

Replacement of Hopeless Retained Primary Teeth by Immediate Dental Implants: A Case Report

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Hopeless retained primary teeth without permanent successors represent a restorative challenge for clinicians, along with esthetic and functional problems for patients. While various treatment approaches for congenitally missing teeth have been proposed, the replacement of a missing tooth with a dental implant offers specific advantages, such as preservation of the alveolar crest and elimination of the need to restore the adjacent teeth, over other options for tooth replacement. The aim of this article was to illustrate the surgical and prosthetic treatment with implants of a patient with primary teeth without permanent successors. INT J ORAL MAXILLOFAC IMPLANTS 2009;24:151-154

Key words: dental implants, immediate function/loading, immediate implants

Hopeless retained primary teeth without permanent successors are a restorative challenge for clinicians and cause clinical problems for patients. Compromised esthetics, shifting of adjacent teeth, altered occlusion, and supereruption of teeth are among the problems that can occur when a permanent tooth is congenitally missing. The mandibular second premolars are the most frequently congenitally missing permanent teeth, followed in prevalence by the maxillary lateral incisors and the maxillary second premolars.¹

While various treatment approaches for congenitally missing teeth have been proposed, outcome data pertaining to these treatment options are lacking.² Replacement of a missing tooth with a dental implant offers specific advantages over other options for tooth replacement, such as removable or fixed dentures.³ These advantages include preservation of the alveolar crest, elimination of the need to restore adjacent teeth, and improved esthetics and function. By understanding the principles of treatment planning, implant surgery, and implant restoration, a clinician can successfully replace a hopeless retained primary tooth with a dental implant.

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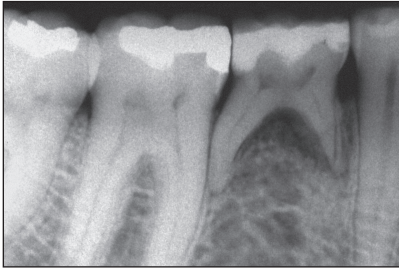
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CASE PRESENTATION

A healthy 31-year-old patient presented with retained mandibular primary first molars bilaterally, without permanent successors. The teeth had no signs of mobility, but the patient was unhappy with their appearance, and constant recurrences of gingival inflammation were reported. Prior to surgery, an index impression was taken and a laboratory model was fabricated. The laboratory model was duplicated and tooth extractions were performed on the duplicated model, simulating the final position of the bone. Provisional restorations and surgical guides were fabricated in acrylic resin over the duplicated model.



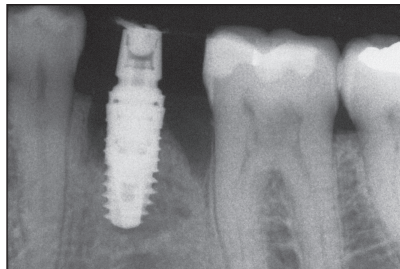
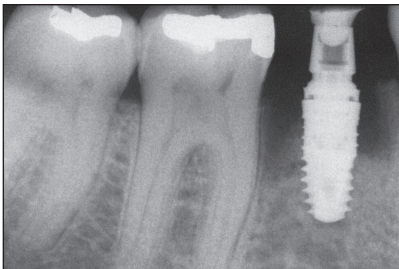
Figs 1a and 1b Clinical views of mandibular primary first molars (right and left, respectively).



Figs 1c and 1d The gingival recession and the absence of permanent successors are apparent in the radiograph.



Figs 2a and 2b Clinical appearance at 21 days after implant placement.



Figs 2c and 2d Radiographs obtained immediately after placement of 4.5 × 9.5-mm implants. Longer implants could be placed, depending on the remaining amount of alveolar bone.

The treatment plan consisted of replacement of the retained primary teeth with a fixed prosthesis supported by dental implants, with implants and the prosthesis to be placed immediately after extraction. Flapless surgery was performed and the teeth were sectioned in a buccolingual direction, at the bifurcation, so that the roots could be individually extracted atraumatically with a periosteal elevator. After extraction, one rough-surfaced and acid-etched self-tapping screw-type implant, 4.5 mm in diameter and 9.5 mm in length (Xive; Dentsply Friadent, Mannheim, Germany), was placed in each socket, according to the treatment plan. The implants were placed according to the

manufacturer's instructions with 35 N of torque, and immediate nonfunctional loading was performed. Figures 1 to 4 illustrate treatment of the patient.

