



Fig. 1. The ROC curve for PAS and the area under the curve results

Discussion

The PAS developed by Samuel in 2002 using symptoms, signs, and laboratory findings, the score range from 0-10, and the cutoff value for the appendectomy was equal or greater than 6. From that date a few studies had been conducted and they show different result. In our study we exclude the ANC from the score due to laboratory limitation so our score range from 0-9.

In this study there was no significance for each variable in the diagnosis of acute appendicitis, and there was no identified significant cutoff value for the indication of appendectomy. These results are due to many limitations which consist of the sample evaluated for possible acute appendicitis, as determined by pediatric emergency physician, which differs from other study sample. We should keep in mind that symptoms, signs, and laboratory results are affected by the time of presentation and duration of symptoms; so, any comparison should account for it⁽¹⁵⁾. Ultimately the value of scoring depends on clinicians' experience in assessing children, and therefore, always involves some subjectivity and interpretation. The experience of clinicians and their individual threshold to declare the presence of signs will always allow variability⁽¹⁵⁾.

In this study, we found that the best cutoff value as an indication for appendectomy is equal or greater than 4, which had a sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of 0.78, 0.27, 0.87, and 0.16 respectively. In other studies the cutoff value was different than the original one by Samuel⁽¹⁰⁾. In Schneider *et al*⁽¹⁵⁾ they found that the same cutoff score of 6 or greater had a PPV of 54%, a sensitivity of 82% and specificity of 65%; while, in Bhatt *et al*⁽¹⁶⁾ found a sensitivity of 92.8%, specificity of 69.3%. In contrast Goldman *et al*⁽¹⁷⁾ found that a PAS of 7 or greater (rather than 6) gave a sensitivity of 94%, and a specificity of 98%. Katherine *et al*⁽¹⁸⁾ found a score of 6 had a sensitivity of 88.4%, a specificity of 50%, a PPV of 67%, and NPV of 97%.

In comparing the appendicitis group from non-appendicitis group (according to histopathological results), we found that the PAS mean \pm SD (range) were 5 ± 1.9 (1-9), 4.7 ± 1.8 (1-7), had no significant value ($P > 0.05$). The area under the ROC curve was 0.542 (95% CI, 0.393-0.691) and it was not significant.

In conclusion, the diagnosis of acute appendicitis and the need for surgery is still a matter of clinical judgment which can be built with practice, and although the PAS could provide a useful diagnostic information in children with suspected acute appendicitis, it cannot be used as a sole method for determining the need for surgery.

References

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