The perfect combination
Primary Zirconium abutments and galvanoformed secondary copings

Zircon – or to be more precisely: zirconium dioxide or zirconia – is often propagated as the universal material for all kinds of dental restorations. But as in case of all other techniques, too, not everything is possible with zirconia. And some projects only make sense or are only realizable at all if combined with other techniques.

Zirconia can fully prove its main advantage in case of combined fixed-removable dental restorations since the patient has a white material in his mouth instead of a visible metal. That means the advantage regarding its colour is rather of a psychological nature.

Well, there is zirconia on the one hand – but what should the counterpart look like? This is exactly where the galvanoforming technique becomes the perfect partner to zirconium. Only the direct deposition of electroforming gold provides accurately fitting bar coatings or secondary parts on zirconia abutments. No other technique allows that in such a short time, with such little effort, and so economically.

A survey initiated by the Gramm Technik GmbH shows this; please see page 2 for further information.

Zirconia Frameworks
A five-year study with clinical results of zirconia frameworks for posterior fixed partial dentures is published in the International Journal of Prosthodontics, Vol. 20 (4, 2007). Fifty-seven 3- to 5-unit FPDs with zirconia frameworks were cemented. After 5 years of clinical observation, 12 FPDs in 12 patients had to be replaced. Secondary caries was found in 21.7% of the FPDs, and chipping of veneering ceramic in 15.2%.
The "German Crown"

For quite a long time, they had been made mainly in Germany before they started spreading all over the world: combined fixed-removable dental restorations in the form of telescopic cases or bar-retained dentures.

Today, telescopic cases are state of the art, and no matter if telescopic crowns or a bar, the electroforming technique is the method of choice. The assessment of a survey among customers of the Gramm Technik GmbH proved these results.

Findings regarding the application

1. It might be surprising that, besides zirconia, the other common material used for primary crowns in combination with the classical indication of electroformed secondary parts are high-noble alloys. Even if the users of zirconia are considered separately, the use of high-noble alloys and non-precious alloys is balanced. Thus, the electroforming technique for telescopic cases should not just be considered as an alternative to telescopic crowns cast out of gold, but even more as a supplementation. This allows two conclusions:
   • Cast telescopic crowns have not been satisfying.
   • The electroforming technique seems to improve telescopic cases.

2. The surfaces of primary parts usually get a high polish.

3. Conductive Silver Lacquer is used in different ways. Although it is unnecessary to use Silver Lacquer on non-precious alloys or titanium, many technicians use it on items out of these materials. However, in case of telescopic crowns, electroforming always takes place as direct deposition on the primary parts.

4. Conductive Silver Lacquer is evenly applied on the primary part either with a brush or by means of airbrush.

Findings regarding the clinical assessment

1. The adhesion of the denture is considered to be good (88%). Only 12% described the fit as too loose and 6% as too tight (multiple answers were permitted).

2. 70% regarded the function over this period of time as identical; after 2 years an adhesion reduced by 30% was acceptable. Each individual case would have to be examined in detail to allow a clearer assessment.

3. Altogether, the subjective perception of the patients is positive: 100% of the patients get on with their denture quite well.

Conclusion

The analysis of the questionnaires showed that the electroforming technique is well-established and good. But on the other hand, this survey made clear that success can be achieved in different ways. There are various possibilities to produce a good result. However, one thing became obvious: The principle of the "electroformed secondary telescopic crowns" has been applied with great success.
Being well-prepared with a good preparation

The preparation is a decisive factor for success or failure of a dental electro-forming object. Because of the precision and the relatively low layer thickness of the electroforming technique, mistakes during the preparation result in an irrecoverable disadvantage: The dental restoration cannot be made by means of the electroforming technique anymore.

Therefore, it is not only important for the dentist to consider several points regarding a preparation suitable for electroforming while preparing: Also the dental technician must be able to assess whether the according preparation is suitable for the electroforming technique and whether the restoration can be realized as intended.

A new information flyer on a proper preparation for electroforming cases has just been published by the Gramm Technik GmbH containing tips for the dental-care provider as well as for the dental technician. You may get this flyer free of charge; please ask your local dealer.

All about Gramm

Dental technology is a matter of trust. The Gramm Technik GmbH has gained an excellent reputation in the electroplating field all over the world; e.g. Gramm is leader of the world market regarding the construction of closed electroplating plants.

According to the same principle, Gramm also constructs and produces large electroplating plants — e.g. to coat engine pistons — and GAMMAT® units for the dental electroforming technique.

Thanks to the advantages of the closed design, the thus resulting neat working conditions, and the short process times — which distinguish the dental electroforming units, too —, Gramm has established its position as market and technology leader in this field within the past 10 years.

Either such plants are developed especially for the according units and sold to the customers or the Gramm Technik GmbH supplies the readily plated parts and components directly to the customers after being plated at the own factory.

Besides engine pistons, a variety of components are electroplated in these plants. Therefore, if you open the hood of your car next time, you can try to remember that some of the engine parts might have been electroplated by Gramm directly or by means of a Gramm electroplating plant.
Upgrade

As a user of the GAMMAT® free unit, you can always be sure of working with state-of-the-art electroforming technology. Many upgrades are possible and have already been done thanks to the control via chip card. But some new developments pertain to the hardware where upgrades are not that easy.

However, also in this regard, the Gramm Technik GmbH is sticking to their principle that it must be possible to upgrade units in use. This is the reason why not so long ago Gramm started offering an UpGrade Set for the GAMMAT® free unit. This UpGrade Set comprises new plating heads furnished with the optiCLIC contacting system...

Are you up to date?

It is recommendable to be always up to date: If you cannot find the user manual of your electroforming unit anymore or if you are unsure whether you have the actual version of the material safety data sheets, you can easily download the latest versions as pdf documents from Gramm’s website. As a matter of course, there you can also find user manuals of older units. Furthermore, you may download former editions of the +++telegramm+++ as well as instructions for use or certificates.

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