Elaine Halley examines an attractive option for aesthetics with the economical benefits of reduced visits and chairtime whilst achieving good control of aesthetics and the promise of limited staining.

Porcelain veneers have long been considered the gold standard in terms of appearance in the provision of a long-term aesthetic restoration in the correct clinical circumstances (Belser, Magne, Magne, 1997; Gurel, 2003). This is because each veneer is crafted by hand, entirely customised and individualised. However, this comes at a price, both financial and, sometimes, in terms of tooth tissue.

There is no doubt that the profession has increasingly embraced minimally-invasive techniques such as orthodontic pre-alignment followed by whitening and composite additions, and the advent of no-prep veneers has caught the public’s eye in terms of delivering a minimal invasive yet aesthetic result.

Even with porcelain veneers, there is an increasing awareness of the need to preserve healthy tooth tissue and many techniques have been developed to enhance this, including preparation stents and guides (Gurel, 2003) (see Table 1). CAD/CAM options such as Ceroc are able to produce porcelain veneers chairside without the need for impressions, but include the additional cost of the equipment.

Direct composite additions or direct composite veneers have often been heralded as a more conservative alternative to porcelain, and with the advent of microhybrid and nano-hybrid composites, the finishing and polishing of these restorations can rival that of porcelain (Fahl, 2000; Fahl, 2007). In 1997, Lambrechts et al found an 89% success rate in terms of aesthetics of direct composite additions to maxillary anterior teeth after five years and the aesthetics and durability of these materials has improved dramatically since then.

However, obtaining optimal results with direct composite restorations can provide a technical challenge in certain circumstances, particularly when treating multiple teeth. A third alternative has been developed with the introduction of direct composite veneers. Although direct veneers are not a new concept (France, Myers, 1976), their failure has been in the thickness and the durability of the polish of the restorations compared to other techniques.

Edelweiss

Edelweiss is the name of a European Think Tank including dentists such as Didier Dietschi and Stephan Lampl from the University of Geneva. Edelweiss Direct Venears (not a spelling mistake, this is how they have been branded) are direct composite buccal facings.

They are distributed by Optident in the UK and come beautifully presented in a kit complete with composite and bonding solutions. The sizes are small, medium and large and their form has been developed out of the study of numerous tooth shapes and utilising the concept of natural layering to reproduce the optical effects found in the natural

Table 1: The whole spectrum of aesthetic procedures embraces four different types of treatments (Dietschi, Devigus, 2011)

<table>
<thead>
<tr>
<th>Treatment approach</th>
<th>Usual procedures</th>
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<tbody>
<tr>
<td>Non-invasive</td>
<td>Bleaching, microabrasion, orthodontics</td>
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<tr>
<td>Minimally-invasive</td>
<td>Direct composites, enamel recontouring</td>
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<tr>
<td>Micro-invasive</td>
<td>Veneers, inlays and onlays</td>
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<tr>
<td>Macro-invasive</td>
<td>Crowns and bridges</td>
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Figures 3 and 4: A wear case treated with Edelweiss Direct Venears (dentistry by Dr Stephan Lampl)

Figure 1: Edelweiss Direct Venears are buccal facings with anatomical form

Figure 2: Dimensions of the Edelweiss Direct Veneer

Case selection
Case selection is obviously paramount. The ideal clinical indications include:

- Anterior and posterior restorations
- Tooth discoloration including multiple large restorations, which have resulted in the loss of the natural tooth colour and correct buccal anatomy. Non-vital teeth
- Anatomical deformities
- Diastema
- Worn dentition, after proper occlusal diagnosis and care. The complexity of the case will depend on the tooth position and alignment. A good arch form as a starting point is preferable to avoid excessive tooth preparation.

The clinical procedure consists of correct diagnosis and treatment plan, including stabilisation of any active disease processes. The correct size of veneer is selected and the tooth is prepared as necessary, and the margin of the veneer can be finished to a minimal chamfer. The dentine shade can be assessed and tried on the tooth.

Adhesive procedures are carried out on the tooth using the supplied adhesives for the tooth and the veneer and colour characterisation can be applied, if necessary, using flowable composites or small amounts of tints. The veneers appear translucent after the application of the bonding agent and so it is easy to manipulate the underlying composite to provide the desired shade.

The veneers are placed with separation, cured and finished and polished. The placing procedure is obviously different to placing conventional veneers as these veneers do not ‘fit’ and so have no definite final position. It is
therefore recommended to fit multiple veneers at the same time, using strips of clear matrix for separation. The veneers can then be manipulated into the desired position before curing and finishing. The body composite is stiff enough to hold the veneers in place without the tendency for them to float away, which would happen if a flowable composite was used. The body composite will also sculpt well interproximally or into any areas where the veneer skin does not reach.

The option of direct placement of preformed composite veneers has many advantages:
• Direct chairside technique in only one appointment
• Minimally invasive, conservative tooth preparation
• Simple and versatile application
• No impression required
• Minimal application time needed (approximately 90-minutes for six direct veneers)
• Cementation using the same material as the laser-fabricated direct veneer
• Less expensive than lab-fabricated ceramic veneers
• Highly polished surface giving long-lasting, natural-looking aesthetic clinical results.

Case study
A 24-year-old patient attended, extremely dental phobic, and unable to sit in the chair for long periods of time. She was medically fit but prone to low blood pressure and syncope brought on by the anxiety of attending for dental care. She had not attended a dentist for 10 years but was due to be married in one week and was concerned about the discolouration on her anterior teeth caused by mesial and distal cavities. The caries was removed and Edelweiss Direct Venears were placed on her maxillary incisors. The benefits for this patient were ease of handling as she could not have laid back in the chair or coped with traditional veneer preparations and impressions.

Direct composite veneers would have been challenging due to having to treat this patient upright and having long enough appointments. In addition, even simple finishing was a challenge for her and so the minimal polishing required with this system was an added advantage. She will be monitored and maintained due to her historical high caries rate, and in time her confidence levels should increase to allow for more interventions, but the Edelweiss Direct Venears were an excellent treatment option in this case.
Further techniques and applications
To further save chairside time, the Edelweiss facings can be chosen to fit onto study models. This also enables a preoperative assessment of the amount of tooth reduction required. The prepared model can easily be indexed to provide a preparation guide and the seated veneers incorporated into a clear suck down to enable precise placement and stability during curing.

Other uses of the Edelweiss Direct Veneers include incorporating them into long-term temporary crowns and bridges either in the lab or at chairside for complex rehabilitation or implant cases. The laser vitrified polymer coating resists water sorption and staining so the temporaries retain their aesthetics until definitive restorations can be constructed.

They may also be used as facings to existing crowns where there has been damage to buccal porcelain but the fit of the crown is not compromised.

The kits have now been developed to include lower incisor veneers, and it is straightforward to adapt the upper canine veneers for use on upper premolars.

In summary, while porcelain veneers may provide the ultimate in individualised aesthetics, and direct composites can produce excellent results, Edelweiss Direct Venears offer an attractive third option with the economical benefits of reduced visits and chairtime while achieving good control of aesthetics and the promise of limited staining.

References

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