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Relining of Denture Bases with Temporary Soft Material in Denture Stomatitis Treatment: A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

The objective was to report a therapeutic method for denture stomatitis (DS) with the relining of the maxillary complete denture (CD). Patient JN, male, 70 years old, came to the clinic for rehabilitation treatment with new ones. On clinical examination, precarious condition of oral and prosthetic hygiene was observed, in addition to signs of DS in the supporting palatal mucosa. After oral hygiene guidelines, use and cleaning of the prostheses, the CD was relined with temporary soft material. After 14 days, clinical improvement of the signs of inflammation was observed and clinical procedures were started to obtain new prostheses. After installation, the patient was followed for 3 months, with the maintenance of the health of the palatal support tissues being observed. The suppression of contact between the contaminated acrylic base and the infected palatal mucosa after relining proved to be an alternative and efficient of the DS therapy for long-term.

Keywords: Complete denture; denture liners; denture stomatitis.

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1. INTRODUCTION

Although antifungal drugs are effective in cases of stomatitis associated with *Candida* spp., reinfection condition of the oral mucosa has been reported up to two weeks after the suspension of treatment [1]. One way to contribute to treatment for denture stomatitis (DS) is to reline the denture bases with soft material [2], breaking the cycle of reinfection via dentures. This clinical case aimed to report the findings of the relining of maxillary complete denture (CD) as a therapeutic method for DS.

2. CASE REPORT

Patient JN, male, 70 years old, attended the clinic of the Bauru School of Dentistry, University of São Paulo, for rehabilitation treatment with new prostheses, being maxillary complete denture (CD) and mandibular removable partial denture (RPD). During the initial clinical examination, signs of Newton's Type II DS were observed in the palatal mucosa supporting the prosthesis (Fig. 1A), in addition to poor hygiene (Fig. 1B). As a treatment, CD was relined with temporary soft material (Coe-Soft ™, GC America Inc.) and the patient received proper hygiene guidelines. The patient was instructed to brush the hard palate with a toothbrush and, his dentures with a denture brush and neutral liquid soap after the meals. After dinner, the patient was oriented to soak the dentures in a solution (200 mL) of 1% sodium hypochlorite for 20 minutes with subsequent brushing of the dentures. Also, dentures should remain immersed in clean water overnight [3].

For the relining procedure, a wear of about 2 mm was carried out on the entire internal surface of the acrylic base (Maxicut NB78SE-045, DhPro, Rhadartrade, Paranguá, PR, Brazil), in order to create space for the relining material. The outer edges were also roughened to improve the interface between the acrylic base and the relining material in this region. The insulating material from the kit was applied to the external acrylic surfaces and the teeth of the CD to prevent adhesion of the material.

After proportioning and manipulating the material, according to the manufacturer's recommendations, it was added evenly inside the patient's CD and brought into position in the oral cavity for performing the functional movements. Then, the patient was asked to occlude for 4 to 5 minutes to plasticize the material. After this period, CD were removed from position, rinsed under running water and, the excesses were removed with clinical scissors (S.S. White Duflex, Rio de Janeiro, RJ, Brazil) (Fig. 2).

The patient was instructed to use the relined CD for 14 days. After the time of the proposed treatment, clinical improvement of the signs of inflammation was observed. Then, the guidelines were reinforced and the CD was re-relined, beginning the clinical procedures for obtaining new dentures conventionally. After installation (Fig. 3), the patient was followed for 3 months, and the maintenance of the health of the palatal support tissues was observed, with no signs of disease recurrence (Fig. 4A). In addition, the hygiene conditions of the dentures were satisfactory (Fig. 4B).

3. DISCUSSION

The etiology of denture stomatitis is recognized as multifactorial, with *Candida* spp. infection being the main associated factor, affecting more than 90% of individuals with clinical signs of inflammation in the tissues supporting of the dentures [4].

Fig. 1. A) Initial condition of palatal mucosa under CD - signs of Newton's Type II DS. B) Old CD condition (unsatisfactory hygiene and adaptation)

