Survival and tissue maintenance of an implant with a sloped configurated shoulder in the posterior mandible—a prospective multicenter study

Key words: bone implant interactions, clinical, clinical trials, research, soft tissue-implant interactions

Abstract

Aim: Clinical studies evaluating the influence of the implant design on the preservation of peri-implant keratinized mucosa are rare. The aim of this prospective multicenter study was to investigate the survival, and soft and hard tissue maintenance of an implant with a sloped shoulder configuration, when placed in the posterior mandible.

Material and Methods: In this study, 24 centers participated and 184 patients receiving 238 implants (Osseospeed™ Profile TX implants) were included. Clinical assessments of soft tissue parameters were performed before implant placement, immediately after implant placement, at prosthetic delivery and at 6, 12 and 24 months after implant placement and marginal bone adaptation was examined.

Results: After an average time in situ of 28.7 ± 4.7 months (2.4 ± 0.4 years), the survival rate was 99.2%. Analysis of the peri-implant soft tissues during follow-up showed a slight but significant increase in peri-implant keratinized mucosa width after 2 years (P < 0.001). All patients with reduced peri-implant keratinized mucosa width of ≤ 2 mm at postoperative examination (n = 95) showed a pronounced and statistically significant increase in the peri-implant keratinized mucosa width over time (P < 0.001). After a mean follow-up of 20.7 ± 8 months (1.7 ± 0.7 years), mean inter-proximal marginal bone loss was 0.30 ± 0.6 mm, indicating high bone stability around the sloped implant neck.

Conclusion: These results indicate that sloped configured implants have a high survival rate after 2 years in function. The sloped implant shoulder configuration helps to support the hard and soft tissue around the implant neck and supports the regain of a physiological peri-implant keratinized mucosa in patients with compromised peri-implant soft tissue conditions (Clinicaltrials.gov: NCT01400321).

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