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TOTAL AND DIFFERENTIAL LEUCOCYTE COUNT (TLC AND DLC) IN CASES OF ACUTE APPENDICITIS.
A study of 200 cases at Chandka Medical College Hospital Larkana.

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ABSTRACT

OBJECT: *To find out the role of total and differential leucocyte count (TLC and DLC) in the diagnosis of acute appendicitis.*
STUDY DESIGN: *Descriptive case series.*
PLACE & DURATION: *Department of Surgery Chandka Medical CoUege Hospital Larkana from August 2007 to 31 July 2008. One year study.*
MATERIAL & METHOD. *A total 200 patients of different age groups and both genders were included in this study. These patients were admitted through emergency department and were diagnosed as case of acute appendicitis on the basis of history, clinical examination, lab investigations and ultrasound. Total and differential leucoyte count was recorded in each case and 10,000/mm^3 was taken as upper normal limit. DLC was attributed to neutrophil leucocyte count with 75% taken as upper normal limit. Conventional appendicectomy was carried out in all patients and diagnosis confirmed on histopathology. Patient having appendicular mass and appendicular abcess were excluded from the study. Data analysis carried out by using SPSS version 13.0.*
RESULTS: *Out of 200 patients, 152 were males and 48 were females with male to female ratio was 3.1: 1. The age ranges from 08 to 70 years with mean age of 26 years ± 11.954. The incidence of acute appendicitis was maximum 75% in 2nd & 3rd decade of life. Most frequent symptom was pain in the right iliac fossa, while tenderness in right iliac fossa was commonest physical sign. T.L.C was> 10000/mm^3 in 80% of patients and < 10000/mm^3 in 20% patients. Neutophill count was> 75% in 73% and < 75% in 27% of patients. The negative appendicectomies were 10% with male to female ratio 1 :2.3.*
CONCLUSION: *The combination of simple laboratory investigations, TLC and DLC along with thorough physical examination is essential for diagnosis of acute appendicitis.*

KEY WORDS : Acute appendicitis total lecuocyte count, differential leuococyte count, appendicectomy.

INTRODUCTION

Acute appendicitis is the most common cause of acute abdomen in young adults[1]. Approximately 6% of population will suffer from acute appendicitis during their life time[2], with the peak incidence occurring between 10-30 years.

Despite technologic advances, diagnosis is still based on accurate history and clinical examination[3]. The mortality rate in non perforated appendicitis is less than 1 % but as high as 5% in perforated appendicitis where diagnosis is delayed.

If the patient's history and physical examination do not clarify the diagnosis, laboratory and radiological evaluations may be helpful.

The majority of patients with acute appendicitis in which leucocytes count is more than 14000/mm^3 is suggestive of appendicitis[4]•

Presence of an increased WBC count or neutrophillia has high sensitivity 79% and the presence of both has highest specificity 94%[7].

For any patient in whom the diagnosis of acute appendicitis is doubtful it is worth to repeat the WBC count. A falling white cell count is suggestive of non specific abdominal

pain[4] With normal total and differential count, the diagnosis of acute appendicitis is in question though not ruled out[5].
Diagnostic accuracy is increased when the value of TLC and neutrophill count is combined with clinical Examination.
Early appendicectomy is traditionally considered the treatment of choice either laparoscopic or open. The aim of this study is to determine the role of TLC and DLC in diagnosis of acute appendicitis is helping in making proper diagnosis and decision for surgery.

PATIENTS AND METHODS:
Descriptive case series study was conducted at surgical department Chandka Medical College Hospital Larkana. 200 patients who presented with acute abdomen were admitted in the department of surgery through emergency, patients diagnosed as acute appendicitis were included in the study. While patients having appendicular mass and appendicular abscess were excluded from the study.
Detailed history, clinical Examination and investigations including complete blood count, blood sugar, urine DR and ultrasound abdomen were done.
Especially designed Proforma was filled for each patient. The procedure was explained to the patients and informed consent was taken.
All the patients were operated laparoscopic /open method, operative findings were noted and specimen of appendix were sent for histopathology examination. Data was analyzed on SPSS version 13.0 mean ±-SD were calculated for age of patients.

RESULTS:
Out of 200 patients 152 were males and 48 were females, male female ratio was 3.1: 1. The age ranged from 08 to 70 year with mean age of 26 years ± 11.954. The incidence of acute appendicitis was maximum 75% in 2nd and 3rd decade of life. Table – I. The symptoms & signs are in table – II
The total leucocyte count ranged from 5100 to 16000 /cmm (mean 11151/cmm),TLC count 10,000/mm3 taken as upper normal limit. It was > 10000/cumm in 160 patients 80%, out of which 152 patients had inflamed perforated and gangrenous appendix.
< 10000/mm3 in 40 patients 20% out of which 12 patient had normal appendix. The differential count that is neutrophill count was >75% in 148 patients (74%), < 75%, 52 patients (26%) .
The ultrasound findings were normal in 28 patients(14%), inflamed appendix was found in 162 patients(81 %) and distended bowel loops in lower abdomen in 10 patients(5%). Peroperatively the position of appendix was retrocaecal in 174 patients (87%), paracaecal in 14 patients (7%), post ilieal in 8 patients(4%) and pelvic in 4 patients(2%).
On naked eye examination appendix was found inflamed in 160 patients(80%), perforated in 16 patients(8%), gangrenous in 4 patients(2%) and normal in 20 patients(10%).
Histopathological report shows 20 specimen were found normal while 180 specimen were inflamed appendix.
The negative appendicectomy rate was 10%, out of which 14 were females and 6 were males with male female ratio of 1:2.3

