

MARGINAL BONE LEVEL AND GINGIVAL ESTHETICS

A PROSPECTIVE OBSERVATIONAL STUDY

R. Nölken^{1,2}, T. Morbach², M. Kunkel², W. Wagner²

¹ Private Practice for Oral Surgery, Paradiesplatz 7-13, 88131 Lindau / Lake Constance, Germany,

² Department of Oral and Maxillofacial Surgery, University of Mainz, Augustusplatz 2, 55131 Mainz, Germany

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 [1], placed in a one stage procedure (immediate provisionalization and loading) in the esthetic zone.

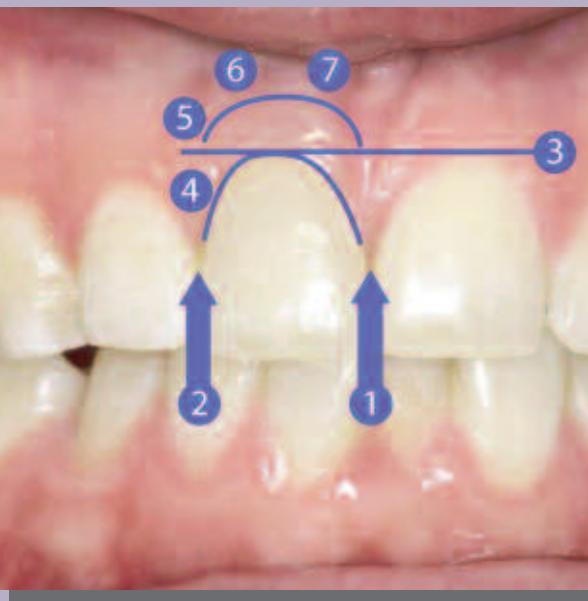


Fig. 1: Pink Esthetic Score by Fürhauser and its criterias.

Variables	0 points	1 point	2 points	
1 mesial papilla	shape vs. reference tooth	absent	incomplete	complete
2 distal papilla	shape vs. reference tooth	absent	incomplete	complete
3 level of soft tissue margin	level vs. reference tooth	major discrepancy more than 2 mm	minor discrepancy between 1 and 2 mm	no discrepancy or smaller than 1 mm
4 soft tissue contour	naturality, matching reference tooth	unnatural	fairly natural	natural
5 alveolar process contour	alveolar process deficiency	obvious	slight	none
6 soft tissue texture	texture vs. reference tooth	obvious difference	moderate difference	no difference
7 soft tissue colour	colour vs. reference tooth	obvious difference	moderate difference	no difference



