

When esthetics matter

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One of the major issues leading to unsatisfactory results when fabricating several ceramic restorations in the anterior region is the integration in terms of shade. The situation found in patients is often a combination of discoloured prepared teeth, metal constructions and teeth showing no discolouration. Achieving a harmonious overall appearance in such situations is a challenge.

Nowadays, the use of glass-ceramic materials, such as the IPS e.max® Press lithium disilicate (LS2) material, is the textbook approach in terms of the esthetic integration, for two good reasons:

- These materials offer the possibility of creating unique

translucent restorations which mimic the dental enamel.

- The wide array of cementation possibilities facilitates the creation of lifelike results.

In the past, severe discolouration was often a reason why glass-ceramics could not be used to fabricate restorations. The constant improvement of the materials, however, has led to the development of a comprehensive system: IPS e.max. This system offers the advantages of press ceramics – such as accuracy of fit and esthetics – while eliminating the drawbacks that existed previously – i.e. restricted use on dark preparations.



Figure 1: Initial situation.



Figure 2: Clinical view of the initial restorations.

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Figure 3: Different preparations depending on the type of underlying structure.



Figure 4: Preparations.



Figure 5: Variable opacity according to the selected ingots.



Figure 6: Translucent and opaque frameworks after pressing.

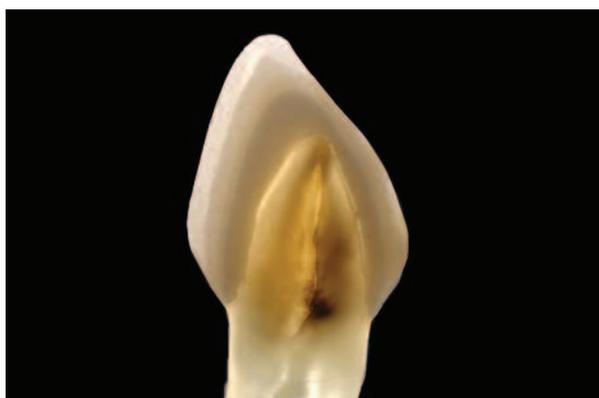


Figure 7: IPS e.max Press HO (high opacity).

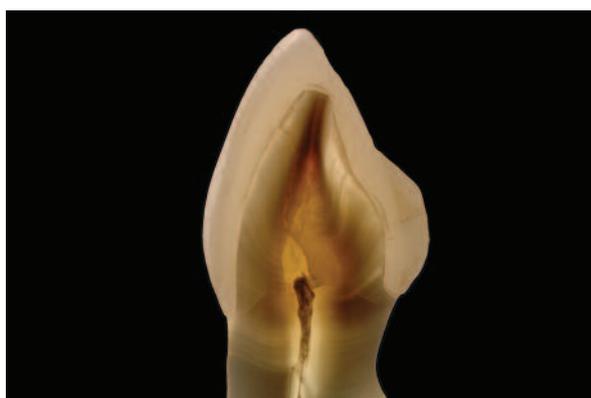


Figure 8: IPS e.max Press HT (high translucency).

The fact that we have glass-ceramic materials in various levels of opacity and translucency at our disposal thus opens up a whole range of new possibilities. We can now cover the entire spectrum of single-tooth and small bridge restorations with glass-ceramics – regardless of the underlying tooth structure.

Discoloured teeth or metal structures are also no longer

a reason for avoiding lithium disilicate glass ceramics.

Case study

The use of frameworks and restorations in different levels of translucency is presented here on the basis of a multi-disciplinary case study. The objective in this case was to recreate the esthetics of the patient's anterior teeth on a

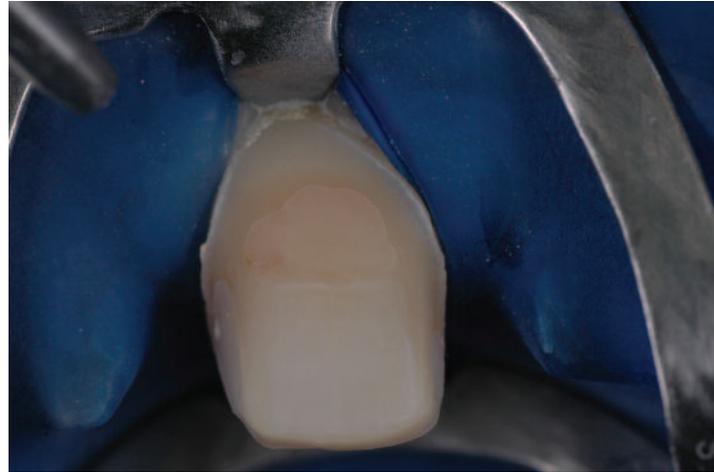


Figure 9: Tooth isolation with a rubber dam.

