Photo essay: BruxZir Solid Zirconia meets an anterior esthetic challenge

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This article illustrates recent advancements by Glidewell Laboratories to improve the esthetic properties of BruxZir® Solid Zirconia restorations. As the lab’s R&D department refines its processes, improving the material’s translucency, the esthetics continue to improve.

First appointment

Our goal is to replace the PFM crowns on teeth #8 and #9 (Fig. 4) with BruxZir Solid Zirconia crowns (Glidewell Laboratories, Newport, Beach, Calif.).

First, we take the shade before the teeth become dehydrated. I use the VITA Easyshade® Compact (Vident, Brea, Calif.), which displays the shade in both VITA Classical and VITA 3D-Master™ shades. After taking the shade, I hold the selected 3M™ 3D-Master shade tab to the tooth, along with the 3M™ 3D-Master shade tab for contrast. Next, we photograph the shade tabs in the mouth. This is probably the most important part of communicating shade to the technician.

I use an Ultralux syringe to place PFG gel (Steven’s Pharmacy, Costa Mesa, Calif.) easily cuts through porcelain and metal substrates, and when used in combination with my KaVo ELECTROtorque handpiece (KaVo Dental, Charlotte, N.C.), it is simple to cut through the existing PFM. I torque the crown with a Christensen Crown Remover (Hu-Friedy, Chicago). After using a periodontal probe to sound to bone to ensure I have enough biologic width to safely remove some tissue (Fig. 2), I use my NV MicroLaser™ (Discus Dental) to remove 1.5 mm of tissue.

With the margins exposed, I use an 856-025 bur (Axis Dental) and KaVo ELECTROtorque handpiece to drop the margin with the diode laser, I place an Ultrapak® cord #00 (Ultradent; South Jordan, Utah), cutting the cord intraorally on the lingual to avoid any overlap. To make the margin visually obvious, I place a second cord (Ultrapak cord #2E) before refining the preparation.

As I pack the top #2E cord on tooth #8, you can see how the top cord on tooth #9 exposes the margin (Fig. 3). Now we can begin finishing the preps using a fine grit 856-025 bur.

Two moistened ROEKO CompreCap Anatomic compression caps (Kolíné/Whaledent, Cuyahoga Falls, Ohio) are placed on the preps, and the patient is asked to bite with medium pressure for eight to 10 minutes. The Comprecaps are then removed and the top cords pulled. We syringe medium body impression material around the preparations for the impression and then take a bite registration. The temporaries are then replaced.

Third appointment

After two weeks, the temps are off, the BruxZir crowns are approved and we place a layer of desensitizer on the teeth (G5® All-Purpose Desensitizer [Clinician’s Choice; New Milford, Conn.]). I use a Warm Air Tooth Dryer (A-dec, Newberg, Ore.) after applying both coats of the G5, while my assistant places Z-PRIIME™ Plus ( Bisco, Schaumburg, Ill.) inside the crowns. We then load the crowns with a resin-modified glass ionomer cement (RellyX® Luting Plus Automix [3M/ESPE]) and seat them, using a pinewood stick (Almore International, Portland) to ensure they are fully seated and the same length.

In this “after” picture (Fig. 4), the amazing thing is there isn’t any porcelain on these BruxZir crowns, they are solid zirconia. This is why they are stronger than all other restorative materials, except cast gold.

Also, the facial anatomy on the crowns makes them look like real teeth. Because that anatomy is built into the CAD/CAM database, Glidewell Laboratories can deliver it every time — provided the clinician gives the lab enough reduction.

While I’m not suggesting you suddenly switch all of your anterior restorations to BruxZir crowns, you may want to consider using it for patients with parafunctional habits or old PFMs, where an esthetic improvement is essentially guaranteed.