

ABSTRACT. Crestal bone loss has been reported to occur around dental implants. Even if the causes of this bone loss are not completely understood, the presence of a microgap between implant and abutment with a possible contamination of the internal portion of the implants has been suggested. The aim of this study was to see if there were differences in the vascular endothelial growth factor (VEGF) expression, microvessel density (MVD), proliferative activity (MIB-1), and inflammatory infiltrate in the soft tissues around implants with screwed and cemented abutments. Sandblasted and acid-etched implants were inserted in the mandibles of 6 Beagle dogs. Ten 3.5- x 10-mm root-form implants were inserted in each mandible. A total of 60 implants (30 with screwed abutments (Bone System, Italy)) and 30 with cemented abutments (Bone System, Italy) were used. After 12 months, all the bridges were removed and all abutments were checked for mobility. A total of 8 loosened screws (27%) were found in the screwed abutments, whereas no loosening was observed in cemented abutments. A gingival biopsy was performed in 8 implants with cemented abutments, in 8 implants with screwed abutments, and in 8 implants with unscrewed abutments. No statistically significant differences were found in the inflammatory infiltrate and in the MIB-1 among the different groups. No statistically significant difference was found in the MVD between screwed and cemented abutments (P = .2111), whereas there was a statistically significant difference in MVD between screwed and unscrewed abutments (P = .0277) and between cemented and unscrewed abutments (P = .0431). A low intensity of VEGF was prevalent in screwed and in cemented abutments, whereas a high intensity of VEGF was prevalent in unscrewed abutments. These facts could be explained by the effects induced in the abutments that underwent a screw loosening, by the presence of bacteria inside the hollow portion of the implants or by enhanced reparative processes.