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The status of patients with negative appendicectomies in Maiduguri.

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Summary
This study was conducted to verify the status of patients with negative appendicectomies in our practice and thus assess possible ways of reducing it. Of a total of 554 appendicectomies done in UMTH from January 1997 to December 2001, 27 (4.9 %) of these appendices were reported at histology as normal. 21 (77.8 %) were females and 6 (22.2 %) were males giving a female to male ratio of 3.5 to 1. The age range of the female patients was between 18 and 47 years with a mean 28.8 (SD) of (8.2) years. The age range of the male patients was between 11 and 47 years with a mean 31.5 (SD) of (12.6) years. The diagnostic alternatives depict the common scenario: Gynaecological conditions, urinary problems, peptic ulcer disease and non specific abdominal pain which are some of the major known differential diagnosis of acute appendicitis. Therefore careful clinical assessment of the patient should be depended upon for the diagnosis of appendicitis especially in our environment where sophisticated aids to diagnosis remains scarce.

Keywords : *Negative appendicectomy, alternative diagnosis, Maiduguri.*

Résumé
Cette etude etait conduite pour vevaluer le statut des patients ayant l'appendicetomie negative dans nos pratiques et apporter les moyens possible de reduction. CInd cent cinquante qatre appendocectomie ont ete effectues a UMTH de Janvier 1997 a Decembre 200. 4.9% de cas avaient une histolie normale. 77.8% etait des femeles et 22.2 % des males, d une proportion de 3.5:1. La variation d'age et la moyenne d'ae etaient de 18-43 ans et 28.8_+8.2 ans, et 11-47 ans et 31_+12.6 ans chez les femmes et les hommes respectivement. Des diagnosties alternatives depistent des scenario commun: conditions geneologiques, problemes urinaires, ulcer peptique et douleur abdominal non-specifiques comme symptomes majeurs de l'appendicite acute. Ainsi, une evaluation clinique precise du patient depends du diagnostie de l'appendicite speciallement dans notre envirnment ayant l'acceslimite aux techniques de detection sophistiquees.

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Introduction

The vermiform appendix is a vestigial luminal organ attached to the caecum. It s function is still shrouded in mystery. It is difficult not to think that the appendix subserves some protective immunological function with it s huge density of lymphoid follicles during most active period of human life. However, the inflammation of this organ is one of the commonest indications for abdominal surgery [1-4].

The florid clinical features and the variations as well as the numerous differential diagnosis in the various age groups, especially adult females often compound accurate diagnosis of appendicitis [5]. Hence, the high rate of negative appendicectomy with its attendant morbidity and cost continues to be reported in various studies [6-7].

Additional diagnostic tools that have evolved to aid diagnostic accuracy of appendicitis include compression ultrasound scan, plain radiograph of the abdomen, barium enema, laparoscopy, CT scan, radioactive isotope scanning, computers/structured data analysis, white blood cell count, plasma serotonin, c-reactive protein and some scoring systems [8-9].

We set out here to examine the cases of negative appaendicectomies in our practice with a view to determining other clinical conditions simulating acute appendicitis, with the hope of suggesting measures to reduce the incidence of negative appaendicectomies.

Patients and methods

The pathological records of all cases of appendicitis operated in UMTH between January 1997 and December, 2001 (a five year period) were reviewed retrospectively and information on histological diagnosis, age and sex of patients extracted.

The case notes of patients whose appendixes were reported as being normal were traced from the records department. Of the 27 cases with normal histology, 25 cases notes were retrieved, and information on clinical features, operative findings and follow up management extracted. This was analysed using simple statistical methods; SPSS was used to determine the mean (standard deviation).

Results

A total of 554 cases of appendicitis were operated in UMTH over the 5 year period under study. Of these, 27 cases were reported as normal at histology, giving a negative appendicectomy rate of 4.9% (table 1). Out of a total of 342 female cases, 21(6.1%) were reported as normal at histology. Out of a total of 212 male cases, 6(2.8%) were reported as normal. Female negative appendicectomies were

therefore predominant with a female to male ratio of 3.5 to1. Most of the female patients with negative appendicectomy were within the reproductive age range.

Table 1: Histological classification of appendicectomies in UMTH.

Histological diagnosis	Frequency
Acute inflammation	254 (45.8%)
Lymphoid hyperplasia	174 (31.4%)
Chronic inflammation	73 (13.2%)
Gangrenous appendicitis	21 (3.8%)
Normal /Unremarkable	27 (4.9%)
Total	554 (100%)

Common symptoms and signs among the negative appendicectomy patients are shown in table 2.

Table 2: Distribution of symptoms and signs in the 25 negative appendicectomy cases.

