Tokuyama Dental

clinic

International Clinical Cases

Restoring smiles in the world

clinicspecial

Restoring smiles in the world, this is the underlying theme we wanted to pursue to present to all the medical and dental professionals a collection, a book, a real atlas prepared with the skills of those who everyday tackle routine and sometimes very special clinical situations, or the increasing patients' requirements to restore aesthetics on their faces.

But let's not forget that, apart from aesthetics, which is possibly the only element patients are able to appreciate and judge right away, the professional (dentist) must face morphological and functional parameters which more than anything else make their work a successful work, creating that unique relationship based on trust with their patients. Indeed, these are the parameters that lead their *Hippocratic oath*, aimed at ensuring oral health for patients, and patients are at the centre of their treatment plans.
For the dentist, being able to achieve these results using with great satisfaction highly performing materials which help him/her to work in a simpler and more predictable way to meet the above parameters, that is to say aesthetics – morphology – function, is in our opinion an additional source of satisfaction.

It's the same satisfaction, shown to us by dentists all over the world, that drive us at Tokuyama Dental to develop materials which contribute to patients' health, improving and restoring their *smile* and also making our dentist "friends" *smile* when they use our products.

Once again therefore, after the experience of the first booklet, it is with great pleasure that we at Tokuyama Dental want to say a warm Thank you to all of our "friends", international dental professionals, who wanted, with enthusiasm, share with us their clinical experiences with our materials.
This, drove us to make this small collection to make it available to the large Tokuyama Community of dentists who will deepen how Tokuyama's products can help in everyday clinical practice.

Wishing you a good reading, we hope that more and more dental professionals will want to witness the pleasure to get in the game!

M.A.

Tokuyama Dental Italy

Marco Amore *Marketing Manager*

Stefano Zangrando *Product Manager*

A special thanks to our german colleagues of TDD
(Tokuyama Dental Deutschland GmbH - www.tokuyama-dental.de)
for the kind support of some clinical cases.

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“ A day without laughter,
is a day wasted.

Charlie Chaplin ”

clinic

International Clinical Cases

index

1

Direct restoration in anterior teeth

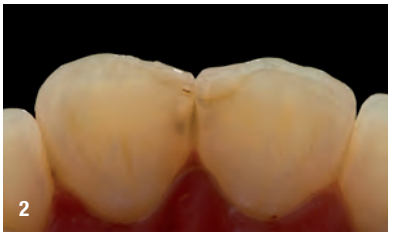
Anterior direct restorations

A Bio-Emulation™ approach

DR. LEANDRO PEREIRA
private dental practice in São Luís - Brazil

This young patient has suffered an accident, which resulted in fractures on her upper central incisors. Furthermore, one can notice the presence of caries from a palatal view. Direct restorations with composite resin were performed in order to reinforce the affected teeth and recover an aesthetically pleasing smile.

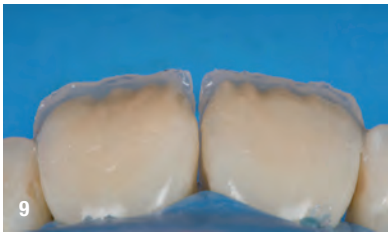
Initial situation

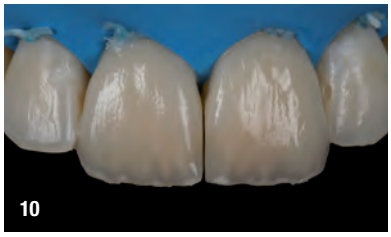


Figs. 1-3
Initial situation pictures, depicting important details such as the amount of teeth exposure with lips at rest, the depth of the cracks and the presence of decay - easily detected with the use of polar-eyes filter, from emulation.

Figs. 4, 5
The shade selection was performed using composite increments that should be photopolymerized and then inspected with the use of color- calibrated pictures with and without the polar-eyes filter.

Figs. 6-8 After bevelling the incisal edges of the two centrals, a sandblasting with 25 micron aluminum oxide particles was performed. Etching with phosphoric acid and proper bonding procedures were followed by the application of the palatal enamel layer - OcE from Estelite Asteria. OPA2 from Estelite Sigma QUICK was used as an internal opaque dentin layer and the mammelons were recreated with A3,5 Body from Estelite Asteria.





Figs. 9-11 After the application of an incisal transparent flowable composite, one can further characterise the restorations with Estelite Color stains, such as the white shade. A thin layer of A1 from Estelite Sigma QUICK was than applied and photopolymerized. The final enamel layer was performed with OcE from Estelite Asteria.

Figs. 12-14 The laterals were veneered with a thin layer of OcE and, after finishing with coarse discs, the rubber dam can be opened to facilitate the contouring and texturing procedures.

Figs. 15-17 All the surfaces are polished to a high gloss, using both diamond and aluminum oxide polishing pastes.

Figs. 18-21 Final pictures one week post-treatment, depicting the outstanding optical and surface properties of both Estelite Asteria and Estelite Sigma QUICK, from Tokuyama Dental.

Before

After

Maskage of an enamel lesion

Deep infiltration associated with a small amount of an aesthetic suprananocomposite

PROF. JEAN-PIERRE ATTAL
University of Paris Descartes (Paris 5) - France

Fig. 1 A central incisor with a white and brown lesion.

Fig. 2 After deep infiltration with a very low viscous resin (TEGDMA, see Ref. 1), the white lesion has disappeared and the filling of the small loss of substance is needed.

Fig. 3 A small amount of Asteria (Tokuyama) A2B is applied.

Fig. 4 After polishing, the mimetic effect of Asteria is obvious.

Ref .1 *Attal J-P, Atlan A, Denis M, Vennat E, Tirlet G. White spots on enamel: Treatment protocol by superficial or deep infiltration (part 2). Int Orthod. 3 févr 2014.*

Aesthetic morphological recovery

DR. DOMENICA LAFORNARA
Private dental practice in Martina Franca (TA) - Italy

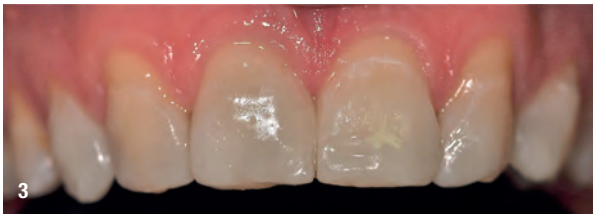
> “In order to patient’s request i decided to have an aesthetic morphological recovery, without compromising the tooth substance with a direct tecnique.”
>
> *Dr. Domenico Lafornara*


1

Initial situation


2

Trial the tooth form and color shade.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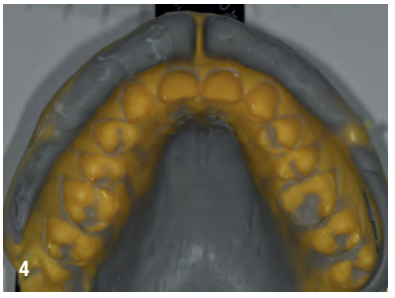
Patient’s agree.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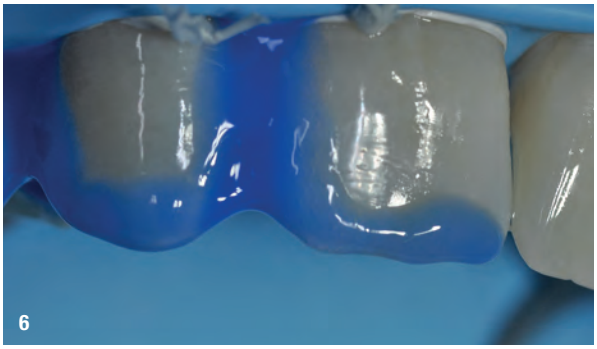
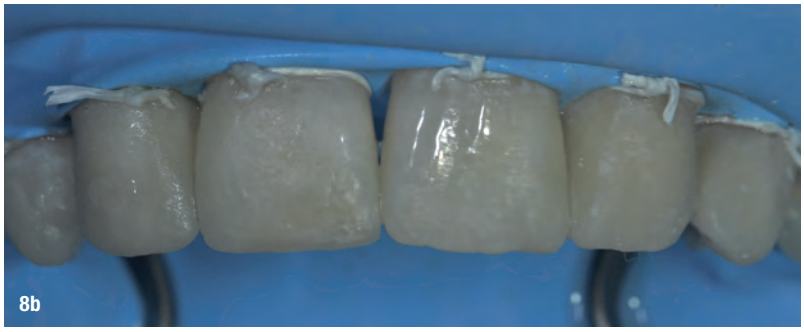
5a


5b



Etching system in enamel surface.

Rubber dam for a better adhesion value, before the clean treatment with pumice.



Layering of the masses.

Before recovery.

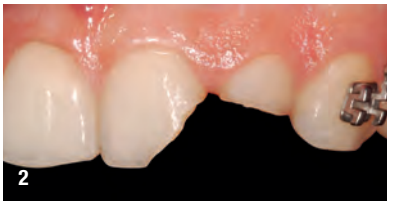
After, we can appreciate the excellent integration and the good texture.

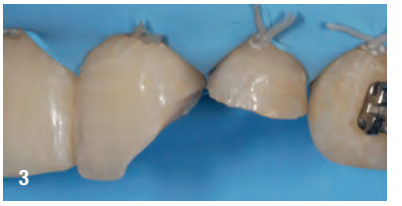
Aesthetic rehabilitation of the frontal group

Due to a trauma sports

DR. MARCO BAMBACE
The case has been made when he was at 5th year Padova University's - Italy student Restorative dentistry teaching holder Prof. Marco Calabrese

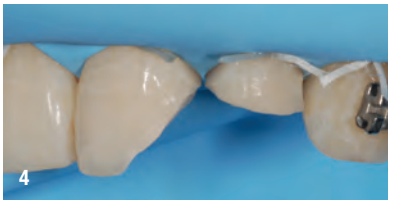
Initial situation

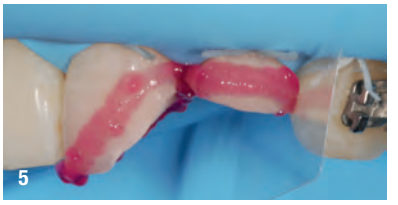


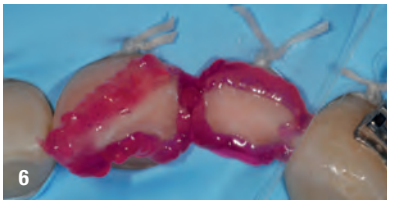


The patient comes to our attention following a sports injury that caused the partial coronal fracture of 2.1 and almost completely of 2.2 without the pulp exposure. After pulp vitality test (which was successful) we proceed to taking the impression, we made a diagnostic wax and a silicone key guide.

Isolation of the operating field through the use of rubber dam.



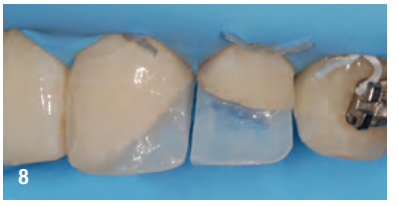


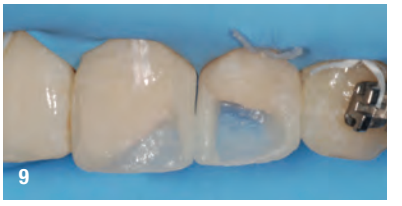


Preparation and finishing of the bevel with diamonds drill 40 microns.

Selective etching technique of enamel margins only with Tokuyama Etching Gel HV and wait 15 seconds.

Incisal view of selective etching technique.

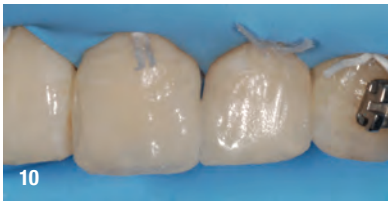




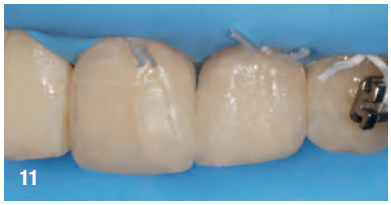
After rinsing the gel for 15 seconds with a waterjet under vacuum, the surfaces are dryed with a gentle stream of air and the adhesive system Tokuyama EE- Bond with "brushing motion" technique is applied for at least 10 seconds. Wait 10 seconds, then dry the adhesive layer for 10 seconds, first 5 seconds with moderate airjet to evaporate the solvent, and for a further 5 seconds in a direct way to ensure a uniform thickness. The adhesive is then light cured for 10 seconds.

Layering of a thin layer of Estelite Asteria WE mask using silicone guide (remaking of the palatal portion of the restoration).

Layering of Estelite Asteria WE to make the proximal wall and the contact point.



Layering of Estelite Asteria A2B which entirely cover the bevel preparation.



Layering of the last layer of composite Estelite Asteria WE using a natural bristle brush to composite.

Finish the restoration with multilama bur mounted to a contrangle red ring.

Polishing with rubber tips for composite.

Polishing with silicon carbide brush and diamond paste.

Control after 15 days. Note the seamless integration and mimetism of the restorations.*

Before and after

Before and after

** The teeth will be followed over time in order to assess its vitality.*

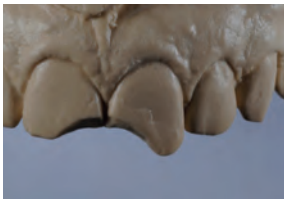
Aesthetic restoration and layering in class IV

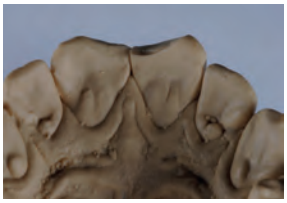
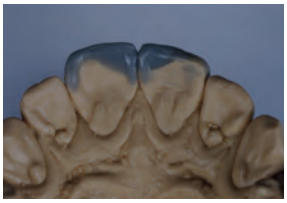
DR. FERNANDO AUTRÁN MATEU
Director of Autran Dental Academ, Barcelona - Spain
VicePresident of 'Colegio de Odontologos y Estomatologos de Cataluña' since 2014

Layering is a technique to achieve a real biocamouflage of our direct restorations in the anterior sector.
In this case, the fractures of both upper central incisors were solved with this technique, with a previous waxing, to restore appropriate proportions and minimize chair time.

Initial situation

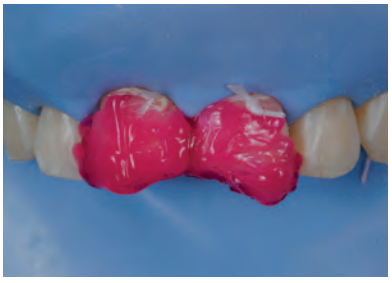
Male patient, 16 years old, comes in for non complex fracture of both his central upper incisors due to a trauma.
Mild gingivitis is present, due to poor hygiene, but without periodontal or pulp symptoms.
Some old restorations, fractured and adhered to the enamel, are still visible.



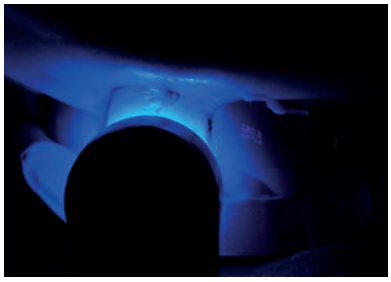
Impressions are taken and a wax-up is performed, restoring the lost anatomy and respecting the ideal proportions, to design a palatal silicone key.


The shade is selected before the isolation, and the correct settlement of the silicone key is checked.



Bonding protocol. Etching of the enamel and exposed dentin (Tokuyama etching gel) + bond (Tokuyama EE-bond).





Placing of palatal enamel (Estelite Asteria WE) with the silicone key.

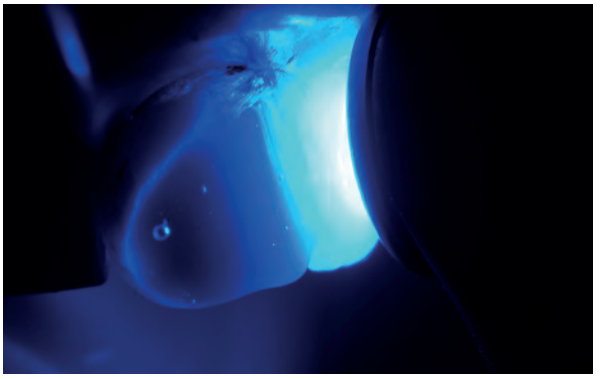
> "As for Estelite, both ∑ Quick and Asteria. For my taste handling is excellent. The spatuling is easy and pleasant, and therefore it is very easy to work with it. I love the polishing and the final result."
>
> *Dr. Fernando Autrán Mateu*



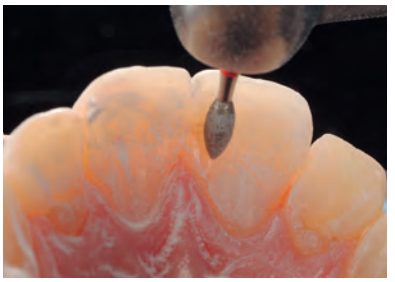
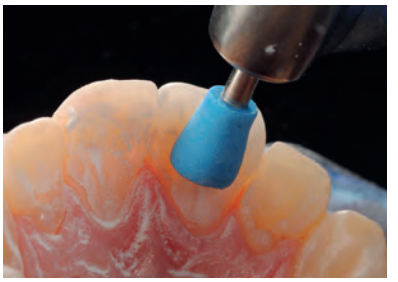
Palatal faces with Estelite Asteria WE.



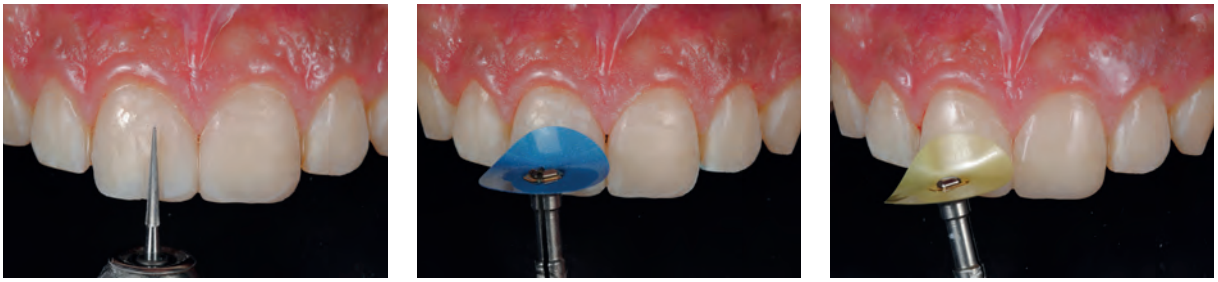
Layering technique, from left to right: Dentin with Estelite ∑ Quick OPA2, enamel shade for translucency Estelite Asteria NE and body shade with Estelite Asteria A2B.

Glycerin and final curing.

Occlusion check for finishing and polishing of the palatal face.



Finishing and polishing defining transition lines and vestibular planes by using tungsten carbide burs and discs.

Definition of the secondary anatomy with ball-shaped rubber. Interproximal polishing with polishing strips and final vestibular polishing with goat hair and polishing paste.

Final check and photographs

Restauration des incisives riziformes par composite stratifié

DR. PATRICK BOHN
Exercise d'omnipratique en cabinet privé, Marseille - France

CASE REPORTE

Cette jeune patiente de 17 ans vient de terminer son traitement orthodontique.
Elle reste génée par la forme de ses incisives latérales riziformes, recouvertes par un composite provisoire. (Figure. 1 et 2)

Initial situation


1

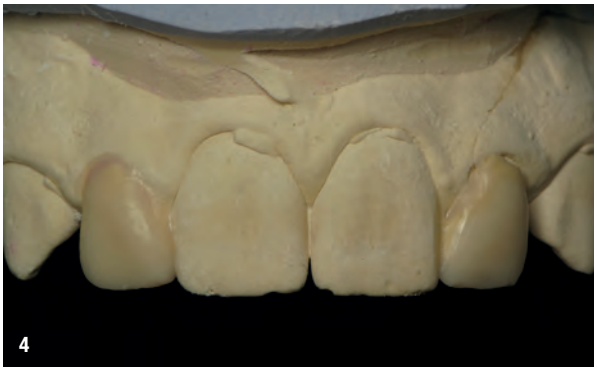

2


3

La demande, purement esthétique, de la patiente est de conserver l'intégralité de son émail et de privilégier une solution économique. (Figure. 3) Une technique de composite par stratification anatomique simplifiée est proposée. Cette solution purement additive et conservatrice est privilégiée. Elle pourra être suivie plus tard d'une restauration par facette céramique, quand la patiente sera décidée.

L'isolation du champ opératoire pendant le collage sera assurée par l'association d'une digue ouverte et d'un fil de rétraction.
Le choix de la teinte se fait grâce à l'utilisation du teintier personnalisé Tokuyama. Ici deux masses suffisent, Estelite ASTERIA NE et Estelite ASTERIA A2B pour assurer chromaticité et luminosité.
La technique de collage sera mise en place après sablage et mordançage de l'émail supragingival.

La réalisation d'un wax up par notre technicien (Figure. 4 et 5) permet de visualiser la forme à reconstituer il va nous permettre la confection d'une clef palatine en silicone pour assurer le soutien de la première couche émail, ici Seringue Estelite Asteria NE (Neutral Email)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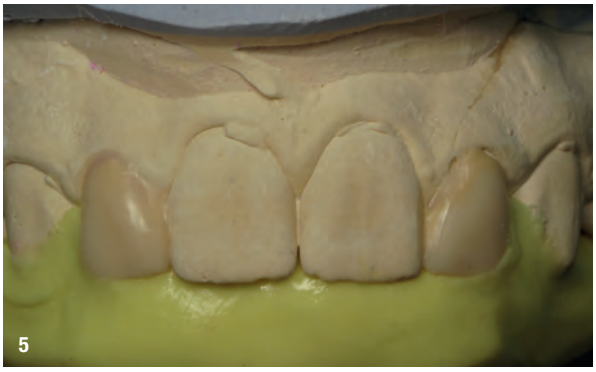
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Puis un système de matrice galbée en métal, utilisée pour les restaurations postérieures, permettra de respecter les formes convexes en proximal. Ainsi la confection d'une « boite d'émail » viendra recevoir la deuxième couche dentine, ici Estelite ASTERIA A2B (A2 Body). Enfin l'instrument « Misura » de Style Italiano permettra de ménager l'espace de 0,5 mm d'épaisseur pour la dernière couche émail Estelite ASTERIA NE en vestibulaire. (fig 6 et 7)


6

7

La simplification de stratification en deux masses seulement et la prédictibilité du résultat grâce au mimétisme du composite nous a permis de satisfaire la patiente et de gagner sa confiance (fig 8.9.10). Dans le contexte économique actuel, la solution de facettes en composite direct est intéressante pour les patients et reste une alternative aux facettes céramique, en assurant un entretien par des polissages réguliers.


8


9


10

Final check and photographs

Innovative method using composite

A CASE STUDY BY DR ULF KRUEGER-JANSON
Private dental practice in Frankfurt on the Main - Germany
Member of the "Neue Gruppe"
Certified member of the European Society of Cosmetic Dentistry

INNOVATIVE APPROACH

Restoring the natural color of the incisal edge
Cut-back method for individualizing the incisal third

Fabricating individually designed incisal edges is one of the greatest challenges in day-to-day restoration practice. This is particularly the case when a pronounced incisal mamelon transitions into a whitish to blueish diffuse, transparent incisal edge and it is to be perceived as that of the adjacent tooth. In order to shape these types of mamelons, you must be familiar with the color properties of a composite's various filling components. For this reason, it is advisable to prepare samples of the material to be used to familiarize yourself with their different color and reflective properties and learn to evaluate them. This knowledge makes adapting the color of the built-up filling area much easier.

The additive method:
With the conventional layering techniques, the first step involved building up a transparent or opaque palatal wall. This primarily stable construction ("matrix framework") was then followed by another composite build-up. To obtain individualized mamelons, the material was applied and modeled in individual portions. However, the otherwise positive thixotropic characteristics (flow of the composite) proved to be counterproductive, especially when a sharp demarcation or tear-off edge was to be fabricated. This resulted in round shapes that only occasionally corresponded to the desired shape of this area.

The cut-back method:
The cut-back method is a new and much more effective technique. With this method, the entire morphology of the tooth to be restored is first built up with an opaque shade. The advantage is that in the first step, you do not need to take the special features of the incisors into account, which allows you to concentrate on the essential issues for shaping the restored tooth. In the second step, flame-shaped finishers are used to form wave-like mamelons from the labial aspect. In order to create a further course of these "dentin offsets" toward the incisors, wedge-shaped structures are milled in the incisal edge. Furthermore, the area toward the incisors is thinned in a tapered fashion, especially when the objective is to form a diffuse transition of the opaque dentin (mamelon) to the area of the incisal edge. This reduced area is then filled up again with various flow colors and built up further.

A prerequisite for using this method is the availability of an abrasion-resistant and solid flow material. The flow used in the case study below (Estelite Flow Quick by Tokuyama) offers these material properties and is thus an ideal material for treating this indication.

Below the individual design of an incisal edge will be presented in sequence and explained using a series of images with comments.

1

Initial situation


2

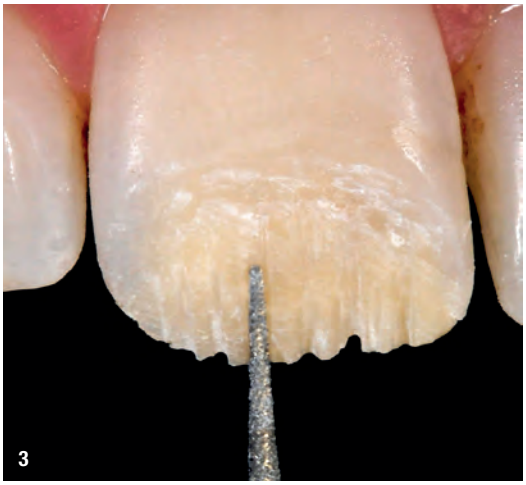
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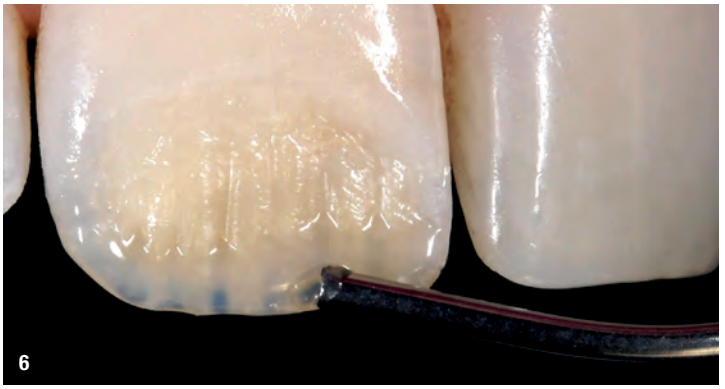
Fig. 2 & 3
In the body that has already been built up with opaque dentin based on morphological criteria (as described above, the definitive form is built up), grooves and wave-like structures are cut in. A conically tapering grinding wheel is selected for narrow contouring of the "grooves" in this case. As the illustrations show, the substance removal increases toward the incisors. This allows for the mamelons to be distinctly shaped in a fashion that could be referred to as "dentin tongues".

Fig. 4 & 4a
Appearance after grinding. The incisal reduction/indentation is easily visible. A flat course of the cervical inclination is also visible that permits a fine transition of the composite to the natural tooth substance. The shade of the dentinal body, fabricated with OA2 dentin (Tokuyama Estelite Σ Quick = the normal more solid composite) stands out prominently. It should be kept in mind that the color intensity will fade as this area is overcoated with additional layers.

Fig. 5
A compo-connector, composite primer or alternatively, an unfilled bonding agent is applied to the prepared area.



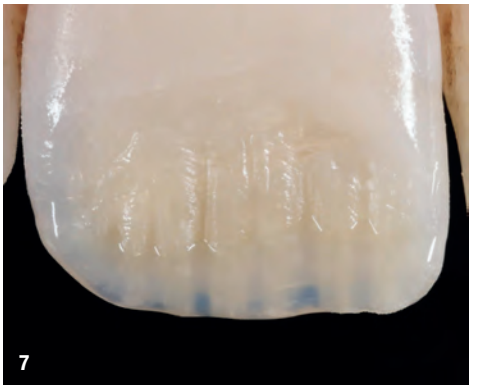


Fig. 6 & 7
As the next step, the entire incisal edge area is filled with Flow CE/Inc. (Tokuyama Estelite Flow Quick). The material must be applied very carefully and slowly in order to fill the interdental spaces with as few bubbles as possible. If bubbles do form, the tip of a probe can be used to pull them into the marginal zone, where they can be removed. In doing so, ensure that while guiding the probe tip it does not contact the underlying composite so as to avoid leaving black lines or other traces. The incisal edge is built up further with the same material and contoured. The areas between the incisal wedge-shaped grooves are easily recognizable and the mamelons are clearly discernable.

Final check and photographs

Fig. 8
For the further build-up, Flow BW (Tokuyama Estelite Flow Quick) was applied and distributed across the entire vestibular surface. The cloudy, whitish material creates a semi-transparent appearance and is the best material for mimicking the natural enamel mass. This material component can also be used to further shape the incisal edge. As described above, the flow is stable enough to withstand the functional requirements of the incisors. A whitish visual effect can be seen directly in the incisal edge. With beveling toward the palatal aspect, this effect (known as a halo effect) is created by light refraction. Upon close inspection, a yellowish tint of the underlying dentin area is visible caused by dehydration of the natural adjacent tooth substance (picture taken shortly after treatment).

Conclusion:

“This method allows the incisal crown area to be truly individualized. A reduction can enable specific characteristics to be fabricated. The simple construction offers great advantages compared to the conventional additive method of designing mamelons. Building up the entire crown morphology and targeted debridement of substance to design an individualized appearance is quick and easy. Effortless production of high-quality aesthetic results is a key factor for today’s modern practice management.”

Lésion blanche de l'émail (MIH) et Erosion Infiltration en profondeur:

Une réponse contemporaine ultraconservatrice

DR. GIL TIRLET
Pratique privée - Maître de Conférences (Dept de Prothèse, Univ Paris Descartes) - France
Membre du groupe international de Bioemulation - Responsable de la Bioteam Paris et de la Consultation de Bioemulation (Hop Charles Foix, Ivry sur Seine)

L'érosion/infiltration est une technique qui a été initialement proposée pour stopper le processus carieux dans le secteur postérieur [1]. Elle consiste, après une déminéralisation superficielle réalisée à l'acide chlorhydrique, à venir infiltrer le corps de la lésion carieuse avec une résine fluide. Les performances cliniques montrent l'efficacité de cette technique pour cette indication [2]. Une conséquence de cette infiltration réside dans le masquage de la tache blanche de l'émail, caractéristique de la lésion initiale de l'émail. C'est pourquoi les inventeurs de la technique l'ont proposée pour masquer les taches blanches de l'émail liées aux caries débutantes [3]. Dans notre article initial en 2011 [4], nous avons proposé d'étendre cette indication aux fluoroses, car comme la carie débutante, la lésion intéresse le tiers externe de l'émail [5]. D'autres équipes ont confirmé récemment nos premiers résultats [6, 7]. Toutefois, certaines taches n'étaient pas masquées par cette infiltration superficielle, notamment celles liées aux hypominéralisations molaires incisives (MIH), aux fluoroses et lésions post-traumatiques profondes. En effet, dans ces situations, la résine ne parvenait pas à s'infiltrer ou seulement partiellement dans le corps de la lésion. Cela est dû à l'anatomopathologie de l'hypominéralisation de l'émail qui dépend de son étiologie et de sa sévérité [8]. C'est pourquoi nous avons proposé de procéder, dans ces cas réfractaires, à une infiltration en profondeur [9, 10, 11]. Cette dernière consiste, en une légère mutilation de l'émail, à l'aide d'une préparation par sablage, à s'assurer que l'infiltration peut se faire dans la quasi totalité de la lésion [12].

RAPPEL DU PRINCIPE DE L'ÉROSION INFILTRATION POUR LE MASQUAGE DES TACHES BLANCHES

La tache blanche résulte d'un phénomène optique complexe qui, par le jeu d'un labyrinthe optique au sein de la lésion présentant un réseau de porosités, contribue à renvoyer par une réflexion un maximum de photons. En infiltrant les porosités de la lésion par une résine d'un indice de réfraction proche de celui de l'émail sain, on améliore la transmission des photons lumineux à travers l'émail hypominéralisé et on rend l'émail translucide. Il perd son apparence blanc opaque [4, 5, 8, 9, 10, 11, 12].

PRINCIPE DE L'INFILTRATION EN PROFONDEUR

Jusqu'à présent, nous avions réservé la technique d'érosion/infiltration aux cas qui ne nécessitaient aucune préparation dentaire. C'est le cas des caries débutantes, de la plupart des fluoroses légères et des hypominéralisations d'origine traumatique superficielles. Dans le cas des lésions qui débutent à la jonction émail-dentine et qui se développent en direction de l'émail comme les MIH, lors des étapes d'érosion successives (plusieurs passages d'HCl), on n'atteint pas ce que nous pouvons appeler le « plafond » de la lésion, et l'infiltration ne produit aucun effet optique favorable. C'est pourquoi les traitements par érosion-infiltration des lésions des MIH n'étaient jamais, ou presque jamais, couronnés de succès. Un phénomène similaire peut avoir lieu lorsque la lésion débute en surface, mais qu'elle est très profonde, comme certaines hypominéralisations d'origine traumatique voire certaines fluoroses sévères. En effet, dans ce cas, le plafond est vite atteint, mais seule une petite partie de la lésion est infiltrée et le masquage reste très insuffisant. L'idée de l'infiltration en profondeur consiste, en acceptant une légère mutilation de l'émail à l'aide d'une préparation par sablage, à s'assurer que l'infiltration débute au niveau du « plafond » de la lésion dans le cas des MIH, ou que l'infiltration se fait dans la quasi-totalité de la lésion si cette dernière est profonde.
Le support dentaire passe de la couleur blanche opaque à la translucidité naturelle de l'émail. Un simple composite teinte émail permet alors de combler la légère perte de substance consentie.

Nous sommes aujourd'hui la seule équipe au monde à avoir proposé et publié un protocole clinique normé pour tous les types de lésion blanche de l'émail à l'issue d'un diagnostic différentiel précis de chacune d'entre elles.

CAS CLINIQUE:

Il s'agit d'un patient âgé de 15 ans qui vient consulter, accompagné par sa mère, afin d'envisager une thérapeutique conservatrice s'agissant de l'élimination de sa lésion blanche (MIH) sur son incisive centrale maxillaire droite (11). Une facette, quelques mois auparavant, a déjà été proposée mais rejettée à juste titre par les parents...

Fig. 1 Lésion blanche correspondant à une MIH. La tâche est unilatérale et la lésion est profonde et particulièrement opaque. La pointe canine de 33 est également touchée ainsi que les 4 premières molaires avec une forme frustre dans le cas présent.

Fig. 2 L'interposition d'un fond noir (Contrastor) permet de souligner l'intensité de la lésion ainsi que son étendue.

Fig. 3 Le champ opératoire doit être impérativement placé dans le cadre de cette procédure clinique. Dans le cas d'une MIH de cette profondeur, il est nécessaire d'atteindre le « cœur » même de la lésion avant toute érosion à l'acide chlorhydrique. Cette étape est réalisée à l'aide d'un sablage à l'oxyde d'aluminium à 27 microns qui permet une attaque sélective et sécure de l'émail superficiel.

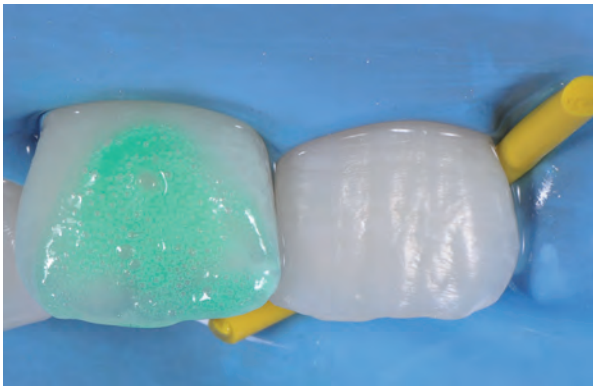


Fig. 4 Attaque à l'acide chlorydrique à 15% au « cœur » de la lésion secondairement au sablage.

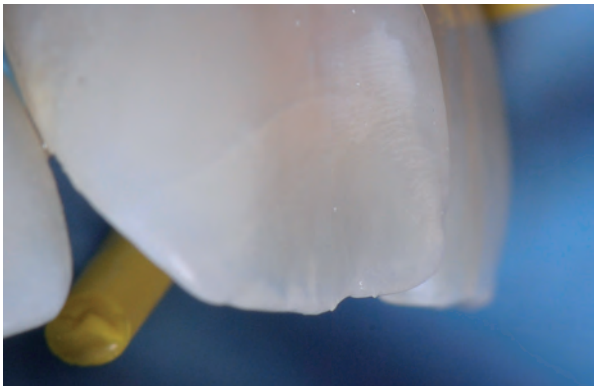


Fig. 5 Vue de profil laissant apparaître une perte d'émail au niveau de la lésion de l'ordre de 0,1 à 0 ,2 mm. Une élimination de l'eau au cœur de la lésion est obtenue par passage d'éthanol. L'infiltration de résine ne doit avoir lieu que si après passage de l'éthanol on ne perçoit plus la coloration blanchâtre. Le cas échéant, il faudra resabler légérement et repasser l'acide chlorydrique, puis réévaluer le résultat obtenu après deshydratation à l'éthanol, avant d'infiltrer la résine Icon.

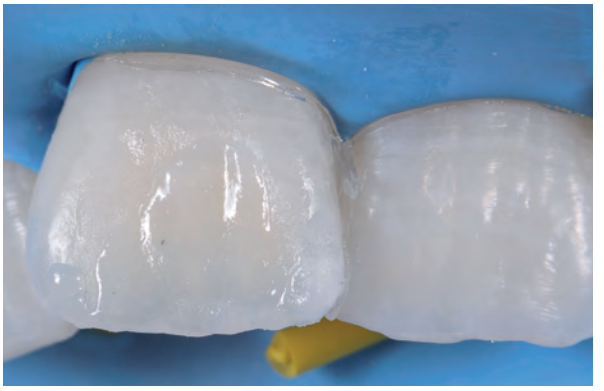


Fig. 6 La lésion a été ici infiltrée par la résine Icon puis polymérisée. La similitude des indices de réfraction de l'émail sain (1,63) et de la résine permet un total effacement de la lésion par « effet trompe l'œil ». Un composite de teinte émail (Astéria WE, Tokuyama) est ensuite placé directement sur la résine d'infiltration pour compenser la faible perte d'émail en surface. La résine d'infiltration joue le rôle de systéme adhésif.

Fig. 7 Le travail au niveau de la microgéographie de surface est réalisé en surface au moment du modelage du matériau puis après polymérisation à l'aide de fraises diamantées bague jaune et blanche.

Fig. 8 Après polisssage et glaçage final.

Fig. 9 Le résultat final après Erosion/Infiltration et composite émail (Astéria, Tokuyama) en situation clinique habituelle, c'est à dire avec la présence du film salivaire à la surface vestibulaire des dents antérieures. La lésion blanche a complétement été masquée par l'indice de refraction de la résine d'infiltration (identique à l'émail sain) et un composite émail lumineux a été placé pour redonner la convexité vestibulaire très légerement altérée par le sablage et l'érosion en profondeur.

Nous pouvons qualifier cette thérapeutique, au sein de notre Gradient thérapeutique, de thérapeutique Biomimétique ultraconservatrice. Ne nous y trompons pas, les patients sont très en attente de cette dentisterie contemporaine respectueuse de l'émail.

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Restoring upper incisors with Astelite

DR. VALERIA REZZOLA
Private dental practice in Catania - Italy

CLINICAL TRIAL

The patient has large caries on the neck of upper central incisors and a carious relapse underneath an old composite on the mesial margin of 2.1

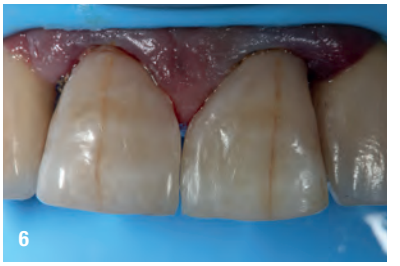
Pre-op view of 11 and 21.

Note, after the caries removal, the opening of a diastema incongruously closed by the old mesial composite on 2.1.

Application of a first layer of dentin mass Estelite Asteria A3B on the necks and on the mesial side of 2.1.
With the first layer we organize the final shape of 2.1 and the guidelines of the subsequent application of the super color.

Application of the super color Dark Brown on the vertical lines and horizontal White on the medium third.

Application of the final enamel layer Estelite Asteria NE.



Restorations after polishing.

Final picture after the dam removal.

Check after one week.

Orthodontic Case with Asteria

DR. VALERIA REZZOLA
Private dental practice in Catania - Italy

CLINICAL CASE

The patient came to our office with a large diastema between 31 and 41. It was decided to solve this by distributing orthodontically the space between the four incisors and later carry out composite reconstructions. In this way we avoided to create two large central teeth which would have been aesthetically unpleasant.

1-2 Intraoral picture showing the lower diastema

Orthodontic treatment for the partial closing of the diastema

At the end of the orthodontic treatment the procedure was completed with 4 reconstructions on the mesial side of the 4 lower incisors with the masses Body and Enamel of the composite Estelite Asteria

Final image after the dam removal

Detail of the row

Overview after the rubber dam removal

Aesthetic dentistry awards

DR. RICHARD FIELD
Private dental practice in London e Bristol - UK
Specialist in minimally invasive cosmetic dentistry
Active Member of British Academy of Cosmetic Dentistry
Winner of Best Young Dentist UK at the 2014 Dentistry awards

CLINICAL CASE

A 35 year old male presented requesting an improvement to his smile with reference to general tooth colour and the old worn restorations on his upper central incisors.

