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Maintenance of marginal bone support and soft tissue esthetics at immediately provisionalized OsseoSpeed™ implants placed into extraction sites: 2-year results

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Abstract

Background: Placement of implants into extraction sockets targets the maintenance of peri-implant hard and soft tissue structures and the support of a natural and esthetic contour. The main advantages of immediate implant insertion in comparison with delayed implant placement protocols are as follows: a reduced treatment time, less number of sessions, and, thus, the less invasive procedure. This study examines the clinical performance (survival rate, marginal bone levels and Pink Esthetic Score [PES]) of OsseoSpeed™ implants placed into extraction sockets with immediate provisionalization in the anterior maxilla after a follow-up of at least 12 months. **Methods:** Twenty patients received a total number of 37 OsseoSpeed™ implants which were immediately inserted into extraction sockets with or without facial bone deficiencies of various dimensions. A flapless procedure was applied, and the implants were immediately provisionalized with temporary crowns without occlusal contacts. Facial gaps between implant surface and facial bone or the previous contour of the alveolar process were grafted with autogenous bone chips. Implants in diameters 3.5, 4.0, 4.5, and 5.0 with lengths of 11–17 mm were used in the study. During the course of the study, interproximal marginal bone levels, the thickness of the facial bony wall, implant success rate according to the criteria established by Buser, and the PES were assessed per implant. **Results:** One patient with three implants did not continue the study after prosthesis delivery, the remaining 34 implants were still in function at the final follow-up (survival rate: 100%). The mean follow-up period was 27 months (range, 12–40 months). Marginal bone height at the level of the implant shoulder averaged -0.1 ± 0.55 mm (range, -1.25 to 1.47 mm) at the final follow-up. The mean PES ratings were 11.3 ± 1.8 (range, 6–14) at the final follow-up. In 78% of the patients, the PES was preserved or even improved. **Conclusions:** Success rates, marginal bone levels, and esthetic results suggest proof of principle for the preservation of marginal bone height at immediately placed and provisionalized OsseoSpeed™ implants after a follow-up of at least 12 months. Even implant sites with facial bony deficiencies can be successfully treated with a favorable esthetic outcome using the immediate implant insertion, immediate reconstruction, and immediate provisionalization technique.

The main objective in modern implantology is to maintain and support peri-implant osseous and soft tissue structures to combine long-term osseointegration with an esthetic and natural peri-implant mucosa. Both the patients demands and the doctors treatment objectives have changed over the decades. In the beginning of oral implantology, there was predominantly a functional focus to anchor prosthetic devices for full-arch rehabilitation. Today, an increasing number of patients

demands highly esthetic rehabilitations in a very short time with minimal-invasive treatment protocols for single or multiple teeth replacements.

To meet the demand of faster and less invasive treatment protocols, immediate and early loading or provisionalization has been introduced. For implants placed in healed sites, these concepts have been reported as successful treatment protocol as long as the temporary restoration was cleared from

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