Correction of dental hypoplasia with veneers with a metal-ceramic IPS Style Aesthetic correction

Odt. Master Karola Wohlgenannt alternative therapies in cases of dental hypoplasia are resin reconstructions performed directly and veneers produced indirectly. Depending on the size of the teeth, partial ceramic crowns are also conceivable. This article presents the aesthetic correction of conoid teeth with IPS metal-ceramic veneers by Style Ceram (Ivoclar Vivadent)

Odt. Master Carola Wohlgenannt

Note:

With the concept of "hypoplasia" many different modifications of the structure are determined by development. These also include partial edentulism (hypodontia).

Values based on personal experiences

Metal-ceramics provide clinically good results and for dental technicians, they are a companion in daily laboratory work. IPS Style assumes a particular position in quality of first metal-ceramic with patented ossiapatite crystals. In my opinion, the unique combination of leucite crystals, fluoroapatite and ossiapatite creates a particular shine and liveliness with respect to traditional glass-ceramics. Thanks to the crystals of ossiapatite contained in all masses, translucency and opacity of the restorations are adjustable in a calculated way. The ceramic system is indicated for the classic range of the coefficient of thermal expansion. It includes components for the mono- and multi-layering technique. The cooking temperature of the low-point mixed glass-ceramic fusion is also particularly advantageous in the production of veneers without a beam on the

Fig. 1 — The patient presented: initially, the patient only wanted her two conoid lateral incisors restored

Fig. 2 — As a first step, a mock-up was created on a study model. This demonstrated the need for crown lengthening to achieve optimal aesthetics

Fig. 3 — Mock-ups on all four maxillary incisors demonstrate improved dental aesthetics of the patient

Fig. 4 — In order to achieve an aesthetic result, a gingivectomy was performed in the region of 12 to 22 inclusive. The picture shows the result after a six-week period of healing

refractory stump. After irradiation of the stumps, they can still run without thoughts of small corrections of color. The cooking of dentin and etched parts of veneers happens with IPS Style at 800°C.

Example of a case: cosmetic defect due to conoid teeth

All throughout her life this patient had been bothered by her maxillary conoid shaped lateral incisors (#'s 12 and 22) of genetic origin (Fig. 1), up to the point when she finally decided to correct this aesthetic defect. Even her restrained smile immediately revealed the scope of the situation to the technician. Not only were the conoid teeth problematic, but the proportions of the all the upper front teeth in the presence of a high gingival smile line were classified as aesthetically unsatisfactory.

A picture is worth a thousand words

Without a doubt, it is always necessary to critically analyze whether we should perform an intervention simply using aesthetics. If, however, the weight of the patient's suffering is so great that it represents a real psychic burden, appropriate measures must be taken into account. In the dental field, it is often difficult for the patient to imagine what esthetic changes are possible which are fundamental for judging costs vs benefits. For a long time now, I have stopped trying to convince patients to proceed with treatment. And since an image is worth a thousand words, an in situ test in the laboratory can be useful in helping the patient make a decision.

The second version convinced

First of all, two versions of resin veneers were fabricated with Nexco photopolymerizable composite and prepared for try in the mouth without preparation for patient visualization. With these two versions of mock-ups (Fig. 2) it was possible to display two different treatment variations: option one included only the two lateral incisors restored with no-prep veneers and option two included the restoration of all four incisors along with modification of the gingival profile (Fig. 3). The aesthetic potential of the second version convinced the patient.

Fig. 5 — Preparation of teeth from 12 to 22 for application of veneers. Although this procedure may appear invasive, the patient agreed to sacrifice some tooth structure for her dream of having a beautiful smile

Fig. 6 — Determination of thickness of the stump without application of ceramics. Thickness of the veneers is checked with the help of the cross which is was drawn. A dimple placed in the palatine region makes it possible to keep the ratio of initial thickness to the layered facet

Although at first she only wanted the aesthetic restoration of the conoid teeth, based on her photographic images showing the different prosthetic versions, the second version proved to be more suitable to her. This also highlighted the need for surgical crown lengthening, which would the relationship between pink and white aesthetics. At the same time, the gingival profile of contiguous teeth was particularly important.

No surgical crown lengthening

When determining the depth, it turned out that for an ideal aesthetic result, a surgical crown lengthening would have been necessary with a reduction of the maxillary bone. However, this invasive phase of the treatment was unacceptable for the patient. The attending dentist optimized the gingival profile in the best way possible by means of gingivectomy (Fig. 4). A six-week period of healing of the gingival margin was followed by tooth preparation (Fig. 5). Two weeks later, it was possible to permanently cement the veneers using an adhesive technique, as well as performing small restorations for the canine cusp tips.

Right layering concept for the patient

For the prosthesis of the front teeth, I make temporaries, using a standard wax-up on which I can orient myself for layering. Waxing may, among other things, serve as an aid to orientation in construction of the length of the incisal edge, in the course of the dental arch and in the configuration of the incisors when performing layering. To maintain constant control on thickness, I mark labial aspect with a cross and in the palatine area I create a smooth dimple. In this way I am always certain not to go below the thickness while preparing veneers (Fig. 6). As soon as all preparations were finished, and the length and the shape of the wax-ups is deemed satisfactory, I am able to start the layering technique.

IPS Style includes a large selection of ceramic masses. This creates a better surface to achieve very natural restorations with a choice of totally customized masses.

The incisal edge was therefore extended in the incisal direction, but not labial. With this technique I was able to create a space for the core where I could apply the masses. On the emergence of the mamelon, we placed an enamel band. Finally, an alternating stratification of the incisal zone in the incisal direction was made (Fig. 7b). In the case of this patient, high translucency of the natural teeth and the not the effect of the incisal part, should be adopted in all cases. That's why the following masses have been used: for the wash layer we used a lightweight layer of IPS Style Ceram Opal Effect OE 1. The IPS Style Ceram Opal Effect are colored enamel masses that make it possible to copy the dynamic optical-bright features of natural teeth.

