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CLINICAL BRIEF

Saving Sir Galahad

Direct composite restorations save the day

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A 22-year-old man presented for an emergency examination of two fractured maxillary central incisors. He reported that he was at a local pub and stepped in to defend the honor of a young lady. Evidently, during the altercation he had his two front teeth broken (Figure 1). He reported to us that ultimately he did win the fight and these broken front teeth were his "trophy." He also reported that the young lady was very grateful and that they had a date later that week and he wanted his teeth fixed. Of course, we took him at his word as to the overall events and the final outcome, exclaiming that he was very chivalrous to have put himself in harm's way to protect the damsel in distress.

Upon examination, we observed that teeth Nos. 8 and 9 were fractured to approximately 50% of the original size. There was no obvious pulpal involvement, and other then sensitivity to air and cold, the patient was surprisingly not uncomfortable. One periapical radiograph was taken to confirm our clinical observations. There was no indication of further fracture to the remainder of the dental structures radiographically.

He asked if we could repair the damage. We discussed various options for restoration, including crown preparation and placement of lithium disilicate crowns, or direct composite restoration. We also discussed the possibility of the need for endodontics in the future, due to the damage, but for the time being, at least, that type of treatment was not required. The patient considered his options and decided that he wanted to have them immediately restored with direct composite. It was explained that further treatment with crown coverage would likely be needed in the future, and he stated that he understood, but would be grateful for the immediate repair.

We quickly created lingual buildups to achieve an overall dimension for the extent of the lingual component of the missing structure and the material was cured. Once this was balanced for occlusion and excursions, a putty index was taken of the mock-up structure. This would be used later to recreate the tooth structure.

The teeth were then isolated after administration of a local anesthetic, and prepared for the new restorations, extending 2 mm to 3 mm above the fractured aspect of the teeth to engage as much enamel as possible into the new restoration. Sufficient lingual enamel was engaged to overcome the lateral forces that would be likely to occur in normal function. Theracal LC® (Bisco, www.bisco.com) was placed as a pulp protectant on the deepest areas of exposed dentin. We then placed Teflon® tape on the adjacent teeth to protect them and to prevent adhesion of the bonding agents and restorative materials while working. The preparations were etched with 37% phosphoric acid in a total-etch manner especially on the enamel to enable more effective adhesion for the new restoration. The etchant was rinsed off and the teeth were dried. BeautiBond™ (Shofu Dental Corp., www.shofu.com) resin adhesive bonding agent was placed and cured as directed by the manufacturer. The lingual surfaces of the structure were built up employing the lingual matrix previously created, after placing Beautifil® II (Shofu) composite material and then compressing the index onto the composite to create a strong, lifelike, and natural lingual surface. The material was then cured first from the facial, then the incisal, and, once the matrix was removed, also from the lingual.

Once this lingual structure was created and fully cured, the lingual matrix was replaced and we then began to create the facial aspect of the restorations using Beautifil® Flow Plus materials (Shofu). The handling of the 00 and 03 materials enabled precise building and sculpting of the material onto the facial and the new lingual composite buildup we had just created. The protective liner, bonding agents and all composite materials were cured using

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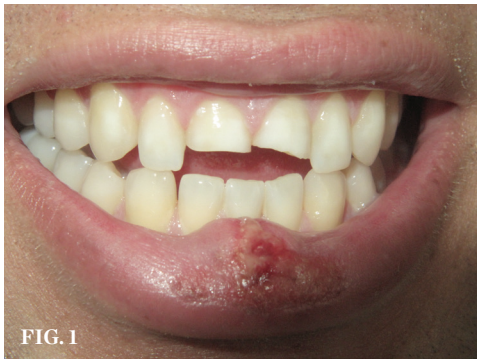
FIG. 1

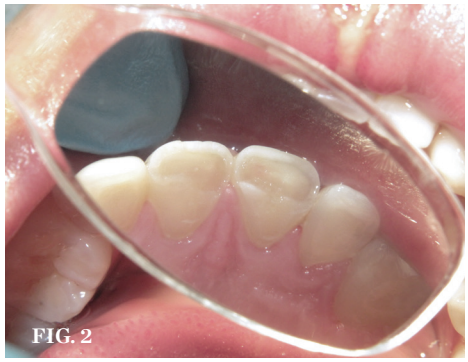
FIG. 2

(1.) Initial patient presentation with fractured teeth Nos. 8 and 9. **(2.)** Lingual view of fractured teeth Nos. 8 and 9.

