



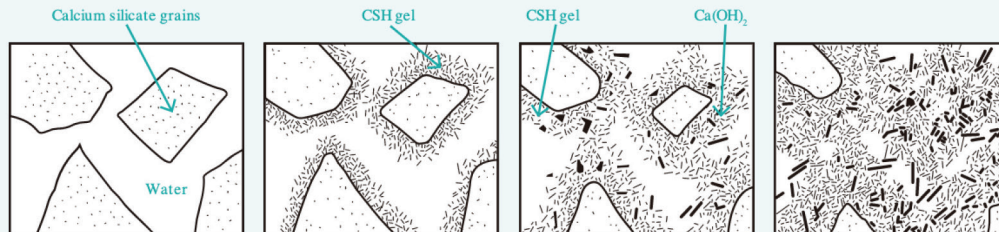
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- Moisture in the dentinal tubules and Calcium Silicate's chemical reaction produce crystallization of Calcium Hydroxide
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- It prevents the propagation of bacteria
- Ideal for Single-cone obturation technique

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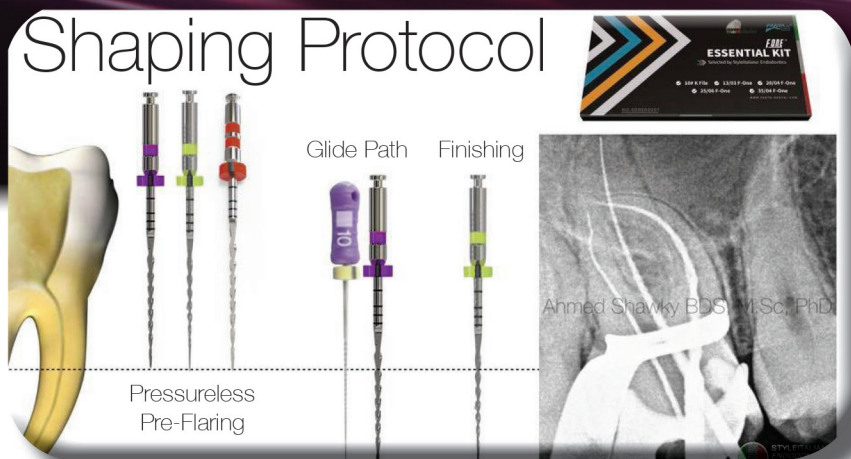


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A non-invasive treatment approach with direct composite veneers

Andrés Silva¹

A 28-year-old female patient and 4th year dental student came to the dental clinic of the Master's degree in aesthetic restorative dentistry and endodontics in the King Juan Carlos University in Madrid. She was unhappy with the looks of her central incisors, which were restored after a trauma that she suffered years ago and now the old restorations looked aged and unaesthetically.

The original restorations had a shape in accordance to the size and shape of her teeth, but were darkened and too translucent, exposing the fracture line (Figure 1). Even after orthodontic treatment and two orthognathic surgeries, the patient still had severe midline deviation to the right side and mandibular asymmetry. There were diastemas present where the maxillary segmentation had been done (between teeth 1.2–1.3 and 2.2–2.3) (Figure 2 and 3).

The patient was looking for the most conservative option, so we offered composite veneers as a minimally invasive choice in which no healthy tooth structure has to be removed.

Resin composites can achieve excellent aesthetics¹ and with an overall survival rate higher than 88% up to 10 years, they are an optimum choice.²

On a close-up picture the shape of her teeth looks round and acceptable, but in the facial analysis, the smile line is inverted, and the central incisors don't stand out much. We wanted to create more harmonious teeth proportions that would also fill her smile. To plan this, we made a direct restorative trial adding composite to her teeth without bonding to see live what bigger teeth would look like and if the patient liked it. As everyone liked the plan, we took impressions with the trial still in place and poured type IV stone to make the study models.

Using digital photography and analysis, a 2D digital smile design (DSD) was done (Figure 4). This information was then transferred to the dental cast to make a 3D plan. On the next appointment, a silicon key was made to copy the wax-up and then transfer into the patient's mouth with a bis-acrylic resin for temporary teeth (Figure 5).³

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Figure 1.



Figure 2.



Figure 3.

The patient was thrilled with the new look of her smile, so we proceeded to plan the appointment for the restorations. We made the shade selection using the button technique. The chosen composite was Essentia (GC) and the masses were Light Enamel (LE) and Light Dentin (LD) for the incisors and Universal Shade (U) for the right canine (Figure 6 and 7).

On the day of the restorations, local anaesthetic articaine 40 mg/ml+0.005mg/ml (Ultracain, Normon) was placed. Complete isolation was achieved with rubber dam using the floss tie technique to adapt the dam to the cervical area of each tooth (Figure 8).

Rubber dam isolation helps achieve optimal gingival retraction that is superior to that obtained by using the cord retraction technique, obtaining field and moisture control and better access to create proper contact.

Once the isolation is placed, it is important to check the fit of the silicon key and make any necessary cut backs with

a scalpel blade to ensure it is possible to fit it into place on top of the rubber dam (Figure 9).

