ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 68 . 16
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 5, Issue –3, June - 2020, Page No. : 278 - 280

Evaluation of Modified Alvarado Score in Diagnosis of Acute Appendicitis at Tertiary Care Hospital In Jaipur, Rajasthan

[1]Dr. Sadat Ullah Khan, Assistant Professor, Department of General Surgery, S M S Medical College, Jaipur, Rajasthan
[2]Dr. Fauzia Arif , Assistant Professor, Department of Paediatrics, Jaipur National University, Jaipur, Rajasthan
Corresponding Author: Dr. Fauzia Arif, Assistant professor, Department of Paediatrics, Jaipur National University, Jaipur, Rajasthan

Citation this Article: Dr. Sadat Ullah Khan, Dr. Fauzia Arif, "Evaluation of Modified Alvarado Score in Diagnosis of Acute Appendicitis at Tertiary Care Hospital in Jaipur, Rajasthan", IJMSIR- June - 2020, Vol – 5, Issue -3, P. No. 278 – 280.
Type of Publication: Original Research Article
Conflicts of Interest: Nil

Abstract

Background: Acute appendicitis is most common cause of pain abdomen. The diagnosis of which remain difficult in many cases.

Methods: A 100 consecutive patients suspected of acute appendicitis who were admitted in department of surgery, S M S medical college Jaipur, Rajasthan. They were prospectively evaluated using the modified Alvarado scoring (MAS) to determine whether or not they had acute appendicitis. The MAS was correlated with histopathological findings.

Results: 88 (true positive) patients who had MAS 7 or more had appendicitis on histopathology while no patients (false positive) had a normal appendix; 7 (false negative) patients with MAS less than 7 had appendicitis and 5(true negative) had a normal appendix removed. Modified Alvarado score of 7 and above had a positive predictive value of 100%. In this study 92.00% of the patients who were predicted to have appendicitis by a high score had confirmed appendicitis on histopathology.

Conclusion: This study shows that use of modified Alvarado scoring system in patients with acute appendicitis provides a high degree of diagnostic accuracy.

Keywords: Modified Alvarado Score (MAS), Acute appendicitis, false positive.

Introduction

Acute abdominal pain is a common complaint amongst emergency patients. Diagnosis of one of the most common pathologies behind acute abdominal pain, acute appendicitis, has radically changed over the last decades. Traditionally, the diagnosis of appendicitis was made solely based on clinical symptoms and signs, and later it included results of inflammatory laboratory variables such as leukocytes, neutrophils, and CRP. This practice in diagnosis led to a false positive diagnosis (negative appendectomy) rates in the range of 15-30% [1-3]

Acute appendicitis is the most common surgically correctable cause of abdominal pain, the diagnosis of which remains difficult in many instances. Some of the

signs and symptoms can be subtle to both the clinician and the patient and may not be present in all instances. Arriving at the correct diagnosis is essential, however, a delay may allow progression to perforation and significantly increased morbidity and mortality. Incorrectly diagnosing a patient with appendicitis although not catastrophic often subjects the patient to an unnecessary operation [4]

The diagnosis of acute appendicitis is essentially clinical; however a decision to operate based on clinical suspicion alone can lead to removal of a normal appendix in 15-30% cases. The premise that it is better to remove a normal appendix than to delay diagnosis doesn‟t stand up to close scrutiny, particularly in the elderly. A number of clinical and laboratory based scoring systems have been devised to assist diagnosis. The most commonly used is the Alvarado score and equally its modifications [5]

The aim of present study is to validate the user friendly pre-operative diagnostic method based on prospectively collected data from patients admitted for suspected appendicitis incorporating the modified Alvarado score.

Material and Methods

Study design: Hospital based prospective study.

Study population: patients presenting with pain in the right lower quadrant of Abdomen, lasting fewer than 7 days who after clinical examination will be provisionally diagnosed to have acute appendicitis.

Sample size: 100 patients reporting to the Surgery dept. within study duration and eligible as per inclusion criteria will be included in the study.