Symptom	Frequency
Right side lower abdominal pain	25 (100%)
Loss of appetite	21 (84%)
Nausea	15 (60%)
Vomiting	9 (36%)
Fever	8 (32%)
Dysuria	3 (12%)
Urinary frequency	1 (4%)
Clinical signs	
Tenderness in the right iliac fossa	25 (100%)
Rebound tenderness	20 (80%)
Guarding	16 (64%)
Rovsing's sign positive	10 (40%)
Psoas sign positive	6 (24%)

The intra-operative findings in the 25 cases of negative appendicectomies were reviewed including alternative conditions which were identified either at the time of appendicectomy or during follow up management to arrive at an alternative (final) diagnosis. These were mostly gynaecological conditions namely uterine liemyoma 6(24%), ovarian cysts 5(20%), bleeding follicular cyst 3(12%) and pelvic inflammatory diseases 3(12%). Others were chronic peptic ulcer disease in 2(8%) and urinary tract infection 1(4%). Non specific abdominal pain 5(20%) were cases where no definite alternative diagnosis had been made (table 3).

Table 3: Distribution of final diagnosis in 25 cases of normal appendicectomies

Final Diagnosis	Number of cases (%)
Uterine leiomyoma	6 (24%)
Cystic teratoma of the ovary	5 (20%)
Corpus haemorrhagicum	3 (12%)
Pelvic inflammatory disease (PID)	3 (12%)
Chronic peptic ulcer disease (PUD)	2 (8%)
Urinary tract infection (UTI)	1 (4%)
Non-specific abdominal pain	5 (20%)
Total	25 (100%)

Discussion

In this era of surgical audit and evidence based medical practice, the interest to minimize the incidence of negative appendicectomies has resulted in a series of studies. These include various scoring systems, adjunctive radiological and laboratory investigations as well as laparoscopy to improve accuracy of diagnosis and thus reduce the proportion of negative appendicectomies [8]. However, these diagnostic tools are not without their limitations. They take time to perform, and while some modalities are not available in most of our hospitals, others are too expensive for routine use.

The clinical features of appendicitis are shared by an array of other disease conditions. Despite that, thorough clinical evaluation of the patient remains the mainstay of diagnosis of appendicitis, especially in a depressed economy like ours [10].

Of the 25 patients with negative with appendicectomies in this study, gynaecological diseases were the predominant confounding conditions, accounting for 63%cases (table 3). These include uterine leiomyoma, ovarian cysts, bldeeding ovarian follicle and pelvic inflammatory disease. These are all known common differential diagnosis of appendicitis that requires meticulous history and thorough examination of the patient to differentiate from appendicitis. Further investigations such as ultrasound scan, where necessary may then help determine the diagnosis. However, ultrasound scan is operator dependent, and it failed to detect a case of bleeding follicular cyst in one of the 25 patients. Also, ultrasound scan can not be depended upon to exclude appendicitis as it has a very low negative predictive value [1,11].

Two patients (8%) who continued to suffer similar abdominal pains were later diagnosed as cases of chronic peptic ulcer disease by endoscopy and got better with drug treatment. Peptic ulcer disease can therefore present with bizarre clinical features and mimic appendicitis. This also requires a more careful history and examination of the patient to elucidate. Endocopy is then required to confirm the diagnosis.

The urine culture of an 11year old boy who presented with abdominal pain and tenderness in the right iliac fossa, as well as vomiting, dysuria and urinary frequency grew E. coli. He got better after appendicectomy and a course of antibiotics based on the urine culture report. Histology revealed normal appendix. Hence his final diagnosis was urinary tract infection (UTI). It is possible inadequate history was contributory to the missed diagnosis. This can be a problem in children generally. Painstaking history and physical examination is what is required to differentiate appendicitis from urinary conditions.

Five patients (25%) had no alternative diagnosis and may therefore be considered in retrospect as cases of non-specific abdominal pain. However, their symptoms settled following appendicectomy and peri-operative antibiotics. These may therefore be cases of bacterial ileocaecitis mimicking appendicitis. Whether surgery could have been avoided in these cases is difficult to say. This will require a prospective study to determine [12].

Post-operative complications noted in the negative appendicectomy patients include wound infection in 2 (8%), lober pneumonia in 1 (4%) and depression in 1 (4%). These in addition to the cost of surgery and loss of effective performance time, can be ameliorated by more accurate diagnosis and reduction of negative appendicectomies.

Conclusion

The confounding alternative conditions to appendicitis in our practice are the usual common problems which a more careful history and examination of the patients will determine and thus reduce the incidence of negative appendicectomies.

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