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Evaluation of the Ripasa Score: A New Scoring System for the Diagnosis of Acute Appendicitis in East of Sudan (Single Center Experience from January to June 2022)

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ABSTRACT

Introduction: Acute appendicitis is one of the most common surgical emergencies. Despite being a common problem, it remains a difficult diagnosis to establish, particularly among the young, the elderly and females of reproductive age the study aimed to compare the efficacy of RIPASA score in the diagnosis of acute appendicitis. We recently developed a scoring system for diagnosis of acute appendicitis. This study prospectively evaluates the Raja Isteri Pengiran Anak Saleha Appendicitis (RIPASA) score for the diagnosis of acute appendicitis in patients presenting to the Accident and Emergency department or the Surgical wards with right iliac fossa pain.

Materials and Methods: From January to June 2022 consecutive patients presenting to the Accident and Emergency department or the surgical wards with right iliac fossa pain were recruited for the study. The RIPASA score was applied but the decision for radiological investigations or emergency appendicectomy was made based on clinical judgment.

Result: Cases less than 40 years of age were 64 and more than 16 years were RIF pain was observed in 80cases, migration of RLQ pain was observed in 74 cases; Anorexia was observed in 60 cases, nausea and vomiting was observed in70cases, Duration of symptoms less than 48 hthiss was observed in 30cases and more than 48 hthiss was observed in 50 cases. RIF tenderness was observed in 80 cases, RIF guarding was observed in 52 cases, Rebound tenderness was observed in 64 cases and Rovsing's sign was observed in 52 cases, Fever was observed in 74 cases. Raised WBC was observed in 72 cases; Negative urine analysis was found in 66 cases. And Foreign NRIC was observed in 3 cases.

Discussion: The present study was conducted among 80 cases of patients with pain in right iliac fossa that reported to this hospital. In this study 64 cases were less than 40 years of age. Only 16 cases were above 40 years of age. A study by Regar MK et al, included clinically suspected 100 cases, with 91% patients in <40 years age group and 9% patients in ≥40 years.7 Mean age of the patients was 24.86 years. In a study by Nanjundaiah N etal8 87% cases were below 40 year of age and 13% cases were above 40 years of age al8 87% cases were below 40 year of age and 13% cases were above 40 years of age In this study 62 cases were males. Male to female ratio was 2.34:1. In a study, In a study, 77.5% were males and 22.5 were females. In this study, 100% had pain in the right iliac fossa, 75% and 87.5% cases had complained of anorexia and nausea, vomiting respectively. History of migratory RIF pain was given by 92.5% cases. In a study by, symptoms such as migration of pain to the RIF was present in 67% cases of acute appendicitis, anorexia in 93% cases, nausea and vomiting in 88%, and fever in 41% cases.7 RIF pain was present in all the cases of acute appendicitis In this study of appendicitis37.5% cases had reported within 48 hthiss of appearance of symptoms. In 62.5% cases treatment was delayed for more than 2 days. In this study, RIF tenderness was present in all cases. In 80% cases rebound tenderness was present. RIF guarding and Rovsing's sign were present in 72,5% and 65% cases respectively. In this study, leucocyte count was less than 10,000 in 10% cases. Urine analysis was abnormal in 17.5% cases. In a study by Regar MK et al, signs such as RIF tenderness was present in all the 100 cases of acute appendicitis, rebound tenderness in 94% cases, guarding in 5% cases, Rovsing sign in 29% cases.7 RIPASA score of 7.5 or more is suggestive of surgical intervention for appendicitis. In this study, RIPASA score was less than 7.5 in 10% cases and it was indicative of surgical intervention in 90% cases. In a study, out of 192 cases 116 (60.42%) had RIPASA score ≥7.5 and in remaining 76 cases the score was <7.5 Histopathology is the gold standard for confirmation of the diagnosis. Histopathological findings were grouped in to two categories - appendicitis and no appendicitis. Case having normal appendix was 1, grouped in to 'no appendicitis' group while remaining 99 cases with various types of appendicitis were grouped under 'appendicitis'. In a study, histopathologically 95 patients were in appendicitis group and 5 patients were in no appendicitis group.7 This study was comparable with this study. In this study among the 79 appendicitis cases, the RIPASA score was suggestive of operative procedure in 90. % cases. Among the one non appendicitis case, the RIPASA score was suggestive of operative procedure in none. In this study the negative appendicectomy rate was nil for RIPASA score. In this study of 80 cases, in 66 cases USG findings were suggestive of appendicitis while 14 cases were normal. This study reveals that ultrasound provides reliable

findings for the diagnosis of acute appendicitis in somecases. But the results were poor specifically for negative cases where as RIPSA scores show better results in positive as well as negative cases. These results emphasize again that a positive ultrasonography for appendicitis is in favthis of a diagnosis of acute appendicitis. However, a negative ultrasound is not sufficient to rule out the diagnosis of acute appendicitis.

