

## ORIGINAL RESEARCH

# Evaluation of RIPASA score in patients with acute appendicitis

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### ABSTRACT

**Background:** The exact cause of appendicitis is often unknown, but it can occur when the appendix becomes blocked, typically by fecal matter, a foreign body, or, in some cases, a tumor. The present study was conducted to assess RIPASA score in patients with acute appendicitis. **Materials & Methods:** 70 patients of acute pancreatitis of both genders were enrolled. The eight-variable RIPASA scoring system was used to evaluate the patients. Depending on the score, patients were classified into four groups: 5, 5-7, 7.5-11.5, and >12. **Results:** Out of 72 patients males were 42 and females were 30. RIPASA score in male and female was <5 seen in 12% and 13%, 5-7 in 8% and 17%, 7.5-11.5 in 65% and 40% and >12 in 35% and 30% respectively. The difference was significant ( $P < 0.05$ ). **Conclusion:** For the diagnosis of acute appendicitis, the RIPASA score is a better, simpler, safer, and non-invasive diagnostic technique.

**Key words:** acute appendicitis, RIPASA, scoring systems

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### INTRODUCTION

Acute appendicitis is a condition characterized by inflammation of the appendix, a small, finger-shaped organ located in the lower right side of the abdomen. The appendix is connected to the large intestine. The exact cause of appendicitis is often unknown, but it can occur when the appendix becomes blocked, typically by fecal matter, a foreign body, or, in some cases, a tumor. The blockage can lead to bacterial overgrowth and infection within the appendix, resulting in inflammation and swelling. The most common symptom of acute appendicitis is abdominal pain. The pain typically starts around the navel and then shifts to the lower right side of the abdomen. Other common symptoms may include loss of appetite, nausea and vomiting, low-grade fever, abdominal swelling, diarrhea or constipation and inability to pass gas.

Different scoring systems have been created to increase the diagnostic accuracy of appendicitis that are low-cost, non-invasive, and easy to use or reproduce. They assign numerical values to define signs and symptoms. Clinical signs of abdominal pathology (type, pain location and migration, temperature, signs of peritoneal irritation, nausea, and vomiting, among others) and laboratory findings are generally used.<sup>5</sup> Appendicitis Raja Isteri Pengiran Anak Saleha (RIPASA) score is a very recent

development. Its sensitivity (98%) and specificity (83%) have improved since its development in 2010 at the RIPAS Hospital of Brunei. Four management groups are suggested by score interpretation: In order of probability, the following categories are used 5 points (unlikely, patient observation); 5-7 points (low probability, emergency room observation, abdominal ultrasound); 7.5-11.5 points (high probability, surgical examination and preparation for appendectomy); and > 12 points (appendicitis diagnosis, appendectomy). The present study was conducted to assess RIPASA score in patients with acute appendicitis.

### MATERIALS & METHODS

The present study comprised of 70 patients of acute pancreatitis of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. A comprehensive clinical examination was conducted. Investigations were conducted, including a urine test, an X-ray of the abdomen and chest, an abdominal USG, and a CT scan. The eight-variable RIPASA scoring system was used to evaluate the patients. Depending on the score, patients were classified into four groups: 5, 5-7, 7.5-11.5, and >12. Results of the study was subjected to statistical analysis. P value less than 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients**

Total- 72		
Gender	Male	Female
Number	42	30

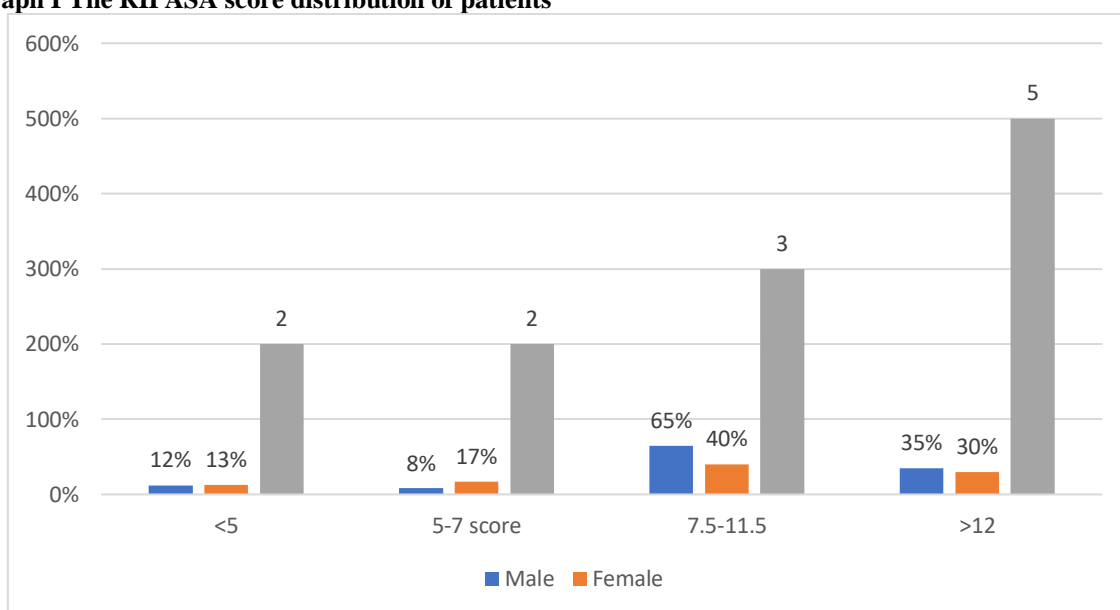
Table I shows that out of 72 patients males were 42 and females were 30.

