

USE OF A RESIN-BONDED FIXED PARTIAL DENTURE WITH A REMOVABLE PONTIC DURING THE OSSEOINTEGRATION PERIOD OF A SINGLE IMPLANT TREATMENT: A CLINICAL REPORT

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KEY WORDS

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This clinical report describes the construction of a resin-bonded fixed partial denture with a removable pontic during the healing period of a single implant treatment. This design improves maintenance of oral hygiene.

INTRODUCTION

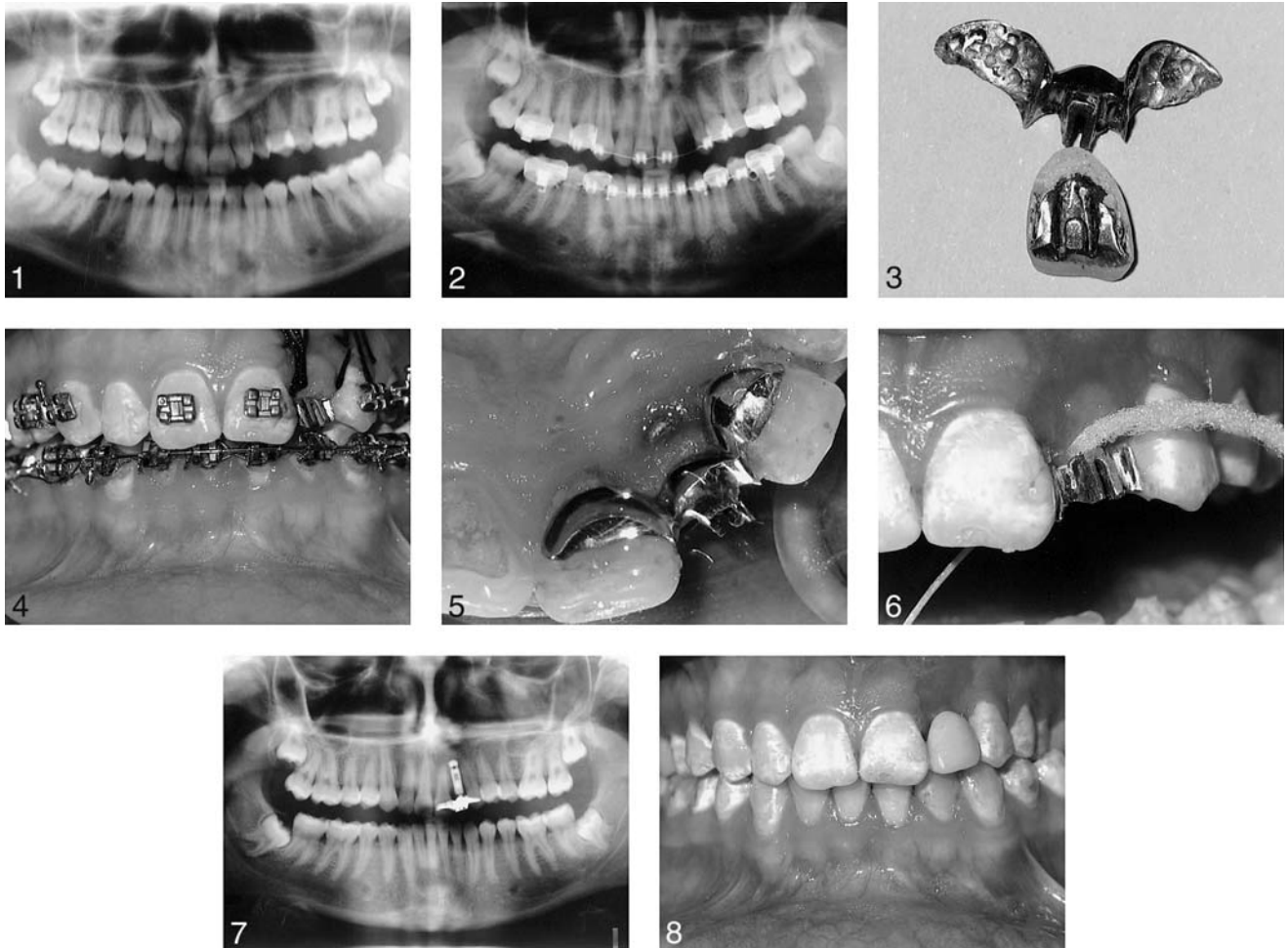
There are various documented reasons for tooth loss, including caries, periodontal disease, orthodontics, trauma, prosthetics, and eruption problems.^{1,2} Dental epidemiological studies have demonstrated that loss of a single tooth is prevalent in all age groups.³