Initial situation

Fig. 1 Initial situation of an aesthetic anterior reconstruction with Estelite Σ Quick.
Fig. 2 Initial situation following combined oral surgery / orthodontic therapy. The existing composite reconstructions have been in situ for 9 years. The asymmetry in the gingival area is not regarded by the patient as disturbing, due to the long upper lip, so it should not be corrected. Tooth 21 is non-vital, heavily discoloured and treated with a metal-free crown. After detailed consultation, the patient's explicit request was to alter the aesthetic appearance of the anterior teeth as non-invasively as possible. The existing reconstructions had to remain intact.
Fig. 3 Close-up of the initial situation.

Final check and photographs

Fig. 4 Layering technique.

Fig. 5-6-7 Final check and photographs.

Management of distinctive dental fluorosis with Estelite Asteria

DR. MARKUS LENDERS
Private dental practice of Dr. Oliver Kuhlen in Nettetal - Germany

CLINICAL CASE

A 22-year-old female patient wishes to have her „whitish spots“ (fluorosis) of her front teeth 11 and 21 removed. A minimally invasive additive process is desired. With the aid of direct composite-veneers in adhesive techniques her wish can be met. The lateral incisors would like to leave the patient fort he time being. Furthermore, a closure of the initial diastema is provided.

Fig. 1a-d Initial clinical situation.

Fig. 2 Approx. 0,7mm enamel reduction.

Fig. 3 Shade selection with Asteria A2B.

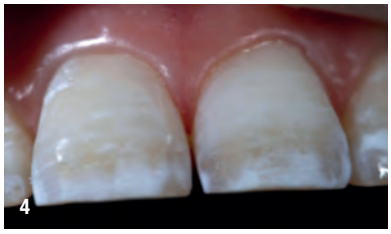


Fig. 4 Etched enamel surface.

Approximately 0,7 mm enamel reduction is necessary, to receive a perfect aesthetic result in terms of colour and texture (Fig. 2) Polymerised Estelite Asteria is used for non-conditioned enamel for the shade selection (Fig.3). Afterwards the enamel is conditioned with a 37% phosphoric acid and an “etch and rinse“bonding system. A relative draining is realisable in this case (Fig.4). The layering takes place in two steps. First using Asteria body shade A2B and after that a layer of Asteria NE, to create more translucency in order to achieve a natural appearance. Final result with a diastema closure, immediately after completion (Fig.5) and three months later (Fig.6).

Fig.5 & 6 Final photos immediately after completion (Fig.5) and three months later (Fig. 6).

Transitions between the natural tooth and the filling material are not visible, thanks to Estelite Asteria. The body shade A2B perfectly covers the slightly present fluorosis (compare Fig.2). A high degree of surface polishing could be achieved. The minimally invasive procedure using Estelite Asteria has resulted in a highly aesthetic result, which not only convinces the patient completely.

In-between aesthetic and medical demands

DR MED. KAJA WICHROWSKA-RYMAREK
Private dental practice in Warsaw - Poland
Adjunt Professor at University of Lodz - Poland

CASE REPORT

Initial situation

Fig. 1, 2, 3 Malocclusion, situation before the treatment.

The esthetic expectations of patients are growing by the day.
Nowadays, many patients visit dentists with self-devised treatment plans, which of course focus on esthetic rather than medical needs. Even if the aim is in fact achievable, the final choices are often influenced by medical needs brought to light by the dentist. This case study shows a 20-year old patient, who expected immediate change of esthetics. The patient's initial plan was the extraction of tooth 12 and its restoration via prosthetic treatment. The tooth 12 was healthy, however in retrusion, and orthodontic treatment was suggested by the dentist. Unfortunately it was rejected by the patient.

Fig. 4, 5, 6 Wax-up, to present the change of the tooth shape to the patient.

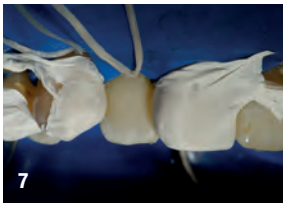


Fig. 7 No tooth preparation, rubber dam isolation, PTFE tape to protect adjacent tooth against adhesive procedures.

Fig. 8, 9 The restoration after removal of the rubber dam.

The final treatment plan was devised taking in consideration high aesthetic expectations and a quick result. Moreover the fact, that the tooth itself was healthy, minimal invasive direct composite restoration was planned, as a treatment which wouldn't exclude other options in the future.
Good doctor-patient contact was initiated with two steps: wax-up and mock-up simulation.
Rubber dam was placed and the composite direct restoration was executed using following materials: Estelite Asteria A4B, A3,5B - A2B - A1B, NE, Estelite Color White (Tokuyama Dental). This allowed retaining of the healthy dental tissue and the possibility of orthodontic treatment in future.
Because of the esthetic expectations and in order to facilitate cleaning of the gingival area cervical shape correction was made after 3 days. Quick highly esthetic result and preservation of healthy dental tissue were achieved by direct composite restoration. In this case it proved not only the best choice for the patient, but also cost-efficient.

Fig. 10, 11, 12 Cervical shape correction to facilitate the cleaning of gingival area, control visit after 3 days.

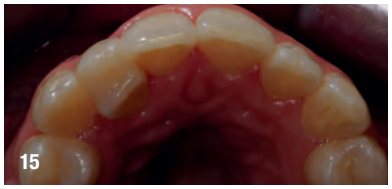


Fig. 13, 14, 15, 16, 17 Control visit after 6 months.

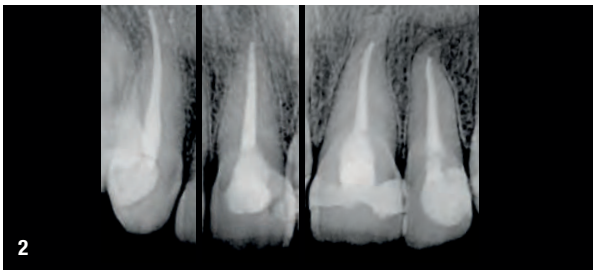
Before and after

Fig. 18, 19 Status pre and post treatment.

The new challenges of aesthetic restorations

DR. STEFANO SERRA
Active member SIE
Private dental practice in Sassari - Italy

CASE GALLERY



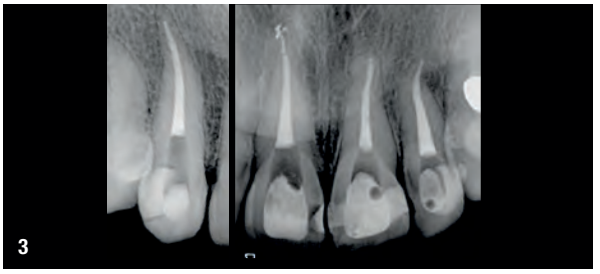


Fig. 1 Pre-operative image - first visit.

Fig. 2 Pre-operative periapical radiograph.

Fig. 3 Endodontic retreatment and first bleaching session on devitalized tooth.

Fig. 4 Control and renewal bleaching on devitalized tooth.

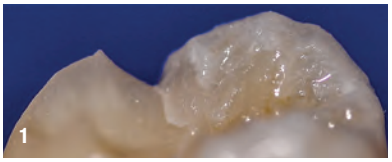
Fig. 5 Check of bleaching effectiveness in devitalized tooth.

Fig. 6 Conservative aesthetic restoration (Estelite Asteria) and chromatic matching with bleaching treatment.

Fig 7 Control and renewal bleaching on devitalized tooth.

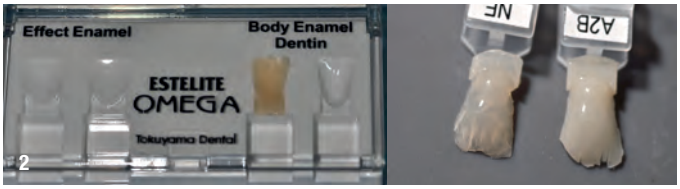
Mimesis of the natural tooth with ASTERIA composite

DR. DOMENICA LAFORNARA
Private dental practice in Martina Franca (TA) - Italy

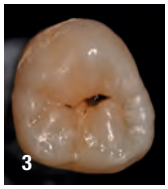


1 Natural dentin. Asteria composite.

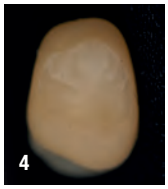
"I would like to share with you my personal experience approach, thinking how new Asteria composite can «camouflage» natural tooth. So I immediately prepared and etched an extracted tooth, in order to simulate the real situation that we approach in our daily practice. You can see the high «camouflage» feature of Estelite Asteria. Below some pictures and a clinical case."



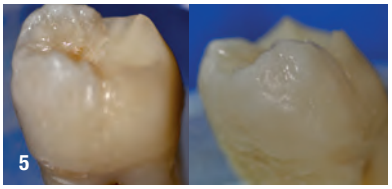
2 Shade table for enamel and dentin - Estelite Asteria.



3 Natural extracted tooth.



4 Tooth artificially demineralized.

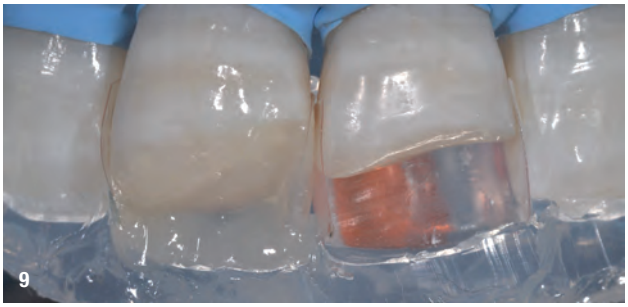


5 Simulation mimesis Asteria composite with tooth to be restored.

6 Half Asteria composite and half natural tooth.

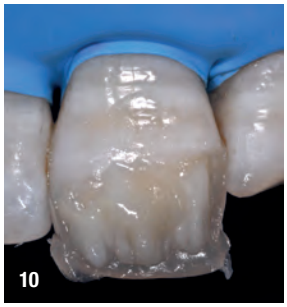
7 Clinical case fracture ELLIS II° using customized shade guide in order to choose shades correctly.

8 Margin preparation, with bevel and its polishing.

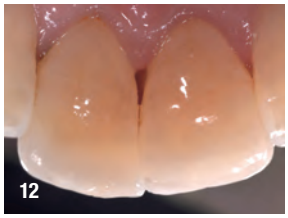


9 Transparent silicone key guide.

10 Internal layering with mamellons.



11 Final case on vestibular aspect just after removing rubber dam.



12 Lingual aspect.

13 Patient smile after one year.

Direct anterior restorations using Asteria A3B & OcE

DR. GIUSEPPE MARCHETTI
Active Member: Style Italiano Study Club
Active Member: IAED
Active Member: AIC
Private dental practice in Parma - Italy

CLINICAL CASE

Initial situation

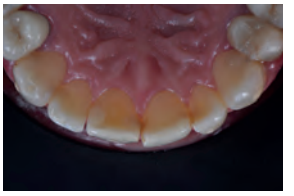
Pre-operative picture of the smile of the patient, female 44 years old.

Pre-operative details of the 6 upper anterior teeth. It's evident the need to replace old and incongruous fillings.

Details of the right.

Details of the left.

Check of the color using bubbles of composite from different brands, an a3 body mass and an oce enamel from tokuyama asteria are chosen.



Details from a palatal view.

Isolation with the rubber dam.

Details from a palatal view.

The first cavities are prepared after the removal of the old filli GS.

The usage of posterior sctional matrices is the best also for anteriors interproximal walls.

Details of the other cavities after their preparation.

Details of the other cavities after their preparation

Details of the placement of the matrices from a palatal view

Details of the last cavities to fill

Details of the restorations after the finishing and polishing procedures under the dam

Final check and photographs

Details at et the end of the work from a palatal view.

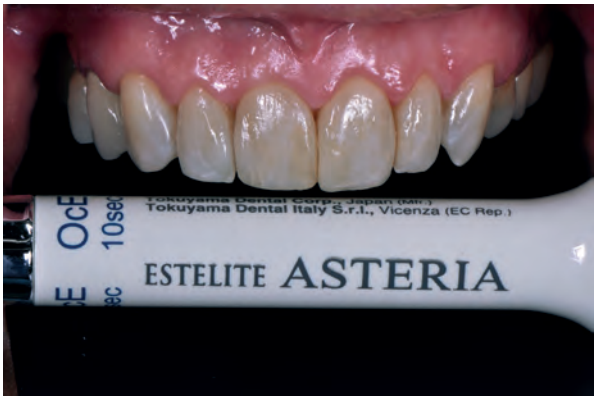
Details of the new smile of the patient.

Details of the 6 upper frontal teeth restored.

Details of 1.1 and 2.1.

Details of 1.1. 1.2 1.3.

Details of 2.1 2.2 2.3.



Details with Asteria OcE.

Details with Asteria A3B.

Anterior restorations using “composite-up” technique

DR PAOLO FERRARI
Private dental practice in Parma - Italy
Active Member AIC

CASE REPORT

A female patient, 50 years old, comes to our office to improve the aesthetic appearance of the upper front group. Her main request is changing the shape of her upper incisors only, reducing the diastemas, with a non invasive treatment.
A composite-up is performed right away to preview the possible final result. (Picture 1D PF).
After assessing and excluding an indirect solution with ceramic veneers, we decide to perform direct restorations in composite, mesial of 1.1 and 2.1, mesial of 1.2, distal and incisal of 2.2, using Tokuyama Dental composite Estelite Asteria, body dentin shade A3B and enamel shade WE.


1A


1B


1C


1D

Picture 1 A, 1B, 1C:
pre-op pictures of the case.

Picture 1D: composite-up for the preview of the final result.

Picture 2: field isolation with rubber dam.

Picture 3: application of transparent sectional matrices and layering of the composite masses on 1.1 and 2.1.

Picture 4: mesial restorations of 1.1 and 2.1 completed.


2


3


4

Picture 5: check on the mesial restorations of 1.1 and 2.1.
Picture 6: field isolation with rubber dam; detail of 1.2.
Picture 7: application of the transparent sectional matrix and layering of the composite masses on 1.2.

Picture 8: mesial restoration of 1.2 completed.
Picture 9: field isolation with rubber dam; detail of 2.2.
Picture 10: application of the transparent sectional matrix and layering of the composite masses on 2.2.

Picture 11: distal restoration of 2.2 completed.
Picture 12: check on mesial restoration of 1.2.
Picture 13: check of the distal and incisal restorations of 2.2.

Picture 14: final result; check after 6 months.

Let's share two clinical cases:

Aesthetic approach in Class IV composite restorations

DR. LORENZO GRAIFF
Private dental practice in Padova - Italy

CASE REPORT

Fig. 1 Male patient, 50 years old, with old composite restoration on 21 aesthetically incongruous and with palatal carious infiltration.

Fig. 2 With the zooming in, the aesthetic incongruity is visible.

Fig. 3 Mounting of the dam from 14 to 24 and positioning of the ligatures.

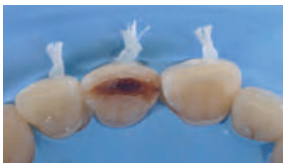


Fig. 4 Palatal view after the removal of the old restoration where dentin caries is visible.

Fig. 5 Vestibular view after the cavity preparation and positioning of the transparent matrices and wood wedges.

Fig. 6 Total etch with orthophosphoric acid 37%.

Fig. 7 Application of the new Tokuyama Universal Bond (beta version).

Fig. 8 Positioning of the silicone key previously fabricated.

Fig. 9 Vestibular view of the first layering with Asteria WE, both palatal and interproximal.

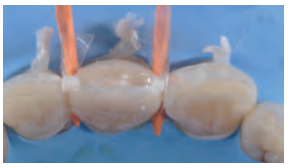


Fig. 10 Incisal view showing the creation of the palatal portion and of the proximal sides of the restoration performed with Asteria A 3,5 B. Note the space still available for the layering of the following composite masses.

Fig. 11 Layering of the central core of the restoration with Estelite Sigma OPA2.

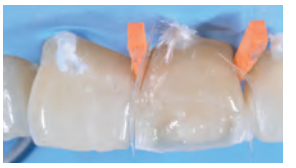


Fig. 12 With the zooming in, central core of the restoration with Estelite Sigma OPA2.

Fig. 13 Restoration completed with Asteria A3B before removing the rubber dam.

Fig. 14 View of the restoration completed/ finished after 1 week.

Fig. 15 Detail of the restoration completed with black background.

Let's share two clinical cases:

Aesthetic outcome after endodontic and inside bleaching treatment

DR. LORENZO GRAIFF
Private dental practice in Padova - Italy

CASE REPORT

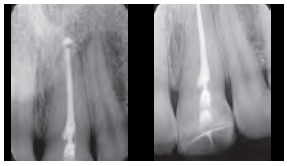


Fig. 1 RX of a 28 old male patient asking to improve the aesthetic appearance of 21.Considering the canal treatment congruous, we perform an internal whitening first.

Fig. 2 View after the whitening and marked color discrepancy with the previous restoration.

Fig. 3 Zooming in.

Fig. 4 With contrast on black background.

Fig. 5 Application of the rubber dam from 14 to 24.

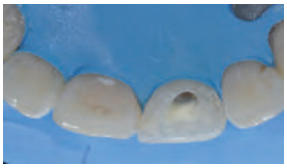


Fig. 6 Pre-op palatal view with the dam mounted.

Fig. 7 Removal of the previous composite restoration and refinishing of the enamel margins.

Fig. 8 Vestibular view with transparent matrices ad wood wedges and total etching with orthophosphoric acid 37%.

Fig. 9 Palatal view.

Fig. 10 Layering step with Estelite Sigma OA1 for the dentin portion and Asteria WE for mesial and distal portions of enamel.

Fig. 11 Restoration completed with Asteria enamel WE and body BL to introduce more valuable whiter areas.

Fig. 12 Restoration completed after polishing after 1 week.

Fig. 13 Zoomed in detail.

Fig. 14 Detail on black background, note the color integration and the final aesthetic result.

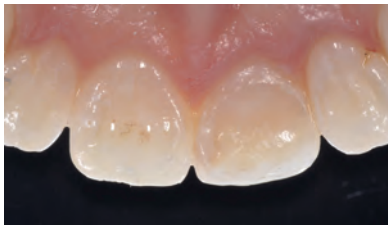


Fig. 15 Palatal view of the completed restoration.

Fractured teeth restored with Estelite Asteria

DR. SILVIYA DIMITROVA
Private dental practice in Sofia - Bulgaria
Faculty of Dentistry, Sofia - Bulgaria

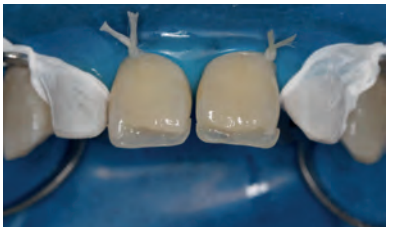
CASE REPORT

A patient occure to our observation with an aesthetic demand on anterior teeth. Both elements 11 and 21 have been fractured 50 years ago. The patient refused any kind of restorations since then.

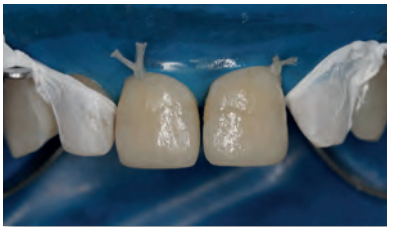
Initial situation

Mock up is done. After some occlusal adjustment and the approval of the patient preparation is done.

Isolation with rubber dam.



Palatal walls of NE are sculptured with the use of silicon key.



The restorations are finished with Asteria shades A3B, NE and WE.

Final check and photograph

Finished restorations after some finishing and polishing.

Class IV restorations with Estelite Asteria

DR. SILVIYA DIMITROVA
Private dental practice in Sofia - Bulgaria
Faculty of Dentistry, Sofia - Bulgaria

CASE REPORT

Initial situation

Prepared cavities of 21 and 22.

Selective etching of 22. Bond Force II is the adhesive used.

Contoured sectional matrix is placed and fixed in proper position with the use of flowable composite used for gingival barrier.

After the mesial wall is contoured the restoration is completed with the use of dentin and enamel shades.

Same technique is used for the distal restoration of 21.

Final check and photograph

Completed restorations after rubber dam removal (NE, WE and A2B).

Fractured teeth restored with Estelite Asteria

DR MARÍA ALEJANDRA MILLÁN SEQUEDA
Specialty in restorative and aesthetic dentistry
Autran Dental Solutions. Barcelona - Spain

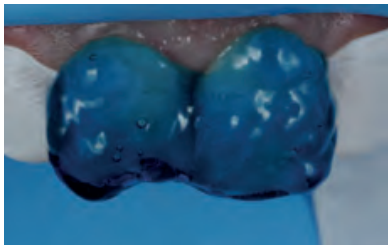
CLINICAL CASE

Direct restorations in composite, especially in the anterior sector, are very challenging for dental professionals.
With anatomic layering we can create 3D effects on the tooth, and in each layer we use the composite which reproduces in the most accurate way the different parts of the tooth, simulating opalescence, translucency, halo effect and various characteristics of natural teeth.

Initial situation

Female patient, 24 years old, who comes to our office to replace the composite reconstructions in 11 and 21.

We took the impressions and performed the waxing, giving the ideal length and width proportions in order to later create a silicone palatal key and accurately copy the morphology of the palatal face and the incisal profile in the mouth.

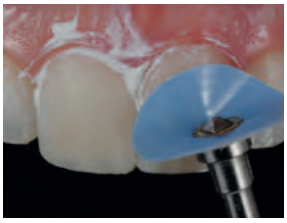

We eliminated the defective composite restorations and performed a modified isolation with rubber dam and the teeth adjacent to the ones to be treated were isolated with teflon. We carried out an acid etching bonding protocol with orthophosphoric acid 37% and applied the adhesive.











After checking the correct adjustment of the silicone key, we created the palatal face with Estelite ∑ Quick WE (*Tokuyama Dental*), and an opaque dentin mass of Estelite ∑ Quick OPA2; between the mamelons created with dentin a translucent enamel Estelite ∑ Quick CE and lastly a chromatic enamel Estelite ∑ Quick BW.
We performed the finishing with a 9 sheet tungsten carbide bur providing the primary anatomy and the contour of the restoration. Initial polishing with discs of various grains (medium and fine) and final polishing with felt and aluminum oxide paste.

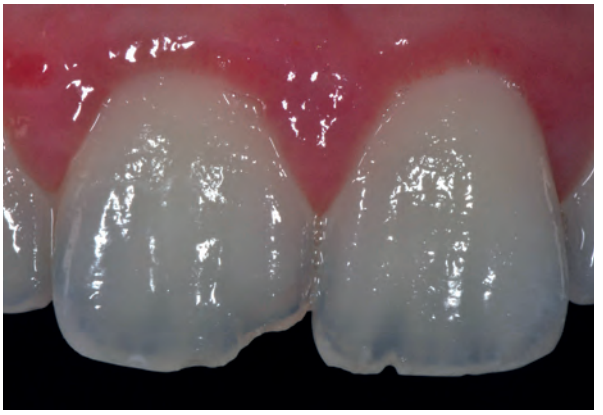
Final check and photographs






Workflows in aesthetic restoration

PROF. SIMONE GRANDINI DDS MSc PhD
Chair of Endodontics and Restorative Dentistry
Head of Department of Endodontics and Restorative Dentistry
Dean of the School of Dental Hygienists
University of Siena - Italy

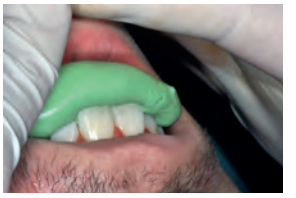


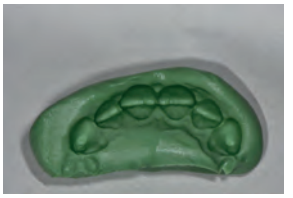
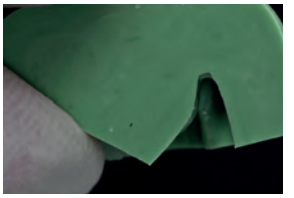
Aesthetic restorations are challenging in many ways as both function and aesthetic are of primary importance.
This young patient presented in the University Department with a class IV fracture after a sport accident, and he requested to have an immediate restoration.

In order to build a silicon key, a pre-restoration (using no Dentin Bonding Agent) was placed.
An additional silicon key was created to check the thickness during the layering, so that a correct amount of dentin and enamel could be layered.
This would facilitate the correct integration with natural dentition from the chromatic point of view.

Careful attention was given to the adhesive protocol steps, and to the correct layering of enamel and body masses.
Here is the clinical case Gallery, with the step by step procedure.

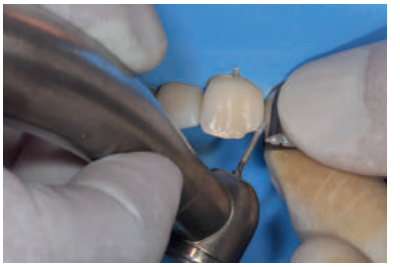


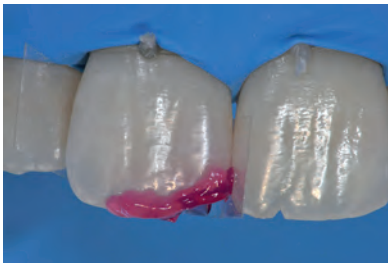
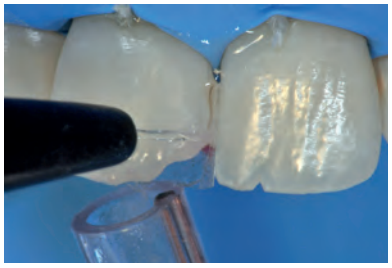
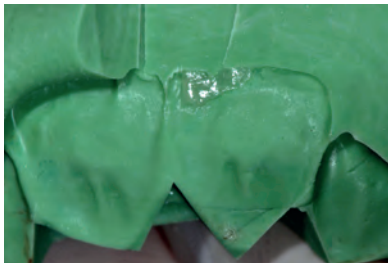




Analysis - study of the tooth from the functional, morphological and chromatic point of view - construction of the silicone key.

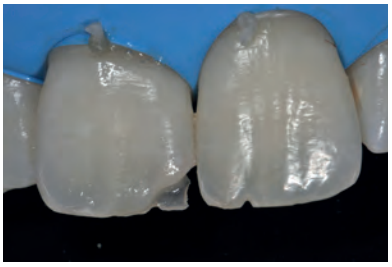
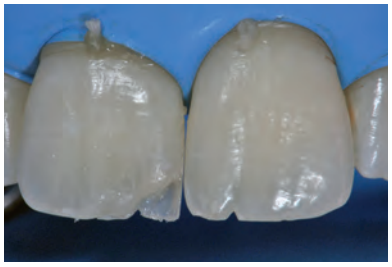
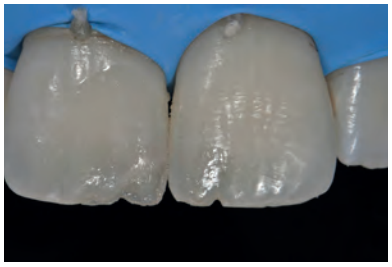




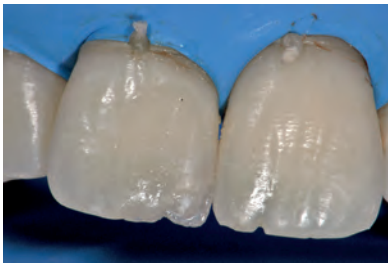
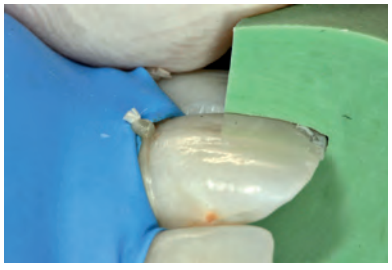
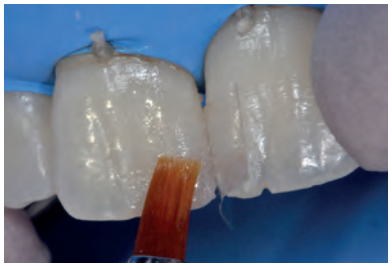
Isolation of the operating field - placing of the rubber dam - preparation / finishing of the margin.

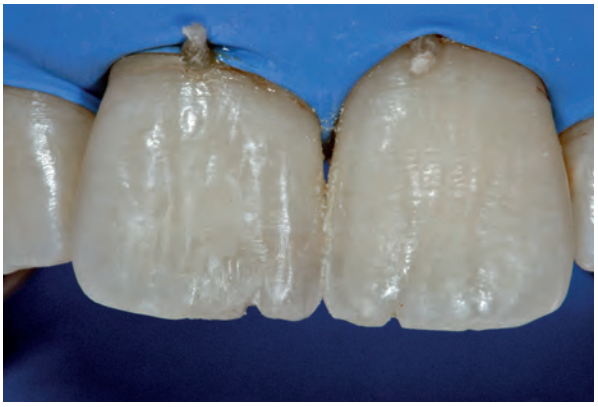
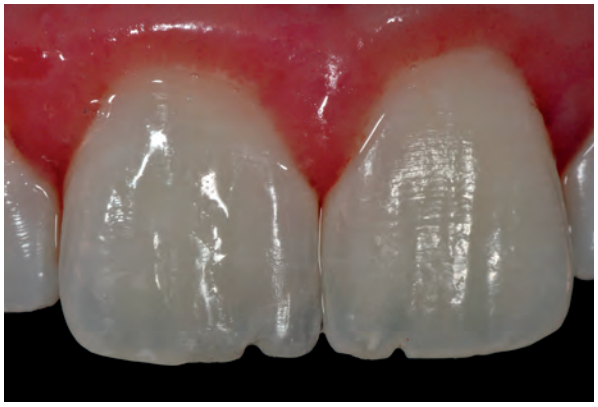
Selective etching - adhesive Protocol - use of the silicone key to build the palatal wall.

Integration of the palatal shell and its layering.

The body shades.

Micro and macro geography morphology with finishing adjustment - restoration after removal of the rubber dam.

Total rehabilitation with direct partial restorations of composite: presentation of a case

DR. FERNANDO AUTRÁN MATEU
Director de Autran Dental Academ, Barcelona - Spain
VicePresidente del Colegio de Odontologos y Estomatologos de Cataluña desde 2014

CLINICAL CASE

A 67 year old male patient asks to "elongate" his worn-out front teeth. He suffers from a straight incisal plane due to a visible wear of the front teeth, both upper and lower; and from a loss of canine cusps. In the posterior sector, the occlusal surfaces are slightly/moderately worn, with hollow wear in the cusp areas. Periodontal support has been lost due to a chronic periodontitis currently under control.(Figure 1)

Initial situation **Figure 1**

Figure 1. Maximum front and semi-lateral smile (a.b.c). Habitual, front and lateral occlusion (d.e.f.). Upper anterior, front and semilateral sector (g.h.i.). Upper and lower occlusal views.(j.k.)

After taking a facebow and an intermaxillary registration in centric relation (CR), we analyzed the models. In spite of the occlusal plane alteration due to the extrusion of tooth no. 16, there were no interferences in lateral movements and no problem to achieve an intermaxillary registration in CR. For this reason and systemic reasons, we decided not to extract the teeth with poor short and medium term prognosis. (Figure 2)

Figure 2

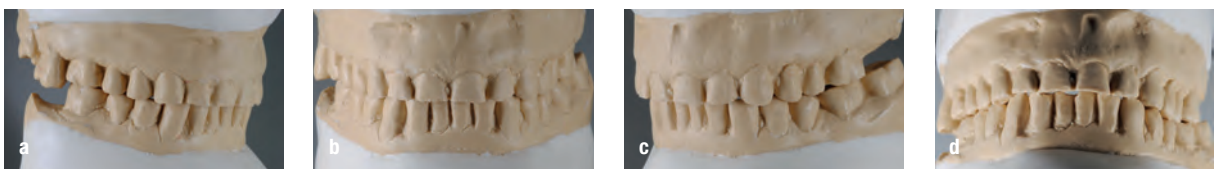


Figura 2. Models in maximum intercuspation, front and lateral view (a.b.c.d). Clear lack of space for the restoration of the anterior sector.

As the patient wished not to wear out his teeth for the restorations and to receive the cheapest treatment possible, we decided to perform the rehabilitation with partial direct adhesive restorations. Due to the clear lack of space, we decided to increase the occlusal vertical dimension (OVD). The treatment procedure included the waxing of the posterior, upper and lower sectors, in the new OVD and creating transparent silicone keys, then used as matrix for the direct reconstruction with composites of the cusps and occlusal surfaces of the posterior sectors of the 4 quadrants. (Figure 3)

Figure 3

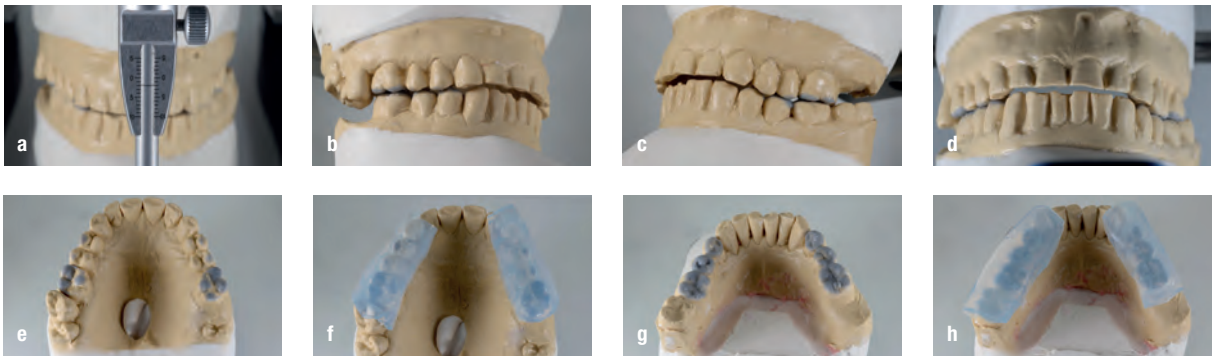


Figure 3. Increase of OVD + 2mm(a).Creation of space in the anterior sector through the support of the posterior sectors (b.c.d.). Occlusal view of the wax-ups and transparent silicone keys. (e.f.g.h.)

These reconstructions were performed using Estelite Asteria Color A2B as a single mass and finishing with a characterization of the grooves and cusps, with shades Estelite Color(dark brown). They were then covered with a thin layer of Estelite Flow Quick High Flow. (Figure 4)

Figure 4

Figure 4. Premolars and molars of the fourth quadrant before the restoration (a). Silicone key in position (b). Final restorations of the occlusal surfaces of 44,45,46 (c). Completed restorations in posterior teeth of the third, first and second quadrant, respectively (d.e.f.).

After completing the reconstructions, we adjusted the occlusion until we achieved simultaneous, bilateral and symmetric posterior contacts. With all this, we achieved sufficient space for the reconstruction of the front group. We took new impressions, bite registration and we articulated the models to wax the incisors and canines of both arches. We then created silicone palatal keys for the guided reconstruction of the front group.(Figures 5,6)

Figure 5

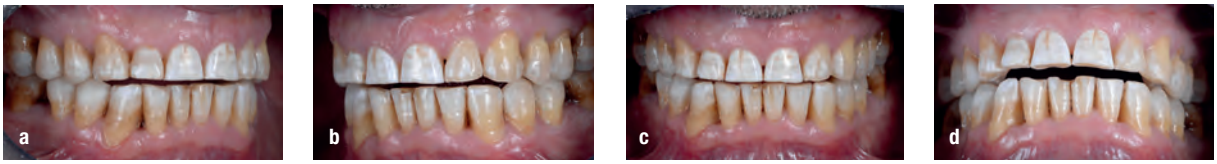


Figure 5. Restorations in simultaneous and bilateral contact after the occlusal adjustment, lateral and front view (a.b.c). Space created in the anterior sector for the reconstruction of the front teeth of both arches (d).

Figure 6

Figure 6. Wax-up of the front sectors in new articulated models (a). Wax-up of incisal edges and cusp of 13 to 23 (b). Palatal silicone key (c).

We performed partial direct reconstructions of the upper incisal edges and cusps with a simple layering technique: a body mass (Estelite Asteria A2B), shades (Estelite Color) and a thin layer of colorless enamel (Estelite Asteria Ne). Before the reconstruction, we conditioned the surface with sandblasting, acid etching and adhesive (EE Bond). After the reconstruction of the upper anterior teeth, there was still some space left. (Figure 7)

Figure 7

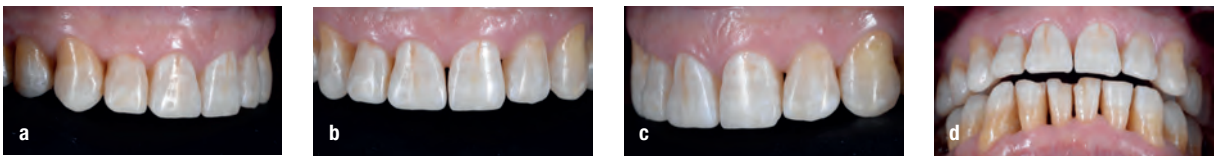


Figure 7. Completed partial restorations of the incisal edges and cusps 13 to 23 (a.b.c). Space left for the reconstruction of the front lower teeth (d).

Lastly, we performed the front lower reconstructions exactly with the same technique used for the upper teeth, using the same materials. (Figure 8)

Figure 8

Figure 8. Total isolation of 44 to 34 (a). Passive settlement test of the silicone lingual key (b). Waxing of the incisal edges and cusp 13 to 23 (b). Beveling of the incisal edge (c). Conditioned surface (d). Guided reconstruction with silicone key of 41 (e). Reconstruction of the incisal edges and cusps 33 to 43 with Estelite Asteria A2B (f). Shade characterization with Estelite Color ¨dark brown¨ (g.h.i). Shade characterization with Estelite Color ¨white¨ (j). Characterization completed on the composite mass (k). Application of the outer enamel on 31 with Estelite Asteria Ne and then on the remaining teeth (l). Restorations completed (m). Application of glycerin (n). Final light cure (o). Front and semilateral view of completed restorations (p.q.r.)

After the reconstructions, we adjusted the contacts until we achieved a front disocclusion guidance. In this way, we improved his smile aesthetic parameters and we also restored a predictable functionality with a mutually protected occlusion. (Figure 9.)

Final check and photographs

Figure 9

Figura 9. Front and semilateral view of maximum smile (a.b.c Front and semilateral view of maximum intercuspation (d.e.f.).Front guidance in lateral and protrusive (g.h.i.). Upper and lower occlusal view(j.k.)

Rehabilitation of anterior aesthetics with direct composite restoration

DR. ORMIR BUSHATI
Private dental practice in Shkodër - Albania
Focused in restorative and aesthetic dentistry

CLINICAL CASE

A sportsman showed up at dental office after a trauma with elbow while playing football. His right central incisor was fractured. (Fig 1) In a closer examination even the left central incisor had an improper shade matching and form of its restoration, so we decided to correct them with direct composite resin. Both central incisors were endodontically treated. (Fig 2) Before isolation the teeth shades were evaluated while placing some composite increments and polymerizing. All procedures were done quickly before dehydration. In a photo with increased contrast and decreased brightness the right chroma was evaluated and in a black and white photo enamel values were assessed. So it was decided to use an A 3,5 body in cervical and middle third and an A 3 body in incisal third and a YE enamel in central of incisal third and a NE enamel in proximals and everywhere else (Estelite Asteria). (Fig 3-4) The field was isolated with rubber dam (Fig 5) and a 2-3mm fine bevel using a diamond bur, abrasive disc and rubber was done on tooth 11 (Fig 6-7). Tooth etching was applied while adjacent teeth were protected. (Fig 8) After bonding procedures, with the aid of a silicone index a 0,3 mm palatal wall was built using a NE enamel (Fig 9). To give the tooth the proper opacity, OPA3 from Estelite Sigma Quick was used as the first layer. (Fig 10). The proximal walls were constructed starting with some A 3,5 body in contact with the bevel and going on with NE. A thin bar with A3 body was used in incisal edge to create the halo effect. (Fig 11-12). Layering continues with body A 3,5 covering the bevel preparation and extending until incisal third. In incisal third an A 3 body was used leaving space for an opalescent composite providing an opalescence effect (Fig 13). All was covered with NE enamel except the middle of incisal part which was covered with YE (Fig 14). In tooth 21 the labial and incisal part of the restoration was removed and a thin palatal wall was kept (Fig 15). The missing palatal wall was constructed and the incisal halo created (Fig 16) The same layering procedures as in the right incisor were followed (Fig 17). The restoration one week after finishing and polishing (Fig 18) The evaluation of the perfect polishing of Estelite Asteria composite in a different reflection of light (Fig 19) The incisal third of the incisors with opalescence and halo effects manifesting a good integration with the remaining tooth and the adjacent teeth (Fig20). One month post-treatment. Evaluation of smile and harmony (Fig 21).