**Table II The RIPASA score distribution of patients**

RIPASA score	Male	Female	P value
<5	12%	13%	0.93
5-7	8%	17%	0.05
7.5-11.5	65%	40%	0.03
>12	35%	30%	0.92

Table II, graph I shows that RIPASA score in male and female was <5 seen in 12% and 13%, 5-7 in 8% and 17%, 7.5-11.5 in 65% and 40% and >12 in 35% and 30% respectively. The difference was significant (P< 0.05).

**Graph I The RIPASA score distribution of patients**



**DISCUSSION**

One of the most frequent and oldest surgical emergencies, acute appendicitis has an estimated lifetime frequency of about 8% and a peak incidence in the age span of 10 to 30 years. With a lifetime frequency of about 8%, acute appendicitis is one of the most frequent surgical emergencies experienced by every surgeon.<sup>6</sup> Even in the current environment with recently developed improved diagnostic procedures, surgeons still have challenges in accurately diagnosing acute appendicitis and reducing the burden of negative appendectomy rates. To aid in the diagnosis of acute appendicitis, numerous grading systems have been created. These evaluations incorporate a clinical history, physical exam, and a few laboratory values.<sup>7</sup>

25 to 35 years of age is the most typical age range. Even though acute appendicitis is a common medical condition, diagnosing it can be challenging, especially in children, the elderly, and women who are in their reproductive years. The signs and symptoms of acute appendicitis can resemble those of a number of

genitourinary or gynecologic inflammatory diseases.<sup>8</sup>

The results of laboratory tests, such as a high white cell count, along with the clinical history and physical examination alone serve as the sole basis for diagnosis. The risk of appendicular perforation and sepsis increases with a late appendectomy to enhance diagnostic accuracy, which increases morbidity and mortality (surgical site infection 8–15%, perforation 5–40%, abscesses 2-6%, sepsis and death 0.5–5%).<sup>9</sup> The present study was conducted to assess RIPASA score in patients with acute appendicitis.

We found that out of 72 patients males were 42 and females were 30. Singh et al<sup>10</sup> in their study 200 individuals who had right iliac fossa discomfort and were thought to have acute appendicitis presented to department. RIPASA score was determined, but the appendectomy was carried out in accordance with clinical evaluation, hospital policy, and histological correlation. According to data compared to earlier studies, a score of 7.5 is the cut-off criterion. M:F ratio in our research of 200 individuals was 1.56:1. Diagnostic accuracy was 90.5%, specificity was

75.92%, and the RIPASA score's sensitivity was 95.89%. The predicted and observed rates of negative appendectomy were 8.5 and 12.35%, respectively. Therefore, the rate of negative appendectomy has decreased by 3.85% overall. In the equivocal instance of right iliac fossa, the RIPASA score at a threshold value of 7.5 is a simpler, more affordable, and more accurate diagnostic technique.

We found that RIPASA score in male and female was <5 seen in 12% and 13%, 5-7 in 8% and 17%, 7.5-11.5 in 65% and 40% and >12 in 35% and 30% respectively. Shuaib A et al<sup>11</sup> included ninety percent of the patients who had histologically proven appendicitis. Sensitivity, specificity, positive predictive value, negative predictive value, and diagnostic accuracy were, respectively, 88.2%, 14.5%, 73.1%, 32%, and 68% with the cut-off value for RIPASA score larger than 7.5. Sensitivity, specificity, positive predictive value, negative predictive value, diagnostic accuracy, and negative appendectomy rates were 51.2%, 80%, 91%, 29%, and 57%, respectively, with the cut-off value for the Alvarado score greater than 7. While only 45% of patients were categorised by Alvarado as high likelihood, 87.5% of patients were accurately categorised by RIPASA into the higher probability group.

Pasumarthi et al<sup>12</sup> undertook an examination of 116 people that were admitted with RIF discomfort over the course of two years. Patients aged 15 to 60 were scored using the RIPASA and Alvarado scoring systems. The cases' histopathological reports were gathered, and the scores were compared. To evaluate the RIPASA and ALVARADO scores' diagnostic efficacy, ROC curve area analysis was carried out. According to estimates, the sensitivity of the ALVARADO score is 52.08 for a cut-off of 6. The specificity is 80%, the positive and negative predictive values, respectively, are 92.59 and 25.81. It is discovered that ALVARADO scoring has a diagnostic accuracy of 56.9. The RIPASA scoring system's sensitivity, specificity, positive predictive value, and negative predictive value are 75%, 65%, 91.14%, and 35.14%, respectively. The RIPASA score's diagnostic accuracy is 73.28.

## CONCLUSION

Authors found that for the diagnosis of acute appendicitis, the RIPASA score is a better, simpler, safer, and non-invasive diagnostic technique.

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