Conclusion: The RIPASA score is efficient in the diagnosis of acute appendicitis. As compared with ultrasonography of abdomen and pelvis, the RIPASA score is more diagnostic in cases of acute appendicitis. Negative findings of acute appendicitis on ultrasonography of abdomen and pelvis are not the diagnostic test to rule out acute appendicitis

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Introduction

Acute appendicitis is one of the most common surgical emergencies encountered in the world particularly among the young adults and children [1]. Surgeon's good clinical assessment is considered to be the most important requisite in the diagnosis of appendicitis. Several other conditions can mimic this clinical condition. Only contrast enhanced computerized tomography (CECT) of abdomen can diagnose the condition with very high sensitivity and specificity but it is not feasible to have this investigation done for each patient suspected to have appendicitis, particularly in countries with limited resthisces [1]. Diagnosis of acute appendicitis is based purely on clinical history and examination combined with a few laboratory investigations such as elevated white cell count. Despite being a common problem, acute appendicitis remains a difficult diagnosis to establish in some cases, particularly in the young, elderly and female patients of reproductive age where a host of other genitourinary and gynecological inflammatory conditions can also present with similar signs and symptoms of acute appendicitis Several scoring systems have been developed to aid in the decision making process of deriving a diagnosis of acute appendicitis in the fastest and cheapest way [2].

Methods

This was a prospective study done From January to June 2022 consecutive patients presenting to the Accident and Emergency department or the surgical wards with right iliac fossa pain were recruited for the study.

Inclusion Criteria

All patients presenting with RIF pain and clinically diagnosed as acute appendicitis.

Exclusion Criteria

- Patients presenting with non-RIF pain and those who have been admitted by other specialties for other complains but who subsequently developed RIF pain.
- Patient with generalized peritonitis.

Result

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	62	80.0	80.0	80.0
	female	18	20.0	20.0	100.0
	Total	80	100.0	100.0	

Age of the Patient

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	age less than 40	64	80.0	80.0	80.0
	age more than 40	16	20.0	20.0	100.0
	Total	80	100.0	100.0	

RIF_pain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	80	100.0	100.0	100.0

Pain_Migraition_To_Rif

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	74	92.5	92.5	92.5
	NO	6	7.5	7.5	100.0
	Total	80	100.0	100.0	

Anorexia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	60	75.0	75.0	75.0
	NO	20	25.0	25.0	100.0
	Total	80	100.0	100.0	

Nausea_and_Vomiting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	70	87.5	87.5	87.5
	no	10	12.5	12.5	100.0
	Total	80	100.0	100.0	

Duration_of_Symptoms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 48 hour	30	37.5	37.5	37.5
	more than 48 hour	50	62.5	62.5	100.0
	Total	80	100.0	100.0	

RIF_Tenederness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	80	100.0	100.0	100.0

Guarding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	58	72.5	72.5	72.5
	no	22	27.5	27.5	100.0
	Total	80	100.0	100.0	

Rebound_Tenederness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	64	80	80	80
	no	16	20	20	100.0
	Total	80	100.0	100.0	

Rovsing_Sign

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	52	65.0	65.0	65.0
	no	28	35.0	35.0	100.0
	Total	80	100.0	100.0	

Fever

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	74	92.5	92.5	92.5
	no	6	7.5	7.5	100.0
	Total	80	100.0	100.0	

Raised_WBC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	72	90.0	90.0	90.0
	no	8	10.0	10.0	100.0
	Total	80	100.0	100.0	

Negative_Urine_Analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	66	82.5	82.5	82.5
	no	14	17.5	17.5	100.0
	Total	80	100.0	100.0	

Forign_NRIC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	3	7.5	7.5	7.5

Total_Score

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4.5	2	2.5	2.5	2.5
	5.0	2	2.5	2.5	5.0
	5.5	2	2.5	2.5	7.5
	7.0	2	2.5	2.5	10.0
	7.5	2	2.5	2.5	12.5
	8.0	4	5.0	5.0	17.5
	8.5	2	2.5	2.5	20.0
	9.0	8	10.0	10.0	30.0
	9.5	2	2.5	2.5	32.5
	10.0	6	7.5	7.5	40.0
	11.0	2	2.5	2.5	42.5
	11.5	14	17.5	17.5	60.0
	12.0	4	5.0	5.0	65.0
	12.5	16	20.0	20.0	85.0
	13.0	10	12.5	12.5	97.5
	14.0	2	2.5	2.5	100.0
	Total	80	100.0	100.0	

RIPASA Score

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 5 (Probability of acute appendicitis is unlikelyProbability of acute appendicitis is unlikely)	2	2.5	2.5	2.5
	5 - 7 (Low probability of acute appendicitis)	6	7.5	7.5	10.0
	7.5 - 11.5 (High probability of acute appendicitis)	40	50.0	50.0	60.0
	more than 12 (Definite acute appendicitis)	32	40.0	40.0	100.0
	Total	80	100.0	100.0	

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Conclusion

The RIPASA score is efficient in the diagnosis of acute appendicitis. As compared with ultrasonography of abdomen and pelvis, the RIPASA score is more diagnostic in cases of acute appendicitis. Negative findings of acute appendicitis on ultrasonography of abdomen and pelvis are not the diagnostic test to rule out acute appendicitis.

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