

## Familial Tendency in Acute Appendicitis: Clinical observations

### Authors:

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### ABSTRACT:

**Background:** appendectomy is the most frequently performed urgent abdominal operation and is often the first surgical procedure performed by a surgeon during his training practice. **Objectives of the study:** To evaluate the extent of familial tendency among first degree relatives of patients with acute appendicitis. **Methods:** A prospective study was carried by a single surgical team in Al-Kindy teaching hospital during a period of two years from the 1st of January 2022 to 1st of January 2023. Three hundred patients, subjected to emergency appendectomy were included in this study. Data were collected from the patients or their relatives by a questionnaire. **Results:** The collected data of the study showed that out of (300) patients have positive family history, (66.4) of the patients have one family member affected, mainly affecting adolescent age group 143.8%). Out of patients with P\_E.H. of AA. (47%) of them had their brothers affected with A, A., (34.8%) their sister's. (16.7%) their father's, (14.8%) their mothers, and (31.5 for both fathers and mothers. Acute focal infection was the most common type of infection among male and female (61 the study also shows that there were Only 21 patients (13.5%) with intraluminal obstruction. 17 (80.9%) of them because of fecoliths obstruction, as a major cause. **Conclusion:** According to our study, there is a high index of suspicion that F. T. plays a major role as an etiological factor in developing acute appendicitis, one can recognize that this critical subject needs to subjected to further clinical trials.

**Keywords:** Appendicitis, Familial tendency

### INTRODUCTION:

Acute appendicitis is the most common cause of acute abdomen in childhood following gastroenteritis (1). The true incidence of appendicitis is not known, but the annual rate of appendectomy is about 4 in every 1000 children under the age of 14 years 121 (2). becomes progressively more common after infancy Peak incidence occurs in teens and young adults; frequency of occurrence is greatest in the spring and fall A male predominance exists, with a male to female ratio of 1.5:1, the overall life time risk is 8.6% for males and 6.7% for females in the United States (3). The diagnosis of A\_A. is predominantly a clinical one, many patients present with atypical history and examination findings. Diagnosis in children is difficult, with atypical clinical symptoms mimicking a number of other disease entities. Main differential diagnoses include irritable bowel syndrome (4), gastroenteritis which may imply unjustified use of antibiotics and the consequences of antibiotic resistance (5, 6). Other conditions include thalassemia intermedia which is relatively common in the Mediterranean (7). Appendectomy is the treatment of choice and is increasingly done as laparoscopic procedure. In term of genetics, appendicitis has been found to show a familial

tendency Up to one third of children with A.A. have a first degree relative with a similar history (8). Acute appendicitis in monozygotic twins had been reported in many literatures, five of such cases with simultaneous acute appendicitis in twins were reported, which might raise the question is it a coincidence or genetic. Other literatures showed familial tendency of acute appendicitis and claimed that there is some degree of inheritance with evidence of polygenic transmission (9). Our study tries to evaluate the extent of familial tendency of acute appendicitis, and whether it's a coincidental finding due to the popularity of the disease or there is a true genetic predisposition for it.

### MATERIALS AND METHODS:

In a prospective study done at Al-Kindy teaching hospital during two years period between the 1st of January 2022 to the 1st of January 2023, three hundred patients with clinical diagnosis of acute appendicitis admitted and operated upon by conventional appendectomy through right gridiron incision or laparotomy were included in this study. By using a special formula designed by the investigator and approved by the supervisor, which include questionnaire items and medical records, data

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were obtained from the patients or their relatives. Some concentration had been Offered to family history to elicit the number of first-degree relatives who had developed appendicitis previously [Table.1]. Patient's relative groups with P.F.H. of A.A. were also reviewed to show which of the first-degree relatives were mostly affected [Table.2]. The patients were divided into groups according to decades of life [Table.3]. Types of appendicular infection and causes of luminal obstruction were also reviewed and categorized according to age groups and sex [Tables 4,5,6, and 7]. Statistical analysis: descriptive statistic rates and percentages.

