



ORIGINAL ARTICLE

Appendicitis versus non-specific acute abdominal pain:
Paediatric Appendicitis Score evaluation ☆,☆☆



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Received 25 November 2016; accepted 17 January 2017

Available online 21 November 2017

KEYWORDS

Appendicitis;
Non-specific acute
abdominal pain;
Diagnosis;
Clinical prediction
rule;
C-reactive protein;
Child

Abstract

Introduction: Non-specific acute abdominal pain is the most common process requiring differential diagnosis with appendicitis in clinical practice. The aim of this study was to assess the Paediatric Appendicitis Score in differentiating between these two entities.

Material and methods: All patients admitted due to suspicion of appendicitis were prospectively evaluated in our hospital over a two-year period. Cases of non-specific acute abdominal pain and appendicitis were enrolled in the study. Several variables were collected, including Score variables and C-reactive protein levels. Descriptive, univariate and multivariate analyses and diagnostic accuracy studies (ROC curves) were performed.

Results: A total of 275 patients were studied, in which there were 143 cases of non-specific acute abdominal pain and 132 cases of appendicitis. Temperature and right iliac fossa tenderness on palpation were the variables without statistically significant differences, and with no discrimination power between groups. Pain on coughing, hopping, and/or percussion tenderness in the right lower quadrant was the variable with greater association with appendicitis.

☆ Please cite this article as: Prada Arias M, Salgado Barreira A, Montero Sánchez M, Fernández Eire P, García Saavedra S, Gómez Veiras J, et al. Appendicitis versus dolor abdominal agudo inespecífico: evaluación del *Paediatric Appendicitis Score*. An Pediatr (Barc). 2018;88:32–38.

☆☆ Previous presentation: This work will be submitted for consideration as an oral communication in the 65th Congress of the Asociación Española de Pediatría, Santiago, Spain, 2017.

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The Score correctly stratified the patients into risk groups. Substitution of temperature for C-reactive protein in the Score increased diagnostic accuracy, although with no statistically significant differences.

Conclusions: The *Paediatric Appendicitis Score* helps in differential diagnosis between appendicitis and non-specific acute abdominal pain. It would be advisable to replace the temperature in the Score, since it has no discrimination power between these groups. C-reactive protein at a cut-off value of 25.5 mg/L value could be used instead.

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PALABRAS CLAVE

Appendicitis;
Dolor abdominal
agudo inespecífico;
Diagnóstico;
Regla de predicción
clínica;
Proteína C reactiva;
Niño

Appendicitis versus dolor abdominal agudo inespecífico: evaluación del *Pediatric Appendicitis Score*

Resumen

Introducción: El dolor abdominal agudo inespecífico es el principal proceso que requiere diagnóstico diferencial con la apendicitis en la práctica clínica. El objetivo de este estudio es evaluar la utilidad del *Pediatric Appendicitis Score* (Regla de predicción clínica de apendicitis pediátrica) para diferenciar estas 2 entidades.

Material y métodos: Se evaluó prospectivamente a los pacientes atendidos por sospecha de apendicitis en nuestro centro durante 2 años, incorporando al estudio casos de dolor abdominal agudo inespecífico y apendicitis. Se recogieron diferentes variables, incluyendo las que conforman el *Score* y la proteína C reactiva, que se analizaron estadísticamente de manera descriptiva, univariante y multivariante, y mediante pruebas de rendimiento diagnóstico (curvas ROC).

Resultados: Se estudiaron 275 casos; 143 casos de dolor abdominal agudo inespecífico y 132 casos de apendicitis. La temperatura y el dolor a palpación en fosa iliaca derecha fueron las únicas variables que no mostraron diferencias significativas entre los grupos, careciendo de poder de discriminación. El dolor con la tos, el salto y/o la percusión fue la variable con mayor asociación a apendicitis. El *Score* estratificó correctamente a los pacientes en grupos de riesgo. La sustitución de la temperatura por la proteína C reactiva en el *Score* aumentaba su rendimiento diagnóstico, aunque sin diferencias significativas.

Conclusiones: El *Pediatric Appendicitis Score* ayuda en el diagnóstico diferencial entre apendicitis y dolor abdominal agudo inespecífico. Sería recomendable la sustitución de la temperatura en el *Score*, pues carece de poder de discriminación entre estos grupos. La proteína C reactiva, categorizada en el valor 25,5 mg/L, podría ser utilizada en su lugar.

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Introduction

Appendicitis accounts for 10% of the cases of abdominal pain assessed in emergency departments and it is the most common acute surgical disease of the abdomen.¹ Its diagnosis is mostly based on the findings of the history taking and the physical examination, although other tools, such as measurement of inflammatory markers, imaging tests and clinical prediction rules, may help the process.² Nevertheless, the rate of misdiagnosis can reach up to 30% due to the low specificity of the symptoms and the broad differential diagnosis of abdominal pain.³

The *Paediatric Appendicitis Score* (PAS) (Table 1) is the paediatric clinical prediction rule validated most appropriately and stands out in its ability to stratify patients by risk group.^{4,5} The inflammatory markers included in this prediction rule (total leukocyte and neutrophil counts) and the level of C-reactive protein (CRP) are the most useful markers

Table 1 *Paediatric Appendicitis Score* (clinical prediction rule for paediatric appendicitis).

Variables	Points
Pain in RIF on palpation	2
Tenderness in RIF with coughing, hopping and/or percussion	2
Migration of pain toward RIF	1
Anorexia	1
Nausea/vomiting	1
Temperature >37.3 °C	1
Leukocytes >10.0 × 10 ⁹ /L	1
Neutrophils >7.5 × 10 ⁹ /L	1
RIF, right iliac fossa.	

in the diagnosis of appendicitis.^{6,7} Since nonspecific abdominal pain (NSAP) is the most frequent diagnosis at discharge from the emergency department in cases of acute abdominal

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