

A Simplified Appliance for Forced Eruption

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Teeth that have been fractured at or below the level of the osseous crest present a substantial restorative challenge. Orthodontic forced eruption can be a useful adjunct to a successful restoration in such cases. When considering a particular tooth for forced extrusion, the following conditions should be present:

- All acute inflammatory periodontal processes under control.
- Enough root remaining for at least a 1:1 crown-root ratio.
- Root-canal treatment completed and periapical pathology resolved.
- Strategically relevant position in the dental arch.

- Good overall long-term prognosis.
- Well-motivated and compliant patient.

This article presents a simplified appliance that can predictably extrude individual teeth with minimal side effects on adjacent teeth.

Case Report

A 71-year-old male presented with a fixed prosthesis from the upper right first premolar to the upper left first molar. The upper right molars and second premolar were missing, along with the upper left second and third molars; the upper right first premolar and canine had crowns that were incorporated in the bridge. After recurrent



Fig. 1 71-year-old male requiring crown lengthening of upper right canine.

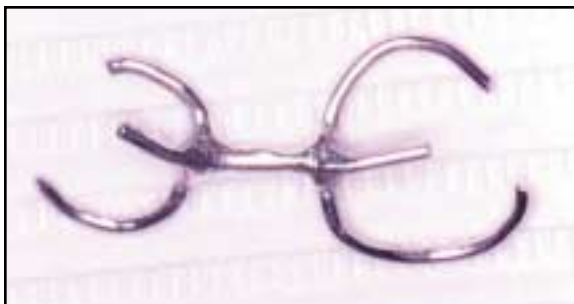


Fig. 2 Sectional forced-eruption appliance made of C-clasps and horizontal bar with occlusal rests.



Fig. 3 Activation of forced-eruption appliance with elastomeric thread attached to temporary post on canine.

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decay of the canine, it was separated from the fixed bridge for caries removal. The interproximal tooth structure was about even with the osseous ridge, as confirmed clinically and radiographically (Fig. 1).

Treatment options included removal of the existing root structure for an implant-supported restoration or forced eruption in an effort to retain the existing canine. The patient chose to undergo the orthodontic eruption.

After endodontic treatment was performed on the canine, a temporary post, made of acrylic and a loop of .036" stainless steel wire, was cemented into the root canal. Alginate impressions were taken, and a stainless steel forced-eruption

appliance was constructed by soldering C-clasps to a horizontal bar with occlusal rests (Fig. 2). The appliance was fitted to the adjacent teeth and activated with elastomeric thread from the horizontal bar to the loop in the canine post (Fig. 3). A fiberotomy was performed in stages during the extrusion procedure.

Six weeks later, the post was in contact with the eruption appliance (Fig. 4), which was then removed (Fig. 5). The post-treatment radiograph showed a radiolucency around the apex of the canine (Fig. 6), but this filled in with bone in about eight weeks. The tooth was then restored with a conventional post and crown (Fig. 7) and has been serviceable for more than five years.

Discussion

A more recent cast version of the eruption appliance, with thinner occlusal rests, can be cemented to the adjacent teeth (Fig. 8). Both of these sectional appliances are simple to fabricate, place, and activate. They have relatively little impact on the adjacent teeth, which often have



Fig. 4 Extrusion after six weeks of traction.



Fig. 5 Extruded canine after appliance removal.



Fig. 6 Pre- and post-treatment radiographs of upper right canine.



Fig. 7 Final restoration.



Fig. 8 New cast version of sectional forced-eruption appliance is cemented to adjacent teeth.

crowns in patients such as the one shown here.

Forced eruption can be a viable option for nonrestorable teeth, especially in the anterior region, where osteotomies might remove alveolar bone and thus have negative esthetic consequences. The sectional eruption appliances offer an alternative to fixed orthodontic appliances in selected cases.

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