Clinical and radiographic evaluation of narrow- vs. regular-diameter dental implants: a 3-year follow-up. A retrospective study.

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Abstract

OBJECTIVES: Narrow-diameter implants (NDIs) are used in severely resorbed mandibles. The reduced implant diameter means a reduction in the total contact surface between the implant and bone. The question arises whether the implant can be sufficiently osseointegrated to withstand loading forces. If not, marginal bone loss can result from overload. The aim of this retrospective study was to compare clinical and radiographic measurements and patient satisfaction of NDIs with those of regular-diameter implants (RDIs) placed in edentulous patients to support an overdenture via either a ball or a locator connection.

MATERIAL AND METHODS: Retrospectively over a 7-year period, a total 119 patients fulfilled the inclusion criteria and were selected for this study. The patients received two 3.3- or 4.1-mm-diameter standard titanium implants in the mandible to support an overdenture. At maintenance examinations after 1 and 3 years, clinical peri-implant and prosthetic conditions, marginal bone (MB) and patient satisfaction were investigated.

RESULTS: None of the 238 implants were lost during the 3-year follow-up period. Overall MB loss was statistically higher in the NDI group when compared with the RDI group. At the site level, a greater MB loss was observed at the distal side of both implant types. Implants with a locator showed significantly greater MB loss (0.38 mm) compared with the implants with a ball attachment (0.14 mm) over the two-year evaluation period (P = 0.006). Patient satisfaction significantly favoured the NDI (8.3) and the locator attachment (8.6).

CONCLUSIONS: The results suggest that during the first three years after implantation, NDIs were associated with more marginal bone loss compared with RDIs. Regardless of implant diameter, the locator attachment showed more marginal bone loss over time compared with the ball attachment.

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