

CLINICAL REPORT

Use of an Immediate Provisional Implant to Support a Full-Arch Interim Restoration: A Clinical Report

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The use of provisional implants as the sole or adjunct mean of stabilization for interim fixed partial dentures has gained popularity in implant prosthodontic treatment. These implants can be used between submerged implants during the healing phase to provide support for interim fixed or removable partial dentures. In this clinical report, a provisional implant used to provide support for a full-arch fixed interim restoration is described. Positioned between adjacent conventional implants, the provisional implant was placed during the same surgical procedure. As a result, an immediate acrylic fixed partial denture supported by natural teeth and the provisional implant provided a comfortable and esthetic interim restoration during the osseointegration period.

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DESIGNED TO SUPPORT interim restorations during the healing phase after implant placement, miniature provisional implants are usually created from the same material as the parent implant system but with narrower widths, allowing them to fit between simultaneously placed definitive implants.¹ First used by Wimmer,² 2 distinct categories of miniature implant have developed. One category serves as a definitive treatment option,³ and the second functions simply as support for interim restorations.⁴ Although several forms of the second category are currently available on the market, limited follow-up has been reported. The miniature implant described in this clinical report was used to provide anterior

support to a full-arch interim prosthesis while the definitive implants integrated.

Clinical Report

A 58-year-old Caucasian female presented for rehabilitation of the maxilla (Fig 1). Multiple carious teeth and defective restorations required crown placement, and several anterior teeth were deemed non-salvageable. Various treatment plans were explored, including extractions of all anterior teeth and their replacement with removable partial dentures. The patient requested a fixed prosthesis. The extraction of her non-salvageable anterior teeth, no. 4 through no. 10, and replacement with implants were recommended. A single provisional implant was planned as an anterior stop for an interim fixed restoration. A fixed implant-supported prosthesis was planned to replace the extracted teeth.

The loss of the anterior teeth would result in an anterior lever that would contraindicate the use of a full-arch fixed interim restoration without an added anterior stop. A single provisional implant was planned to prevent the ensuing leverage from destabilizing the retainers for the interim restoration in the posterior. Adequate length of bone for the implant was judged available to prevent micromotion.⁵ All anterior teeth were extracted, and

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Figure 1. Preoperative photos as the patient presented.



Figure 2. Occlusal view—Conventional interim restoration for natural teeth.

the future implant sites were allowed to heal for 6 weeks. All defective restorations were removed, conventional interim restorations were fabricated for the natural teeth, and an interim partial denture was created to replace the non-restorable teeth (Figs 2 and 3). A surgical template was

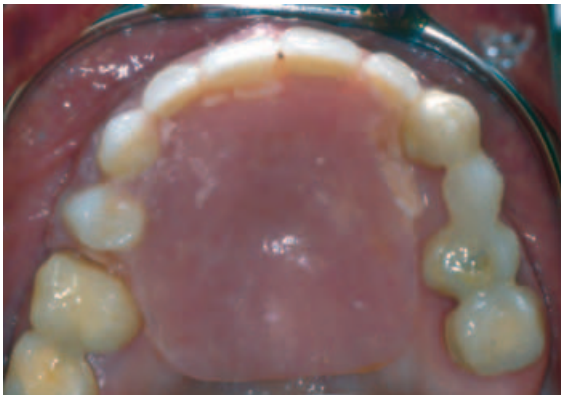


Figure 3. Occlusal view—Interim removable denture for edentulous area.



Figure 4. Occlusal view—Position of provisional implant.

fabricated for optimal implant positioning while allowing adequate space between the 2 anterior implants for a single provisional implant.

