ACUTE APPENDICITIS: MOST COMMON CLINICAL PRESENTATION AND CAUSATIVE MICROORGANISM

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ABSTRACT

Objective: To determine the most common clinical presentation and causative microorganism for acute appendicitis.

Study Design: Descriptive.

Place and duration of study: Department of Surgery, Combined Military Hospital Multan, from June 2002 to May 2004.

Patients and Methods: Clinical features of all the patients, older than 5 years of age diagnosed with acute appendicitis were recorded. Patients presented with other pathology which mimic acute appendicitis were excluded from the study. Surgery was done under general anaesthesia. Appendices of all the patient as well as pus swabs from abdominal cavity were sent to the laboratory for histopathology and microbiological cultures to confirm the diagnoses of acute appendicitis and causative organism.

Results: The mean age of 75 subjects was 32.56 ± 11.93 years. The most common symptom was pain in right iliac fossa (80 % cases) and the most common physical sign was tenderness (92% cases). Some of the patients(9.3%) had a histologically normal appendix. Maximum isolates on culture were E. coli.

Conclusion: The most common presentation of acute appendicitis was pain in right iliac fossa while the most sensitive sign was tenderness. Proper history and sharp clinical examination is the key to diagnosis. The most frequent organism of appendicitis was Escherichia Coli.

Key Words: Acute Appendicitis, Clinical Presentation, Microorganisms.

INTRODUCTION

Despite being a commonly encountered problem in emergency receptions, acute appendicitis is often quite difficult to diagnose accurately[1]. Up to as many as 30% of patients with appendicitis are misdiagnosed and discharged by a doctor before being correctly identified later on[2]. Misdiagnosis leads to an increased agony for the patient. Moreover, a delay in definitive treatment carries an increased risk of perforation besides other complications, which otherwise may be seen in up to 20% cases[3]. This rate is even higher in the elderly and is associated with a 20 fold increase in mortality[4]. On the other hand, unnecessary surgery for patients not actually having appendicitis has its own inherent risks and complications besides having financial implications. Around 20-25% of patients undergoing appendectomy actually do not have the disease[5].

It is thus very important to accurately diagnose the condition. This is essentially a clinical judgement and experience comes with time. The world over, emergency receptions are being manned by junior doctors, who are obviously lacking in experience. They are thus more likely to err. We carried out this study to find out the common clinical presentations and causative microorganisms in ourpatient population. The findings would create awareness amongst our doctors, who would be able to diagnose acute appendicitis more confidently.

MATERIAL AND METHODS

This descriptive study was conducted at Department of Surgery, Combined Military Hospital Multan from June 2002 to May 2004. All patients with acute appendicitis (diagnosed solely on clinical grounds)who reported to the hospital were operated after obtaining informed written consent. Patients presented with pathology which mimics acute appendicitis and

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children younger than 5 years of age were excluded due to difficulty in eliciting physical signs. Demographic data was collected and the presence or absence of following clinical features were noted down:

Symptoms:

a) Pain right iliac fossa
b) Pain right iliac fossa and hypogastrium
c) Pain right iliac fossa and umbilical region
d) Nausea/ Vomiting
e) Anorexia

Signs:

a) Fever
b) Tenderness right iliac fossa
c) Rebound tenderness
d) Generalized tenderness
e) Guarding/Rigidity
f) Obturator test
g) Psoas Test
h) Bald wing sign
i) Cough sign
j) Rovsing's sign

Appendicectomies were performed under general anesthesia using the standard technique. The resected specimens were divided into two parts: one was fixed in 10 ml 10% formalin and the other was placed in 10 ml normal saline. In cases where pus was seen in the peritoneal cavity or in the lumen of appendix, swabs were collected. The first sample was sent for histopathological examination whereas the other two samples were sent to the laboratory for cultures. Aerobic and anaerobic cultures were incubated at 37^0C for 48 hours; after 48 hours gram positive and gram negative microorganisms were identified using gram stain while gram negative bacilli were identified using Api 20E. Data had been analyzed using SPSS version 10. Descriptive statistics were used to describe the data.

RESULTS

A total of 75 cases, including 57% males and 42% females, having a mean age of 32.56± 11.93 years, were included in the study. As shown in table 1, the most common symptom was pain in right iliac fossa, present in 80% cases. The most common physical sign was tenderness, seen in 92% cases. White cell count was significantly raised in 57.3% patients. Our clinical assessment was correct in 90.7% cases, as only 9.3% patients had a histologically normal appendix. Results of histopathological examination are summarized in Fig1. E. coli was the most common microorganism isolated. The culture results are shown in Fig 2.

