

An open prospective single cohort multicenter study evaluating the novel, tapered, conical connection implants supporting single crowns in the anterior and premolar maxilla: interim 1-year results

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Abstract

Objectives The aim of this multicenter prospective clinical study was to evaluate anodized tapered implants with a conical connection and integrated platform shifting placed in the anterior and premolar maxilla.

Materials and methods The study enrolled patients requiring single-tooth restorations in healed sites of maxillary anterior and premolar teeth. All implants were immediately temporized. Clinical and radiographic evaluations were conducted at implant insertion, 6 months, and 1 year. Outcome measures included bone remodeling, cumulative survival rate (CSR), success rate, soft-tissue health and esthetics, and patient satisfaction. Bone remodeling and pink esthetic score were analyzed using Wilcoxon signed-rank tests. CSR was calculated using life table analysis. Other soft-tissue outcomes were analyzed using sign tests.

Results Out of 97 enrolled patients (102 implants), 87 patients (91 implants) completed the 1-year visit. Marginal bone remodeling was -0.85 ± 1.36 mm. After the expected initial bone loss, a mean bone gain of 0.11 ± 1.05 mm was observed between 6 months and 1 year. The CSR was 99.0%, and the cumulative success rate was 97.0%. Partial or full papilla was observed at 30.8% of sites at baseline, 87.2% at 6 months, and 90.5% at 1 year. Soft-tissue response, esthetics, and patient satisfaction all improved during the study period.

Conclusions Bone gain was observed following the expected initial bone loss, and soft-tissue outcomes improved suggesting favorable tissue response using anodized tapered conical connection implants.

Clinical relevance Rapid stabilization of bone remodeling and robust papilla regeneration indicate favorable tissue healing promoted by the conical connection, platform-shift design.

Trial registration clinicaltrials.gov NCT02175550

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Keywords Conical connection · Platform shifting · Anterior maxilla · Immediate temporization

Introduction

Dental rehabilitation of the anterior and premolar maxilla can be a challenging procedure. Adding to this challenge is the fact that both clinicians and patients have set more stringent benchmarks for success [1]. This higher standard has shifted the research focus toward improving hard- and soft-tissue outcomes [2, 3], the esthetics of the restoration, and patient satisfaction [1, 4]. Because maxillary anterior teeth are the most visible part of dentition, poor esthetic outcomes could increase