Dr. Palo Malo – Variation in the use of zygoma implant treatment planning for the edentulous maxilla


A new approach to rehabilitate the severely atrophic maxilla using extrammary anchored implants in immediate function: a pilot study.

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Abstract

STATEMENT OF PROBLEM: There is a need to simplify implant treatment for complete arch rehabilitation of severely atrophic maxillae, as well as a desire to eliminate grafting and provide quality rehabilitation in terms of esthetics, function, and comfort for the patient.

PURPOSE: The purpose of this study was to report on the initial results of rehabilitation of complete edentulous edentulous maxillae using a new surgical approach and a newly designed extra long implant, placed externally to the maxillary bone (implant only accommodated in the maxillary bone) and anchored in the zygomatic bone.

MATERIAL AND METHODS: The pilot study included 20 patients (21 women and 8 men), with an age range of 32-75 years (mean=52.4 years), followed between 6 and 18 months, with a mean follow-up time of 1 year. The patients presenting severe atrophy in the maxillae (Canwood and Howell classification C-VI and D-V or D-VI) were rehabilitated either by using 1, 2, or 4 extra long implants (30 to 50 mm in length; Nobel Biocare AB) placed in the zygomatic bone in conjunction with standard implants (24 patients); or 4 extra long implants (5 patients), all placed in immediate function. The criteria used to evaluate implant outcome were: implants function as support for reconstruction; implants stable when individually and manually tested; no signs of infection observed; and good esthetic outcome of the rehabilitation. To evaluate the secondary objective of assessing the stability and health of the soft tissue covering the implants, the mucosal seal efficacy evaluation index (MSEE) was used. This index was modified from the probing depth for standard implants and performed with a 0.25-N calibrated plastic periodontal probe measuring the depth (mm) of the space between the implant and the mucosa. Data were analyzed with descriptive and inferential analyses.

RESULTS: The cumulative implant survival rate and prosthetic survival rate at 1 year were 98.5% and 100%, respectively. The mean and median values of the MSEE at 2 months (2.9 mm, 3 mm), 4 months (2.5 mm, 2.8 mm), 6 months (2.9 mm, 2.8 mm), and 1 year (2.8 mm, 2.5 mm) are comparable to the values of probing depths assessed for standard implants.

CONCLUSIONS: The results indicate that, within the limitations of this preliminary study, the rehabilitation of maxillae with severe atrophy can be performed using extra long implants placed external to the maxilla and anchored only in the zygomatic bone, and placed in immediate function.


Extrammary surgical technique: clinical outcome of 352 patients rehabilitated with 747 zygomatic implants with a follow-up between 6 months and 7 years.

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Abstract

BACKGROUND: The use of zygomatic implants inserted in immediate function through the extrammary technique needs validation.

PURPOSE: To report the outcome of rehabilitating 352 patients with complete edentulous atrophic maxillae using 747 zygomatic implants in immediate function inserted through the extrammary technique.

MATERIALS AND METHODS: Three hundred-fifty-two consecutive edentulous patients with atrophic maxillae were rehabilitated between 2006 and 2012 with 747 zygomatic implants and 786 conventional implants. Implant and prosthetic cumulative survival and success rates were estimated through Kaplan-Meier product limit estimator. Biological and prosthetic complications were recorded after 10 days, 2, 4, and 6 months, and thereafter every 6 months.

RESULTS: Forty-three patients (12.2%) dropped out, one patient lost the prosthesis (cumulative survival rate = 99.7%), and four patients lost 7 zygomatic implants, rendering an estimated cumulative survival rate of 98.2% (Kaplan-Meier). Ten patients lost 17 conventional implants (patient-specific and implant-specific cumulative survival rates of 96.7% and 97.9%, respectively). Biological complications were observed in 80 patients (22.7%) and resolved in the majority of situations, rendering an estimated cumulative success rate of 94.4% at 7 years for zygomatic implants (Kaplan-Meier). Mechanical complications occurred in 156 patients (44%), with one-third of these complications occurring in patients diagnosed with bruxism before the rehabilitation.

CONCLUSIONS: The rehabilitation of atrophic maxillae with zygomatic implants inserted through the extrammary technique in immediate function, alone or in combination with standard implants, is a viable procedure. Until the biomechanical aspects are more predictable and also because of the complexity of the surgical technique, this rehabilitation approach is not ready for every implant clinician to begin using in practice, and prior special training is recommended.
Five-year outcome of a retrospective cohort study on the rehabilitation of completely edentulous atrophic maxillae with immediately loaded zygomatic implants placed extra-maxillary.


Abstract

PURPOSE: To report retrospectively on the 5-year follow-up results of the rehabilitation of complete edentulous atrophied maxillae, using extra-maxillary zygomatic implants alone or in combination with conventional implants.

MATERIALS AND METHODS: This retrospective report includes an initial cohort of 39 patients (30 women and 9 men), with a mean age of 53 years, followed for 5 years. The patients were rehabilitated with 39 fixed prostheses and 169 implants (92 zygomatic implants inserted extra-maxillary and 77 conventional dental implants). A provisional prosthesis was manufactured and attached via multunit abutments secured to the implants on the same day as implant placement. According to patient desires and each clinical situation, either an acrylic resin, a metal-acrylic or metal-ceramic final prosthesis was inserted approximately 6 months after implant placement. Outcome measures were: prosthesis success; implant success; complications; probing pocket depths; marginal bleeding; and marginal bone levels (only for conventional implants). Data were analysed with descriptive statistics.

RESULTS: Two patients died after 6 and 30 months of follow-up due to causes unrelated to their oral rehabilitations, and 5 patients dropped out of the study. No prosthesis was lost; one zygomatic implant was removed after 46 months of follow-up, giving cumulative success rates of 97% and 98.8% (patient and implant related, respectively). Twelve complications occurred in 12 patients: 5 sinus infections in 5 patients, all with a previous history of sinusitis and whose sinus membrane was disrupted during surgery; one oroantral communication (leading to removal of the implant); 2 all acrylic resin prostheses fractures, 1 ceramic crown fracture (on a metal-ceramic prosthesis); and 3 screw loosening. Bleeding on probing was recorded in 6 patients (13 implants). Probing pocket depths >4 mm were present in 13 patients (23 implants) at 5 years of follow-up. The average (standard deviation) marginal bone loss on conventional implants was 1.16 mm (0.77 mm) in those 9 patients having the intraoral radiographs.

CONCLUSIONS: The long-term outcome (5 years) of rehabilitations performed on patients with completely edentulous, severely atrophic maxillae supported by immediately loaded zygomatic implants alone, or in combination with conventional implants, is satisfactory.