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" ALVARADO SCORE AND ITS DIAGNOSTIC ACCURACY IN ACUTE APPENDICITIS"

KEYWORDS

Acute Appendicitis, Alvarado Score, Accuracy.

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ABSTRACT ***BACKGROUND-****Acute Appendicitis is one of the commonest surgical emergency encountered in surgical practice and decision making is a diagnostic challenge till date. Many a times, the diagnosis is made by clinical examination and in few cases the diagnosis may be elusive inspite of using modern diagnosting tools , thus leading to a negative appendicectomy. The Alvarado score, which is based on a set of clinical and laboratory criteria, has therefore been developed to make the diagnosis of this condition easier and more accurate.*

OBJECTIVE- *The purpose of this study was to evaluate the diagnostic accuracy of the Alvarado scoring system in acute appendicitis.*

METHODS- *Study was conducted at Department of General Surgery, Apollo institute of medical sciences and research from September 2015 to November 2016.50 patients suspicious of acute appendicitis were admitted and they were evaluated on admission using the Alvarado scoring system to determine whether they had acute appendicitis or not. All patients underwent appendicectomy .The diagnosis was confirmed by histopathological examination.*

RESULTS and CONCLUSION- *Acute appendicitis was more common in age group 11 – 30.Acute appendicitis was more common in male patients. In our study, Modified Alvarado score of 1-4, 5-7 and 8-10 had the accuracy of 0% , 90% and 92.8% respectively. Higher the score, higher was the accuracy*

INTRODUCTION

Acute appendicitis has remained the most common acute surgical condition of the abdomen in all ages and of course, a common disease in surgical practice(1).Presentations of acute appendicitis can mimic variety of acute medical and surgical conditions. Early diagnosis is a primary goal to prevent morbidity and mortality in acute appendicitis(2).

Diagnostic scoring systems have been developed in an attempt to improve the diagnostic accuracy of acute appendicitis.The most prominent of those scores, developed by Alvarado, was based on a retrospective analysis of 305 patients with abdominal pain suspicious for appendicitis.

This scoring system gives points for symptoms (migration of pain, anorexia, and nausea), physical signs (right lower quadrant tenderness, rebound tenderness, and pyrexia), and laboratory values (leukocytosis and a left shift).

Alvarado Score for Diagnosis of Appendicitis

Variables	Clinical Features	Score
Symptoms	Migratory RIF Pain	1
	Anorexia	1
	Nausea/ Vomiting	1
Signs	Tenderness RIF	2
	Rebound Tenderness	1
	Elevated Temperature	1
Laboratory Values	Leucocytosis	2
	Shift to Left	1
Total Score		10

MATERIAL AND METHODOLOGY

Study was conducted at Department of General Surgery, Apollo institute of medical sciences and research from September 2015 to November 2016.50 Patients suspicious of acute appendicitis were admitted and their Alvarado score were calculated. Sum of all scores were calculated for each patient and based on the scores patients were divided into three groups.

Group A with an aggregate score of 8-10.Group B with an aggregate score of 5-7 Group C with an aggregate score of 1-4.

The main objective of this study was finding the predictability of Alvarado scoring in acute appendicitis. The definite diagnosis of acute appendicitis was based on postoperative histopathologic study.The diagnosis of acute appendicitis was made clinically and the decision for appendicectomy was taken by the surgeon, all the patients were scored using the Alvarado score.Subsequently, the score of each patient was correlated with the clinical, operative and histopathological findings.The Alvarado score was correlated with the gross and histopathological findings of the removed appendix.

RESULTS

Acute appendicitis was more common in age group 11 – 30(70%).Acute appendicitis was more common in male patients i.e. 64.00 %.Positive appendectomy rate is 88.00 % (n=44).Negative appendectomy rate is 12.00 % (n=6). 56.00% (n=28),of patients are in the score range of 8 to 10.40.00 % (n=20), of patients are in the score range of 5 to 7. 4.00 % (n=2), of patients are in the score range of 1 to 4.Acute Appendicitis in score range of 8 to 10 is present in 92.85 % (n=26).Acute Appendicitis in score range of 5 to 7 is present in 90.00% (n=18). Acute Appendicitis in score range of 1 to 4 is present in 0 %. In 88.00 % (n=44), of cases the appendix found to be inflammed in histo-pathology. In 12.00 % (n=6),of cases the appendix found to be non-inflammed in histopathology.In the Alvarado score range 8 to 10, histopathology was positive in 92.85 % (n=26), negative in 7.15 %(n=2). In the Alvarado score range 5 to 7, histopathology was positive in 90.00 % (n=18), negative in 10.00% (n=2). In the Alvarado score range 1 to 4, histopathology was positive in 0 %, negative in 100 % (n=2).

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Post-operative histopathological findings (N=50).

Findings	No of pts	
Acute appendicitis	Inflammation	27
	Suppurative	11
	Gangrenous	3
	Perforation	3
	Total	44
Normal appendix with other diagnosis	Ruptured ovarian cyst	2
	salpingitis	1
	No pathology found	3
	Total	6
Total	50	

In our study, Modified Alvarado score of 1-4, 5-7 and 8-10 had the accuracy of 0% , 90% and 92.8% respectively. Higher the score, higher was the accuracy

DISCUSSION

Result of this study shows that acute appendicitis was most common in the 11-30 years age group.Epidemiological studies have shown that appendicitis is more common in the 10-29 years of age group(3). Negative appendectomy rate is 12.00 %, For the entire modern era of surgery many surgeons opined that maximum 15-20% negative appendicectomy is acceptable(4).From this study it was found that higher the score, more of its accuracy . Patients with the Alvarado score ranges 8-10, 5-7 and 1-4 have the accuracy 92.8%, 90.0% and 0% respectively.

However, there are no signs, symptoms or laboratory tests that are completely reliable in the diagnosis of acute appendicitis. In our study Alvarado scoring system showed that the accuracy of the diagnosis was very dependable in higher scores but patients with lower scores should be under observation. The diagnostic score may be used as a guide to decide whether the patients need surgery or observation. Patients with score of 8 to 10 are almost certain to have appendicitis and they should undergo operation immediately. Patients with a score of 5 to 7 indicate high probability of appendicitis. They should be observed and evaluated further if the score remains the same or increases further. Patients with the score of 4 or less are very unlikely but not impossible to have appendicitis and they can be discharged from hospital after giving initial conservative treatment to report again if symptoms persist or condition becomes worse.

CONCLUSION

The present study revealed the following:

Alvarado score 8 and above is strongly suggestive of Acute Appendicitis. Alvarado score 5 to 7, highly suspicious of Acute Appendicitis. Alvarado score below 5 suggests that Acute Appendicitis can be more unlikely. The Alvarado score is noninvasive, safe, diagnostic method and it carries high significance in the diagnosis of acute appendicitis.

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