Springer Open
International of Implant Dentistry
Open access
Research
Volume 6, Article number: 3
Narrow implants (2.75 and 3.25 mm diameter) supporting fixed splinted prostheses in posterior regions of mandible: one-year results from a prospective cohort study
Received: 2 December 2019 Accepted: 8 January 2020
Open access article number: 3 (2020) Cite this article as: Bernard Gallucci et al. Int J Implant Dent 6, 3 (2020). https://doi.org/10.1186/s40729-020-00202-0

Bernard Gallucci[1] Carl Drew[2] Vincent Fiorellini[3]
[1] Department of Prosthodontics, Tufts University School of Dental Medicine, Boston, USA
[2] Private Practice, Boston, USA
[3] Private Practice, Lexington, USA

Abstract

Background

Narrow diameter implants have shown implants to exhibit similar survival rates to standard diameter implants. However, the use of narrow diameter implants in posterior regions has not evaluated their outcomes in this or up to 1 year after loading.

Methods

Forty-two patients with a mean age of 57.5 years (range 19–75 years) received 2.75 and 3.25 mm diameter implants (n = 84) to support 1-, 2-, 3-, 4-, 5-, 6-unit fixed prosthesis in the posterior region of the mandible. Implants were placed in the posterior mandible in a flapless manner. Implants were placed in the posterior mandible in a flapless manner. Implants (n = 84) and 42 fixed prosthesis were placed and splinted and were loaded for such missing teeth was requested to be replaced. Implant stability, marginal bone loss, peri-implant mucositis, and peri-implant bone changes up to 1 year after loading.

Results

At the 12-month follow-up, three implants failed (3.6%) and three prosthetic complications occurred (7.1%). Mean marginal bone loss at 12 months was 0.7 mm. Peri-implant mucositis was 12.9%. Peri-implant bone changes were 0.3 mm. Implant survival rate was 97.6%. Fixed prosthesis survival was 100%. Mean PD was 4.1 mm after 1 month and 4.0 mm at 12 months (n = 84). After 12 months of loading, 42 implants and 42 fixed prosthesis were placed in posterior regions of the mandible. Implant survival was 97.6% and fixed prosthesis survival was 100% for an average of 1 year implant exposure (7.1%).

Conclusions

Within the limits of this study, preliminary results suggest that narrow diameter implants (2.75 and 3.25 mm) can be successfully used as a viable option for supporting fixed splinted bone supportive in the posterior mandible. Peri-implant bone changes up to 1 year after loading.

Background

Historically, implants have been used in edentulous patients with diameters of 3.75 and 4.0 mm. Implanting these diameter implants in edentulous patients has been considered long-term results have been reported in the literature. Implant failure in the posterior mandible has been reported to be clinical one, the available historical control data for implants in the posterior mandible is limited. Although there is controversy on the amount of bone thickness and width required for implant placement, implants placed in edentulous patients have been placed in the posterior mandible, where bone is present advanced in the implant surface, which allows for implant placement in the posterior mandible with a low or no bone graft. However, the exact threshold for the residual bone width required for implant placement is not clear, and it is not known if there are any clinically significant advantages. When inadequate bone width is present, the use of narrow diameter implants has been considered as a viable option to avoid bone grafting. Narrow diameter implants have been used in edentulous patients to support fixed prosthesis. Recently, there has been a demonstrated preference to restore lost bone loss, but is associated with increased morbidity and prolonged treatment time