Direct stratification composite veneers

Procedure/Study by

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Unica anterior

powered by: STYLE ITALIANO



Dr. Jordi Manauta was born in Mexico City, where he graduated cum laude. in dentistry from UNITEC (Universidad Tecnológica de México) and was the apprentice of Dr. Miguel Angel Tamés (Mexico) and Dr. Walter Devoto (Italy). Dr. Manauta continued his postgraduate studies in Operative and Aesthetics Dentistry Master in UIC (Universitat Internacional de Catalunya) in Barcelona. He is a visiting lecturer in the Siena and Seville University. The doctor has developed various materials and instruments for aesthetic dentistry and photography in collaboration with international companies. He is the author of the book Layers (Quintessence 2012). Scientific consultant for two European Journals. Author and co-author of many publications in international journals, he is frequently invited as a lecturer on these topics. Dr. Manauta is dedicated to his private practice.

Introduction

Looking at the past, the most frequent concerns related to dentistry were healthy teeth and a correct smile.
The demand for aesthetics and conservative dentistry has increased significantly in the last decade due to patient desires. Nowadays aesthetics matters, perfect smiles are a must and it is proven that they influence the patient's self-esteem and psychosocial wellbeing [1].
Based on scientific statistics and clinical data, direct stratification composite veneers offer a valid solution for aesthetics rehabilitation in the anterior region.
Less expensive than a traditional ceramic solution, direct stratification of composite veneers can be performed in a single session treatment and can be modified during the stratification process to meet patients' needs.
Additionally, the evolution of standard and nano-filled composites leads to improved mechanical properties and wear resistance [2][3].
A recent meta-analysis of prospective studies on anterior composite restorations showed a median overall estimated survival of 84.6% after 5 years of clinical service [3].
Most common complications related to direct stratification composite veneers are fracturing, caries, staining, colour deterioration and change of surface roughness [4][5][6][3][7]. However, the easy repairing properties of composite materials may solve these complications.
Furthermore, direct restorations do not need enamel roughening, as etching with phosphoric acid is enough to improve bond strength.

Technique:

Direct stratification composite veneers consist in the direct application of one or more layers of composite resin directly on the tooth structure. The composite is then sculpted to correct colour and shape defects, allowing aesthetics restoration to be generally accomplished in a single appointment [8].
Different tools can be used to restore the correct shape and the emergency profiles of anterior teeth. Until today, the most common procedure for restorations with direct stratification composite veneers consisted in the restoration of interproximal and cervical margins in two different steps, using respectively two posterior matrices for the interproximal margins and a matrix band cut to a specific shape for the restoration of the cervical area.
In this case study, we decided to use the new anterior matrix Unica anterior from Polydentia, as it simplifies the procedure allowing to directly restore the whole emerge profile, cervical and interproximal margins, in a single step.
Employing this new matrix, the tooth's surfaces are first prepared and cleaned to accommodate the composite veneer.
The matrix is then positioned on the teeth and fixed in place. Usually, plastic or wooden wedges can be used to ensure a proper fixing of the matrix. As an alternative, e.g. in case of wide class III restorations where the wedge placement could compromise the interproximal profile by collapsing the matrix into the cavity, a liquid dam (e.g. Polydentia myCustom Resin) can be a valid alternative to hold the matrix in place.
Composite stratification is then performed: first of all, the emergency profile is restored followed by palatal walls modelling. A rough tooth morphology is then reconstructed with the application and sculptured with one or more layers of composite.
The final shape of the tooth is then contoured using burs, abrasive discs and polishing appliances.

Case Report

The patient, 52 years old woman, came to our attention discontent with her smile.
She presented maxillary anterior teeth with an inadequate anatomy and a fractured on incisor 11.
The clinical examination revealed caries free teeth and satisfactory oral hygiene.
After anamneses and clinical examination, we decided to proceed with 4 direct composite veneers on all central and lateral incisors using a fully adhesive and additive technique with minimal preparation.

The following case studies illustrate the direct composite veneering procedure using the new matrix Unica anterior from Polydentia.



01 The initial clinical situation showing the maxillary anterior teeth with unsatisfactory anatomy and the fractured incisor 11. We decided to proceed with a comprehensive aesthetics rehabilitation of the front teeth through direct stratification composite veneers.



02 The isolated field after cleaning, disinfection and polishing of the teeth surfaces. Different methodologies can be used to restore the emergency profiles of anterior teeth. We decided to proceed using Unica anterior from Polydentia, as it simplifies the procedure allowing to direct restore the whole emerge profile, namely cervical and interproximal margins, in a single step.



03 Unica anterior matrices placed on central incisors. In this case, the intrinsic rigidity of the steel matrices and the presence of intact contact points ensured a good stability and fix the matrices without the need of wedges and resin. In addition, the convex shape of the matrices makes it possible to position the rubber dam more effectively in the cervical area, guaranteeing better isolation of the operating field.



04 A bottom view of the central incisors highlighting the surface preparation.



05 The clinical situation after proximal walls build-up on incisor 21: at first, a universal system adhesive has been used to increase the bonding forces in the enamel before proceeding with the direct stratification of both mesial and distal interproximal walls using enamel composite. The same procedure was then repeated on the second central incisor.



06 After the interproximal walls build up, the palatal walls have been modeled in order to imitate the angulation of the tooth, using a slight amount of enamel composite placed on the finger. The enamel composite was then pressed onto the palatal surface and the previously modelled proximal guides, and light-cured.



07 Composite veneers stratification: at first, a layer of dentine was placed.



08 A second layer of enamel was placed to mimic the shades of the tooth and modelled to the final shape using spatula and brushes. The picture shows the composite veneers on central incisors before contouring ad pre-finishing before constructing the next tooth.



09 After contouring the central incisors, using the same methodology described before we proceeded with the direct stratification of the composite veneers on the lateral incisors.



10 Emergency profile build up on incisor 22. Once the material is photo-polymerised the matrix is separated and pulled off for better view.



11 The image shows the composite veneers on both lateral incisor 12 and 22 before proceeding with the contouring, finishing and polishing. The contouring and finishing was performed with a low speed diamond bur. The low speed allows to achieve a better control of the movement and improve the surface smoothness, even in case of coarse grit size. Pre-polishing was then performed using brown spiral wheel (3M, Germany) and polishing paste (premier, Diamond twist SCL), while extra gloss finishing can be achieved using a buff wheel.



12 The immediate outcome after rubber dam removal.



13 The clinical situation after final polishing and texturization of the restoration. This image has been taken during the 30 day check-up after the restoration.



14 The clinical situation after final polishing and texturization of the restoration. This image has been taken during the 30 day check-up after the restoration.



15 Clinical situation 3 months after the restoration.

Conclusion

Thanks to the evolution of composites materials, direct stratification composite veneers are nowadays a valid, quick and less expensive solution for aesthetics rehabilitation in the anterior region. Successful aesthetics and functional results are nevertheless strongly dependent on the operators understanding of adhesive processes and sculpting ability.
Different tool and procedures can help the clinician correctly restoring the emergency profile; among these, the new Unica anterior matrix stands out because of its simplicity and versatility, allowing to quickly and easily restore both cervical and interproximal profiles at the same time, strongly reducing the chair time, and bringing aesthetics restorations within everyone's reach.

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