

CLINICAL ORAL IMPLANTS RESEARCH

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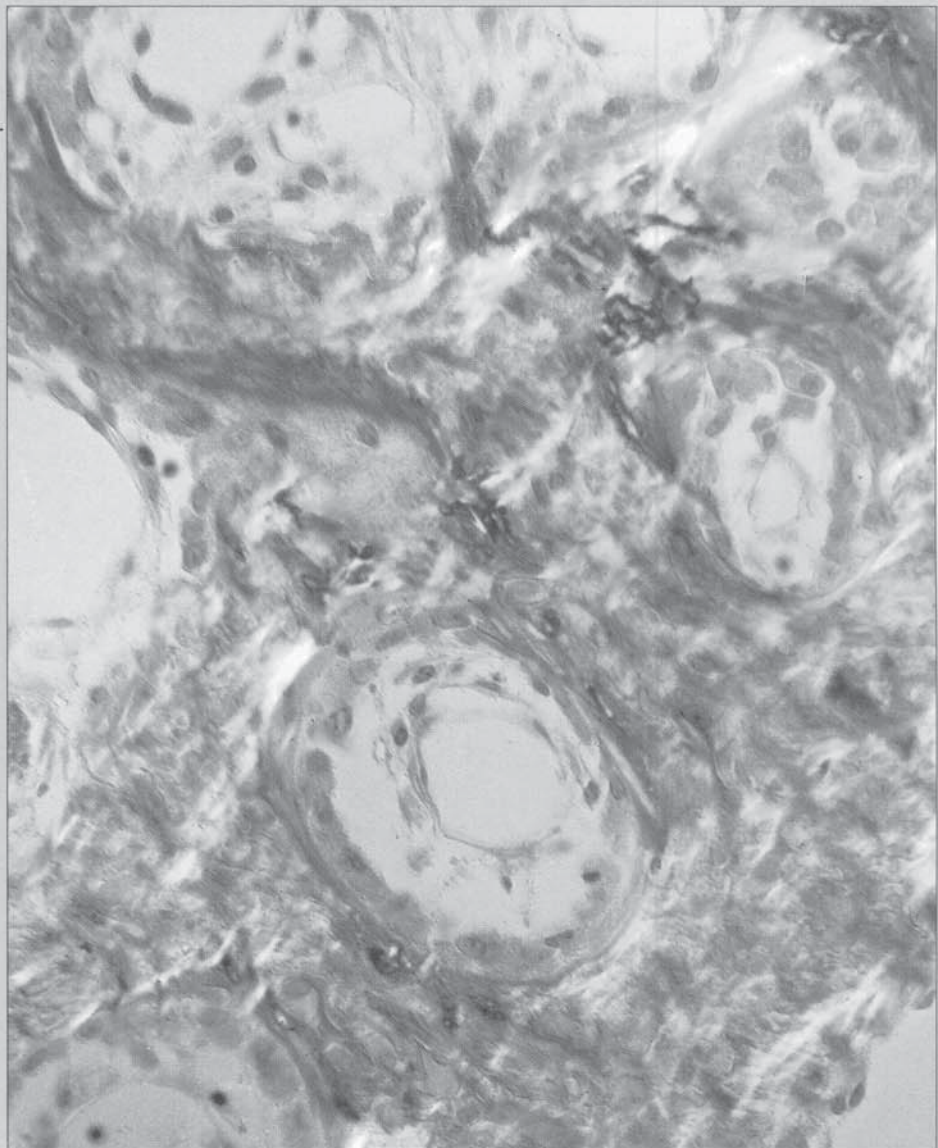
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Computer-aided evaluation of passive fit of implant prosthesis framework

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Passive fit between the implant-supported prosthesis and its supporting abutments is critical to the long-term success of the prosthesis, although a certain biologic tolerance for misfit may be present. Despite different outcomes about the role of misfit on survival of osseointegrated implants, almost all authors agree that misfit can cause mechanical complications such as fracture of framework, retention screws, and porcelain. Distortion of the framework during the casting procedure has been claimed as the main cause of misfit in implant framework fabrication. Among the different methods to achieve passive fit of the framework, we chose the Cresco Ti Precision (CtiP) system, that provides a conventional approach to the framework fabrication followed by a correction of distortion by means of a computerized cutting machine. This machine can perform a horizontal section of the framework followed by a laser welding technique to reassemble the superstructure to new cylinders mounted on the implant analogues in the master cast. Among the different methods to check the framework passive fit, we used Osseo Care (Nobel Biocare) computerized graphic registration machine. This method allows to perform a graphic representation of the tightening of the framework retention screws, displaying the presence of marginal distortion. We have analyzed 10 screwed implant-supported titanium frameworks passivated by CtiP method. All the prostheses revealed a good fit with mean marginal discrepancy of about 40-50 microns.

140 Biomechanics

Bone apposition using implants under functional loading

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Objectives Evaluation of the periimplant crestal bone loss & apposition of 414 astra tech implants. Within the first seven years most of the patients were annually re-examined.

Materials & methods Since 1992 Astra Tech implants have been used at the Heidelberg University Hospital. 120 patients (72 female and 48 male, age range 17 to 81 years) with 190 implants upper-jaw and 224 implants in the lower jaw were annually re-examined. Standardised intraoral X-rays and clinical records were taken at baseline (BL) annually.

The films have been measured, after digitalization with the Friacom X-ray digitalizer (Standard deviation 0.1)

Results The bone level (mm) in 80% of the patients shows changes between bone loss and apposition under functional loading. 3% shows bone loss between -0,12 & -0,15 in the first & second year (The bone level remains stable after the second year). 4 % shows a bone apposition at BL.

Conclusion After seven years, results demonstrate very encouraging results with stability of the implant (98% survival quote, according the life table analysis) and stable bone levels even after bone apposition.

The poster shows the clinical and radiological evaluations & final results of the bone apposition cases (4%).

141 Microbiology

The effect of bacterial plaque on periimplant soft tissue

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The aim of this two year clinical study was to determine peri-implant soft tissue reaction on the removal and recolonization of bacterial plaque and appearance of bacterial morphotypes proportions after the improvement of the patient's oral hygiene. The clinical parameters GI, PI and PD were evaluated at baseline, 2, 4, 6, 12 and 24 months after debridement. Plaque samples were examined by Dark Field microscopy method. Bacterial morphotypes were classified as: potentially non-pathogenic (cocci, nonmotile rods - Type 1) and potentially pathogenic (motile rods, spirochaetes and others - Type 2). 18 subjects (9 male and 9 female, range from 22-62 years, mean age at 36 y) with 30 Ti implants were randomly assigned into: Test and Control group with 15 implants each. Professional plaque removal was performed at baseline, after initial clinical parameters and samples determination. Subjects in Test group were advised to start using the powered toothbrush Sonicare® so as to improve oral hygiene, Control group remained using manual toothbrush.

Results show a significant decrease of GI and PI, nonsignificant decrease of PD and a significant increase of Type 1 morphotypes 2 months after debridement in both groups. In Control group, after 24 months, proportions of Type 2 morphotypes are significantly higher regarding the baseline and periimplant mucosa show a significant increase in GI, PI and PD values. In Test group bacterial morphotypes remain within the 24 month on the level as at baseline, resulting in significant decrease of GI, PI and PD compared with Control group.

Conclusion Improvement in periimplant soft tissue condition was the result of decrease of pathogenic morphotypes in plaque.

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