



# Temporary Relining in Removable Prosthesis for Corrective and Conditioning Purposes: A Case Report

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## Authors' contributions

*This work was carried out in collaboration among all authors. Author JPSJ did the conceptualization, data curation and writing - review & editing. Authors IBV and LFG did the investigation, methodology, project administration and writing - original draft. Authors TSP and PPLA did the investigation and project administration. Author CCG did the conceptualization and writing - original draft. Author JFM did the supervision and writing - review & editing. Author STD did the supervision, investigation and methodology. All authors read and approved the final manuscript.*

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Case Report

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## ABSTRACT

**Objective:** To report a clinical case of tissue readjustment by provisional relining in an upper complete denture.

**Presentation of Case:** A 63-year-old male patient, melanoderma, asthmatic and type II diabetic, attended the dental clinic of a Higher Education Institution, complaining of pain when fitting the prosthesis. He reported that he had had a complete upper denture approximately 5 months ago.

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On clinical examination, hyperplastic lesions were noted in the anterior and middle portions at the bottom of the vestibule of the upper arch. The prosthesis, on the other hand, highlighted peripheral irregularities with a pointed aspect in the areas corresponding to the lesions. Given the conditions presented, it was urgently decided to remove the irregularities of the upper complete denture followed by provisional relining. After performing the technique, the patient was clinically followed up, after 30 days there was a decrease in the lesion.

**Conclusion:** The use of this technique in complete dentures as a provisional action aimed at conditioning the injured tissue and retaining the piece in the alveolar ridge was, therefore, satisfactory, meeting the main requirements for resolution of the case and suitability for subsequent continuity of definitive rehabilitation.

*Keywords: Dental prosthesis design; denture liners, dental prosthesis; dental prosthesis repair.*

## 1. INTRODUCTION

Dental prostheses are accessory equipment responsible for the aesthetic and functional reestablishment of the stomatognathic system [1,2]. They act directly in the return of lost functions, where they stand out mainly: phonation and swallowing [2]. These intraoral devices can be classified as: total or partial and may be fixed or removable [3].

Removable prostheses are characterized by being retained in teeth, also called tooth-supported and mucosa, known as supported mucosa [4]. The mucosa linked to the retention of the prosthesis suffers with advancing age, a process of continuous remodeling through factors such as: trauma; associated pathologies; and mainly tooth loss, conditions that can generate prosthetic misfit [5,6]. Generally, misfit occurs due to tissue remodeling or bone remodeling, and may be resolved through relining techniques, responsible for seeking again a new means of retention in the altered area [7].

In view of this scenario, when the complete denture is unadapted, a possible option is prosthetic relining, in order to promote a reconditioning of the part on the tissue [8]. This technique is classified as: definitive mediated by addition or replacement; and temporary by means of soft, resilient materials or with a silicone base [7,8]. Irregular prostheses end up causing considerable damage to the underlying tissues in which they are retained [9]. The appearance of these tissue lesions is promoted because of constant trauma in the area, leading to development of an inflammatory process [10].

Relining can also be used in cases of hyperplastic or ulcerated lesions associated with a prosthetic piece, gradually acting on the lesion to generate comfort for the patient [7]. When related to total edentulous patients, the main

pathology associated with prosthetic use is hyperplasia, whether simple or accompanied by ulcerations [10,11]. The need for post-tissue conditioning surgical procedures should be evaluated, as these lesions have developed to the point of that the technique alone is not able to act in the definitive resolution of the pathological condition [9].

In this way, the objective of this work is to report a clinical case of tissue readjustment by temporary relining in an upper complete denture.

## 2. PRESENTATION OF CASE

A 63-year-old male patient, melanoderma, asthmatic and type II diabetic, attended the postgraduate dental clinic, complaining of pain when fitting the prosthesis. After signing the consent form, the service began. In the anamnesis, he reported that he had had a complete upper prosthesis approximately 5 months ago in a Basic Health Unit. However, due to the closure of the unit, he did not return for follow-up and continuation of the treatment aimed at making the lower prosthesis at the time.

