

# Bonding a Lingual Retainer to Denture Crowns

GILAD HAR-ZION, DMD, MSC  
MEIR MAMRAEV, DMD, LLB

Incorporating denture crowns into a bonded lingual retainer can present significant clinical problems. Although in vitro tests have demonstrated that the bond strength of attachments and retainer wires to porcelain can be clinically acceptable, many clinicians still experience bond failures in these situations.<sup>1,2</sup> Bond strengths to other materials used to fabricate esthetic crowns, such as zirconium and metal-free ceramics, are not yet well established.

Bonding to porcelain is a tedious process that requires additional surface conditioning and extra clinical steps. Bonding to the metal portion of a porcelain-fused-to-metal (PFM) crown is just as complicated and potentially unreliable.

In addition, the palatal or lingual surface of an anterior crown is often bulked up to strengthen the restoration. A permanent retainer bonded over such a surface can create a massive bulge that may irritate the patient's tongue.

We have developed an alternative method for

attaching denture crowns to bonded lingual retainers, as described below.

## Procedure

Each crown to be incorporated into the retainer is fabricated in the laboratory with a tunnel or channel running horizontally through its palatal aspect at the intended level of the retainer wire (Fig. 1A). In the case of a PFM crown, the channel should be cut into the metal portion (Fig. 2A). The fenestration must be wide enough for the chosen retainer wire (Figs. 1B,2B).

After the denture crowns are permanently cemented in place (Fig. 2C), the lingual surfaces of the adjacent teeth to be retained are prepared and conditioned in the usual manner. The retainer wire is threaded through the denture channels, secured with dental floss, and bonded. The gaps between the retainer wire and the channels are then filled with flowable composite (Fig. 2D).

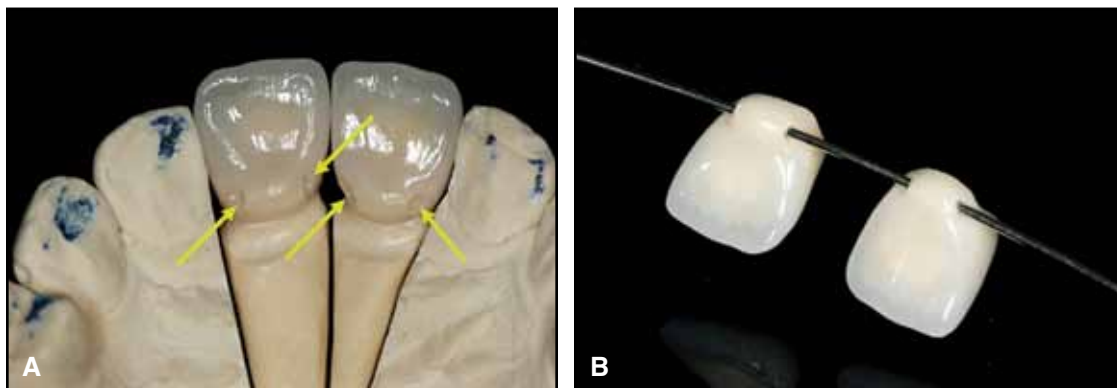


Fig. 1 A. Palatal aspects of zirconium crowns fabricated with horizontal channels (arrows). B. .032" stainless steel retainer wire threaded through channels.

Dr. Har-Zion is an Instructor, Department of Orthodontics, Hadassah School of Dental Medicine, Hebrew University, P.O.B. 12272, Jerusalem 91120, Israel, and in the private practice of orthodontics in Jerusalem and Or Yehuda, Israel; e-mail: gilad9@012.net.il. Dr. Mamraev is in the private practice of esthetic dentistry in Tel Aviv and Or Yehuda.



Dr. Har-Zion



Dr. Mamraev

## Conclusion

Over the past seven years, we have successfully used this technique to bond more than 20 crowns made from various materials. None of the crowns has fractured around the channel area, suggesting that the channel does not compromise the structural integrity of the crown.

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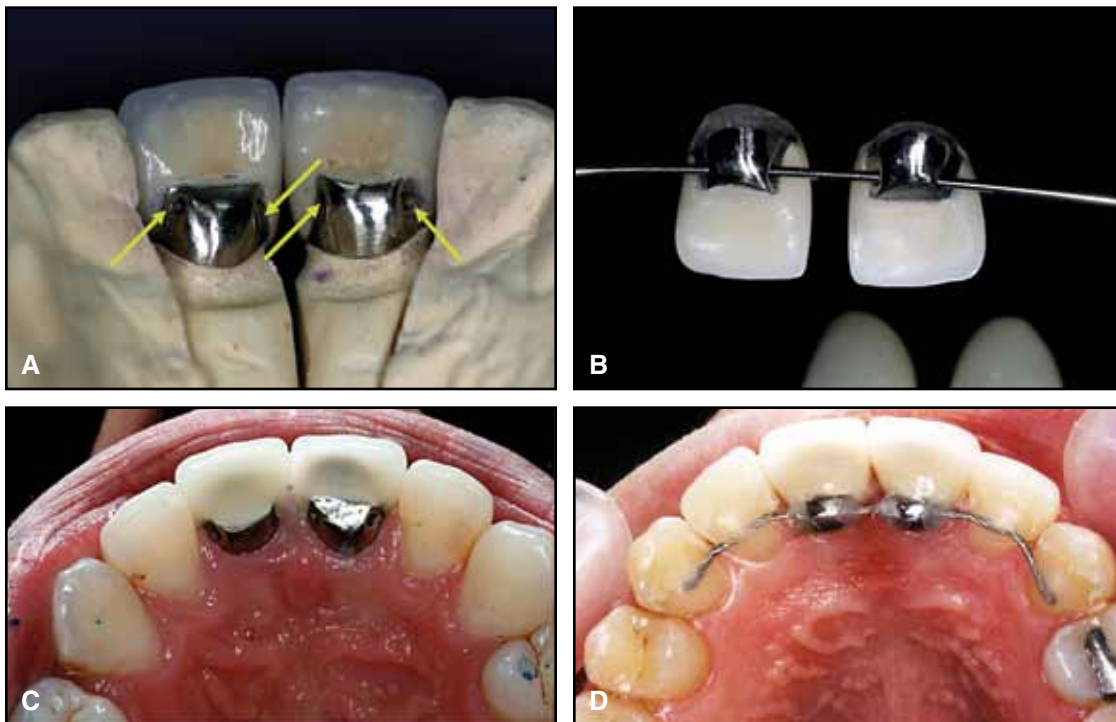


Fig. 2 A. Palatal aspects of porcelain-fused-to-metal (PFM) crowns fabricated with horizontal channels (arrows) through metal portions. B. .032" stainless steel retainer wire threaded through channels. C. PFM crowns in place before bonding of permanent retainer. D. Completed retainer after bonding (different patient).