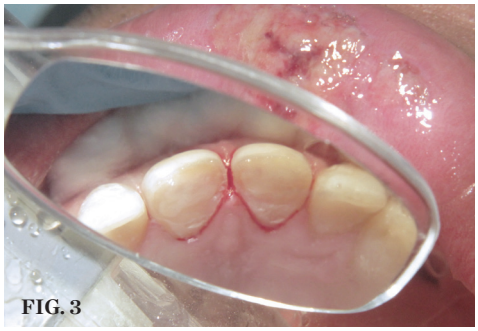
FIG. 3

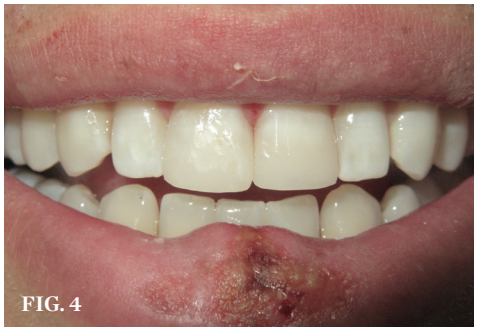
FIG. 4

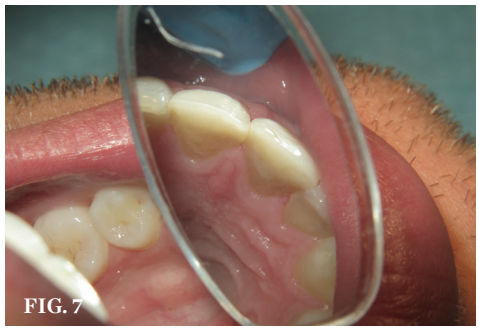
FIG. 7

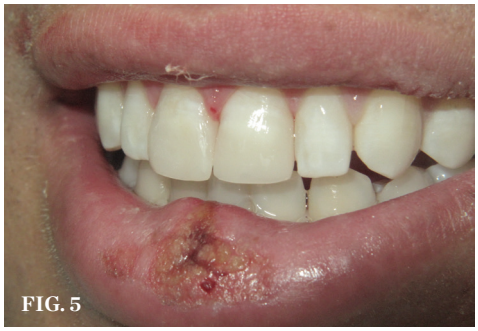
FIG. 5

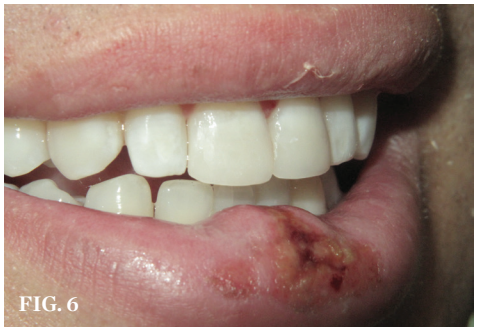
FIG. 6

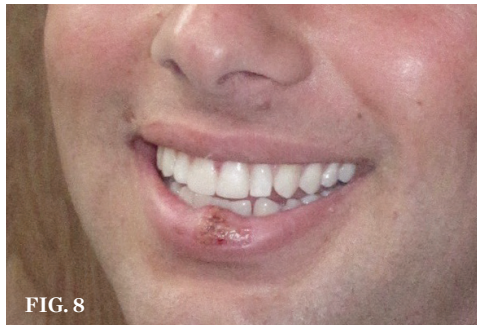
FIG. 8

(3.) Lingual extent of preparation on teeth Nos. 8 and 9. **(4.)** Teeth Nos. 8 and 9 after etching with 37% phosphoric acid on all enamel, rinsed and dried, placement of BeautiBond resin adhesive bonding agent and hand sculpted and restored with Beautifil Flow Plus 00 after placement of Mylar strips between the teeth. Trimmed with composite trimming burs and polished with Super Snap polishing discs and One Gloss polishers. **(5.)** View of final restorations from the left. **(6.)** View of final restorations from the right. **(7.)** Lingual view of final restorations. **(8.)** A very happy patient at the end of the procedure.

the Fusion dental curing light (DentLight, www.dentlight.com). This light provides excellent curing with a very focused beam column and highly efficient energy output.

Upon final buildup of the facial, interproximal, and lingual surface, the restorations were then contoured and shaped using Super Snap trimming and polishing discs (Shofu) and 12-blade composite esthetic trimming burs from Microcopy (www.microcopydental.com). The final polish and luster was achieved using OneGloss polishers (Shofu).

As we can see by the results illustrated in Figure 8, the patient had a very positive result immediately. We made sure to balance the occlusion in all excursions to protect the restorations created. Key take-aways:

- Assessment of the overall injury is imperative before carrying out this type of procedure and determining the vitality of the dentition.
- Advising the patient of the potential challenges and treatment options is a strong necessity.
- Using a sculptable, high-viscosity flowable composite is a very easy way to stack and build most any type of tooth structure and have wonderful high polish and durability.
- Having the appropriate esthetic tools and durable, dependable materials in office is essential so that you too can be a knight in shining armor.

FOR MORE INFORMATION, CONTACT:
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