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ADVANTAGES AND DISADVANTAGES OF GOLD INCRUSTATIONS

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Introduction

Incrustations are fixed, small-sized unidental prostheses, which morphologically and functionally restore a loss of substance in a tooth. Incrustations have multiple indications: morpho-functional reconstructions of teeth affected by less extensive or shallow caries, restoration of a functional occlusion, as aggregation elements (retainers) for less extensive bridges, in occluso-proximal cavities, either through the classic inlay method, or through the modern fixing method using adhesion techniques, in immobilizing periodontal teeth, as a support for skeletal prostheses (slot for the occlusal spur of cast clasps).

There are no absolute contraindications, as only some relative variables are incriminated, such as: caries that are too extensive or deep, marked predisposition for caries, poor oral hygiene, retainers on the terminal or intermediary abutments in extensive intercalated edentations, on depulped (reliable) teeth, in young people under 18, when preparation may endanger the pulp chamber, in unfavorable occlusions.

Materials and methods

The preparation of cavities to make incrustations obeys certain principles and successions of stages, as described by Black, such as: opening the cavity, softened dentin exeresis, preventive extension, assurance of retention, assurance of wall resistance, beveling cavity margins, cavity check, retouching.

Incrustations also follow several stages: preparing the cavity, taking the dental impression, but only when the dental practitioner does not apply the method of making the incrustation mockup directly into the patient's mouth, the model – which must be precise, identically recreating the situation occurring in the patient's oral cavity, the mockup – made of wax or synthetic self-polymerizable resin, representing the future incrustation, the mold, preparing the packing mass and the packing itself (classic and modern). Instruments used to this end are: modeling spatula, electric modeling spatula, vibrating spatula.

The mockup of the future incrustation can be constructed according to two techniques:

The direct method, which is executed in the practitioner's office. Thus, the plastic-coated wax bar is inserted and pressed into the subsequently prepared cavity. For occluso-proximal cavities, a matrix is also used. The excess is excised and then detached, using a metal rod placed into a vertical axis. In addition to this wax-modeling technique, self-polymerisable acrylic resins can also be used.

The indirect method. This technique involves mockups being constructed in a dental technology laboratory. The model is isolated for 10 minutes in warm water, at 35-40 degrees Celsius. The incrustation cavity is filled with wax, either by dripping, or by compacting. Modeling begins with the removal of wax excess, so that there is continuity between tooth surface and wax surface. The surface of the model must obey the

morphology of the tooth surface which it restores. This is followed by the model finishing phase, which is carried out with warm air, and the polishing phase, using a cotton ball soaked in chloroform, alcohol or gasoline. Metal rods with a diameter of 1- 1,5 mm, fixed to the thicker area of the mockup, are used order to remove the mockup from the model. These rods are used to remove the mockup from the cavity, transport it to the laboratory and pack it. They also constitute the skeleton for the mockup of future drainage ducts of the alloy molten in the mold. The ultramodern method is an optical impression, a state-of-the-art technique developed by Horman an Brandestini.

A micro video camera allows the analysis of preparation accuracy on a monitor. Subsequently, based on the sized memorized by the computer, it is recommended to use a mini-lathe with diamond disks, which executes the inlay by carving it from a ceramic, composite or glass block, in a few minutes and under a jet of water. Also, in controlling the preparation, the "Cere" computerized system can also be used, which measures the preparation three-dimensionally, while the image is processed in the oral cavity using a micro video camera.

Figure 1: Cavity prepared for future incrustation

Figure 2a: Mockup of future incrustation

Figure 2b: Mockup of future incrustation

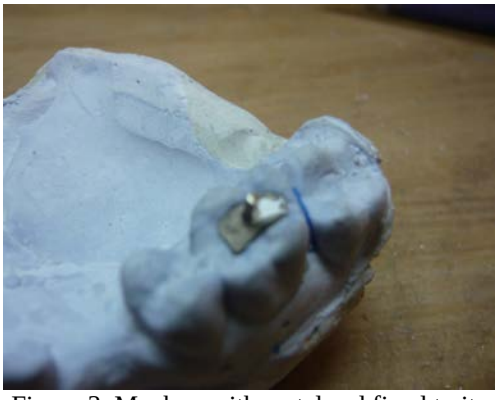

Figure 3. Mockup with metal rod fixed to its thickest area

Figure 4: Incrustation in its final form

Results and discussions

Incrustations are prosthetic pieces reconstructing the functional morphology of dental tissues, which are cemented in specially prepared cavities in the depth of coronal tissues. Following comparisons made between obturations and incrustations, we reached the conclusion that the indications for the latter are much more comprehensive, as they are much more resistant and can also be used as aggregation elements. These "dental jewels", as some call them, can be used in almost all cases where regular coronary obturations can be made from composite material, but especially in situations where it is desired to protect remaining dental tissues after massive tissue loss.

There is only one difference between the two types of incrustations (gold and ceramic), which concerns esthetics; not even that, but in people with low predisposition to caries, gold incrustations can have a much longer "life".

On the other hand, a metal incrustation, in this case gold, as compared to a regular obturation carried out by us in the dental practice, has the capacity to recreate a lot more faithfully the properties of the dental crown in terms of function and contour. From the standpoint and desire of any of us to save as much as possible from dental tissue and to postpone covering teeth with enveloping crowns, it is opportune to recommend and use dental incrustations in cases where this is possible.

What recommends incrustations for use are their multiple advantages. One of the strong reasons in supporting the use of incrustations is the airtight sealing that it achieves between the prosthetic piece and the tooth, thus reducing considerably the occurrence of secondary caries. Marginal adaptation is clearly superior to ordinary obturation. Its superior precision and resistance to attrition, as compared to regular obturations, are other advantages that cannot be neglected, as is the much easier hygienization of teeth than can be achieved in the conditions of an enveloping crown.

In the case of enveloping crowns, sometimes the patient can feel discomfort, which does not happen with incrustations.

For all its known advantages, there are also some disadvantages, such as the unaesthetic color, the prolonged work time and the risks represented by the fact that incrustations can be detached if the cement is eroded or combined with saliva upon application.

Conclusions

1. Incrustations accurately reconstruct, from a morpho-functional point of view, teeth that lack tissue due to caries, fractures, abrasions or dental dysplasia, and in many clinical situations can replace obturations, especially those made of silver alloy.

2. The depth of cavities can be smaller than for obturations, which is a great advantage in terms of dental tissue economy.

3. They accurately recreate proximal contact points.

4. In terms of teeth immobilization, it is a form of treatment in periodontal diseases.

5. It can be successfully used in reduced edentations as aggregation elements on mesial abutments.

6. In extensive edentations they are included in pre-prosthetic preparations, as supporting and anchoring elements for removable prostheses.

7. They form occlusal stops to stabilize the occlusion in occlusal imbalances.

8. In spite of the many pro-incrustation arguments, there are also some disadvantages: use of a costly alloy (gold); very demanding in terms of both clinical and technical execution; the possibility of endangering the remaining thinned walls of some teeth; the possibility for the incrustation to act with a puncture effect on the devital teeth, which can cause fractures in the affected tooth.

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