Initial situation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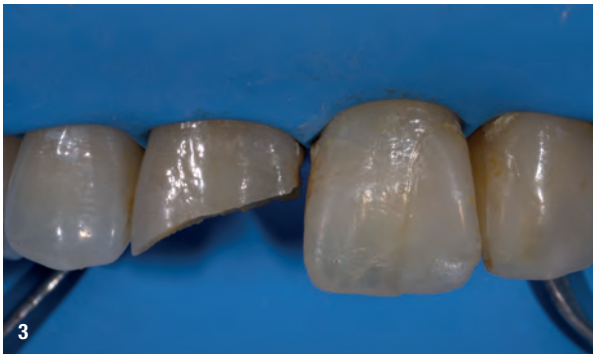
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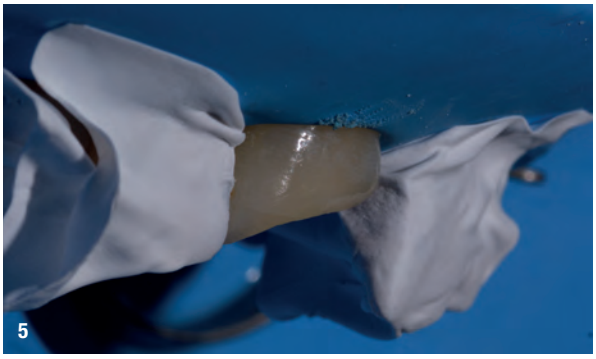
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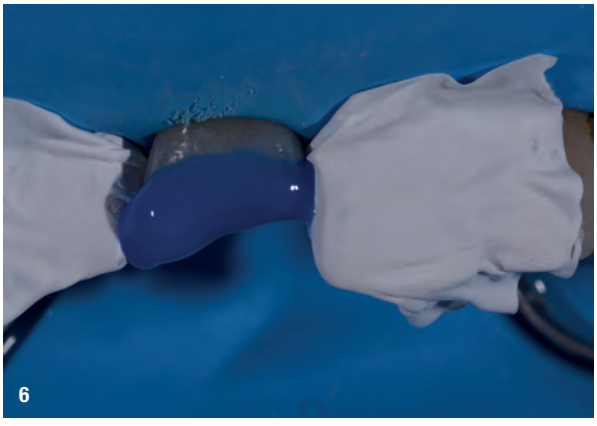
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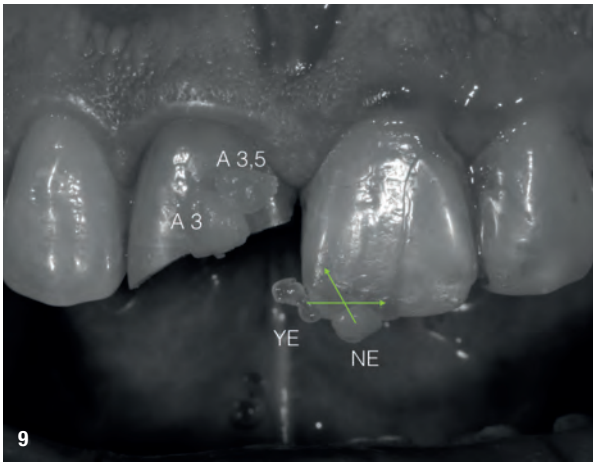

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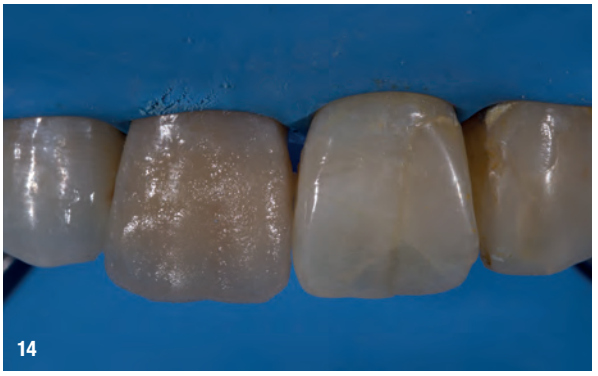
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Final check and photographs


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> “I’m really happy to use in my daily clinical practice a versatile composite such as Estelite Asteria (Tokuyama Dental), that allow me to reach very good aesthetic results in a simple way thanks to its handling, polishability and final brightness.”


22

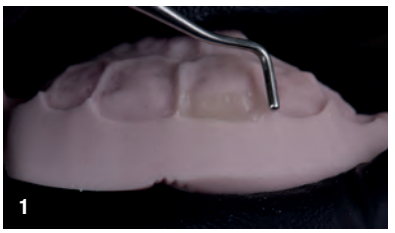
Before and after

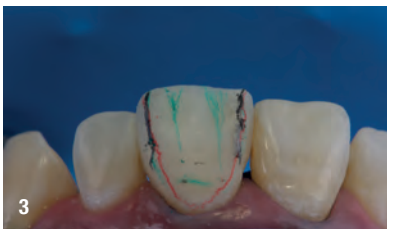
Remodeling aesthetics with composite materials in direct technique

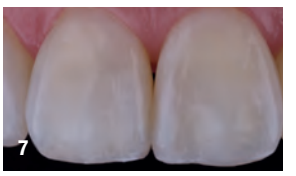
DR. GIORGIO ATZERI
Private dental practice in Olbia - Italy

Initial situation

CASE GALLERY







More and more frequently we find ourselves having to “harmonize” the patient requests that belong to our attention and that “want”: a) an aesthetic result, essential nowadays, b) a savings of healthy tissue, c) “preserve” their portfolio.
The materials and the development of adhesive techniques with composite resins, can allow us to balance these aspects well, provided that are used high performance products, which follow a meticulous and careful clinical protocol and that they try the highest patient compliance.
I would like to share with you this clinical case where, it was to be taken into strong consideration the patient’s functional aspect to prevent further future interventions on the teeth to be restored.
Moreover, use the support of a silicone key not only as a guide for the remaking of the box, but also for the management of the thicknesses, allows us to follow a step-by-step protocol accurate. Careful modeling and finishing phases, all to guarantee the predictability of our direct restorations (it has been used Estelite Asteria composite).

Color stability evaluation in anterior teeth with spectrophotometer

PROF. GIOVANNI DONDI DALL'OROLOGIO
Private dental practice in Bologna - Italy

"The aim of the RCT was to evaluate the color stability of two composites, Admira fusion and Estelite Asteria (Tokuyama Dental) in comparison with natural tooth. The RCT concerns 20 people, 8 males and 12 females, between 25 and 60, with the need of two restorations in different frontal teeth, where the operator applies the materials 40 teeth were treated: 26 upper central incisors, 10 upper lateral incisors, 4 upper canines. Restorations and teeth were tested with a reflection spectrophotometer (MHT), using the same diameter of reading: the recalls were scheduled after one week (baseline), 6-12-24-36 months."

The slides were before the treatment and after 1 week: 11 (Asteria) 22 (Admira).

2

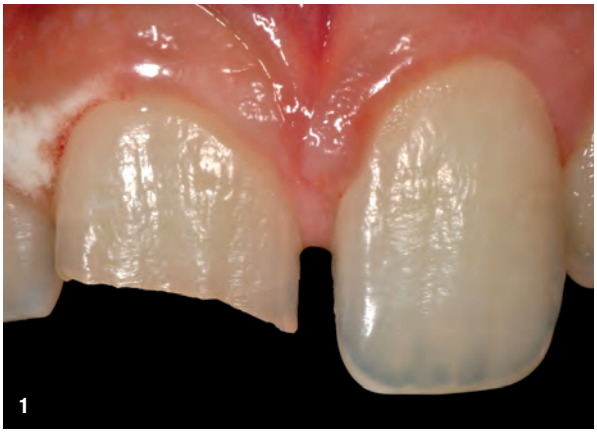
The approach in young patient Trauma Events

Reattaching the fragment

Minimally invasive procedure to reshaping functional and aesthetic parameters

PROF. SIMONE GRANDINI DDS MSc PhD
Chair of Endodontics and Restorative Dentistry
University of Siena - Italy
DR. GIULIO PAVOLUCCI
University of Siena - Italy

In photo of the completed clinical case, the excellent integration of the restoration can be appreciated. The integration of the composite used, and the simplicity of the layering procedure, have enabled us to immediately achieve a satisfactory result without need of retreatment.
The body shade has splendidly masked the line of transition between the tooth and the restoration, while the enamel NE and the translucent TE have created an incisal area which looks completely natural.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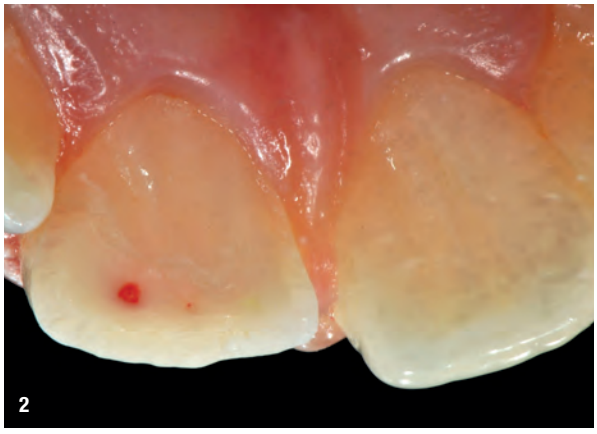
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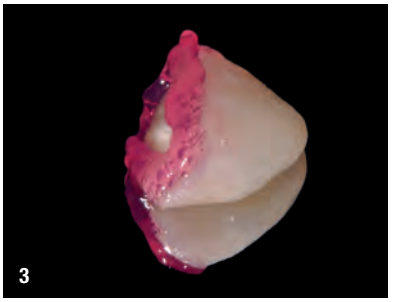
The patient, Y. 9 years old, showed up at our dental office after a trauma involving the frontal area of his mouth. Once it was determined that it was a simple accident (the boy had been playing with some friends when he fell), he was examined. On examination the patient was found to have a fracture (Ellis class III with pulpal exposure) on tooth 1.1, physiological mobility of the tooth itself and of other teeth, a slight swelling on the inside of his upper lip, slight pain and poor plaque control *(Figures 1, 2)*.
The patient had the fractured fragment with him, which was immediately immersed in physiological solution. The pulpal exposure was small and not bleeding, so the decision was taken to proceed with the reattachment of the fragment and the direct reconstruction of the missing portion. After a local anesthesia with articaine, the operative field was prepared. Placing the rubber dam was quite difficult due to the mixed dentition of the patient. The surface area was lightly cleaned using a toothbrush, after which the adhesive system Tokuyama EE-Bond (7th generation with enamel etching) was applied both on the tooth and on the fragment. The latter was repositioned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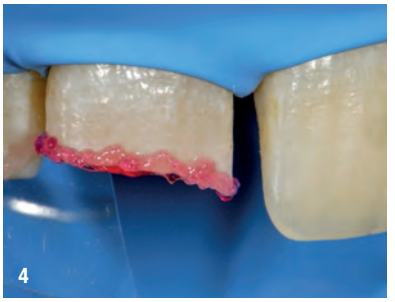
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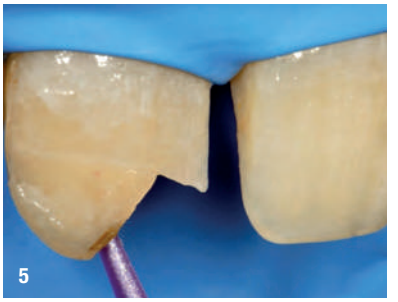
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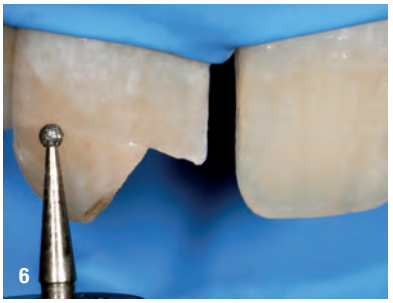
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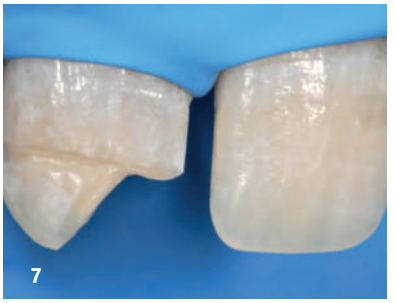
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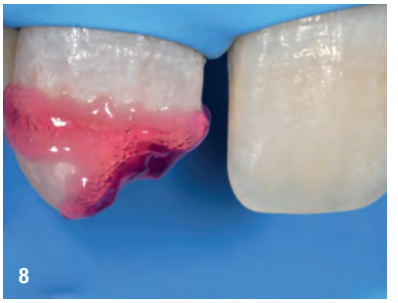
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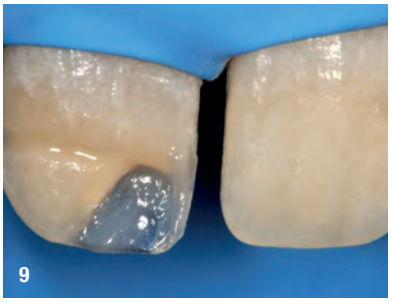
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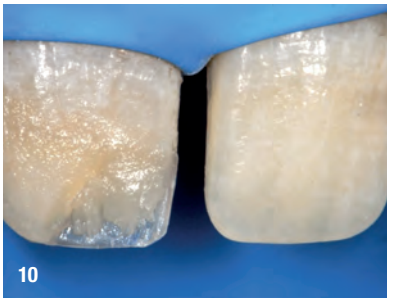
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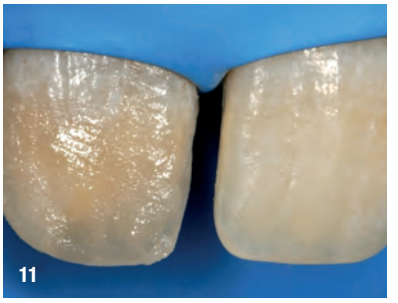
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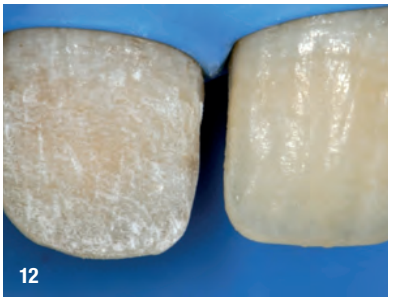
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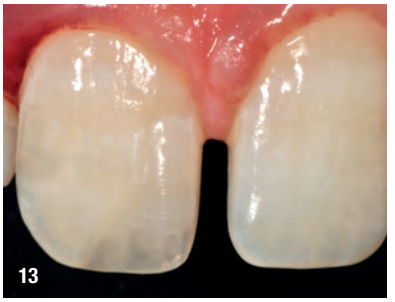
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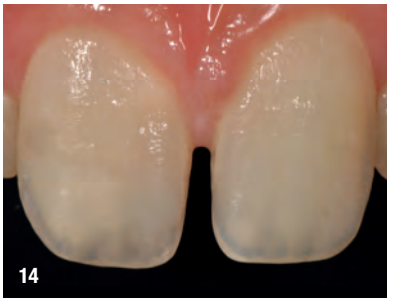
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with interposition of a thin layer of flowable composite *(Figures 3, 4, 5)*. After curing, a double bevel was created along the fracture line, both on the vestibular and the palatal sides. This was performed to increase the adhesive strength of the fragment *(Figures 6, 7)*; to give it regular margins, and to allow the direct restoration of the missing part. The adhesive system was applied once again *(Figure 8)*, and a freehand stratification was carried out. *(Figure 9)* The initial aesthetic analysis had shown the presence of a marked area of incisal translucency and a clear halo on the edge. NE (Estelite Asteria) was applied as a first layer on the palatal side, followed by a buildup of body A2. Following the manufacturer's instruction, the body was applied as far as the medium third surface, while room was left for a thin layer of enamel NE in the incisal third *(Figure 10)*. To recreate the enamel translucency, TE was used between the body mamelons, while the halo was reproduced using body A2. *(Figure 11)* After finishing *(Figure 12)* and polishing *(Figure 13)* the patient was sent home and contacted periodically in the following days for news on possible pulpal symptomatology. In the control picture at 7 days *(Figure 14)* the excellent integration of the restoration can be appreciated. The integration of the composite used, and the simplicity of the layering procedure, have enabled us to immediately achieve a satisfactory result without need of re-treatment.

The body shade has splendidly masked the line of transition between the tooth and the restoration, while the enamel NE and the translucent TE have created an incisal area which looks completely natural.

Restoring fracture in anterior teeth of young patient

DR. ENGIN TAVILOĞLU
Private dental practice in Istanbul - Turkey
Founder "e-kompozit" group
Active Member: Style Italiano Study Club

> "I was the first dentist in Turkey to have the chance to test this new composite from Tokuyama, Asteria. I was very surprised discovering interesting features of it. My first impressions are that it easy to use in layering, it has a simple understandable shade tabs and it is easy to work. In the other hand this material has a very good color match and super shine, and this is important in our dental practice to obtain a very good esthetic final result."
>
> *Dr. Engin Taviloğlu*

CLINICAL CASE

A 10 years old girl, presented with fractured of 2 central incisors. Restoration done with silicone key in one session using the new composite Estelite Asteria, shades A2B and WE adding some white tint, you can evaluate value and good color matching in cross polarised photo.

Initial situation

Before and after the restoration

Minimally invasive therapy approach in young patient

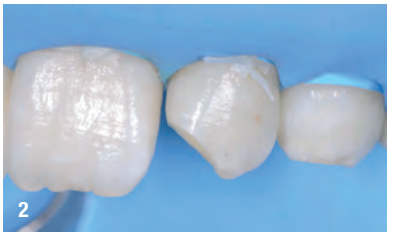
DR. ANGELO SONAGLIA
Private dental practice in Frascati (Rome) - Italy

CLINICAL CASE

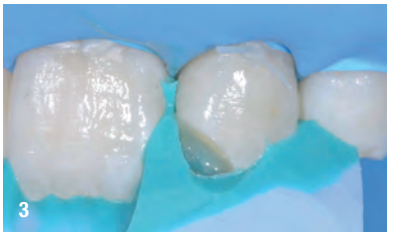
A young patient 8 years old, MG, with mixed dentition has presented to my observation for restoring the element 22.

Initial situation

Fracture of the second class of Ellis 22.



Isolation with rubber dam and removing the not supported enamel walls and regularization of the cavity.



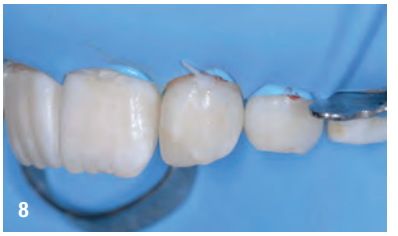
Test the key silicone.

Layering of enamel shade.

Positioning of dentin shade and incisal halo realization.

Last layer of dentin shade.

Layering of vestibular enamel shade.



Finishing and polishing with rubber pads.

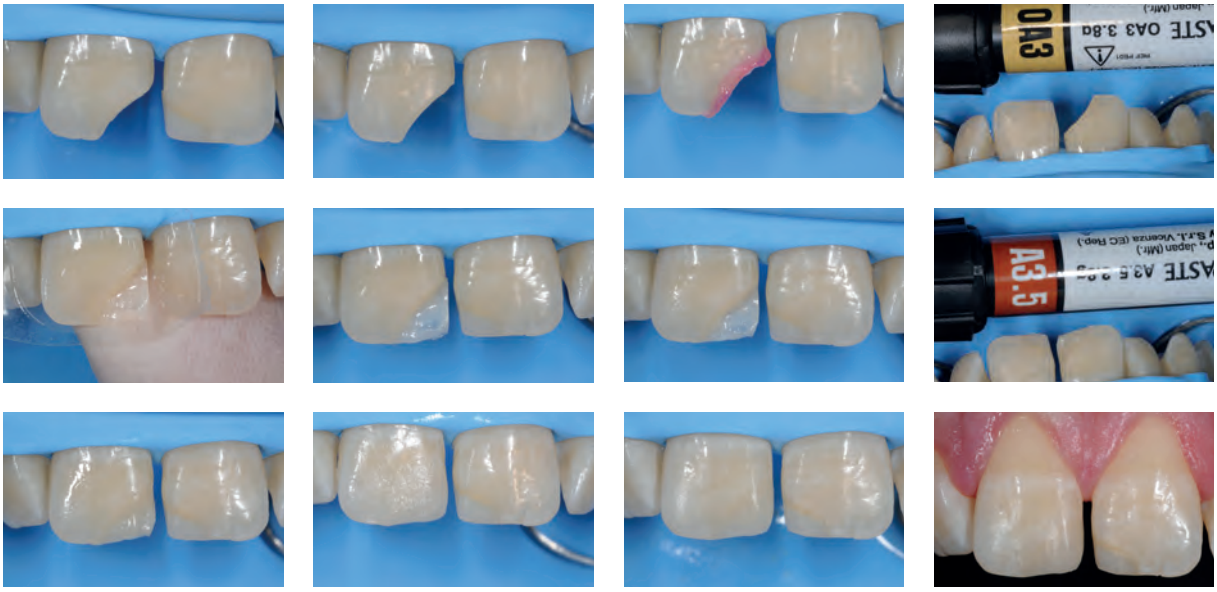
Restoration just completed and control seven days away.

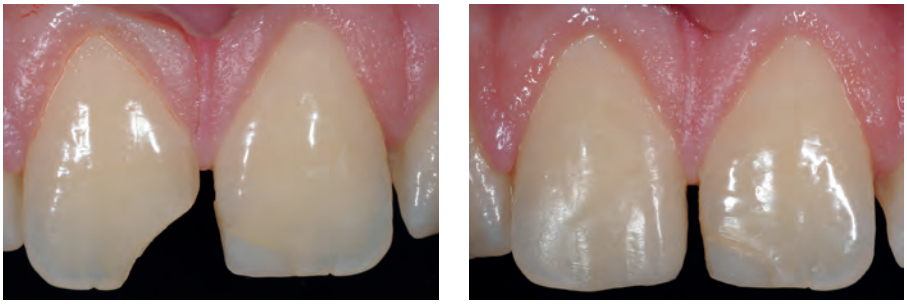
Less preparation approach in young dentition

DR. GIULIO PAVOLUCCI
Private dental practice in Siena e Cortona (AR) - Italy

CLINICAL CASE

The patient presented an enamel- dentin fracture of the upper right central incisor because of a bike accident. The tooth was vital and asymptomatic, so a composite direct restoration was chosen as the ideal treatment plan. It was proposed to the patient to replace the old restoration on 2.1 with a new one, but he refused. In this occasion we had the chance to try this new material with a particular cromaticity Palfique Estelite Paste (Tokuyama Dental). After rubber dam isolation, a short bevel was performed on the buccal margin, using a flame red ring bur. A self etching adhesive with selective enamel etching was applied, then the palatal shell was free-hand builded using a transparent matrix and a OA3 composite: it is important to control the opacity of the restoration using an opaque mass, in order to avoid loss of value and a greyish outcome. An A3.5 composite was used to build up all the rest of the restoration. This kind of material, very mimetic, is highly helpful to reduce the number of different colors used. Using less masses we really simplify the technique and, most important, is really easy to correct some mistakes if necessary. The restoration in easily polished thanks to the highly aesthetic filler. Two weeks control; the patient still doesn't want to replace the restoration on 2.1.



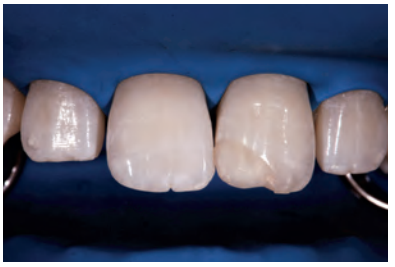


Before and after

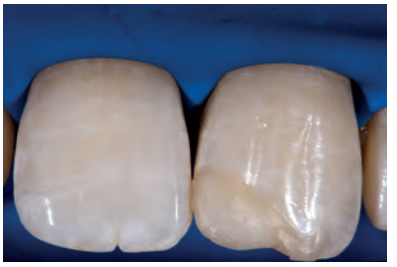
Remake of incongruous restoration with direct technique in 21 element

DR ENZO LAMORGESE
Private dental practice in Rome - Italy
Founder of the Emea dental service Center

Initial situation



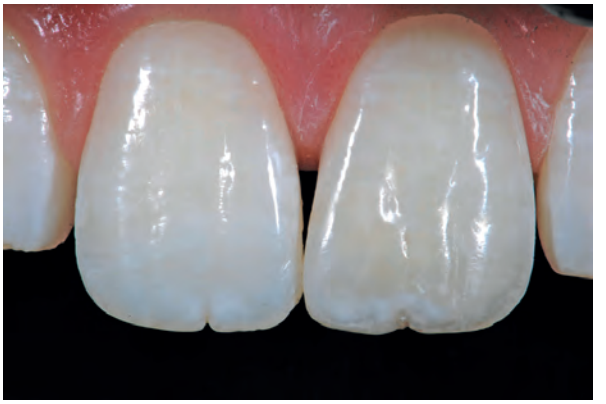
Pre-op situation with the rubber dam.



Pre-op situation magnification.

Cavity preparation and re-shaping.

Final check and photographs



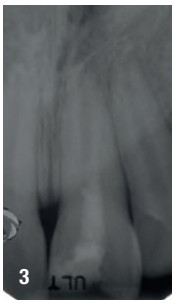
Anterior aesthetic Asteria case

DR. GIANLUCA PLOTINO
Private dental practice in Rome - Italy

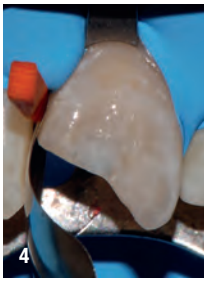
CASE REPORT

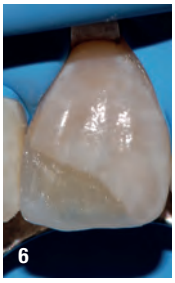
1 Pre-operative image of the left central incisor fractuted in a young patient.

2 Intraoral detail of the fractured tooth.



3 Pre-operative radiograph of the anterior teeth.





4 Isolation and interproximal matrix in place after the adhesive procedures.

5 Application of Asteria BL mass to reconstruct the mesial marginal ridge and of Asteria A2B mass to reconstruct the body of the tooth and the mammelons.

6 Application of Asteria TE mass to simulate the transparency of the incisal area and between the mammelons, of Asteria BL mass to reconstruct the white opacity of the incisal edge and of Asteria WE mass to reconstruct a thin enamel layer.

7 The reconstruction immediately after rubber dam removal.

8 1 week control of the integration of the restoration.

One year check and photographs

9 1 year radiographic control.

10 1 year clinical appearence of the restoration.

Thickness management in the remaking of incongruous restoration

DR MONALDO SARACINELLI
Private dental practice in Grosseto - Italy
Active Member: Style Italiano Study Club
Active Member: AIC

I got to experience the composite Estelite Asteria (Tokuyama Dental) clinically, I had been described to have the high handling performance, polishing, perfect balance and color combination by simplifying the management of the body shades (body dentin) and enamel shades, useful for situations like the one I present, where a young 15 year old female patient presented itself to my observation for the element 1.1 remake (resulting from trauma), it became incongruous from an aesthetic point of view.

Fig. 1 Initial situation with incongruous restoration.

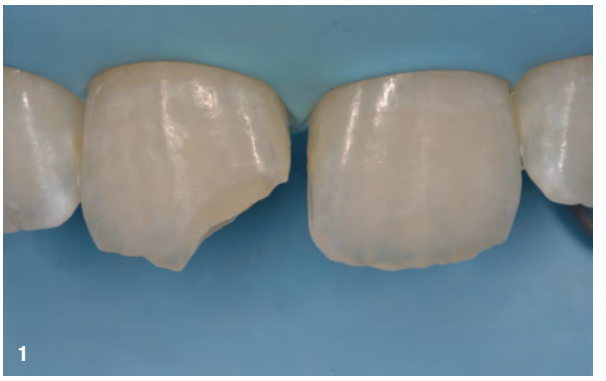


Fig. 2 Isolation with rubber dam for preparation and finishing of margins.

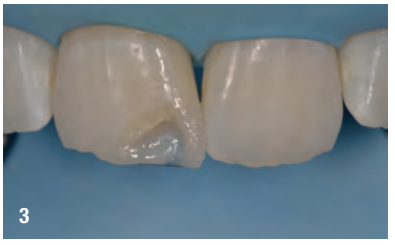


Fig. 3 Construction of palatal and dentin shell, using silicone key, with Estelite Asteria A1B.

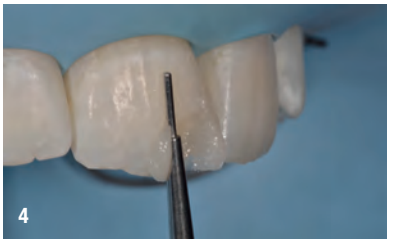


Fig. 4 Management of enamel thickness, using Misura instrument.

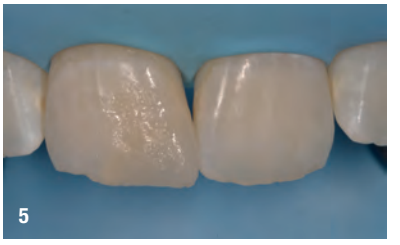


Fig. 5 Completed restoration under rubber dam, before finishing and polishing phases (Estelite Asteria OcE).

> “It can be appreciated how, thanks to the management of a body shade A1B and the use of the instrument “Misura Kit Arte StyleItaliano”, for the management and control of the vestibular thickness of enamel shade OcE, has got an excellent result, with integration from the chromatic and aesthetic point of view.”

Fig. 6 Control to 1 week.

Remake of incongruous restoration with direct technique in tooth 21

DR. ENGIN TAVILOĞLU
Private dental practice in Istanbul - Turkey
Founder "e-kompozit" group
Active Member: Style Italiano Study Club

Initial situation

Reshaping tooth no:11

Removing old restoration on tooth no:21

Building palatal shall of tooth no:21

Just after the restoration using estelite asteria A2B-WE and some small white tints

Side view after one week

Fragments reattachment and restoration of the vestibular surface and of the incisal lobes with A2B mass of Tokuyama Asteria

DR. GIUSEPPE MARCHETTI
Active Member: Style Italiano Study Club
Active Member: IAED
Active Member: AIC
Private dental practice in Parma - Italy

"How to get a perfect reattachemnt result using only one body mass and no enamel to reach the great esthetic outcome and a perfect camaleontic morphology"

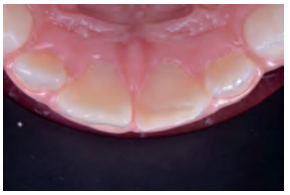
CLINICAL CASE

Pre-operative the little child broke her left central incisor.

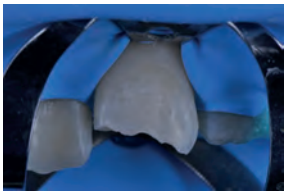
Initial situation

Details of the fracture on 2.1.

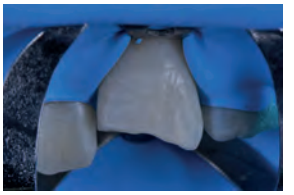
Detailf of the fracture on 2.1.



Details of the fracure from a lingual view.

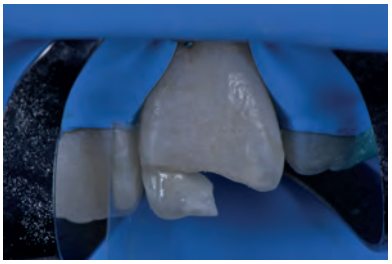


The isolation with the rubber dam.

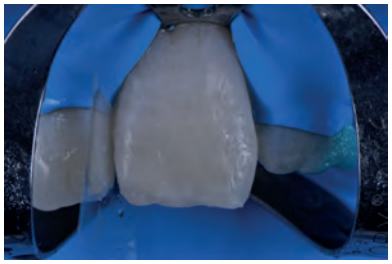


A bevel's done to remove the unsupported prisms of enamel and to mask properly the limits of the restoration and to increase the adhesion.

Details of the fragments before the etching procedures and the reattachment.

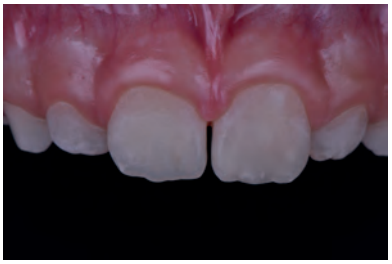


A free hand reattachment of both the fragments was done with an a2 body mass from asteria tokuyama.

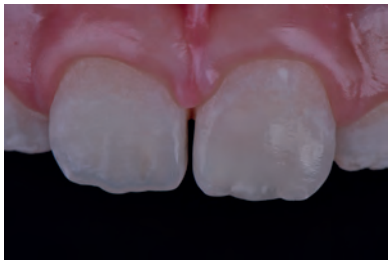


Due to the fact that the two fragments were about the 60% of the loss, with the same body mass all the vestibular surface and the incisal lobes were restored back.

The young patient's smile after two weeks from the restorative procedures.



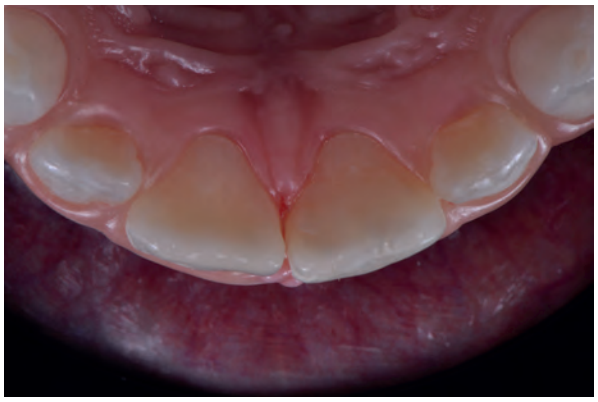
Details of the integration of the restoration on 2.1.



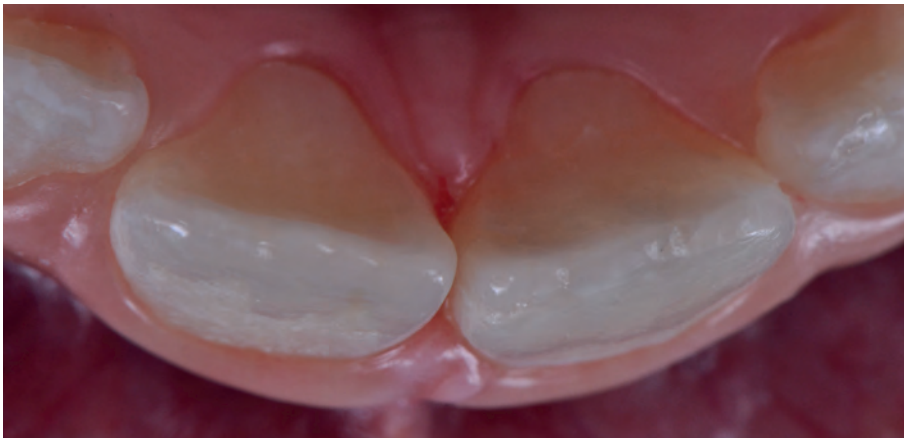
Details of the integration of the restoration on 2.1.

Details of 2.1.

Details of the secondary anathomy after the restorative procedures of 2.1.



Details of the reattachment and of the restoration from a lingual view.



Details of the reattachment and of the restoration from a lingual view.

Emulating natural dental esthetics in anterior restorations

Emulating natural dental tissues in restorations of fractured anterior teeth in terms of minimal invasive esthetic dentistry

DR. BORA KORKUT
Marmara University, Dentistry Faculty
Restorative Department, Istanbul - Turkey

CLINICAL CASE

INTRODUCTION

Aesthetic restoration of lost dental tissues of anterior teeth is a crucial challenge in restorative dentistry. Patients may suffer from undesirable esthetic problems due to color, shape, structural and position abnormalities of anterior teeth. Creating more conservative as well as more powerful restorations against occlusal, lateral and protrusive forces and emulating similar outlook to natural dental tissues is the main objective of up-to-date, contemporary dentistry. 1 An increasing number of dentists prefer minimal invasive and less time-consuming treatment options; as direct resin restorations compared to indirect ceramic restorations for the anterior dental aesthetics. 2 In order to create more natural-looking restorations, clinicians must learn and understand the physical properties of the dental tissues and restorative materials that they use and also interactions of these tissues and materials with light. 3 Various dental materials and techniques have been coming on the scene to improve both functional and aesthetic quality of the restorations. However a few of the esthetic resin materials on the market meet the expectant. The ones having such properties such as simplicity, structural stability, surface polishability, masking discolorations, surface texturing and simulating natural dental color parameters as hue, value, chroma are one step ahead. 4, 5

In this report complex crown fractures due to dental trauma on maxillary right incisors were corrected with minimally invasive direct composite resin restorations by using layering technique in one appointment. The composite material used in this case study is a newly developed resin based restorative material, 'Estelite Asteria' (Tokuyama, Japan) designed for emulating natural dental tissues.

Initial situation

Figure 1, 2: Initial.

CASE

17 years old male patient applied to the clinic with aesthetic complaints due to dental trauma. He had direct trauma to the maxillary incisors a year ago and had no pain or any other symptoms. According to the intra-oral examination complex crown fractures on maxillary right first and second incisors were determined (Figure 1, 2).

Figure 3: Shade selection.

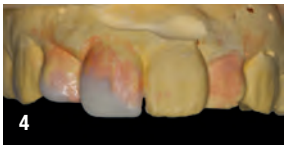


Figure 4: Temporary restorations for silicone index.

Figure 5: Isolation.

Figure 6: Minimal invasive preparations.

According to the radiographic analysis and vitalometer tests the injured teeth were considered as vital. The periodontal tissues and oral hygiene were in good condition. The patient' s age and the examinations were taken into consideration and a conservative approach, minimal invasive direct aesthetic resin restorations with were considered as treatment plan. Shades selected by using the 'Button Technique'. Most appropriate body and translucent shades of 'Estelite Asteria (Tokuyama, Japan)' were selected and located on the crown of left central incisor. The body shades were located on the mid-third and the translucent shades were located on the incisal-third of the crown. Then a digital dental photograph was taken from the labial view by using a professional camera set designed especially for macro dental photography. The set consist of a body (D700), a macro lens (Macro 100 mm L), a macro twin flash (MT-24EX Macro Twin Lite Flash), two side reflectors and a dual flash bracket mount (NovoFlex Uniset). The picture taken was processed in a computer software program called Adobe Photoshop CC (Photoshop CC, Adobe Systems Software). A processed black and white form of the photograph was used to decide the translucent shade. Another processed copy on which contrast was increased and brightness was decreased, was used to decide the body shade (Figure 3). A1B and NE shades were selected. Temporary restorations were prepared for the cracked teeth on a cast model and silicone impression was taken to create a silicone index (Figure 4). Rubber dam was applied on maxillary incisors for maximum isolation (Figure 5). 45 degree deep bevelings were done on both incisors to cover the crack lines as minimal invasive preparations (Figure 6).

Figure 7: Palatal wall.

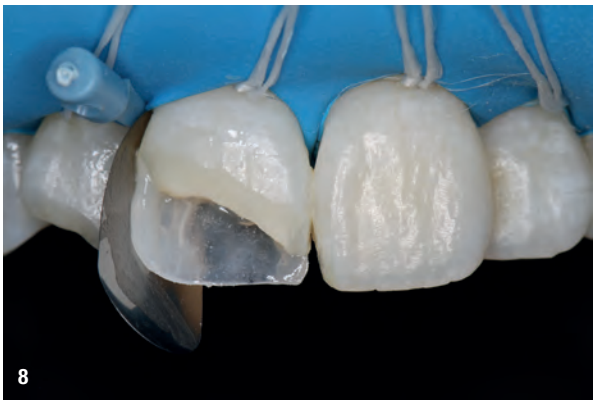


Figure 8: Marginal wall.

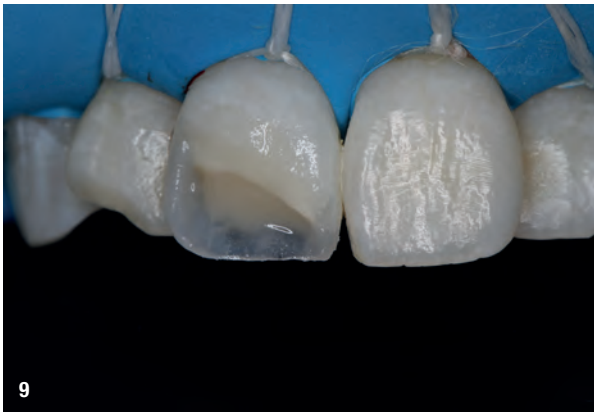


Figure 9: Body shade layering.

Figure 10: Translucent shade layering.

One bottle universal adhesive (Bond Force II, Tokuyama, Japan) was used with selective etching. The translucent shade composite resin (NE, Estelite Asteria, Tokuyama, Japan) was used to create the palatal enamel wall. The resin was placed on the cracked part of the silicone index and refined by using a composite brush with a wetting resin. Then the resin and the silicone index were placed intra-orally on the palatal surface of the teeth and polymerized. The index removed and palatal enamel wall was created (Figure 7). The same resin was used to create marginal enamel walls of the restorations by using kidney-shaped metal matrix bands (Palodent) and wedges (Figure 8). Body shade composite resin (A1B, Estelite Asteria, Tokuyama, Japan) was used to emulate dentin tissue (Figure 9). Labial surface was restored by using the translucent shade resin (NE) again to create the enamel surface layer (Figure 10). In order to avoid over-contouring the composite brush was used with the wetting resin for layering. The surface structure was also created in final surface layering step. The resin used for emulating the surface enamel was applied in 3 steps as mesial third, distal third and middle third so that creating the surface grooves, ridges and also incisal notches while layering. The irregular scretches on the surface was emulated by using the composite brush without wetting resin (Figure 11).

Figure 11: Surface texturing.

Figure 12: Polishing.

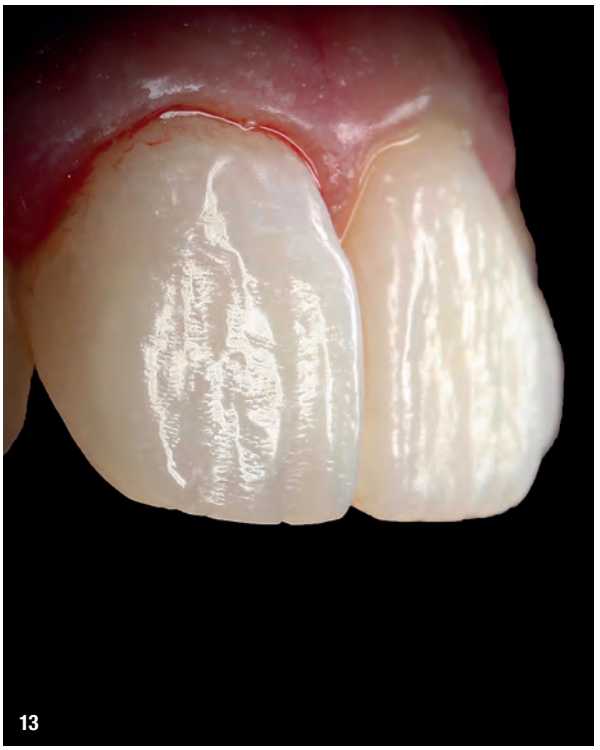


Figure 13: Polishing.

