CLINICAL ORAL IMPLANTS RESEARCH

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Immediately provisionalized OsseoSpeed™ Profile implants inserted into extraction sockets: 3-year results

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Abstract

Objectives: A sloped shoulder might improve the congruence between extraction socket and dental implant and may add to a better circumferential support of the peri-implant structures. Therefore, this study evaluates the 3-year clinical outcome (survival and success rates, marginal bone levels, and Pink Esthetic Score (PES)) of immediately inserted and provisionalized OsseoSpeed™ Profile implants in the anterior maxilla.

Material and methods: Twenty-one implants were inserted in 16 patients. All implants were immediately placed into extraction sites with and without facial bone deficiencies. A flapless procedure was utilized, and the implants were provisionalized immediately. Facial gaps were grafted with autogenous bone chips from the mandibular ramus. Implant survival and success, the interproximal bone levels, the thickness of the facial bony wall, and the PES were evaluated.

Results: After a mean follow-up period of 43 months, 19 implants were still in function. One patient with 1 implant did not follow the study protocol (dropout) and 1 implant was lost at 10 weeks. Interproximal marginal bone levels measured −0.2 ± 0.4 mm (range, −1.0–0.4 mm) apical to the implant shoulder. The mean PES ratings were 11.9 ± 1.4 (range, 8–14) at the final examination.

Conclusions: Clinical and radiographic results provide evidence that sloped implants can preserve the marginal bone circumferentially and are able to maintain soft tissue esthetics when inserted and provisionalized immediately, even in the presence of facial bony wall defects.

Apart from the reduction of treatment time, the insertion of implants into extraction sockets focuses on the preservation of circumferential peri-implant hard and soft tissue structures to support a natural and esthetic contour. As an alternative to placement of implants in healed ridges, immediate insertion protocols and provisionalization concepts as well as flapless surgery approaches may show reasonable esthetic results with reduced treatment time, pain, and costs. Specifically, promising results have been reported for immediately inserted and provisionalized implants (Gelb 1993; Kan et al. 2003; Norton 2004; De Kok et al. 2006; Noelken et al. 2007, 2014b,c; Valentini et al. 2010; Mertens & Steveling 2011; De Bruyn et al. 2012; Cooper et al. 2014). In the extraction socket in the anterior maxilla, the main problem to overcome is the physiological height difference between the oral, interproximal and facial bone, and the respective soft tissue levels (Becker et al. 1997; Wöhrle 2003). Several years ago, the concept of scalloped implants was introduced to maintain the natural contour of the alveolar ridge and the peri-implant soft tissue contour by mimicking the scalloped shape of natural topography of the healthy marginal bone contour (Wöhrle 2003). The long-term results showed stable soft tissues around the scalloped implants in spite of some loss of marginal bone support in relation to the originally intended marginal bone level (Noelken et al. 2014b; Paul & Held 2013). Recently, a dental implant with a sloped marginal contour and a height difference of the implant shoulder of approximately 1.5 mm (OsseoSpeed Profile™, Dentsply Implants, Mölndal, Sweden, Fig. 1) has been developed to improve the congruence between implant and bone in extraction sites and sloped ridges. This bi-center prospective study evaluated the clinical and radiographic performance of immediately and flaplessly inserted and provisionalized OsseoSpeed™ Profile implants in the esthetic zone

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