Top Tips For Aesthetic Brilliance Part 1

Lloyd Pope BDS describes Galip Gurel’s use of APTs for veneers, one of the cornerstones of Galip Gurel’s presentation at the 10th Annual BACD Conference

The keynote presentation at this year’s BACD Conference was delivered by Galip Gurel, arguably one of the world’s leading exponents of minimally invasive aesthetic dentistry.

Nowadays, just a small amount of treatment to one or two teeth can have a dramatic effect on the overall aesthetic result. We need to be able to visualise the final result ourselves and then introduce our ideas to the patient. One of the most important tools for achieving this is the use of Aesthetic Provisional Temporary (APT) mock-ups, one of Galip’s outstanding areas of expertise.

Galip highlighted the evolution of veneer preps as follows:

1. Solely using depth guide diamond burs
2. Silicone indexes, which were an improvement but still had some faults
3. APT mock-ups

With simple cases, you can virtually guarantee that every dentist will do the same veneer preparations because all the teeth are perfectly aligned. What is more they can easily be prepved using depth cutting burs following a standard protocol. There are various depth cutting burs available, some with single sections and some with multiple sections. These burs are also available with different depths so that there is something available for every circumstance. The preparations should be supra-gingival. Once prepved you can provide provisional forms for the patient to wear whilst the final restorations are prepared. Simple preps, with reductions within the enamel only offer good long-term success because there is optimal bonding and minimised flexing of the residual tooth.

However, if the case involves space management, either because of overcrowding or over-spacing, this creates different problems. If space management is involved this requires a degree of visual illusion in order to achieve an aesthetic result. Essentially you can change the alignment and appearance of the smile by altering line angles etc.

Sometimes not every prep is perfect, no matter who does it, therefore you need a protocol to make it more reliable and predictable.

Rule 1 – if the teeth are crooked don’t do veneers straight away, use orthodontics first to move them into a reasonable position first.

The Aesthetic Provisional Temporary Protocol

Step 1 – The mock-up and silicone key

Do a mock-up in composite to create the final outcome, though not necessarily in every detail. This is designed to assess the length of the teeth etc and to share the information with the patient. At this stage you can add composite to the teeth and even onto the soft tissue to see the effect of any proposed soft tissue adjustment within an appropriate frame, the lips. Both you and the patient can assess the effect. Will orthodontics be required or not? This depends upon the patient’s opinion, so sometimes yes and sometimes no.
After creating an acceptable mock-up you take two impressions; one impression of the mock-up and one impression of the existing teeth. By comparing the two the laboratory can do a wax-up to mimic the results. The resultant wax-up will have the perfect outline. This then enables you to create a silicone key either within the laboratory or chairside.

Step 2 – The old way!
Use the silicone key to create the perfect APT (Aesthetic Provisional Temporary) mock-up using an appropriate temporary crown and bridge material. GG uses DMG’s Luxatemp because it is simply the best. This is then used to assess everything before you start to prep the teeth. At this stage you can evaluate the aesthetics, occlusion, phonetics, etc.

Because the patient is not yet anaesthetised you can still assess the smile-line etc too.

How much space is required for the veneer?
The minimum must be 0.5mm, but the actual thickness entirely depends on the amount of shade change required.

As a rule of thumb, on average you require 0.15mm per shade change with a minimum of 0.5mm, though this does depend upon the lab and the materials they will be using. Therefore a shade change of four requires a minimum reduction of 0.7mm.

Consequently, after removing the APT use the silicone key to assess which parts of the teeth to prep and which to leave alone. Prep if >0.5mm gap between silicone template and tooth and leave if <0.5mm gap between silicone template and tooth. However it is very difficult to perform this by simply looking at the two things and attempting to judge the size of the gaps. Normally results in over-prepping as a precaution, with all the complications this entails.

Step 3 – Galip’s way!
GG realised that you actually don’t need to be able to see the teeth to prep them.

He realised that when you have an APT to demonstrate the aesthetics to the patient, and they like it you can simply leave the APT over the teeth and prep through it using an appropriate 0.5mm depth drill. If the gap is <0.5mm the drill will penetrate the enamel. If the gap is >0.5mm it won’t and the teeth don’t need prepping. To make this even easier GG uses a pencil to highlight the grooves on the tooth. Then, once the APT is removed, it is simply a case of reducing the enamel in the appropriate areas until all the pencil lines have been eliminated.

Research proves that if veneer preparations are entirely within enamel there is a 99 per cent success rate, but that if the dentine is involved in any way the success rate drops to just 68 per cent. Typical failures are fractures, discolouration, marginal leakage etc. This research includes a retrospective study by GG himself in which he followed his own veneer retention results. It was published in two articles in the JPPD in November 2012 and February 2013. It showed that in enamel you only get failures due to fractures, you don’t get microleakage or debonding. These fractures are mainly due to occlusal problems relating to new crowns, changes in chewing patterns etc.

You then do a simple butt joint across the incisal edge to a depth of 1.5 mm. This is the strongest type of joint.

Look out for part II of this article series in the next issue of Dental Tribune.