



THE IMPORTANCE OF DEPROTEINIZATION IN DENTAL REHABILITATION

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ABSTRACT There is many studies and literature that demonstrates that the objective of deproteinization is to increase adhesion to enamel. Deproteinization of enamel prior to acid etching allows phosphoric acid to enhance its action on the enamel surface by increasing etching, generating greater retention, marginal sealing, and excellent long-term clinical results. This new procedure should be added to the enamel adhesion treatment protocol. NaOCl denaturants proteins and does not cause changes in the mineral structure of the enamel. In addition, it increases the quality of the etching pattern by removing organic matter and the film acquired from the enamel surface. This clinical procedure is an indispensable tool that optimizes the results of the conventional etching technique, to achieve greater morphological conditioning and generalized undercut areas on the enamel surface, by allowing an increase in the retention of resin-based materials. The success of a good adhesion is achieved through the retentive capacity achieved during a correct etching of the enamel, for which it is required that the entire surface of the enamel have an adequate etching pattern that allows optimal etching.

KEYWORDS : Deproteinization, Acid etching, Adhesion, Enamel

INTRODUCTION

The technique promoted by doctors Valencia and Espinoza (2015), now there are alternative solutions for teeth that were only treated with crowns or orthodontic treatments.

This deproteinization technique optimizes the results of the conventional etching technique, by achieving greater morphological conditioning and generalized retention areas on the enamel surface by generating greater retention and sealing of resin-based materials. The basic principle is the elimination of the organic material from the surface of the enamel or even that of the enamel itself that is found between the crystals, because this organic material forms a resistant barrier so that the Phosphoric Acid and the adhesive act correctly, as mentioned by Pereira (2021). Because the organic matter of the enamel surface, better called the acquired pellicle, is a thin, structureless membrane that forms as a result of the integration of mucoproteins and bio adhesive salivary sialoproteins with affinity for the surface of dental tissues, bacteria are incorporated into it, forming a biofilm where the plasma contributes to the thickening with some products such as Immunoglobulins (IgG) as part of a host system / Dentobacterial Plaque, as mentioned by Venezie (1994). These enamel-specific proteins, added to those found as part of an acquired or developing pellicle, serve under natural conditions as a protection system against the organic acids of some microorganisms. However, when we intentionally want to etch a surface, the organic material acts as a barrier in the dissolution of the prisms, therefore decreasing the effectiveness in the adhesion of resinous materials. Valencia (2015)

Thus, the importance of carrying out the deproteinization of the enamel prior to acid etching as a basis for achieving that the phosphoric acid exerts its action on the surface of the enamel to be treated, increasing the retentively etched enamel surface, with the possibility of obtaining greater retention, marginal sealing, and excellent long-term clinical results. This new procedure should be added to the enamel adhesion treatment protocol. Espinoza et al. carried out in 2008, the enamel deproteinization protocol with 5.25% NaOCl for 60 seconds prior to the acid etching technique, achieving a better quality in the etching patterns, since a significant increase in the amount of type I and II pattern was observed. Valencia (2015)

Based on this deproteinization protocol, a lower right canine, which has an important occlusal function, was rehabilitated with nanorefill resin such as the Z350 of 3m, since there was no possibility of performing a crown or The need to perform restorations every day in dental practice with the least wear on enamel and dentin tissues has allowed the adhesion systems to be improved to perform ever higher volume with a good forecast in durability good durability forecasts.

Thanks to the enamel deproteinization orthodontic treatment.

OBJETIVE

Design the rehabilitation of a lower right canine with 3M Z350 nanofiller resin with the deproteinization protocol, and leave the canine enabled to perform its occlusal functions and contribute to the aesthetic appearance of the patient in a single appointment.

MATERIALS AND METHODS

A 25-year-old patient presented to the BUAP Stomatology clinic in February 2019, to request the rehabilitation of the canine (figure 1), the intraoral examination revealed that the lower right canine was intruded, without caries and all the other dental organs were with a stabilized occlusion. The treatment plan was presented to the patient as follows; The first proposal was the orthodontic treatment to stabilize the canine in the occlusion like the other teeth, the second proposal was the rehabilitation with a metal-free crown to stabilize the occlusion and the third treatment plan was to rehabilitate with a resin as an alternative treatment. that is functional, aesthetic, long lasting and meets the expectations of the patient. The third treatment was the one accepted by the patient due to time and costs.

The procedure first, an impression was taken to prepare the diagnostic wax-up (figure2), later a silicone guide was taken from the diagnostic wax-up, open isolation of the area was performed on the patient, deproteinization of the enamel was performed with 5.25% NaOCl for 60 seconds. and washing for 15 seconds, then the (H3PO4) was applied for 15 seconds and washes for 30 seconds, ending with the application of a first layer of universal adhesive with indirect air application for 10 seconds and a second layer of adhesive and application of air for 10 seconds to finish with the photocuring of the adhesive for 10 seconds. Silicone guide is tested (figure 3), once the enamel was prepared, the first layer of resin placed on the silicone guide was stratified to adhere it to the enamel and light-cured and thus apply a 1.5 mm layer until the silicone guide was covered (figure 4 and 5). Subsequently, the resin was polished with the soflex disc system.



Figure 1 Estrada, B. (2022)

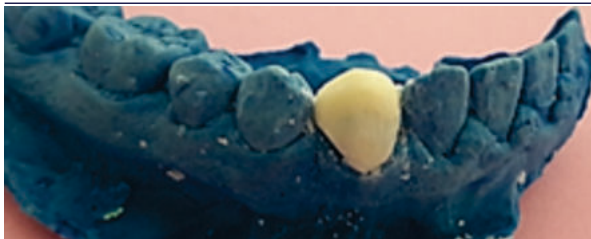


Figure 2 Estrada, B. (2022)



Figure 7 Estrada, B. (2022)



Figure 3 Estrada, B. (2022)



Figure 4 Estrada, B. (2022)



Figure 5 Estrada, B. (2022)

RESULTS

The adequate anatomy was reconstructed for the correct occlusal function of the canine and the aesthetic appearance was improved, which allowed the patient to have a rehabilitated tooth with a good prognosis thanks to deproteinization, (figure 6 and 7). It takes 3 years with a good seal, function, and aesthetics. It keeps me under constant observation for its long-term evaluation, to account for the period of life that is in excellent condition.



Figure 6 Estrada, B. (2022)

CONCLUSIONS

With the current adhesion systems and the deproteinizing agent, it is possible to carry out rehabilitations in teeth with important functions in occlusion, with good functional and aesthetic results in the same consultation, when it is difficult for the patient to undergo rehabilitation with orthodontics or prosthetic rehabilitation. Follow-up is maintained to determine the exact time of life, until now it has been 3 years and 9 months.

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