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Research Paper

TECHNIQUES TO AVOID BLEEDING OF GINGIVA DURING DENTAL RESTORATIONS - HAND INSTRUMENT FOR GINGIVAL DISPLACEMENT

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ABSTRACT

Introduction: when a dental restorative treatment is done near the gingiva, it can bleed and restoration will be defective. Theaim of this work was to study techniques that prevent techniques that prevent the bleeding of the gingiva during dental restorations and propose a hand instrument for gingival displacement. Materials and methods: It was made a review of dental products distributed online through the web pages of 50 companies, from 6 different European countries. It was tried to locate materials and hand instruments to prevent bleeding of the gingiva during dental restorations. Results: no hand instrument was found among the materials distributed by those companies for that purpose. We propose an instrument consisting of three parts: an "active part, "a "handle" and a "zone of union". Discussion: for its application, it is placed in the "free gingival sulcus". Direct pressure on the gingiva gives hemostasis, which facilitates the restoration. Conclusions: the usefulness of this instrument is in "Conservative Dentistry" to restore tooth cervical lesions.

KEYWORDS :Restoration, instrument, retraction, gingival, hand

INTRODUCTION

Cavities in the tooth surface are usually caused by bacteria and they should be restored with a dental treatment. Dr. G. V. Black, more than a century ago, classified these cavities in 6 types according to the area of the tooth where the injury was located [1]. This classification is still used today. The cavity "Class V of Dr. Black" refers to a lesion on dental gingival surface, which can be both lingual and buccal sides of tooth.

When the dental restorative treatment is made in an area close to the gingival the bleeding can occurs and that prevents the apposition of filling materials during the restoration. If a conditioner of cavity, adhesive, silver amalgam, ionomer, composite or any other restorative material is placed in these conditions, they are contaminated with blood from the gingiva. Then a film is formed between that materials and the dental surface, and finally the restoration will be defective.

Occasionally, the composite used to restoration can have a contraction, causing a failure of the marginal seal and loss of adhesive bond [2].

Over time, different solutions have been proposed, among which are:

- Electrocoagulation of the gingiva.
- Lengthening of the crown by mucogingival surgery sutured apically, with subsequent restoration in a second time [3].
- Retraction cord [4-9]: it can be impregnated in aluminum chloride with lidocaine (racestyptine, Septodont), in adrenaline and phenylsulfonate (medi-Kord thread, maison dentaire), or do not carry any impregnation (septofil retraction thread, Septodont). It is vasoconstrictor and astringent. For use it is introduced in the "free gingival sulcus", pressing the gingivaoutside the restoration site.
- Strips [10]: similar to the retraction cord.
- Rubber dam: it has been described as an element of isolation [11], which can be used in all areas of restorative dentistry [12], including cervical lesions [13].
- Astringent gels, or derivatives of kaolin and aluminum chloride [14] or other types of medicated pastes [6, 7, 15-20].
- Transparent or steel matrix bands [14, 21]: it must be fastened with tweezers. Taking into account the above, the objective of this work was to study techniques that prevent bleeding of the gingiva during dental restorations and propose an instrument for that purpose.

2. Material and methods

It was made a review of dental products distributed online through the web pages of 50 companies, from Germany, Spain, France, England, Italy and Portugal, (table1). In their product catalogs was studied hand instruments and materials that prevent bleeding of the gingiva during dental restorations.

3. Results

No hand instrument was found to that purpose, for this reason we specifically propose one, which consist of three parts (figure 1):

- An "active part" that has a curved shape to adapt to the tooth and the gingiva. It is flat to be inserted between the tooth and the free gingiva. It has a concave part (close to the tooth) and a convex part (close to the gum).
- A "handle" of the instrument that is an elongated cylinder that can be variable in its shape. Its only function is to hold the instrument.
- A "zone of union" between the active part and the handle, short in length and with a variable angle.

A single handle can have two active parts, one at each end, which may be the same or different in size.

4. Discussion

The solutions proposed to avoid bleeding of the gingiva during dental restorations, have several drawbacks. For example, electrocoagulation requires previously prepare the electrocautery and it increases morbidity in the gingiva. The retraction cord [4, 22, and 23] is sometimes difficult to put on and in other occasions it damages the gingiva or causes more bleeding during its application. The rubber dam [11-13] has been described as very useful, but in practice clamps can rarely be put, because they adapt poorly to the area. Astringent gels [14] have several drawbacks, such as: a) they usually require wait time for the chemical effect on the gingiva, b) they do not always give the expected result [24], c) they sometimes can cause inflammatory reaction [25, 26] and d) they can be potentially cytotoxic [28]. Some authors indicate that these systems are better than the use of retraction cord [6, 7, 28, 29], although for other authors [30, 31] the latter give greater retraction. Transparent and steel matrix bandsare another alternative [14, 21], but when two pieces (matrix and clamp) are used to isolate the area it is more difficult than if only one element is employed. Most of the gingival

retraction systems are mechanical-chemical, but according to authors there are not significant superiority between them [32, 33].

Taking into account the previous products we propose a hand instrument that avoids those inconveniences. For its application, it is placed next to the area of the tooth to be restored, in the "free gingival sulcus" pressingthe "free gingiva" (figure 2). Direct pressure on the gingiva with the instrument gives a rapid hemostasis and that allows an easy restoration. This pressure must be maintained throughout the time in which the restoration is being carried out. In most cases the dentist can hold the instrument in place with one hand while the other one does the restorative treatment. In some other case it may be necessary to do a "four hands" treatment, with the help of the clinical assistant at the same time.

Compared to the other gingival retraction systems, the advantages of this instrument are:

- It is easy to use.
- It is a single instrument. The electrocautery or the matrices, both have several elements, or requires several instruments.
- It has rigidity and can be applied in the area with a single hand movement. This does not happen with the retraction cord, which requires several movements of the hand, to finally place it in its place.
- The instrument can be sterilized.
- It is quick to apply, which speeds up the treatment. This does not happen with astringent gels, because they require time to take effect.
- It has easy control. The dentist is who makes direct use of the instrument pressing on the gingiva.
- It has predictable use. It is easy to see the result of their use.

CONCLUSION

The utility of this instrument is in "Conservative Dentistry", to restore cervical lesions of the teeth, Class V according to the classification of cavities of Dr. G.V. Black.

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