

TIPS FROM OUR READERS

An interim solution for a fractured complete-arch fixed implant-supported prosthesis using an Essix retainer



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Complete-arch fixed implant-supported prostheses are known to be an excellent solution for edentulism. Although new, stronger materials have evolved, the metal-resin prosthesis using a combination of cast or milled bar supporting acrylic resin and denture teeth continues to be popular because of its lower cost and simplicity. However, these prostheses have a high rate of mechanical complications, primarily related to the fracture of the acrylic resin and denture teeth.¹ A prospective cohort study of 24 fixed metal-resin complete-arch implant-supported prostheses found that each prosthesis required resin maintenance 5 to 6 times over a 10-year period.² This represents a significant inconvenience and investment to both the practitioner and the patient. Additionally, some patients with limited prosthetic space or parafunctional habits may have even higher fracture rates.

Because of the frequency of fracture of the acrylic resin and denture teeth, clinicians may encounter various scenarios and may not always be able to provide immediate repair. One quick solution would be to replace the definitive prosthesis with the patient's screw-retained interim prosthesis or conversion prosthesis while the definitive prosthesis was repaired in the dental laboratory. However, the interim prosthesis may not be available and an immediate solution is required to satisfy esthetic and social needs.

An Essix retainer is a removable, clear vacuum-formed matrix that was first described by Sheridan et al³ to maintain tooth positions during and/or after orthodontic treatment. These retainers are used in prosthodontics to replace missing anterior teeth during various treatments by simply filling the pontic space of

the retainer with tooth-colored resin material or the extracted natural tooth or previous crown.⁴

This article presents a technique that can be used as a straightforward, inexpensive, and a rapid interim solution for a fractured metal-resin complete-arch fixed implant-supported prosthesis using an Essix retainer. Because of the simplicity and reduced cost of fabricating the Essix retainer, the authors believe that all patients seeking metal-resin fixed complete-arch implant-supported prostheses should be provided preemptively with one so that it can be used as a "social prosthesis" until they visit their dentist for repair and definitive treatment. Additionally, alternative emerging materials should be considered in lieu of the traditional metal-resin fixed complete-arch implant-supported prosthesis.



Figure 1. Fractured maxillary metal-resin fixed complete-arch implant-supported prosthesis. Patient had been treated by another provider and did not have interim or conversion prosthesis.

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Figure 2. Essix retainer (clear vacuum-formed matrix) with fractured resin fragments luted inside with cyanoacrylate adhesive.

A disadvantage of this interim solution is that occlusion and mastication cannot be optimized because the Essix retainer completely covers the occluding surfaces.

PROCEDURE

1. Approximate the fractured resin segments to the existing prosthesis in the mouth if possible. A small amount of cyanoacrylate adhesive (cyanoacrylate; Orbix Dental Products, Inc) may be used to affix the segments temporarily to the prosthesis (Fig. 1).
2. Make an impression of the prosthesis in the patient's mouth, with irreversible hydrocolloid material (Bosworth Supergel alginate; Keystone Industries).
3. Pour the impression with fast-setting dental stone (Snap Stone; Whip Mix Corp) to fabricate a diagnostic cast. If the fractured resin fragments are not available, the clinician should quickly wax the missing fragments at this stage, using an appropriate denture tooth mold and sticky wax (Sticky Wax Light Amber; Patterson Dental).
4. Fabricate an Essix retainer over the diagnostic cast by using clear thermoplastic material (0.02-inches thick; 5×5-inch clear temporary splint sheets; Patterson Dental) and trim appropriately (Fig. 2).
5. Lute the fractured fragments in place them into the vacuum-formed matrix, using cyanoacrylate



Figure 3. Essix retainer inserted in patient's mouth. Patient eventually returned for repair and subsequently received monolithic zirconia fixed prosthesis as definitive prosthesis.

adhesive. If the fractured fragments are not available, mix tooth-colored autopolymerizing resin (Coldpac tooth acrylic; Yates Motloid) and fill the missing spaces of the vacuum-formed matrix. Finish and polish as needed.

6. Place the Essix retainer over the fractured prosthesis in the mouth, provide homecare instructions, and instruct the patient to return for repair and definitive treatment (Fig. 3).

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