

Immediate Implant Placement and Provisionalization in Extraction Sites with Severe Gingival Recessions: A Case Series with 1 to 5-Year Follow-up

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Topic: Implant therapy outcomes, surgical aspects

Background and Aim

The main objective in modern implantology is to maintain and support peri-implant osseous and soft tissue structures to combine long-term osseointegration with an esthetic and natural peri-implant mucosa. The major advantages of immediate implant insertion are a reduced treatment time, a fewer number of sessions and the minimally invasive procedure.

In contrast to the mainstream findings it has been shown in previous reports¹⁻³ that immediate implant installation is successful even when the facial bony wall is defect or absent. The aim of this case series is to prove a new surgical approach through a combination of immediate implant installation, immediate provisionalization and immediate facial reconstruction by autogenous bone and connective tissue grafting in situations with facial bone deficiencies and severe gingival recessions.

Methods and Materials

Eight patients (mean age 53.1 years, range 34-67 years, 4 males, 4 females) received a total of 8 OsseoSpeed implants (1 OsseoSpeed, 1 OsseoSpeed TX, 6 OsseoSpeed Profile TX, Dentsply Implants, Mölndal, Sweden) which were immediately inserted into extraction sockets with facial bone deficiencies of various dimensions (2 total, 6 partial loss of facial wall) and severe gingival recessions of at least 3 mm in height. Implants were aligned in contact to and slightly below the palatal bony wall of the extraction sites. Connective tissue grafts were harvested from the palate. In the recipient sites a tunnel was created by intrasulcular incisions at the implant and adjacent teeth sites and supraparosteal preparation without any vertical incisions or papilla separations. The connective tissue grafts were placed within the tunnel and covered by the coronal positioned split flap⁴. Facial gaps between implant surface and the connective tissue grafts were grafted with autogenous bone chips. All implants were immediately provisionalized with a temporary crown without occlusal contacts. Implants in diameters 3.0 (n=1), 3.5 (n=1) and 4.5 (n=6) with lengths of 15 (n=5) or 17 mm (n=3) were used.

Methods and Materials cont'd

Implant survival rate, marginal bone levels, mucogingival changes and the Pink Esthetic Score (PES) were assessed per implant.

Results

The reason for teeth removal was an endodontic failure (n=1), an external root resorption (n=1), a long-axis or horizontal root fracture (n=3), and periodontitis (n=3). Seven implants were placed in the anterior maxilla (2 canines, 5 incisors) and one in the anterior mandible (1 incisor). The mean follow-up period was 23 months (range 10-63 months). All implants were still in function at the final follow-up (survival rate: 100%). CB-CTs were recorded preoperatively and at the final examination. The preoperative distance from the cemento-enamel junction to the marginal bone level was 8.0 ± 2.0 mm (range 4.9-10.5 mm) at the facial aspect; the distance between the implant shoulder and the marginal bone was 0.8 ± 0.9 mm (range 0-2.5 mm) at the final examination. The mean PES ratings improved significantly from pre-op 8.8 ± 1.8 (range 5-10) to 11.5 ± 1.5 (range 9-13) at the final follow-up ($p = 0.011$). The width of the attached gingiva/mucosa improved significantly from pre-op 2.6 ± 0.9 mm (range 1-4 mm) to 4.1 ± 1.3 mm (range 2-6 mm) in the final examination ($p = 0.026$). Mean pre-op gingival recession of the condemned teeth was 4.6 ± 1.2 mm (range 3-6 mm). The height of the mucosal recession at the implant sites improved significantly to 1.1 ± 1.0 mm (range, 0 to 2 mm) in the final examination ($p = 0.011$).

Conclusions

Within the limitations of this case series, single or multiple teeth rehabilitation patients can be treated with a favorable esthetic outcome, improved mucogingival conditions and stable marginal bone levels using the immediate implant placement and provisionalization approach even when facial bony defects and severe gingival recessions have to be reconstructed by autogenous bone and connective tissue grafting at the same time.

