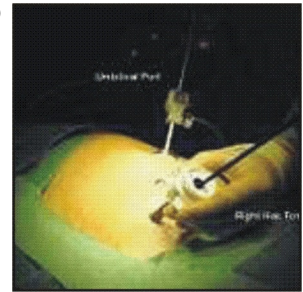


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NEGATIVE APPENDICECTOMY; ITS PREVALENCE , AN EXPERIENCE.



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ABSTRACT ... chowhan04@yahoo.com **Objective:** To find out the rate of normal appendix in patients operated for clinically, diagnosed acute appendicitis. **Design:** Prospective study. **Place and duration of study:** Department of Surgery, Combined Military Hospital, Rawalpindi from 17 Feb 2001 to 08 Aug 2001. **Patients and methods:** One hundred consecutive patients of acute appendicitis diagnosed clinically were included in the study. All cases of appendicitis were operated within twenty-four hours of admission. All appendicectomies were sent for histopathological confirmation of diagnosis at Armed Forces Institute of Pathology Rawalpindi. **Results:** The mean age for patients was 30.6 year. Pain started in right iliac fossa in forty eight patients (48%), Paraumbilical in thirty eight patients (38%), in epigastrium in thirteen patients (13%) and right lumbar region in one patient (1%). Right iliac fossa tenderness was present in all hundred cases (100%) and rebound tenderness was present in seventy patients (70%). Temperature was normal in thirty-nine patients (39%) and raised in sixty-one patients (61%). Total Leucocyte Count more than 11000/cmm was found in sixty-six patients (66%). Appendicectomy was done in all cases and histopathology revealed seventy-nine inflamed appendices (79%) and twenty-one (21%) normal appendices. **Conclusion:** History and clinical examination is still the most reliable method in the diagnosis of acute appendicitis to reduce incidence of negative appendicectomy. However ultrasound and diagnostic laparoscopy are especially helpful to exclude acute appendicitis in women of childbearing age to avoid negative appendicectomy.

Key Words: Normal appendix. Appendicectomy. Inflamed appendix.

INTRODUCTION

Acute appendicitis is caused by inflammation of vermiform appendix. It is the most common disease of appendix. It is more common in males and rare under five years of age. It is also uncommon in third world countries and rural areas where high fibre diet is

consumed². The exact aetiology of acute appendicitis is unknown but it is common in young adolescent and teenagers in second decade of life. It is uncommon at extremes of age but no age is exempted². Acute appendicitis is the most common acute abdominal emergency requiring urgent operation. Approximately 1%

of surgical procedures performed in USA are appendicectomies. The aim of urgent surgery is removal of inflamed appendix to prevent its perforation³. Surgeons often face difficulty in diagnosing acute appendicitis and frequently appendices removed are reported histopathologically normal⁴.

It must be remembered that diagnosis of acute appendicitis is mostly clinical. Investigations like ultrasound, CT scan and Laparoscopy are advised in doubtful cases to supplement the clinical diagnosis⁶. The morbidity and mortality associated with delays in diagnosis dictates that appendicectomies should be done early on basis of clinical suspicion⁵. However, there are other clinical syndromes, especially in women of 15 – 25 years age group, which mimic acute appendicitis to such an extent that incidence of unnecessary appendicectomies may raise up-to unacceptable levels⁶.

Due to these reasons, it is necessary to accurately diagnose acute appendicitis before surgery. It is considered acceptable to remove 5% to 25 % normal appendices as a safeguard against under-diagnosing potentially lethal condition³. In order to determine the rate of negative appendicectomies in our population, a prospective subjective study was carried out at CMH Rawalpindi from 17 February 2001 to 08 Aug 2001.

