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Maintenance of Marginal Hard and Soft Tissue Support at Immediately Provisionalized OsseoSpeed Profile Implants 2-year Results

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Topic: Implant therapy outcomes, surgical aspects

Background and Aim

To overcome the disadvantages of staged implant surgery and treatment, immediate loading concepts as well as flapless surgery approaches have been introduced in recent years. Specifically, promising results in terms of high success rates and remarkable esthetic outcomes have been reported for implants placed in extraction sockets and immediately loaded via provisional crowns. In the anterior maxilla the extraction socket anatomy is sloped in a lingual to buccal direction and 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 study examined the clinical performance of OsseoSpeed Profile implants and the transgingival components in a one-stage procedure with immediate insertion and provisionalization in the anterior maxilla.

Methods and Materials

22 OsseoSpeed Profile implants were inserted in 16 patients (8 males, 8 females, mean age 41 ± 19.9 years). All implants were placed immediately into extraction sockets of upper incisors. Facial bony defects (4 total, 8 partial losses of facial lamella) were reconstructed immediately with autogenous bone chips without raising a flap. All patients received immediate prosthetic restorations. Primary outcome variables were implant survival, marginal bone levels and Pink Esthetic Score.

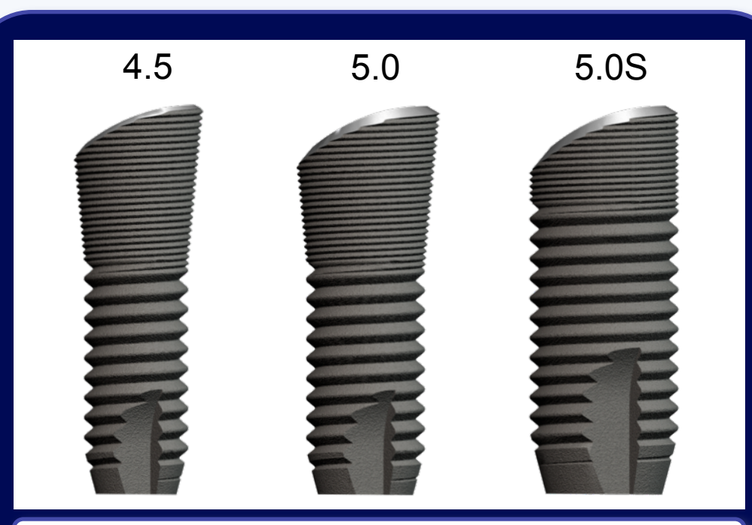

Fig. 1: OsseoSpeed™ Profile implant dimensions.

Results

Mean primary stability at time of implant insertion was 23 Ncm; 3 further implants had to be excluded because of insufficient primary stability for immediate provisionalization (below 15 Ncm). Mean follow-up was 22 months (range 12 to 29 months). There was one implant loss. Cumulative survival rate according to Kaplan-Meier was 95.5%. Marginal bone height maintained at the level of the implant shoulder and averaged -0.2 ± 0.55 mm at the final follow-up. In 76% of the implant sites it was possible to keep the gingival esthetics stable or even to improve it from the pre-operative examination (mean 10.5, SD 2.3) to the final follow-up (mean 11.6, SD 1.3).

Conclusions

Results of survival rate, marginal bone stability and esthetic improvement suggest proof of principle for immediate provisionalization of OsseoSpeed Profile implants.

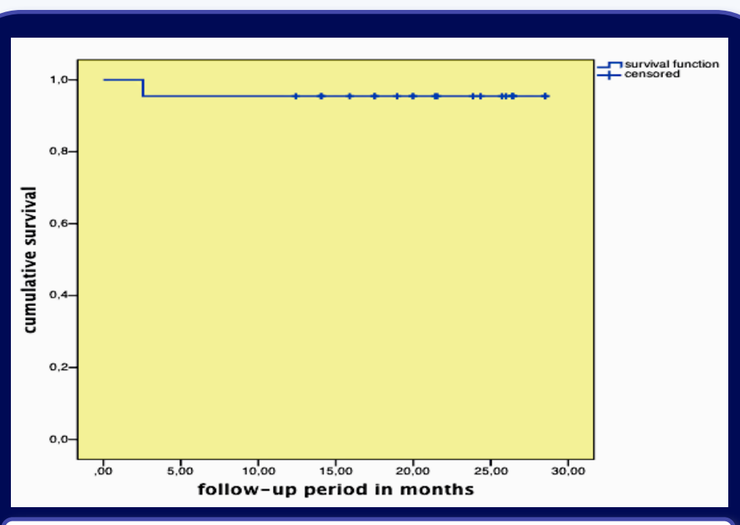

Fig. 2: Cumulative survival rate was 95.5% (range up to 29 months).

