A Different approach to Smile Design with Porcelain Laminate Veneers

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When designing a smile there are certain principles we use. We learn these principles and try to adapt them to our daily routine. On the other hand patients are becoming more specific about how they would like their anterior teeth to be restored. They have a certain design in their mind and they want certain characteristics customarily added to their smile design. Not only are they requesting an esthetic solution to their dental problems, but also seeking procedures that require minimally touching of remaining tooth structures. Porcelain Laminate Veneers are one of the most conserva- tive and aesthetic techniques that we can apply. The little span of the veneers are long and durable especially if the right indications are chosen and the correct techniques are applied. The main idea is the conservation of the sound tooth structure. We should limit our preparations on enamel. When we limit our preparations on enamel the tooth will not flex and it will stay as rigid as a tooth can be. Even if our preparation line passes through the dentin/enamel junction margin and enters into dentin, it won’t create a major problem for minor invasions. However, if we end up finishing our preparation on large amounts of dentin this will create complex bond- ing issues on dentin and will also thee the flexing factor on the tooth structure. When we have the tooth which is aggressively prepared that wants to flex when the tooth receives some lingual forces it will start coming off slowly and these situations will result in micro leakage or de-lamination.

Analyzing the Smile

To understand the final smile design the existing smile should be analyzed carefully from a dimensional aspect. We should follow a photo and video protocol (Fig. 1). In order to have a solid understanding about the visualization of the final outcome, the existing smile should be analyzed carefully from a 3-dimensional aspect.

Facial view

When we analyze the smile from a facial view we see the mesio-distal and vertical problems. We can see the mid- line, the occlusal plane and the length and the axes of the incisal teeth and can determine the future smile curve and the length of the future incisors (Fig. 2).

45 degrees angle view

This angle gives the opportunity to check the buccal-lingual position of the teeth and crowding. It also gives us an idea of the lip support of the teeth (Fig. 3).

The view according to the lip

This view can determine the buccal-lingual position of the teeth in a different angle (Fig. 4). After analyzing the smile we go on with the teeth preparation. Because we are using an additive approach we do a cymnlar finish line on the gingival margin and make a slight roughening on the tooth surface. All of our prepa- ration is on the enamel surface (Fig. 5) and then a retraction cord is placed to identify the preparation margins (Fig. 6) and an impression is made using a additional silicone. While the retraction cord is slowly pulled out a flowable silicone is applied and an impression tray filled with putty is applied at the same time to ensure a clear impression (Fig. 7).

Correcting the Veneers with wax

2 sets of models are formed. One where we cut the dies (Fig. 8) and one where we leave the gingiva (Fig. 9). An isolating medium is applied to the model and the wax prototypes are made. To create a pleasing restoration, harmony in the size, shape and ar- rangement of all the teeth are required in order to enhance each patient’s facial features. The important issue about the wax up is that these wax teeth can be removed one by one and they mimic the final veneers (Fig. 10).

Bonding

I prefer a sectional rubber dam placed in the mouth because it is much easier for the patient and the dentist to isolate the teeth. Once the teeth and the inside of the veneers are surface treat- ed they can now be bonded. Prefer- ably, the bonding should start with the centrals, proceeding with the lateral, canine on one side and the other lat- eral canine on the other side. The soft tissues should be handled very gently. The major way to do that is to place the veneer on the tooth and once it is completely seated, spot tack it from the middle with a 2mm tip. This will hold the veneer intact in place and then switch the tip of the light source to a larger diameter. Light cure the excess finish around the gingiva for only 1 or 2 seconds. This will not fully polymerize the luting resin but bring it to a jelly consistency. That will be very easily cleaned with an explorer or a number 12 blade for the narrow areas. Then, go in between the veneers with a dental floss to cleanse the interproximal contacts. Then a full polymeriza- tion is done after applying a gel on the margins for the oxygen inhibition layer of the composite cement. Then the margins should be polished with a rubber cup, but never with a dia- mond bur which will totally ruin the glaze and the polish of the porcelain on the margins. The final results of the cemented veneers are seen from dif- ferent angles (Fig. 11a, b, c).

The techniques explained above which will help the patient and lab communication to get more reliable and solid. It will be helpful to get the best aesthetic results with minimal tooth reduction.