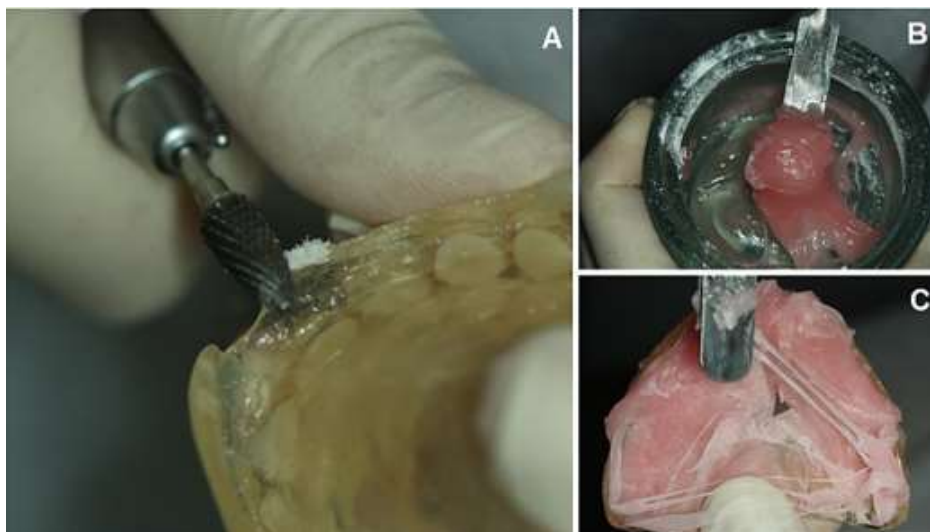
In the intraoral clinical examination, the following can be highlighted: edentulism in the upper arch and the presence of teeth 31, 41, 42 and 43 with unsatisfactory cervical restorations showing mobility in different degrees. In addition, lesions of hyperplastic tissue in the anterior and middle portions were noted in the deep vestibule of the upper arch. The prosthesis, on the other hand, highlighted peripheral irregularities with a pointed aspect in the areas corresponding to the lesions. The patient was asked to position the prosthesis in the mouth and smile, from that, it was noted the difficulty and excessive muscle tension for the execution of the act. In view of the conditions presented, it was urgently decided to remove the irregularities of the upper complete denture followed by provisional relining (Figs. 1a, 1b and 1c).

Initially, with the aid of a maxicut drill #1508 attached to the straight piece, the entire peripheral area of the prosthesis was removed and regularized, in order to improve adaptation to the ridge, as well as light wear in the region of the main sealing area intended for accommodation of the reliner material (Fig. 2a). Subsequently, with the irregularities removed, the amount of powder and liquid was proportionally measured according to the manufacturer for mixing the reliner material (Soft provisório, TDV Dental, Pomerode, SC, Brazil) (Fig.2b). When it was at the end of the fibrillar phase, the content resulting from the mixture was taken over the internal area of the prosthesis using a #36 spatula with subsequent adaptation in the mouth (Fig. 2c).

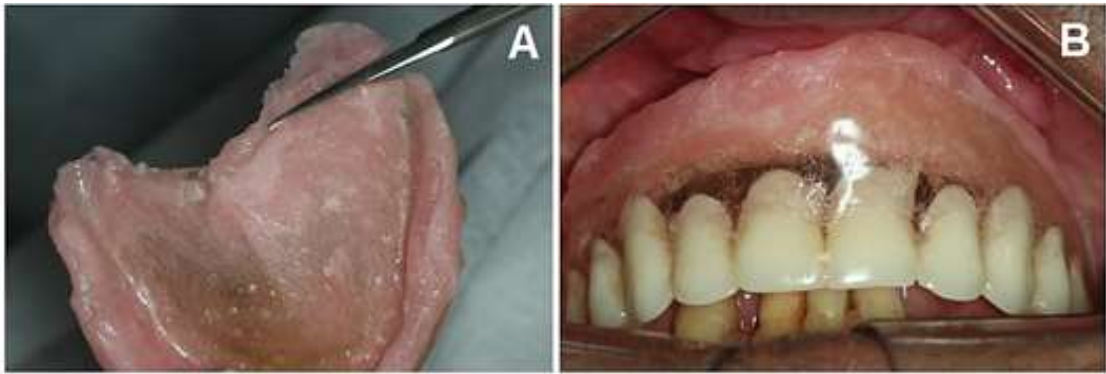
Extravasated excesses were directly removed with straight Iris scissors (Fig. 3a). The prosthesis was placed in the mouth in order to test the adaptation, verifying if the patient's complaint still persisted (Fig. 3b). After confirming the absence of signs of painful symptoms, finishing was carried out with maxicut #1508 drills in the outer buccal area followed by two applications of the reline material's own glaze, waiting for the time determined by the manufacturer (Figs. 4a and 4b). The prosthesis was again positioned in the mouth and the patient was asked to smile, which showed ease of performing the act and muscle relaxation during execution (Figs. 5a and 5b). The patient was clinically followed up, after a period of 30 days there was a decrease in the lesion, thus the ridge and tissues were conditioned.



**Fig. 1a. Initial aspect of the smile, showing difficulty smiling; Fig. 1b. Prosthetic adaptation on the lesions; Fig. 1c. Hyperplastic oral lesions**



