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Restorative treatments without tooth preparation

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World Dentistry has been going through a very worrying moment regarding over-indication of ceramic dental restorations. In an article published in 2011, the author denounced unrestricted use of ceramic restorations in favor of a created dental esthetic¹. In order to reach such result, a lot of tooth preparation was required, besides endodontic treatments and the use of intra-radicular retainers, with no other purpose but allowing cementation of ceramic pieces. Similarly, the technique of dental contact lenses and ceramic fragments without preparation has been excessively indicated, which results in esthetic, periodontal and functional losses. That was reported by Calamia², in 1985, who described the technique, for the first time, in a scientific paper, in which the modality resulted

in several fractures and persistent gingival inflammation, due to the cervical upper contouring. How much have we evolved since then?

The interest in not abrading the dental structure is unquestionable, because enabling esthetic treatments of recontouring without causing enamel to be eroded is really attractive, with obvious advantages – and sometimes it is possible. In order to do that, three points must be considered in clinical cases planning with indication of indirect procedures without tooth preparation: the insertion axis, dental arrangement and color alteration.

The insertion axis of the indirect piece, be it made of ceramic or composite resin, must be taken into account, once these materials do not show enough resilience to be deformed,

How to cite: Kabbach W. Restorative treatments without tooth preparation. J Clin Dent Res. 2016 Oct-Dec;13(4):20-6.

DOI: <http://dx.doi.org/10.14436/2447-911x.13.4.020-026.oar>

Submitted: October 03, 2016 - **Revised and accepted:** November 10, 2016.

contouring retentive areas of the tooth, and go back to its original shape. The settlement must occur in a passive way without the interference of retentive regions, and the cases in which the teeth are naturally expulsive and preparation is not necessary are very rare – frequently, strategic tooth preparations must occur in the retention regions until an insertion axis is established.

The dental arrangement that is supposed to be achieved as a result of the treatment also has to be considered, for the buccal projection of the teeth or part of them demands tooth preparation, which can be done only in the region that interferes in the intended dental arrangement. In such cases, the orientated preparation guide technique by a technician in Dental Prosthesis³ may be well indicated as an option to preserve dental structure.

Another aspect to be evaluated is the color of the substrate and the color that is aimed at after the cementation of the pieces. When one or more teeth are darkened, tooth preparation must occur, in order to ensure enough material thickness to disguise the unintended dark color and, thus, achieve the desired light color.

Still, even in ordinary situations, the technique of ceramic fragments and of dental contact lenses may be performed without tooth preparation – a situation that demands the combination of the following characteristics from the teeth to be restored:

1. Originally showing little coronal volume;
2. Being naturally expulsive;
3. Being in a verticalized position;
4. Having no crowding;
5. Showing good alignment;
6. Having favorable color.

Clinical cases that meet all these prerequisites are rare, once not corresponding one of these criteria impairs indirect dental treatment without

preparation. However, applying composite resins by the indirect technique is a treatment alternative in cases of esthetic recontouring in which the option is not exposing the dental structure to preparation. That is exactly the point of tangency between the techniques of contact lenses and ceramic fragments with direct composite resin, which fosters the erroneous idea that both techniques have the same indications. That mistake should not be made, because the use of composite resin in the direct technique does not require an insertion axis, which is required by the indirect one. Therefore, if the intention is avoiding preparation, the indication of composite resin with the direct technique is correct, for it can be performed in retentive teeth even without preparation.

CLINICAL CASE

Two cases will be presented (A and B), in which the main complaint by the patients was very similar: the unpleasant appearance of the anterior teeth. Yet, when analyzing the cases morphologically, they are distinct in the following aspects: in case A, the teeth originally showed little volume, they were expulsive in their majority, verticalized in the anteroposterior axis, without crowding, favorable color and acceptable alignment, except for tooth #12, which showed inclination that broke into the buccal plane. As for case B, it showed retentive and voluminous teeth, bearing in mind their prominent proximal crests and round shape of the coronal portion.

The clinical conduct must meet the main complaint of the patients, but not mandatorily be the same. Case A was restored with dental contact lenses in ceramic, without preparation, in teeth #11 to #22, and preparation guided by the laboratory in tooth #12. As for case B, there was restoration with addition of composite resin by the direct technique without tooth preparation.

Case A



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Figure 1: Initial appearance of case A: observe teeth with little volume, with diastemas, but showing favorable color. **Figures 2 and 3:** Teeth #11, #21 and #22 verticalized or even slightly palatally inclined, besides being naturally expulsive; tooth #12 with unfavorable inclination, for breaking into the buccal plane. **Figure 4:** In occlusal view, it is possible to observe that, although with disarray, teeth #11, #21 and #22 do not break into the buccal plane, only the mesial of tooth #12 does it.

Case B



Figure 5: Initial appearance of case B, voluminous and retentive teeth. **Figures 6 and 7:** Observe the voluminous proximal crests and the oval anatomy of the dental crown. **Figure 8:** Teeth well aligned with the buccal plane: observe the prominence of the proximal crests, in incisal view.

Case A



Figure 9: In case A, preparation planned by the laboratory in teeth #12 was necessary, a guide made by a technician in dental prosthesis (TDP CD Ivan Ronald Huanca) was placed in the tooth. **Figure 10:** With the guide, preparation is performed in a precise way, to preserve the dental structure as much as possible and not interfere in the settlement of the ceramic pieces. **Figure 11:** Dental contact lenses in ceramic cemented to teeth #11, #21 and #22 (DPT CD Ivan Ronald Huanca). **Figures 12 and 13:** Observe the anatomy that was possible to achieve. **Figure 14:** In incisal view, it is possible to notice the buccal alignment of the teeth, achieved after cementation of the thin ceramic pieces.

Case B



Figure 15: Case B, during the addition of resin to strategic points, to provide greater harmony to the set of anterior teeth. **Figure 16:** Immediate appearance after finishing and polishing. **Figures 17 and 18:** Significant esthetic gain with the addition of composite resin without tooth preparation. **Figure 19:** Result achieved.

CONCLUSION

The fulcrum of clinical decision making must be in balancing tooth preparation with esthetic gain, once, in teeth with favorable color, proper positioning and voluminous, it is possible to obtain great esthetic gain only by adding small portions of composite resin, in a strategic way, for correcting dental arrangement, providing harmony to the smile without performing any preparation.

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