

# CORRELATION OF CLINICAL AND HISTOLOGICAL DIAGNOSIS OF ACUTE APPENDICITIS

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## ABSTRACT

**Objective:** The aim was to determine the diagnostic accuracy in patients of acute appendicitis.

**Material and Methods:** A prospective study was carried out on 100 patients who underwent appendicectomy in surgical unit Saidu Group of teaching Hospitals / Saidu Medical collage, from March 1998 to March 1999.

**Results:** Only 76 patients were found to have acute appendicitis on histological examination.

**Conclusion:** Although this figure is in accordance with international figures, it is recommended that other diagnostic tools like ultrasonography, structured computer fed data and laparoscopy may be used in doubtful cases wherever practicable to reduce the number of unwarranted appendicectomies and hence financial burden upon the health services.

**Key words:** Acute appendicitis, clinical diagnostic accuracy.

## INTRODUCTION

Surgeons have been confronting acute appendicitis for over two and a half centuries. Details of first appendicectomy was published in 1736. The diagnosis of acute appendicitis remains elusive in some of the patients. Pain in the lower abdomen and right iliac fossa is a common indication of emergency admission. A number of conditions fall into the differential diagnosis,

especially in atypical cases. The surgeon proceeds in one of the two ways either observation until the signs and symptoms make the diagnosis clear or by immediate operation in case a diagnosis of acute appendicitis is made. Observations is not an ideal solution if acute appendicitis is the underlying cause, as it can be followed by serious complications,<sup>1</sup> like perforation<sup>2</sup> and also can lead to peritonitis with mortality rates of 1 %.<sup>3</sup> On the other hand literature has shown a 15 to 30 percent negative

exploration rate<sup>2</sup>, which results in financial burden on the health services.

This challenge of diagnostic accuracy is being accepted by using different tools, ranging from simple non invasive leukocyte count and ultrasonography to barium enema and the most sophisticated laparoscopy.

The aim of this study was to analyse the diagnostic accuracy of this common surgical problem in our circumstances where the diagnostic methods available are much less and the clinician has to rely mostly on his clinical judgement.

## MATERIAL AND METHODS

All the patients who underwent appendectomy for clinically diagnosed acute appendicitis, from March 98 to March 99 were included in the study. A total of 100 patients were studied.

The patients were routinely examined and the observation were recorded in a proforma under the headings of symptoms and signs.

In the symptoms, pain (its site, duration and shift), anorexia and nausea and vomiting were especially asked for. Amongst the signs the general appearance of the patient,

pulse, temperature, localized tenderness, rebound tenderness, muscle guarding or rigidity, Rovsing's sign, cope psoas test, obturator test (wherever applicable) bowel sounds and the findings of rectal examination were noted.

Blood examination for Hb%, TLC, DLC and urinalysis was done in all the patients. A TLC of 10,000/cmm was taken as the upper limit of normal<sup>3</sup>. Other investigations like blood urea, serum creatinine, blood sugar, serum electrolytes, ECG, X-ray chest etc. were done wherever necessary according to the age of the patient and presence of other associated illnesses.

The help of abdominal ultrasound was taken in selected cases, with equivocal presentation. All appendices removed were subjected to histopathology.

## RESULTS

A total of 100 patients were studied, out of whom 70 were male and 30 were female. In males the median age was 25 years, (range 3-70 years.) As compared to females in whom median age was 25 years (range 3-56 years). (Table 1). Maximum incidence (38.4 % of total patients) was found in the age group 10-19 years. On investigations the total

AGE & SEX WISE DISTRIBUTION.

