

PERIODONTAL AND ORTHODONTIC APPROACH IN PERIODONTALLY COMPROMISED ADULTS

ABORDAGEM PERIODONTAL E ORTODÔNTICA EM ADULTOS COM PERIODONTO COMPROMETIDO

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ABSTRACT

Oral health is a condition to prevent many diseases. Surgery combined with oral hygiene and the use of light orthodontic forces for the treatment of adult patients who have a history of periodontal disease can prevent teeth loss and infection dissemination. To describe periodontal and orthodontic approach in periodontally compromised adults. Periodontal surgery is indicated when there is extensive bone loss due to periodontitis. When periodontal status is healthy and under control, an adjunctive orthodontic treatment can be initiated. Good oral hygiene, antibiotic prophylaxis and a combined periodontal-orthodontic treatment can produce good results because the new attachment conditions may be formed after orthodontic intrusion provided there is no longer any evidence of periodontal disease and a proper force system was applied. The surgical approach produces a positive stimulus for a new bone formation.

UNITERMS: Periodontal Treatment; Adult orthodontics; Bone loss.

INTRODUCTION

Health sciences must treat patients considering as a whole because an infection can affect an organ distant from the source of infection¹. Many diseases can result from gingivitis¹. For example, pathogenic gingival bacteria can affect the heart's valve a condition known as bacterial endocarditis (BE). *Staphylococcus aureus*, *Streptococcus viridans*, *Staphylococcus sp* and gram negative bacilli¹ are the most prevalent. Bacteremia is normally present in patients with poor oral hygiene and associated with bleeding after tooth brushing; also they found that oral hygiene and gingival disease indexes were significantly associated with infectious endocarditis after tooth brushing². Periodontal disease in adults is a common finding instead they are unaware since the first symptoms appears, normally as incisors flaring out (pathological migration) resulting in diastema and excessive mobility, also bone loss, external root resorption and the formation of infrabony defects around the roots or between them. Periodontitis is a progressive disease that causes destruction of the periodontal ligament and alveolar bone collagen fibers where an inflammatory tissue (granulation tissue) replaces normal tissue³. Initially it begins with a gingivitis that spreads to the underlying tissues. Many adults do not realize the benefits that might be achieved, after treatment, such as the aesthetic aspect, the preservation of teeth and the

supporting structures. Patient must understand the importance of the procedures such as the prophylactic and periodontal approach, and becomes aware of the need for oral hygiene and that the disease process can be interrupted avoiding major problems like BE¹. The primary objective of periodontal therapy is maintains the integrity of the periodontium after it is repaired. Sometimes an orthodontic treatment is necessary to relocate teeth in stable positions³.

The aim of this paper is discuss the orthodontic approach in patients with periodontal disease.

DESCRIPTION OF TREATMENT MANAGEMENT

After antibiotic prophylaxis, a periodontal surgery using scaling, root planing and bony defects correction, i.e., through a modified Widman flap surgery is sometimes necessary to eliminate debris, granulation tissue and infrabony bone defects. When the periodontal status is healthy and under control³ (minimum after 10 days), an orthodontic treatment can be realized. Clinician should plan a force system aiming to produce forces passing near the center of resistance (Cres) of teeth. Figures 1-A and 1-B, show panoramic radiographs before and after treatment. Best results are accomplished when cortical is visible over alveolar bone, even though some teeth can be loss due to the extension of bone loss around roots. The treatment should be a compromise treatment since the external root resorption, bone loss and the

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patient's dentoalveolar discrepancy (incisors procumbence) are normally present. Periodontal and orthodontic treatment can result teeth preservation and correction of infrabony defects. As a result, after surgery and orthodontic treatment, incisors achieve good positions and bone formation around the roots (See Figure 2-B). In general teeth achieve good root positions and cortical bone formation can be seen in the majority of the arch length.

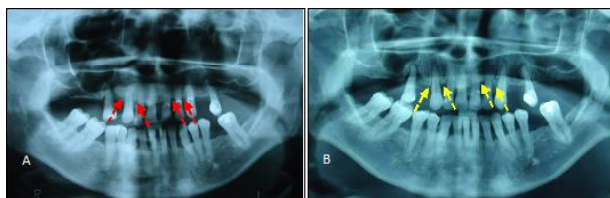


Figure 1 - Panoramic radiograph before (A) and after treatment (B). Note the infrabony defects (A). Cortical bone is more visible after treatment (B). Red arrows indicate no or incomplete cortical bone formation. Yellow arrows indicate cortical bone formation.



