Treatment of titanium dental implants with three piezoelectric ultrasonic scalers: an in vivo study.

ABSTRACT

BACKGROUND:
Dental implants require regular maintenance. It is crucial that the instrument used for maintenance be able to remove plaque and calculus from the implant surface effectively and efficiently, while causing minimal damage to its circumference. Some ultrasonic scalers may be useful for implant maintenance; however, no clinical study has examined this. This study evaluated the treatment of titanium implants with three piezoelectric scalers in vivo.

METHODS:
Fourteen patients underwent implant treatment in which plaque and calculus were removed from the abutment surfaces with ultrasonic scalers. The abutments were treated with scalers with carbon (VS; N = 7), plastic (PS; N = 7), or metallic (ES; N = 7) tips. The abutment surface characteristics were examined after instrumentation using scanning electron microscopy. The amount of plaque remaining and roughness were estimated using a modification of the remaining plaque and calculus score and the modified roughness score, respectively. In addition, the abutment surfaces were imaged with a laser profilometer and a laser scanning electron microscope (SEM).

RESULTS:
The remaining plaque and calculus scores did not differ significantly among the VS, PS, and ES groups. VS and PS produced a significantly smoother abutment surface than ES. The laser SEM three-dimensional images also demonstrated that VS and PS produced smooth abutment surfaces, whereas ES resulted in damaged surfaces.

CONCLUSIONS:
VS and PS produced clean, smooth abutment surfaces. Piezoelectric scalers with non-metal tips are suitable for use in dental implant maintenance.