To remove the old restorations without damaging the teeth, the old composites were outlined using a round, steel bur on a low-speed handpiece to delimit the margin between teeth and resin (Figures 10 and 11). The restorations could then be safely removed using a combination of high-speed, low speed and a number 12 scalpel blade for the remnants (Figure 12).

We started with the central incisors as these teeth had the same fracture pattern and thus the restorations would be similarly made, and it is easier to manage just two teeth at a time rather than five. Adhesion was achieved by a selective etching of enamel using 37% orthophosphoric acid for 20 seconds, then rinsed and air dried. Two layers of G-Premio BOND (GC) universal adhesive were placed, and the solvent was evaporated with air before light curing (Figure 13).

Using the silicon key, the palatal shell was made with Essentia LE. The two palatal shells were secured with a small amount of Light Dentin to prevent their breakage (Figure 14). Then, equal amounts of dentin mass were applied and the mamelons were shaped (Figure 15). At this point, we could see that there was an area of darkened tooth dentine that was not completely disguised with the dentine mass, so a small amount of Masking Liner (ML) was applied to cover it.

A layer of Opalescent Modifier was placed in between the mamelons and in the space between the mamelons and the incisal edge to recreate the opalescent halo. This is a great composite to recreate the natural opalescent effect



Figure 4.



Figure 5.



Figure 6.



Figure 7.

of anterior teeth. It has similar opalescent characteristics as enamel, so depending on the incidence of the light and the background behind the teeth, it may give either a bluish or orangish opalescent halo. This is much better than using stains that will give just one colour to the restoration.⁴

A last layer of enamel composite was added and moulded with a brush (Gradia Brush nº 1 flat, GC). A good tip is to impregnate the bristles with a modelling liquid (Modelling Liquid, GC) and then remove the excess with a cotton gauze, to prevent the composite from sticking to the



Figure 8.



Figure 9.

HENRY SCHEIN IS PROUD TO ANNOUNCE NEW MD

Henry Schein is proud to announce the appointment of Leigh Spamer, to Managing Director of Henry Schein Dental Warehouse, South Africa.

In this role, Leigh will be responsible for the strategic development of our business in the South African Market, continuing her exceptional leadership of the regional sales and marketing organization while providing support to the Finance, Human Resources, Information Technology and Supply Chain functions to ensure operational success.

Since joining the organization in 2018 as our Sales and Marketing Director, Leigh has delivered a strong vision paired with an exceptional ability to motivate her team. Leigh has used her extensive knowledge in the dental market to drive consumables sales growth while, in parallel, successfully establishing our presence in the equipment market.

Leigh's experience and leadership will continue to hugely contribute in improving customer experience and delivering great service. Her vision has brought about investment in e-commerce and new technologies improving the online shopping experience, brought new partners on board and offering new services with equipment and technology. Leigh strongly believes in a partnership with the profession and commitment to Corporate Social Responsibility.

Join us in congratulating Leigh and wishing her success in her new role.

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Figure 10.



Figure 11.

instrument and make handling easier. A quick contouring was done with Sof-Lex discs (3M Oral Care) before moving on with the laterals and canine.

The same adhesive technique was performed on the lateral and canine teeth. Stratification was done on the laterals using Light Dentin and Light Enamel with Opalescent Modifier for the opalescent halo. A single mass of Universal Shade was used on mesial of the canine (Figure 16).

In order to close the interdental spaces and contour the emergence profile, a Mylar strip was placed interproximally

and then a top layer of enamel placed. The strip was then pulled in a palatal direction while at the same time adapting the strip to the cervical area of the teeth. This was done in order to transfer the original anatomy of the teeth to the restoration and make more personalized teeth instead of using a preformed posterior matrix in a vertical direction, which would give a standardised profile to all cases.

Guidelines were drawn to mark the place for the transition lines, contouring was performed with Sof-Lex discs (3M Oral Care), and mamelons were shaped using a round stainless



Figure 12.



Figure 13.



Figure 14.



Figure 15.



Figure 16.



Figure 17.



Figure 18.



Figure 19.



Figure 20.

steel bur on a low-speed handpiece (Figure 17). Polishing was done by completing the Sof-Lex sequence and finishing with polishing paste on a felt buff wheel (Figure 18 and 19).

A one-week control was done to check the colour and integration of the restorations after rehydration had occurred (Figure 20). It was also a good time to check for absence of inflammation of the gums. If there were any, it would have been a good chance to review hygiene instructions or if caused by excess of material, to re-polish margins were needed.

The three months control confirmed the colour stability of the composite, the short time survival without any incidences and the gloss retention (Figure 21 and 22). We were very

satisfied with the result.

In conclusion, direct composite veneers are a great, conservative and versatile treatment that can achieve great aesthetics and bring satisfaction to our patients. Essentia by GC follows a simple shade matching protocol to simplify the technique and the amount of shades needed to obtain excellent aesthetics.

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Figure 21.



Figure 22.

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