Marginal bone level and gingival esthetics: A prospective observational study

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Objective:
The aim of this retrospective study is to evaluate the relation of the marginal bone level and the esthetic outcome in scalloped Nobel Perfect™ implants placed in a one stage procedure (immediate provisionalization and loading) in the esthetic zone.

Materials and Methods:
From October 2003 to June 2005 immediate prosthetic restorations were placed on 31 Nobel Perfect™ implants with a 1.5 mm machined scalloped collar in 20 patients (range: 29 to 69 years). Implants were inserted immediately after tooth removal (n=21) or secondary to osseous consolidation of the extraction sockets (n=7) or alveolar ridge augmentation (n=3). The facial bony lamella was defect or totally lost in 6 sites. All temporary restorations were inserted at the day of implant placement and adjusted to clear all contacts during eccentric movements. 29 implants were splinted to neighboring teeth or to each other. Two implants remained unsplinted. Primary outcome variables were implant success, marginal bone levels and the Pink Esthetic Scores by Fürhauser (PES) [2] (Fig. 1) assessed per implant.

Results:
In the follow up period (1.4-26.6 months, median: 13.9 months) one implant failed. This failure occurred in a non-splinte single tooth replacement case. Cumulative success rate according to the criteria specified by Smith and Zarb was 96.8% (Fig. 4). Marginal bone levels averaged 1.7 mm above the first thread and remained stable within the observational period. Mean PES-ratings were 11.3 (range 8-14) (Fig. 3). The interproximal marginal bone level showed a significant association to the esthetic result (r=0.531; p=0.0026: Spearman’s rank correlation coefficient) (Fig. 5). In 18 patients, preoperative and postoperative scores were available. Improvement of the PES was noticed in 5 patients. In 6 patients the esthetic status was unchanged while 7 patients sustained slight to moderate decrease on the esthetic rating scale (Fig. 6).

Conclusion:
The promising marginal bone levels suggest proof of principle for the preservation of the interproximal bone lamella by a scalloped implant design. Moreover our study confirmed the marginal bone level to be a crucial determinant of the esthetic outcome [3].

Literature:

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