TABLE-I
AGE DISTRIBUTION

Age in years	Total No of patients	Percentage
0 – 10	08	4%
11 – 20	64	32%
21 – 30	84	42%
31 – 40	22	11%
41 – 50	14	7%
51 – 60	04	2%
61 – 70	04	2%

TABLE II
SYMPTOMS & SIGNS

S. No.	Symptom & Sign	Total No of patients	Percentage
1	Pain right iliac fossa	200	100%
2	Shifting type of pain epigastrium to right iliac fossa	130	65%
3	Anorexia	200	100%
4	Nausea & Vomiting	140	70%
5	Fever	134	67%
6	Tender right iliac fossa with rebound tenderness	150	75%

DISCUSSION:
Appendicitis is the most common cause of acute abdomen requiring surgery. Prompt diagnosis and early surgical referral is necessary, delayed diagnosis may lead to perforation and increased mortality. A high diagnosis accuracy is required as negative appendicectomy carries significant morbidity from wound sepsis, intestinal obstruction and infertility from fimbrial damage in females after laparotomy.
Appendicitis is common in younger age group, though it can occur in any age. In our study mean age is 26 years (8-70 years) with maximum number 75% in second and third decade. which is comparable with the study of Jamal s, Amin M, et all[6] and Bresciani C, perez RO, Habr-Gama A, et al[7]. In an other study highest no: of cases were seen between 10 and 30 years [8].
Incident of acute appendicitis is variable in both sexes. In our study male female ratio is 3.1: 1, which is equal with the study of Jamals, Amin M et all[6]. and also Mohebetti T and coworkers[9] but variable in series of 190 patients 57% females and 43% males by the study of gaitini D, Beck RAZI N et all [10].
Clinical evaluation is of paramount importance in management of patient with suspected acute appendicitis[11]. Pain right iliac fossa is common symptoms (100%) in our study while shifting pain from epigastrium to right iliac fossa is in 65%, while (48%) of patients with shifting pain is present in the study of GuIzar S, Umar S, DarGM et al[12] Anorexia is present in all our patients, while it is 83% in the study of salari AK, Binesh F et al [13].
Nausea & Vomiting is 70% which is comparable with the study of Guizar S, Umar S et al[12]. Tenderness in right iiliac fossa with rebound tenderness is 75% in our patients,while comparable with the study of Richardson E, Paulsan CP et al [14] reported 70 to 77% rebound tenderness.

In most cases Presentation of patients are not typical, other condition mimic with acute appendicitis[15]. That's why certain investigations are required; TLC and DLC especially neutrophills count are helpful in diagnosis and exclusion of acute appendicitis. In our study T.LC is raised above 10000/ mm3 in 80% patients which is comparable with series of 259 patients studied by wang LT, Prentiss KA [16], Mohebbi HA, Mehrvarz S[9], and Yang HR, Wang YC [17], TLC raised was 83%.

Neutrophillia of > 75% is present in 73% of patients. While with the study of Yang HR, Wang Yc [18] suggest that TLC and Neutrophill count is more supporting in diagnosis of acute appendicitis than in excluding the diagnosis.

Position of appendix is vary it is retrocaecal 87% in our study, while series of 160% patients by GULZAR S, Umar S , Dar GM[12] shows in 65% patients appendix was retrocaecal.

During observation on naked eye examination and histopathology report uncomplicated appendicitis is 80%, perforated 8%, and gangrenous 2%, while 10% appendix are normal which is comparable with the study of Bergeron, E et all [19]. Shows 75.8% uncomplicated, 12.3% perforated & gangrenous and normal appendix 8.1 %.

The negative appendicectomy rate is 10% in our study it is quite variable in different studies ranging from 8-30% [20 21] . Among 10% of normal appendix 7% females and 3% males which is same described by Khan MN et all [21]. Althoubaity FK [22] reported 27.2% negative appendicectomies in females while Chooi WK, Brown lA, et a1l[23] 34.3% that shows higher incidence of negative appendicectomies in females.

CONCLUSION

Diagnosis of acute appendicitis is essentially clinical supported by simple lab investigations like TLC & DLC especially Neutrophills count. Elevated levels ofTLC and Nelitrophill count are helpful in confirming a suspected diagnosis of acute appendicitis.

Appendicitis is very unlikely if the TLC and neutrophill counts are normal and Surgeon has to review his clinical diagnosis of acute appendicitis. The results of our study suggest that TLC and DLC can serve as an effective diagnostic tool in the management of acute appendicitis, though it does not help much in the exclusion of the diagnosis.

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