



ORIGINAL ARTICLE

Frequency of rhinitis and orofacial disorders in patients with dental malocclusion



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KEYWORDS

Rhinitis;
Oral breathing;
Malocclusion;
Cephalometry;
Bruxism

Abstract

Objective: To describe the frequency and etiology of rhinitis, oral breathing, types of malocclusion and orofacial disorders in patients treated for dental malocclusion.

Methods: Patients with poor dental occlusion ($n=89$, 8–15 years) undergoing orthodontic treatment at the Postgraduate Orthodontics Center (São Paulo, Brazil) participated in the study. Rhinitis and oral breathing were diagnosed by anamnesis, clinical assessment and allergic etiology of rhinitis through immediate hypersensitivity skin prick test with airborne allergens. The association between types of breathing (oral or nasal), rhinitis and types of dental malocclusion, bruxism and cephalometric alterations (increased Y axis of facial growth) compared to standard cephalometric tracing (Escola de Odontologia da Universidade de São Paulo) were assessed.

Results: The frequency of rhinitis in patients with dental malocclusion was 76.4% (68), and, of these, 81.7% were allergic (49/60 positive skin prick test), whereas the frequency of oral breathing was 62.9%. There was a significant association between an increased Y axis of facial growth and oral breathing ($p<0.001$), as well as between oral breathing and rhinitis ($p=0.009$). There was no association between rhinitis and bruxism.

Conclusions: The frequency of rhinitis in children with dental malocclusion is higher than that in the general population, which is approximately 30%. Patients with oral breathing have a tendency to a dolichofacial growth pattern (increased Y axis of facial growth). In patients with rhinitis, regardless of the presence of oral breathing, the dolichofacial growth tendency was not observed.

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PALAVRAS-CHAVE

Rinite;
Respiração bucal;
Má oclusão;
Cefalometria;
Bruxismo

Frequência de rinite e alterações orofaciais em pacientes com má oclusão dentária**Resumo**

Objetivo: Descrever a frequência e etiologia da rinite, da respiração oral, os tipos de má oclusão e as alterações orofaciais em pacientes tratados por má oclusão dentária.

Métodos: Pacientes com má oclusão dentária ($n=89$, oito a 15 anos) em tratamento ortodôntico em centro de pós-graduação em ortodontia (São Paulo, Brasil) participaram do estudo. Rinite e respiração oral foram diagnosticadas por anamnese e exame clínico e a etiologia alérgica dessa por teste cutâneo de hipersensibilidade imediata (TCHI) com aeroalérgenos. Avaliou-se a relação entre tipos de respiração (oral ou nasal), rinite e tipos de má oclusão dentária, bruxismo e alterações cefalométricas (aumento do eixo Y de crescimento facial) em comparação com o traçado cefalométrico padrão (Escola de Odontologia da Universidade de São Paulo).

Resultados: A frequência de rinite nos pacientes com má oclusão dentária foi de 76,4% (68), desses 81,7% eram alérgicos (49/60 TCHI positivo) e a frequência de respiração oral foi de 62,9%. Houve associação significativa entre ter o eixo Y de crescimento facial aumentado e respiração oral ($p<0,001$), o mesmo entre respiração oral e rinite ($p=0,009$). Não houve associação entre rinite e bruxismo.

Conclusões: A frequência de rinite em crianças com má oclusão dentária é superior à da população geral, que gira ao redor de 30%. Os pacientes com respiração oral têm tendência de crescimento dólco facial (eixo Y de crescimento aumentado). Nos pacientes com rinite, independentemente da presença da respiração oral, a tendência dólco facial não foi observada. © 2015 Sociedade de Pediatria de São Paulo. Publicado por Elsevier Editora Ltda. Este é um artigo Open Access sob a licença CC BY (<https://creativecommons.org/licenses/by/4.0/deed.pt>).

Introduction

The growth and development of the craniofacial structure and, consequently, the dental occlusion, undergo environmental influences through breathing, breastfeeding, chewing, habits (use of bottle and digit and/or pacifier sucking) and swallowing.^{1,2}

Through the aeration of the pneumatic paranasal sinuses, breathing allows adequate facial development through pressure from the air flow and backflow through the nostrils. Obstruction in the airways, such as adenoid and tonsil hypertrophy, interferes with the inspiratory pressure. The scarce nasal flow and the absence of tongue pressure against the palate lead to maxillary sinus hypoplasia, the narrowing of the nasal cavities and the upper dental arch, which favors dental malocclusion.³⁻⁵ Mouth breathing can be favored by the delay in the diagnosis and treatment of allergic rhinitis (AR), which, in addition to facilitating chronic mouth breathing, can result in speech disorder, chronic sinusitis, bruxism, nocturnal apnea, sleep disorders, auditory tube dysfunction, otitis media and asthma attacks.⁶ Adenoid and tonsil hypertrophy and posterior cross-bite are associated with otitis media in children.^{2,7,8}

AR is considered a public health problem due to its high prevalence, as it impairs patient quality of life and has high social cost.^{6,10} The prevalence of AR in Brazilian schoolchildren varies between 26.6% and 34.2%.¹¹ Although the association between dental malocclusion and AR is common, their interrelationships deserve further study. The association between dental malocclusion and oral breathing in patients with AR,¹²⁻¹⁵ as well as bruxism,¹³ has been reported.

Reduction of craniofacial diameters, dental malocclusion (anterior dental crowding, cross-bite, protruding jaw, receding jaw) and direction of facial growth vector with a predominance of the vertical component, which is expressed by an increase in the growth Y axis in the cephalometric analysis have been described in patients with AR.^{1,12-16} Dental malocclusion is associated with other disorders, such as mouth breathing, use of pacifier and thumb/digit sucking for a long time (after three and four years of age, respectively).^{2,12-23} A study of children aged 5-6 years enrolled in elementary schools in Brazil showed high frequency of malocclusion, which was associated with oral habits such as the use of pacifier, bottle-feeding and thumb/digit sucking.^{1,12} Therefore, health professionals, doctors, dentists and speech therapists should be more aware of the negative impact of airway obstruction on the patient's facial growth and of their psychological health.^{2,13}

The multidisciplinary evaluation of patients with rhinitis and/or mouth breathing treated for dental malocclusion is important for a more appropriate management.² In this study, we evaluated patients undergoing treatment for dental malocclusion at the Orthodontics Service regarding the frequency of rhinitis, mouth breathing, bruxism and orofacial alterations, as well as the increase in the Y axis through cephalometric evaluation, according to the presence or absence of rhinitis and/or mouth breathing.

Method

A total of 89 patients were selected (8-15 years of age) among those treated at the service (300 patients older than

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