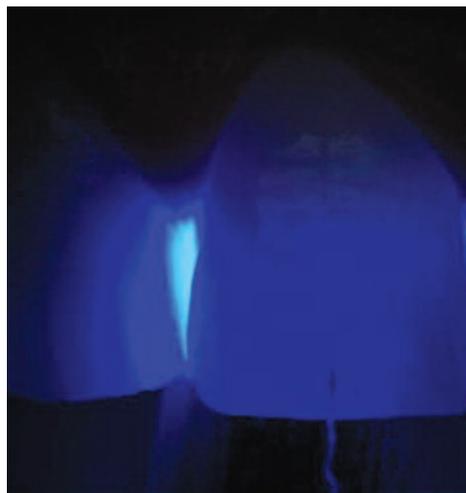


Figure 10: Even light scattering in the translucent frameworks.

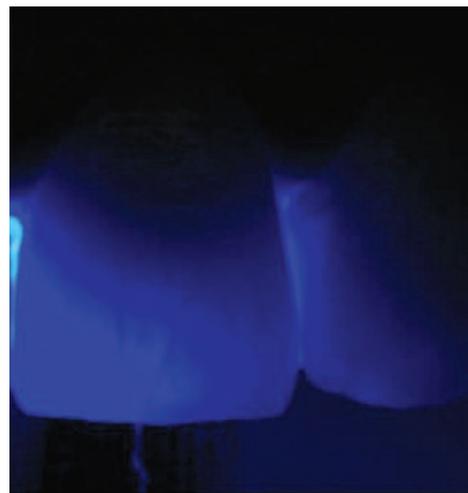


Figure 11: IPS e.max HO framework with metal substructure.

natural tooth and a metal core build-up.

The patient expressed the wish to improve the appearance of his anterior teeth. The initial examination revealed that the periodontal tissue was inflamed and in generally poor condition (Figures 1 and 2).

After the initial treatment, the condition of the periodontal tissue had improved enough to allow the restorative procedure to be conducted with adhesive cementation.

An analysis of the situation presented by the patient from an esthetic point of view revealed that older ceramic restorations and numerous composite root canal posts were responsible for creating an inharmonious appearance.

An esthetic concept which was based on the existing

tooth shapes was drawn up to help preserve the individual characteristics of the patient. Subsequently, the necessary preparations were carried out (Figures 3 and 4). IPS e.max Press ceramic restorations (veneers and crowns) were fabricated for the entire upper jaw (Figures 5 to 8).

The IPS e.max Press frameworks were layered with one layering ceramic (IPS e.max® Ceram) regardless of their translucency level. The result was thus a balanced look.

The restoration design was dictated by the underlying tooth structure. For crowns which were placed on metal substrates, press ingots with a higher opacity (HO = high opacity) were used. In addition, the thickness of the restorations was increased in order to mask the metal colour and achieve lifelike layering.



Figure 12: Visualization of the surface structure with gold powder.

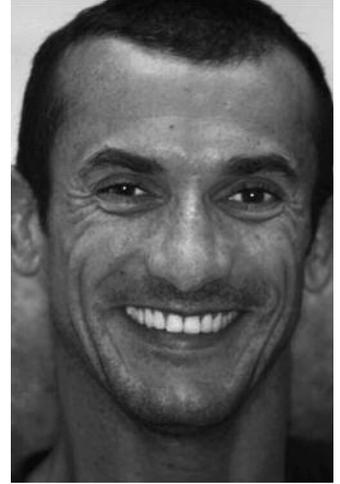


Figure 13: A happy patient.



Figure 14: View from the side: excellent shade match.



Figure 15: Final result.

The veneers were considerably smaller and LT (low translucency) ingots with a translucency higher than that of MO or HO ingots were used. A thickness of approx. 0.5 mm was sufficient in order to allow the dentin shade to shine through the translucent framework and thus create the desired chameleon effect.

Clear communication between the dental practice and the laboratory is indispensable to ensure that both the clinician and the laboratory have the same information about the preparations in the situation at hand.

The view of the pressed opaque and translucent frameworks illustrates the versatility of the IPS e.max system (Figures 7 and 8).

The optical properties are harmonized by layering IPS

e.max Ceram onto the pressed frameworks (Figures 10 and 11).

Particular attention was paid to the surface treatment and the design of a macro- and micro-pattern in order to achieve natural-looking light effects (Figure 12). After try-in and adjustment, the restorations were cemented with Variolink (transparent) while using a rubber dam, in order to ensure that every restoration was isolated (Figure 9). By using a versatile ceramic and cementation system and by imitating the light effects, lifelike restorations were fabricated in spite of the suboptimum initial situation (Figures 13 to 15).

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