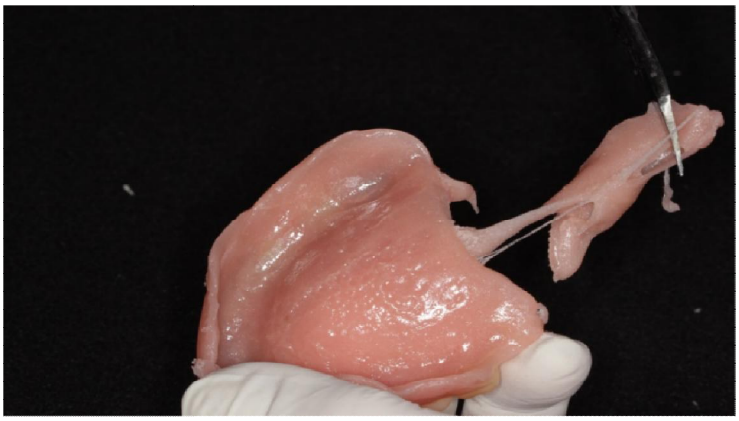

Fig. 2. CD relined with temporary soft material

Fig. 3. New CD and RPD installed

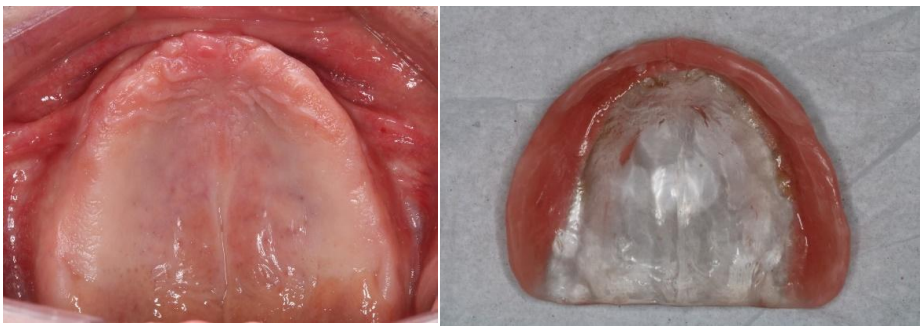

Fig. 4. After 3 months of follow- up: A) Palatal mucosa under CD. B) New CD condition (satisfactory adaptation and hygiene)

Treatment for DS involves combined approaches, with topical or systemic antifungal therapy, oral hygiene, cleaning / disinfection, replacement of old prostheses, removal of dentures at night, removal of anatomical irregularities and restoration of occlusion [1].

Antifungal drugs, although effective in relieving the signs and symptoms of DS associated with *Candida* spp., it has a high rate of recurrence within two weeks after treatment discontinuation [1]. This recurrence has been attributed to the insufficient concentration of topical drugs on the

surface of the denture that maintains contact with the oral tissues, of the microbial biofilm that remains in depth in the acrylic resin [5], unpleasant taste of the topical agents and rapid dissolution of the drug by the action of the flow saliva, tongue movements and swallowing [6], systemic antifungal drugs do not reach the palate mucosa in sufficient concentrations against *Candida* [7], strict dosage, adverse effects, in addition to medication costs [8].

Failures in the treatment of this pathology can lead to the resistance of microorganisms to the defense mechanisms of epithelial cells and to antifungal agents [9]. Microbial resistance further strengthens biofilm maturation [9], favoring the recurrence of the disease. Denture's disinfection protocols are fundamental in the prevention and treatment of DS. However, since multiple approaches are required, exclusive action to eliminate prosthetic biofilm during treatment of DS can lead to therapy failure. A therapeutic alternative is to suppress the contact of the contaminated acrylic denture base with the infected tissues, breaking the cycle of reinfection via denture. This was the treatment proposed in the present clinical case, where the denture was relined with soft material of short duration.

Therapeutic benefits of dentures relined with soft materials are expected. In addition to functioning as a mechanical barrier between the denture and the tissues, its viscoelasticity results in a damping effect, favoring tissue recovery in a shorter period in cases of DS [10]. With less mechanical trauma due to inadequate removable prostheses and prosthetic biofilm, greater patient comfort is also possible [10]. The soft material associated with oral hygiene guidance contributed to the remission of SD, which indicates that drug treatments can be suppressed when the patient is collaborative with the treatment [2].

In the present clinical case, the relining of the denture base with soft material added to the adequacy of hygiene habits were the treatment approaches for DS. When the dentures were installed, the patient was followed for 3 months, with the maintenance of the health of the palatal support tissues being observed, with no signs of disease recurrence.

4. CONCLUSION

It is concluded that the suppression of the contact between the contaminated acrylic base and the infected palatal mucosa through relining with temporary soft material proved to be an alternative and efficient therapy for the resolution of the clinical signs of DS in the long term. This procedure was also advantageous because it promotes patient comfort due to the softness of the material, in addition to readapting the acrylic base during the life of the reliner, which is similar to the period of conventional treatment with topical antifungal (14 days).

CONSENT

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understand that efforts will be made to conceal their identity.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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