Marginal bone level change around anodized implants with conical connection in the molar region

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Background: Some anodized implants with conical connection and platform switching are shown to limit marginal bone loss. Anodization provides a moderately rough surface for improved osseointegration compared to smoother surfaces. Conical connection implants yield excellent hard and soft tissue outcomes due to built-in platform shifting and a tight implant-abutment interface. This retrospective analysis followed three different implant designs featuring a tapered body, conical connection, and anodized surface.

Aim/Hypothesis: In this retrospective analysis, we report marginal bone remodeling around anodized implants with conical connections from a single manufacturer followed for up to 5 years (mean 1.2 ± 0.8 years, range 0.3–5.0 years).

Material and Methods: Patients from a single clinic who received at least one conical connection implant with an anodized surface (TiUnite, Nobel Biocare AB, Gothenburg, Sweden) in the molar area between June 2011 and December 2014 were included. Implants were placed using immediate, early and delayed loading protocols in fresh extraction sockets and healed sites. Bone graft material was used in all fresh extraction sites. Marginal bone levels were assessed from radiographs at implant insertion and the last follow-up visit. Marginal bone level change (ΔMBL) was assessed from paired radiographs from implant insertion to the last follow-up visit. Descriptive statistics were performed with SPSS v24 (IBM, Armonk, NY, USA).

Results: Fifty-two patients (31 female, 21 male), mean age 60 ± 14.6 years (range 28–88 years), received 61 conical connection implants in the molar region (53 mandible, 8 maxilla). Patients received 19 NobelActive, 32 NobelReplace CC, and 10 NobelReplace CC PMC implants (Nobel Biocare AB). 96.7% of implants were placed in extraction sites. 26.2% (n = 16) of implants were immediately loaded. Mean insertion torques were 44 ± 16.9 Ncm, 37 ± 9.7 Ncm and 37 ± 13.8 Ncm for NobelActive, NobelReplace CC and NobelReplace CC PMC implants, respectively. 39 patients (45 implants) received a final fixed restoration 5.7 ± 2.2 months after implant insertion. The remaining 13 patients (16 implants) were lost to follow-up. Implants were followed for 4.1–61.2 months (mean 14.9 ± 9.5 months) after implant insertion. All implants (n = 45) were stable and no implant failures were reported last follow-up visit. ΔMBL from implant insertion to last follow-up was −0.60 ± 1.07 mm (n = 42).

Conclusions and Clinical Implications: Within the limitations of this analysis, we conclude that anodized implants with conical connections and platform switching can be successfully used in demanding situations, such as fresh extraction sockets and immediate loading in the molar area.