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A Six Year Review of the Frequency and Histopathological Presentation of Acute Appendicitis

[1]Okoi Nta Obono, [2]Ugbem Theophilus Lpeh and [3]Ashindoitiang John Adi

[1]Department of Family Medicine, University of Calabar Teaching Hospital, Calabar, Nigeria
[2]Department of Pathology, University of Calabar Teaching Hospital, Calabar, Nigeria
[3]Department of Surgery, University of Calabar Teaching Hospital, Calabar, Nigeria

Abstract: Acute appendicitis is one of the major causes of morbidity and mortality. It occurs in all ages, both sexes and cut across all races both developed and underdeveloped countries. Present study was planned to evaluate histopatholoqical presentation and frequency of acute appendicitis. A total of 146 appendectomy specimens were sent for histopathological examination which include age, sex, lumenal obstruction and types of inflammatory response. Results showed that male to female ratio was 1: 1.2 with major age group between 21-25 years. Premalignant lesions were associated with males and increased with age. Feacolith caused the highest luminal obstruction 75.6%. All appendectomy specimens should be thoroughly examined for various luminal obstructions which may correlate with our life style diets.

Key words: Appendectomy · Lumenal Obstruction · Premalignant Lesions · Feacolith

INTRODUCTION

Appendicitis is the most common abdominal surgical emergency and accounts for about 15-40% hospital admissions in Nigeria [1]. In England it accounts for more than 40,000 hospital admission every year [2] and is most common between the ages of 10 and 20 years but no age is exempted [3]. A male preponderance exists with a male to female ratio of 1.4:1, and the overall lifetime risk is 8.6% for males and 6.7% for females in the United States [3, 4]. The ease and accuracy of diagnosing acute appendicitis varies with the age and sex of the patient and is more difficult in women of child bearing age, children and the elderly. Appendicitis is considered a time sensitive disorder and delay in treatment over 72 hours from the onset of symptoms increases the risk of complication, such as an appendiceal rupture which could be life-threatening [4].

Acute appendicitis begins with obstruction of the appendiceal lumen due to lymphoid hyperplasia, faecolith, gastrointestinal parasite or some other foreign body. The continued secretion of mucus from within an obstructed appendix results in an increased intraluminal pressure which leads to tissue ischemia, overgrowth of bacterial and transmural inflammation, appendiceal infarction and eventual rupture if not attended to on time. The histopathological features of early acute appendicitis show the presence of inflammatory cells (neutrophils) within the crypts or lamina propia of the mucosa. If sustained lysosomal enzymes (proteases) are releazed by the neutrophils and together with secondary bacterial infection could result in necrosis and ulceration of the mucosa (gangrenous appendicitis) [5].

The inflammation may spread to the parietal peritoneum and adjacent structure resulting in peritonitis - the hall marks of rebound tenderness. Specialist investigations are rarely needed to confirm the diagnosis of acute appendicitis and the diagnosis is predominantly a clinical one. No specific diagnostic test for acute appendicitis exists, but the judicious use of simple urine and blood test particularly inflammatory response variables should allow exclusion of other pathological and provide additional evidence to support a clinical diagnosis of acute appendicitis [6].

Scoring systems and algorithms have been proposed to aid the diagnosis of acute appendicitis but have not been widely used. Radiological test, ultrasonography and computed tomography scanning can be used to aid the

Corresponding Author: John Etim, Department of Surgery, University of Calabar Teaching Hospital, Calabar, Nigeria.

diagnosis of acute appendicitis. The aim of this study was to determine the frequency and histopathological presentation of acute appendicitis in patients in University of Calabar Teaching Hospital, Calabar, Cross River State of Nigeria.

MATERIALS AND METHODS

This observational study was conducted in the Department of Pathology, University of Calabar Teaching Hospital, Calabar. It was a six year review between 2013 to 2018. All the appendectomy specimens done through open surgery were sent to the Department of Pathology, University of Calabar Teaching Hospital from 2013 to 2018. The entire appendectomy specimens were subjected to gross and microscopic examination. The various histopathological changes observed in the appendix stums were analyzed in relationship with the type of luminal obstruction.

