

Original article:

Study of diagnostic accuracy of modified Alvarado score with post-operative findings in acute appendicitis in Rural Population

¹Dr Dilip K. Apturkar , ²Dr Neha Kumari *

¹HOD & Professor, Department of Surgery, Rural Medical College, Pravara Institute of Medical Sciences, Loni, Tal. Rahata, Dist. Ahmednagar, India

²Resident, Department of Surgery, Rural Medical College, Pravara Institute of Medical Sciences, Loni, Tal. Rahata, Dist. Ahmednagar, India

Corresponding author *

Abstract:

Introduction: The usual picture of appendicitis is often not classical, leaving many cases a diagnostic problem. It is well known fact that nothing can be so easy, or so difficult, as the diagnosis of appendicitis, it is because the clinical features and special investigations which are all nonspecific and the list of differential diagnosis are too long

Methodology: It was prospective clinicopathological study with 100 patient sample size conducted at Pravara Rural Hospital and Rural Medical College, PIMS , Loni . Institutional ethical committee clearance were taken before commencement of the study . Written and informed consent were taken for open appendectomy. This study included randomly all operated patients(100)suspected of acute appendicitis between June 2012 to October 2014 in the Department Of Surgery.

Results: Our results and observations were discussed and compared with various other studies. The age group in which acute appendicitis occurred commonly was between 21 to 30 years. It is clear that incidence is less in younger and older age groups with peak incidence in 2nd and 3rd decade. In the present series the males outnumbered females in the ratio of 1.8:1. Pain was the commonest presenting symptom and has been observed in all the cases (100%) in the present series. The classical shifting of pain from umbilical region to RIF was seen in 86%.

Conclusion: The Modified Alvarado score is a fast, simple, reliable, non-invasive, repeatable and safe diagnostic modality without extra expense.

Introduction:

The usual picture of appendicitis is often not classical, leaving many cases a diagnostic problem. It is well known fact that nothing can be so easy, or so difficult, as the diagnosis of appendicitis, it is because the clinical features and special investigations which are all nonspecific and the list of differential diagnosis are too long. Again the diagnosis is particularly difficult in women of reproductive age group and elderly adults due to associated gynecological problems and uncharacteristic abdominal pains respectively.⁽¹⁾

It used to be taught that the unnecessary appendectomy rate should be around 20% in order to reduce the chance of missing a possible inflamed appendix. Since the mid 1980's this has no longer held true and with the incorporation of adjuvant techniques to improve diagnosis and decision making, the error rate has been significantly reduced⁽²⁾ .

Even with all the investigations, the negative appendectomy rate is 15-30% (more in females and in extremes of age)⁽³⁾.

Methodology:

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Patient’s selection:

Inclusion criteria:

- 1.All patients with right iliac fossa pain clinically suggestive of appendicitis.
- 2.All patient with right iliac fossa pain with raised total leukocyte count,neutrophil count and C-reactive protein.
- 3.All patients with right iliac fossa pain suggestive of appendicitis on ultra sonography.

Exclusion criteria:

1. Patient in whom diagnosis of appendicitis was not clinically established
2. Patients in whom palpable mass was present in right iliac fossa due to complication of acute appendicitis(appendicular lump)
3. Patients with past history of documented appendicitis and treated conservatively.
4. Pain in RIF with pregnancy, immunocompromised status, pre existing disease and patients suffering from other acute inflammatory condition.

Observations and results:

Table no 1.Clinical Features of Alvarado Score:

Modified Alvarado’s Criteria	No. of patients	Percentage
Symptoms		
1.Migration of pain to right iliac fossa	86	86%
2.Anorexia	71	71%
3.Nausea/vomiting	67	67%
Signs		
1.Tenderness over right iliac fossa	91	91%
2.Rebound tenderness over right iliac fossa	59	59%
3.Increased Temperature	72	72%
Leukocytosis	72	72%

Table no 2. Total Number of Cases and There Modified Alvarado Score:

Modified Alvarado score	No. of cases	Percentage
>7	81	81%
<7	19	19%
Total	100	100

Table no 3. Modified Alvarado score and HPE report:

Modified Alvarado score	Histology report		Total
	Inflamed	Normal	
>7	78(96.2%)	3(3.7%)	81
<7	6(31.5%)	13(68.4%)	19
Total	84	16	100

Value of $\chi^2 = 43.266$, $p < 0.05$, significant

By applying Chi-Square test there is a significant association between Modified Alvarado score and histology report ($p < 0.05$)

Table no 4. Sex Distribution for Modified Alvarado Score >7 (Modified Alvarado positive)

No. of cases	No. of cases with HPE positive (appendicitis)	No. of cases without HPE negative (normal)	Total
Male n=52	51(98.07%)	1(1.32%)	52
Female n=29	28(96.5%)	1(3.44%)	29
Total= 81	79	2	81

Value of $\chi^2 = 5.49$, $p < 0.05$, significant

By applying Chi-Square test there is a significant association between No. of cases with HPR positive appendicitis and sex ($p < 0.05$)

Discussion:

The present study was undertaken to evaluate the usefulness of modified Alvarado scoring system in reducing the number of negative appendectomy and to evaluate the sensitivity of Modified Alvarado Scoring System in the diagnosis of acute appendicitis.

Our results and observations were discussed and compared with various other studies. The age group in which acute appendicitis occurred commonly was between 21 to 30 years. It is clear that incidence is less in younger and older age groups with peak incidence in 2nd and 3rd decade. In the present series the males outnumbered females in the ratio of 1.8:1. Pain was the commonest presenting symptom and has been observed in all the cases (100%) in the present series. The classical shifting of pain from umbilical region to RIF was seen in 86%.

Next common symptoms observed were vomiting in 76% of cases nausea 74% and anorexia in 71% of cases. Burning micturition was seen in 8% and bowel disturbance was seen in the form of constipation (8%) and diarrhoea (14%). Fever was of low grade was present in 72% of cases. On clinical examination, tenderness at McBurney's point was the commonest sign (91%).Guarding was present in 16% of patients. Rebound tenderness was present in 10% of cases. Abdominal rigidity was in 10% .^{4,5}

Rovsing's sign was positive in 22%. This sign is seen whenever there is inflammation in the RIF. Rectal tenderness was present in 12%. In the present study the TLC was increased in 72%, and it was within normal range in 28%. For assessment, the patients were categorized on the basis of Modified Alvarado Scoring System into male and female groups . Out of 65 males, score of > 7-9 were 52 score of <7 were 13.Out of 35 female patients, 29 had score > 7-9, 6 had score <7.

Conclusion:

The Modified Alvarado score is a fast, simple, reliable, non-invasive, repeatable and safe diagnostic modality without extra expense.

References:

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