

CHILDHOOD ACUTE APPENDICITIS IN NNEWI, NIGERIA

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ABSTRACT

Background: A retrospective study to establish how common acute appendicitis is in the paediatric age group in our environment as well as establish justification if any for incidental appendectomy in children in our environment.

Patients And Methods

Retrospective study of patients aged 15 years and below who had appendectomy in a 6 years period.

Information from the surgical wards and theatres were used to trace the case notes. The following were extracted and analysed - bio data, mode of presentation: grade of operating surgeon, operative findings as well as histological findings.

Results

There were 28 appendectomies out of 1248 surgical operation performed in patients 15 years and below. There were 14 males and 14 females. Commonest mode of presentation was abdominal pain which was present in all the patients. The youngest was aged 8 years.

Thirteen (2 grossly inflamed; 5 moderately inflamed and 6 mildly inflamed) were sent for histology and 5 (2 grossly inflamed; 3 moderately inflamed) were confirmed as being pathologic of acute appendicitis.

Conclusion

Acute appendicitis is not common in the paediatric age group in our environment and far more negative appendectomies are performed.

A scoring system for acute appendicitis in children in our environment is hereby advocated to reduce the incidence of negative appendectomy.

Key words: Acute, appendicitis, children.

INTRODUCTION

Appendectomy for acute appendicitis is the second commonest abdominal emergency operation done in our environment¹ after laparotomy for intestinal obstruction. The incidence of acute appendicitis in Ibadan² is 32.5% while the prevalence of negative appendectomy from studies done locally³ and abroad⁴ are 11.7% and 15.25% respectively as evidenced by histology reports of appendices removed for acute appendicitis.

Recently, immunological functions have been assigned to the appendix⁵ and caution should be exercised before removal in grossly normal cases.

This study therefore aims to establish the incidence of acute appendicitis in relation to appendectomy in children in our environment.

PATIENTS AND METHODS

Case notes of all appendectomies done in the age group 15 years and below at the Nnamdi Azikiwe University teaching hospital (located in the heart of Anambra state and partly

serving neighboring states of Delta, Imo and Abia), between 1st January 1997 and 31st December 2002 were reviewed. Parameters analysed were bio data, mode of presentation, grade of surgeon, operative findings, histological findings, as well as outcome of treatment.

Diagnosis was clinical complemented by operative finding as well as histopathological findings.

The pre-operative treatment was nil per oral, administration of broad spectrum antibiotics and intravenous infusion of fluids.

RESULTS

There were 28(2.24%) cases of appendectomy done out of 1248 surgeries in the 6 years under review. There were 14 males and 14 females. The youngest patient was aged 8 years. Fourteen patients (50%) were aged 14 and 15 years. Commonest mode of presentation was abdominal pain (100%); Eight (28:57%) located in the right iliac fossa (RIF) seven (25%) para-umbilical; seven (25%) right lower abdomen 6 (21.43%) were generalized in nature. Fourteen patients (50%) had fever on presentation while 15(53:57%) vomited before presentation. Eleven patents (39:29%) had loss of appetite and 10(35.71%) had nausea. (Table 2).

Two appendicectomies (7.14%) were performed by a consultant and were found to be gangrenous, 7 (25%) by a senior registrar; while 19(67.86%) were performed by a registrar of which two were perforated and four normal. Five (17.86%) of the appendices were found to be normal at surgery, 2(7.14%) were gangrenous 5(17.86%) perforated 2(7.14%) grossly inflamed, 5(17.86%) moderately inflamed and 9(32.14%) mildly inflamed. Because the laboratories operate on fee service only 13 appendices (46.43%) were analysed by histology. These were 2 grossly inflamed, 5 moderately inflamed and 6 mildly inflamed of the appendices. Only 5 (2 grossly inflamed and 3 moderately inflamed) were confirmed to be acute appendicitis (table 3).

Among the five patients with normal appendices, two had mesenteric adenitis and three had no pathology on visual inspection. There was only one case (3.57%) of wound infection and no mortality.

DISCUSSION:

The appendix as an organ has attracted a lot of controversial comments and has been variously described as an organ without anatomy,^{6,7} The functions have been shrouded in mystery. Recently from studies^{8,9} performed in rats and extrapolated to humans, the immunological functions are coming to light. These include a role in mucosal immune system of the gut; while the appendix sacculus lymphoid organ of rabbits has been compared to the bursa of Fabricius as representing a central lymphoid organ.

Review of emergency abdominal surgeries^{10, 11} show that acute appendicitis is the commonest indication for laparotomy between the 2nd and 5th decades. Also reports from Ife³, Nigeria showed that the appendix is the commonest organ submitted for histopathology in our environment. A study in children by Serengbe et al¹² to evaluate the causes of abdominal pain in children showed that acute appendicitis was the commonest cause of abdominal pain between ages 3 and 10 years.