Figure 14: Final, just after the restorations.

After polymerization of the last layer, glycerin (Air Barrier) was applied to whole the restoration surfaces and polymerized again for 40 seconds for avoiding oxygen inhibition layer. The surface cleaned with water spray and dried with air spray. Marginal adaptations and removal of excessive resins were done by a #12 lancet, a fine-grained composite polishing disk (Soflex) and interface sandpapers (Epitex). The labial surface was polished by using only a fine-grained rubber spiral composite disc (Twist-Dia, light blue) in low speed and dry condition (Figure 12, 13).
The patient was informed about the oral hygiene and informed for recalls for every 3 months (Figure 14). At six-months recall no sensitivities, fractures, secondary caries lesions or wear were detected on both the teeth and the restorations. Also no discolorations were detected as the demarcation lines couldn't be detected (Figure 15, 16).

Final check and photographs

Figure 15, 16: Six-months follow-up, untouched.

Figure 17: Six-months follow-up, macro detailed photography.

> "It's been some time that I am using Tokuyama Estelite Asteria thanks to Marco Amore. I can greatfully say that I've used the resin in many cases till now and I am very pleased with the quality and results of it. I can definitely say that although I have almost all the other resin brands in market, Asteria is one of my favorites."
>
> *Dr. Bora Korkut*

The restorations were fully functional during the time according to the anamnesis and the patient was very satisfied with the aesthetic outlook. Oral hygiene and periodontal health were also in good condition (Figure 17). The patient was called for one-year follow-up.

3

Semi-direct or indirect restoration approach

Cementing of lithium disilicate crowns

Estecem Universal used for cementation.

DR. GIANLUCA PLOTINO
private dental practice in Rome - Italy

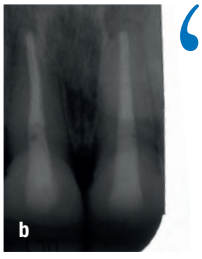
Fig. 1 Preoperative situation with two aesthetically incongruous crowns on teeth 11 and 21.

Fig. 2a Intraoperative pictures of the abutments prepared and bleached.

Fig. 2b Intraoperative pictures of the abutments prepared and bleached.

Fig. 3 The layered lithium disilicate crowns (dental technician Fabrizio Loreti) cemented with Estecem one week after cementing. The easy and effective removal of excess cement from the groove ensures a quick tissue healing.

Lithium disilicate crowns control 1 and 2 years after



Tokuyama says in 2014

Dr. Gianluca Plotino has been one of the first italian dentists to have the opportunity to test this new cement.

Dr. Plotino says in 2017

I've the pleasure to demonstrate the stability and fairness of the restorations

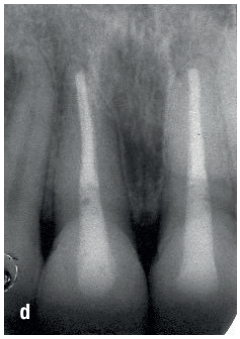


Fig. a 1 year clinical photograph.

Fig. b 1 year radiographic control.

Fig. c 2 years clinical photograph.

Fig. d 2 years radiographic control.

Cementing of disilicate onlay

DR. GIANLUCA PLOTINO
Private dental practice in Rome - Italy

CLINICAL CASE

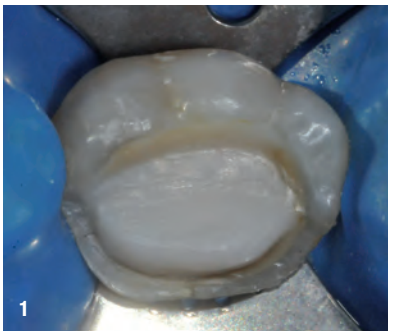


Fig. 1 Cavity prepared and isolated for cementing.

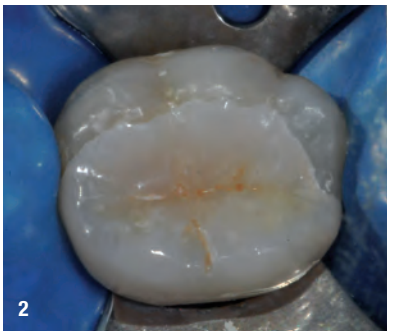


Fig. 2 Test for lithium disilicate inlay.

Fig. 3 Estelink bond to be applied in the cavity.

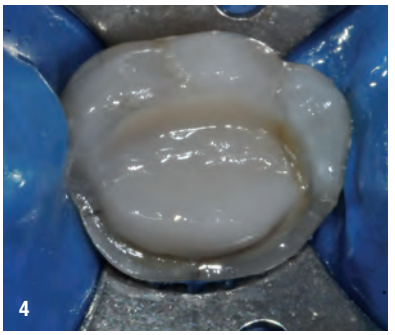


Fig. 4 Cavity after the bonding steps.

Fig. 5 Universal primer to be applied on the inlay to be cemented.

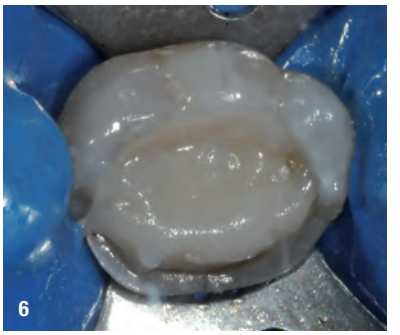


Fig. 6 Estecem Universal applied in the cavity.

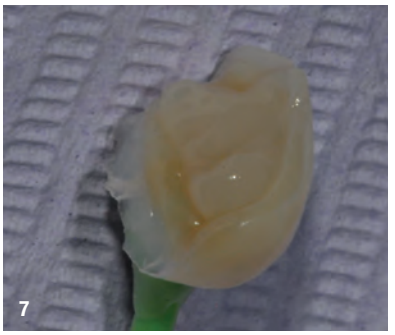


Fig. 7 Estecem Universal applied on the inlay to be cemented.

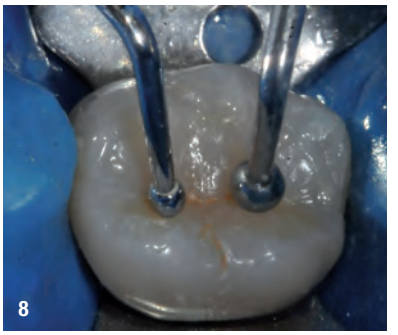


Fig. 8 The inlay cementing steps.

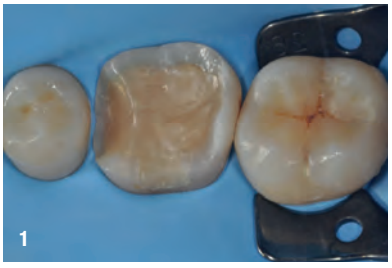
Fig. 9 The inlay shortly after the cementing (dental technician Fabrizio Loreti).

Semi-indirect onlay

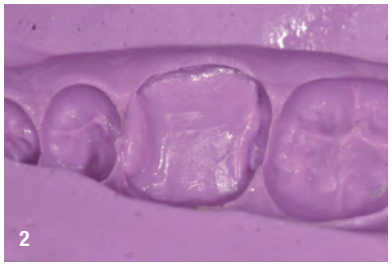
Technique in the dental office

DR. JORDI MANAUTA
Private dental practice in Sestri Levante (GE) - Italy
Active Member: Style Italiano Study Club

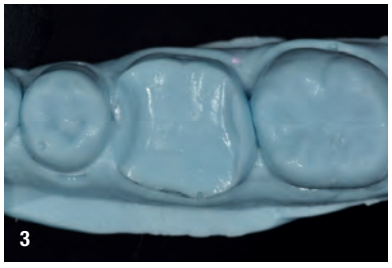
CLINICAL CASE



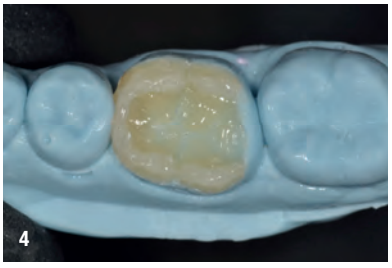
Tooth 46 after endodontic treatment. To make an onlay, access to the pulp chamber was reconstructed and prepared with Estelite Asteria A3B.



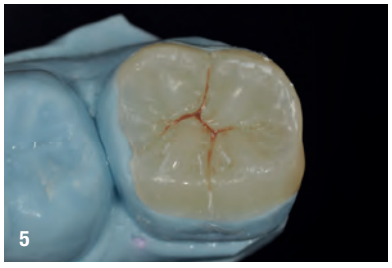
An alginate impression (Hydrogum 5, Zhermack) was taken while making sure that the impression surface had no bubbles.



After 2 minutes the impression was developed with an extra hard Shore A 85/90 low viscosity silicone (Quick Die, Bisco).



The tooth structure was remodeled with two masses: A3B for dentin and OcE for enamel. The sectional technique entails making the marginal crest first, then performing the anatomical stratification towards the center and completing.



Occlusal sulci were characterized using Estelite Color Dark Brown. The artifact was finished and polished in situ on the silicone model to obtain an optimum marginal adaptation and a precise contact point for the onlay.

The same composite used for making the prosthetic artifact was used for cementing, after slightly warming it up to make it flow more easily.

The restoration was pressed slowly and constantly in situ until it was perfectly seated. Excess material was then removed.

Upon completion of the cementation, the restoration appeared excellently integrated and this is even more evident after hydrating the tooth.

Completed restoration.

Direct veneers from 13-23

With Estelite Σ Quick

Modern dental composites are highperformance materials with a wide range of applications. Although after over 50 years on the market these materials have reached an amazing level of quality, there is still scope for improvement because requirements continue to change. The requirements profile for the core areas of a good composite can be described as follows:

Aesthetics
Good shade match, long-lasting surface smoothness and lustre.

Durability
Abrasion resistance without antagonist damage, low shrinkage.

Handling
User-friendly, simple handling properties.

Not to forget
The general trend calls for a time-saving, ideally without any reductions in quality. Tokuyama, a well-known Japanese dental company, has further improved its composite Estelite Σ. As the addition Estelite Σ Quick indicates, polymerisation time was radically reduced by an interesting modification of the photoinitiator whilst working time was extended by 40%. With conventional composites photo-polymerisation is initiated by camphorquinone (CQ) and amine, whereby the activated CQ is consumed. The more CQ available, the shorter the polymerisation time. The serious disadvantage of a high proportion of CQ in the composite is that it also cures very quickly in ambient light, so working time becomes very short. With the CQ/amine system it's always necessary to make a compromise between polymerisation time and working time. This problem was solved by developing the RAP initiator (Radical Amplified Photo-polymerisation), which replaces the amine. With this system, polymerisation can be initiated with a small quantity of CQ because the CQ activated by light is regenerated and the photochemical reaction is intensified by the RAP initiators. In practice this development means that working time is extended for the dentist, but polymerisation time is also reduced. Instead of 55 seconds, in ambient light at 10,000 lux, there are now no less than 90 seconds available for application. This extra time window is very useful if several fillings are being placed in parallel or if complex aesthetic sculpting has to be performed. On the other hand, the material can be polymerised with a powerful halogen lamp within 10 seconds instead of 30 seconds as previously, which saves valuable time in elaborate layering techniques and at the same time increases patient comfort, because the mouth does not have to be kept open for quite as long. The really remarkable difference between Estelite Σ Quick and other composites is the size and shape of the fillers. Instead of cutting up a block as usual and thus obtaining fillers of various sizes, with a usually unhomogeneous shape, Tokuyama takes a completely different technical approach and thus attains outstanding material properties. By using the sol-gel method, spherical particles of 0.2µm SiO2-ZrO2 are developed in solution. This provides a composite filler of homogeneous size and shape and allows a filler content of 82 per cent by weight. The homogeneity of the filler is responsible for the excellent aesthetic and physical properties of Estelite Σ Quick:

Chameleon effect
The high diffusion and transmission of incident light permit excellent shade matching. The material is impressive on account of its remarkably good shade matching with the dental tissue to be treated, so in many cases it's not necessary to provide marginal bevels for anterior restorations.

Surface reflection and long-lasting lustre
The polished, very smooth surface of Estelite Σ Quick reflects the incident rays of light in a similar way to natural enamel, according to the physical principle of "angle of incidence equals angle of reflection". Even after a lengthy period this lustre remains intact because, even after partial loss of the very small and uniformly distributed particals of filler, a smooth surface remains. Aspherical differently sized fillers, on the other hand, scatter the light diffusely so a natural surface lustre is more difficult to achieve. After a lengthy period of use the lustre disappears because the loss of these fillers with an unhomogeneous size and shape increases the surface roughness and the incident light is consequently scattered even more diffusely.

Abrasion resistance
An ideal filling material should firstly suffer little wear during use and secondly cause as little damage as possible to the antagonist. Estelite Σ Quick manages this balancing act due to the smooth surface and homogeneity of its fillers. It has a high level of wear resistance and causes only minimal abrasion to the antagonist.

Low shrinkage
The high proportion of homogeneous fillers permits a low linear shrinkage of only 1.3%. The risk of enamel/dentine fractures or cohesive fractures resulting in marginal discolouration and postoperative hypersensitivity is thus reduced.

Handling and range of applications
Estelite Σ Quick is characterised by user-friendly handling properties. It possesses good sculptability and stability, which makes it possible to perform complex aesthetic anterior reconstructions and anatomically contoured posterior fillings with ease. Due to its shade diversity and different degrees of opacity it's not only an excellent material for aesthetic multiple-shaded fillings, but is also ideal for simple monorestorations in classes I to V.

Clinical use
The most important step towards achieving a successful aesthetic restoration is without doubt the determination of "correct shade". That is followed by analysis of shade distribution, optical effects and the anatomy of the tooth, also taking its environment into consideration. "If the shade is not right" it hardly matters how perfect the shade layering and the anatomical sculpting are because the filling will always be conspicuous, even to the untrained eye.

Estelite Σ Quick satisfies many of these requirements due to its outstanding properties, already described. Nevertheless, there are some tricks required to compensate for discrepancies between dental tissue and composite.
Generally speaking, it's advisable to copy the existing anatomical structure of the dentine core and the thin external layer of enamel. The OA shades are ideal for the dentine core because they are translucent enough for a good chameleon effect, but at the same time they possess sufficient opalescence to imitate the darker core and conceal slight discolouration. The thickness of the dentine core continuously diminishes from the tooth cervix to the incisal edge. This fact should be given attention during the layering process right from the outset, as well as the three-dimensional sculpting and texturing of the dentinal surface. Consequently, the subsequent application of enamel, corresponding to the highly translucent A, B and C shades of Estelite Σ Quick, can be used to achieve highly attractive depth and shade effects. In the area of the incisal edge the completely translucent CE (Clear Enamel) can produce attractive glazed effects.
For a successful outcome, it is important to remain in the correct anatomical layer from the very beginning. Over-contouring can easily occur, so ultimately, when finishing, material must be removed with rotary instruments in order to give the filling or direct veneer a good contour. Under certain circumstances the entire shade system may be destroyed and the intended aesthetic effect is lost. This is often attributable to an excessively voluminous dentine core that is intended to prevent translucency effects of the dark background of the oral cavity, which leads to "grey fillings".
In such cases, an effective trick helps. Instead of layering the palatal surface of the reconstruction in translucent enamel shade A, the shade OPA2, which has a high level of opacity, is used. This simply blocks out the dark background. OPA2 is also intensive enough to cover relatively bad discolouration of the substrate, as is encountered in non-vital teeth for example. However, OPA2 is not opaque enough to cover metal. In such a case the opacity should be cautiously intensified with tinting colours.

CLINICAL CASE

Direct veneers from 13-23 with Estelite Σ Quick A 47 year-old patient wanted to have her smile enhanced. She had already undergone combined oral surgery / orthodontic therapy at the end of the 1990s; teeth 12, 11 and 22 had already been treated with composite fillings and the non-vital tooth 21, which had already been fitted with a crown, had been provided with a metal-free crown in 2001. In an initial consultation, an aesthetic analysis was performed and the parameters for treatment were discussed. It became apparent that the patient would prefer non-invasive therapy. The existing restorations, including crown 21, were to remain and the asymmetry along the gingival line did not disturb her on account of the long upper lip. The teeth were to become brighter and more harmonious, become slightly longer and have enhanced anterior tooth guidance. With this information a wax-up was made in the laboratory and at the next appointment the mock-up, upon which it was based, was tried out in the patient's mouth. The patient liked the result and some minor changes were discussed regarding the implementation

phase. As an alternative to direct sculpting, indirect, wafer-thin veneers and a new crown were discussed again. However, the decision remained with the non-invasive approach. On the wax-up, a palatal silicone template was made as a guide in order to simplify sculpting.

PROCEDURE

- Cleaning of the tooth surfaces
- Grinding and reduction of the existing composite fillings and crown 21
- Trial sculpting and testing of shade and shade layering at points of strategic interest, including polymerisation. The shades selected were OPA2, OA2, A2, A1, CE and WE
- Removal of the trial wax-up and cleaning the tooth surfaces again
- Conventional procedure of the adhesive bonding technique for enamel/dentine and ceramics
- Sculpting the palatal portions of the incisal edges with the aid of the silicone template using shade OA2
- Covering the grey framework on tooth 21 and the deep composite portions with OPA2
- Sculpting the dentine cores in OA2
- Sculpting the tooth cervixes, tapered to the centre, in A2
- Sculpting the central and incisal enamel portions in A1 n Sculpting the incisal and adjacent proximal areas with CE and WE
- Careful smoothing with steel finishing burrs
- Polishing with polishing discs and silicone polishers

Initial situation

Fig. 1 Initial situation of an aesthetic anterior reconstruction with Estelite Σ Quick.
Fig. 2 Initial situation following combined oral surgery / orthodontic therapy. The existing composite reconstructions have been in situ for 9 years. The asymmetry in the gingival area is not regarded by the patient as disturbing, due to the long upper lip, so it should not be corrected. Tooth 21 is non-vital, heavily discoloured and treated with a metal-free crown. After detailed consultation, the patient's explicit request was to alter the aesthetic appearance of the anterior teeth as non-invasively as possible. The existing reconstructions had to remain intact.
Fig. 3 Close-up of the initial situation.

Fig. 4 Final outcome with direct veneers on teeth 13 to 23.
Fig. 5 Condition directly after making 6 veneers with Estelite Σ Quick.
Fig. 6 Close-up of the final situation.

CONCLUSION

Estelite Σ Quick is a versatile composite system with impressive properties, both for demanding aesthetic reconstructions and for simple fillings in classes I-V. Special aspects worth mentioning are the excellent chameleon effect, long-lasting lustre, a long working time and a very short polymerisation time. Or, to put it in a nutshell, Estelite Σ Quick is a pleasure to use!

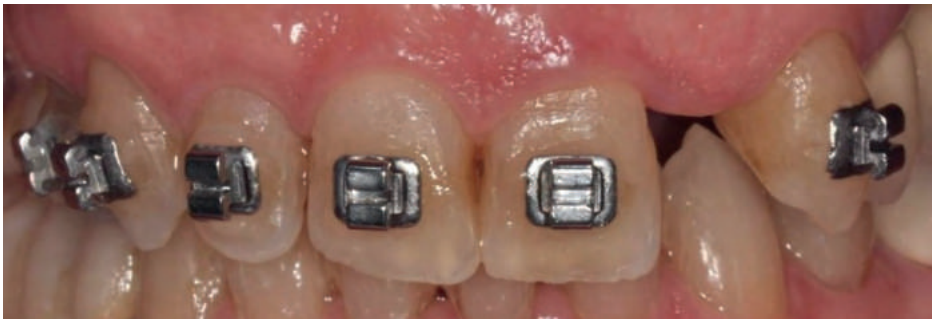
Additive re-shaping teeth coronoplasty

And metal-free Maryland bridge

DR. LORENZO GRAIFF
Private dental practice in Padova - Italy

CLINICAL CASE

> The chameleon-like properties of Estelite Asteria permitted to obtain excellent mimetism of the additive procedures on the two incisors; in fact, the optimum colour transition was obtained by mainly using one single body mass. Then small quantities of enamel mass permitted to obtain a more natural and esthetic reconstructed incisal margin of teeth 11 and 12. An enamel mass (Estelite Asteria NE) was also used to cement the E-max Maryland bridge; the new Tokuyama composite has truly excellent consistency and can also be used in the adhesive cementation of indirect composite or ceramic restorations, with no need to pre-heat it.
>
> *Dr. Lorenzo Graiff*



Before

After

Female patient, aged 53: OPG at the beginning of the treatment (endodontic-orthodonticimplant- restorative).

Orthodontic phase during which the upper front teeth are realigned.

Gingivoplasty to condition the form of emergence of the provisional 22.

Provisional 22 is relined and inserted in the sectional archwire.

Healing 1 week after gingivoplasty.

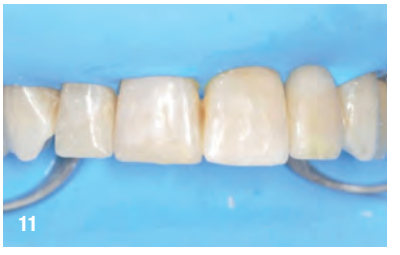
Rubber dam is placed and detail of the shape of numbers 11 and 12 before coronoplasty.

Etching with 39% orthophosphoric acid (Tokuyama Etching Gel HV) and protection of teeth 21 and 13 with transparent matrices.

Phase of additive coronoplasty on tooth 12.

Finished additive coronoplasty (two masses have been used: Estelite Asteria, A2B and YE).

Palatal view while cementing the e.max-CAD Maryland bridge.



Buccal view of the Maryland bridge immediately after cementing.

Front view of the finished case: additive coronoplasty on 11 and 12 (Estelite Asteria A2B and YE) and e.max-CAD Maryland bridge, performed by dental technician Alfredo Rizzati in Portomaggiore (FE).

Indirect morphologic restoration in composite in the lateral-posterior sector

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Private dental practice in Catania - Italy
CDT. LEONARDO CAVALLO
Private dental technician in Terme Vigliatore (ME)- Italy

ABSTRACT

From the mid-nineties to our days, the evolution of materials and adhesive techniques has significantly changed the restoration approach in the lateral-posterior sectors. The purpose of composite restorations in the posterior sectors is aesthetic but also related to the principle of maximum conservation of the healthy tissue and strengthening of the residual healthy dental structure. Composite resins, used with adhesive techniques, are presently the preferred materials, for both direct and indirect techniques. These materials have excellent physical-mechanical properties, since they are highly filling in terms of weight and volume, they are adequately radiopaque, and thanks to an elastic modulus similar to dentin, they are highly resistant. Lastly, they show wear values comparable to those of natural enamel, and/or amalgam filling (10-30 micron\year). This article presents a case report on a 22 year old male patient suffering from a wide carious lesion on 36. A morpho-funcional rehabilitation was performed, using a composite indirect restoration.

Fig. 1 Initial situation showing caries.

Fig. 1a Final Situation.

THE CLINICAL CASE "STEP BY STEP" - INTRODUCTION

Every time we have to face a clinical case our procedural choices must always be based on a careful diagnosis. In order to identify, during the first visit, any oral cavity disorder in a patient, we should avail ourselves of all possible means to subsequently prepare a final treatment plan [1]. The clinical case presented in this article is about a 22 year old boy who came to our office for a general check. The only discomfort he reported during the history taking, was the frequent dentin sensitivity to cold located in the left lower quadrant. The diagnostic approach included an objective examination, pictures taken, bite-wings and periapical x-rays, and periodontal check using a periodontal probe. The clinical examination showed that the patient had an occlusal and interproximal carious lesion on 36 (Fig. 1). First of all we isolated the operating field with the rubber dam (Fig. 2), a fundamental tool to ensure the maximum exploitation of the composite material properties thanks to the control of the salivary flow, the crevicular fluid and the humidity produced by the patient's breath. We fully removed the carious tissue until we obtained a surface which, once dehydrated, appeared without opaque areas, using rotating tools and Vanadium alloy excavators with the highest cutting efficiency [2]. After removing the carious tissue, we redefined the cavity, whose shape is always closely related to that of the carious lesion, to minimize the loss of healthy dental tissue. We then removed from tooth 36 the carious tissue and performed the adhesive build-up (Fig. 3).

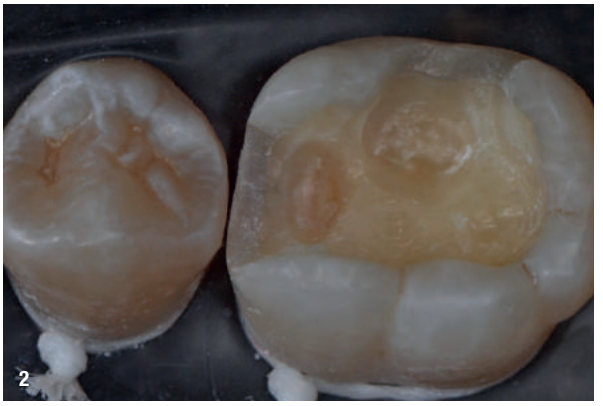

Fig. 2 Isolation of the operating field and cavity preparation.

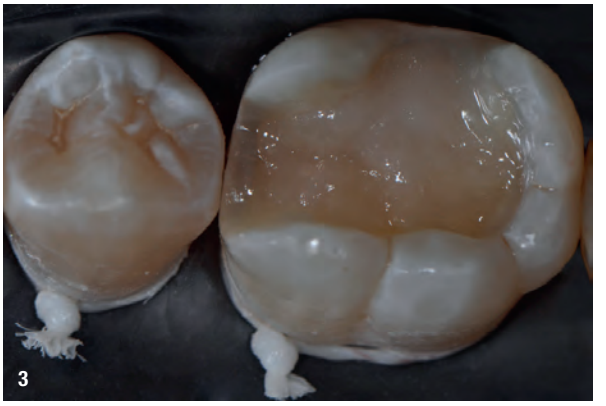

Fig. 3 Build up with Estelite Flow Quick High Flow.

The build-up was performed using a radiopaque low viscosity fluid composite in shade A2 (Estelite Flow Quick High Flow - Tokuyama Dental, Japan) in a max. 1 mm thickness. When we decide to face a clinical case with an indirect approach, we perform the routine build-up. The main purpose of the build-up is protecting and sealing the dentin preventing subsequent hypersensitivity and also eliminating undercuts, preventing stress to the impression material [3].

Fig. 4 Model in extra hard plaster Class 4 (Antagonist), master model in epoxy resin Blustar.

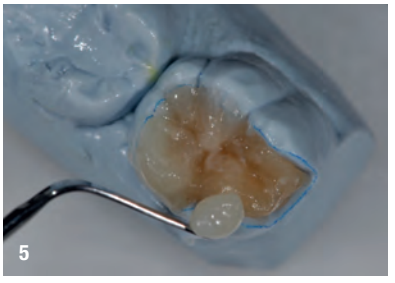

Fig. 5 Sectioned model, dentin already applied Estelite Asteria A4 characterized with super colors, Estelite and application of enamel Estelite Asteria OcE.

Fig. 6 Tests with articulator already completed.

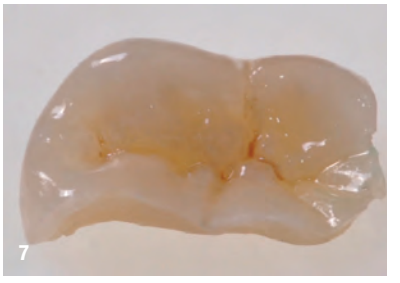

Fig. 7 Inlay completed.

After completing the adhesive build-up, we prepared the cavity suitable to host the future inlay. We subsequently removed the rubber dam and immediately took, by means of an addition-cured silicone (Virtual 380 Ivoclar), the cavity post-op impression of the antagonist arch. Lastly, before the patient left, we created a provisional restoration with a monocomponent and light-curing material (Telio CS Inlay Ivoclar), with the aim of protecting the tooth during the days between the session for the impression taking and the one in which the indirect restoration cementation would be performed [2]. The model in the lab was made with a fluid epoxy resin (Blue Star Zeiser- Germany); after dripping, it underwent a 2 bar pressure for 10 hours (Fig. 4). The composite layering technique (Estelite Asteria - Tokuyama Dental, Japan) used was the three increments one (Fig. 5) with max. 2 mm thickness and the application of the super color (Estelite Color – Tokuyama Dental, Japan) on the bottom of the grooves and/or fossae (Fig. 6). After completing the composite inlay (Fig. 7), we assessed the superficial texture by covering the surface of the product with gold color powder (Fig. 8) [1]. In the second session, scheduled after one week, the provisional restoration was removed and, after isolating the operating field with the rubber dam, we performed the prova dell'intarsio. The cavity was cleaned with a brush dispensing a paste made with pumice powder and neutral soap and then rinsed; a silane was applied on the inlay, for 60 seconds, to ensure a better bonding and after that the adhesive was applied (EE-Bond – Tokuyama Dental, Japan) without curing it [2].

Fig. 8 Check on the occlusal morphology with gold color powder.

Fig. 9 Inlay in cemented composite.

Fig. 10 Inlay immediately after cementation.

The adhesive cementation procedure on the tooth was performed with etching, protecting the adjacent teeth. This was followed by rinsing and the application of chlorhexidine digluconate 2% for 60 seconds to prevent metal protease and stabilize the bonding over time. The adhesive (EE-Bond - Tokuyama Dental, Japan) was then introduced into the cavity with microbrushes for 30 seconds without curing it [4]. To fill the "inlay-tooth" interface, we used the traditional preheated light-curing composites (Estelite Asteria - Tokuyama Dental, Japan). After applying the preheated composite on the inlay, it was introduced in the cavity with a strong and constant pressure to promote its full adaptation. The excess composite was removed with a scaler and dental floss, and the composite was then properly light-cured (Fig. 9)[5]. The final curing was performed under glycerin gel to inhibit the surface oxygen. The "inlay-tooth" interface was then finished off and polished with rubber polishers with decreasing abrasiveness: the indirect restoration showed an optimal marginal adaptation, in both purely clinical (Fig.10) and radiographic terms (Fig.11) [6]. The control x-rays after 2 years (Fig.12) showed that the marginal integrity was unchanged and therefore that by complying with the operative protocols in a careful and accurate way and using highly performing materials, we can be sure to obtain predictable results over time [7].

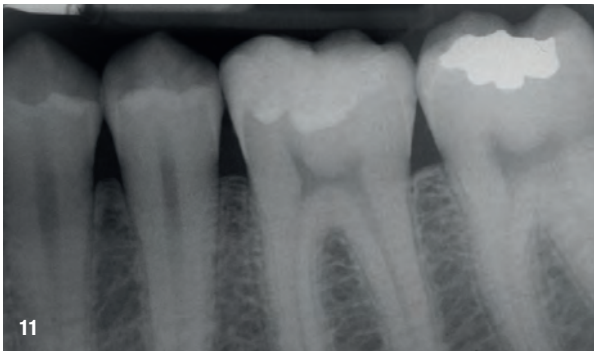

Fig. 11 X-rays immediately after cementing.

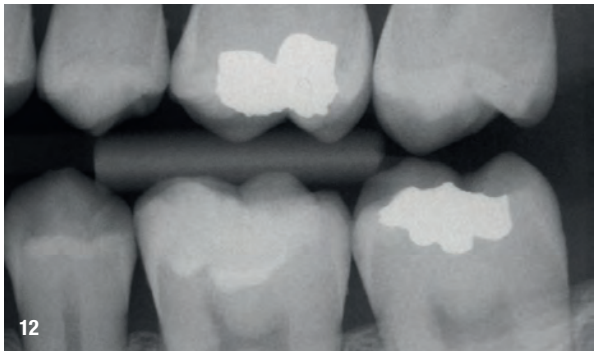

Fig. 12 Control bitewing x-ray after 2 years.

CONCLUSIONS

The current literature on conservative dentistry, in case of a large cavity, supports a conservative approach, either direct or indirect: the choice of one or the other and the treatment approach will be led by the professional's skills, the amount of dental substance left and the sharing with the patient of the treatment plan, but with the only purpose of restoring the biological, occlusal and aesthetic appearance of the patient with the modern conservative techniques.

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Semi direct composite restorations in the anterior sector: case report

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ABSTRACT

While the present conservative dentistry provides many materials and techniques to perform aesthetic and long-lasting restorations, in the last years the need to achieve such results in a cost-effective way for the patient has emerged.
In my opinion, the case presented illustrates a relatively easy way to solve with the composite pro¬blems related to diastemas, malpositionings and dental malformations in the anterior sector, without having to resort to diagnostic wax-ups and indirect restorations . (Int J Esthet Dent 2015;10:xxx–xxx)

INTRODUCTION

In the last 50 years, the patients' needs, together with the evolution of materials, have changed significantly. While half a century ago it was enough to recover and restore a tooth, even only from a functional point of view, today aesthetics has become a must. Adhesion to hard dental tissues has changed the way we conceive not only conservative dentistry but also prostheses. In the wide range of the proposals we are offered today, the correct combination of composite and ceramics allows us to achieve aesthetic and functional results unconceivable in the past. We are therefore faced with selecting between direct and indirect techniques, between composite and ceramics. Without listing all the pros and cons of the two techniques, the differences are mainly the lower cost and lower number of appointments required for direct restorations compared to indirect restorations, offset by the fact that in indirect restorations the shape and the colors are more manageable. Looking at the history of anterior aesthetic restorations, we know that ceramics was already in use in the 19th century1, but the idea of using it with the composite taking advantage of the adhesion principle dates back only to the second part of the 20th century 2,3. Since those years, the techniques and materials allowing an aesthetically good and predictable result have developed quickly, with a decreasing sacrifice of dental substance to which we were obliged when we had to resort to complete crowns.

Composites and ceramics vied with each other to impose themselves on the market, with different supporters alternating every time, since at the beginning the optical and mechanic qualities, especially in the long term, of ceramics4-6 were for sure greater than the ones of the composite, but at present we have resinous materials which lose their aesthetic characteristics very slowly, being therefore a good and cheaper alternative to porcelain7-9. The present economic situation has contributed to a greater use of these material also in cases in which in the past only ceramics was used10. Moreover, sometimes there is not enough time to perform a diagnostic wax-up, for example in case of traumas, but it is necessary to give the patient an immediate answer. Many times the dentist would perform mock-ups11-14 directly with the composite before starting the actual composite to explain the final result achievable to the patient, often obtaining very good results both in terms of shape and color integration. Nevertheless, when it was necessary to put this project into practice, very often the result was not as good, due to the introduction of "disturbing" elements, like the dam, the keys, adhesion, etc. Considering also that these mock-ups were easily removable, the idea emerged to use them as if they were small additional veneers not in ceramics but in composite15. In practice, as I like to rename them, Anterior Semi-direct Composite, or the acronym ASC.

DESCRIPTION OF THE CLINICAL CASE

F.C., 17 years old girl, came to my office for a visit for an aesthetic problem about her old composite restorations on 13 and 22 (Fig. 1). The objective examination showed agenesis of 12, replaced by 13. Instead of 13, 53 was still present (Fig. 2). 22 was presumably a co¬noid covered with composite material now dyschromic (Fig. 3). Mesially to 13, a dyschromic composite restoration was present (Fig. 4). We discussed with the patient and her parents about the possible treatment plans and their implications. For economic reasons, and since the root of 53 was still well represented, it was decided for the time being not to proceed with the

orthodontic-implant treatment which could have been the best option for the replacement of 12.
The examination of the gingival arcs showed a significant difference in height between 13 and 22. The patient was shown a small photo-retouch, today called Smile Design (Fig. 5), of the gingival arc of 22 in case it was decided to perform an extension of clinical crown, which nevertheless I did not think was necessary given the young age of the patient and the incomplete teeth eruption. In any case, the patient was not willing to pursue this. Given the fact that the volumes of the previous restorations appeared to be still congruous, a silicone key (Zeta-labor, Zhermack) was created directly in the oral cavity, which would guide us in the creation of the new teeth.

Fig. 1 Initial smile of the patient.

Fig. 2 Intraoral front view.

Fig. 3 Old restoration on 22.

Fig. 4 Old restoration on 13.

In order to have healthy periodontal tissues, the old restorations were removed a week before the operation (Fig. 6).
After placing the silicone key in her mouth, on 13 and 22 some Supra-nano spherical composite was applied (Estelite Asteria, Tokuyama), namely A3B on 13, A2B on 11, A2B and NE on 22 without applying any bond (Figures. 7, 8). It was decided to widen 11 distally to try to rebalance, at least in a mesio-distal sense, the dental proportions of 13 in order to transform it as much as possible into a lateral incisor (Fig. 9).
After a quick curing, approx. 5 seconds per tooth, the restorations were gently removed and post-cured using only a LED light (Demi Plus, Kerr) for 60 seconds (Fig. 10). The part in composite which would come into contact with the tooth was sandblasted with silicon oxide (Co-jet, 3M-Espe) and treated with an adhesion promoter (Universal Primer, Tokuyama), while the remaining surface was left untreated.
An enamel-dentin adhesive was then applied (EE-Bond, Tokuyama) and a small amount of the same composite was used to perform the ASC. After mounting the dam, (Fig. 11), ensuring that it did not interfere with the positioning of the ASCs (Fig. 12), the dental

surface was accurately cleaned with prophylaxis pastes (Nupro, Dentsply), etched for 15 seconds with orthophosphoric acid 35% (Ultra-etch, Ultradent) and the enamel-dentin adhesive was applied (EE-Bond, Tokuyama) without curing. After correctly placing the restorations, the excess composite was removed and any small gap was filled (Figures. 13-15). A curing of at least 40 seconds per side was performed, followed by the same curing after applying a glycerin gel. Now it was possible to refinish and polish the restorations (Figures. 16-18). After one week, the patient came in for the final polishing and to check the color integration and the one with gingival tissues (Figures. 19, 20).

Fig. 5 Computer simulation of extension of clinical crown of 22.

Fig. 6 Removal of previous restorations.

Fig. 7 Composite-up of 22 with the guidance of a silicone key

Fig. 8 Composite-up of 13 and 11.

Fig. 9 Aesthetic try-in of ASC.

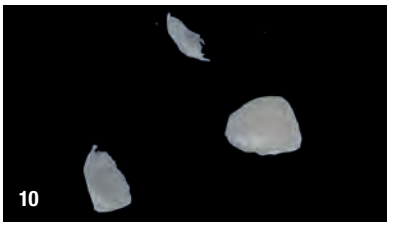

Fig. 10 ASC removed and ready for cementing.

Fig. 11 Mounting of the dam.

Fig. 12 Application of hook 212 and 'ASC try-in.

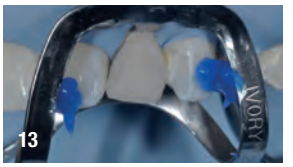

Fig. 13 Cementation of 22.

Fig. 14 Cementation of 11.

Fig. 15 Cementation of 13.

Fig. 16 Polished restorations.

Fig. 17 Detail of 13 and 11.

Fig. 18 Detail of 22.

Fig. 19 Restorations after one week.

Fig. 20 Final smile.

DISCUSSION

Actually, the first case I treated with this technique was a fracture of 21 due to a fall (Fig. 21). The young patient was on holiday for some days in Turin and there was not enough time to prepare a diagnostic wax-up. It was therefore decided to perform a free hand reconstruction of the missing part of the tooth (Fig. 22) and to use it as a guidance to complete the restoration under a dam (Fig. 23). The result was encouraging (Fig. 24). This led me to use this technique in other clinical situations, based on the evidence reported in the introduction, as the no-prep veneers (Figures 25-27) and the closing of dia¬stemas (Figures 28-32), always obtaining absolutely acceptable results, also without using a silicone key. In practice, a composite-up is performed directly, without previous wax-up, avoiding a step. Another benefit I would like to stress is the check on the color adaptation of the composite selected for the reconstruction, since the teeth are not dehydrated.

Fig. 21 Enamel-dentin fracture of 21 ending under the gum.

Fig. 22 Composite-up of 21.

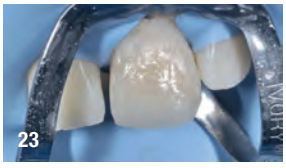

Fig. 23 Isolation of the field with rubber dam and cementation of the ASC on 21.

Fig. 24 Control after six months.

Fig. 25 The patient asks for an aesthetic improvement of 11 without orthodontics.

Fig. 26 Inner side of the ASC of 11.

Fig. 27 ASC cemented and polished.

Fig. 28 Diastema between 13 and 12, and between 22 and 23.

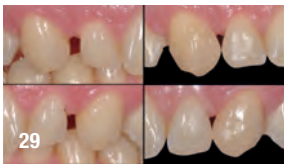

Fig. 29 Details of the baseline and of the composite-up.

Fig. 30 ASC before cementing.

Fig. 31 ASC of 13 and 12 cemented and polished, check after one week.

Fig. 32 ASC of 22 and 23 cemented and polished, check after one week.

CONCLUSIONS

With this technique different objectives are achieved: preview of the final result, good management of the shapes being able to assess the real position of gingival tissues – which is altered when the dam is positioned – control of the contact area without using keys, possibility to conclude the treatment in only one session with consequent cost reduction. The best use of this technique is for the closing of diastemas and the reconstruction of conoid, malformed or malpositioned teeth. The limitations of this technique are the extent and complexity of the restoration, their number or the combination between these two parameters and the manual skills of professionals.

Indirect & Direct Posterior Restorations

DR. GIANLUCA ROSSI
Consultant in private dental practice in Perugia - Italy

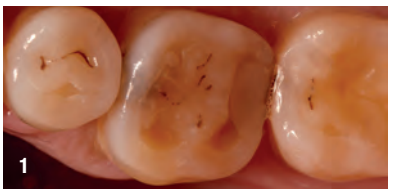

Fig. 1 - Preoperative situation. Incongruous restoration 4.6, proximal decays 4.7,4.5.

