

# 'No-Prep' adhesive restorations: another way to deal with aesthetic deficiencies

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## \_Introduction

The use of ceramics in the form of veneers or crowns was, for a long time, considered the only satisfactory and durable solution to the aesthetic deficiencies of the smile, in young as well as adult patients. This hegemony of ceramics which, for that matter tends to linger, is favored by the dental industry that invests significant amounts of money to promote its materials and new technologies, without always showing a lot of consideration for the biomechanics of the healthy tooth.

The sheer aesthetic criteria must, therefore, be weighed against the biological and mechanical fundamental principles of the natural tooth in order to ensure the longevity of the restorations on one hand, and preserve the vitality and the integrity of the dental organ on the other hand. Thus, these considerations have been encouraging us for a long time to consider direct bonding techniques as a first choice alternative for the treatment of aesthetics deficiencies of the young smile especially, and in general, every time the extent of the defects allows it.<sup>1-6</sup>

The improvement of the aesthetic properties of restorative composite materials based on the model of the natural tooth<sup>5-9</sup>, also permitted to make direct restorations available to everyone, since they are no longer the prerogative of gifted clinicians trained to complex stratification techniques, inaccessible to the general practitioner.

Indeed, several systems have been developed during these past ten years, building on the 'Natural Layering Concept', consisting of only two basic layers (dentin and enamel) and an appropriate shade guide. The clinical protocols logically followed a simplification and an increase in reliability, which bodes well for our profession, always under economic pressure. Moreover, clinical results in the medium and long term about the use of direct composite as an aesthetic correction material, proved to

be reliable.<sup>10-12</sup> The goal of this article is, therefore, to present two clinical cases that illustrate the direct therapeutic approach and the aesthetic potential of composite systems based on the 'Natural Layering Concept'.

## \_Clinical cases

### *Case 1—Diastema closure*

This first case presents a simple application of direct bonding for diastema closure in a young patient also showing a dark dentin shade, as well as a mild fluorosis especially visible on incisal edges and canine tips (Fig.1). Given the age of the patient (15 years old), it was decided not to treat the fluorosis, which would have made whitening necessary, but also critical in view of the risks of sensitivity (Figs. 1-4). The treatment was carried out under rubber dam to ensure the quality of the bonding in the proximal areas, juxta-gingival and also for safety and comfort of work. The enamel surfaces were only prepared by sandblasting (aluminum oxide 25 µm) before phosphoric acid etching (H<sub>3</sub>PO<sub>4</sub> 35-37 %) for 45-60 seconds, given the fluorosis. The bonding procedure was carried out with a multicomponent system (OptiBond FL, Kerr) before the direct application of the composite in two layers, plus the application of an effect shade (inspiro system, EdelweissDR).

The stratification started with a layer of dentin (Body i3, inspiro) on the distal surfaces of the upper lateral incisors and on the mesial face of the right canine. A semi-opaque white effect shade (Ice, inspiro) applied on the dentin layer enabled to imitate the fluorosis stains and to improve the restoration mimicry; (Figs. 5 & 6). A layer of enamel (Skin White, inspiro) allowed to complete the restorations and perfect their aesthetic integration. The 'Natural Layering Concept' was followed to carry out this treatment, based on a bi-laminar application of the composite and



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8



Fig. 9



Fig. 10



Fig. 11

the dentine and enamel shades, accurately imitating optical characteristics of the natural tissues (Figs. 7–11).

*Case 2—Extensive reconstruction of the smile*

The second case presents a more extensive and complex application of direct bonding, but nevertheless based on the same clinical protocol. This case concerned a 17-year-old patient showing a hypodontia of the four upper incisors and also a generalised mild to moderate fluorosis (Type III

according to the classification of Thilstrup and Fejerskov) (Figs. 12 & 13). A preliminary orthodontic consultation had led to the recommendation of an essentially restorative solution to this problem. In addition, the relative complexity of this case suggested the preparation of a diagnostic wax-up and a guided intraoral mock-up in order to confirm the therapeutic choice and allow an aesthetic preview (Figs. 14 & 15).

The treatment was also realised under a rubber dam, using mainly interdental matrix, a silicone key and a caliper for the control of the new dimensions and dental proportions (Figs. 16 & 17). The reconstitutions were carried out by applying three shades like for the first case (dentin: Body i2, effect shade: Azur, enamel: Skin White, inspiro) (Figs. 18 & 19). The treatment was performed over two clinical sessions for comfort reasons. Figures 20 and 21 summarise the positive aesthetic impact of the treatment, as well as the stability of the result two years later (Fig. 22).

The difference between the two cases illustrating the versatility of bonding lies essentially in the diagnostic phase, which was more thorough for the second treatment.

**\_Reliable and aesthetic results**

The use of direct composites has thus become unavoidable in aesthetic dentistry in almost every treatment of the young smile and during aesthetic transformations of no or little restored teeth. This is a very positive evolution of conservative dentistry, supported by the aesthetic improvement of the materials and the simplification of clinical protocols. This article summarises the indications and advantages of the concept of the 'Natural Layering Concept' to reliable and highly aesthetic results.

**\_Figs. 1–4**

Preoperative extra and intraoral views of a young patient showing bilateral diastemas, complicated by a mild fluorosis.

**\_Figs. 5 & 6**

A direct approach has naturally been followed in this case, the restorations include a dentin shade (Body i3), an effect shade (Ice) and an enamel (Skin White, inspiro).

**\_Figs. 7 & 8**

Final intraoral views showing the good integration of the restorations.



Fig. 12



Fig. 13



Fig. 14



Fig. 15



Fig. 16



Fig. 17



Fig. 18



Fig. 19



Fig. 20



Fig. 21



Fig. 22

**\_Figs. 9–11**

General views summing up the therapeutic approach and the clinical procedures carried out under a rubber dam. The aesthetic integration is facilitated by the application of a concept of bi-laminar stratification, easy to implement and predictable, ideal for the treatment of aesthetic deficiencies of the young smile.

**\_Figs. 12 & 13**

Preoperative extra and intraoral views of a young patient showing a hypoplasia of anterior teeth.

**\_Figs. 14 & 15**

Wax-up and intraoral resin model according to the wax-up used to confirm the aesthetic and functional configuration planned on models.

**\_Figs. 16 & 17**

Intraoperative views and restorative procedures under a rubber dam in order to control the quality of the bonding and its longevity. View of the proximal dentine set-up on the 12.

**\_Figs. 18 & 19**

View at the end of the first session showing the new anatomy of the four incisors transformed by direct technic (dentin: Body i2, effect shade: Azur, enamel: Skin White, inspiro).

**\_Figs. 20–22**

Final extra and intraoral views and after two years. The direct approach, without reparation, represents an unequalled therapeutic advance for the aesthetic treatment of young patients and of the smile without any other form of pathology.

*Author's statement: The author declares having taken part in the development of the product used to carry out the two cases presented in this article but hasn't received any fees or royalties for this work.*

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**cosmetic**  
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