

Immediate and flapless implant insertion and provisionalization using autogenous bone grafts in the esthetic zone: 5-year results

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Abstract

Objectives: As the 2-year results for immediately inserted and provisionalized implants have been reported, it remained an open issue, whether the initially high success rates and the esthetic outcome remain stable for longer observation periods. Therefore, this prospective study examines the 5-year hard and soft tissue changes at implants placed in the anterior maxilla.

Material and methods: Meanwhile, 37 microthreaded implants were placed in 21 patients into extraction sockets with and without facial bone deficiencies by a flapless approach. Facial gaps and bony defects were grafted with autogenous bone chips. The implants were immediately provisionalized. The primary outcome parameters were the interproximal marginal bone level and the thickness of the facial bony wall. Implant success and Pink Esthetic Score (PES) were considered as secondary outcome parameters.

Results: Two patients with four implants withdrew from the study (dropouts), and the remaining 33 implants were still in function at a follow-up period of 68 months. Marginal bone height averaged 0.04 mm coronal to the implant shoulder. The thickness of the facial bony lamellae increased significantly between pre-op examination and 1-year follow-up ($p = .002$) and thereafter remained stable. Within 5 years of follow-up, 24 of 33 implants were clinically stable, free of signs and symptoms, and showed bone loss less than 1 mm. The mean PES ratings improved slightly from 10.7 pre-operatively to 11.7 at the last follow-up ($p = .02$).

Conclusions: Interproximal marginal bone levels, survival rates, and esthetic results remain stable at the 5-year follow-up in implants used in an immediate insertion, reconstruction, and provisionalization concept. Facial marginal bone levels decreased slightly; however, this reduction did not affect the PES so far.

KEYWORDS

autogenous bone graft, facial bony defect, flapless, immediate implant placement, immediate provisionalization

1 | INTRODUCTION

Immediate implant placement and immediate restoration aim at the preservation of the peri-implant bone and soft tissues to achieve

long-term osseointegration in combination with the reestablishment of a natural, and thus, esthetic peri-implant mucosa (De Kok, Chang, Moriarty & Cooper, 2006; Kan, Rungcharassaeng & Lozada, 2003; Noelken, Morbach, Kunkel & Wagner, 2007). Although the concept of