

# An alternative post-and-core method for patients with limited interarch space

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**A** post-and-core assembly is placed in a badly broken-down tooth to restore the bulk of the coronal portion of the tooth to facilitate the subsequent restoration of the tooth by means of an indirect extracoronary restoration.<sup>1-3</sup> The literature describes numerous techniques for fabricating the cast post and core.<sup>4,5</sup> Failures of these systems include loss of retention of posts and fracture of the root or root perforation.

In this case report, we describe an alternative technique for fabricating post-and-core restorations for teeth with extensive loss of hard tissue.

## REPORT OF A CASE

A 25-year-old woman was referred to the prosthodontics clinic, Hacettepe University Faculty of Dentistry, Ankara, Turkey, with a

## ABSTRACT

**Background.** The authors describe a technique for placement of a three-unit posterior fixed partial denture where one abutment lacked sufficient interarch space.

**Case Description.** This method involves the use of a cast post and core with a precision attachment soldered into the core to provide the necessary retention and resistance. The prosthesis is retained by a combination of cement and screw retention.

**Clinical Implications.** This method is desirable when there is insufficient interarch space for a conventional post-and-core restoration. Achieving internal reinforcement by connecting the precision attachment to the residual root should provide the prosthesis with retention and added stability.

**Key Words.** Dental abutments; cavity preparation; endodontics; post-and-core technique; restorative dentistry; root canal.

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**Figure 1.** Clinical photographs before treatment. **A.** Frontal view. **B.** Buccal view.



**Figure 2.** A metric no. 2 guide drill was inserted into the post-and-core assembly.

missing first molar on the right side of the mandible. Because of extensive damage to the coronal portion of the second molar on the same segment and insufficient interarch space, we felt it was inappropriate to use this tooth as the abutment for a fixed partial denture (FPD). A radiographic and clinical examination revealed the need for endodontic therapy and a cast post-and-core buildup for the right mandibular second molar (Figure 1).

An endodontist from the endodontics clinic performed root canal therapy. The endodontist used a lateral compaction technique to fill the root canals to the level of the canal orifices. At the next visit, the endodontist removed gutta-percha from the pulp chamber and distal root, leaving 4 millimeters of gutta-percha in the apical portion of the canal to create a space for the post-and-core assembly. The endodontist shaped the canal with Peeso reamers (Moyco Union Broach, York, Pa.) to a final diameter of 1.25 mm and a depth of 8 mm from the prepared coronal surface.

We then trimmed the unsupported tooth struc-



**Figure 3.** The post-and-core assembly was seated in the tooth.

ture and adapted a resin pattern (Palavit G, Heraeus Kulzer GmbH, Hanau, Germany) to the prepared canal and pulp chamber. A dental technician fabricated the core buildup outside the oral cavity by using the same resin material. The dental technician invested the post-and-core pattern and cast it in gold alloy (Metalor Technologies, Neuchâtel, Switzerland).

We prepared the right second premolar abutment as the anterior retainer for the FPD. After adjusting the post-and-core assembly and seating it into the tooth, we took an impression (President, Coltène/Whaledent AG, Alstätten, Switzerland). We made the working model from Type IV dental stone (Fujirock, GC, Tokyo).

**ABBREVIATION KEY.** **FPD:** Fixed partial denture.  
**PFM:** Porcelain-fused-to-metal.

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