Fig. 2: NobelPerfect™ implants

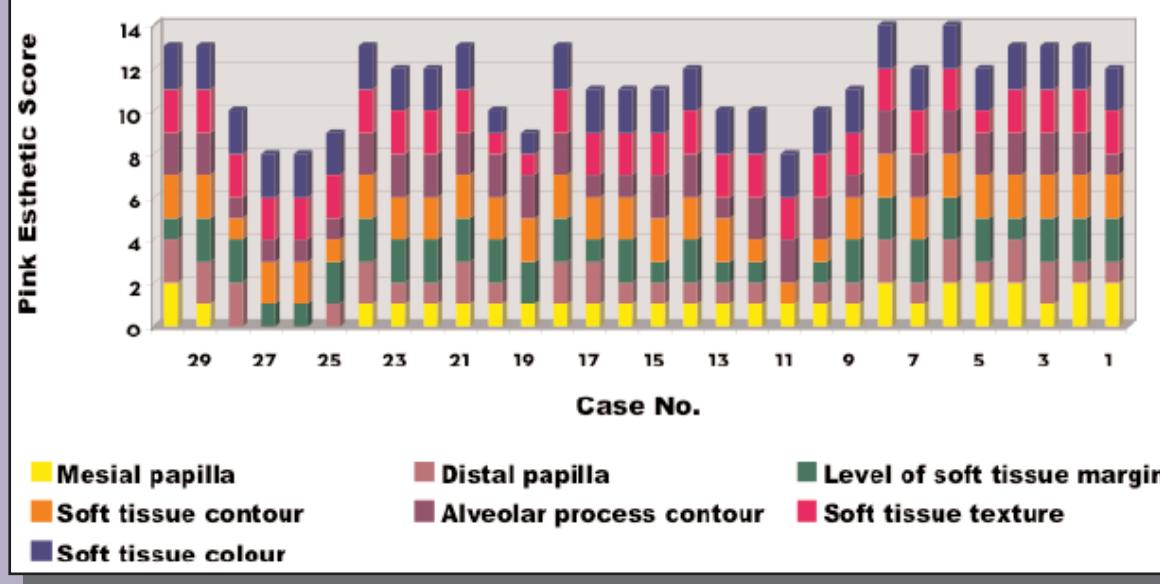


Fig. 3: Pink Esthetic Score of 30 evaluated NobelPerfect™ implants

Results :

In the follow up period (1.4-26.6 months, median: 12.9 months) one implant failed. This failure occurred in a non-splinted 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].

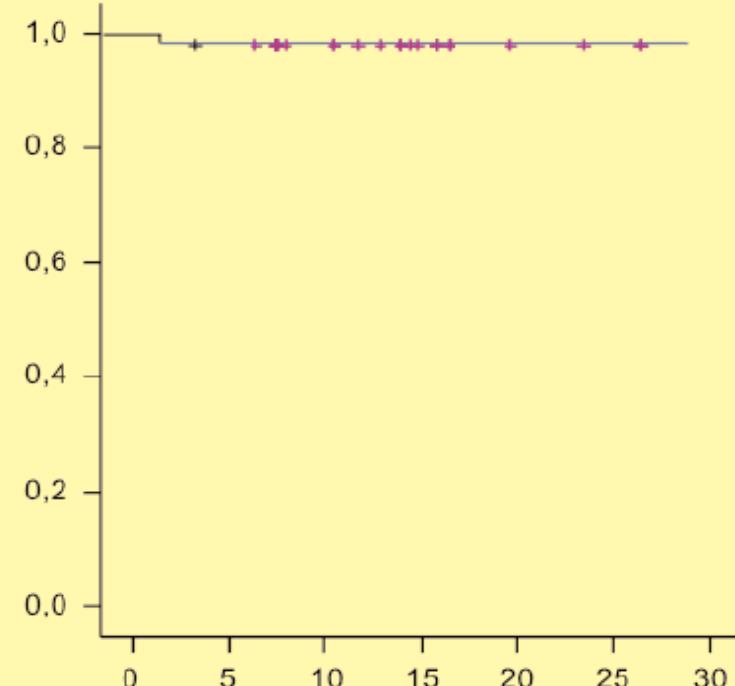


Fig. 4: The cumulative survival rate according to the criterias by Kaplan-Meier was 96.8% (median post-operative period 12.9 months, range 1.37 to 26.6 month).