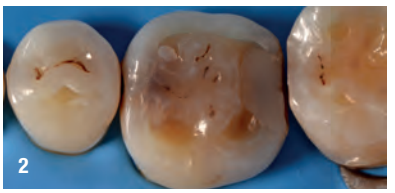

Fig.2 - Isolation with rubber dam of the operative area.

Fig.3 - Cavity prepared 4.7.

Fig. 4 - Cavity prepared 4.5.

Fig. 5 - Direct Restoration 4.7 (Asteria OcE, Tokuyama).

Fig. 6 - Direct Restoration 4.5 (Asteria OcE, Tokuyama).

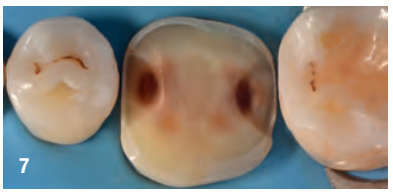

Fig. 7 - Cavity prepared for overlay of tooth 4.6.

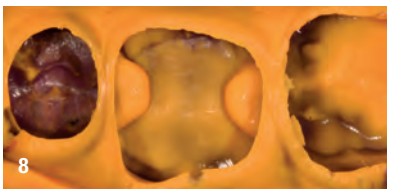

Fig. 8 - Impression (Sandwich technique).

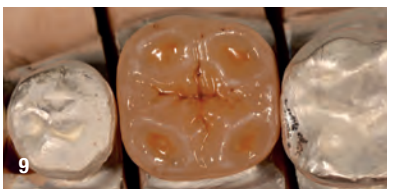

Fig. 9 - Silvered stone cast. Disilicate Overlay in situ. (ODT Alessandro Morelli).

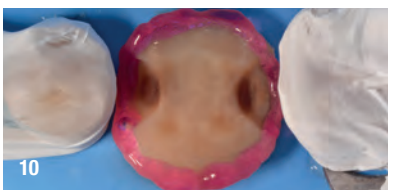

Fig. 10 - Adhesive procedures. Detail of selective enamel etching (Tokuyama Enamel Etching Gel HV).

Fig. 11- Adhesive procedures completed.

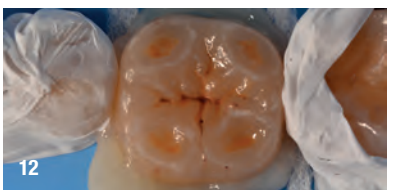

Fig. 12 - Luting of the overlay with pre heated composite (Asteria TE Tokuyama).

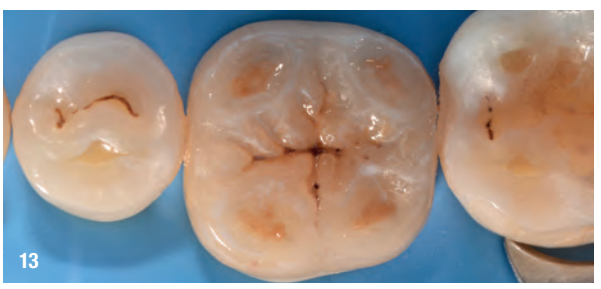

Fig. 13 - Final after finishing and polishing procedures.

Fig. 14 - Post op immediately after dam removal.

Cementing of lithium disilicate crowns in anterior teeth

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Patient 70 year old woman occur to our observation. She requires us to improve the aesthetics aspect of her upper front teeth. She accepts only the prosthetic treatment plan and not that periodontal osteoplasty, in order to improve the appearance of emergency coronal parables from the gum. Also in this case the clinician must take into account the patient's needs, at times dictated by economic situations.

Fig. 1 Initial situation, patient aspect.

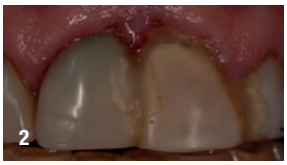

Fig. 2-3 Detail of the previous treatment performed one year before at another dental office.

Fig. 4 Intraoral radiographs after endodontic treatment of 12-11-21-22 elements.

Fig. 5-6 Applying provisional on 4 upper incisor, with minimal preparation of the teeth.

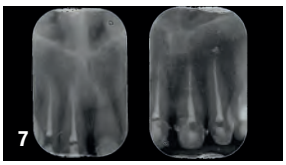

Fig. 7 After about 3 months from application of provisional, look the appearance of periodontal tissue.

Fig. 8 4 Crowns in lithium disilicate.

Fig. 9 Estecem system kit Tokuyama Dental.

Fig. 10 Crowns pretreatment after etching with hydrofluoric acid.

Fig. 11 Cementing phase and removal of the resin cement excess.

Fig. 12 The removal of cement excess after curing for 3 sec, appears to be effective and rapid.

Fig. 13-14-15
Cementing of all crowns.
The complete removal of cement excess takes place very easily with the aid of a curette Gracey mini.

Fig. 16 Dental gum appearance to a control 1 month after cementation. Note the appearance and periodontal recovery occurred with respect to the cementation's day.

Fig. 17 Lateral corono-periodontal vision control at 1 month.

4

Relining denture base

Rehabilitation of edentulous patient

With restoration of existing prosthesis

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Edentulism is a condition which significantly affects not only the masticatory function, but also important aspects of the patients' social life. Today, the edentulous patient's rehabilitation can be tackled with different prosthetic solutions, and implants are a very effective tool in this sense, although the implant rehabilitation process is often complex and requires financial resources not available to everyone. In this respect, tissue conditioners may be useful to the clinician to improve the adjusting conditions to preexisting prostheses during the longer rehabilitation processes or for their functional restoration temporarily avoiding the construction of new rehabilitations. This case report describes the clinical and laboratory steps followed for the functional restoration of an edentulous patient who had two incongruous complete prosthetic rehabilitations.

INTRODUCTION

Edentulism deeply affects the patient's masticatory function, phonetics and social life. Rehabilitation with a complete denture allows their functional restoration.[1] Many studies have demonstrated that the satisfaction of patients with a complete prosthesis is mainly related to their adaptability to prosthesis and marginally to their quality.[2-3] Nevertheless, complying with basic principles of the complete denture is essential to guarantee a proper functioning and minimize the most frequent causes for discomfort like ulcerations and instability. The correct coverage of the support areas and their adapting to the tissues have been proved to be critical to ensure stability and retention of denture bodies during their function. The positioning of osseointegrated implants, especially in the mandible, has significantly improve edentulous patients' quality of life.[4] Nevertheless, the use of the complete prosthesis remains mandatory during the healing periods after extractions or in the osseointegration period of the implants. Moreover, it is always through the basic principles of complete denture that it is possible to properly plan also the implant-supported rehabilitations.[5]
Using reline materials for direct and indirect techniques can be very useful today for the improvement and adaptation of existing incongruous dentures and at the same time for the management of post-surgery healing periods.[6] Many times, these materials also allow to improve the satisfaction in patients who cannot afford definitive mucous or implant support treatments.[7]

1 Berg E. Acceptance of full dentures. Review. Int Dent J. 1993; 43 (Suppl 1):299–306
2 Mericske-Stern R: Clinical evaluation of overdenture restorations supported by osseointegrated titanium implants: A retrospective study.
Int J Oral Maxillofac Implants 1990; 5:375-383
3 Langer A, Michman J, Seifert I: Factors influencing satisfaction with complete dentures in geriatric patients. J Prosthet Dent 1961;11:1019-1031
4 Heydecke G, Locker D, Awad MA, Lund JP, Feine JS. Oral and general health-related quality of life with conventional and implant dentures. Community Dent Oral Epidemiol. 2003;31(3):161-168.
5 Misch CE. Treatment options for mandibular implant overdenture: An organized approach. In: Contemporary implant dentistry, 2nd ed. St. Louis: Mosby; 1998. p. 175-92.
6 Pisani, M.X.; de Luna Malheiros-Segundo, A.; Balbino, K.L.; de Freitas Souza, R.; de Freitas Oliveira Paranhos, H.; da Silva, C.H.L. Oral health related quality of life of edentulous patients after denture relining with a silicone-based soft liner. Gerodontology 2011, 29, 474–480.
7 Kimoto, S.; Kimoto, K.; Gunji, A.; Kawai, Y.; Murakami, H.; Tanaka, K.; Syu, K.; Aoki, H.; Toyoda, M.; Kobayashi, K. Clinical effects of acrylic resilient denture liners applied to mandibular complete dentures on the alveolar ridge. J. Oral Rehabil. 2007, 34, 862–869

CLINICAL CASE

A 74 years old patient edentulous in both arches presented to us complaining about many difficulties in managing his approx. 8 year old prostheses. During the interview in the first visit he complained about the need to use his dentures with a high amount of adhesive, without achieving a satisfactory stability level. The patient ruled out the possibility of implants, due to economic and general health reasons (diabetes and hypertension).
The Treatment plan was to restore the old dentures to give functionality back to the patient in a short time.
The occlusal plane looked parallel to the bipupillary plane and to the Camper's plane, in occlusion the prostheses maintained a stable and repeatable position in centric relation, although some anterior contacts were present.

Before and after

Fig. 1a Frontal view - before.

Fig. 1b Frontal view - after.

Fig. 2 Edentulous arches.

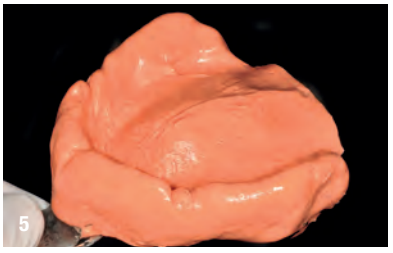


Fig. 3 Centric evaluation or occlusal plane
The upper denture did not have an uniform contact on the mucosa and lacked a peripheral seal; the lower denture, previously relined with a soft material, left important support areas uncovered.

Fig. 4 Evaluation of adaptation of upper and lower denture
During the first session, preliminary panoramic impressions were recorded, which would allow to extend the dentures' edges.

Fig. 5 Recording of preliminary impressions
After making the preliminary third class plaster models, a graph was carried out, covering the support areas.

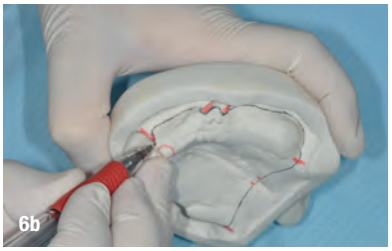
Fig. 6a Making of preliminary models

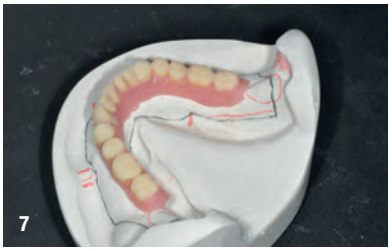
Fig. 6b Carrying out the muscle insertions
For the upper denture, there was not enough coverage of the palate and the areas necessary for the peripheral seal, while both the front and lateral fraena needed to be released to allow mobility. The lower denture was underextended on both the lingual and vestibular side.

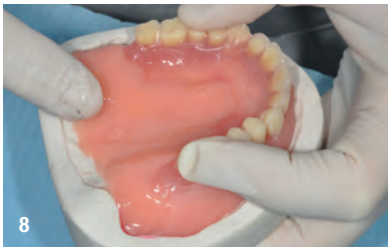
Fig. 7 Evaluation of the dentures' extension
Using the preliminary models, the borders were adjusted with cold self-curing resin to properly cover the support areas.

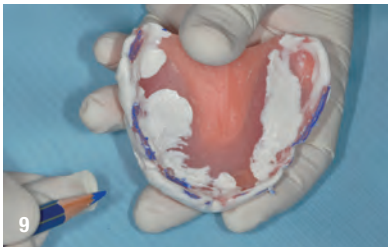
Fig. 8 Denture extension with cold resin
The length and thickness of the prostheses were checked in the mouth asking the patient to make functional movements.

Fig. 9 Check on lenght and adaptation of the oral cavity bases
To eliminate front contacts and some interferences, a selective grinding was performed.









After appropriate checks, the dentures were relined with a direct technique using Tokuyama Rebase II (Tokuyama Dental Corporation Tokyo Japan) to enhance adaptation of the bases to the tissues. After applying the adhesive, the resin was mixed, strictly following the manufacturer's instructions, and then placed inside the prostheses during the plastic phase. The patient was then asked to close his teeth a few times in order to centre the bases on the support areas and the peripheral border was modeled with functional movements, asking the patient to talk and swallow. Lastly, after the material was almost completely hardened, a slight trimming of the fraena was performed, making sure they were active. After the curing in water, excess resin has been finished and polished.

Fig. 10 Step by step procedure carried out for the relining with hard resin of the two arches

The dentures were reintroduced into the mouth and a check was performed to make sure there were no pressure points or occlusal interferences. It was then decided to rebase the dentures with a soft material to help the patient adjust to this new situation.

An approx. 1 mm chamfer was performed on the outer peripheral border. The adhesive was then applied on the borders and on the whole surface of the denture base to facilitate the bond between the soft material and the resin.

Fig. 11 Trimming of excess resin and preparation of the peripheral border chamfer

The material Sofreliner Tough® S (Soft) (Tokuyama Dental Corporation Tokyo Japan) was then evenly distributed inside the dentures.

Fig. 12 Application of adhesive and soft material

Fig. 13 Steps of soft relining

Once relined and properly finished, the dentures were handed over to the patient, who used them for a few weeks with a good adaptation.

Fig. 14 Handing over of the relined dentures

Given the positive outcome achieved in this phase, it was decided to perform an indirect relining of the dentures to provide a more stable and long lasting solution to the patient.

Two impressions were take using the dentures, and the centric relation and transfer facial bow were recorded.

Fig. 15 Data collection for the lab

Indirect relining

The models were developed with fourth class plaster and mounted on an articulator and before removing the dentures they were placed on a verticulator to keep the exact position of the denture body.

Fig. 16 Models preparation and articulator mounting

After being removed from the models, the dentures were prepared for indirect relining, cleaning the bases surface from the materials previously used. In this way, the space was created for the new material to be injected. After repositioning the dentures on the verticulator, they were sealed on the wax model so as to keep the exact position.

Fig. 17 Steps for the preparation to indirect relining

The models were positioned on the Trasformer muffle (Pagnacco, Italy) by locking mould and countermould with the recommended silicone. Different countermoulds were used depending on the size of the arches.

Fig. 18 Positioning of the modeles in the muffle

After removing the lower denture from the model, it was cleaned from the wax and degreased, and the input and output channels were prepared in the countermould for the injection technique. The model was isolated and at the same time the surface of the denture base was treated with the specific adhesive. The muffle was closed and Sofreliner Tough® M (Medium) (Tokuyama Dental Corporation Hard Tokyo Japan) was injected.

Fig. 19a-19b Steps of resin injection for lower prosthesis

The same method was used for the upper denture, but this time two further output channels were prepared because, given the extent of the surface, an adequate distribution of the material would be allowed during injection.

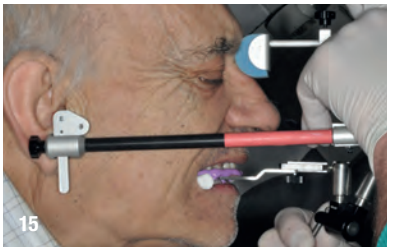
Fig. 20a-20b Steps of resin injection for upper prosthesis
Once the silicone had hardened, the dentures were repositioned in the articulator for an occlusal check, finished with the kit provided by the manufacturer and then handed over to the patient.

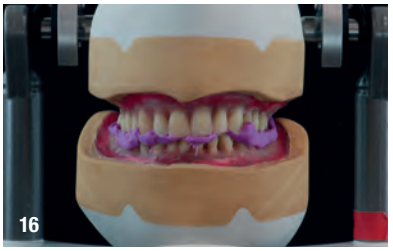
Fig. 21 Occlusal check in articulator and prosthesis finishing

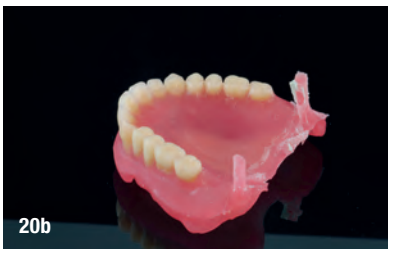
Fig. 22 Handing over

CONCLUSIONS

As described in this case, the use of specific materials for direct and indirect relining techniques is extremely useful in case of deficient support and adaptation to the prosthetic bases. These techniques are also very effective in the post extraction and post implant dentures and they can allow a patient with a low budget to improve the functionality of their dentures without having to immediately start a new rehabilitation process.





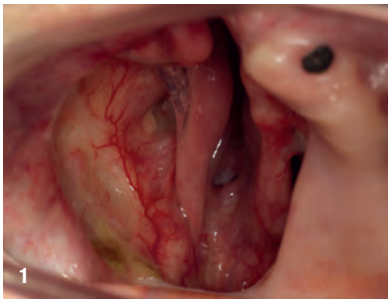


Direct Relining of a 3D Printing Maxillary Obturator Prosthesis

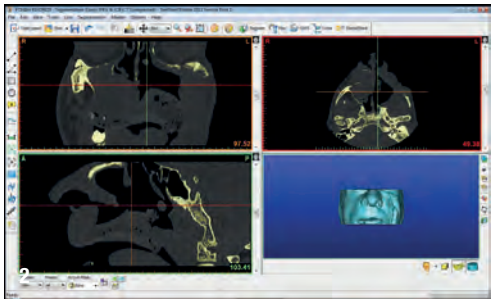
with a long term resilient liner Tokuyama Sofreliner S

DR. THEODOROS TASOPOULOS
Private dental practice in Athens - Greece
Research Associate, National and Kapodistrian University of Athens

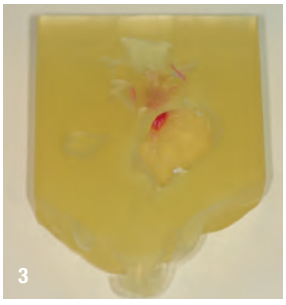
Sofreliner Tough S (Soft)/M (Medium) by Tokuyama is indicated as a long term addition-type room temperature vulcanizing elastomer denture soft lining material giving satisfactory results in patients with atrophy of the mucosa, bony undercuts, prominences or bony protuberances improving their comfort and masticatory ability of the patient. It may constitute as a useful treatment option in partial or complete denture wearers with bruxing tendencies, implant supported or retained overdentures, congenital or acquired oral defects requiring maxillofacial rehabilitation and in patients with xerostomia. It offers direct and easy reproduction of the oral tissues in the denture base, avoiding the temporary edentulous period following laboratory relines. In this case, the patient (male, 65 years old, head & neck cancer patient) suffered from a tumor of left maxillary sinus. A bilateral maxillectomy, construction and immediate placement of a surgical splint were held. He presented in our private clinic for the prosthetic rehabilitation of the maxillary acquired defect with a definite complete denture.

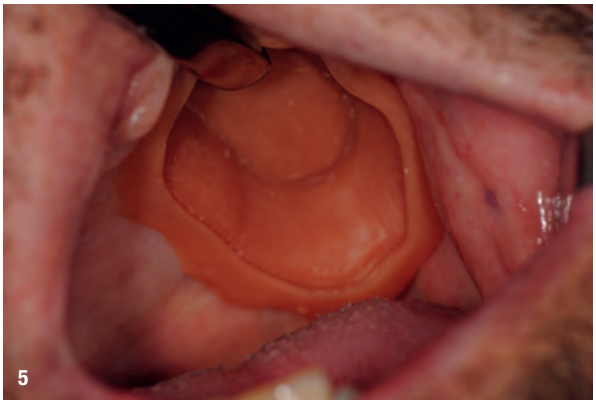


Picture 1 A computerized axial tomography revealed a large bony lesion in his left maxillary sinus.

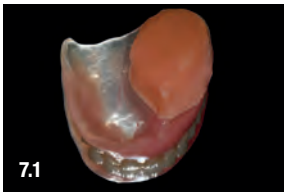


Picture 2 Data obtained from the computerized tomography had been used to create a Stereolothographic model of the defect. According to this 3D model, obturator prosthesis was poured using permanent heat-cured silicone soft liner.





Picture 4 / 5
A maxillary conventional denture was fabricated using the silicone based obturator prosthesis.



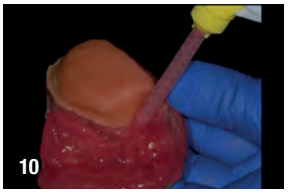
Picture 6 / 7.1 / 7.2 Eventually, a direct relining of the existing denture and the peripheral borders of the obturator prosthesis was held, using a resilient permanent silicone soft liner (Sofreliner Tough S, Tokuyama Co).

Picture 8.1 1-2 mm of acrylic resin was trimmed off the impression surface of the denture base and the peripheral borders with a rough carbide bur, providing sufficient space for the ''Tokuyama Sofreliner'' to be placed.

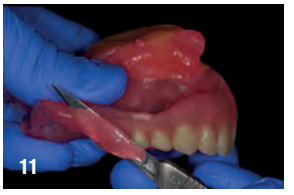
Picture 8.2 Denture flanges were grinded down with a 450 external bevel preparation. The silicone obturator was carefully protected from the trimming bur. The prosthesis was cleaned using ethyl alcohol and it was left to dry thoroughly.

Picture 9.1 / 9.2 A thin coat of adhesive primer was applied to the internal surface and peripheral roll of the denture with a clean dry brush. It was allowed to dry for at least 1 minute. Do not contaminate the surface with latex gloves.

9.2 Tokuyama Sofreliner Tough M/S paste dispensed directly onto the bonding surface of the denture immediately after drying. The working time is 1,5-2 minutes, at room temperature of 230C (730F). The resilient material was also adapted in the peripheral borders of the obturator, in order to engage deep undercuts that were included in the maxillary defect. Eventually optimal retention was achieved.



Picture 10 Denture was seated intraorally and was retained for at least 5 minutes (setting time) in normal occlusion. In order to bold the border of the vestibule area, functional movements of cheeks and lips were performed in patient's mouth.



Picture 11 Using a scalpel the bulk of the excess material was removed.

Picture 12 Using the COARSE POINT with rotational speed of less than 15,000 RPM excess of Tokuyama Sofreliner Tough M/S was trimmed.

Picture 13 The rims of the denture were polished with the FINISHING WHEEL by applying light pressure not to exceed 8,000 RPM, in order to provide a smooth neat transition between the reline material and the acrylic resin.

Picture 14 The denture was successfully relined and delivered to the patient.

Picture 15 Complete denture intraoral picture was taken. Consequently, the curing process of the silicone-based soft liners (Tokuyama Sofreliner Tough M/S) can occur entirely in patient's mouth avoiding undesirable biological effects.

“Chair-side” remaking of incongruous prosthesis

With soft relining materials

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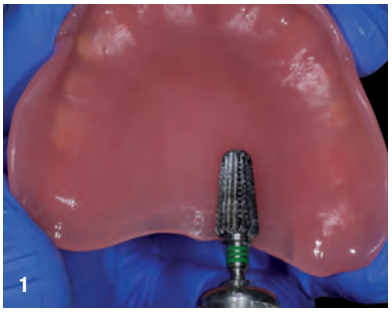
Sofreliner Tough S (Soft)/M (Medium) by Tokuyama is indicated as a long term auto-polymerized denture soft lining material for post implant and post extractive applications. It may constitute as a useful treatment option offering direct and easy reproduction of the oral tissues in the denture base, avoiding the temporary edentulous period accompanying laboratory relines.

In this case, the patient (male, 65 years old, bruxer) was presented in our private clinic complaining of poor-fitting maxillary denture and associated pain and discomfort. Furthermore, the patient was complaining about speech difficulties, poor mastication and traumatized tissue bearing surface of the maxilla.



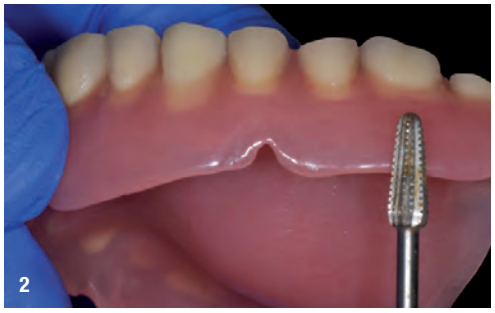
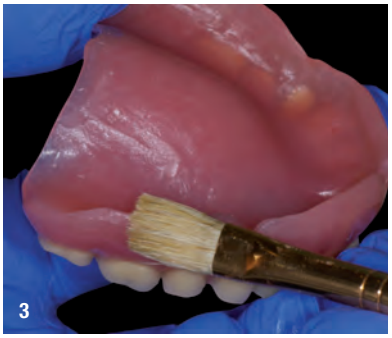


Fig. 1 Approximately, 1-2 mm of acrylic resin was removed from the surface of the denture base.

Fig. 2 Denture flanges were grinded down with a shoulder preparation (900). The prosthesis was carefully cleaned using ethyl alcohol and was allowed to dry.



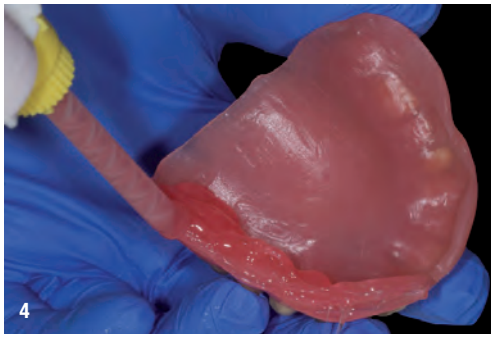


Fig. 3 A thin coat of adhesive primer* was applied to the impression surface and peripheral borders of the denture with a clean dry brush. It was allowed to dry for at least 1 minute.

Fig. 4 Tokuyama Sofreliner Tough M/S paste dispensed directly onto the bonding surface of the denture. The working time is 1,5-2 minutes, at room temperature of 230C (730F).

Fig. 5 Denture was seated intraorally and was retained for at least 5 minutes (setting time) in occlusion. In order to bold the border of the vestibule area, movements of cheeks and lips were performed in patient's mouth.

Fig. 6 Using a scalpel excess material was removed.

Fig. 7 Using the COARSE POINT with rotational speed of less than 15,000 RPM excess of Tokuyama Sofreliner Tough M/S was trimmed.

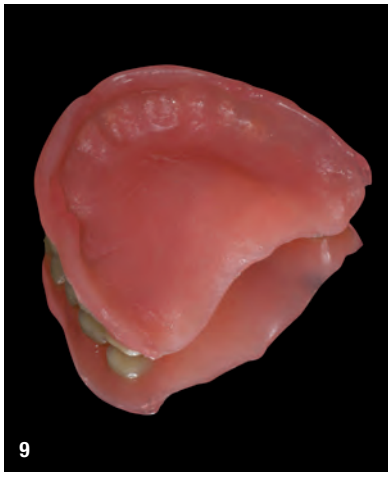
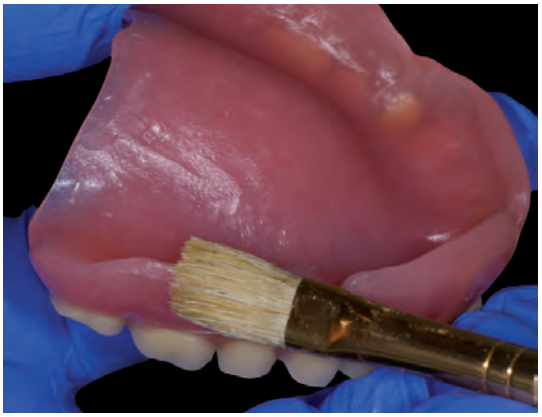


Fig. 8 In order to achieve a smoother finish the denture surface was polished with the FINISHING WHEEL by applying light pressure not to exceed 8,000 RPM.

Fig. 9 The denture was successfully relined and delivered to the patient.



** Sofreliner Tough S primer usage detail.*

5

Diastema closure

Diastema closure

More translucency effect

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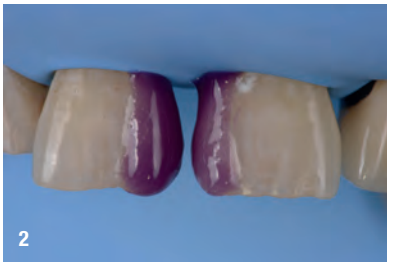
Active Member: Style Italiano Study Club

CLINICAL CASE

This clinical case shows some tips and tricks in order to be able to close in a feasible way a big diastema while treating the the cervical lesions and the incisal wear. The main advantage of this technique resides on a rational use of a single shade technique, focusing more on the build up stage, on the shape of every increment rather than loosing attention on the color obtained in the margin, which with the use of a material as Asteria body shades is most of the times inconspicuous.

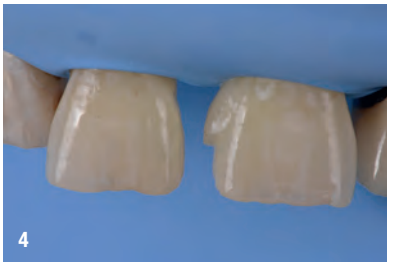
Initial situation

In the initial situation we can appreciate a 3 mm diastema and incisal wear in both central incisors. Immediately after color assessment the rubber dam is placed in order to have a dry and clean field.

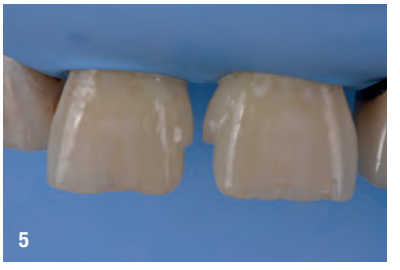


Selective etching of the enamel is performed during 15 seconds and washed immediately.

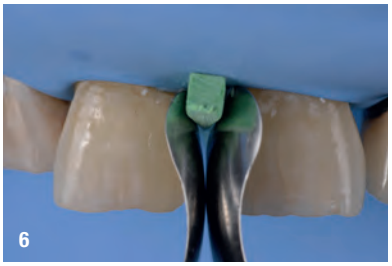
After the acid gel rinse we can dry thoroughly and proceed to use a self-etch bonding system (Tokuyama Bond-Force).



After bonding steps were performed and the bonding was polymerized for 1 minute, we can proceed to stratify. We have to build up first the apical part of the diastema, free hand modelation is mandatory, and is easy to perform given the fact that we have an open field because of the diastema. In this case we used Asteria A3B.

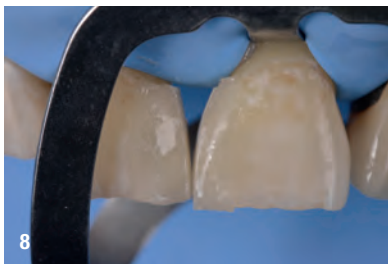


After building up the apical part of the diastema, insinuating what will be the final contour. In this way we can do an immaginary curve that should arrive to a certain contact point.

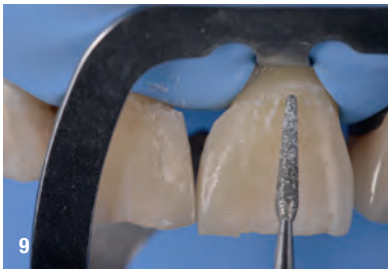


Posterior sectional matrices are placed vertically, simultaneously and strongly wedged. These kind of solution allows to lean on the previous build up and provide an optima shape in every dimension, thanks to the curvature of the matrices that mimick that of the natural tooth.

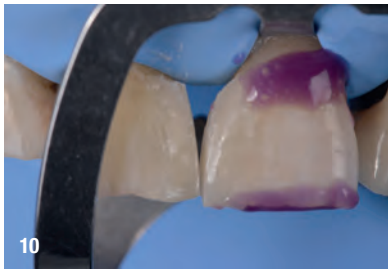
After closing the mesial aspect of the tooth 11, with surgical tweezers we remove the matrix and proceed to restore the other distema on the mesial of 21. After polymerization we remove the other matrix.



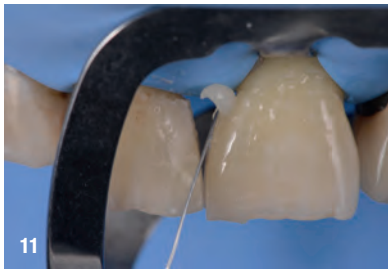
Is important to pay attention to the overhangings in the apical part of the diastema that we inevitably get in such big restorations. We always stress out the fact that extra retraction is needed to finish up this delicate area and many times as well the cervical defect. For that purpose we use a 212 clamp. In this way we discover the defects that we were expected to happen, as the mesial overhang, and we can now start treating the cervical lesion.



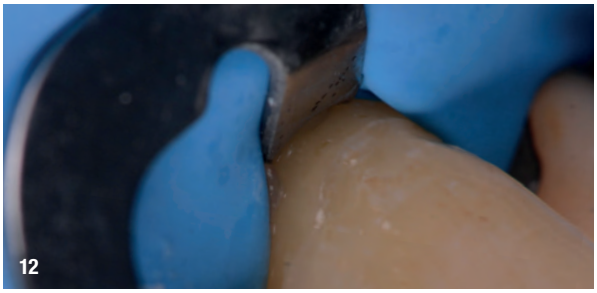
After retraction with the clamp, and clearly observing both the defects of the modelation and the complete cervical area, we will use a low speed coarse diamond bur and we will correct the composite excess and we will remove the defective stained enamel.



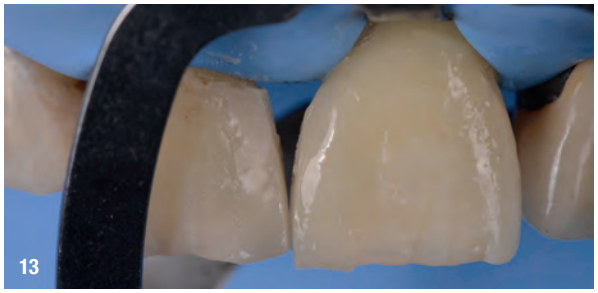
After correction we will etch selectively the enamel in order to bond again. Note how the areas of the dentin are not acid etched, due to the fact that we are using a self etching system.



Immediately after applying the bonding agents, we can keep on doing the stratification, in this particular picture we can see how the mesial overhanging is compensated adding material to build the correct emergence contour and avoiding having a defect on the mesial area. Overhanging in the tooth 11 will be treated exactly in the same way once we have finished with the current tooth and can place the clamp in other place.



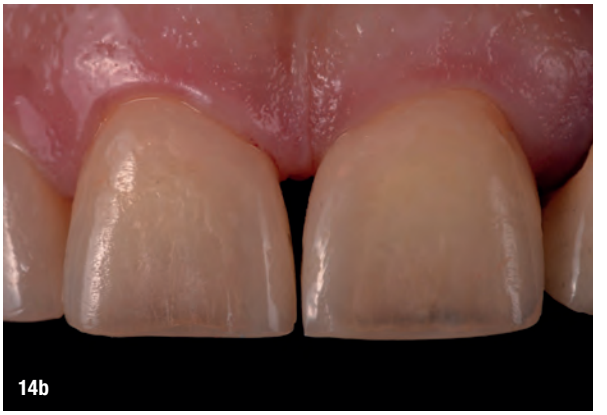
Structural loss of enamel due to the previous defects are now to be filled up selectively with the same composite shade.



Once the mesial defect was corrected and the cervical region is restored, we can now focus on the incisal edge, where the main trick will be the construction with one single mass as well. If we are planning to increase no more than one millimeter the body shade which is very different in opacity compared with the natural enamel present in the incisal edge, will create the effect of an opaque incisal halo, making the tooth look natural. If we are planning to build up more than 1 mm, then the choices of color, restorative material and preparation would be very different.

D I A S T E M A C L O S U R E

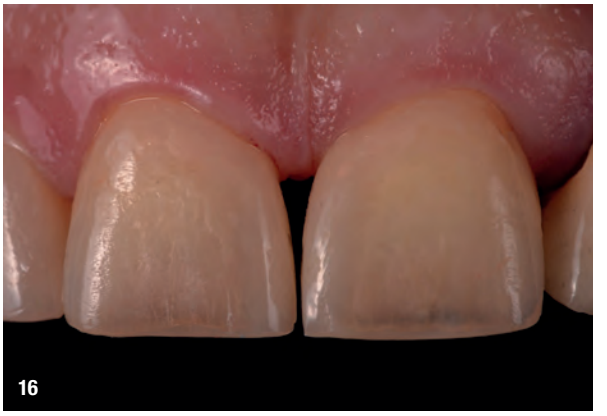

14a


14b

We can appreciate the shape immediately after rubber dam removal, where we can appreciate a very good integration at the diastema area and correct integration at the incisal area. Is mandatory not to do any correction or consideration regarding the color immediately after the intervention. We must wait for complete teeth rehydration and gum healing. In the control picture we can see how in the diastema area the integration is correct and in the incisal edge the integration improved and the halo effect is now more evident. Although some corrections in shape can enhance the micro aspect of the restoration for the moment is not needed, in the near future we can easily intervene by adding or subtracting material, or even both.


15

The initial situation showing the diastema, incisal wear and cervical structure loss.


16

The final picture showing the diastema closure, incisal edege and cervical restoration, everything done with a single mass in many increments and in different timing. This demonstrates how a single mass technique when rationally planned and with the use of high quality materials can be feasible and reliable.

Diastema closure

Less translucency effect

DR. STEFANO SERRA
Active member SIE
Private dental practice in Sassari - Italy

CLINICAL CASE

The patient has a diastema very pronounced with the need to improve the aesthetic appearance, it is assessed the diastema closure with an intervention of direct restoration.

1 The tooth type has less translucency and more chromatic, to be needed balanced the shades in the reconstruction; in this case more Body shades and few Enamel shade.

2 In the silicone mold is evidence the quantity of composite needed to realize the esthetic restoration.

3 The final result.

4 Before and after the restoration.

5/6 The smile line before and after.

7/8 Evidence of esthetic result and smile line after 30 months.

A smile can change your life

Diastema closure with composite resin remodeling the smile: a direct tecnique

DR. GIORGIO ATZERI
Private dental practice in Olbia - Italy

The modern direct restoration techniques allow us to reshape not only the smile of our patients, but in extreme cases such as that presented, can really change life... as stated by the patient at the end of treatment.


1

Sometimes we have to deal with what would be our choice on "treatment plan", with the patient's needs (related to time, economic, fears, etc), and that push us to extremes rehabilitations, whose final results still gratify the patient and reward our efforts.


2

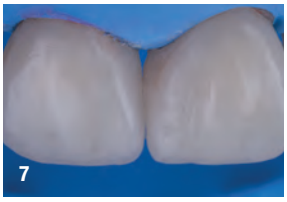
In the clinical case that I want to present you, a specific orthodontic treatment, a functionalization of the elements and a subsequent "remaking" would be the steps to follow, but the patient did not want to follow that. So, realizing some mock-up we explain and show her that making a direct technique it would also have led to a change in the size and shape of the teeth, just for her knowledge. She strongly wanted to restructure her smile!


3


4


5


6


7

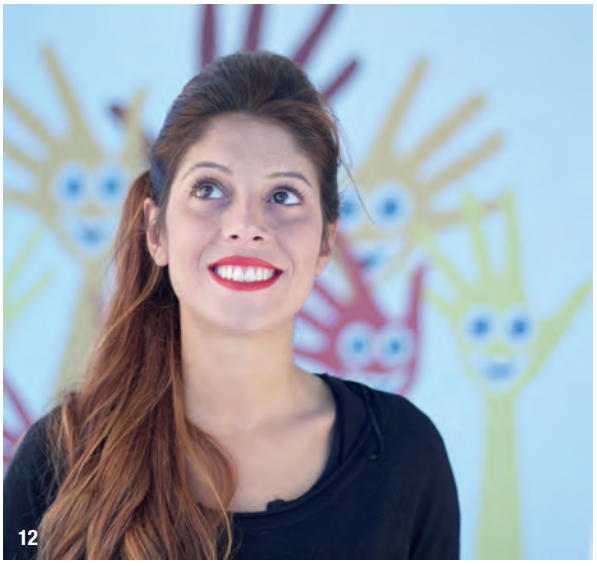

8


9


10


11

In the below case gallery, you can appreciate how using high performance materials from the point of view of color, from the sculptability and high workability and ease of polishing, the result is more than satisfactory, meeting the “Uaho effect” and making patient smile! (the material used has been Estelite Asteria composite, shades A1B - WE - NE - A2B - BL)


12


13


14

Esthetic rehabilitation of a patient with Bolton

Discrepancy after orthodontic treatment

DR. BILAL YAŞA DDS PhD
University of Izmir Katip Celebi
School of Dentistry of Restorative Dentistry
Izmir - Turkey
Admin FB group "RestoFace"

CLINICAL CASE

A proper balance should exist between the mesio-distal tooth size of the maxillary and mandibular arches in order to ensure not proper interdigitation and esthetic at the completion of orthodontic treatment. If there is a discrepancy at the balance, orthodontic treatment may not be provided satisfactory esthetic results for the patients. Non-invasive restorative treatment option is a complementary approach to orthodontic treatment. In this case presentation, esthetic rehabilitation of a patient with Bolton discrepancy on anterior region was reported.

1 Anterior before.

2 Anterior Bleaching.

3 Anterior after.

4 Anterior before.

5 Bite bleaching.

6 Bite after.

18-year-old female patient referred to our clinic for closing diastemas after orthodontic treatment. After clinical examination, bleaching and non-invasive build-up composite restorations for diastemas were concluded for the treatment. Following home bleaching, mesial sides of laterals were slightly stripped because of esthetic ratio between centrals and laterals. The diastemas were closed with one shade composite (A1-Estelite Sigma Quick). The restorations were finished and polished with fine burs, polishing discs and diamond polishing paste. At two-week follow-up, restorations were demonstrated good marginal adaptation, perfect color match and surface luster. Satisfaction of the patient was very high.

7 Left bite before.

8 Left bite after.

9 Right bite before.

10 Right bite after.

Composite material application areas on teeth are very limited in these kind of treatments using non-invasive approaches. However, selection of proper composite material and application of proper technique make it possible to achieve satisfactory esthetic results.

