

To find out the effectiveness of ALVARADO scoring system by finding out negative groups through histopathology: A survey of patient data from a tertiary care hospital in Peshawar.

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Abstract: Being one of the most common emergencies, Appendicitis results in severe abdominal pain, making appendectomy a very common procedure. The hallmark for acute appendicitis is regarded to be Right iliac fossa pain. It is a very hard job and a difficult decision for a junior doctor (in particular) whether to go for surgery or not, relying on the ALVARADO score. Therefore we aimed to find out the effectiveness of the scoring system A prospective study involving 70 patients who presenting with the clinical picture of acute appendicitis, was conducted. Two groups were made and patients were assorted according to their score. Group-A Alvarado Score > 7 (39 patients) and Group-B Alvarado Score < 6 (31 patients). Study was carried out to analyze the histopathology of the appendix removed from of all patients admitted to the surgical ward of KHYBER TEACHING HOSPITAL, presenting with clinical signs/symptoms of acute appendicitis from March 2015 to June 2015. Out of the 39 patients with >7 score 37 had surgery and 36 were proved to have acute appendicitis. Of the 31 patients in group-B 12 had surgery later on where 8 patients proved to have appendicitis upon histopathology. ALVARADO scoring system is an effective tool which serves for the diagnosis of acute appendicitis, which can be of prime importance in making medical decision for the patients and its further management. A score above or equal to 7 is indicative of appendectomy..

Introduction.

Being one of the most common emergencies, Appendicitis results in severe abdominal pain, making appendectomy a very common procedure [1]. The hallmark for acute appendicitis is regarded to be Right iliac fossa pain. It is a very hard job and a difficult decision for a junior doctor (in particular) whether to go for surgery or not, relying on the ALVARADO score [3]. There can be a marked decrease in the mortality and morbidity due to acute appendicitis if a diagnosis is reached and established

on time [4]. A special attention in this regard is given to an effective history and physical exam for making the diagnosis [5]. Many scoring systems and methods for acute appendicitis have evolved [6] in recent times to reach the diagnosis effectively. Therefore we aimed to find out the effectiveness of the ALVARADO scoring system in the patients presenting with the clinical picture of acute appendicitis [7]. Being a medical emergency a quick response is needed which leads to a large no of negative appendectomies [8, 9, 10, 11]. Table 1 shows how the Alvarado score is charted [7] to which a few modifications were made years later by Kalan and his team [12].

• Migratory pain	1
• Anorexia	1
• Nausea/vomiting	1
• Tenderness	2
• Rebound tenderness	1
• Elevated temperature	1
• Leucocytosis	2
• Shift to the left	1
Total	10

Table 1 Alvarado score 1-4: Acute appendicitis (very unlikely), keep under observation. Score 5-6: Acute appendicitis (might be), observation. Score 7-8: Acute appendicitis (probable) operate. Score 9-10: Acute appendicitis (definite), operate.

Material & Methods.

A prospective study involving 70 patients who presenting with the clinical picture of acute appendicitis, was conducted, with patients ranging 20-55 years of age (Mean Age=27). Two groups were made and patients were assorted according to their score. Group-A Alvarado Score ≥ 7 (39 patients) and Group-B Alvarado Score ≤ 6 (31 patients). Study was carried out to analyze the

histopathology of the appendix removed from of all patients admitted to the surgical ward of KHYBER TEACHING HOSPITAL, presenting with clinical signs/symptoms of acute appendicitis from March 2015 to June 2015.

We started by formulating a questionnaire that was circulated among the designated groups of people. Convenient sampling technique is used. A 4 months long prospective study was carried out. 70 patients were included in the study, their ALVARADO score & HISTOPATHOLOGY were performed pre/post operation respectively and analyzed using SPSS (Statistical Package for the Social Sciences) 20

Results.

A total of 70 patients presented with clinical picture of acute appendicitis. The mean age of patients was 27. The males were affected more than the females. Two groups were made and patients were assorted according to their score. Group-A Alvarado Score > 7 (39 patients) and Group-B Alvarado Score < 6 (31 patients). (Figure 1). 37 out of the 39 patients in Group-A had surgery and of which 36 were proved to have acute appendicitis upon histopathology. 32 patients had a (+) U/S (Table 2). 7 patients with normal U/S of which 5 had surgery due to the reason that their symptoms worsen with time of the laboratory findings showed a raised WBC count upon redoing the blood tests.