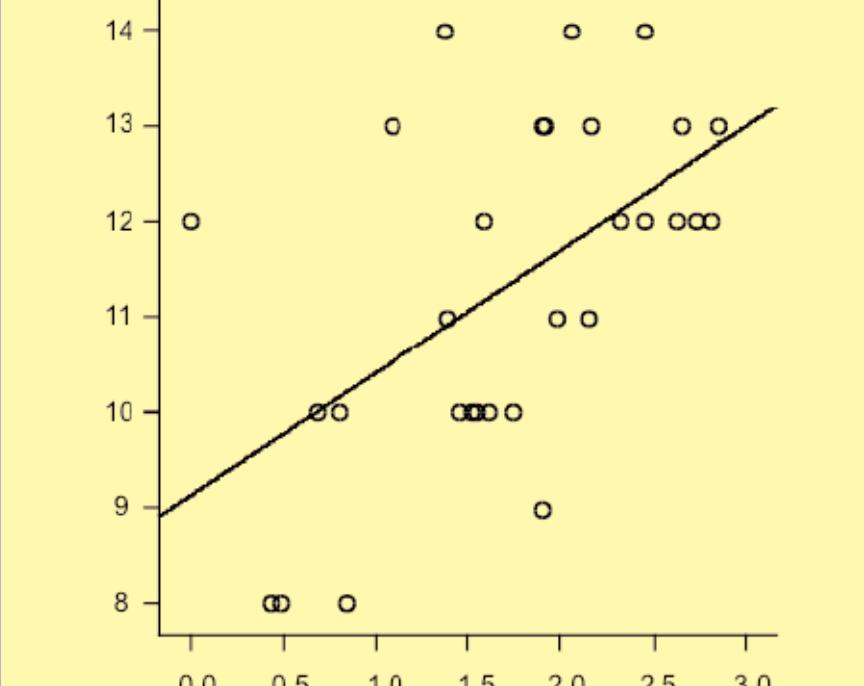


Fig. 5: Scatter plot of PES-ratings according to average marginal bone level. The data demonstrate a significant correlation ($r=0.531$; $p=0.0026$; Spearman's rank correlation coefficient).

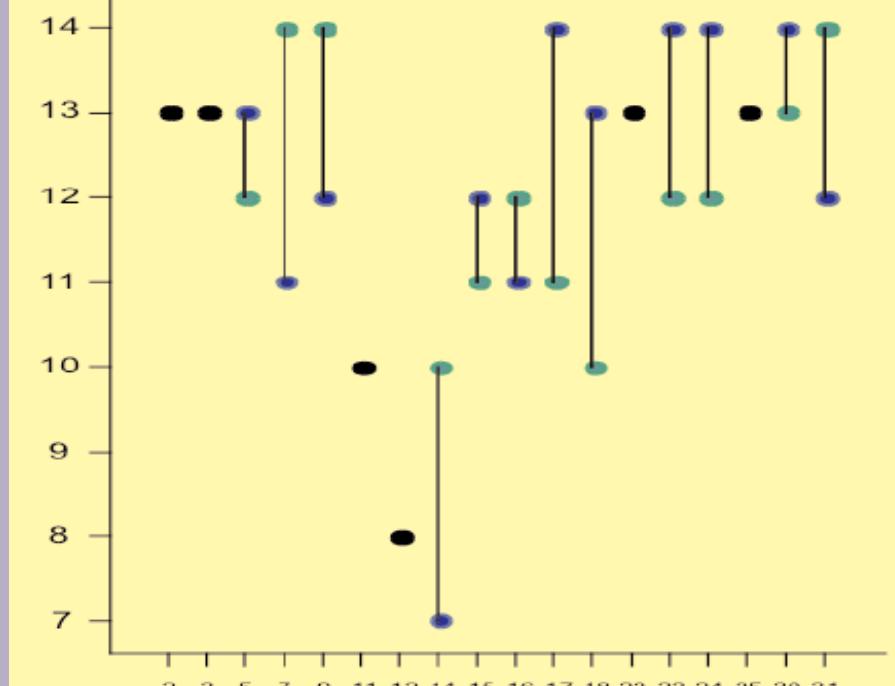


Fig. 6: Pre- and post-operative "Pink Esthetic Scores". In about 2/3 of the patients the esthetic status was improved or preserved compared with the initial situation.

Literature

- Wöhrel PS. NobelPerfect™ esthetic scalloped implant: rationale for a new design. Clin Implant Dent Relat Res 2003; 5 (Suppl 1): 64-73
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- Rocci A, Gottlow J. Esthetic outcome of immediately loaded scalloped implants placed in extraction sites using flapless surgery. A 6 month report of 4 cases. Appl Osseointegration Res 2004; 4: 55-62