Age (yrs)	Male		Female		Total	
	No.	Append No.	No.	Append No.	No.	Append No.
0-9	11	8	4	2	15	10
10-19	25	21	12	8	37	29
20-29	19	17	9	5	28	22
30-49	12	9	4	3	16	12
>50	3	3	1	0	4	3
Total	70	58	30	18	100	76

Append = Appendicitis

TABLE-1

leukocyte count was above 10,000 in 40 patients while neutrophilia of more than 75% was seen in 46 patients. Three patients showed a significant number of pus cells in the urine. But the clinical examination was strongly suggestive of acute appendicitis, so appendicectomy was done and diagnosis was found to be correct in all of them. Out of 100 patients 76 had histologically confirmed appendicitis, giving a diagnostic accuracy of 76.0 %. The accuracy was 83% in males and 61.2 % in females. It was lower most (60%) in the females of age group 21-30 years, as compared to 89.4 % in the male patients of corresponding age group. (Table 1).

Histologically acute focal appendicitis was seen in 52 patients, gangrenous appendicitis in 18 patients, perforated appendicitis in 6 patients and normal appendix in the remaining 24 patients.

The pathologies in 24 patients not suffering from appendicitis are shown in Table-2. Out of these two had a misdiagnosis which required surgery any way. But in the rest of 22 patients either there was no pathology at all (16 patients) or the

pathology did not require an appendicectomy (6 patients).

## DISCUSSION

Out of 100 patients 76 had histologically confirmed appendicitis, which showed our accuracy rate of 76%, which is in accordance with other studies.<sup>6</sup> And the negative exploration rate too, is similar to other trials in which it ranges from 15-30%.<sup>14</sup>

The accuracy was lowest in the females in the 21-30 years age group (i.e. 60%) due to occurrence of common gynaecological problems in young women<sup>4</sup>.

The occurrence was found to be commonest in the age group 10-19 years i.e. 38.40 % of total patients, confirming the etiological factor of lymphoid hyperplasia leading to obstruction of the lumen of the appendix.

In the diagnostic aids a neutrophilia of more than 75 % was noted in 58.9 % of the patients suffering from acute appendicitis as compared to a figure of 78 % noted by some other workers.

Acute appendicitis which was thought to be more common in the western races, is a common surgical problem in our country as well, due to changing pattern of life.

The diagnostic accuracy can be improved by other diagnostic tools in doubtful cases according to circumstances.

Abdominal and pelvic ultrasound examination is a useful diagnostic tool in diagnosis of acute appendicitis and diagnostic accuracy is claimed to be about 90% and is also of value in excluding tubal and ovarian disease if suspected<sup>8,9</sup>.

Appendiceal CT will produce more precise information and its accuracy rates is in excess of 95 %. It should be used in doubtful cases as there is exposure to high doses of radiations<sup>12</sup>.

A Barium enema will show non entry of dye into the lumen, or if it enters it will show

**DIAGNOSIS OTHER THAN ACUTE APPENDICITIS IN 24 PATIENTS.**

Diagnosis	No. of Patients
<b>DISORDERS NOT REQUIRING IMMEDIATE SURGERY</b>	
No cause for symptoms	16
Mesenteric Adenitis	5
Post Diarrhoeal Distension	1
<b>DISORDERS REQUIRING IMMEDIATE SURGERY</b>	
Meckel's Diverticulitis	1
Ruptured Ectopic	1
Total :	24

TABLE-2

cut off of the lumen instead of the tapering in a normal tip. 10% of the appendices may not show up in normal subjects. But when the investigation is used only in doubtful cases the sensitivity is claimed to be 90-100% and specificity of 75-98%<sup>7</sup>.

Laparoscopy is another method, which when used in doubtful cases according to indications can reduce the negative laparotomy rate to 1%<sup>11</sup> and it is also helpful to exclude other causes like salphangitis, ruptured follicular cyst etc<sup>16</sup>. It has disadvantage of being expensive, requiring expertise and having very limited availability. Previous operations, obesity and distension are generally thought to be the contraindications. Added to these are the inability to visualize the entire length of the appendix in some of the patients and a normal appendix sometimes appearing as inflamed at laparoscopy.

It has the advantage of being able to confirm other pathologies and being able to deal with them at the same time. So when available it is an excellent way of dealing with difficult cases.

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