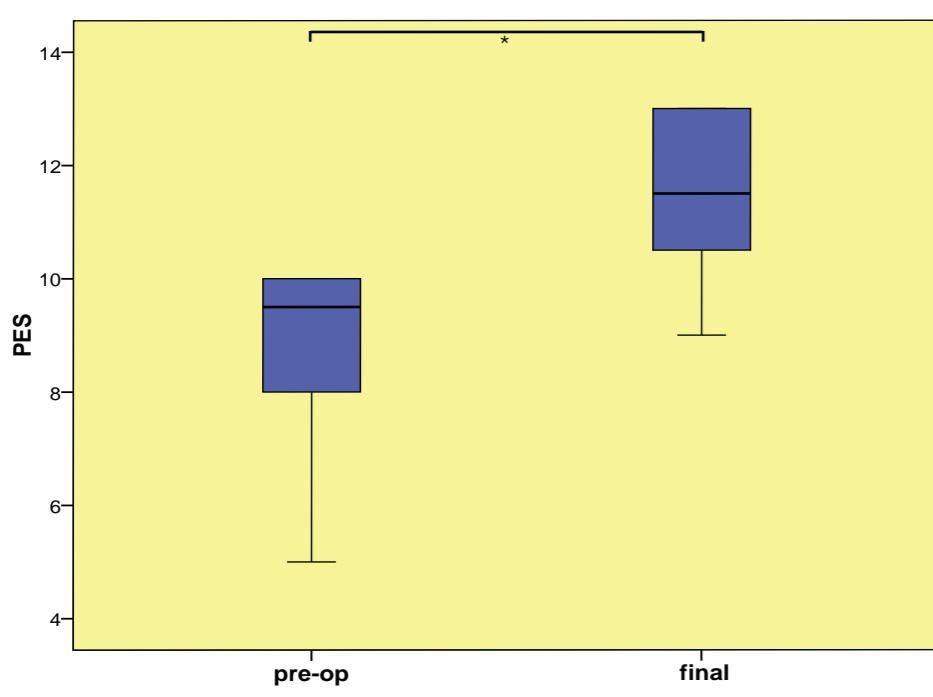


Figure 1: PES ratings improved significantly from pre-op 8.8 ± 1.8 to 11.5 ± 1.5 at the final follow-up ($p = 0.011$).

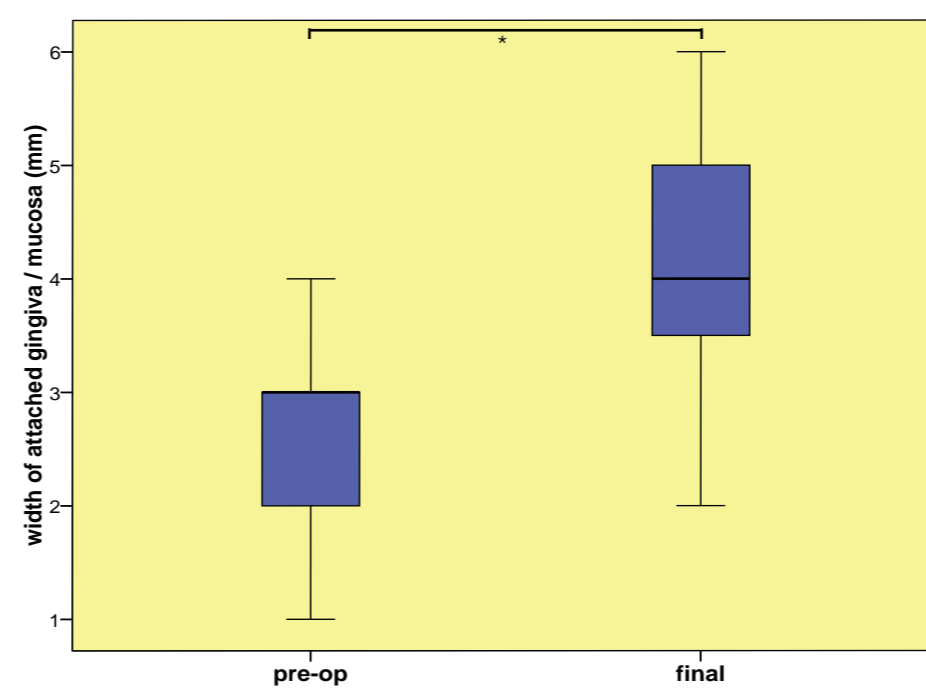


Figure 2: The width of the attached gingiva/mucosa improved significantly from pre-op 2.6 to 4.1 in the final examination ($p=0.026$).