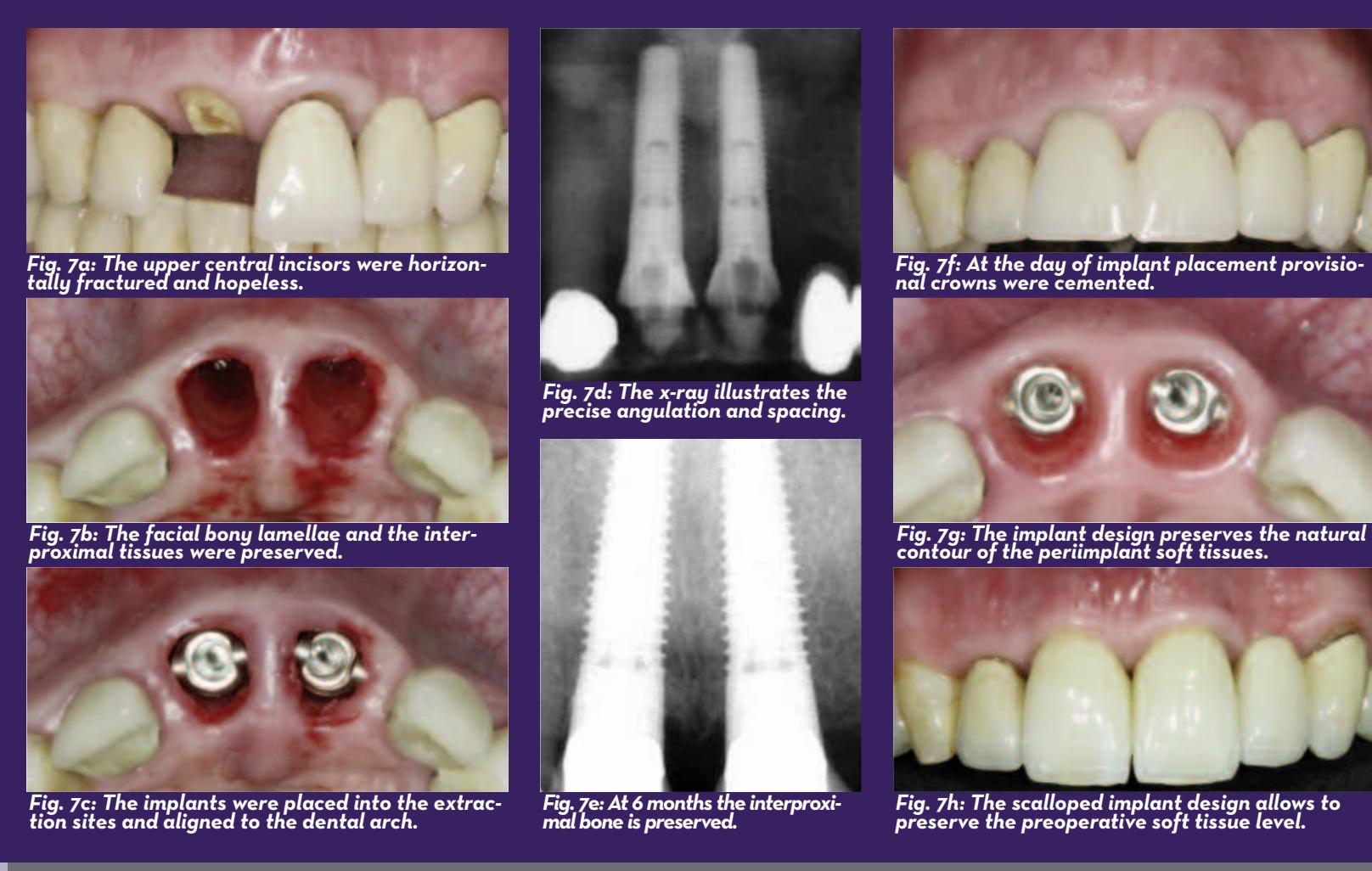


Fig. 7: Case no. 14 and 15 - teeth no. 8 and 9 - endodontic failure - facial bony lamellae intact - immediate implant placement - immediate provisionalization - splinting - final restoration at 6 months - high bone level - interimplant bony peak - Pink Esthetic Score in total 11 each.

