



# Long-Lasting Provisional Restoration Case

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## CASE OVERVIEW

A 45-year-old female presented with a fractured mesial lingual cusp on tooth #19 (Figure 1). Two years previously the patient was treatment planned for a build up and crown on this tooth. Due to finances the patient had delayed treatment.

The cusp had fractured off a week ago. The tooth is now cold sensitive and the soft tissue that has overgrown the area is tender. Radiographically #19 shows no evidence of decay or apical pathology. But, #20 shows a small area of recurrent decay on the distal.

The patient is shown the intraoral photographs and the radiographs. A treatment plan of a DO composite resin on #20 and a build up and all-ceramic crown on #19.

The patient presented as an emergency exam on a busy practice day. Due to her work schedule and limited time off she asked if the presented treatment could be started today.

To accommodate the patient it is important to have an efficient workflow along with materials and techniques that will minimize chairtime.

## PROCEDURE

A preop impression is taken using a fast setting alginate replacement PVS impression material (StatusBlue). The patient is then given the injection for a mandibular block. While the anesthesia is beginning to take effect the opposing model is taken in the same alginate replacement material (2-3 minute set time).

Then, a 557 burr is used to remove the amalgam and recurrent decay in #20. Also, to improve visualization and access the mesial half of the amalgam of #19 is also removed.

A bulk filled composite will be used to quickly restore the DO on #20.



Figure 1: fractured mesial lingual cusp on tooth #19



Figure 2: the restoration is taken to a final polish



Figure 3: The preparation is isolated using a disposable 360 degree adjustable matrix



Figure 4: The dual cure composite resin is injected directly into the preparation/matrix



A sectional matrix is placed on the distal of #20. Using a selective etch technique the enamel is etched for 15 seconds. A universal bonding agent (Ecosite Bond, DMG) is then placed in the preparation for 30 seconds, air thinned, and light cured for 10 seconds. The cavity preparation is completely filled with a bulk fill composite resin (Ecosite Bulk Fill, DMG), manipulated into place and light cured for 30 seconds. The matrix band is removed and the restoration is light cured for another 10 seconds. The occlusion is then adjusted and the restoration is taken to a final polish, as shown in Figure 2.



Figure 5: The matrix is removed and the entire restoration is light cured

Using a diode laser to perform a gingivectomy on the lingual of #19 to remove the excess soft tissue that has overgrown the fracture margin. The extent of the fracture is now visible. The fracture terminates 4mm above the height of bone, so no hard tissue alteration is required. Using the 557 burr the rest of the amalgam present in #19 is removed. Upon removal of the amalgam there is recurrent decay is noted using a caries detector on the distal aspect of the tooth. A #4 round burr is used to remove the remaining decay. The prepared tooth is now missing a significant amount of tooth structure and needs to be replaced.



Figure 6: Using the diode laser the margins are trenched to control hemorrhage and expose the preparation margins

The restoration of the missing tooth structure can be quickly achieved using a dual-cure composite resin build up material (LuxaCore Z Dual, DMG). The preparation is isolated using a disposable 360 degree adjustable matrix (Figure 3).



Figure 7: The final impression is taken using a fast setting PVS impression material

Using a selective etch technique the enamel of #19 is etched for 15 seconds, rinsed and lightly dried. Next a universal bonding agent (Ecosite Bond, DMG) is placed on the entire preparation for 30 seconds, air dried and light cured for 10 seconds. The dual-cure composite resin is injected directly (Figure 4) into the preparation/matrix until it is completely filled, and light cured for 30 seconds. The matrix is removed and the entire restoration is light cured again for 20 seconds and is now ready for the final preparation (Figure 5). The final preparation is completed with a series of chamfer diamond burs to create the margins and clearance required for a PFM crown. Using the diode laser the margins are trenched to control hemorrhage and expose the preparation margins in anticipation for the final impression (Figure 6).

The final impression is taken using a fast setting PVS impression material (Honigum, DMG) (Figure 7). Lastly, the occlusal relationship is captured using a PVS bite registration material (O-Bite, DMG).



Due to the patient's work schedule she would not be able to return for the final PFM restoration for 6-8 weeks. Because of this it was decided to use a material that is designed for extended use (LuxaCrown, DMG). The restoration is cemented (TempoCemID, DMG) into place and polished.

Using bulk filled and dual-cure restorative materials along with fast setting impression materials it is possible to work an emergency crown procedure into a busy day's schedule. An efficient workflow, and the right materials and techniques make it possible to increase the practices productivity along with providing the patient with needed treatment while minimizing time and visits to the dental office.