The stratification of dentin is achieved with a mixture of masses of IPS Style Ceram Dentina and IPS Style Ceram incisal in the ratio of 2:1.

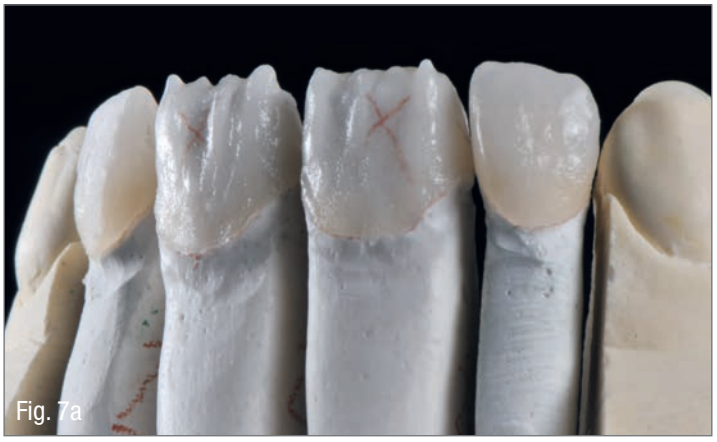
Fig. 7a


Fig. 7b


Fig. 7c


Fig. 7d

Figs. 7a to 7d — Veneers have been layered with CERAM STYLE IPS ceramic-metal. Ceramics stands out for a unique combination of leucite, fluoroapatite and ossiapatite crystals, which create particular brilliance and vivacity


Fig. 8a


Fig. 8b

Figs. 8a and 8b — The final result from a labial perspective (frontal and semi-lateral) in the patient's mouth after the insertion of veneers on the incisors and the reconstruction of the canines

Dentin masses are regulated for their color and their transparency, so as to correspond to natural dentin.

In this case IPS Style Ceram Dentin A1 and Style Ceram Deep Dentin A2 IPS were used Ceram Style IPS Cervical Transpa CT yellow were used on the borders. How colors can be reproduced with a more intense translucency and a harmonious transition is fostered from gum to masking aesthetics. In the incisal area the mass was further combined with IPS Style Ceram Opal Effect OE 1. A bit of IPS Style Ceram Mamelon MM salmon has been applied under the stratification of the incisal area.

The masses for UDDER IPS Style Ceram are intense opaque effect masses, which serve to accentuate the incisal third. In the direction of the collar I applied a centrally clear band with IPS Style Ceram Opal Effect OE 3 to favor the value of brightness in the body and to emphasize the effect of a transparent enamel, which appears warm and alive.

The transparent masses of the IPS Style Ceram system are available in


Fig. 9a


Fig. 9b

Figs. 9a and 9b — The before and after photographs in comparison, with right side view. Although the patient initially only wanted to restore the conoid teeth, in the end she asked for four veneers (from 12 to 22) and two very small restorations (13 and 23)

Fig. 10 — With the new configuration of the anterior maxillary teeth, the beautiful patient could finally smile with confidence

different shades to naturally reproduce transparent areas especially in the incisal third. For alternating stratification of the incisal third, some supercolors have been glazed - in this case - IPS Ivocolor Essence in mass transparent IPS Style Ceram Transpa Neutral T. Supercolors fit in practical way also for individualization of ceramic restorations integral as IPS and .max. The mass Transpa was combined every time with IPS Ivocolor Essence E 04 sunset, E 03 lemon, E 09 terracotta and 14 profundo. IPS Ivocolor Essence Supercolors are available in 23 different colors. The Add-On Masses IPS Style Ceram include five corrective masses: IPS Style Ceram Add-On Margin, IPS Style Ceram Add-On Dentin, IPS Ceram Style Add-On Incisal and IPS Style Ceram Add-On Bleach After finishing, you can make small corrections like contact points, coatings of intermediate elements and couplings of the shoulders. IPS Style Ceram Add-On used at 690°C allows for small corrections after polishing cooking.

Result: the patient feels beautiful

Especially in the case of veneers, for me it is always very important that the restorations appear as natural as possible. This is especially challenging in the case of veneers because of the reduced thickness. Also, in the example shown here, the result in situ didn't look artificial or too enhanced (Figs. 8a and 8b). For the patient it was especially important not to have a conspicuously different appearance after treatment. For this reason I tried not to modify the teeth from the point of view of the their features. Rather, I simply optimized their proportions (Fig. 9a and 9b). The patient was already beautiful before treatment and with the veneers inserted, she could also see her beauty. (Fig. 10). SD

About the Author

Odt. Master Carola Wohlgenannt focused her great passion and specialized knowledge on ceramics with meticulous precision always striving for the best result. From 1991 to 1995 she worked as an apprentice in the dental practice Selke of Stuttgart. In 1995 she achieved honors on the qualifying exam in Stuttgart. In 2002 she passed the professional exam for master dental technician of the Chamber of Crafts of Freiburg/Breisgau, graduating at the top of her class. For the next three years, she perfected the details of the stratification technique at Oraldesign Thilo Vock (Stuttgart). Carola Wohlgenannt continued to perfect her technique with a three-month stay at Jogi Kern in Beverly Hills/USA. Since 2005 she has been working as a master dental technician of the Wohlgenannt team in Dornbirn/Austria. In addition to her dental work, she is also a speaker on anterior aesthetics and is gaining fame as an author of specialized articles.