# A Retrospective Analysis of 125 Single Molar Crowns Supported by Two Implants: Long-term Follow-up from 3 to 12 years

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## Purpose

Multiple techniques for molar implant restorations have been described that enjoy varying success rates. The discussion of the effectiveness and success of these methods has become increasingly interesting to clinicians. The purpose of this study was to analyze retrospectively the success rate of single molar replacement using two implants supporting a single molar crown over long term follow-up, and to compare efficacy of this technique to other existing methods of treatment.

#### Methods

Charts of all patients who underwent single-molar replacement with two implants at a private practice (PI Dental Center, Institute for Facial Esthetics, Fort Washington, PA) were examined. Early failures, defined as those occurring earlier than 3 years were noted. Consecutive patients with follow-up of more than 3 years were selected for this study to illustrate the long term effects of the two-implant replacement procedure. Ages of the patient at the time of implant placement were noted, along with general health, gender, location of the implants, and loading protocol.

#### Results

Two hundred fifty Brånemark System (NobelBiocare AB, Göteborg, Sweden) implants were placed in 125 molar sites in 105 consecutive patients between 1996 and 2005. One hundred eighty-two of the implants were placed in women, while 68 were placed in men. The ages of the patients ranged from 18 to 82 years with a mean age of 54 years. Two hundred forty-five of the 250 implants in this study remain in function for a cumulative survival rate of 98.0%. For all failures, only one of the two implants failed while the second retained functionality. This produced a 100% prosthesis survival rate. Figure 1 provides a case study.

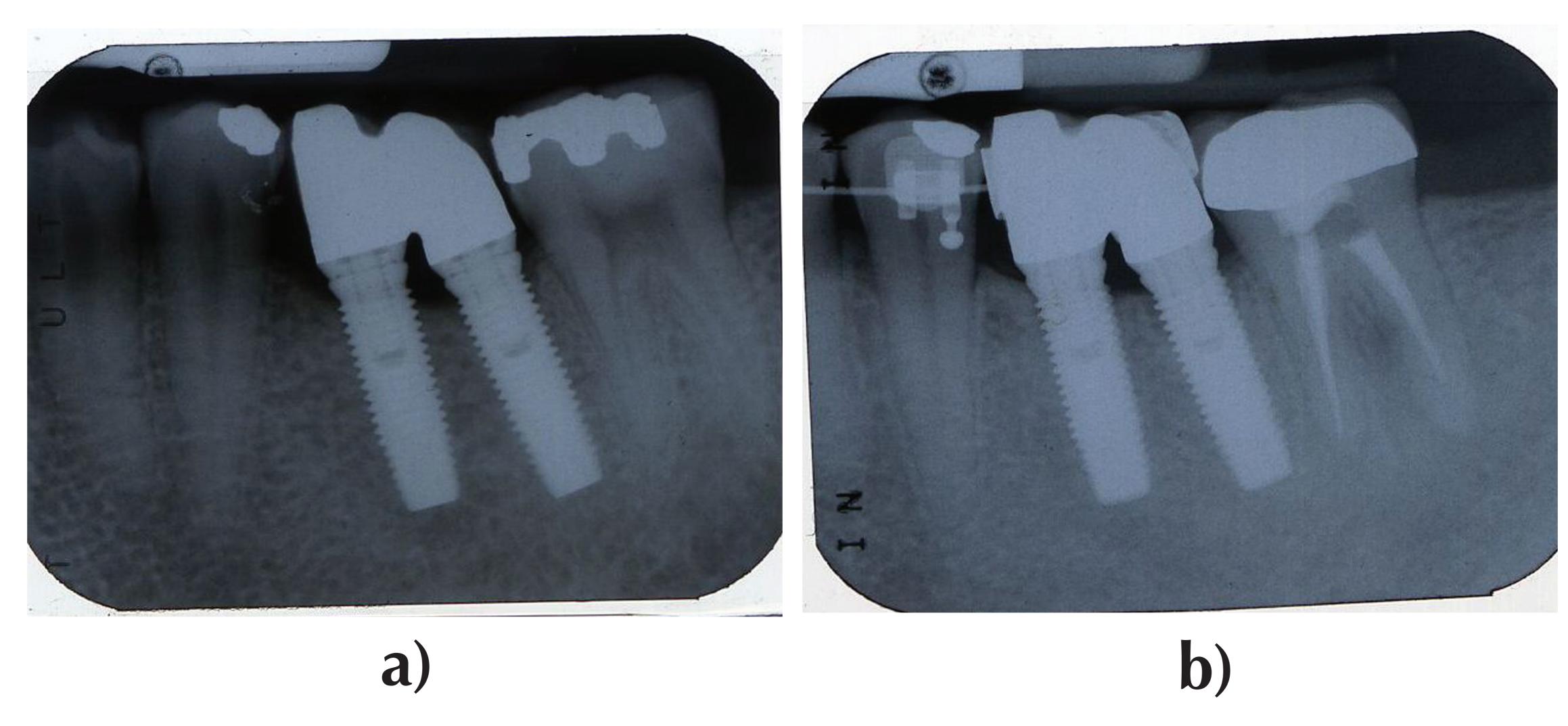


Figure 1.

Periapical radiographs of a patient treated in this retrospective study at a) day of final prosthesis delivery and b) 10 years after implant placement.

### Conclusion

This study displayed that two implant molar restorations are highly successful over prolonged periods of time, rivaling other accepted techniques (Table 1). Between 3 and 12 years of follow-up, 98% of patients receiving two implant single molar restorations retained functional crown restorations. Two implants spread occlusal forces and reduce bending and rotational forces by more effectively replicating natural crown-to-root ratios. These implants also provide more surface area for osseointegration, which minimizes susceptibility to overload.

Table 1: Technique survival rates

| Technique<br>(1 molar) | Two implants | Single<br>implants <sup>1</sup> | Wide-<br>diameter<br>implants <sup>2</sup> |
|------------------------|--------------|---------------------------------|--|
| Survival rate (%)      | 98.0         | 91.5                            | 92.0                                       |

#### References

- 1. Becker W, Becker BE, Alsuwyed A, Al-Mubarak S. Long-term evaluation of 282 implants in maxillary and mandibular molar positions: a prospective study. J Periodontol 1999; 70(8):896-901
- 2. Polizzi G, Rangert B, Lekholm U, Gualini F, Lindström H. Brånemark System Wide Platform implants for single molar replacement: clinical evaluation of prospective and retrospective materials. Clin Implant Dent Relat Res 2000; 2(2):61-69.