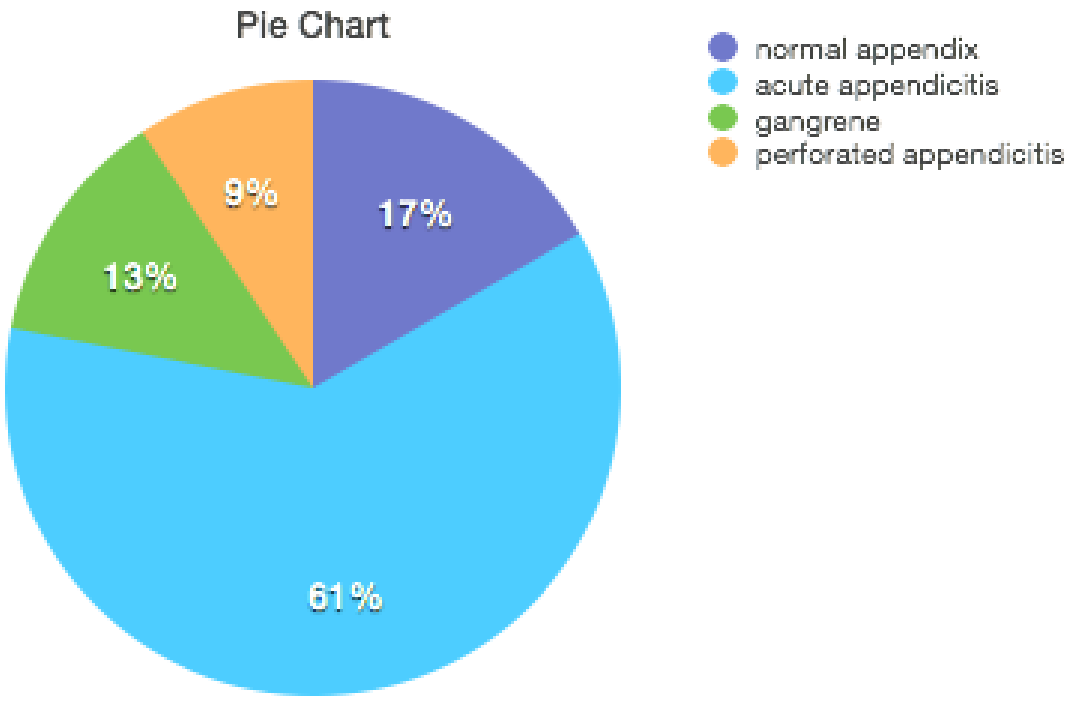

Figure (1).

Discussion:

Appendectomy is treatment of choice for patients with appendicitis. However, confirmed diagnosis of acute appendicitis is only made through histopathology examination for specimens. Prevalence of appendectomy consist one of the most common emergence cases that need urgent surgical interventions. In our study prevalence of Appendectomy consist the second reason for surgical intervention at our hospital with high predominate rate in female patients than male and this finding have an agreement with other study done by Parisa Javidi et al (2013) which showed that

female patients were more likely to have appendectomy that male patients (18). On The other hands, Chaudhar YP et al (2015), reported that male patients had higher tendency rate to have AA than female patients (19). In our study, children were more likely to have acute appendicitis than adult and this finding was in agreement with other study done by K. Suresh Babu et al, 2017(20). Our negative rate of appendectomy was (16.6%) and this rate was accepted in compared with other study done by Parisa Javidi et al (2013), which showed higher negative rate of appendectomy (23.4%). Also, reported Perforated and gangrene appendicitis in our study were same as in the other study done by Sevgi Buyukbese et al 2016(21). The mortality rate in our study was Zero.

Conclusion:

The study shows high Prevalence rate of acute appendicitis in younger patients with high incidence of complications, which lead us to have deep thinking in way that will help in early diagnosis of acute appendicitis and to reduce the complications and negative rate of appendectomy.

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