In situations where the alveolar crest anatomy is sloped in a lingual to buccal direction, the placement of a regular implant is not optimal. A dental implant with a sloped marginal contour, OsseoSpeed™ Profile (Astra Tech AB, Mölndal, Sweden), has been developed to optimize implant placement in such situations. The aim of the study was to evaluate the maintenance of lingual/palatal and buccal marginal bone support after 16 weeks when placing OsseoSpeed™ Profile implants in healed ridge sites, where the alveolar crest anatomy was sloped in a lingual to buccal direction. The follow-up period will continue for a total of three years.

Methods and Materials

In this prospective, open, multicenter study, 60 patients between 18 and 75 years of age with a need for a single tooth replacement in any location were included. The recipient sites presented with a lingual-buccal bone height difference of 2.0-5.0 mm and a history of edentulism of at least 3 months. Main exclusion criteria were smoking more than 10 cigarettes per day and a health status that would not allow implant placement.

OsseoSpeed™ Profile implants (Astra Tech AB, Mölndal, Sweden) in diameters 4.5, 5.0 and 5.0S with lengths 9-15 mm were used in the study. A one-stage surgical protocol was utilized, and healing abutments were used during the 16 weeks healing period. Lingual and buccal bone level alterations were assessed using a periodontal probe at the time of implant placement and the surgical re-entry visit 16 weeks after implant placement.

Results

A total of 60 implants were placed in the study, and all implants were still in function after 16 weeks. The study population represented a wide variety of patients with respect to age (mean age 49 years; range 20-74 years), and smoking history (non-smokers 86%; smokers 14%). There was an equal distribution of men and women (30 men, 30 women). The mean edentulous period was 48 months (range 3-360 months). Seventy-three percent of the implants were placed in the mandible, and 27% in the maxilla. The most dominant position for implant placement was the mandibular first molar (55%).

The mean lingual marginal bone level alteration was -0.2 mm (range: -1.5 – 2.0), while the corresponding change on the buccal aspect was -0.4 mm (range: -12.5 – 2.0).

The complications reported in the study are limited to two loose healing abutments, and one patient presenting with a 12.5 mm loss of the buccal marginal bone level from implant placement to the 16 weeks re-entry visit.

Conclusions

The study results reveal maintained marginal bone levels at the buccal, and lingual/palatal aspect of OsseoSpeed™ Profile implants, and indicates that this implant is a predictable treatment option in cases where the alveolar crest anatomy is sloped in a lingual to buccal direction.

References


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