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Clinicopathological review of surgically removed appendix in Central Nigeria

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KEYWORDS

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Abstract *Background:* Acute appendicitis is a disease of the young presenting in children and early adolescents although no age group is exempt. It is the most common cause of acute surgical abdomen worldwide. This clinicopathological study aims to determine the various lesions of the surgically removed appendix in our centre and if any, changing trend in this lesion in our environment.
Method: A retrospective study was undertaken to review the histopathology reports of all appendicectomy specimens submitted to the Department of Pathology of the Asokoro District Hospital, Abuja; Nigeria from November 2009 to October 2012 Patient's biodata, clinical signs and symptoms were extracted from the request form.
Result: A total of 293 appendices were received during the 3-year study period constituting about 10% of total specimens. The male to female ratio was 1:1.3 with a mean age of 26.33 ± 11.39 years. Acute appendicitis was found in 81.2% of our cases while other lesions constitute 14.7% and negative appendectomy occurred in 4.1% of the cases. No mortality was recorded.
Conclusion: The findings in this study compared favourably with those of our environment and in the developed world although acute appendicitis in this study showed slight female preponderance.

1. Introduction

The diagnosis of acute appendicitis is most commonly a clinical one; many patients present with a typical history and examination findings. The cause of acute appendicitis is unknown but is probably multifactorial; luminal obstruction and dietary and familial factors have all been suggested.[1–3] Appendicectomy is the treatment of choice and is increasingly done as a laparoscopic procedure.[2] Acute appendicitis is a disease of the young presenting in children and early adolescents although no age group is exempt. It is the most common cause of acute surgical abdomen worldwide and its incidence varies with geographical location.[3]

In the United States, a crude estimate of the incidence of acute appendicitis is 11 cases per 10,000 population.[4] Studies have shown acute appendicitis to be more common in the whites than non whites.[5] Appendicitis is the most common abdominal emergency and accounts for more than 40,000 hospital admissions in England every year.[6]

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In Nigeria, incidence of acute appendicitis is relatively low with varying reports of average annual frequencies ranging from 22.1 to 49.8 new cases but in other African countries, annual frequencies are relatively higher ranging from 22.9 to 129 new cases per 100,000 persons.[7–12] Clinicopathological studies of appendiceal lesions on the African continent are relatively few and this study was conducted to determine the various lesions of surgically removed appendix in our centre and compare our findings with other studies elsewhere.

2. Materials and methods

A retrospective study was undertaken to review the histopathology reports of all appendicectomy specimens submitted at the Department of Pathology of the Asokoro District Hospital, Abuja; the capital city of Nigeria from November 2009 to November 2012. The number of cases/year for the 3 years was 93, 95 and 105, respectively. Our laboratory is a referral centre for 12 other government district hospitals and private hospitals in the Federal Capital Territory and its environs. The Federal Capital Territory is an urban community with a population of 1,405,201 people (2006 census). Patient's biodata, clinical signs and symptoms were extracted from the laboratory request form. Routine haematoxylin and eosin (H&E) staining and where necessary histochemical studies were carried out. Alcian blue/Periodic Acid Schiff stain was done for a case of suspected mucocoele. The data were analysed in terms of frequency, age and sex distribution, nature of clinical signs and symptoms as well as histological characteristics of pathologic lesions (normal, acute appendicitis with or without peritonitis, lymphoid hyperplasia, eosinophilic appendicitis and schistosomal appendicitis) using the SPSS version 17. The data for these patients were presented in tables and figures.

3. Result

A total of 293 appendices were received in our laboratory during the 3-year study period constituting about 10% of total specimens. The annual incidence is 8.4 per 100,000 population. There were 128 males and 165 females constituting a male to female ratio of 1:1.3. The age range of patients in this study is 3–57 years with a mean of 26.33 ± 11.39 years.

3.1. Age and sex distribution

The age and sex distribution of the patients is shown in Table 1. The peak age of occurrence in this study is 20–29 years closely followed by 10–19 year age group both constituting over 60% of the cases. The least number of cases (13 patients) were seen in the age group 50–59 years constituting 4.4%.

Table 1 Distribution of cases according to age groups and sex.

Age group (years)	Male	Female	Subtotal	% Age
0–9	7	4	11	3.8
10–19	21	62	83	28.3
20–29	40	54	94	32.1
30–39	34	27	61	20.8
40–49	19	12	31	10.6
50–59	7	6	13	4.4
Total	**128**	**165**	**293**	**100**

3.2. Clinical presentation

The most common form of presentation by our patients was right iliac abdominal pain (95%) which later became generalised in 21.8% of cases. The other symptoms include fever (81%), vomiting (56%), and loss of appetite (48%). The mean duration of symptoms was 3.05 days.

Twelve patients had perforation at surgery and 2 out of these presented primarily in shock.

3.3. Histological diagnosis

The distribution of histological diagnosis is as shown in Table 2. Twelve cases (4.1%) were found to be normal. Uncomplicated acute appendicitis was seen in 174 patients constituting 59.4% and acute appendicitis with peritonitis constitutes 21.8%. Submucosal fibrosis, schistosomiasis, lymphoid hyperplasia and subacute appendicitis constitute 5.1%, 2.4%, 3.4% and 1.7%, respectively. Others include eosinophilic appendicitis (0.7%) and mucocoele was seen in one patient (0.3%). The histology of acute appendicitis, acute appendicitis with lymphoid hyperplasia and schistosomal appendicitis is shown in Figs. 1–3. Table 3 shows the distribution of the histological diagnosis according to age groups. Acute appendicitis with peritonitis (Fig. 2) occurs more in males than females with a ratio of approximately 2:1. The peak age of occurrence is 20–29 years, constituting 31.3% and closely followed by age groups 10–19 years and 30–39 years constituting 23.9% each. The distribution of patients with histological diagnosis of acute appendicitis and acute appendicitis with peritonitis is shown in Tables 4 and 5, respectively. Acute appendicitis occurs more in females (63.8%) than males (36.2%) while acute appendicitis with peritonitis occurs more in males (65.7%) than females (34.3%). The peak age of occurrence for both is the 3rd decade of life.

4. Discussion

Acute appendicitis is a very common disease and appendix is a common specimen received in the histopathology laboratory worldwide. The incidence varies widely from region to region with higher incidence among the whites than blacks.

Table 2 Distribution of cases according to histological diagnosis.

Histological diagnosis	No of cases	% Age
Acute appendicitis	174	59.4
Lymphoid hyperplasia	10	3.4
Eosinophilic appendicitis	2	0.7
Subacute appendicitis	5	1.7
Normal	12	4.1
Mucocele	1	0.3
Appendicitis with peritonitis	67	22.8
Submucosal fibrosis	15	5.1
Schistosomiasis	7	2.4
Total	**293**	**100**