DOES THE TYPE OF SUPRACONSTRUCTION INFLUENCE THE PREVALENCE OF PERIIMPLANTITIS 19 YEARS (17-22) AFTER IMPLANT PLACEMENT?

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Background:

Mucositis (MS) and periimplantitis (PI) are stated to be infectious diseases. As there are parallels to periodontitis the possibility to avoid plaque accumulation should influence the prevalence of periimplantitis. Removable dentures are stated to offer an easy access for cleaning, while bridge reconstructions, especially full arch reconstructions make great demands on the manual skills for efficient plaque control.

Different factors influencing the formation of PI have been discussed controversy but the influence of the type of reconstruction has not been evaluated yet.

Aim:

To analyze the influence of the type of reconstruction on the prevalence and severity of PI in a patient group exceeding 100 patients at least 17 years after implant placement.

Materials and Methods:

All patients having received dental implants between 1992 and 1997 in the Goethe University Frankfurt/M have been selected. Exclusion criteria were missing X-rays after implant placement or after prosthetical reconstruction. All other patients were invited to a control-examination by phone and by mail.

Patients were divided into 4 groups: Single crown (SC), fixed partial denture (FPD), fixed total denture (FTD), removable denture (RD)

3 examiners were trained and calibrated for the examination. Standardised parameters: BOP (measured on 6 points around the implants), pocket probing depths (PPD; both measured with a pressure-calibrated perio-probe), keratinised tissue, width of keratinised tissue, history of smoking, history of periodontitis, frequency of UPT (professional cleaning), dental status, history of diabetes

A digital panoramic X-Ray was performed (X3).

X-ray controls after implant placement (X1) and after seating of the prosthetics (X2) were digitised.

X-Ray measurements were done by 2 investigators in a darkroom.

Bone loss was calculated as a difference of the bone levels (X2-X3) mesially and distally of the implants. The highest value (mesially, or distally) was determined as BLmax.

Definition of PI and Mucositis (MS):

MS: BOP & BLmax < 1.5mm.

PI: BOP & BLmax >= 1.5mm & PPD >= 4mm.

Results:

375 patients with 946 implants have been selected. 44 implants failed and were explanted during the observation period.

50 patients deceased, 123 moved, 96 were not willing to attend the examination.

106 patients with 274 Ankylos implants were examined.

The observation time was 19.1 years in average (17-22 years).

50 patients (47%) were male, 56 (53%) female.

Cohort SC: 47 patients with 72 Implants (26,3 % all metal ceramic crowns)

Cohort FPD: 44 patients with 138 Implants (50,4 %) (41 Patients with cemented bridges, 2 patients with screw retained)

Cohort FTD: 3 patients with 16 implants (%)

Cohort RD: 18 patients with 64 Implants (23,4 %; 15 patients with double crowns, 3 with bars).

The group SC showed PI in 6,9% and MS in 37,5%, the group FPD PI in 11,6% and MS in 42,8 % and group RD demonstrated PI in 31,3% and MS in 37,5%. This was highly significant $p \leq 0,001$.

Bone grafting (SC 8,3% of the implants, FPD 4,3% and RD 6,3%) showed no significant influence on the different groups (SC: $p=0,073$; FPD: $p=0,201$; RD: $p=0,118$).

Conclusions:

Patients with RD showed a significantly higher degree of bone loss between implant placement and prosthetic reconstruction as well as between prosthetic reconstruction and the last recall (figures 1&2). Patients with RD showed a significantly higher degree of PI, while patients with FPD showed higher rates of MS after 19 years. Patients with SC showed the lowest PI rates after 19 years (figures 3&4).