Nobel Biocare (Replace Select, Nobel Biocare, Yorba Linda, CA) system implants were selected for this rehabilitation, including a corresponding Nobel Biocare immediate provisional implant (IPI), chosen for its flexible neck, to align the path with other abutments. The cylindrical IPI, fabricated from machined titanium, has a smooth surface with a tapered apex. The flexible neck of the provisional implant can be bent up to 45°, allowing abutment heads to be positioned in parallel. The diameter of the implant body is 1.5 mm and may be placed 1.5–2 mm away from adjacent conventional implants.¹



Figure 5. Implants at surgical stage (all implants were placed at the same time).

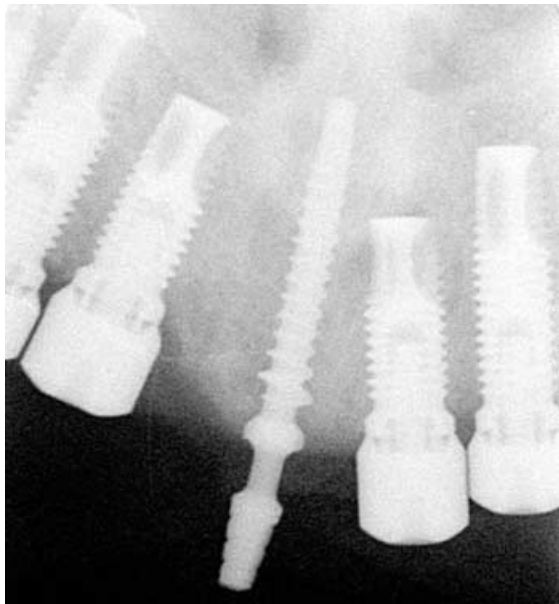


Figure 6. Postoperative radiograph of IPI and adjacent implants.

Six conventional implants were placed in the incisor and premolar regions (13 mm regular body fixtures) using a surgical stent. A single provisional implant was placed between the 2 most anterior implants in the midline of the anterior alveolar ridge (Figs 4-6). The existing interim removable prosthesis was adjusted and relined with soft reline material around the IPI. An impression was made for a provisional fixed partial denture. A full-arch interim fixed partial denture was fabricated from heat-polymerized acrylic resin in the laboratory (Fig 7). The new interim fixed pros-



Figure 7. Heat polymerized acrylic resin interim prosthesis.

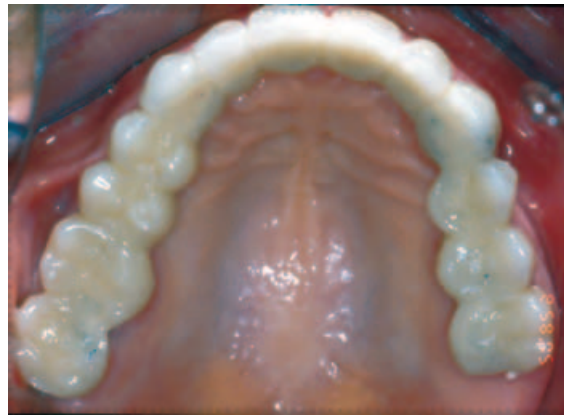


Figure 8. Occlusal view of interim prosthesis.



Figure 9. Frontal view of interim prosthesis at maximum intercuspal position.

thesis was adjusted and cemented (Figs 8 and 9). The patient wore the interim fixed restoration until the second stage surgery, when the interim restoration was removed and modified to accept temporary cylinders that attached to the integrated implants. The IPI was removed at this time, and impressions were made for the definitive restorations.

Conclusion

Using an interim provisional implant to provide support for a full-arch interim fixed partial denture allowed elimination of an anterior cantilever. The immediate provisional implant provided adequate support without encroaching on the space for the definitive implants. Simultaneous placement of the IPI along with the definitive implants allowed immediate fixed provisionalization, thus increasing patient acceptance of the overall treatment plan. In addition to providing

anterior support for the interim fixed partial denture, this method of provisionalization prevented unnecessary forces on the healing implants and allowed undisturbed osseointegration. Provisional implants may be used as part of a natural tooth–implant combination or as the entire support system for a full- or partial-arch interim restoration.⁶

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