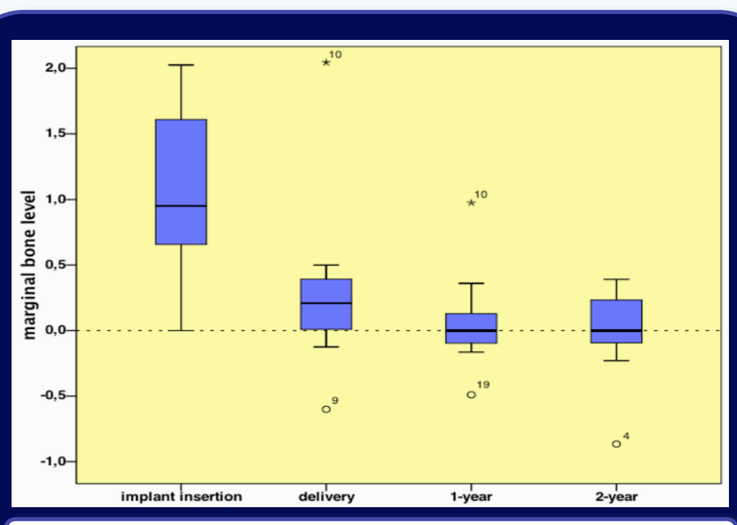

Fig. 3: Maintenance of marginal bone at implant shoulder level.

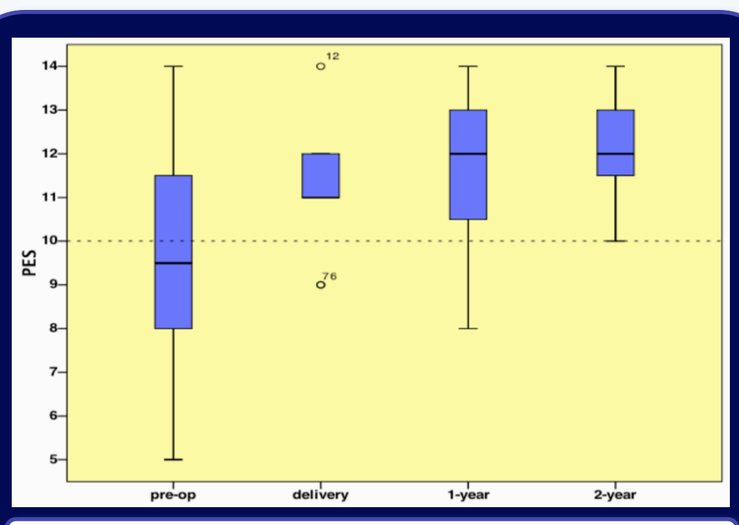

Fig. 4: Improvement of PES from pre-op situation to 2-year follow-up.

Fig. 5a: Severe mobility of periodontally hopeless tooth.

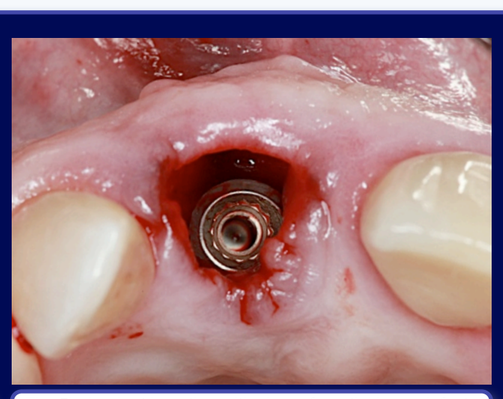

Fig. 5b: Implant insertion with circumferential bone defect.

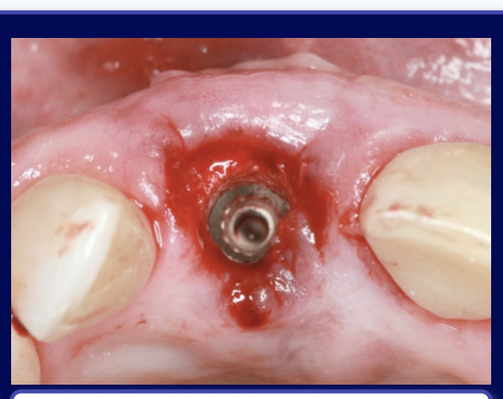

Fig. 5c: Grafting of the facial gap with autogenous bone.

Fig. 5d: Immediate provizionalisation and Ribbond splinting.

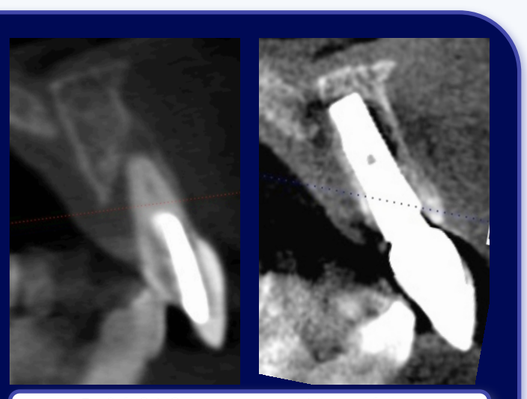

Fig. 5e & f: CB-CTs pre-op and at 1-year follow-up.

