



ORIGINAL ARTICLE

Prevalence of the *Helicobacter pylori* in the tonsils and adenoids[☆]



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KEYWORDS

Helicobacter pylori;
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Abstract

Introduction: There is an ongoing debate about the existence and effects of *Helicobacter pylori* (Hp) in adenotonsillar tissue.

Objective: A clinical study was conducted to assess the existence of Hp in the adenoid and/or adenotonsillar tissues, which were surgically excised due to chronic adenotonsillitis.

Methods: Phosphoglucosamine mutase gene for the detection of Hp and cytotoxin-associated gene as virulence gene were examined in 84 adenotonsillar tissues obtained from 64 patients and patients' serum by using polymerase chain reaction.

Results: Hp IgG was detected in 57 (89%) patients' serum. A total of seven tissue samples from 64 patients (10.9%) were found positive for Hp DNA, of which five were adenoids and two were tonsil tissues. All polymerase chain reaction positive samples were also positive for the cytotoxin-associated gene, which is a virulence determinant for the organism.

Conclusion: This study suggests that children are exposed to Hp at an early age of their life in this province. Hp may have a role in the pathogenesis of chronic adenotonsillitis, especially in endemic areas.

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PALAVRAS-CHAVE

Helicobacter pylori;
Reservatórios;
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Tonsila palatina

Prevalência do *Helicobacter pylori* em amígdalas e adenóides**Resumo**

Introdução: Há um debate atual sobre os efeitos da *Helicobacter pylori* (Hp) no tecido adenotonsilar.

Objetivo: Conduzimos um estudo clínico para avaliar a existência de Hp nos tecidos adenóideanos e/ou adenotonsilar, os quais foram removidos cirurgicamente em decorrência de adenotonsilite crônica.

Método: No total, 84 amostras de tecido obtidos de 64 pacientes foram analisadas para o gen fosfoglicosamina mutase para a detecção de Hp. Os casos positivos foram a seguir examinados para o gen associado à citotoxina, relacionado a virulência, usando-se o método de Reação de Polimerase em Cadeia (PCR).

Resultados: A IgG de Hp foi detectado em 57 (89%) soros de pacientes. Sete amostras de tecido de sessenta e quatro pacientes (10.9%) resultou positivo para o DNA de Hp, das quais cinco eram adenóides e duas eram tecido tonsilar. No PCR todas as amostras foram também positivas para o gen associado à citotoxina, o qual é um determinante de virulência.

Conclusão: Esse estudo sugere que as crianças são expostas ao Hp nos primeiros anos de vida nessa província e que o Hp pode ter um papel na patogênese da adenotonsilite crônica, principalmente em áreas endêmicas.

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Introduction

Helicobacter pylori (Hp) is a microaerophilic, Gram-negative spiral microorganism that colonizes the human gastric mucosa. It is the most frequent cause of gastric and duodenal ulcers in humans. The relationship between Hp and some gastrointestinal malignancies has also been demonstrated.¹ Particularly, cytotoxin-associated gene (cagA) positive strains are associated with a significantly increased risk for the development of atrophic gastritis, mucosa-associated lymphoid tissue lymphoma (MALToma), and gastric cancer. Hp is generally acquired during childhood (<10 years) via the fecal-oral, oral-oral, and gastric-oral transmission routes,²⁻⁵ and can remain silent for a lifetime.^{3,6} The transmission route of Hp infection has not been clearly understood.

The Waldeyer ring is the first step in the mucosal defense against invading pathogens through its MALT content. Adenoid and tonsil tissues are part of the Waldeyer ring. These participate in the immune system, especially in children. On the other hand, adenoidectomy and/or tonsillectomy represent the most common surgical procedures in childhood because of chronic infection and/or hypertrophy.⁷

Though the stomach is a natural reservoir for Hp, various tissues such as the gall bladder, gingiva, oral lesions, and the dental plate have been demonstrated to be potential extra-gastric reservoirs of this pathogen.^{8,9} Furthermore, Hp has been found in nasal polyps, nasal mucosa, and saliva.¹⁰ Recent studies have suggested that adenotonsillar tissue could be an extra-gastric reservoir for Hp, but the results have been conflicting.^{5,8,11-15} Detection of the colonization and accumulation of Hp in different regions of the body is particularly important to better understanding the modes of

transmission and progress of infection of this organism. This study aimed to clarify the role of adenotonsillar tissue on Hp infection. Whether adenotonsillar tissue an extra-gastric reservoir for Hp or Hp has a role in the pathogenesis of chronic adenotonsillitis.

Methods**Patients**

This clinical study was performed at the University Otorhinolaryngology and Clinical Microbiology Departments between August of 2011 and August of 2012. Surgically excised adenoid and tonsil tissues and serum samples were collected from children who underwent adenoidectomy and adenotonsillectomy due to chronic adenotonsillitis. A total of 64 children (34 males, 30 females) were included in the study. The mean age of the patients was 5.9 years, ranging between 1 and 17 years. A total of 84 clinical specimens were collected. Sixty-two biopsy specimens were adenoid and 22 were tonsillar tissue. Venous peripheral blood samples (5-6 mL) were collected from all patients.

Inclusion criteria

The surgical indications for adenoidectomy and adenotonsillectomy were as follows: chronic or recurrent tonsil infections (six or more tonsillitis episodes per a year) for tonsillectomy, and adenoid enlargement (especially up to 70% blockage of the choana on endoscopic examination), which causes obstructive symptoms for adenoidectomy.⁷

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