Group-B (Alvarado score ≥ 6) 12 of the 31 had to undergo surgery later because the score raised or the conditions didn't get better. Upon U/S of the 12 undergoing surgery 9 were positive for acute appendicitis whereas 3 had a normal U/S. 8 were proved to have acute appendicitis upon histopathology, rest 19 had reassessment after every 6 to 8 hours and those with having some other diagnosis besides appendicitis are treated, in patients whose signs and symptoms improve are discharged. 39 patients ≥ 7 and 36 had appendicitis upon histopathology. Score ≤ 6 in 31 patients, 8 had appendicitis upon histopathology.

Accuracy: ≥ 7 is 92.3% (Alvarado) & 82.05% (U/S).

Accuracy: ≤ 6 is 25.8% (Alvarado) & 67% (U/S).

Character	Group A ≥ 7	Group B ≤ 6
AGE	21-51	20-50
MALE	22	20
FEMALE	17	11
U/S +	32	9
U/S -	7	3
HISTO +	36	8
HISTO -	1	4

Table 2 Patients according to Alvarado Score.

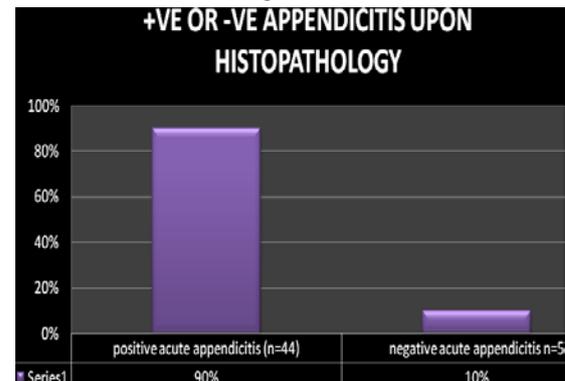


Fig. 1 showing the no. of positive and negative appendectomies reflecting positive or negative Acute Appendicitis upon performing histopathology.

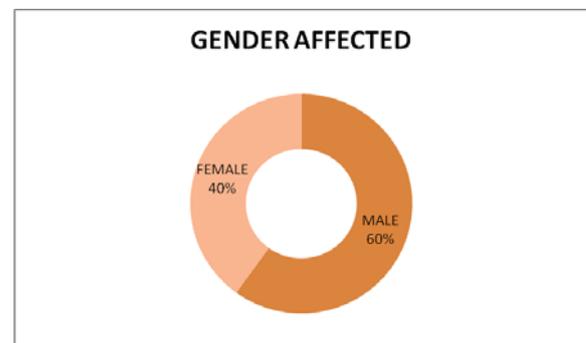


Fig. 2 showing the no. of males and females affected

Discussion.

Alvarado score ≥ 7 is indicative of acute appendicitis and calls for an appendectomy to be done on emergency basis. There are studies done showing the accuracy of the score to be 88%. Our study advocates an accuracy of 92.3% for Alvarado score ≥ 7 and only 8 patients were correctly diagnosed having the score ≤ 6 , which implies that the patients with a low score to be kept for observation and be regularly checked for the score and then a decision be made in light of the changing clinical picture. Therefore, Alvarado scoring system seems to be a very vital and important tool in making a clinical diagnosis of the patients presenting with a RIF pain and signs of acute appendicitis.

U/S carries no added advantage over Alvarado for patients having a clinical picture for appendicitis. Having said that, the Alvarado score wasn't helped by added information by the U/S for increasing diagnostic accuracy for low or negative scores. So, it can be rightly said that if clinically acute appendicitis

is suspected, there is relatively low or no need of U/S.

Conclusion.

ALVARADO scoring system is an effective tool which serves for the diagnosis of acute appendicitis, which can be of prime importance in making medical decision for the patients and its further management. A score above or equal to 7 is indicative of appendectomy (particularly in males). Presenting with a score 5-6, the patient should be kept for observation and frequently scored every now and then. 1-4 the patient is very unlikely to have acute appendicitis.

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