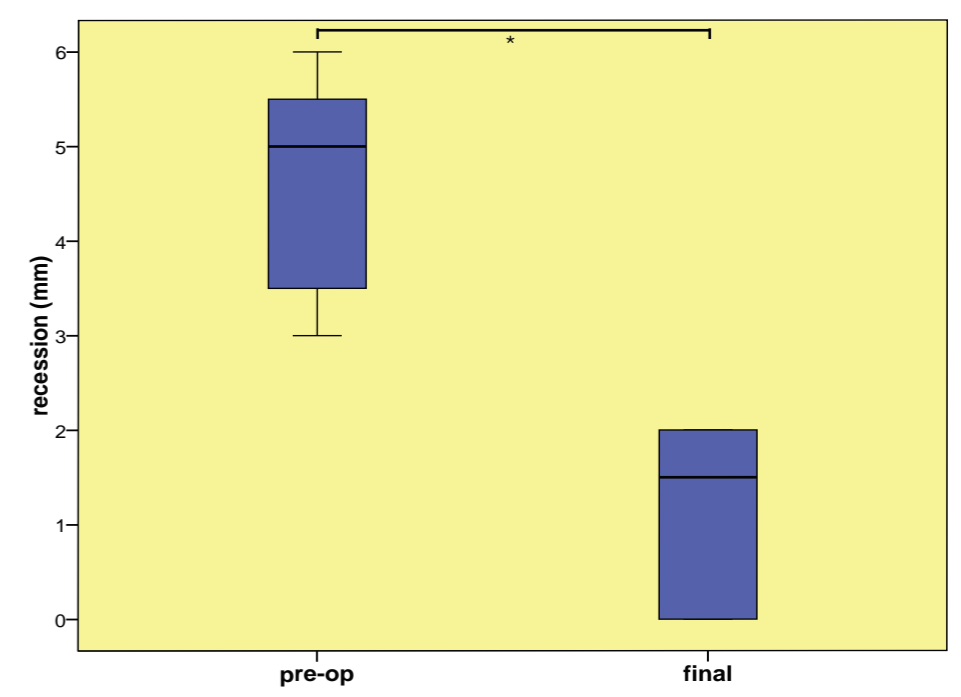
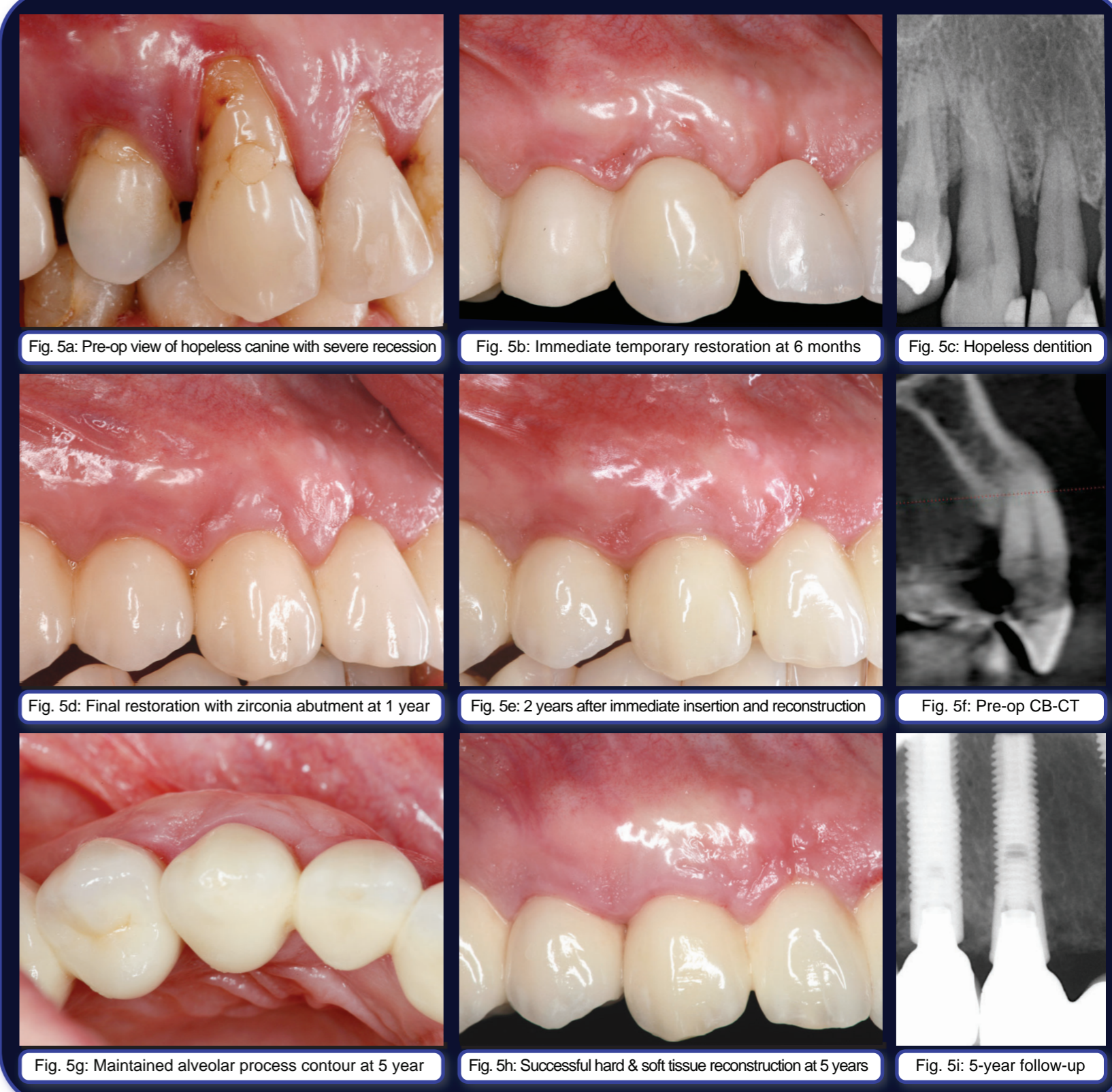


Figure 3: The pre-op gingival recession of the condemned teeth was significantly reduced at implant sites in the final examination ($p=0.011$).



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