Before and after

Diastema closure in a young boy, asking to change his smile

DR. ANNA GIULIANO
Private dental practice in Santo Stefano Belbo (CN) - Italy

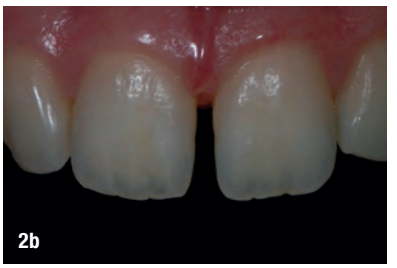
I started using this new composite Tokuyama for less than one year when, following the boy's family's request to "reshape" the smile line, I decided to "improve myself into this diastema closure" relatively pronounced. The orthodontic treatment was performed in his country when the patient was child.

CLINICAL CASE

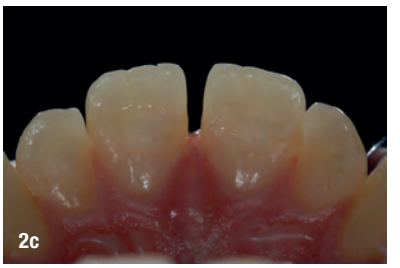
1 Initial situation in 2008.

2 Situation after orthodontic treatment.

2a

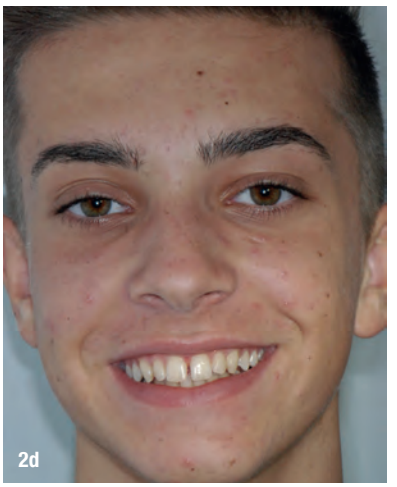


2b



2c

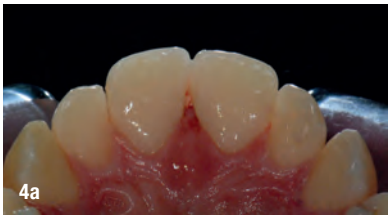
The pictures show that a correct and careful protocol in the use of materials, starting from the use of the rubber dam, followed by the steps of selective etching and subsequent adhesive protocol, through the knowledge of the composite shades to settle (opacity, translucency, value), the ease of handling and polishing that I find in Estelite Asteria (Tokuyama Dental), the final result even after the various controls even at 20 months is very satisfactory in my point of view.

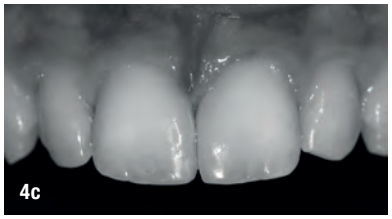


2d

2e

3 Clinical procedures under rubber dam (selective enamel etching EEBond, layering Estelite Asteria, finishing and polishing procedures).





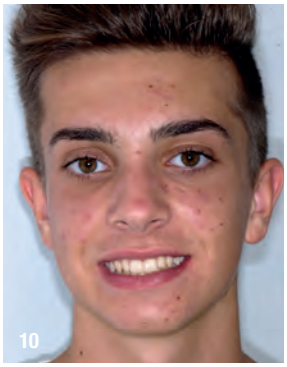
4 Just after removing rubber dam.

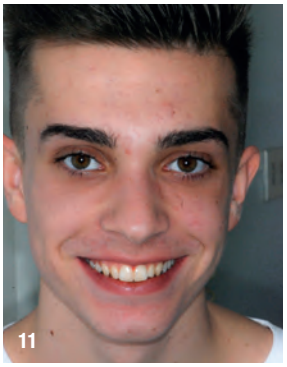
5 Two weeks check.

6 One year check.

7 One year check.

8 20 months check.





9 Just after removing rubber dam.

10 Two weeks check.

11 One year check.

12 20 months check.

6

Rehabilitation in posterior quadrant

Asteria clinical case

Young patient with deep carious lesion on tooth 1.6

DR. MAURO BELLUZ
Private dental practice in Milano - Italy

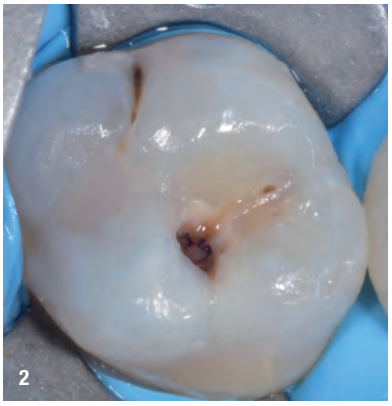
> "I started my clinical training with Asteria only recently, but from the very first case working with this composite, I was able to appreciate its excellent handling also for complex reconstructions, the extreme user-friendly evaluation of the shade to be used thanks to the customizability of the color scale with the Custom Shade Guide and the matching between the results from the color samples and the final result of the restoration, in addition to the decreased need for layering to obtain excellent results in any clinical situation."
>
> *Dr. Mauro Belluz*

CLINICAL CASE

The clinical case presented is about a young patient with deep carious lesion on tooth 1.6. The tooth is slightly painful if thermostimulated. The removal of the carious lesion leads to the exposure of the pulp and the subsequent need for endodontic treatment.

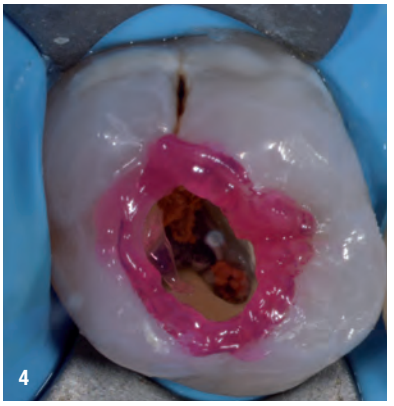
Before
Initial picture of the involved area.

After



Isolation of the operating area.

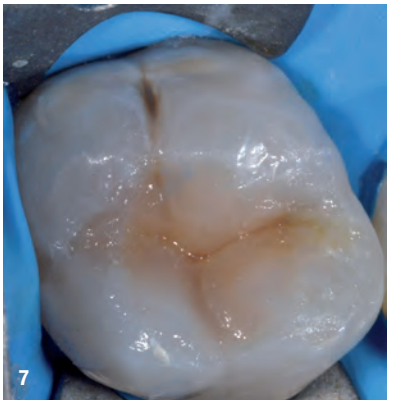
The access cavity at the end of the endodontic treatment.



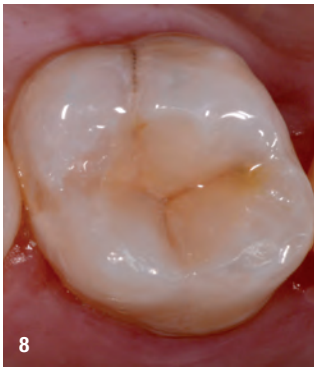
Selective etching of the enamel with EE Bond Etching (Tokuyama).

Applying EE Bond.

Dentinal layering of the dentine shade A3B with anticipated modeling of the cusps and characterization of the grooves with Estelite Dark Brown.



The completed restoration after OcE enamel layering.



The completed restoration upon rubber dam removal and after occlusal check.

The quadrant with the completed restorations on teeth 17-16 and 15.

Adhesive direct restoration approach

In the incongruous preventive sealing therapy

DR. GIANFRANCO POLITANO
Private dental practice in Rome - Italy
Member of Bio-Emulation Group

CLINICAL CASE

Fig. 1 Initial case: Young patient with presence of old incongrous seals cavity with jagged edges, with pigments and infiltrations on the elements 35 36 37.

Fig. 2 Isolation and preparation: After isolating the elements to be restored will proceed to the removal of the old seals and the cavity preparation.
Although the approach to the preparation is based on the principles of minimally invasive dentistry, using the diamond bur (801 006 100mn) more small that the market provides us, the biological cost for the patient in such revisions remains very high, especially taking into consideration the fact that it is revising an incongruous preventive therapy.

Fig. 3 It's decided to adhesive direct restorations. The restoration is performed using a layering technique called ultra simplified Monolaminar_ technique (Politano / Bazos in publishing). The preparations remain in the 95% of the treated surface in the thickness of the enamel. The natural dentin below is capable of transmitting chromaticity to restoration, provided you use a medium translucency shade as Tokuyama Estelite Sigma Quick color A2, able to emulate the optical behavior of enamel removed during cavity preparation and to mediate the transmission of chroma coming out from the dentine. It's decided to run the restoration using only the A2 shade and a brown characterization.

Fig. 4 Finally, the restorations are polished using silicone rubber cup and mini tips and polished by the use of a dry synthetic bristle prophylaxis cup.
Having a composite like Estelite, the excellent qualities of polishing and shining, gives us the opportunity' to dramatically reduce the operating time to dedicate to this important phase of the adhesive direct restoration.

Fig. 5 Removing the rubber dam you can begin to perceive the excellent mimetic effect of this composite and the natural appearance of the restoration work in a real clinical timing and sustainable.

Class II restoration with Estelite Asteria

DR. ANDREA FABIANELLI
Private dental practice in Cortona (AR) - Italy

> "The characteristics of the Asteria composite make polishing fast and glossy, with excellent esthetic and mimetic results."
>
> *Dr. Andrea Fabianelli*

CLINICAL CASE

A young patient comes to our office for a routine check-up. The clinical examination and transillumination disclose discoloured distal areas on teeth 14 and 15. The subsequent x-ray examination reveals two distal carious lesions on such teeth. After placement of the rubber dam, careful excavation of the infected tissues and application of an enamel-dentin bonding agent, sectional matrixes are applied and we start restoring the teeth with a first 0.5 mm layer of fluid composite (Estelite Flow Quick High Flow). Afterwards, the interproximal wall is reconstructed using Estelite Asteria WE enamel and the residual cavity is restored with horizontal layers of Estelite Asteria body shade A3B.
The last occlusal half millimetre is reconstructed using Estelite Asteria NE and WE enamels and stains are applied to simulate sulcus pigmentations. The restoration is polished and the dam is removed.

Initial situation

The clinical examination shows two distal discoloured areas of teeth number 14 and 15 and the x-ray confirms that they are two D2 carious lesions in Lutz's classification.

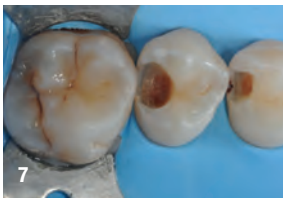
The lateral view hints at a more extensive carious lesion on tooth 15.

The dam is applied.

Access to the carious lesions is gained first occlusally and adjacent teeth are protected with metal matrix pieces while the residual interproximal walls are removed.

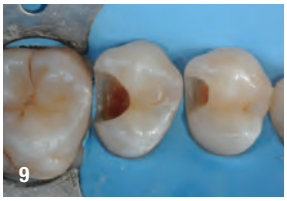
The infected, softened dentin is removed using zirconia round burs, at low-speed and air jet cooling.

The infected dentin has been completely removed, residual tissues are checked with a handheld excavator and they are hard.

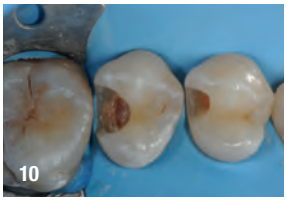


The undermined enamel is removed with red ring burs on a multiplier contra-angle handpiece.

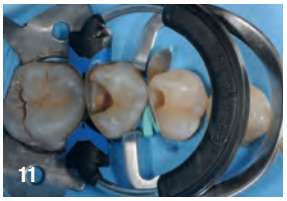
Interproximal margins and the cervical step are finished with diamond tips mounted onto a subsonic instrument.



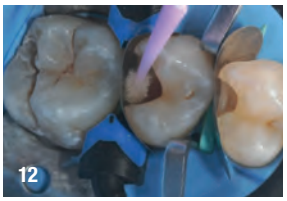
Cavities are finally prepared and ready to be restored.



Liquid dam is applied on a small gap close to the clamp to ensure isolation during adhesion and restoration.



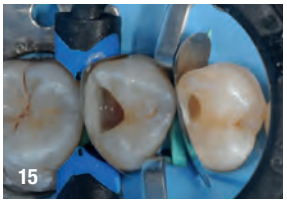
Sectional matrixes are placed with separating rings and wedges.



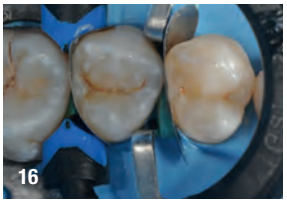
The selected bonding agent is applied following the producer's instructions.

The bonding agent is cured with a high power light.

A first, thin layer of flowable composite (Estelite Flow Quick High Flow) is applied to reduce marginal infiltration and improve the adjustment of the restoration material itself to the cervical step.



Interproximal walls are sculpted with Estelite Asteria WE enamel, transforming a class II into a class I. The worsening of the cavity factor is compensated for by the flexibility of the wall itself, which is very thin.



Restorations are completed by layering with dentin masses (Estelite Asteria, Body shade A3B) and with occlusal enamels (Estelite Asteria, Enamel shades: NE and WE).

Restorations are polished with abrasive discs, silicone cups and tips.

Lateral view of the restoration.

Restorations are glossed with felt wheels and polishing pastes.

Lateral view of finished restorations.

Before

After

Finished restorations after removing the dam and controlling occlusion.

Aesthetic and morphological recovery in posterior teeth

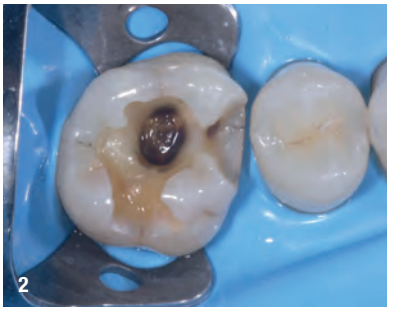
DR. GIORGIO ATZERI
Private dental practice in Olbia - Italy

CLINICAL CASE

The versatility of the Asteria composite that due to its high degree of integration and camouflage effect, allows to mask discolorations and high aesthetic results can be achieved even in the posterior teeth.

Initial situation

Large II[nd] Class cavity in 1.6 tooth.
The first molar present a secondary caries.



Tooth preparation, note the dyschromia at the bottom cavity.

Restorations with Estelite Asteria, note that is not apparent the dyschromia view in the preceding slide.

Final result with a excellent integration.

Easy to realize the anatomical surfaces, good handling.

Class II restoration with Estelite Asteria

DR. SILVIYA DIMITROVA
Private dental practice in Sofia - Bulgaria
Faculty of Dentistry, Sofia - Bulgaria

CASE REPORT

Initial situation

Young patient complaining of pain in the upper right quadrant, when consuming sweet foods or drinks. Clinical examination shows composite restoration on tooth 16, with discolored margins.

Fig. 2 Rubber dam is placed and a distoocclusal cavity is prepared.

Fig. 3 Sectional matrix and a wedge are placed. Separating ring could not be placed properly because of the rubberdam clamp on tooth 17. The sectional matrix is fixed with flowable composite used for gingival barrier.

Fig. 4 Selective etching of the enamel is performed with Tokuyama Enamel Etching Gel.

Fig. 5 Bond Force II is applied and polymerized. The cavity walls are then covered with flowable composite.

Fig. 6 Estelite Asteria A3B and OcE are used for the obturation of the cavity. Characterizations are made with Estelite Color Dark Brown.

Fig. 7/8 The finished restoration after some occlusal adjustment, finishing and polishing.

Aesthetic and glossiness retantion after 23 months in the posterior tooth

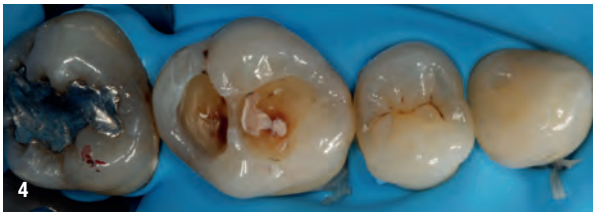
DR. DIAMANTIS TASSOPOULOUS DDS CDT
Private dental practice in Elefsina - Greece

A young female patient, aged 31, came to our office complaining for sensibility at the posterior right side of the upper jaw. The radiographic examination revealed secondary caries above the amalgam of the 1st molar. The old restoration was removed, the affected tissues cleaned and the tooth was restored with the new Estelle Asteria, restoring the morphology and function.

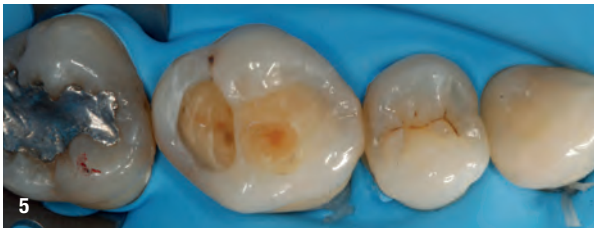
1. Initial clinical photo with the old amalgam restoration at the 1st upper molar

2. Checking the occlusion of the patient, before inserting the rubber dam, in order to determine the positioning of the new restoration

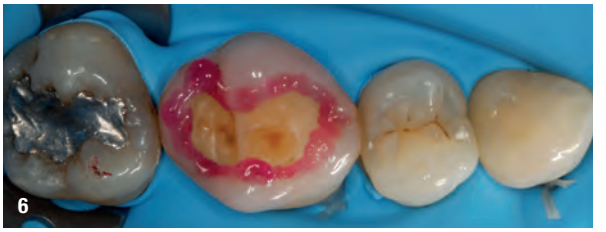
3. Defining the working field by using rubber dam with a W8Aclamp at the 2nd molar and self tightened knots to the other teeth.



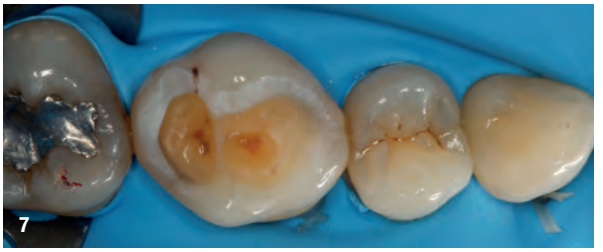
4. Removing carefully the amalgam by not hurting the walls of the old cavity, uncovering the secondary caries.



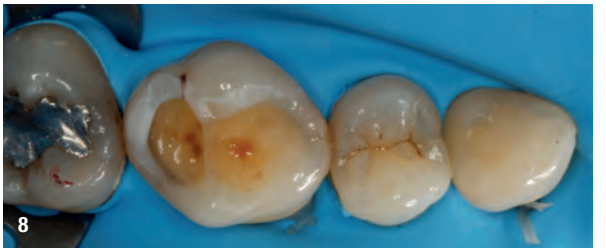
5. Removing the affected tissue and cleaning the cavity.



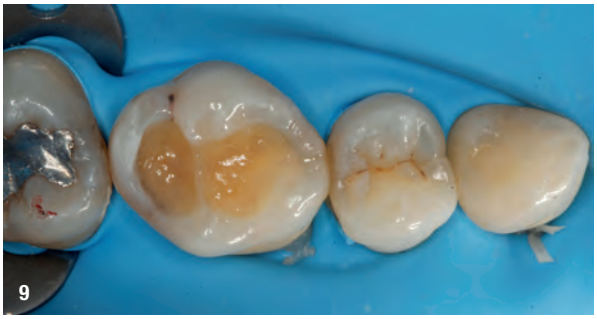
6. Selective etch of enamel margins with Tokuyama Etching Gel HV for 30 sec.



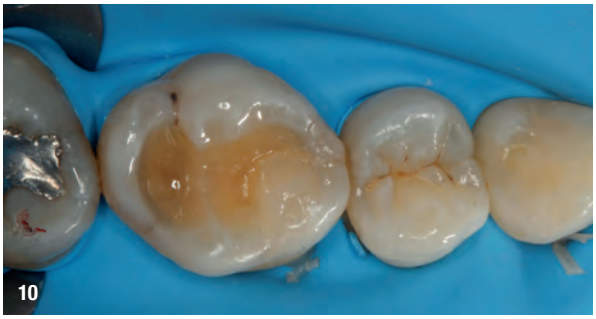
7. Rinsing the etching gel for 20 sec and after drying, we check the etched surfaces.



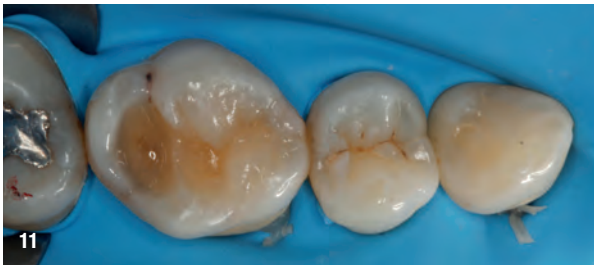
8. Applying EE Bond.



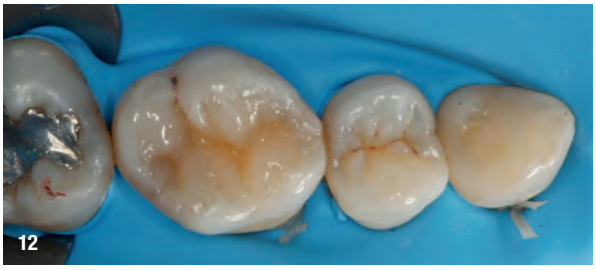
9. Placement of the dentin A3.5B of the new Estellite Asteria, isochromatic with the natural dentin of the patient, in two layers, either buccaly and palataly, forming a concavity.



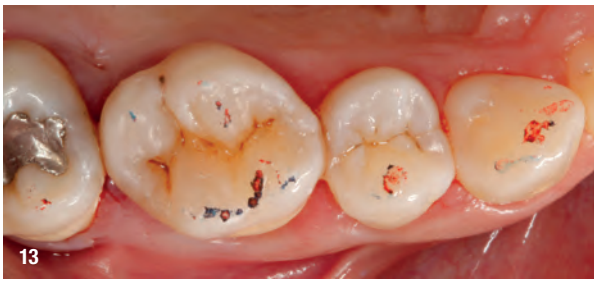
10. Layering the enamel by placing OcE of the new Asteria, starting with the mesial buccal cusp, following the natural anatomy of occlusal surface.



11. Second layer of enamel forming the mesial palatal cusp.



12. The occlusal surface ready.



13. Characterization of the anatomy with the Dark Brown of the Estelite Color kit.

14. After finishing and polishing the restoration, we remove the rubber dam and check the occlusion of the patient.

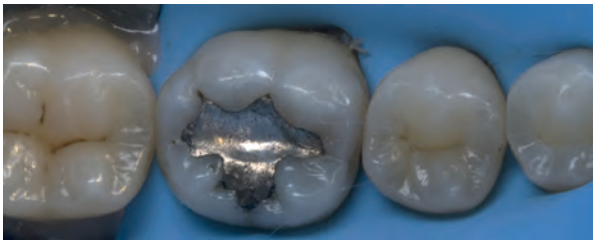
15. The restoration completed.

16. Re-exanimation of the restoration 23 months later and the glossy of the surface of the composite remains the same.

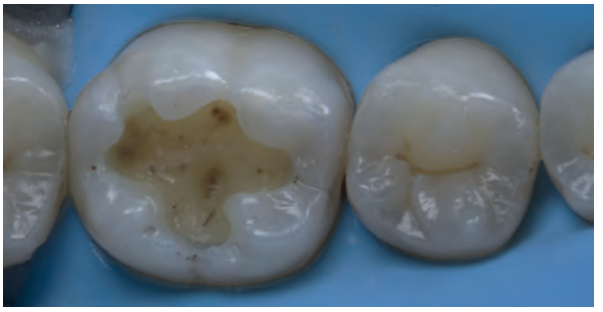
Restoring the first mandible molar under an esthetically biomimetic approach: a class I restoration

DR. GIORGOS DIMITRAKOPOULOS
Private practice in Chalkida, Evia - Greece
My office name is: odous biomimetic dentistry

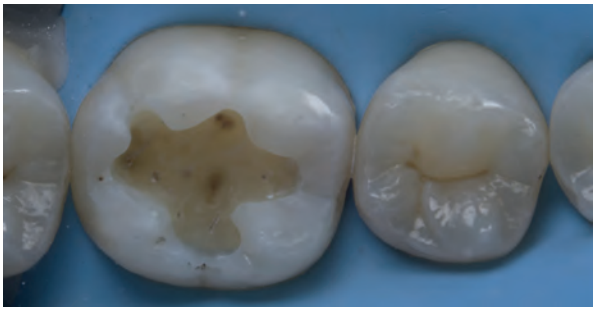
Initial situation;an old amalgam filling of #36 for a female patient 33y.



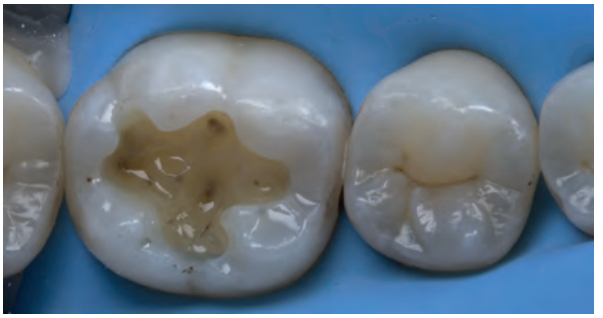
Rubber dam was placed for better quality therapy.



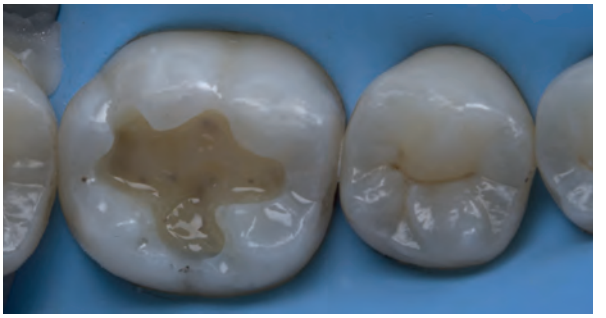
The old restoration was removed along with the defected tissue. the outline of the preparation must be smooth without sharp edges for better adaptation of the bonding system and the composite material.



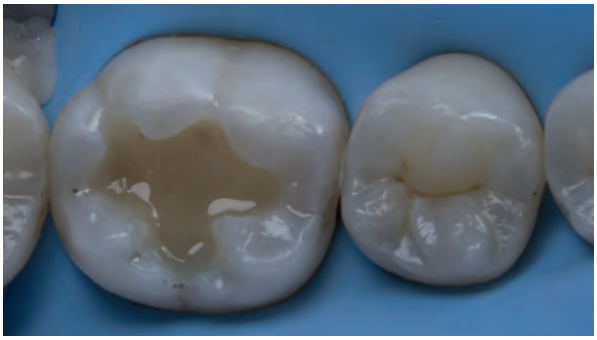
The view of the dental tissues after chemical(orthophosphoric acid) and mechanical (aluminum oxide 50μm) etching.



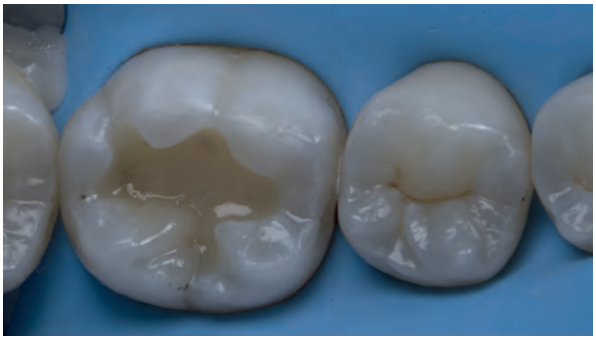
Applying the 4th generation bonding agent (Optibond FL).



We are recreating the dentin substrate using a hyperchromic(or isochromic)composite material placing it in a centrifugal way and creating the natural concave dentin layer. In this case we have used the Tokuyama Asteria A4B.

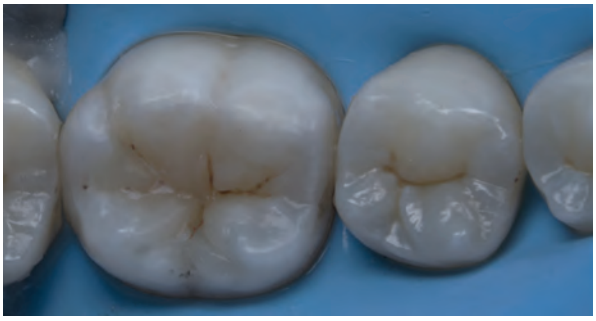


Thin layer of composite was placed emulating the complex interphase between dentin and enamel.



And now it is time for the enamel convex layer placed in a centripetal way, cusp by cusp for better control.for this layer we have used a medium transparency enamel material such as Tokuyama Estelite Σigma A2 and some Tokuyama Estelite Σigma A1.

The restoration at the end of the layering procedure.a small quantity of brown tint was used, giving a more natural look.

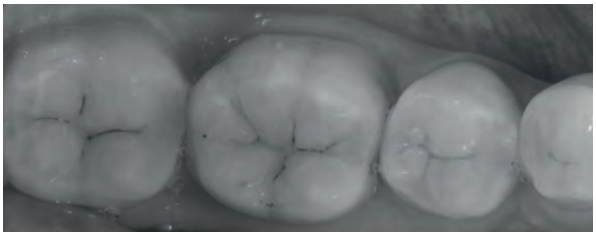


Mechanical finishing and polishing took place right after,sealing carefully the tooth_composite interphase.

Buccal view of the defined field and the finished restoration.

The rubber dam was removed after 1hour and fifteen mins,the occlusion was checked.Dehydrated dental tissues and composite show really high value.

In eight days and after the rehydration of tissues and composite, we can see the right color of the rehabilitation.

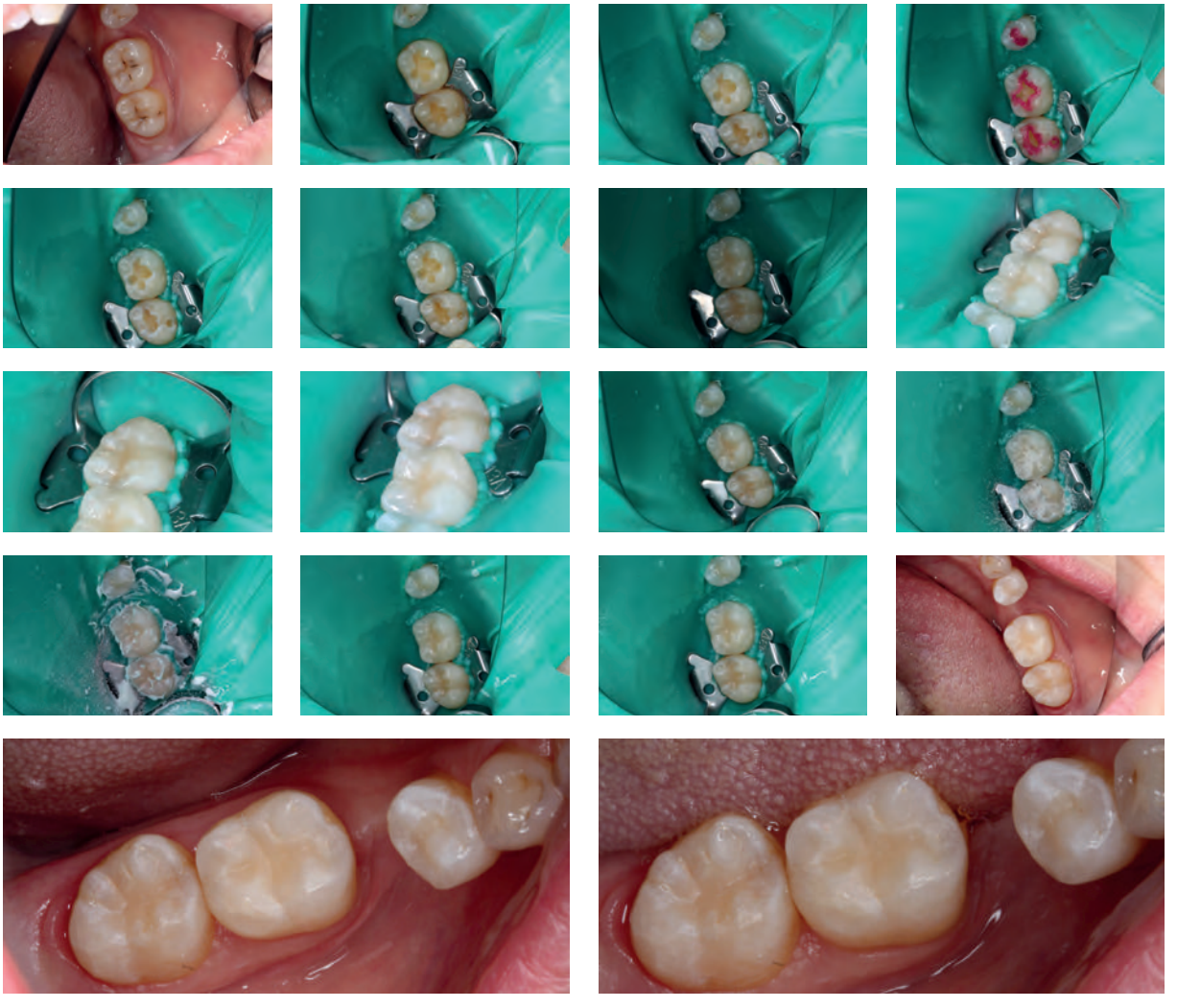


A polarized and a BW photo was used to doublecheck the right color of the restoration and the smooth integration of the composite and the natural dental tissues.

Conservative recovery approach in the posterior tooth

DR. ADRIAN PIŢILĂ
Private dental practice in Bucharest in his dental office since 2007
He finished Dentistry school in 2006 in Bucharest - Romania

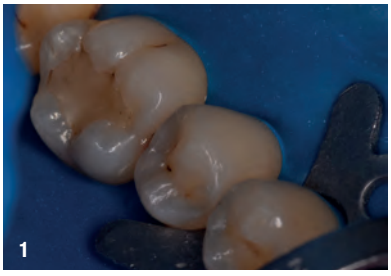
Composite resins evolved from just an esthetic material for Class III and Class IV restaurations to an universal material for both anterior and posterior situations. Poor wear resistance, polymerization shrinkage, postoperative sensitivity, unpredictable bonding to dentin... all are things of the past. With these new materials clinicians may be more conservative and have outstanding results with a minimum sacrifice of dental tissue.



Class II rehabilitation with Estelite Asteria

DR. TSVETELINA BORISOVA DDS PhD
Associate Professor in Faculty of Dentistry, Medical University-Varna - Bulgaria
University medico - dental centre - Varna
Speciality in operative dentistry and endodontics

It is a 23-year old girl with caries lesion on tooth #36 under a big restoration.



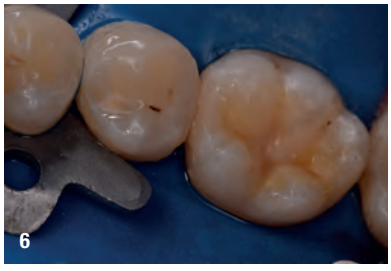
1 This is the isolation.

2 Here there is caries removal and preparation.

3 It shows the selective ethcing of the enamel with EE Bond etching.

4 After applying EEbond.

5 Dental layering of the dentine shade A3B with modeling the cusps and proximal surface.



6 The image is characterization of the grooves with Estelite Dark Brown.

7 The completed restoration after OcE enamel layering and occlusal check after removing the rubber dam.

8 In this image there is the completed restoration on tooth #36.

Class II restoration with Estelite Asteria

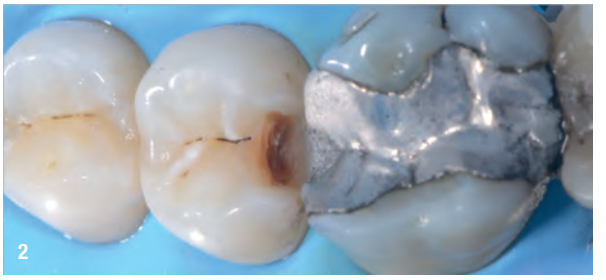
DR. ANGELO SONAGLIA
Private dental practice in Frascati (Rome) - Italy

R.S. aged 48, he is come to our attention referring an increased sensitivity on 15. The Rx examination evidences a caries infiltration on that element. Following isolation of the operating field with the use of the rubber dam (F.1), it has provided prior to the removal of the old amalgam restoration (Figure 2) and then the caries removal (F3). Later the composite Asteria dentin B3B was used (F.4) and finally the enamel OcE. Particularly, attention was performed in creating a correct aesthetic and functional outcome (F.5). Control,(F.6).

CASE GALLERY

Initial situation


1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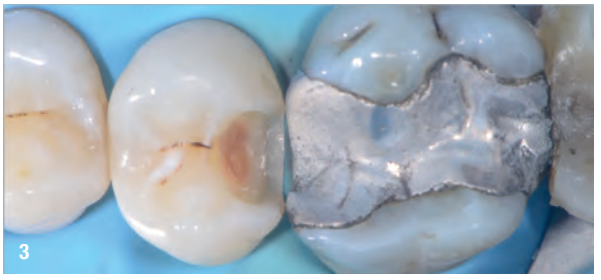
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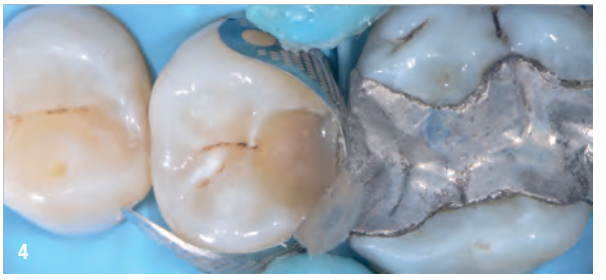

4

Final check


5

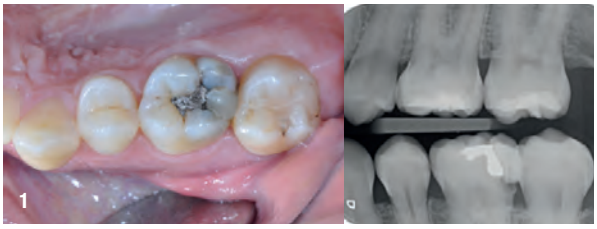

6

Direct restorations with Tokuyama Asteria A2B and onlay bonded with Tokuyama Asteria A2B

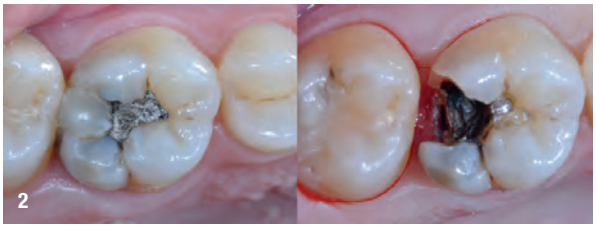
DR. GIUSEPPE MARCHETTI
Active Member: Style Italiano Study Club
Active Member: IAED
Active Member: AIC
Private Dental Practice in Parma - Italy

CLINICAL CASE

To restore means to give back function and esthetics to our patients' teeth. This must be done with precision and must last in time. We have to follow simple rules and protocols to obtain these goals, without any flight of fancy, but using only one mass in posteriors.



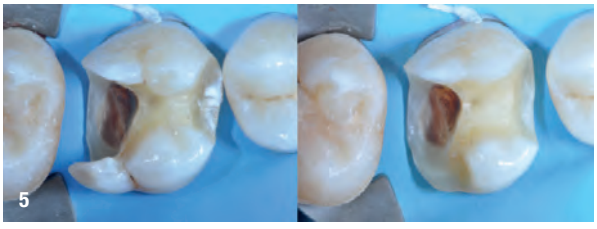
1. Pre-operative bitewing. It shows a huge decay on the distal, cervical wall of 1.6.



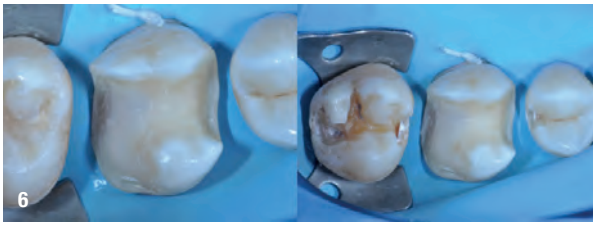
2. After the removal of the old filling it's pretty clear that the situation will require a crown lenghtnening procedure.

3. The clenaning of the decay and the preparation of the distal cervical margin, and the crown lenghtnening procedure. It's mandatory to put the bone crest at 3 mm of distance from the cervical step, already prepared and cleaned.

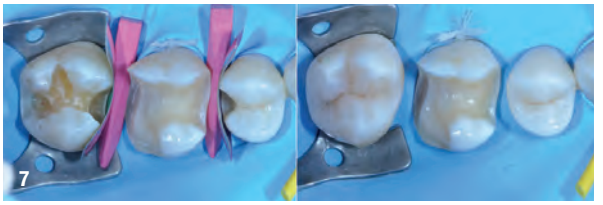
4. The stitches in place. In the same session the rubber dam it's put in place, back and the mesial decay is cleaned too. Note the good isolation obtained due to the surgical procedures.



5. Details after the cleaning, the disto-palatal cusp's removed because too thin. In fact we reduce all the cusps that are less thank 2 mm of thickness.

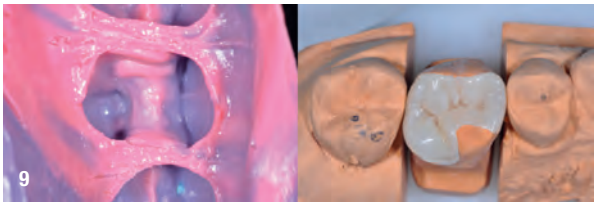


6. A build up is performed, with the sealing of the dentinal tubules, and the preparation of an onlay is done.



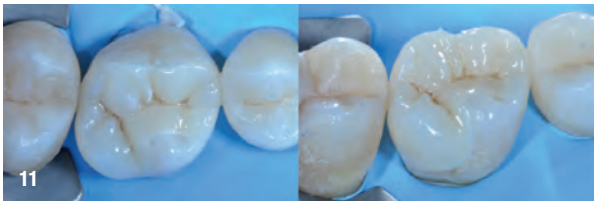
7. Only at this point we can clean the decays on 1.5 and 1.7 and do the direct fillings on them. Don't do them before so not to damage them during the preparation of the onlay.
Details of the placement of the sectional matrices and of the wooden wedges. The direct restorations on 1.5 and 1.7 are done only with one body mass (A2B TOKUYAMA ASTERIA) and brown stains to increase the perception of depth, and it's fineshed and polished under the dam.

