

Flap vs. flapless surgical techniques at immediate implant function in predominantly soft bone for rehabilitation of partial edentulism: a prospective cohort study with follow-up of 1 year

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Purpose: The aim of this study was to report on the rehabilitation of partial edentulism with immediate function implants placed in predominantly soft bone with flap and flapless surgical techniques.

Materials and methods: The prospective clinical study comprises 72 implants (50 in the maxilla and 22 in the mandible) placed in 41 consecutively included patients rehabilitated from partial edentulism, followed for 1 year. An implant specially designed for immediate function was used. The evaluation included clinical examinations and radiographic assessment of the marginal bone level at 6 months and 1 year. The outcome measure was the implant success, evaluated using the following implant success criteria: clinical stability (fixed dental prostheses removed and implants individually checked); fulfilled purported function without any discomfort to the patient; no suppuration or infection present; no radiolucent areas around the implants at time of evaluation; and no aesthetic complaints from the patient.

Results: No dropouts were registered during the follow-up of the study. The overall cumulative survival rate at 1 year was 98.6% (1 implant lost), with 100% for the implants placed with the flap surgical technique, and 96.9% for the implants placed with the flapless surgical technique. The overall average marginal bone resorption was 1.6mm (SD=1.1mm) at 1-year follow-up, with 1.4mm (SD=0.8mm) and 2.0mm (SD =1.4mm) for the flap and flapless surgical technique study groups, respectively. The complications registered were: peri-implant pathology (3 implants in 3 patients); fracture of the provisional crown/prosthesis (2 patients); crown loosening (1 patient) and prosthetic screw loosening (1 patient).

Conclusions: The placement of the specially designed implant for immediate function in predominantly soft bone is viable, as given by the overall 98.6% cumulative survival rate, and the rehabilitation using flapless surgery is safe and predictable. However, the flapless technique revealed more marginal bone resorption compared with the flap technique. Extra care should be taken in the flapless approach with respect to the inclusion criteria and difficulty of the surgery.