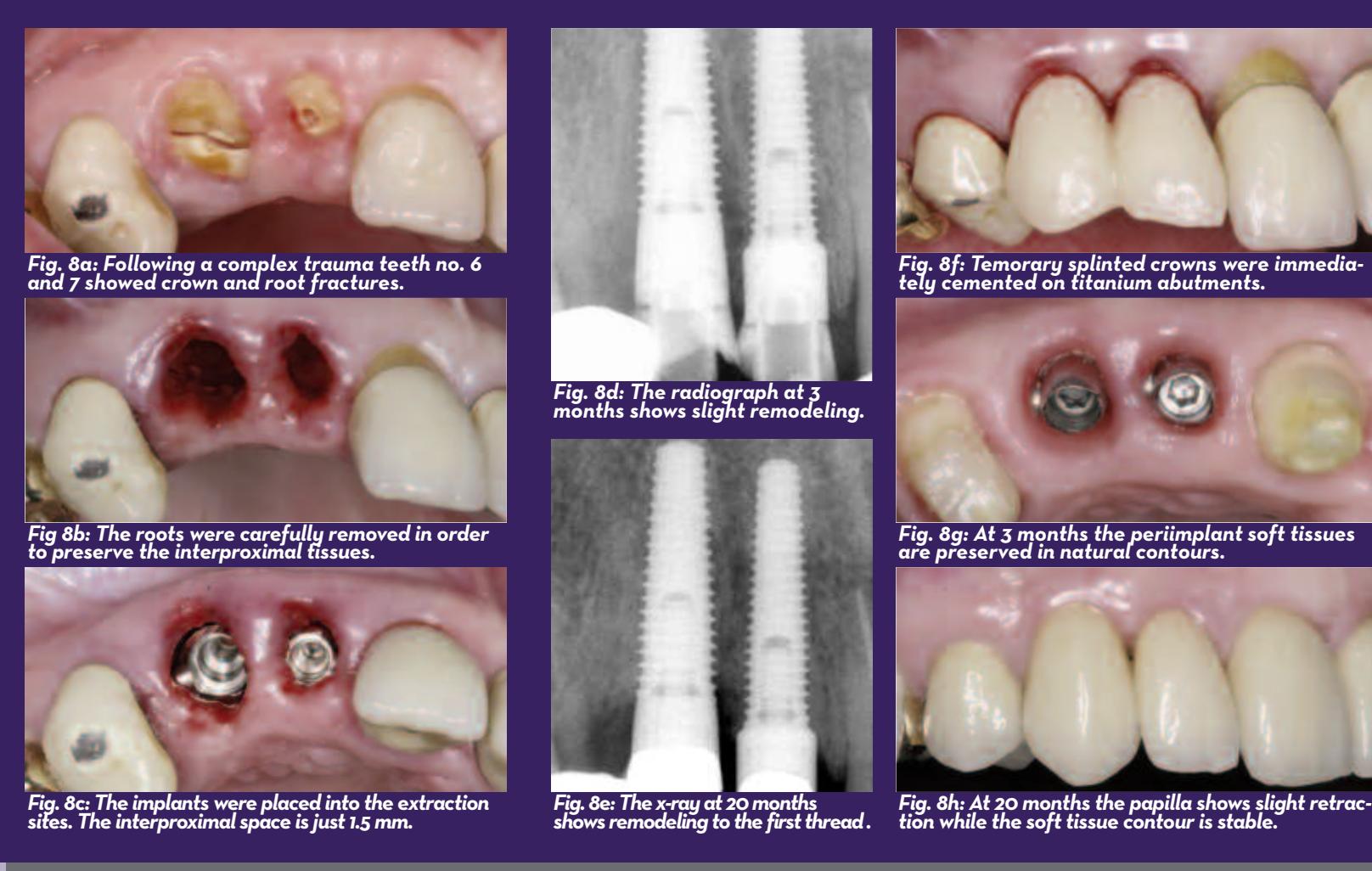


Fig. 8: Case No. 2 and 3 - teeth no. 6 and 7 - smoker - traumatic vertical and horizontal root fractures - facial bony lamellae intact - immediate implant placement - immediate provisionalization - splinting - final restoration at 3 months - slight remodeling interproximal - Pink Esthetic Score in total 13 each.

Contact information

Dr. Robert Nölken, Paradiesplatz 7-13, D-88131 Lindau / Lake Constance, Germany, praxis@dr-noelken.de