The aims of this thesis were to analyze reduced number of implants supporting full arch fixed mandibular prostheses and fixed partial dentures (FPDs), non-submerged healing and early loading in the edentulous mandible. A further aim was to evaluate fit of Computer Numerical Controlled (CNC) milled cara I-Bridge frameworks.

On the role of number of fixtures, surgical technique and timing of loading.
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Giving a hand to oral health.
Background

Titanium frameworks fabricated with a Computer Numeric Controlled (CNC) milling technique (Procera® implant Bridge (PIB), Nobel Biocare AB, Göteborg, Sweden) has been proven to have a fit superior to conventionally cast frameworks. With the introduced cara I-Bridge (Kulzer Nordic AB [Biomain], Helsingborg, Sweden) an alternative CNC-milled framework is available.

Purpose

To evaluate the fit of cara I-Bridge CNC-milled titanium frameworks using two different implant systems.

Materials and Methods

Two master models; one for Brånemark system® implants (Nobel Biocare AB) with external abutment connection (Fig. 1) and one for NobelReplace™ implant system (Nobel Biocare AB) with internal abutment connection were fabricated together with ten individual acrylic resin patterns each (Fig. 2). Theses patterns were used in order to fabricate ten Titanium frameworks for each master cast in a CNC milling-machine. Five additional Brånemark system® models with frame-works produced in routine production were used as “clinical controls”. A Coordinate Measuring Machine (Fig. 3) was used to measure the center point positions of all implant replicas and framework fit surfaces (Fig. 4). Distortion between frameworks and master models was analyzed by the “least square method”.

Results

Frameworks for the Brånemark system® implants presented a small, reduction of arch width (-axis) and arch curvature (y-axis). Clinical control frameworks presented a small increase in both arch width and arch curvature. Frameworks for NobelReplace™ implants presented a small increase in arch width but no significant difference in arch curvature (Table 1). The mean distortion in absolute figures in x-, y-, z- axis and 3-D were significantly larger for clinical control frameworks as compared to Brånemark system® and NobelReplace™ frameworks (Fig. 5).

Conclusions

Mean distortion for all frameworks was larger in the horizontal plane (x- and y-axis) with only small distortions in the vertical direction (z-axis). Frameworks fabricated in a laboratory set-up tend to show less distortion as compared to similar frameworks fabricated on a more routine basis (clinical control). Fit of frameworks were similar for the two implant systems used with no framework presenting a “passive fit” to the model.

The study was summarized by Kulzer.

Source

Results were presented in the Swedish Dental Journal Supplement 197, 2008.