Figure 2 - Intra-buccal photographs before (A, B and C) and after treatment (D, E and F). Note incisors procumbency, flaring out and poor hygiene (A, B and C).

DISCUSSION

After the infectious process is controlled, it is necessary the reestablishment of the buccal tissues, i.e., the induction of bone formation through positive stimuli³⁻⁵, such as removal of granulation tissue, removal of bacteria, leveling of bone defects and relocation of teeth within the limits of the alveolar bone. Thus, it is important to identify patients who are cardiopaths and susceptible to periodontal disease and establish a treatment plan. The lipidic profile in cardiopaths whose suffered acute ischemic heart disease and severe chronic periodontitis (CP) showed that microorganisms can permeate into coronary vessels⁶. Physicians and nurses can work together as a team to treat patient⁷, also dentists when the patients have oral diseases associated or not with chronic diseases, birth defects, heart diseases, and diabetes or others systemic health problems. Clinician can idealize an appliance capable to produce light forces and a force system adapted to an altered bone support. In some cases of infrabony defects the center of resistance (Cres) is located more apically than in health periodontium⁸. In health patients the

approximate Cres for upper incisors is near 3 to 5 mm apically from cervical margin for centrals and centrals and laterals⁹, respectively. Studies¹⁰⁻¹² have reinforced that systemic conditions (e.g. allergies, asthma and systemic alterations produced by alcoholism) associated to orthodontic force may lead to root resorption; however in other cases, when no orthodontic force has been used, root resorption may be found in patients suffering from gingivitis and/or periodontitis usually as a chronic condition¹².

A combined antibiotic prophylaxis, periodontal and orthodontic approach must be encouraged^{3,13} for the treatment of adults with periodontal sequelae (e.g. infrabony defects) once the patient's periodontal condition is stabilized with good patient home care and compliance is obtained. Infrabony defects are classified according to bone wall¹³, i.e., one, two or three walls. Some studies¹³⁻¹⁶ revealed that a new attachment might be formed after orthodontic intrusion, since there is no longer any evidence of periodontal disease as cortical bone formation. In addition, the surgical approach seems to produce a positive stimulus for new bone formation^{3,5,15}. Teeth intrusion with light forces⁴ sometimes produce bone neo-formation around the roots, but for prolonged continuous bodily intrusive movement the chance of resorption is increased that causes shortening of the root^{3,4}. Pathological conditions affects bone metabolism in rats and is suggested that the root resorption increases when bone turnover is reduced¹⁷. Root resorption in monkeys was related to the force magnitude than to the amount of teeth intrusion in alveolar bone¹⁸. To avoid root resorption during intrusion light forces are necessary^{4,19}. The biomechanical approach need criterions from orthodontists to elaborate an effective light force system and demonstrate how effective it can be considering the resultant force-vectors that acts over teeth¹⁹.

CONCLUSIONS:

Good oral hygiene, antibiotic prophylaxis and a combined periodontal-orthodontic treatment. A combined periodontal-orthodontic approach can produce good results because the new attachment conditions may be formed before and after teeth movement with light forces and a proper force system was applied provided there is no longer any evidence of periodontal disease. In addition, the surgical approach seems to produce a positive stimulus for new bone formation.

RESUMO

Saúde bucal é uma condição para prevenir muitas doenças. Cirurgia combinada com boa higiene bucal e o uso de forças ortodônticas leves para o tratamento de pacientes adultos, os quais apresentam

história de doença periodontal pode prevenir perda dentária e disseminação da infecção. O objetivo foi descrever a abordagem periodontal e ortodôntica em adultos com periodonto comprometido. Cirurgia periodontal é indicada quando há extensa perda óssea devido à periodontite, com objetivo de eliminar contaminações e tecido de granulação. Quando o status periodontal for saudável e controlado, um tratamento ortodôntico, em conjunto pode ser iniciado. Boa higiene bucal, profilaxia antibiótica e terapia periodontal-ortodôntica combinadas podem produzir bons resultados para formação de um novo suporte periodontal, após movimentos de intrusão, visto não haver mais nenhuma evidência de doença periodontal e aplicação de adequado sistema de forças. Além disso, a abordagem periodontal parece produzir um estímulo positivo para a neo-formação óssea.

UNITERMOS: Tratamento periodontal; Tratamento ortodôntico em adulto; Perda óssea.

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