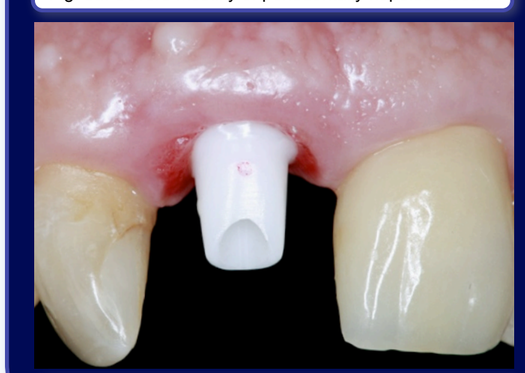

Fig. 5g: Delivery of ZirDesign abutment 3 months post-op.

Fig. 5h: Delivery of final restoration.

Fig. 5i: Maturation of peri-implant mucosa at 1-year.

Fig. 5j: Improved peri-implant mucosa at 2-year.

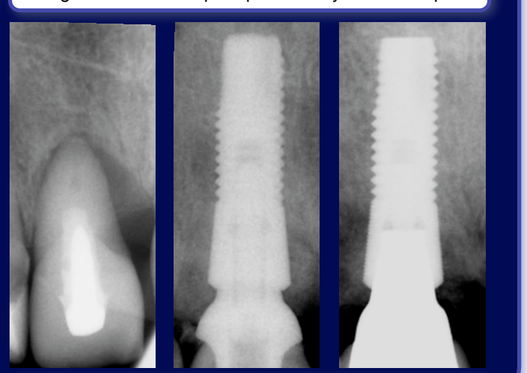

Fig. 5k, l & m: Radiographs pre-op, at insertion and at 2-year.

Fig. 6a: Lateral incisor with post-restoration and recession.

Fig. 6b: Extraction socket with thin facial bony wall.

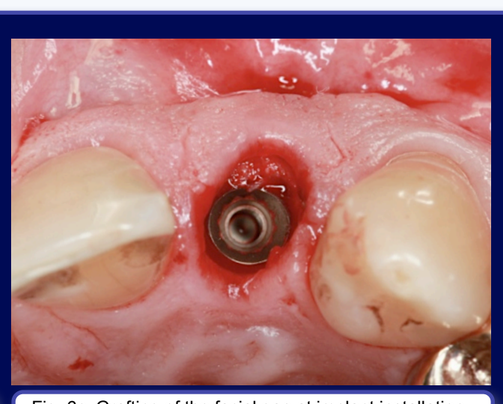

Fig. 6c: Grafting of the facial gap at implant installation.

Fig. 6d: Immediate provizonalisation with temporary crown.

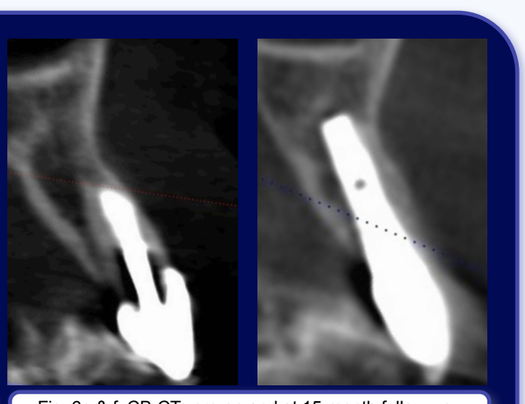

Fig. 6e & f: CB-CTs pre-op and at 15-month follow-up.

Fig. 6g: Delivery of ZirDesign abutment at 3 months.

Fig. 6h: Delivery of final zirconia crown.

Fig. 6i: Maturating of peri-implant mucosa at 8 months.

Fig. 6j: Improvement of peri-implant mucosa at 15 months.

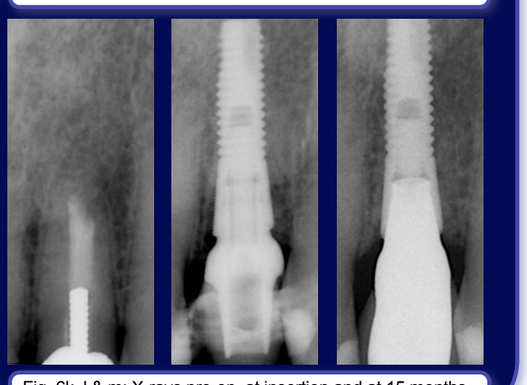

Fig. 6k, l & m: X-rays pre-op, at insertion and at 15 months.

References

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