

***EVALUATION OF THE MODIFIED
ALVARADO SCORE AS A
DIAGNOSTIC TOOL FOR
APPENDICITIS***

Nyeko J Filbert

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***EVALUATION OF THE MODIFIED ALVARADO SCORE AS A
DIAGNOSTIC TOOL FOR APPENDICITIS***

NYEKO John Filbert, MBChB (MUK)

***A Dissertation submitted in partial fulfilment of the requirements for the
award of the Degree of Master of Medicine in Surgery of Makerere
University.***

Supervisors:

1. **MR. Sam K Mutumba**, Senior Consultant Surgeon, Department Of Surgery, Mulago Hospital, Kampala

2. **Prof. Ignatius Kakande**, Department of Surgery, Makerere University Medical School, Mulago Hospital, Kampala

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DECLARATION

I, Dr. Nyeko John Filbert, hereby declare that this study is my original work. This study or part of it has not been submitted for publication or for award of any academic qualification in any university or institution of higher learning.

Sign:

Dr. Nyeko John Filbert

THIS THESIS SUBMISSION
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FOR AWARD OF A HIGHER
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DATE AWARDED:

Approval for submission

Supervisors:

1. MR. Sam K Mutumba

Signature

Date

12th July 2005

2. Prof. Ignatius Kakande

Signature

Date

12th July 2005

FOR DIRECTOR

DEDICATION

To my dear wife Jacqueline and our children

Jaullean,

Jordan,

Joerem

and

Jemimah.

For you, it was worth doing this piece of work.

Definitions

Evaluation: measurement of diagnostic parameters of the test i.e. sensitivity, specificity, predictive values and the likelihood ratios.

Gold standard: the procedure (in this proposal *histology*) whose outcome is accepted as completely valid.

Accuracy: The extent to which a test produces the desired result

Reliability: The extent to which the desired result can be reproduced when a test is repeated. It measures the usefulness of the test.

Validity: the proportion of patients correctly identified as having or not having disease by the diagnostic test under investigation. Sensitivity, specificity, predictive values and kappa statistics measure it.

Sensitivity: the proportion of patients correctly identified as having disease by the diagnostic test under investigation

Specificity: the proportion of the patients correctly identified as having no disease by the test under investigation

Positive Predictive value, PPV: the proportion of patients with a positive test result who do actually have the disease.

Negative predictive value, NPV: is the proportion of patients with a negative test result who do not actually have the disease.

Likelihood ratio: the ratio of the number of ways the event can occur to the number of ways the event can not occur. For a positive test result = sensitivity/ 1-sensitivity while that for a negative test is 1-sensitivity/specificity.

Kappa statistic: A measure of the extent to which observed agreement between tests exceeds that expected by chance alone.

Diagnostic error: the proportions of patients diagnosed as appendicitis and yet do not have the disease.

Negative Appendectomy Rate: the proportions of appendices removed that are not inflamed.

Appendectomy: the surgical removal of an appendix

Acronyms

A&ED	Accident and Emergency Department
°C	Degree Centigrade
GP	General Practitioner
Hrs	Hours
MASS	Modified Alvarado Scoring System
MUK	Makerere University Kampala
PMN	Polymorphonuclear Leucocytes
RIF	Right Iliac Fossa
SOPD	Surgical Outpatient Department
SHO	Senior House Officer
JHO	Junior House Officer
US	Ultrasology
CT	Computerised Tomography

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Abstract

Background: Decision making in cases of acute appendicitis may be difficult especially for junior surgeons. This was reflected in the high negative appendicectomy rate in Mulago hospital. Modified Alvarado Scoring System (MASS) was helpful in minimizing unnecessary appendicectomies. The aim of this study was to evaluate the validity of MASS as a diagnostic tool for appendicitis.

Patients and methods: All patients aged 13 years and above who were admitted with a provisional diagnosis of appendicitis into Mulago Hospital, Kampala Uganda, over the period of October 2004 to April 2004 were prospectively entered into the study. The study included 204 patients between the ages of 13 and 84 years. They were prospectively evaluated on admission using the Modified Alvarado Score System (MASS) to determine whether or not they had acute appendicitis. The MASS was correlated with the operative and histopathological findings.

Results: 151 patients (74.0%) had appendicectomies of which 24 patients (15.9%) had normal appendices on histopathology examination. Overall the MASS showed a sensitivity of 71.3% and a specificity of 62.5%. For males the sensitivity was 72.4% and the specificity was 50.0%. For females the sensitivity and specificity were 69.0% and 68.8% respectively.

Conclusion: From the results, the MASS is not sufficiently valid to be adopted as a sole method of diagnosing acute appendicitis in adults in our environment. Rather it can be used for screening cases that may require further radiological evaluation. Further requirements may be needed to improve its sensitivity and specificity.

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