Sampling Method: Convenience sampling

Inclusion Criteria: Patients with provisional clinical diagnosis of acute appendicitis

Exclusion Criteria

1. Patients of age less than or equal to 12 years

2. Patients with generalised peritonitis due to appendicular perforation

3. Patients with appendicular mass or abscess

Data Collection : An excel sheet was used for data collection and statistical analysis was done.

Results

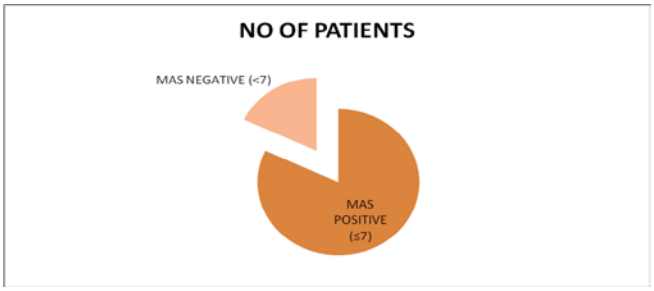

Fig.1: Distribution of patients according to modified Alvarado score.

Table 1: Overall Sensitivity and Specificity of Modified Alvarado Score.

	HPE positive	HPE negative	Total
MAS positive (≤7)	88	0	88
MAS negative	7	5	12
Total	95	5	100

88 (true positive) patients who had MAS 7 or more had appendicitis on histopathology while no patients (false positive) had a normal appendix; 7 (false negative) patients with MAS less than 7 had appendicitis and 5(true negative) had a normal appendix removed.

Sensitivity -92.00%

Specificity- 100%

Positive predictive value-100%

Negative predictive value-41.67%

Diagnostic accuracy=93.00%

Diagnostic accuracy-88.46%

Discussion

This study set out to establish the diagnostic accuracy of a protocol based on modified Alvarado score in acute appendicitis

Modified Alvarado score of 7 and above had a positive predictive value of 100%. In this study 92.00% of the patients who were predicted to have appendicitis by a high score had confirmed appendicitis on histopathology. This gave a crude negative appendicectomy rate of 10% that is in keeping with what Ongaro[6] found in his study in *2007Year*. A high Alvarado score was however unable to distinguish between appendicitis and other mimicking diagnosis in 5 cases.

A systematic review by Ohle et al[7] found out that a high Alvarado score was less sensitive as a 'rule in' score than as a 'rule out' for those below 5.48. Our study suggests that a high Alvarado score is a useful tool to set aside patients for immediate appendicectomy without further diagnostics. This contrasts with a study by Saidi and Chavda[8] that suggested that the scoring system has no value over clinical ecxperince.

Conclusion

This study shows that use of modified Alvarado scoring system in patients with acute appendicitis provides a high degree of diagnostic accuracy.

Reference

1. Hoffmann J. Rasmussen O. Aids in the diagnosis of acute appendicitis. Br J surg 1989; 76:774-779.
2. John H, Neff U, Kelemen M. Appendicitis diagnosis today: clinical and ultrasonic deductions. World J surg1993; 17:243-249.
3. Jones PF. Suspected acute appendicitis: trends in management over 30 years. Br J surg2001; 88:1570-1577.
4. Lee SL, Walsh AJ, Ho HS, computed tomography and ultrasonography do not improve and may delay the diagnosis and treatment of acute appendicitis. Arch surg2001; 136:556-561.
5. Emmanuel S Kanumba, Joseph B Mabula, Peter Rambau and Phillipo L Chalya. Modified alvarado scoring system for diagnosis of acute appendicitis. BMC Surg. 2011; 11:4.
6. Talukder DB and Siddiq AKMZ. Modified Alvarado scoring system in the diagnosis of acute appendicitis. JAFMC Bangladesh 2009; 5(1):18-20.
7. Ongaro, Neford. Evaluation of the usefulness of modified Alvarado scoring system regarding early diagnosis of acute appendicitis and in reduction of negative appendicectomy at Kenyatta National hospital. A prospective study. *M med dissertation, Dept of Surgery, University of Nairobi 2005* .
8. Ohle ,Robert., O'Reilly, F., O'Brien, K., K., *et al.* The Alvarado score for predicting acuteappendicitis: a systematic review. *BMC Medicine* 2011, 9:139.