The replacement of these single teeth, especially in the anterior zone in young people, presents a challenge to the dental profession. With increasing patient demands, removable partial dentures have become less acceptable. Many patients oppose preparation of intact adjacent teeth for the fabrication of a fixed partial denture. Other treatment options for replacing missing

single teeth are resin-bonded restorations, orthodontics, and tooth transplantation. Introduction of the osseointegration technique has made replacement of the missing single tooth possible.⁴

Osseointegrated bone healing takes from 3 to 4 months for the mandible and 4 to 6 months for the maxillae.^{5,6} It is usually necessary for the patient to wear some type of provisional restoration.⁷ Provisional removable partial dentures can be used in the early phases of implant treatment, but many patients do not readily accept this option. The use of a bonded fixed partial denture has been shown to enhance patient comfort.⁸

This clinical report describes a multidisciplinary approach for the treatment of a single maxillary lateral incisor and fabrication of a provisional restoration with



FIGURES 1–8. FIGURE 1. Panoramic radiograph of patient before orthodontic treatment. FIGURE 2. Panoramic radiograph of patient after orthodontic treatment. FIGURE 3. Finished resin-bonded fixed partial denture with pontic detached. FIGURE 4. Intraoral labial view of resin-bonded fixed partial denture cemented immediately after implant surgery. FIGURE 5. Intraoral palatal view of resin-bonded fixed partial denture after 1 week with pontic detached. FIGURE 6. Intraoral labial view of resin-bonded fixed partial denture with a superfloss. FIGURE 7. Panoramic radiograph of patient after 2 months. FIGURE 8. Intraoral labial view of patient after 2 months.

a precision attachment in combination with a bonded fixed partial denture.

CLINICAL REPORT

A 17-year-old girl was referred to the prosthodontics clinic for restorative treatment. In the initial clinical examination, the presence of both maxillary deciduous canine teeth was noted. The radiographic examination revealed impacted permanent canine teeth (Figure 1). The case was referred to the orthodontics clinic for the eruption of the canine teeth. Deciduous teeth were extracted; per-

manent canine teeth were exposed; and, after orthodontic treatment, both canine teeth were positioned properly. However, the left lateral incisor tooth was lost because of severe root resorption (Figure 2). It was decided to place an implant during the retention phase of orthodontic treatment for the replacement of the missing lateral incisor teeth. For esthetic purposes, a provisional restoration was planned during the osseointegration period. Both arch wires were removed and impressions of the maxillae and mandible were made with irreversible hydrocolloid impression material (CA 37,

Cavex Holland BV, Haarlem, Netherlands). The main concern for the case was to maintain meticulous oral hygiene; therefore, a resin-bonded fixed partial denture was planned with a removable pontic. It was assumed that this design would encourage good oral hygiene by facilitating ease of access. A precision attachment (Dovetail, Preat Corp, Santa Ynez, Calif) was incorporated in the wax pattern by including the female portion in the framework and the male portion in the pontic. The framework was cast with a nonprecious alloy (Nicor, Schütz-Dental GmbH, Rosbach,

Germany). The pontic was veneered with low-fusing dental ceramic (Omega 900, Vita Zahnfabrik H. Rauter GmbH & Co KG, Bad Säckingen, Germany) (Figure 3). A cylindrical implant with a diameter of 3.25 mm and a length of 10 mm was placed (Spline, Zimmer Dental, Carlsbad, Calif). The resin-bonded fixed partial denture was tried in the mouth, and framework was sandblasted with aluminum oxide powder with a grit of 50 µm (Korox 50, Bego GmbH & Co KG, Bremen, Germany) and cemented in place with a dual-cure composite resin luting cement (Panavia F, Kuraray Medical Inc, Okayama, Japan) (Figures 4 through 6). The patient is examined every month, and she has maintained oral hygiene at an acceptable level (Figures 7 and 8).

DISCUSSION

Design of the resin-bonded fixed partial denture described in this

clinical report is similar to conventional resin-bonded fixed partial denture designs except for the removable pontic. This design is more involved and more time consuming but facilitates the patient's ability to access the area, requiring meticulous daily oral hygiene procedures. Other treatment options should include conventional resin-bonded fixed partial dentures or fiber-reinforced fixed partial dentures.

SUMMARY

Use of a bonded fixed partial denture during the healing period of implant treatment has been shown to enhance patient comfort. A resin-bonded fixed partial denture with a removable pontic was constructed for the ease of maintaining oral hygiene.

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