Although all our patients had some form of abdominal pain, a study on acute abdomen¹³ in our environment showed that the commonest cause of abdominal pain both in adults and children is acute intestinal obstruction.

With the immunological role of the appendix¹⁴ gradually coming to light, the debate is now on whether it is justified to remove a normal appendix for whatever reason (incidental appendicectomy) particularly in children. While Simpson et al¹⁵ are of the opinion that it should not be removed, others¹⁶ claim that appendicectomy has a protective role against diseases like ulcerative colitis. Further review of the literature^{17,18} however shows that ulcerative colitis is neither common in our environment nor in children.

Our studies showed that 28 cases (2.24% of surgical procedures) were recorded in 6 years which contrasts sharply with the work of Putnam et al¹⁹ from New York where they recorded 406 cases of acute appendicitis in children in 5 years. Our youngest patient was 8 years unlike studies done in Kenya by Wilmore et al²⁰ where they were able to record acute appendicitis in a 4 year old. Our greatest age incidence (50%)

occurred between 14 and 15 years suggesting that childhood acute appendicitis in our environment occurs mostly in the adolescent.

Our incidence rate (2.24%) for paediatric surgeries when compared with the work on adults by Adekunle² from Ibadan and Putnam et al¹⁹ from New York is very low suggesting that childhood acute appendicitis is not common in our environment.

Another important findings from our studies is the high rate of complicated appendicitis in our children (25%), 2 perforated and 5 gangrenous appendices. This is related to prolonged pre-hospital delay which agrees with the work of Willmore et al²⁰ from Kenya. This could be because of low index of suspicion. However the high rate of complication could also reflect a flaw in our diagnostic methods and calls for an improvement so that the few cases we have could be picked early.

Our male/female ration of 1:1 agrees with most of the studies above but our negative appendicectomy rate of 8/13 (61.54) judging from those confirmed by histology sharply disagrees with the work at Ife by Ojo et al³ (1.7%) and that of Eryilmaz et al²¹ (10-30%) from Turkey, that of Juric et al²² (16%) from Croatia as well as that of Di Sebastiano et al⁴ (15.25%) from Switzerland. This shows that our negative appendicectomy rate is higher showing that far more normal appendices are being removed in our environment.

From our studies it has been shown that

- Acute appendicitis is not common in our environment
- More negative appendicectomies are being performed in our environment.

From the work of others especially that of Somekh et al²³ we can also deduce that the appendix have some immunological functions.

In the light of the above deductions, we advocate

- That normal appendices should not be removed in our children.
- A second system for the diagnosis of acute appendicitis in our children should be established. This should take into account the age and modes of presentation outlined in (table 2) together with ultrasonic evidence of inflammation of the organ. We hope that these will reduce the incidence of negative appendicectomies in children of this environment.

Table 1: Age and Sex distribution of the children

Age	No of Cases		
	Male(%)	Female(%)	Total%
<1mt	-	-	-
1mth-11mthh	-	-	-
1yr-4yrs	-	-	-
5yrs-4yrs	1(3.57)	1(3.57)	2(7.14)
10-15yrs	13(46.43)	13(46.43)	26(89.7)
Total	14(50)	14(50)	28(100)

Table 2: Distribution By Mode Of Presentation And Age.

MODE OF PRESENTATION	AGE AND NO. OF CASES (%)				
	> 1mth	1mth-11mth	1yr-4yrs	5yrs-9yrs	10yrs-15yrs
Pain started at RIF	-	-	-	-	8(30.77)
Peri-umbilical pain	-	-	-	1(50)	6(23.08)
Pain shifted to RIF from other sites	-	-	-	2(100)	13(50)
Generalized abd. Pain	-	-	-	1 (50)	5 (19.23)
Pain Rt. Lower abd.	-	-	-	-	7 (26.92)
Vomiting	-	-	-	2 (100)	13 (50)
Fever	-	-	-	2 (100)	12 (46.15)
Anorexia	-	-	-	2 (100)	9 (34.62)
Nausea	-	-	-	2 (100)	8 (30.77)

Key

R.I.F. = RIGHT ILIAC FOSSA

Table 3: Sex Distribution By Age And Operative Findings.

SURGICAL FINDINGS	AGE & NO. OF CASES (%)				
	> 1mth	1mth - 11mth	1yr-4yrs	5yrs - 9yrs	10yrs - 15yrs
Gangrenous	-	-	-	-	2(7.14)
Perforated	-	-	-	-	5(17.86)
Grossly inflamed	-	-	-	-	2(7.14)
Moderately inflamed	-	-	-	-	5(17.86)
Mildly inflamed	-	-	-	-	9(32.14)
Normal	-	-	-	2(7.14)	3(10.71)
Total	-	-	-	2(7.14)	26(92.86)

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