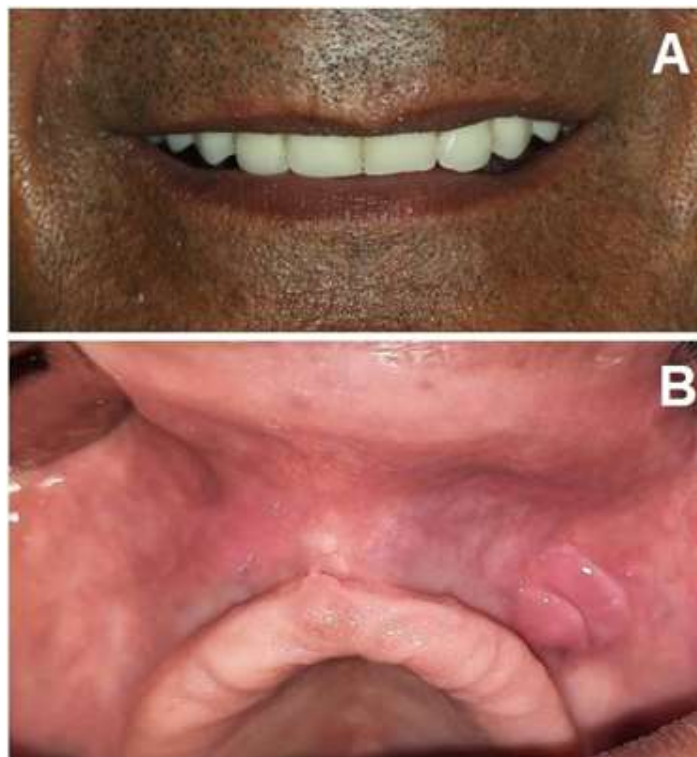
**Fig. 2a. Removal of peripheral edges; Fig. 2b. Preparing the reliner material; Fig. 2c. Adaptation of the material on the prosthesis**



**Fig. 3a. Removal of excesses; Fig. 3b. Adaptation in the mouth**



**Fig. 4a. Internal aspect of the relining; Fig. 4b. Front view of relined prosthesis**



**Fig. 5a. Appearance of the smile after relining; Fig. 5b. Appearance of the tissue after 30 days using the relined prosthesis**

### 3. DISCUSSION

The prosthetic relining technique is a reality in the daily clinical setting, not only on a temporary and urgent basis, but also permanently for new prostheses that do not adapt to the ridge after the acrylization process [12,13]. The tissues of the oral cavity are adapting the structures in which they are exposed, where the alveolar ridge tends to undergo modifications as age advances, consequently causing, in edentulous patients, the lack of adaptation in dental prostheses [4,14]. Bone remodeling resulting from trauma remains the main cause of loss of alveolar support causing reabsorption and tissue modification [14].

The appearance of oral lesions in patients with irregular prosthetic pieces varies, depending on the degree of irregularity, the type of prosthesis and mainly the determining factor that exposes the condition [11]. Occlusal disharmonies, trauma, lack of follow-up and inadequate hygiene are highlighted as the greatest aids in the development of pathological conditions in the oral cavity of edentulous individuals, whether partial or total [1]. In the reported clinical case, the appearance of hyperplastic lesions confirmed in the histopathological report was generated by the direct trauma of the irregularities of the peripheral sealing with the bottom of the buccal vestibule previous. For Silva et al. [15] inflammatory hyperplasia and denture stomatitis continue to be the most prevalent pathological changes in denture users,

According to Batista et al. [16], it is necessary to observe the actual state of the lesion in order to avoid unnecessary invasive procedures, in some cases removing the cause of a given condition may be enough to resolve the clinical picture, characterizing a sufficiently invasive approach. However, the need for future surgical interventions in cases of recurrence or when the healing response is not enough to continue with the subsequent indicated treatment should be observed [9]. In the a fore mentioned report, despite highlighting acceptable conditioning, there was a need to Intervene surgically, as the hyperplastic process at the end of the vestibule could subsequently interfere with the making of the definitive prosthesis.

In the report presented, the provisional relining served as initial conditioning for adequacy and hyperplastic reduction in the area traumatized by the excess of spicules in the periphery sealed area of the prosthesis. Temporary relining in

general is shown to be necessary and easy to perform in tissue conditioning on traumatic injuries, acting as an inhibitor of the causal traumatic factor [17]. Definitive techniques would not be ideal at this first moment, as tissue changes occur gradually, that is, the misfit could occur again after modeling the areas close to the edge [8,13].

The use of soft, resilient materials based on silicone for the resolution of cases involving these characteristics present immediate functionally satisfactory results [18]. Regarding the cytotoxicity of this material, for Caldas et al. [19] regardless of the commercial brand, they have low effects evaluated through multiple parameters of bacterial culture on these products. When the requirements are surface hardness in the longitudinal direction, these materials suffer slight degradation mainly due to exposure to oral fluids [7].

This form of previous treatment according to Goiato et al. [18] presents satisfactory immediate results, however, with regard to longevity Chladek et al. [20] explain about paying attention to patient follow-up, since it is a provisional technique. The patient was periodically followed up, with no complaints of maladjustment or pain with the prosthetic fitting, confirming the removal of the cause and resolution of the initial complaint. Despite having good results, only provisional relining is not the final resolution, and it is necessary to observe the need for definitive rehabilitation treatments that fit the profile and condition in which the patient is found [1,4,9].

### 4. CONCLUSION

The use of relining in complete dentures as a provisional action aimed at conditioning the injured tissue and retaining the piece in the alveolar ridge was, therefore, satisfactory, meeting the main requirements for resolution of the case and suitability for subsequent continuity of definitive rehabilitation.

### CONSENT AND ETHICAL APPROVAL

As per international standards or university standards, Participants' written consent has been collected and preserved by the author(s). This work was submitted to the Ethics and Research Committee on Human Beings, approved under opinion 5.900.094.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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