Comparative Analysis an in Vitro Investigation of Subgingival Biofilm Response to Titanium and Polyetheretherketone Healing Abutment

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Abstract

Titanium (Ti) is a gold standard material in provisional implant restorations. Polyetheretherketone (PEEK), a polymeric thermoplastic material, has been progressively used in restorative and implant dentistry. Recently, PEEK has been used in implant dentistry as a provisional implant restoration. Few reports were studied regarding the biofilm formation on the PEEK surface. This study aimed to compare plaque accumulation between Ti and PEEK healing abutments. In an in vitro setting, the Ti healing abutments and PEEK healing abutments were subjected to biofilm formation. The results were collected in 24 hours, 48 hours, 72 hours, and 7 days. Biofilms were studied following staining with crystal violet. Two-Way ANOVA analyzed the data. It was found that between Ti healing abutment and PEEK healing abutment materials, the biofilm formation on the PEEK surface is slightly higher than that of Ti, but there is no statistical difference (P >0.05). The results suggested that plaque accumulation between the Ti healing abutment and the PEEK healing abutment is not different. According to the study's limitations, plaque buildup on the surface of PEEK healing abutments was comparable to that of traditional titanium healing abutment materials.

Keywords**:** *Implant Prostheses, Healing Abutment, Polyetheretherketone, Titanium, Biofilm*