



The Influence of New Immediate Tissue Level Abutment on Crestal Bone Stability of Subcrestally Placed Implants: A 1-year Randomized Controlled Clinical Trial

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Abstract

Background: The relation between implant abutment disconnection (AD) and increased crestal bone loss is still debated.

Purpose: To compare bone changes below the implant-abutment junction of subcrestally placed implants between: (1) implant level restorations, that underwent four ADs and (2) implants with immediate tissue level abutment with no AD, 1 month (T2) and 1-year (T3) after final restoration delivery.

Materials and methods: Sixty-four patients received 64 bone level implants with platform-switching and conical connection in edentulous sites of the posterior mandible and maxilla. All implants were placed 1.5 mm subcrestally and distributed among: (1) control group, that received a regular healing abutment and (2) test group with immediate tissue level (ITL) abutment, which was torqued to implants during surgery, transforming bone level implant to tissue level type. After 2–3 months of healing and a 1-month temporization, final zirconia-based

screw-retained crowns were delivered to both groups. Crestal bone levels were calculated after final crown delivery (T2); after 1-year follow-up (T3) and compared using the Mann–Whitney U test ($p \leq .05$).

Results: Early bone loss of the test and control groups was 0.14 ± 0.27 mm and 0.64 ± 0.64 mm, respectively; the 0.5 mm difference was statistically significant ($p = .0001$). Late bone loss was 0.06 ± 0.16 mm and 0.21 ± 0.56 mm for the test and control group, respectively; the 0.15 mm difference between the groups was no more statistically significant ($p = 0.22$). Both groups displayed bone gain, 0.08 and 0.43 mm, respectively, and the overall crestal bone loss was reduced.

Conclusions: Immediate tissue level abutments can significantly reduce early bone loss when measured 1 month after final prosthesis delivery, however, after 1-year follow-up, the difference in bone loss between the groups was no more statistically significant.



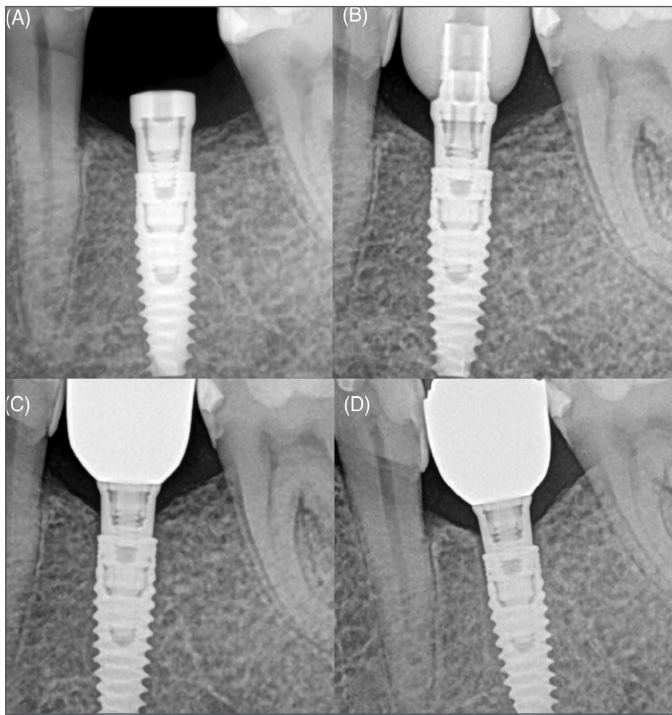


Fig. 1. Radiographs of the CONNECT abutment group. (A) after implant placement (T0); (B) after provisional restoration (T2); (C) 1 month postdelivery of final restoration (T3); and (D) 1 year follow-up (images are cropped and enlarged).

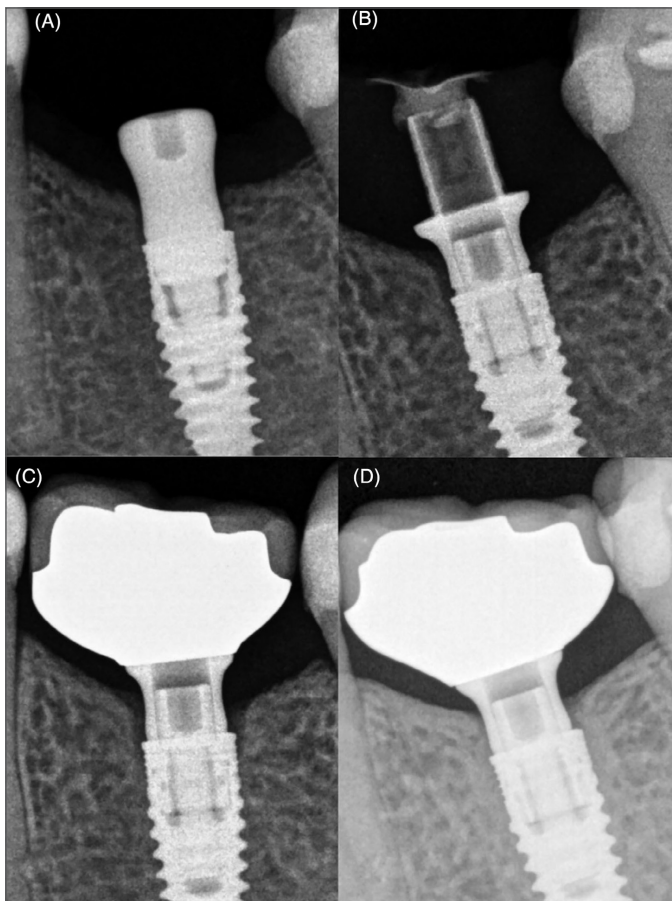


Fig. 2. Radiographs of the regular abutment group. (A) after implant placement (T0); (B) after provisional restoration (T2); (C) 1 month postdelivery of final restoration (T3); and (D) 1 year follow-up (images have been cropped and enlarged).

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