RESULTS

During the six years review 146 patients histopathology was observed. 3 (2.1%) had no pathology, 58 (39.7%) had acute appendicitis, 64 (43.8%) had acute appendicitis with peritonitis, 2 (1.4%) had acute appendicitis with septicemia and 19 (13.0%) had acute appendicitis with suppuration. This is shown in Table 1.

Table 1: Frequency and Histopathological presentation of acute Appendicitis (No. 146)

Histopathological presentation	Frequency	(%)
No pathology	3	2.1
Acute Appendicitis	58	39.7
Acute Appendicitis with peritonitis	64	43.8
Acute Appendicitis with septiceamus	2	1.4
Acute Appendicitis with suppuration	19	13.0
Total	146	100.0

Table 2: Age and sex distribution of acute appendicitis (No. 146)

	2013			2014			2015			2016			2017			2018			Overall
Age group	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	Total
0-5	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1
6-10	-	2	2	2	1	3	2	-	2	-	-	-	-	-	-	-	3	3	10
11-15	1	2	3	-	2	2	3	-	3	-	1	1	4	3	7	-	1	1	17
16-20	2	3	5	-	3	3	-	-	-	-	3	3	1	1	2	2	5	5	20
21-25	1	6	7	2	3	5	-	-	-	-	3	3	2	3	5	1	1	2	20
26-30	1	1	2	1	1	2	-	2	2	2	3	5	-	4	4	1	2	3	18
31-35	2	-	2	1	3	4	1	1	2	3	1	4	1	3	4	2	-	2	18
36-40	1	1	2	3	-	3	1	-	1	1	1	2	-	1	1	2	2	4	13
41-45	1	-	1	-	-	-	1	-	1	2	1	3	-	1	1	-	-	-	6
46-50	-	1	1	1	-	1	-	1	1	2	-	2	-	-	-	1	-	1	6
51-55	1	1	2	-	-	-	-	-	-	1	-	1	-	-	-	3	0	3	6
56-60	-	-	-	1	-	1	-	1	1	1	-	1	-	-	-	1	2	3	6
61-65	-	-	-	-	-	-	1	-	1	-	-	-	1	-	1	-	-	-	2
66-70	1	-	1	-	-	-	1	-	1	-	-	-	1	-	1	-	-	-	3
71-75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Total	11	17	28	11	14	25	10	5	15	12	13	25	10	16	26	13	18	29	146

Out of 146 appendectomy specimens, 67 (45.9%) were males and 79 (54.1 %) were females: male to female ratio 1:1.2.

Table 3: Gender distribution of lumen obstruction in acute appendicitis (No. 143)

Types of lumen distribution	Male	%	Female	%	Total	%
Feacolith	42	29.4	66	46.2	108	75.6
Lymphoid hyperplasia	10	7.0	4	2.8	14	9.8
Ascaris lumbricoids	10	7.0	9	6.3	19	13.3
Schistomasis	2	1.3	-	-	2	1.3
Total	64	44.7	79	55.3	143	100.0

In Table 3, out of 146, 143 had luminal obstruction; 108 (75.6%) has feacolith luminal obstruction, 19 (13.3%) had intestinal parasite like Ascaris lumbricoides as luminal obstruction, and 2 (1.3%) as schistomeasis and 14 (9.8%) had lymphoid hyperplasia as luminal obstruction.

DISCUSSION

Acute appendicitis is one of the major surgical causes of morbidity and mortality in Nigeria and the world at large. It affects both male and females and all ages with no racial difference.

In this study the minimum age group involved was 6-10 year and maximum age group involved was 21-25 years which agrees with the popular findings [3]. The extreme of ages where acute appendicitis found was between the ages of 5 years and 70 years. The male to female ratio was 1:1.2 which differs from the America studies that state male to female ratio of 1.4:1 [3]. This may be due to health seeking behaviour in this part of the world where women attend hospital more than men. Secondly it may be due to dietary changes in women where most women eat Indomie than men as shown in Table 3 where women had (46.2%) as against men (29.4%) feacolith as luminal obstruction [2, 3].