MATERIALS & METHODS

This was a prospective study carried out between 17 Feb 2001 to 08 Aug 2001 at Department of Surgery Combined Military Hospital Rawalpindi. A total of one hundred consecutive cases, diagnosed clinically to be suffering from acute appendicitis, were included in the study. All military and civilian patients were included in this study. All the patients were more than 12 yrs of age. Patients below 12 years of age were excluded from the study. The patient's biodata was recorded on a custom-made data sheet. The diagnosis was made clinically on the basis of history, epigastric or right iliac fossa pain and clinical findings of tenderness or rebound tenderness in right iliac fossa, Rovsing's sign, Psoas sign, and obturator sign.

Baseline investigations like Blood CP, Urine RE were carried out for all patients. ECG and Chest x-ray were done for patients more than forty year for general anaesthesia assessment. Informed written consent for operation was taken from all patients before surgery. Pre- anaesthesia assessment for operation was done for all patients. Three doses of peri-operative antibiotics (flagyl and cefuroxime) were given to all patients. Operative field was shaved and prepared with betadine solution for 3 to 5 minutes. All appendicectomies were done through standard grid-iron incision. Postoperative complications were recorded in all patients. All appendicectomies were sent to Armed Forces Institute of Pathology Rawalpindi in 4 % formalin solution in a plastic jar for histopathological examination.

RESULTS

Between 17 Feb 2001 to 08 Aug 2001 a total of one hundred consecutive cases with the clinical diagnosis of acute appendicitis were admitted to the surgical department of Combined Military Hospital Rawalpindi. All the hundred cases were emergency admissions. Out of one hundred patients seventy-eight (78%) were male patients and twenty-two (22%) female patients. The male to female ratio was 3.5:1. The age of patients ranged from 13 to 75 years and majority of patients were between the ages of 24 to 38 years. The mean age for male patients was 30.56 year. Detailed age and sex distribution of patients is given in Table I.

Pain was paraumbilical in thirty-eight patients (38%), epigastric in thirteen patients (13%), right iliac fossa in forty eight patients (48%) and right lumbar in one patient (1%). Shifting of pain to right iliac fossa was present in fifty-two patients (52%). Detailed distribution of pain in patients is shown in Table II. Burning micturition was present in seven (7%) patients and constipation was present in nine (9%) patients. Loose motions were present in three (3%) patients. Anorexia, nausea and vomiting were present in eighty (80%) patients. Normal temperature was present in thirty-nine patients (39%) and raised temperature was seen in sixty- one (61%) patients.

Table No I: Age and Sex Distribution of Patients (n=100)

Age (Years)	No. of female patients	% age	No. of male patients	% age	Total No. of patients	% age
13-20	07	31.8%	17	21.7%	24	24%
21-30	09	40.%	29	37.1%	38	38%
31-40	03	3.6%	20	25.6%	23	23%
41-50	00	00%	09	11.5%	09	09%
51-60	02	09%	00	00%	02	02%
61-70	00	00%	02	2.5%	02	02%
71-80	01	4.5%	01	1.28%	02	02%
Total	22	22%	78	78%	100	100%

Table No: II Distribution of Pain in Patients (n=100)

Site of pain	No. of patients with normal appendix	No. of patients with inflamed appendix	% age
Para umbilical	08	30	38%
Epigastrium	03	10	13%
Right Iliac Fossa	10	38	48%
Right Lumber	00	01	1%
Shifting of pain to RIF	11	41	52%

On abdominal examination right iliac fossa tenderness was present in all patients (100%) and rebound tenderness was seen in seventy (70%) patients.

Total leukocyte count more than 11000/cmm were present in sixty-six patients (66%) and less than 11000/cmm in thirty four patients (34%). Urinalysis showed hematuria in two patients (2%) and pyuria in three patients (3%).

There was no significant difference in the history and clinical findings of patients with inflamed appendix and normal appendix. Similarly no considerable difference was noted in the right iliac fossa tenderness and rebound tenderness in both groups of patients.

Total Leucocyte count was also found poor index in differentiating between inflamed and normal appendix. At operation on naked eye examination out of 100 cases appendix was normal in twenty-five (25%) patients and inflamed in seventy-five patients (75%). In four cases (4%) appendix was looking gangrenous on naked eye examination. There was no perforation in this study.