8. Before impressions taking we check the occlusion.
No corrections are needed.

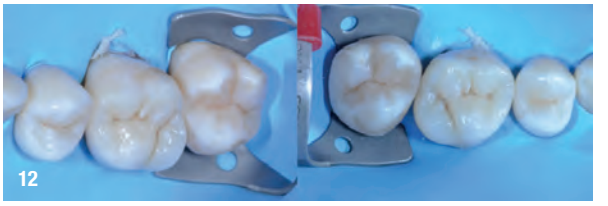


9. Details of the impressions taken with the stitches in place.
The composite onlay, on the plaster model.

10. After fourtyeight hours from the start the indirect restoration is tried, with the stitches still in place. Tip: this will reduce the time of the provisionals and the disconfort of the patient.
We proceed with the occlusal check.

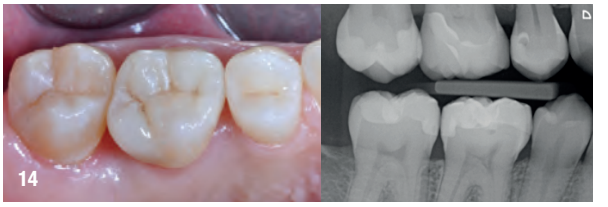


11. The rubber dam's put in place again and the onlay's tried with the rubber dam too, before the bonding procedures.



12. The onlay is bonded with the same A2B of Tokuyama Asteria with which i did the two direct restorations.

11. The occlusal check at the end of the bonding procedure shows no need to corrections. Final check of the three restorations.



12. Details of the restorations. The tissues after two weeks are healing but they'll mature in six months. Final bitewing x-ray. A good precision of the restorations is shown.

Final check and photographs

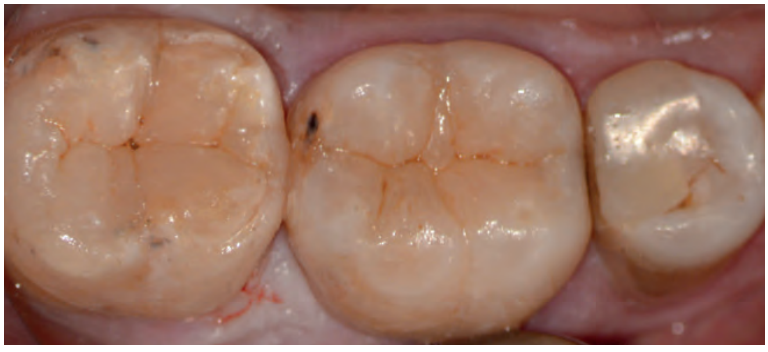
15. Six months post op. A correct tissue rebound and a good integration both morphological and chromatic's shown.

Restoration with Estelite Asteria

DR. MILAN LEHOTSKY
Private dental practice Centrum Mikroskopickej Stomatológie in Bratislava - Slovakia

Initial situation

2013



2016

CLINICAL CASE

Estelite Asteria, highly esthetic resin composite material developed by Tokuyama Dental was introduced to the market in 2013.
We had the privilege to try this material immediately after hitting the market and as you can see on this case, in combination with proper layering technique, results are very stable in our 3 years follow up.
Thanks to the unique spherical filler technology, glossiness of the surface remains very good after more than 3 years.
No repolishing was done during control.

Final check and photographs

7

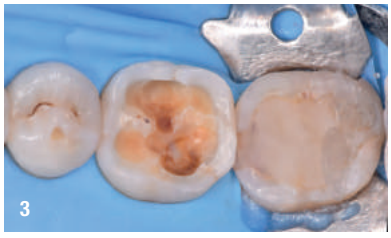
The use of bulkfill material in posterior teeth

Class II restoration with Estelite Bulk Fill Flow

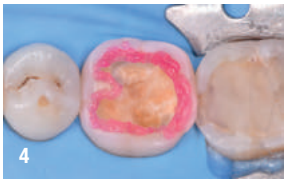
DR. ANDREA FABIANELLI
Private dental practice in Cortona (AR) - Italy

1. Tooth 36, Class I and erosion. Pre op view.

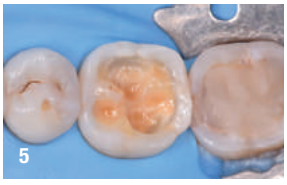
2. Pre-op after rubber dam placement.



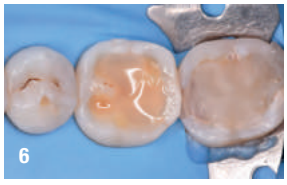
3. Cavity cleaning with glycine powder and softened tissue removal.



4. Selective enamel etching with Tokuyama Etching Gel HV. Please note how this gel stays in place and doesn't drop into the cavity, thus avoiding unnecessary dentin etching.

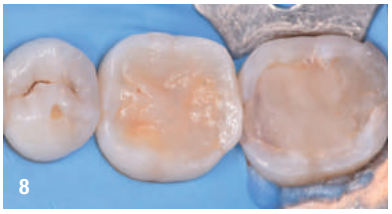


5. Application of DBA, Tokuyama Bond Force 2.

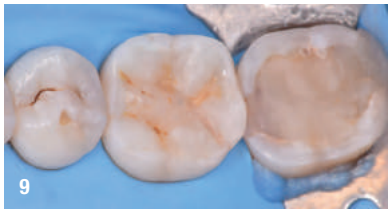


6. Estelite Bulk Fill Flow build up, limiting to less than 1,5 mm from the occlusal surface.

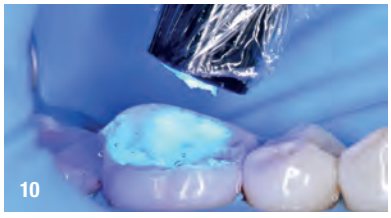
7. The Estelite Bulk Fill Flow siringe.



8. Occlusal final layers done with Tokuyama Asteria A2B and OcE.



9. Characterizations done with Tokuyama Estelite Color.



10. Final polymerization with insulating gel, in order to get a optimally polymerized surface.

11. Restoration in place after final polishing and rubber dam removal.

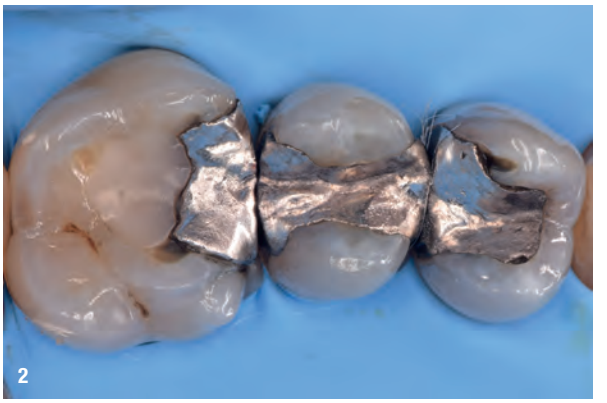
12. Restoration in detail.

Restoring posterior teeth using Estelite Bulk Fill Flow

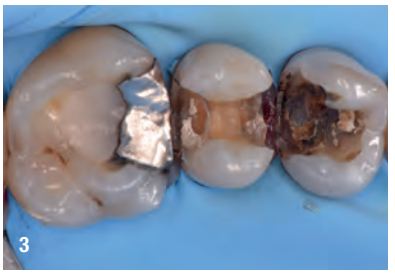
DR. ANDREA FABIANELLI
Private dental practice in Cortona (AR) - Italy

CLINICAL CASE

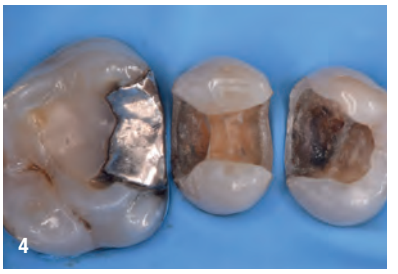
1. Pre Op: teeth 14 and 15 need the replacement of old fillings.



2. Rubber dam in place15.



3. Removal of old amalgams.



4. Cavity cleaning.

5. Little pulpal exposure in the floor of the cavity of the tooth 14.

6. The pulpal exposure has been treated with MTA in the pulp, protected by a little layer of Tokuyama Ionotite F.

7. Sectional Matrices in place with Composi-Tight 3D rings in place , in order to achieve reliable and strong contact points.

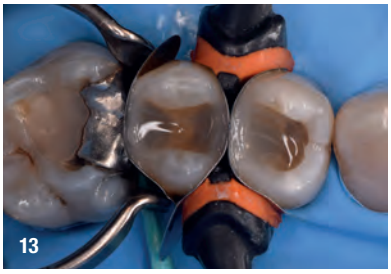
8. Enamel etching with Tokuyama Etching Gel HV. Please note how this gel stays in place and doesn't drop into the cavity, thus avoiding unnecessary dentin etching.

9. Application of DBA, Tokuyama Bond Force 2.

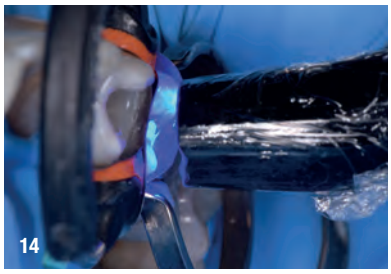
10. A first thin layer of Estelite Bulk Fill Flow is placed in the cervical margin and polymerized in order to reduce microleakage.

11. Interproximal walls are built to create interproximal anatomy and to transform a class II cavity in a Class I, referring to the Bichacho's centripetal build up technique.

12. The Estelite Bulk Fill Flow siringe.



13. Estelite Bulk Fill Flow build up, limiting to less than 1,5 mm from the occlusal surface. This layer has to be thicker no more than 5 mm.



14. Curing step.

15. Note the change in translucency after light curing.

16. A thin layer of opaque resin, Estelite Color, is placed in order to reduce the residual translucency and improve the final esthetic.

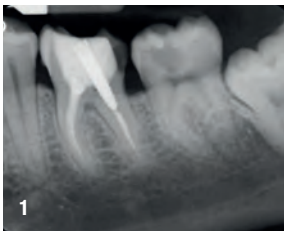
17. Final layers are placed using Asteria A3B, OcE and Estelite Color.

18. Restorations after finishing and polishing procedures.

19. Restorations in service.

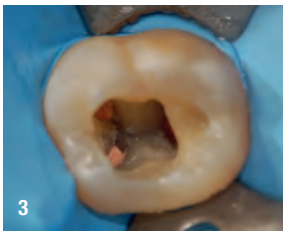
Post-endo bulk case

DR. GIANLUCA PLOTINO
Private dental practice in Rome - Italy



1 Pre-operative radiograph of the second lower right molar.

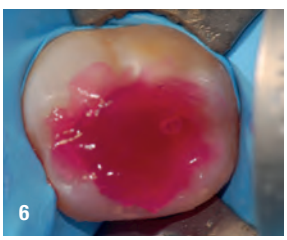
2 Radiograph during root canal treatment.



3 Photograph of the access cavity after the root canal treatment. When a post is not needed, post-endodontic restoration may be easily and fast performed using a bulk-fill resin composite material.

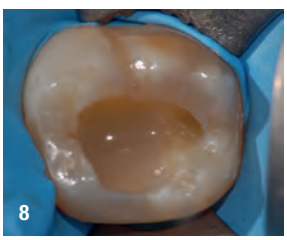
4 The materials used for the post-endodontic restoration.

5 Selective enamel etching using Tokuyama etching gel for 20 seconds.

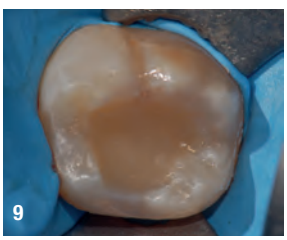


6 Additional 20 seconds dentine etching using Tokuyama etching gel.

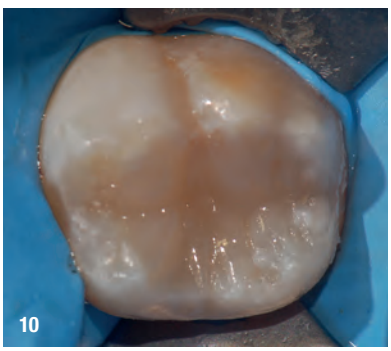
7 Appearence of the dental structure after the applicationof the Tokuyama Bond Force II adhesive.



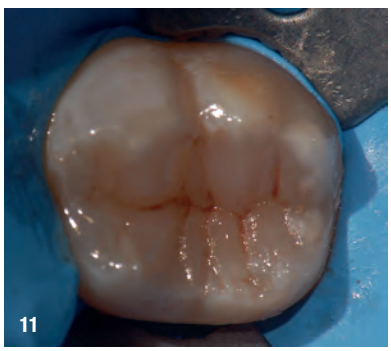
8 Application of the first 4mm thickness layer of Tokuyama Estelite Bulk Fill Flow.



9 Application of a second layer of Tokuyama Estelite Bulk Fill Flow leaving 1mm thickness for the occlusal layering.



10 Application of 1mm thickness of Tokuyama Asteria A2B resin composate to perform the occlusal layer of the restoration.



11 Application of brown stains to the occlusal anatomy.

12 Appearence of the direst restoration immediately after the removal of rubber dam.

8

V Class Cervical restoring

V Class restorations in anterior teeth

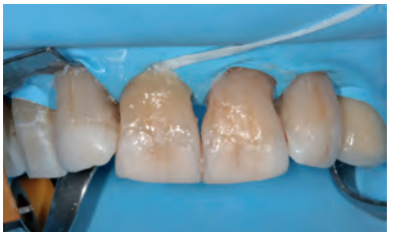
The smile is ageless

DR. NICOLA LA SCALA
Private dental practice in Verona - Italy

CLINICAL CASE

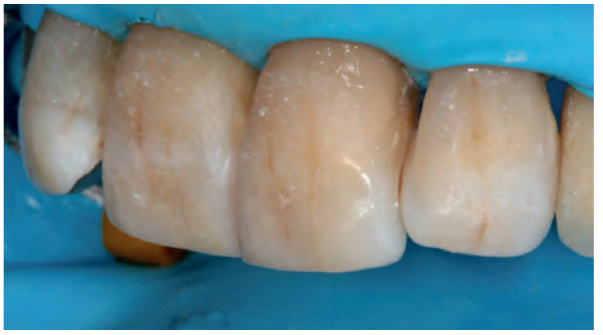
The patient, 80 years old, has been presented to our observation with non-carious cervical lesions and incongruous restorations of the upper incisors. The patient's request was to replace the old restorations present in order to improve the aesthetics. Prior consent is then proceeded with the implementation of direct restorations.

The elements as they appear after the removal of the previous restorations and finishing margins.



Given the extent of the cervical areas to be restored we proceeded sectorally with the field isolation using modified ligatures and hooks. The adhesive steps were carried out with total etch technique in three steps and selective etching of enamel 30 "and dentine 15".

Stratification of the masses predicted: thin layer of flow to line the bottom of the cavity; first contribution with shade OPA2 Estelite Sigma Quick to mask discromiche areas in dentin; successive added with shades Body A4 - A3.5 Estelite Asteria and enamel shades NE - YE Estelite Asteria. To get a more harmonious and natural were reproduced and connected in the cervical areas of cracking and pigmentation of enamel present at the level of the middle third / crown third by Estelite Color ocher and brown stains.



Finishing stages of restoration with abrasive disc and cutting bits of fine diamond grain 40µ.

Polishing steps with abrasive disc fine. We suggest to wet the surface of tooth/composite in order to generate like a “cream”. This kind of “cream” make continuously brushing on the surface with the abrasive disc.

The surface structure adjustment with gross diamond burs.

Appearance of the restoration after finishing stages.

Final images of the restorations to the control after 15 days following further finishing and polishing.

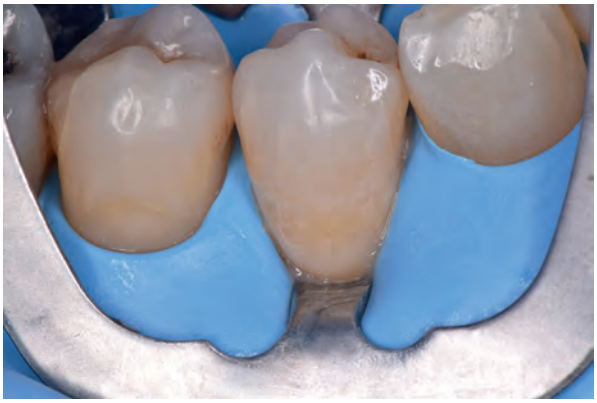
Estelite Flow Quick Cervical: the Neck solution!

Let's find out the ductility!

DR. GIULIO PAVOLUCCI
University of Siena - Italy

In facing out the aesthetic and morphological restoration of Class V cervical lesions, besides the attention and respect of the soft tissues, we often have to deal with an area that has a very high chroma. In cervical areas, often subject to severe stress, can be advantageous to use an high wettability material for the substrate and that has a good elasticity. Neck Estelite Flow Quick Cervical guarantees ease of use, long workability time, great polishability and intense chroma, which allows an excellent mimetic effect in the cercival areas. For simple, feasible and repeatable restorations!

CASE GALLERY



9

Post endodontic treatment

TokuPost and zirconium-ceramic crowns cementation case

DR. GIANLUCA PLOTINO
Private dental practice in Rome - Italy

Fig. 1 Preoperative clinical image of two aesthetically incongruous crowns on teeth 11 and 21.

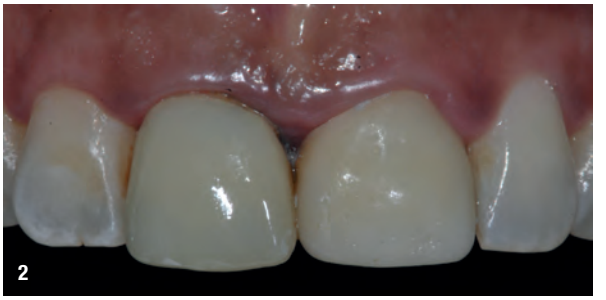


Fig. 2 Detailed intraoperative image of the preoperative clinical situation.

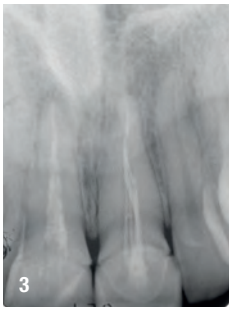


Fig. 3 Preoperative radiograph showing teeth 11 and 21 needing endodontic retreatments.

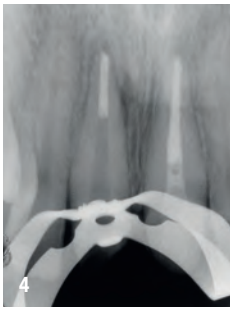


Fig. 4 Radiographic control after root canal retreatments and post-space preparation on tooth 11.

Fig. 5 Try-in of the toku post used to reconstruct tooth 11, buccal view.

Fig. 6 Try-in of the toku post used to reconstruct tooth 11, occlusal view.

Fig. 7 Adhesive procedures using endodontic microbrushes.

Fig. 8 Tokuyama Estecem application in the post-space using small needles to cement the post.

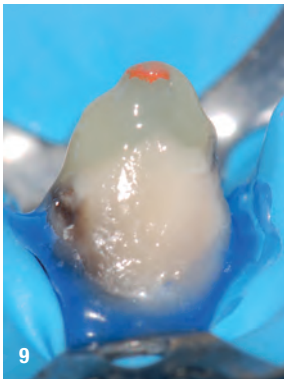


Fig. 9 Clinical image after core reconstruction using Tokuyama Palfique Estelite Lv Low Flow, buccal view.

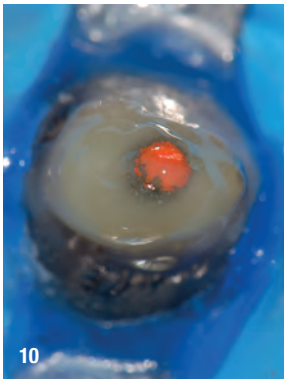


Fig. 10 Clinical image after core reconstruction using Tokuyama Palfique Estelite Lv Low Flow, occlusal view.

Fig. 11 Radiograph after cementation of post and core reconstruction.

Fig. 12 Clinical occlusal view of the teeth prepared for the crowns at the moment of the impression after healing of the soft tissues during temporarizazion.

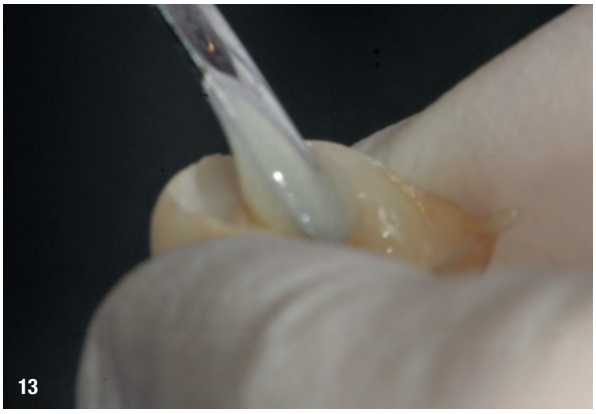


Fig. 13 Application of the Estecem material inside the crown during the cementation procedurs.

Fig. 14 Clinical image immediately after zirconium-ceramic crowns cementation.

Fig. 15 Radiographic control immediately after zirconium-ceramic crowns cementation.

Fig. 16 1 year control of the clinical appearence.

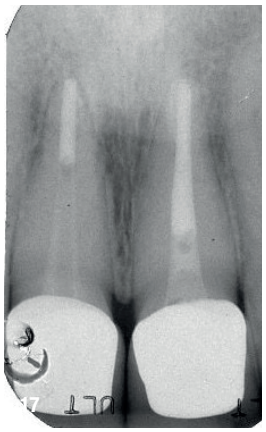


Fig. 17 1 year radiographic control.

Endodontic treatment and rehabilitation with TokuPost

DR. ALEXANDRU CRISTIAN POPESCU DDS
Private dental practice in Bucharest - Romania

CASE REPORT

26 years old female. Diagnosis: Symptomatic Irreversible Pulpitis.Objectives for the 1st visit - Emergency treatment - cleaning the carries and removing coronal pulp. I used flowable composite to stabilize the rubberdam clamp (buccal margin had 1 mm height) with Bond Force - all-in-one adhesive. Limited mouth opening.

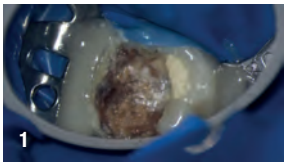


Fig. 1 Cleaning the carries and removing coronal pulp.

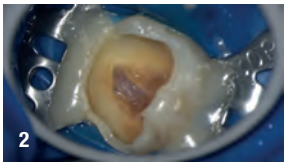


Fig. 2 Almost all the carries removed.

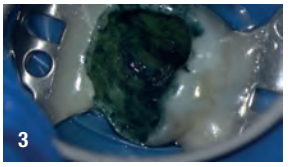


Fig. 3 Carries indicator.

Fig. 4 Pulp exposure with clear signs of inflammation.

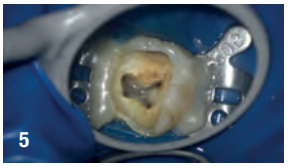


Fig. 5 Coronal pulp removed. Some plefaring with PreRace (FKG). Notice atypical anatomy.

Fig. 6 Also prepared the canals up to #20/.04 (not mandatory for emergency treatment) with RaCe (FKG) and placed calcium hydroxide.

Fig. 7 2nd appointment continued shaping and irrigation protocol.

Fig. 8 MB = DB = DP = #30/04 & MP = #40/.04. Please notice also the thin layer of enamel left in the mesial.

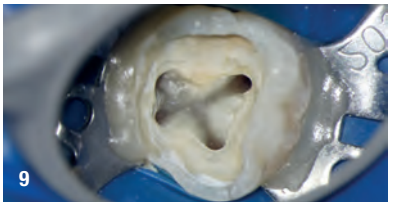


Fig. 9 Buccal wall has 1 mm height and distal 1.5 - 2 mm.

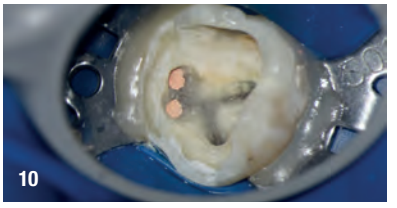


Fig. 10 Obturation - Continuous Wave Condesation.

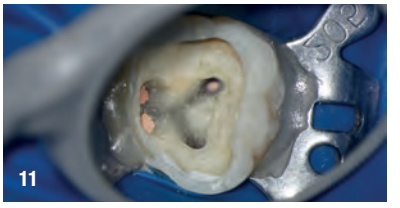


Fig. 11 Palatal - Post space left.

Fig. 12 Tokuyama Post Verifier for TokuPost 15R.

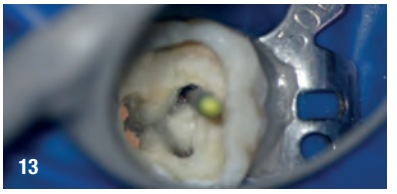


Fig. 13 Try-in with Tokuyama Post Verifier.

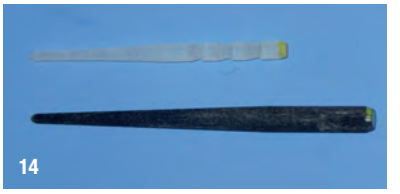


Fig. 14 TokuPost Verifier & 15R Quartz Fiber Post.

Fig. 15 High light transmission, even at the tip.

Fig. 16 Pre-Silanized.

Fig. 17 Tokuyama Universal Primer A.

Fig. 18 Tokuyama Universal Primer B.

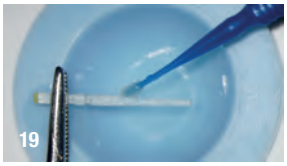


Fig. 19 Applying Tokuyama Universal Primer on TokuPost 15R.

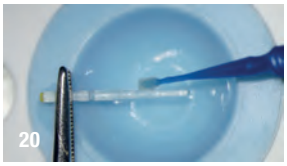


Fig. 20 Applying on all the surface of the post.

Fig. 21 Estelink Bond A.

Fig. 22 Estelink Bond B.

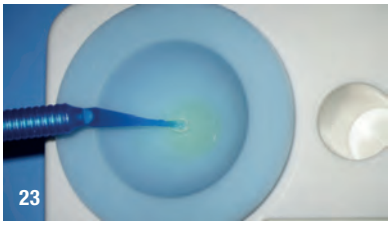


Fig. 23 Mixing Estelink Bond A with B and then applying it in the tooth.

Fig. 24 Estecem - adhesive resin cement.

Fig. 25 Small mixing tip.

Fig. 26 I usually leave the first 2 drops of cement on the rubberdam. I want to make sure that the cement i place in the canal is well mixed.

Fig. 27 I cover the post with Estecem.

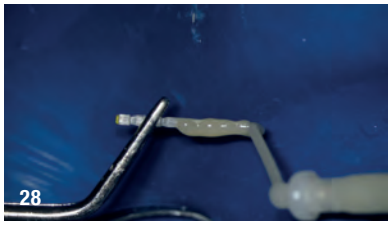


Fig. 28 It's one way of trying to ensure you don't get air bubbles trapped between the post and the canal walls.

Fig. 29 Tokuyama TokuPost 15R covered with Estecem ready to be inserted in the canal.

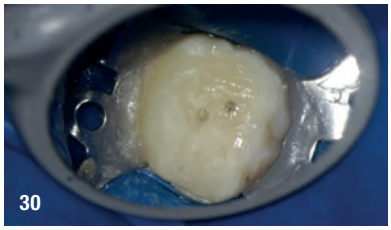


Fig. 30 2 Posts - one for each palatal root canal.

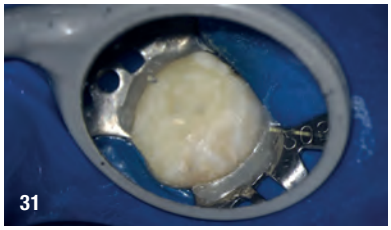


Fig. 31 TokuPost coverde with flowable composite.

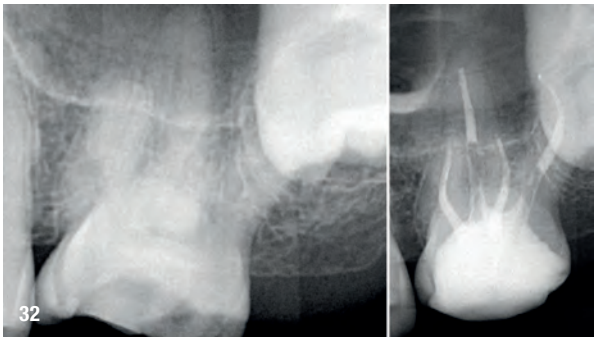


Fig. 32 2.6 You can see why she has a limited mouth opening - small upper arch - 2.7 hasn't got enough space to erupt.

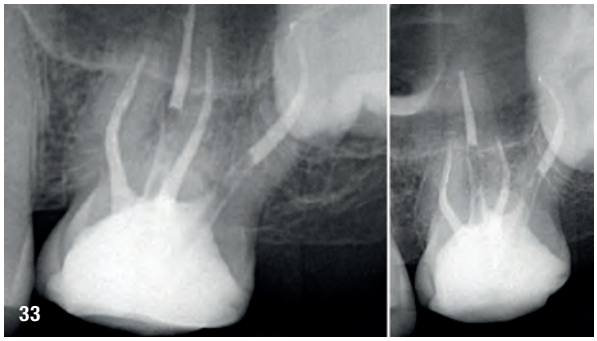


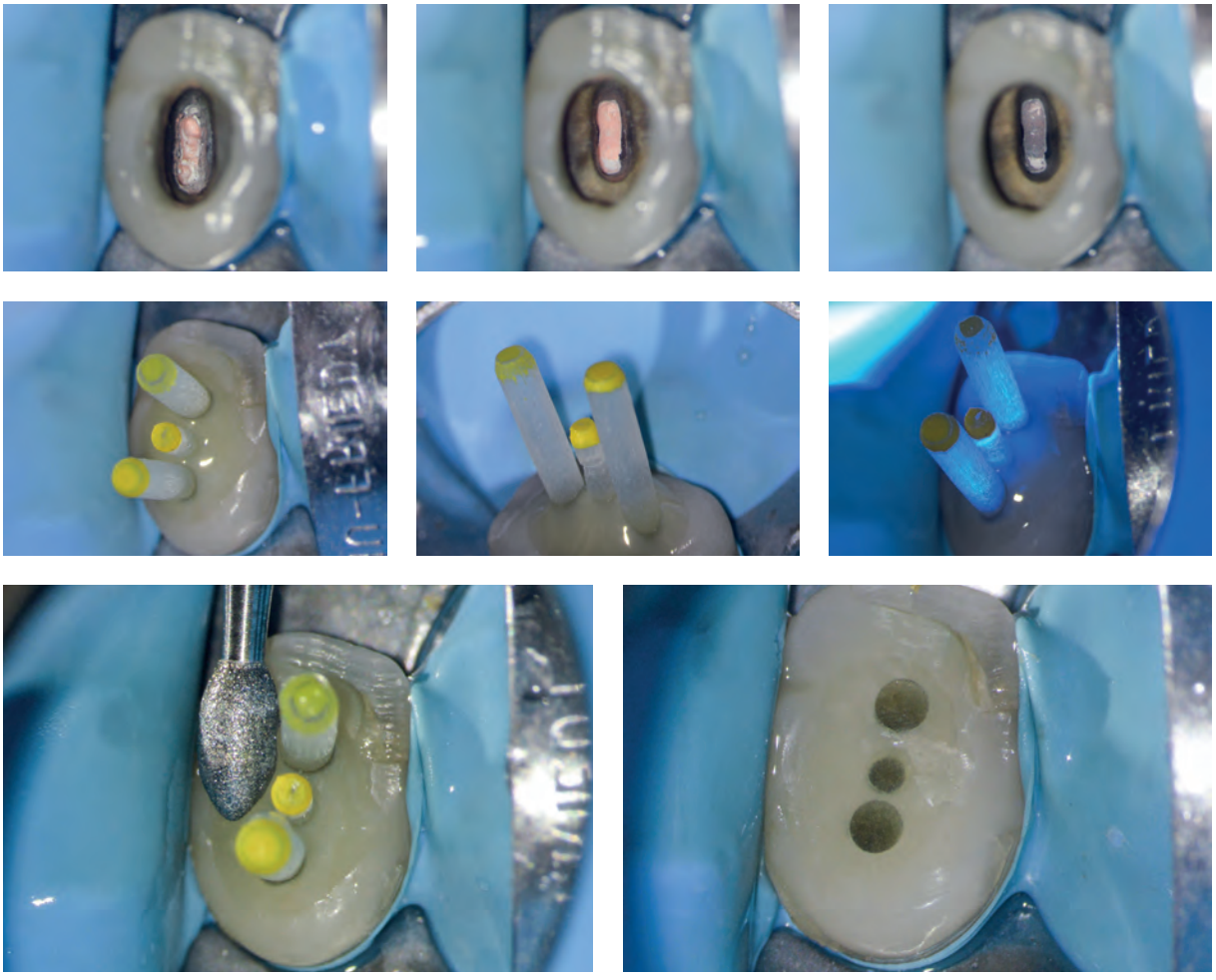
Fig. 33 TokuPost in palatal roots & core build-up.

Post-endo treatment rehabilitation with TokuPost

DR. MILAN LEHOTSKY
Private dental practice Centrum Mikroskopickej Stomatológie in Bratislava - Slovakia

CASE REPORT

When you need to reinforce tooth after root canal treatment many authors recommend to use FRC posts in combination with resin core build-up material. In this case we had to deal with severe loss of hard tooth structures, so usage of FRC posts was necessary to gain more safety against fracture in long term aspect. In assistance of high magnification we decided to use newly developed TokuPost as they are manufactured from quartz, are pre-silanized and packed separately.
Thanks to quartz, they are highly translucent and this is very convenient for light irradiation of deep parts of root canal.
As the root canal was quite large, we used 3 posts to minimize amount of build up cement. Final result is promising long term stability.



"Since the patient was a "referral patient", from other dental office, I finished my purpose that was the post endo treatment."

10

Reshaping Incisors

Reshaping Incisors

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Department for restorative dentistry,
University Medical Centre of the Johannes Gutenberg University Mainz - Germany
Private dental practice at **medi+** Zahnärztliche Praxisklinik, Mainz - Germany

INTRODUCTION

"Form follows function". Unfortunately, nature does not use this "Bauhaus" movement principle when it comes to our teeth; otherwise, they would have more of a quadratic shape: the side teeth of a cow combined with the central incisors of a rabbit. Considering that no one wants to have a bite like this, Mother Nature also gave us a more appealing aesthetic component: The greatest circumference of the teeth is at the level of the tooth equator. Below this level, they taper off convexly. The emergence profile shaped in this manner prevents the bolus from directly traumatizing the gingival papilla and the adjacent gingiva – a clever idea. So does "form follow function" after all? For restorative dentistry, on the other hand, the classic Bauhaus approach of "quadratic and practical" would actually be beneficial. This shape would make performing dental restoration much easier thanks to the straight surface areas it would entail. Be this as it may, we have to live with these challenges and have learned to use a range of aids to design convex tooth shapes in the anterior and incisal area. In fact, there are numerous possibilities for anterior tooth reshaping [8, 9] that are very effective and are used successfully by many practitioners.

For the side tooth area, sectional matrices provide a range of options for reshaping. Their counterpart for the anterior tooth area is the individualized matrix framework technique. This technique was invented by Hugo and Klaiber [3-5, 7] and permits predictable anatomical results without expending large quantities of material. The technique has been used successfully by other authors who have reported on it in recent publications [10].

When it comes down to it, the shape of a tooth is its most significant aesthetic characteristic. If the tooth is properly shaped, minor deviations in color or opacity tend to be "excused". Based on this observation, the following equation can be postulated: "simple shaping = simple aesthetics". If the aesthetic anatomical shape is combined with an aesthetic restoration material that provides the required translucency, permits optimal shade adaptation and offers long-lasting gloss level after initial polishing, the restoration is guaranteed to be aesthetically pleasing. The original matrix framework technique can sometimes be somewhat technically sensitive due to the need for contouring with the aid of a Heidemann spatula and due to the problematic adhesion to the light-curing temporary filling material in some cases. For this reason, I had already addressed this problem in an article appearing in the ZMK (Dental Journal) [6] and modified the matrix framework technique so that instead of using the Frasaco strip that needs to be shaped, a shortened sectional matrix placed vertically is used.

The case studies presented below illustrate this combination of the modified matrix framework technique and a simple aesthetic shade concept used in a number of more minor treatment indications for which complex layering concepts would encounter space constraints.

CASE 1: REPLACING EXISTING BUILD-UPS ON LATERAL INCISORS

The 25-year-old colleague presented with the request to replace her composite build-ups on her lateral incisors, which had discrete edge discoloration and were not properly anatomically shaped (Fig. 1-3). Vita A1 was selected as the target shade

Fig. 1 En face view of the initial situation: The composite build-ups are not ideally anatomically contoured and show discrete edge discoloration.

Fig. 2 Close-up of the initial situation of tooth 12, older composite build-up.

Fig. 3 Close-up of the initial situation of tooth 12, older composite build-up.

After removing the existing composite restorations and refreshing the bonding surface with a fine-grain diamond finisher [10], an extra-heavy rubber dam was used to isolate the working site (Fig. 4 and 5). This very thick rubber dam sheet has sufficient tensile force to brace the tooth in the sulcus and permit it to be inverted there. This inversion (= tucking the edges of the rubber dam into the sulcus) only works if the area is dried well with an air compressor and the aid of a Heidemann spatula when manipulating the dam. A floss ligature was used to secure the rubber dam sheet tucked in the sulcus.
Since it was not clear whether residual composite was still present on the tooth, the next step entailed blasting the bonding surface with aluminum oxide. New composite could thus adhere to the surface roughened in this manner just as well as after a composite repair [2]. In addition to cutting a translucent KerrHawe sectional matrix band to fit the lateral tooth area, using the considerably more stable and therefore easier to manipulate steel sectional matrix bands for class II cavities is a good alternative. From the wide selection of steel sectional matrix bands available on the market, we chose to use Garrison tension-free sectional matrix bands (www.garrisondental.com). Another alternative is the more stable Danville sectional matrix system (not tension-free; www.minimalinvasiv.de) or the Quickmat Deluxe sectional matrices by Polydentia (www.polydentia.ch/de). For this case, a flatter sectional matrix band for primary teeth was selected because the oro-vestibular surface of the tooth was very narrow. The sectional matrix was cut in the center in an occluso-cervical direction and part of it was positioned vertically on the mesial aspect of tooth 12 and the other part on the mesial aspect of tooth 22 and attached to the adjacent tooth with a light-curing rubber-elastic temporary filling material (Clip, VOCO, Cuxhaven, Germany) (Fig. 4 and 5). Care must be taken to ensure that the sectional matrix rests tightly on the tooth in the sulcus in order to avoid different levels from being formed there later.

Fig. 4 Working site around tooth 12 isolated with rubber dam, sectional matrix cut to size placed vertically in situ and attached to the adjacent tooth with Clip material.

Fig. 5 Working site around tooth 22 isolated with rubber dam, sectional matrix cut to size placed vertically in situ and attached to the adjacent tooth with Clip material.

In this case, after classic application of bonding with phosphoric acid conditioning, Estelite Sigma Quick (Tokuyama, Tokyo, Japan) was used as a restoration material. Its spherical filler geometry and the fabrication process, which permits round fillers with a mean diameter of 0.2 µm, yield a harmonious shade transition that integrates the restoration into the tooth nearly invisibly, similar to the oft-cited "chameleon effect". In addition, an incomparable polishing effect can be achieved very easily; as the only non-microfiller composite, it is also long-lasting.
Due to the very sharp angle between the sectional matrix and the tooth, the only way to reliably fill the cervical area is to use a flow composite. Application cannulas with thin lumens [10] are best-suited for this. Even if appropriate cannulas are used, a

tiny air bubble may still be injected that will lead to a dearth of material and in turn, to a small positive step from approximal to cervical. To prevent this from happening, an explorer probe should be used to scrape the flow composite from the approximal contact into the sulcus. This releases the surface tension of the flow composite and ensures a smooth transition from approximal to cervical.
Since the teeth in the incisal area have a very low level of translucency, shade OA1 of the Estelite Sigma Quick composite was used nearly exclusively as the restoration material. Enamel mass A1 used for discrete overcoating only in the incisal area. In consultation with the patient and at her request, no white accents were painted on the build-ups. The approximal-incisal finishing was performed with flexible discs (Sof-Lex XT, 3M ESPE, St. Paul, Minnesota, USA). From labial to palatal, it was performed with a flame-shaped Q finisher (H48LQ, Komet/Gebr. Brasseler, Lemgo, Germany) and the Venus Supra two-step high-gloss polisher system (Heraeus Kulzer, Hanau, Germany). Figures 6 to 8 show the final results at a two-month follow-up. The young colleague was very satisfied with the reshaping of her lateral incisors with respect to both the shape and color.

Fig. 6 En face view of the reshaped lateral incisors after two months.

Fig. 7 Close-up of tooth 12, two months after completion of treatment.

Fig. 8 Close-up of tooth 22, two months after completion of treatment.

CASE 2: ALTERNATIVE TO VENEER

The 18-year-old patient was referred by her orthodontist with the request for application of veneers to teeth 12, 11, 21 and 22 to close the residual diastemas and balance out the existing angulation of the incisal edges (Fig. 9).
Figures 10 and 11 show close-ups of the lateral incisors.

