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## ORIGINAL ARTICLE

### Diagnosis of streptococcal pharyngotonsillitis in children and adolescents: clinical picture limitations<sup>☆</sup>

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#### KEYWORDS

Pharyngitis;  
Diagnosis;  
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#### Abstract

**Objective:** To assess the utility of clinical features for diagnosis of streptococcal pharyngotonsillitis in pediatrics.

**Methods:** A total of 335 children aged 1-18 years old and presenting clinical manifestations of acute pharyngotonsillitis (APT) were subjected to clinical interviews, physical examinations, and throat swab specimen collection to perform cultures and latex particle agglutination tests (LPATs) for group A streptococcus (GAS) detection. Signs and symptoms of patients were compared to their throat cultures and LPATs results. A clinical score was designed based on the multivariate logistic regression analysis and also was compared to throat cultures and LPATs results. Positive throat cultures and/or LPATs results were used as a reference standard to establish definitive streptococcal APT diagnosis.

**Results:** 78 children (23.4%) showed positivity for GAS in at least one of the two diagnostic tests. Coryza absence (odds ratio [OR]=1.80;  $p=0.040$ ), conjunctivitis absence (OR=2.47;  $p=0.029$ ), pharyngeal erythema (OR=3.99;  $p=0.006$ ), pharyngeal exudate (OR=2.02;  $p=0.011$ ), and tonsillar swelling (OR=2.60;  $p=0.007$ ) were significantly associated with streptococcal pharyngotonsillitis. The highest clinical score, characterized by coryza absence, pharyngeal exudate, and pharyngeal erythema had a 45.6% sensitivity, a 74.5% specificity, and a likelihood ratio of 1.79 for streptococcal pharyngotonsillitis.

**Conclusions:** Clinical presentation should not be used to confirm streptococcal pharyngotonsillitis, because its performance as a diagnostic test is low. Thus, it is necessary to

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**PALAVRAS-CHAVE**

Faringite;  
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enhance laboratory test availability, especially of LPATs that allow an accurate and fast diagnosis of streptococcal pharyngotonsillitis.

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### Diagnóstico da faringoamigdalite estreptocócica em crianças e adolescentes: limitações do quadro clínico

#### Resumo

**Objetivo:** Avaliar a utilidade do quadro clínico para o diagnóstico da faringoamigdalite estreptocócica na faixa pediátrica.

**Métodos:** 335 indivíduos de 1 a 18 anos com quadro clínico de faringoamigdalite foram submetidos a anamnese, exame clínico, cultura e teste de aglutinação de partículas do látex (TAPL) para o estreptoco  $\beta$ -hemolítico do grupo A (EBHGA) em swab orofaríngeo. Os sinais e sintomas foram comparados ao resultado da cultura e do TAPL e, em seguida, também o foi o agrupamento de sinais e sintomas definido por regressão logística multivariada, utilizado para gerar um escore clínico. Para o diagnóstico definitivo de faringoamigdalite estreptocócica, o padrão de referência foi a cultura e o TAPL, em paralelo.

**Resultados:** 78 indivíduos (23,4%) apresentaram resultados positivos para EBHGA em pelo menos um dos testes. Ausência de coriza (OR=1,80;  $p=0,04$ ); ausência de conjuntivite (OR=2,44;  $p=0,029$ ); hiperemia de orofaringe (OR=3,99;  $p=0,006$ ); exsudato de orofaringe (OR=2,02;  $p=0,011$ ) e hipertrofia de amígdalas (OR=2,60;  $p=0,007$ ) apresentaram associação significativa com a faringoamigdalite estreptocócica. A pontuação máxima no escore clínico, no qual figuram três características (ausência de coriza, exsudato de orofaringe e hiperemia de orofaringe) correspondeu a uma sensibilidade de 45,6%, uma especificidade de 74,5% e uma *likelihood ratio* de 1,79 para a presença de faringoamigdalite estreptocócica.

**Conclusão:** O quadro clínico não deve ser usado isoladamente para confirmar o episódio de faringoamigdalite estreptocócica por apresentar um baixo desempenho diagnóstico. É necessário aumentar a disponibilidade de testes laboratoriais, em especial o TAPL, que permite o diagnóstico rápido e acurado deste episódio.

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## Introduction

Acute pharyngotonsillitis (APT) is a common health problem worldwide, especially in children, which is most often related to benign viral and self-limiting infections. However, a non-negligible number of these infections are of bacterial etiology, and in this case, the  $\beta$ -hemolytic group A streptococcus (GAS) is the main causative agent, which can lead to severe complications, with great individual, collective, social, and economic impact; the main complication is rheumatic fever (RF).<sup>1</sup>

RF is a non-suppurative complication of APT caused by GAS and is characterized by the appearance of inflammatory changes in the joints, skin, heart, and central nervous system, disclosing different combinations and degrees of severity. Of these, rheumatic carditis (RC) is the most feared disease manifestation, as it is the only one that can result in sequelae, often severe, and lead to death.<sup>2</sup>

Considering its possible complications, it is essential to attain a correct diagnosis and adequate management of streptococcal APT, as its timely treatment (up to nine

days of symptom onset) is effective in preventing both suppurative and non-suppurative complications.<sup>3</sup> The diagnosis is challenging, as studies show a large overlap between the clinical presentation of viral and streptococcal APT, with no clinical feature that, individually, can confirm or rule out the diagnosis of streptococcal APT.<sup>4</sup>

However, there is no consensus of uniformity regarding the diagnosis and management of APT<sup>5</sup> and some authors have developed scores to classify the risk of streptococcal APT, with varying results.<sup>6-9</sup> Additionally, diagnostic laboratory tests, namely, culture or rapid antigen detection testing (RADT) are not always readily available or are not part of the reality of professionals that work directly with patients with APT.<sup>10</sup>

According to estimates by the World Health Organization, approximately 600 million new cases of symptomatic APT caused by GAS occur annually in children worldwide. Of these, about 500,000 develop RF, and approximately 300,000 develop RC. Most of these cases occur in less developed countries, with three times higher prevalence of RF in these countries, including Latin America, than in developed countries.<sup>1</sup>

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