Majority of patients were discharged on 3rd postoperative day. Skin stitches were removed on 7th post-operative day. The postoperative fever occurred in twenty patients and wound infection in two patients who were managed by antipyretics and simple dressing. The mean hospital stay was three days. On histopathology out of the 100 cases appendix was normal in twenty-one

(21%) patients and inflamed in seventy-nine (79%) patients as shown in Table IV.

Tenderness	No. of patients with normal appendix	No. of patients with inflamed appendix	% age
Tenderness in right iliac fossa	21	79	100%
Rebound tenderness in right iliac fossa	15	55	70%

Histopathology	No. of patients	% age
Inflamed Appendix	79	79%
Normal Appendix	21	21%

DISCUSSION

Appendicectomy is the commonest acute abdominal operation in emergency surgery. The main aim of clinical process is to make a correct diagnosis of acute appendicitis with maximum economy of resources³ However; the management of acute appendicitis remains a difficult clinical problem because differential diagnosis in such patients is not always straightforward. The main concern relates to delay in diagnosis of appendicitis with consequent risks of gangrene, perforation, abscess formation and increased morbidity⁸ Debate has occurred for many years on acceptable rate of negative appendicectomy resulting from inaccurate diagnosis of acute appendicitis. Most studies report a low complication rate after negative appendicectomy as compared to conservative treatment of acute appendicitis⁹. In recent years much attention has been devoted to development of novel diagnostic techniques such as C-reactive protein (CRP), graded compression ultrasonography, computed tomography, and laparoscopy to increase accuracy in diagnosis of acute

appendicitis¹⁰. However these techniques has not got wide acceptance in the routine diagnostic armamentarium of acute appendicitis due to additional cost and lack of free availability. Despite advances in diagnostic modalities, diagnosis of appendicitis still remains clinical based on history and clinical examination of patient¹¹. The decision of appendicectomy in appendicitis is normally based on clinical assessment and acceptable rate of negative appendicectomy varies with hospital settings. In peripheral hospitals with limited diagnostic facilities the decision should be toward early exploration to prevent perforation and negative appendicectomy rate may reach up to 40%. While in hospitals in big cities with full diagnostic facilities, effort should be made to make an accurate diagnosis before surgery and rate of negative appendicectomy should be minimum.

In a retrospective study Khan et al has reported negative appendicectomy in 25% of cases operated for acute appendicitis³ Alexander¹² and Richardson¹³ have reported a negative appendicectomy in 25% and 42% cases respectively. Berends et al¹⁴ have reported 20% negative appendicectomy rate in patients operated for acute appendicitis. Ohman et al¹⁵, Fenoyo et al¹⁶, and Alvarez et al¹⁷ have reported 21%, 17.5%, and 14.8% negative appendicectomy in patients operated for acute appendicitis respectively. Ijaz et al² has reported a negative appendicectomy in 16% of cases operated for appendicitis. Sheikh et al¹⁸ has reported 10% and Abbasi and Shah¹ has reported 8% negative appendicectomy in cases operated for appendicitis. Gilmore¹⁹ has reported 20% normal appendicectomy in patients operated for appendicitis in Europe. In a local study Bhopal²⁰ has reported 14% negative appendicectomy rate in cases operated for appendicitis. Noorani and Sheikh²¹ and Ghumro et al²² has reported negative appendicectomy in 5% and 8.5% patients operated for appendicitis respectively. Lucian et al²³ has reported 25% negative appendicectomy in patients operated for appendicitis from Britain. In this study conducted at CMH Rawalpindi, the rate of negative appendicectomy was 21% in patients operated for appendicitis. The results of this study are encouraging and conform to local and international

literature. It is recommended that further local studies should be conducted to identify the rate of negative appendectomy in Pakistan.

CONCLUSION

History and clinical examination is still the most reliable method in the diagnosis of acute appendicitis to reduce incidence of negative appendectomy. However ultrasound and diagnostic laparoscopy are especially helpful to exclude acute appendicitis in women of childbearing age to avoid negative appendectomy.

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