### **RESULTS AND DISCUSSION:**

Out of 300 patients, 155 (51.6%) had P.F.H. of A.A. The study showed that among P.F.H. patients, high percentage goes to those with only one family member affected with

acute appendicitis (66.4%), while (21.9%) had two members affected, (7.2%) had three members and (4.5%) had more than three members (appendicular families) (Table.1). Regarding patients relative groups with P.F.H., 47% of them got their brothers affected, while 34.8% of them got their sisters affected, 16.7% for fathers, 14.8% for mothers and 31.5% for fathers and mothers [Table-2]. Sixty-eight patients (43.8%) of the positive family history patients were within the age group (10-19) years [Table. 3]. Acute focal infection constituted the most common type of infection among positive family history patients (61.2%) [Table 4]. In the P.F.H. group, males were affected more than females 94/ 61 patients and its equal to 1.5:1 [Table 5]. Twenty-one (32.5%) of patients with P.F.H. have obstructed appendiceal lumen of which 17 patients (80.9%) had fecoliths as the cause of obstruction [Tables 6,7].

**Table 1:** number of relatives affected with acute appendicitis

Number of family member affected with A.A.	Number of positive family history patients	%
1	103	66.4%
2	34	21.9%
3	11	7.2%
4	4	2.6%
5	3	1.9%
Total	155	100%

**Table 2:** patients relative groups with positive history of acute appendicitis

Relative groups with positive history of acute appendicitis	Number	%
Brothers	73	47
Sisters	54	34.8
Fathers	26	16.7
Mothers	23	14.8
Fathers and mothers	49	31.5

**Table 3:** number of patients with positive family history according to age groups

age groups	Number	%
1-9 yrs	13	8.4%
10-19 yrs	68	43.8%
20-29 yrs	45	29.1%
30-39 yrs	19	12.3%
40 yrs and more	10	6.4%
Total	155	100%

**Table 4:** distribution of positive family history patients among age group and type of infection

Severity of infection	1-9 yrs	10-19 yrs	20-29 yrs	30-39 yrs	40 yrs and more	Total
Acute focal	12	40	27	13	5	95
Acute suppurative	0	13	9	3	2	27
Gangrenous	0	0	0	0	0	0
perforated	1	9	9	3	3	33
Total	13	45	45	19	10	155

Severity of infection	No. of female patients	%	No. of male patients	%
Acute focal	33	54.2	63	67
Acute suppurative perforated	11	18	15	16
	17	27.8	16	17
Total	61	100	94	100

Obstruction	Number of patients
Obstructed lumen	21
Non-obstructed lumen	134
Total	155

Causes of obstruction	Number of patients
fecolith	17
Foodstuff	1324
warms	1550
Others	2
Total	21

In this study: out of 155 patients with positive family history of acute appendicitis 81 patients (52.2%) are within the child age group (years) while 64 (41.2%) were reported in the adult age group (20-39 years) and 10 patients only were reported in the older age group (more than 40 years) [Table 3]. so, the disease has highest incidence at the child age group this might indicate that there is a genetic predisposition for the disease in the families of these patients.

The above result goes with the case control study done by Anderson N, Griffiths H, et al. in which it was found that positive family history for reported appendectomy cases in childhood and early adolescence was significantly more frequent in families of 80 patients proved to have acute appendicitis done in families of surgical controls (10). Basta et al. also showed in a retrospective analysis of the families of 80 patients with acute appendicitis, that there is familial aggregation and polygenic transmission when compared to similar control (11).

Anderson N, Griffiths H, et al. Also found in a prospective study on 29 children diagnosed as acute appendicitis that a familial to appendicitis might be suggested since 20 out of 29 children had positive family history of appendicitis in first degree relatives.

Regarding patients relative groups with positive family history of acute appendicitis. the study showed that the number of brothers with positive family history was 73 which constitute about (47% ) of cases while in 54 cases

(34.8 the sisters were involved by the disease , fathers were affected in (16.7%) of cases and mothers in (14.8%) of cases [Table 2], this might show that there is a genetic factor which make the sons and the daughters more prone to develop acute appendicitis as positive family history is nearly double the history found in fathers or mothers and if we add the percentage of positive family history found in fathers and mothers together it will be nearly the same as that for daughters or sons.

**CONCLUSION:**

From this study it can be concluded: Positive family history in patients with acute abdominal pain might rise high index of suspicion to the diagnosis of acute appendicitis, and it seems that some degree of inheritance might be present with different genetic penetrance.

**CONFLICT OF INTEREST:**

There is no conflict of interest.

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