

Harmonizing esthetics and expectations

Anterior esthetic restorations with lithium disilicate (LS₂)

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When anterior teeth require repair, all of a sudden countless expectations and opinions come into play, aired by all parties involved in the treatment. While the diagnosis, functional analysis and material selection may rest on the dentist or dental technician, patients have an increasing say in other aspects of the treatment, such as approval of the cost estimate for the appropriate treatment option and the final esthetic result. We, dental professionals, find it increasingly more difficult to satisfy the high esthetic expectations of our patients. We have to put ourselves into their position to understand their high demands and accomplish a lifelike esthetic reconstruction.

Case study

When it comes to esthetics, patients generally fall into one of two categories:

- a) The first of these aspire to an esthetic appearance that is influenced by the trends and images in current fashion.
- b) The second prefers a dental reconstruction that matches their adjacent teeth, age, etc. Generally, these patients require a lifelike reconstruction that naturally blends into the oral environment.

To accomplish a lifelike reconstruction, the communication between the patient, dentist and dental technician is essential to ensure that each case is appropriately individualized and the unique needs of the specific patient are accurately analysed.

We used the photograph which we received from Dr Manuel Pérez Fierro of the current oral status of the patient to assess the esthetic, functional and morphological options to create the reconstruction

(Figure 1).

Upon completion of the analytical stage, a diagnostic wax-up was produced, using the study model as a basis. This wax pattern included certain aspects, such as proportions regarding the morphology, symmetry, composition and tooth length. For their part, these proportions were affected by the parameters dictated by the jaw movements (Figure 2). This procedure allowed us to involve the patient in the reconstruction from the beginning and, consequently, he was capable of forming a picture of the final result already at this stage.

After the teeth had been prepared and the temporaries placed, the case was sent to the dental laboratory (Figure 3).

Clinical case: result with IPS e.max Press LT A1

This patient fell into the above-mentioned second category of people, who favour a lifelike dental reconstruction, which naturally blends into the oral surroundings and matches the patient's general esthetic characteristics.

We decided to use the IPS e.max® Press lithium disilicate

(LS₂) glass-ceramic for the anterior reconstruction. This material offers essential advantages in creating the substructure of the restoration. In spite of its high strength, it offers an impressive level of translucency, simulating the translucent qualities of the natural tooth structure. IPS e.max Press offers the opportunity to select between various degrees of translucency and opacity in relation to the dental preparation and the resulting shade of the remaining tooth structure. Consequently, we can take advantage of extensive possibilities to achieve the desired esthetic effect easily (Figure 4).

With regard to its physical properties and flexural strength in particular, this lithium disilicate ceramic proved to provide reliable results many times in my

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Figure 1: Initial photograph of patient: note the general condition of the tooth structure and pigmentation.



Figure 2: Diagnostic wax-up.



Figure 3: Temporization.

laboratory in the course of the past few years. Additional decisive fundamental factors that, for me, speak in favour of this material are as follows:

- straightforward, familiar working technique (press technique)
- reliable bond between framework and the IPS e.max Ceram veneering ceramic
- possibility of adhesive cementation in combination with etching and silanizing and chemical bonding with the remaining tooth structure.

After I had clarified the esthetic expectations of the patient and specified the treatment with him, I decided to use the IPS e.max Press LT (low translucency) ingots for the reconstruction. If the initial situation (shade of prepared teeth) and the remaining teeth are considered, these ingots offer an appropriate degree of translucency for the present case.

Before investing and pressing, the diagnostic wax-up was reduced by a mere 0.6 mm on the vestibular side (a more substantial reduction was not necessary



Figure 4: IPS e.max Press frameworks with the desired esthetic properties.



Figure 5: Framework after application of IPS e.max Shade.



Figure 6: Individualized frameworks with IPS e.max Essence.



Figure 7: Result after firing the IPS e.max Ceram materials

because of the favourable colour saturation of the LT ingots). To enhance the translucency in the incisal area, the incisal edge was reduced to a slightly larger extent to be able to subsequently reconstruct the incisal third with the IPS e.max® Ceram layering ceramic in an individualized manner. In principle, the diagnostic wax-up should be modified to such an extent that it corresponds to the proper dentin structure and, consequently, to approx. 80% of the overall volume of the restoration.

Individualized layering of the incisal contour

The dentin portions of the IPS e.max Press LT material were characterized before applying the incisal materials. This technique allows essential areas of the reconstruction to be saturated from inside with Shade and Essence materials and to achieve an individualized shade with the first firing (foundation firing; Figures 5 and 6).

As the basic shade was already present in the pressed and characterized framework, the application of additional dentin material was not necessary. On account of my own experience with the IPS e.max system, however, I recommend applying a fine layer of dentin material on the transition area between the incisal and

cervical portions. The appearance, texture and light refraction of the press material and the IPS e.max Ceram veneering material slightly differ from each other (higher translucency of veneering ceramic).

In the course of the same application, appropriate effect materials (IPS e.max Ceram Impulse materials) can be applied in layers to achieve additional individualized effects while taking the shade characteristics of the teeth into account. A balanced combination of the different materials in terms of opalescence, translucence and pigmentation results in a transitional shade effect, which simulates the characteristics of the natural tooth (Figure 7).

Minor adjustments may be performed at any time, should it be possible to conduct an "esthetic" try-in to check the shade and morphology before finishing the reconstruction (Figure 8).

Following the try-in, an additional layering and firing step may be conducted to adjust the morphology and shade of the restoration. Final glazing and mechanical polishing of specific areas of the facial surface resulted in a surface texture that closely resembles that of the remaining teeth (Figures 9 and 10).

As in all cases for which I used lithium disilicate (LS₂), the gingival tissues quickly gained their optimal healthy



Figure 8: "Esthetic" try-in to check the shade and shape before glazing.



Figure 9: Completed restoration on the model.



Figure 10: Individualized characteristics such as shade and texture.



Figure 11: Satisfactory integration of the restoration into the gingival tissues shortly after placement.



Figure 12: Lateral view of IPS e.max Press reconstruction.



Figure 13: Final result.

condition a very few days after seating the restoration (Figure 11).

A lifelike reconstruction offering a high level of esthetic acceptability was achieved by using a straightforward and predictable technique, selecting appropriate IPS e.max Press ingots and combining them with the IPS e.max Ceram layering materials (Figures 12 and 13).

Conclusion

In today's dentistry, highly esthetic reconstructions can be easily achieved by being aware of the patient's expectations, communicating well with the dentist and selecting appropriate materials and working techniques. In the process, a high level of patient satisfaction is attained.

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