Table:- Frequency of clinical features present (n=75)

S. No	Clinical feature	Frequency %
1	Pain in right iliac fossa	80.0
2	Pain in right iliac fossa and umbilical region	13.3
3	Pain in right iliac fossa and hypogastrium	5.3
4	Pain in right iliac fossa and right hypochondrium	1.3
5	Nausea and vomiting	46.6
6	Anorexia	61.3
7	Fever	58.7
8	Tenderness in right iliac fossa	92
9	Rebound tenderness in right iliac fossa	84
10	Generalized tenderness	0
11	Guarding/Rigidity	54.7
12	Obturator test	29.3
13	Psoas Test	30.7
14	Bald wing sign	85.3
15	Cough sign	76
16	Rovsing's sign	41.3

DISCUSSION

Evaluation of acute pain in right iliac fossa is a challenging clinical problem. Acute

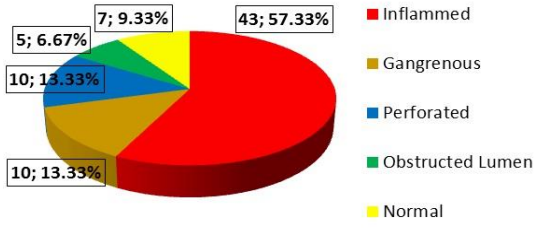

Fig.1: Histological findings of the patients (n=75).

appendicitis is one cause. Due to wide variation in pathophysiology and etiology of the disease as well as the variations in position of the appendix, only 50% of the patients have a classical presentation[6]. Diagnosis is particularly difficult in very young, obese, elderly and in pregnant patients. The main concern resulting from delay in diagnosis is perforation, which increases both the morbidity and mortality. On the other hand, unnecessary appendicectomy is also not always free from complications like wound sepsis, pneumonia, adhesive intestinal obstruction and infertility[7]. Thus a confident history taking and physical examination skill is warranted in all such cases. Our clinical assessment was as good as reported by others in recent local literature[8]. Then, there are studies that report even higher rates of negative appendectomies e.g. 23.4% quoted by Aljaradi et al and 11.49% reported by Ahsan et al[9,10]. Possible explanations for our high rates of correct diagnosis include the use of well-established protocols in our department, emphasis on the use of scoring systems especially modified Alvarado score and continuing medical education. Nevertheless, there is still room for improvement and carrying out this study is one step towards achieving our goals.

The symptoms and modes of presentation can always vary between different patient populations. However, our results are comparable to many other national studies. In our study, the most common complaint was pain right iliac fossa, similar to a study published by Soomro et al in 2008[11]. Zyluk et al also described right iliac fossa pain as the commonest symptoms of acute appendicitis in a Polish population[12]. Similarly, the proportion of patients with anorexia, nausea and vomiting was almost similar to that reported in other studies[13]. On examination, rebound tenderness was less commonly elicited than localized tenderness. This is because initially the patients with acute appendicitis develop tenderness only. With the passage of time, rebound tenderness starts developing as the visceral peritoneum begins to get inflamed. It is possible that some patients get examined before the visceral peritoneum gets inflamed and thus rebound tenderness cannot be elicited in them. Chang et al have also documented a lower frequency of rebound tenderness as compared to tenderness[14]. Similarly, the clinical signs from serial no 12 to 16 mentioned in table 1 were present in only a limited number of patients because they are dependent on the position of the appendix. Interestingly, because of the well validated and established protocols being used in our department, the negative appendicectomy rate was very low. A South African study described a negative appendicectomy rate of 17%, which is nearly double that of ours[15].

Fig.2: Microorganisms cultured of all the patients (n=75)

Our study is limited by the fact that we did not record data on drug sensitivity testing of the microorganisms cultured. Including a larger number of patients would also have been beneficial in terms of making the percentages more accurate, but unfortunately only this number of patients we received in two years.

CONCLUSION

Meticulous history and clinical examination is the key to accurately diagnose acute appendicitis. Pain in right iliac fossa and tenderness are the most common features Antibiotics used for treatment must be effective against E. coli and anaerobes.

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