Immediate Pontic Fabrication Using Flowable Resin

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In 2006, I described a technique for creating a chairside pontic by taking a bite-registration impression of the patient’s adjacent or contralateral tooth. The method was presented as an alternative to reshaping a prefabricated denture tooth, which might not be readily available in an orthodontic office. This article describes another option for immediate chairside pontic fabrication, using flowable resin and a mixing pad.

Procedure

The procedure is demonstrated in a 42-year-old male who presented as an emergency with a broken upper right lateral incisor crown due to a traumatic injury (Fig. 1A). His fractured root was immediately extracted by his dentist, who then placed cadaverous bone in the site. The patient was referred for leveling and alignment prior to placement of an implant crown restoration. An immediate pontic was made at the bonding appointment; the steps are as follows.

First, the shape of the tooth is outlined on a mixing pad using a flowable resin* (Fig. 1B). The flowable resin is slowly added to build the body of the tooth, then spot-cured to control the shape. More resin is layered on top to add thickness (Fig. 1C); the entire process takes less than 30 seconds. A pontic needs to be thinner and often slightly shorter than its natural counterpart to accommodate the gingival tissue. While this resin material will resemble an artificial tooth, it will be only about as thick as an artificial fingernail.

A pin-drop of flowable resin is added on top of the pontic to place the bracket, and the pontic and bracket are fully cured (Fig. 1D). It is acceptable if some flowable resin wraps over the base of the bracket, since this will produce a stronger bond. Next, the mixing sheet is torn down the middle to lift the pontic off the mixing pad (Fig. 1E). Excess material is removed from the mesial, distal, and gingival margins of the pontic to ensure a tight, but comfortable, fit (Fig. 1F,G). The patient will not tolerate the pontic if it impinges on the gingival tissue.

The pontic needs to be secured to a rectangular archwire (an .016” × .022” nickel titanium archwire was used in this patient), with a stainless steel ligature extending to the adjacent teeth to prevent it from rolling. To avoid having to hold the loose pontic against the archwire while simultaneously placing the ligature tie, the pontic can be secured to the archwire outside the mouth, using an elastomeric o-ring. The archwire and pontic are then inserted into the mouth as a unit (Fig. 1H). With the pontic already on the archwire, the ligature is easily placed by tying over the o-ring holding the pontic (Fig. 1I). (This method is used primarily for a standard twin ceramic bracket; if a metal bracket is used, instead of attaching the pontic to the archwire with an o-ring, the bracket can be crimped to the archwire using a Weingart plier.) A braided wire may be bonded to the lingual surfaces of the pontic and adjacent teeth for added retention (Fig. 1J).

The pontic is now firmly secured to the archwire. If it is too long incisally, the incisal edge of the pontic can be reduced with a flat, donut-shaped bur.** Any overreduction is quickly corrected with a little more flowable resin. Finally, an orthodontic polishing bur*** is used to add

**NTI Diamond Bur, Patterson Dental, Laurel, MD; www.pattersondental.com.
***Trimming and Finishing Carbide Bur, Patterson Dental, Laurel, MD; www.pattersondental.com.
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minor characterization or imperfections to the incisal edge of the pontic, so that it resembles the contralateral tooth and provides a more natural appearance (Fig. 1K,L).

REFERENCES


Fig. 1 42-year-old male patient with missing upper right lateral incisor crown following traumatic injury. A. Presentation at emergency visit. B. Tooth shape outlined with flowable resin.* (Video demonstration of procedure available on JCO Facebook page or by following link within this article at www.jco-online.com.) C. Body of pontic built up, with more flowable resin added for thickness. D. Bracket added to pontic before full curing. E. Mixing sheet torn to release pontic. F. Material reduced on mesial, distal, and gingival margins for tight, but comfortable, fit. G. Fit verified in mouth. H. Archwire and pontic transferred to mouth. I. Steel ligature over o-ring holding the pontic. J. Braided wire bonded to lingual surfaces for additional support. K. Polishing bur*** used to match incisal fracture on contralateral lateral incisor. L. Final esthetic appearance.