In this study feacolit causes the highest luminal obstruction in appendicitis 108 (75.6%). This is followed by Ascaris lumbricoids 19 (13.3%) which is mostly reported in some of West African countries [4, 7]. Lymphoid hyperplasia is the third reported luminal obstruction in acute appendicitis. This is found mostly in men than women as shown in Table 3. Schistomiasis is a rarely found intestinal parasite as luminal obstruction in acute appendicitis and is found in men involved in rice farming in this part of the world (1.3%) [1, 8].

In this study, the pathological presentation of acute appendicitis shows 3 (2.0%) had no pathology, 64 (41.1%) present with acute appendicitis and peritonitis which is the hallmark of rebound tenderness in most of the patients, 58 (39.7%) present with acute appendicitis alone which sometimes causes difficulty in diagnosing acute appendicitis in pregnant women, 2 (1.4%) present acute appendicitis with septiceamia (rupture appendix) which was due to delay in diagnosis or delay in intervention more than 24-72 hours from the onset of symptoms. Patients with lymphoid hyperplasia should be thoroughly investigated for malignancy [6, 9-13].

CONLUSIONS

Appendicitis is one of the most common abdominal surgical emergencies in this part of the world. The ease and accuracy of diagnosing appendicitis varies with the age and sex of the patient and is more difficult in women of child bearing age, children and the elderly. Appendicitis is considered a time sensitive disorder and delay in treatment over 72 hours from the onset of symptoms increases the risks of complications ranging from appendiceal mass, abscess and sometime rupture which could be life threatening. Patients with lymphoid hyperplasia should be thoroughly investigated for malignancy.

REFERENCES

1. Alatise, O.I. and T. Ogunweide, 2008. Acute Appendicitis incidence in Nigeria. Ifemed Journal, 13: 66-70.
2. Hospital episode statistics. Primary diagnosis: summary. www.hesonline.nhs.ul</ease/serulet/ contentserve? Site ID= 1937 and category ID= 202(accessed 28 Aug 2006).
3. Addis, D.G., N. Shaffer, B.S. Fowler and R.V. Tanx, 1990. The epidemiology of appendicitis and appendectomy in the United States. American Journal of Epidemiology, 132: 910-25.
4. Guttman, R., R.D. Goldman and G. Koren, 2004. Appendicitis during pregnancy. Canadian Family Physician, 50: 355-357.
5. Anderson, R.E.B. and M. Lambe, 2001. Incidence of appendicitis during pregnancy. International Journal of Epidemiology, 30: 1251-1255.
6. Anderson, R., 2004. Meta - analysis of the clinical and laboratory diagnosis of appendicitis. British Journal of Surgery, 91: 28-37.
7. Saccomano, S.J. and L.R. Ferrara, 2013. Evaluation of acute abdominal pain. Nurse Practice, 38: 46-53.
8. Fitz, R., 1886. Perforating inflammation of the vermiform appendix with special reference to its early diagnosis and treatment. Transitional Association of American Physician, 18: 107-144.
9. Singh, J.P. and J.G. Mariadason, 2013. Role of the faecolith in modern day appendicitis. Annals of Research in Colon Surgery in England, 95: 48-51.
10. Mc Burney, C., 1889. Experiences with early operative interference in cases of diseases of the vernaiform appendix. Medical Journal, 50: 676-684.

11. Flum, D.R., I.D. Medure, A. Morris and S.L. Koep, 2005. Misdiagnosis of appendicitis and the use of diagnostic imaging. Journal of American College of Surgeons, 201: 933.
12. Prystowsky, J.B., C.M. Pugh and A.P. Nagle, 2005. Acute appendicitis. Curticular Problems Surgery, 42: 688-692.
13. Weston, A., T. Jackson and S. Blarney, 2005. Diagnosis of appendicitis in adults by ultrasonography of computed tomography. A systematic review and meta-analysis. International Journal of Technology Assessment in Healthcare, 21: 368-379.