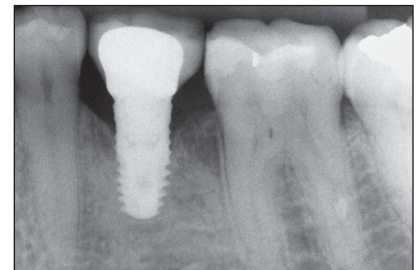
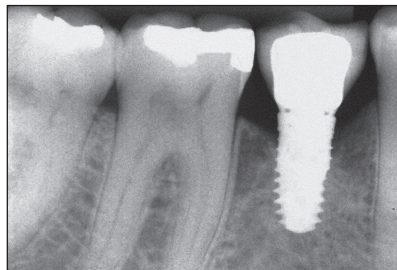
DISCUSSION

A patient with bilateral hopeless retained primary first molars in the mandible was treated by immediate implants associated with immediate nonfunctional loading. The healing was uneventful, and no signs of infection or mobility of the implants were reported during the evaluation period.

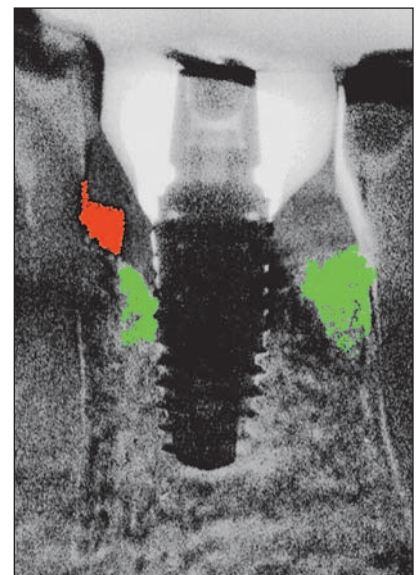
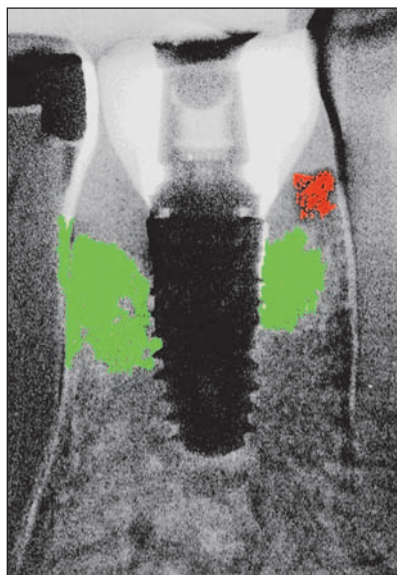
Figs 3a and 3b Follow-up at 1 year after implant placement with the definitive crowns in position.



Figs 3c and 3d Radiographic follow-up.



Figs 4a and 4b The immediate postoperative and the 1-year radiographic examinations were digitized, and digital subtraction analysis was performed. Bone remodeling is shown in red or green to identify optical density loss or gain, respectively.



According to the Brånemark protocol, a healing period following tooth extraction has been recommended before implant placement.⁴ This extends the treatment period for several months; however, more recent evidence shows that placement of implants into fresh extraction sites can also be considered as a predictable procedure.⁵

High success rates, progress in therapy, and technical innovations have provided data for new protocol proposals. The technique of immediate non-functional loading combines the advantages of 1-stage implants with those of immediate loading. The provisional prostheses are not in occlusion and

therefore serve only for esthetic and soft tissue growth purposes.⁶

Numerous clinical studies emphasize the importance of primary splinting of multiple-unit implant restorations in undisturbed osseointegration. Studies have shown that immediate function can be successful in edentulous and partially edentulous arches if the implant protocol is strictly followed.⁷⁻⁹ However, studies of immediately loaded single implants are still scarce. In addition, a distinction must be made between functional loading⁹ (single crown in full occlusion) and nonfunctional implant loading (provisional single crown/single crown out of occlusion).¹⁰

Nonfunctional immediate loading of implants in a reduced number of patients¹⁰ has been described in the literature but needs to be confirmed by standard long-term studies.

CONCLUSION

In the present patient, immediate implants successfully replaced the hopeless retained primary teeth. Maintenance of interdental space, bone, and soft tissue associated with the retained primary teeth provided an adequate clinical condition for immediate implant placement. In certain situations, immediate implants may be considered a more appropriate alternative treatment of retained teeth than conventional implant therapy.

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