Fig. 9 Initial situation: The patient's orthodontist recommended application of veneers to teeth 12 to 22 to balance out the angulation and to close the spaces between the lateral and central incisors.

Fig. 10 Close-up of teeth 12 and 11. The diastema is more conspicuous on this side than on the contralateral side.

Fig. 11 More discrete diastema between teeth 21 and 22; the patient was not bothered by the space.

Veneer application would certainly be one way to meet the request by the orthodontist and patient and can be used to achieve perfect shaping of the anterior teeth. However, in light of the rather discrete findings, this would be a very invasive and expensive treatment option. For this reason, the patient was specifically asked to state what she felt disturbed her the most. The patient responded spontaneously, pointing to the diastema between teeth 12 and 11 and the mesial edge of tooth 11. The patient stated that she was not disturbed by the angulation of the teeth or the smaller diastema between teeth 21 and 22. To meet the patient's request and simultaneously follow the "do no harm" principle and work as minimally invasively as possible, we recommended only closing the diastema between teeth 12 and 11 with a composite build-up and correcting the incisal edge of tooth 11 by means of tooth shaping [1].

The patient was very cooperative, did not tend to make uncontrolled tongue movements and had optimal oral hygiene, meaning that neither a sulcus exudate nor bleeding were anticipated. Thus, the treatment was carried out without prior placement of a rubber dam and with relative drying of the site using a photo-optimized cheek retractor (Hager & Werken). After roughening the surface with a fine-grain diamond finisher, the matrix framework was applied as in case 1 using a vertically inserted primary tooth sectional matrix attached with clip (Fig. 12).

Fig. 12 Sectional matrix for shaping the build-up on tooth 12; inserted vertically and attached with clip.

After classic application of bonding with phosphoric acid conditioning, the composite build-up was performed identically to that in case 1 with the exception that in this case, the Estelite Sigma Quick shade combination OA2/A2 was used. A flow composite was again used to fill the transitional area in cervical direction. Contrary to the manufacturer's recommendations, the transition between the restoration and the labial and palatal enamel surface was created exclusively with opaque OA2 mass. Since the patient had somewhat more translucent areas in the incisal edge area in contrast to the patient in case 1, somewhat more enamel mass A2 was used.

In this case, a diastema closure was deliberately performed and a certain degree of asymmetry accepted. Doing so means that all treatment options are still open for the future. If the patient prefers the closed diastema between teeth 12 and 11 to the discrete diastema between teeth 21 and 22, the identical approach can be used to close the diastema in the second quadrant. If, however, the patient considers leaving the small space on the left side to be more aesthetically appealing, the build-up on tooth 12 can be reduced non-invasively using a diamond finisher strip and symmetry can be achieved accordingly. The third and most ideal option would be to maintain the present situation as is.

Figure 13 shows the finished and polished build-up on tooth 12. Figure 14 presents an en face view after the completion of treatment and the incisal reduction of the mesial edge of tooth 11 undertaken as tooth shaping using various Sof-Lex discs (3M ESPE). After the final picture was taken, the teeth were fluoridated (Duraphat) to mineralize the enamel damaged by the polishing.

Fig. 13 Build-up on tooth 12 directly after finishing and polishing.

Fig. 14 En face view after completion of treatment. The asymmetry of the diastemas is barely detectable; the angulation could be corrected in a more minimally invasive manner than the originally requested veneer treatment by means of minimally adjusting tooth 11.

The patient was very pleased with the treatment, which was much less invasive, and stated that she intended to leave the anterior teeth as is in the future.

CASE 3: DIASTEMA CLOSURE AFTER ORTHODONTICS

The patient presented after completion of orthodontic treatment with residual diastemas between the central and lateral incisors (Fig. 15 and 16). A complete diastema closure would have required more extensive orthodontic treatment. The patient chose to undergo direct restoration, which is a more affordable and less time-consuming alternative.

Fig. 15 Initial situation: Diastema between teeth 12 and 11.

Fig. 16 Initial situation: Diastema between teeth 21 and 22.

The teeth had very straight approximal surfaces. In a model analysis, closing the diastema by using only build-ups on the lateral incisors appeared to be the least conspicuous alternative. We were afraid that applying build-ups on the central incisors would make them appear too wide in relation to their length. Considering the overall expense and effort, we wished to prevent a bilateral diastema closure if possible. The procedure used for the treatment was similar to that used in case 2: Sectional matrices attached with Clip material were used for shaping. Estelite Sigma Quick in a combination of OA2/A2 was used as the restoration material, with the more opaque mass OA2 used for more than 90% of the restoration.

Fig. 17: Matrix framework on tooth 12 with vertically inserted sectional matrix cut to size.

Fig. 18: Identical matrix framework on tooth 22.

Figures 19 and 20 show the two completed build-ups in the oblique lateral view. Figure 21 presents the situation in an en face view at the three-month follow-up.

Fig. 19 Build-up on tooth 12 primarily fabricated from the more opaque mass Estelite Sigma Quick OA2.

Fig. 20 Build-up on tooth 20, also primarily fabricated from the more opaque mass Estelite Sigma Quick OA2.

Fig. 21 The solitary build-ups on the mesial surfaces of the lateral incisors provide a harmonious length-to-width ratio for the entire anterior teeth. The patient was satisfied with the restoration after completion of the treatment.

CASE 4: CONVENTIONAL CLASS IV RESTORATION

In addition to the cases of diastema closure presented above, we deal with a large number of indications for restoration that also have to be carried out to meet aesthetic criteria.

In this case, the 60-year-old patient lost a distal class IV composite restoration on tooth 21 fabricated by another dentist (Fig. 22). This left a wide interdental space. In this case too, with respect to a convex restoration, it appeared to be easiest to carry out the restoration with the aforementioned veneer technique using a vertically placed sectional matrix.

Fig. 22 Distal defect on tooth 21 after loss of a composite restoration.

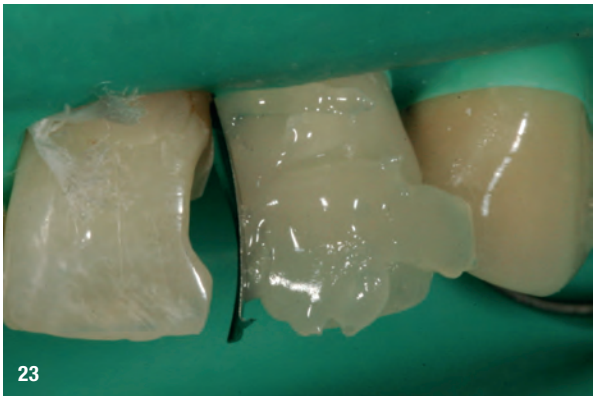

Fig. 23 Rubber dam isolation and framework with the sectional matrix.

Figure 23 shows the cavity with a sectional matrix framework after post-excavation, contouring of the preparation edges and rubber dam isolation.

An anatomical reconstruction using a one-step procedure was possible. In this case, the restoration material used was the new Estelite Asteria (Tokuyama), which is based on a considerably simplified shade system compared with Estelite Sigma Quick. The classic recommendation for using Estelite Sigma Quick, which calls for opaque masses in general to be overcoated with enamel masses, was disregarded in favor of simple one-step layering with only body mass was used instead. A translucent enamel-effect mass can be used in the incisal area exclusively. The approach recommended here is similar to our own modification of the application of Estelite Sigma Quick, since in the cases described above, we used Estelite Sigma Quick opaque mass similarly to the Estelite Asteria body mass. Since both masses have a similar opacity value, this made sense in retrospect. However, the new shade concept of Estelite Asteria is more logical, because in terms of the nomenclature, the notion of a universal “body” mass fits better to the enamel edge than an opaque mass. This makes it a more plausible concept, that can facilitate use for new users of Tokuyama composites. In this case too, the application of a flow composite in the cervical area was required. Prior to curing the flow, the sectional matrix is pressed against the adjacent tooth from inside the matrix. The easiest way to do this is by turning a Heidemann spatula inserted at the incisal aspect of the contact point or by applying pressure with a large-volume ball-shaped plugger. This ensures that the approximal contact will be strong enough.

In line with the manufacturer’s recommendations, body shade A3 was used in the entire cavity, although it was placed, modeled and separately polymerized in individual increments. In the incisal area, discrete overcoating was performed with NE enamel-

effect mass to increase the translucency in this area. While this additional step is optional, it is highly recommended for incisal edges with regular or above-average translucency.
Figure 24 shows the final results after finishing and high-gloss polishing. Analogously to the cases using Estelite Sigma Quick, approximal-incisal restoration was performed with flexible discs (Sof-Lex XT, 3M ESPE, St. Paul, Minnesota, USA). From labial to palatal, it was performed with a flame-shaped Q finisher (H48LQ, Komet/Gebr. Brasseler, Lemgo, Germany) and the Venus Supra two-step high-gloss polisher system (Heraeus Kulzer, Hanau, Germany).

Fig. 24 Final results of the class IV restoration performed using the modified matrix framework technique

CASE 5: DIASTEMA CLOSURE TO TREAT AGENESIS OF THE LATERAL INCISORS

To treat congenitally missing lateral incisors, two main treatment options are available: opening of the diastema with a subsequent implant or adhesive bridge or diastema closure and possible reshaping of the canine into a lateral incisor. However, this is difficult in cases such as the one presented here, in which the planned diastema closure could not be achieved completely and a small residual space remained (Fig. 25 to 27).

Fig. 25 En face view of the maxillary anterior teeth in a patient with congenitally missing lateral incisors and orthodontic diastema reduction.

Fig. 26 The close-up from the oblique lateral aspect emphasizes the considerable gap between teeth 11 and 13.

Fig. 27 Comparable residual space between teeth 21 and 23.

Since canine teeth are usually around the same width as central incisors, but lateral incisors are considerably narrower, we felt that it would not be particularly worthwhile to close the diastemas using build-ups on the canines. In this case, distal build-ups on the central incisors made much more sense, since this allowed for a somewhat wider tooth to be shaped compared to the canine. Moreover, the distal surfaces of the incisors were quite straight, which was conducive to a diastema closure by performing more convex shaping of these teeth. We thus agreed with the patient to leave the canines as is, along with the discrete diastema between the central incisors. While a mesio-incisal build-up on the canines is technically feasible, it would make the teeth in this area appear wider, which undesirable. Lateral incisors often have a relatively round incisal edge and this does not particularly compromise overall visual appearance.
For this case too, the treatment was carried out as described above using an individualized matrix framework technique with vertically inserted sectional matrices. Here too, we were able to dispense with the placement of a rubber dam thanks to the good cooperation on the part of the patient. Figures 28 and 29 shows the attached matrix frameworks.

Fig. 28 Matrix framework on tooth 11.

Fig. 29 Matrix framework on tooth 21.

Estelite Asteria (Tokuyama) in shade A2B was again used as restoration material. The universal shade was inserted incrementally and was used for the main volume of the restoration, including all labial and palatal transitions to the enamel of the original tooth. The special-effect mass NE was used only in the incisal area to achieve higher translucency of the incisal edge. Figures 30 and 31 show the completed distal build-ups on teeth 11 and 21 from the oblique lateral aspect. Figure 32 shows an en face view comparable to Figure 25. While there is a certain aesthetic compromise with respect to the individual shape of all of the anterior teeth, the patient considered this to be perfectly acceptable in view of the relatively low effort, time and expenses required for treatment.

Fig. 30 Finished and polished distal build-up on tooth 11.

Fig. 31 Finished distal build-up on tooth 21.

Fig. 32 Final picture, frontal view. The patient was satisfied with the aesthetic compromise.

CASE 6: MONOCHROMATIC DIASTEMA CLOSURE

We have saved the easiest case for last: a situation comparable to that in cases 1 to 3: closure of a discrete diastema between teeth 12 and 11. Figure 33 shows the initial situation. Figure 34 shows the matrix framework applied after roughening of the bonding surfaces with a diamond finisher.

Fig. 33 Discrete diastema between teeth 12 and 11. Since no comparable diastema was present in the second quadrant, this diastema was to be closed to provide symmetry.

Fig. 34 Prepared matrix framework - Ready for adhesive pretreatment.

In this case, the teeth were relatively opaque and due to the Craquelé lines in the incisal edges of the central incisors did not show any natural pattern of light and shadow of a translucent incisal edge. This meant that in this case, the restoration could be performed monochromatically with a single shade, in this case, Estelite Asteria A1B. At the patient's request, we did not carry out accentuation with highly translucent masses or ceramic paints.
Figure 35 shows the final results of this simple but effective treatment.

Fig. 35 Diastema closure using a monochromatic build-up in shade A1B.

The cases presented here prove that it is possible to use a simplified matrix framework technique to achieve anterior tooth reshaping that is anatomically correct and thus nearly automatically leads to aesthetic results. The advantage of the approach described above, similar to the matrix framework technique developed by Hugo and Klaiber [3-5, 7], is that all of the necessary auxiliary material, such as sectional matrices and a light-curing rubber-elastic temporary material, is usually on hand in the dental practice. The easier and quicker the treatment, the more affordable it is. This makes it a valid, more minimally invasive and cost-optimized alternative to classic veneer treatment.

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Tooth shaping with composite after anterior tooth transplantation

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CLINICAL CASE

After falling at a swimming pool in 2000 and avulsion of the two central incisors 11 and 21 (both teeth were lost during the fall), the patient underwent transplantation of teeth 34 and 44 into region 11 and 21. Seven years later, the patient presented for consultation about the further treatment of the transplanted premolars. Prior to the consultation, the patient had been satisfied with the treatment to date. The patient was simultaneously undergoing orthodontic treatment with regular radiographic follow-up of the region 11/21. The apical region of the transplanted premolars was unremarkable with no signs of root resorption.

Fig. 1a, b Transplanted premolars in region 11/21, composite hooks from orthodontic treatment still in situ.

TREATMENT PLANNING

After evaluation of the clinical and radiographic findings, it was planned to reshape the transplanted premolars 34 and 44 into central incisors through a minimally invasive procedure. The patient refused other treatment alternatives such as the fabrication of all-ceramic veneers and surgical crown lengthening (vestibular extension) for harmonizing the gingival course due to the highly invasive nature of the procedures.

TREATMENT COURSE

A wax-up was fabricated (Fig. 2) for informing the patient about various treatment options and to evaluate the anticipated amount of substance that would be lost as the result of the preparation measures.

Fig. 2 Wax-up of region 11/21 and planned course of the gingival margin after surgical crown lengthening drawn on the wax-up.

Fig. 3a, b Situation after removing the composite hooks (a), intraoral mock-up for visualizing the possible treatment results (b).

The teeth were then cleaned with a fluoride-free prophylaxis paste. The shade was then selected. The material Estelite Sigma Quick (Tokuyama, Altenberge) was used as a composite system. In this system, an extra-opaque dentin mass is available with the shade OPA2, which was used to build up dentinal core of the incisors that is not supported by the dental hard tissues. The following shades were used: OPA2, OA2, OA3 (dentin masses), A2, A3 (enamel masses), CE (Clear Enamel, special-effect mass for translucent effects), OPA2 (flowable). A diamond finisher was used minimally invasively to roughen the enamel surface of the transplanted premolars, which was then conditioned for 30 seconds with 37% orthophosphoric acid (Conditioner 36, Dentsply, Konstanz, Germany) and pretreated with adhesive (Heliobond, Ivoclar Vivadent, Ellwangen, Germany). The silicone key was then used to build up the posterior wall with a thin layer of the flowable of shade OPA2. The various dentin masses were then modeled in several layers: OPA2 as the opaque core, OA3 cervically and OA2 toward the incisors. An approx. 1 mm-wide area in the region of the incisal edge was left open that was filled with a thin layer of special-effect mass (CE). To achieve the "halo effect", a very thin layer of OA2 was modeled directly at the incisal edge. The dentinal core was then overcoated with the enamel masses (A2 incisal, A3 cervical).
After the final polishing, the teeth were fluoridated (Biflourid, VOCO, Cuxhaven, Germany).

Fig. 4a-m: Premolar reshaping of tooth 11 (tooth 21 was reshaped analogously): Wax-up with silicone key (a), silicone key in situ (b), enamel conditioning (c), etching pattern on the vestibular aspect (d) and palatal aspect (e), flowable in the silicone key (f), built-up posterior wall (g), layering of the dentinal core (h, i), enamel mass teeth 11 (j) and 21 (k), restorations after final polishing from the vestibular (l) and palatal (m) aspect.

The following images show the restorations at follow-up appointments after 4 weeks, 4.5 months and 14 months

Fig. 5a, b Clinical situation 4 weeks post-surgery, view from the vestibular (a) and palatal aspect (b).

Fig. 6a, b Reshaped premolars 4.5 months post-surgery, view from the vestibular (a) and palatal (b) aspect.

Fig. 7a, b Composite restorations 14 months post-surgery, view from the vestibular (a) and palatal (b) aspect.

After completion of the treatment, the patient agreed to present for follow-up sessions at 6-month intervals.

SUMMARY AND DISCUSSION

The case study presented here depicts the reshaping of two premolars after autogenous tooth transplantation after anterior tooth trauma in which the two central incisors were avulsed and were no longer available for replantation due to loss.
Several case reports have been published on the reshaping of transplanted premolars to replace anterior teeth in which both composite restorations and all-ceramic veneers were fabricated as measures for reshaping. In this case, at the patient's request, information was provided about a variety of approaches and a minimally invasive procedure was used to fabricate composite restorations. A wax-up was fabricated and a silicone key was used to build up the posterior wall from a very thin layer of flowable. Since the occlusal contacts are located in the area of the hard tooth structure, this approach proved to be feasible. The patient is satisfied with the treatment results achieved. During the 14-month observation period there were no signs of restoration failure.

Tooth shaping with composite after anterior tooth transplantation

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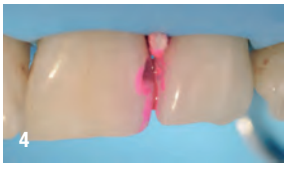
CLINICAL CASE

The simplest of dentistry can be sometimes the one that gives most problems. The Author would like to present a very simple solution for these simple cavities. There is not a single patient, at least that we know, searching for a “non aesthetic” restoration; thus, in a case of anterior proximal cavities, it is implied that the restoration will not be visible and of course not ugly. In the Author’s personal experience, these kind of cavities have been the more deceiving and aesthetically difficult, until a good method was applied. Our third class restorations cavity guidelines - since the adhesive - era are extremely variable and not clear. In this article we would like to give useful guidance on how to prep these cavities, manage the matrices, select the right material and polishing procedures for an inconspicuous and long-lasting restoration.

Img. 1 Initial situation, two proximal carious lesions that will probably invade the aesthetic area and might create an unpleasant halo.

Img. 2 The isolated field should be clean and thee rubber dam must be perfectly inverted in order to avoid the dam to interfere with the matrix and wedge placement.

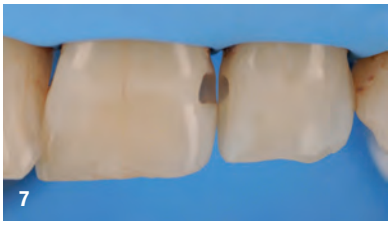
Img. 3 In a modern approach, the cavity opening is the less destructive (most efficient enamel preservation) and the most comforatble (better visibility to remove decay). When opening the cavities through the buccal, we break the wedge so its length will not interfere with the turbine and contrangle insertion.

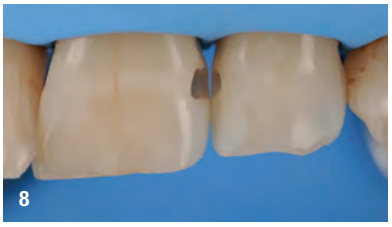


Img. 4 After cavity opening, we clean with a low speed round bur and try to remove all the soft tissue. Generally this step, and especially the professionals who care a lot about tissue preservation, underestimate the extent of the caries. So, at this stage we use a caries detector agent (can be chemical or can be by fluorescence) to highlight infected tissue. Being this a controversial subject, we suggest to be used with criteria.

Img. 5 Wash the caries detector after no more than 10 seconds, it is imperative to follow precisely the instructions of the product, otherwise, false positives might happen.

Img. 6 Infected tissue still visible, especially in the enamel-detine junction. Many times this infected tissue is completely invisible to our eyes, thus it is very useful to get help of detecting agents.

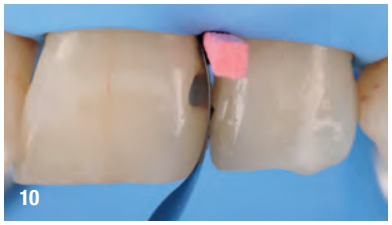




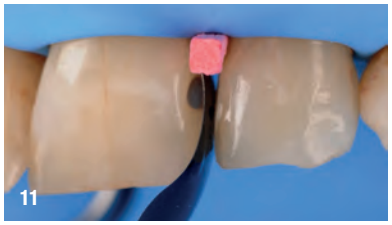
Img. 7 Cavity preparation follows a simple rule that derives from a question: does your cavity touch the transitional line angle? Yes.- Do a bevel No.- Don't do a bevel. Exception to this rule: No bevel at all if the buccal enamel is less that 1mm in thickness, the aesthetic outcome will be managed in a second step. Finally there is the issue of selecting the right color. It is not the problem of selecting the right hue, chroma or value. The real problem in these kind of restorations is the opacity of the material. A two layer approach has 3 possible outcomes a) too opaque (becasue too much dentin was used) b) too traslucent (becasue too much enamel was used) c) perfect (balance was achieved) being the last scenario the leat frequent. With a single mass approach the possible outcomes are: a) little opaque (becasue the material used was more opaque than the tooth) b) too traslucent (becasue the material used was more trasnlucent than the tooth) c) perfect (opacity balance matched perfectly). This last outcome is very frequent when working with a single shade (body) which mimics the opacity very efficiently. Read more about single sahde restorations here http://www.styleitaliano.org/single-shade-anteriors

Img. 8 We place one preformed posterior matrix for each cavity (Lumicontrast, Polydentia, Switzerlad). This gives us several advantages as excelent contour and each matrix "holds" the other matrix in a convenient position. To read more about the synchronized use of matrices in anteriors read
http://www.styleitaliano.org/synchro-matrix

Img. 9 After filling up one cavity, the matrix of that cavity is removed and the wedge will be pushed more, in order to slightly open the contact and gain space.



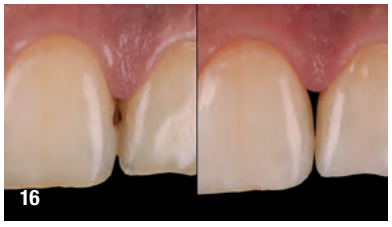
Img. 10 Distal wall of 21 was performed and the matrix removed. This gives us a wider field to finish the cavity.



Img. 11 The rest of the cavity is done with the same shade. Now we are ready to do the finishing and polishing.

Img. 12 For these kind of cavities, is imperative to use finishing strips. Remind that a coarse acetate matrix will perform the same work but requieres much more time and effort, thus we suggest to use metalic diamond strips for the "rough" finishing, which is the most important. All the material proximally to the transitional line angle will be finished with abrasive discs and finishing strips, all the material internal to the transitional line angles will be done with low speed burs. In this case only discs and strips were used as no invasion of the trasitional angle was done.

Img. 13 Aspect after finishing and polishing. The polishing protocol was, abrasive rubber spiral wheels and polishing paste with a goat brush.



Img. 16 Before and after situation. Further follow-ups will be made.

CONCLUSIONS

Margin location is critical for such an aesthetic restorations, when the opacity is the other critical point to understand, when working with body shades is easy to obtain from decent to perfect results with little room to failure. To accomplish a good work, finishing and polishing should be performed following carefully a precise protocol. The single shade approach has been linked to poor quality dentistry, we cannot stress out how wrong this link is in modern dentistry, being the best choice not only in simple cases but in several other indications that we will describe in upcoming articles.

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11

Why use layering techniques?

Why use layering techniques?

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INTRODUCTION

A number of layering techniques for composite anterior tooth build-ups are available. These techniques are generally required in cases in which enough opacity must be present to prevent the dark oral cavity from shining through, which would make the restoration appear too gray. However, if only an opaque mass is used for a restoration, it creates a visually "dead" appearance due to the absence of the vivid pattern of light and shadow of an enamel mass.

For this reason, it is advisable to build up dentin with dentin masses and enamel with enamel masses. In so doing, care should be taken to ensure that the dentin build-up protrudes slightly past the enamel edge. This is because the different light refraction indices and the given opacity or translucence of the masses would otherwise make it easy to detect the restoration.

These types of approaches are worthwhile for large build-ups, such as for classic class IV restoration or for treating trauma. For extremely large build-ups, in some cases the three-layer or even four-layer technique is used, for which even more opaque materials are used lower down. Fortunately, these sorts of challenges do not occur on a daily basis. Most cases involve more minor defects, which, however, can be just as challenging in terms of aesthetics. These include class III filling replacements, discrete diastema closure and reduction of residual spaces after orthodontic treatment. However, when treating such more minor defects, it is much more difficult to achieve the needed combination of dentin and enamel masses with respect to their dimensions. Too little dentin mass results in the undesirable "gray effect". For this reason, a number of manufacturers offer "universal masses" that serve as the only mass used for indications of this nature, in some cases supplemented as needed by slightly more translucent masses in the incisors. As a result, the problem of determining the dimensions of different opacities may arise.

Tokuyama has converted its product Estelite Sigma Quick aesthetic highlight material into a more simplified shade system called Estelite Asteria. The Estelite Asteria body shades serving as a base can in fact be used very well for single-shade restoration of the aforementioned indications. If somewhat more translucency is desired, a separate enamel mass can still be supplemented in the incisal area. However, this is not necessary at the labial transition area of the restoration and is in fact counterproductive. The technique therefore produces quick, predictable and highly aesthetic results, without undertaking extensive layering.

Users of Estelite Sigma Quick are familiar with the comparable aesthetic effect from the combination of opaque and enamel shades, supplemented as needed by OPA2, which as a still more opaque mass offers outstanding light-blocking properties. As a result of the material's filler technology, even the opaque mass is not as opaque as a classic dentin mass (which is why it is called "opaque mass" rather than "dentin mass"). This allows the "opaque mass" of the Estelite Sigma Quick to be used in a manner comparable to the universal "body" mass of the Estelite Asteria as a basic restoration material for the entire restoration and the enamel mass similarly to the enamel-effect masses of the Estelite Asteria only in the incisal area. This also produces very easy and predictable results. When treating colleagues, for example, this is exactly what is called for. Some of the patients in the cases presented below are colleagues, who are both very discerning and have very specific ideas and requirements for their treatment. When treating this kind of patient, an aesthetically "forgiving" material is obviously very welcome that actually brings about the shop-worn but imprecisely defined term "chameleon effect" in the tooth.

Its spherical filler geometry and the manufacturing process that permits round fillers with a mean diameter of 0.2 µm also yield an incomparable polishing effect that as the only non-microfiller composite is also actually long-lasting.

In the report below, we present minor cases of patients with diastema closure and reduction treated with both Estelite Sigma Quick and with the new Estelite Asteria. In all of the cases, the entire restoration, from the depths of the tooth to the labial enamel edge was performed exclusively with Estelite Asteria body mass or Estelite Sigma Quick opaque mass. In the incisal (not labial!) area, a small amount of the actual Estelite Sigma Quick enamel mass and the Estelite Asteria NE enamel-effect mass was used. Since the Estelite Sigma Quick opaque mass offers an opacity level similar to that of the Estelite Asteria body mass, this new, simplified application form offered by Estelite Sigma Quick is a viable alternative.

CASE 1: DIASTEMA REDUCTION OF TOOTH 22

The colleague was bothered by the space between tooth 21 and tooth 22 (Fig. 1). A much more discrete diastema existed between teeth 11 and 12 that is not noticeable when the anterior teeth are saliva-coated. In order to achieve bilateral aesthetic harmony, it was agreed to only reduce the diastema in the second quadrant rather than closing it completely. Since no treatment was planned in the first quadrant, the only option was a mesial build-up on the lateral incisor, since otherwise an unbalanced width ratio of the central incisors would be created if a build-up was attached distally to tooth 21.

Fig. 1 Noticeable diastema between teeth 21 and 22.
The patient wished to reduce the diastema for aesthetic reasons.

No preparation was carried out. A fine-grain diamond finisher was used to discretely roughen the bonding surface, which debrided the uppermost aprismatic enamel layer and in turn, optimized the bonding strength to the adhesive.
For these types of build-ups, the shape of the approximal surface is decisive. It must represent the convex anatomy of an incisor and must not protrude out of the depth of the sulcus to the incisal edge in a “straight” manner, as would be the case with the classic use of a Frasaco strip. The Frasaco strip technique can be modified in the form of the matrix framework technique introduced by Hugo and Klaiber [1-4]. With this technique, the Frasaco strip is inserted vertically rather than horizontally. A scissors should be used to slightly round the cutting edge that faces the sulcus. The total length should not protrude over the incisal edge of the adjacent tooth (in this case, tooth 21), since otherwise this would make it more difficult to access the incisal edge. In order to achieve a concave shape of the matrix framework, the Frasaco strip was secured to the adjacent tooth by means of a light-curing provisional filling material (Clip, VOCO, Cuxhaven, Germany) applied approximally. To improve the attachment to the Clip material, the external side of the Frasaco strip (facing the clip) can be roughened by blasting it with aluminum oxide. Prior to curing the Clip material, the internal contour of the Frasaco strip is shaped using a Heidemann spatula. Figure 2 depicts the prepared “matrix framework”.

Fig. 2 Frasaco strip attached to the adjacent tooth with Clip material inserted in the form of the matrix framework technique according to Hugo and Klaiber.

In this case it was not necessary to use a rubber dam, since considering the colleague’s exceptional oral hygiene, no bleeding or sulcus exudate were anticipated. Moreover, she did not tend to move her lips or tongue. A photo-optimized cheek retractor was used to keep the lips away from the restoration site and therefore keep them from posing a contamination risk.
After phosphoric acid conditioning of the bonding surface and adhesive sealing, a small amount of flow composite was applied from approximal to cervical. Only one flow composite is able to completely fill this cervical transition area that tapers off to a thin width. As

Lührs reported [5], thin-lumen application cannulas are best-suited for ensuring that the composite can be injected into the sharp angle between the tooth surface and the inside of the matrix. Even if appropriate cannulas are used, a tiny air bubble may still be injected that will lead to a dearth of material and in turn, to a small positive step from approximal to cervical. To prevent this from happening, an explorer probe should be used to scrape the flow composite from the approximal contact into the sulcus. This releases the surface tension of the flow composite and ensures a smooth transition from approximal to cervical. In the next step, a layering technique was used to place the Estelite Sigma Quick (Tokuyama, Tokyo, Japan) in shade OA2. As mentioned above, OA2 also created a transition to the tooth enamel. The enamel shade A2 was used only in the incisal third in the form of discrete overcoating. The approximal-incisal finishing was performed with flexible discs (Sof-Lex XT, 3M ESPE, St. Paul, Minnesota, USA). From labial to palatal, it was performed with a flame-shaped Q finisher (H48LQ, Komet/Gebr. Brasseler, Lemgo, Germany) and the Venus Supra (Heraeus Kulzer, Hanau, Germany) two-step high-gloss polisher system. Figure 3 depicts the situation directly after finishing and polishing. Figure 4 depicts the comparison of the two sides of the adapted diastema and Figure 5 shows tooth 22 at the one-year follow-up.

Fig. 3 Situation directly after finishing and polishing.

Fig. 4 The comparison of the right and left sides shows the now harmonious, discrete diastema situation between the central and lateral incisors.

Fig. 5 One-year follow-up showing a stable aesthetic and functional outcome.

CASE 2: REPLACEMENT OF FILLINGS IN TEETH 12, 21 AND 22

A colleague presented with the request to replace the mesial class III fillings in her lateral incisors and the distal filling in tooth 11 (Fig. 6 and 7).

Fig. 6 (left) Aesthetically unsatisfactory class III restorations.

Fig. 7 (right) Over-contoured class II restoration on tooth 22 and superficial defect on tooth 21.

The distal surface of tooth 21 also presented with a discrete superficial defect that was also to be restored. The patient had very precise ideas about the final shaping of the restorations: Tooth 22 was to be narrowed and tooth 21 was to be widened. In the first quadrant, only anatomical adaptation of the shape was to be undertaken. An anesthetic was applied and a rubber dam placed. A freely modeled build-up of teeth 11 and 21 was prepared with Estelite Sigma Quick in shade OA2. A diamond finishing strip and Sof-Lex discs were used to equalize the tooth widths. The build-up of the lateral incisors was then performed using the matrix framework technique described in case study 1. In this case of the lateral incisors the class III restoration basically turned into a class IV restoration. For this treatment a small amount of A2 enamel mass was also used in the incisal area. Figures 8 and 9 show the situation immediately after finishing and polishing. Figures 10 to 13 show the same situation at three-year follow-up. No further polishing had been performed in the interim; the long-lasting surface gloss speaks for itself.

Fig. 8 (left) and Fig. 9 (right)
Finished and polished restorations immediately after removal of the rubber dam.

Fig. 10 (left) and Fig. 11 (right)
Three-year follow-up. No interim polishing was carried out in the meantime.

Fig. 12 (left) and Fig. 13 (right)
The same situation at three-year follow-up with palatal contrastor for better visualization.

CASE 3: BILATERAL DIASTEMA CLOSURE AT THE CENTRAL INCISORS

The 17-year-old patient was referred by her orthodontist for diastema closure to stabilize the treatment outcome (Fig. 14).

Fig. 14 Initial situation: Remaining residual space after orthodontic treatment.

The main goal of this type of procedure is to form central incisors of equal width. To do so, an approach should be used in which an approximal surface is first built up completely. It is advisable to make the build-up larger than necessary. Then, after using an Endo Ruler to measure the target and actual tooth widths, the build-up can be reduced to the required tooth width. If the matrix framework technique described above is used, the surface that has been finished first should also be polished completely. Otherwise, the Clip material attached for contouring will adhere too strongly to the substrate and will be very difficult to remove. First, a fine-grain diamond finisher was used to roughen the surface.Then the mesial surface of tooth 11 was built up and freely modeled, again primarily using Estelite Sigma Quick OA2. Overcoating with enamel mass A2 was carried out only in the incisal area. After layering and polishing, the matrix framework technique was used for tooth 21 to perform the final diastema closure toward the mesial aspect. Figure 15 shows the Clip matrix framework, the sealed bonding surface after phosphoric acid conditioning, as well as the flow composite already placed cervically. As in case study 1, rubber dam placement was not necessary.

Fig. 15 Matrix framework at the build-up on tooth 21.
The flow composite was already applied and polymerized.

Fig. 16 Final results after finishing and polishing: The mesial surface of tooth 11 was freely modeled and the build-up on tooth 21 was performed using the matrix framework technique.

To achieve strong approximal contact, we advise using a Heidemann spatula that is slightly turned and placed from the incisal aspect to place light pressure on the adjacent tooth before and during polymerization. Press the spatula lightly to the side to compensate for the strength of the Frasaco strip, similar to a wedge effect.
Figure 16 shows the situation after finishing and polishing.

CASE 4: BILATERAL DIASTEMA CLOSURE AT THE CENTRAL INCISORS

Case 4 is similar to case 3, with the exception of the fact that in case 4, a rubber dam had to be placed due to the patient's restlessness. Here too, the orthodontist referred the patient for treatment with the request to stabilize the orthodontic treatment outcome. Due to the patient's very narrow and long incisors, using composite to widen the teeth was the obvious treatment option.

Fig. 17 Remaining residual spaces after orthodontic treatment.

Fig. 18 Working site isolated with rubber dam after roughening of the bonding surfaces with a fine-grain diamond finisher.

As in case 3, the mesial surface of tooth 11 was modeled freely without using a shaping aid. Here too, Estelite Sigma Quick was used primarily in shade OA2 supplemented by A2 for the incisal area. Figure 19 shows the contoured and prepolished build-up fabricated in the required width by means of successive approximal reduction with Sof-Lex discs.
Figure 20 shows the situation after finishing and polishing. Figure 21 shows the situation at a follow-up after one year.

Fig. 19 Finished contoured build-up on tooth 11.

Fig. 20 Completed diastema closure after finishing and polishing. Due to the still existing post-orthodontic loosening, the prestretching described in case 3 has not yet receded.

Fig. 21 Follow-up picture one year after completion of treatment. No follow-up polishing was performed in the meantime.

CASE 5: BILATERAL DIASTEMA CLOSURE - ALTERNATIVE MATERIAL.

The restoration in this case (Fig. 22) was performed in the same manner as the restoration in case 4 with the exception of the fact that in this case, Estelite Asteria was used instead of Estelite Sigma Quick.
The simplified shade system is similar to the approach used with Estelite Sigma Quick; however, in this case, the use of an opacity, i.e. the "body" shade, is explicitly recommended for the overall restoration. Alternatively, it is possible to make the incisal area appear somewhat more lively by overcoating it with a small amount of translucent mass (e.g. NE). The technical procedure is identical: first, building up the mesial surface of tooth 11 with free modeling with shade A2B with a small overcoating with Estelite Asteria NE in the incisal area. After contouring and polishing, the build-up on tooth 21 was performed using the matrix framework technique in the same simple shade combination.
Figure 23 shows the convincing final results at a follow-up appointment several weeks after the treatment.
The polishability of the material is identical to that of Estelite Sigma Quick.

Fig. 22 Medial diastema with patient's request for closure.

Fig. 23 The final results of the diastema closure with the simplified shade system of Estelite Asteria - several weeks after treatment.

CASE 6: MESIAL BUILD-UP ON TOOTH 22

The initial situation in this case is comparable to that of case 1: a diastema between teeth 21 and 22, with the exception that in this case, the diastema was to be closed (Fig. 24).
Since no comparable diastema was to be closed in the first quadrant, here too, the build-up had to be applied to the mesial aspect to tooth 22 in order to avoid creating central incisors with varying widths. After identical pretreatment and use of the above-described matrix framework technique for contouring the approximal surface and separation of the adjacent tooth using a retracted Heidemann spatula, the build-up was again performed in Estelite Asteria A2B with a small amount of NE exclusively in the incisal area. Figure 25 shows the treatment results at a follow-up appointment four weeks after completion of the restoration.

Fig. 24 Medial diastema with patient's request for closure.

Fig. 25 Final results of the diastema closure using a nearly monochromatic build-up on tooth 22.

The simplified approach with nearly exclusive use of the Estelite Asteria body shade enabled us to achieve the desired aesthetic appearance quickly and predictably thanks to the perfect adaptability of the shade of the material and the outstanding polishability.

The cases presented above show comparable aesthetic results with both restoration materials manufactured by Tokuyama. Smaller interdental spaces can also be closed with more simple restoration concepts that do not necessarily require a layering technique. In terms of the learning curve for restoration, the new Estelite Asteria is likely to be the material of choice for novices, since it is limited to a small range of essential shades that are absolutely sufficient for the indications discussed here. For users of Estelite Sigma Quick - contrary to the manufacturer's actual recommendations for use - Estelite Asteria may constitute an alternative to their usual material in the form of nearly exclusive use of the opaque shades as a material in the form of single-shade application.

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Direct posteriors cases - bulk and body posteriors

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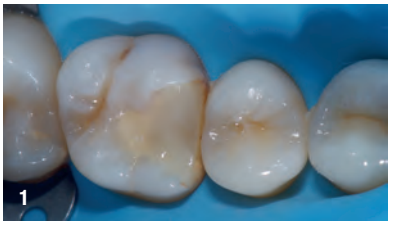
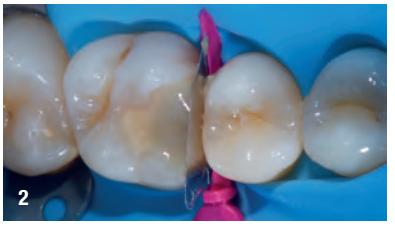
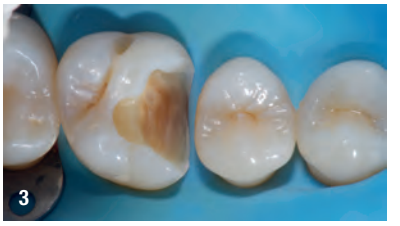
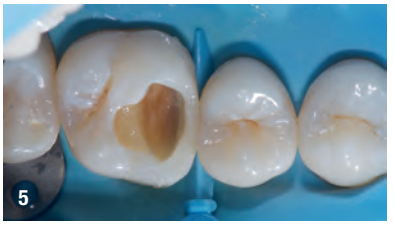
CLINICAL REPORT

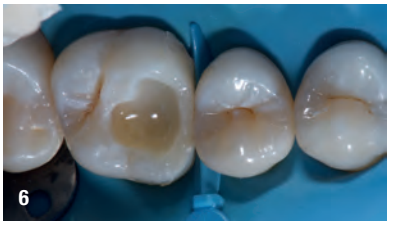
In the daily practice of the average restorative dentist, caries in posterior teeth presents a major part of the treatments applied. Direct resin restorations provide a proven and long-lasting solution; however, during these procedures we face many different challenges. One of them is getting a reliable bond to dentin and enamel, and compensation of composite shrinkage. Conventional techniques and materials requried the use of multiple increments, what resulted in a time-consuming procedure when applied properly. With the introduction of bulkfill materials cavities can be restored with less increments, resulting in faster and more economic procedures. With this we can improove productivity, or use the time saved with the stratification for perfecting the remaining steps of restorative procedures.
Bulk fill materials are now-a-days a reality. In the posterior region they have proven to be the perfect material when used properly. This kind of materials entered the market almost a decade ago, with the skepticism of a big part of the dental community. Years of research are giving amazing results on the clinical performance of these new generation materials.











Img. 10 - Occulsal view after 8 months in function

Img. 11 - Palatal view after 8 months in function

Your *smile*

Take bread away from me, if you wish,
take air away, but do not take from me your *smile*.

(Pablo Neruda)