Bacterial contamination along implant-abutment interface in external and internal-hex dental implants

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The aim of this research was to evaluate bacterial contamination along the implant-abutment interface in relation to the size of the interface. 80 brand name implants were used, 40 internal-hex and 40 external-hex. The implants were handled in a sterile atmosphere inside a box, where they were inoculated with 0.3 ?l of the Streptococcus sanguis ATCC10556 bacterium in the interior and the abutment was immediately installed with a torque of 30 Ncm for the external-hex and 20 Ncm for the internal-hex; the system was included in an Eppendorf control for 30 seconds and then placed in an Eppendorf control for 30 days. The implants were removed and assessed under a scanning electron microscope while the Eppendorf controls were bred in blood agar to analyze the colonies formed. The data were analyzed using the Chi-squared, Kruskal-Wallis and Mann-Whitney tests, considering a value of $p<0.05$ to obtain statistical significance. Five implants were excluded due to probable external contamination. Microspaces of up to 86.8 ?m were observed in the external-hex implants and up to 53.9 ?m in the internal-hex implants with no significant differences between the different systems being observed ($p>0.05$). The contamination observed was produced mainly in the external-hex implants and statistically significant differences were observed between the different hex systems from the same company. No significant differences were observed between interface size and bacterial contamination. Within our limitations, there was no relation between the size of the implant-abutment interface and bacterial contamination with Streptococcus sanguis ATCC10556.

Bacterial contamination

Dental implant

Implant interface

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external hex system

internal hex system

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scanning electron microscope

Streptococcus sanguinis

tooth implant