Clinical and radiological Outcome of Narrow diameter implant supporting a fixed prosthesis: A retrospective study

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Abstract

Up to date, only few comparative prospective clinical studies, especially randomized ones, are available to document survival or success rates of narrow diameter implant (NDI). The hypothesis that NDI in comparison with regular dental implants (RDIs) show more bone loss over time as a result of increased stress distribution in peri-implant bony tissue still controversial. Survival rates of NDI have been evaluated between 95% and 88%. This study including 19 patients have been treated with 30 implants of 3.0 mm and 3.5 mm in diameter , has evaluated the survival rates and marginal bone loss around this implants.

Results

- 30 implants of 3.0 mm and 3.5 mm in diameter placed in nineteen patients (mean age at surgery 59.1 ± 14.29 years) in maxilla and mandible were included and evaluated.
- Implants were loaded of single tooth after 10.97 ± 3.43 months
- The present study showed:
 - 100% implant survival rate in the study population over 18 months (± 6) after implant insertion
 - 33.3% of NDI were placed in anterior sector.
 - The mean MBL was 1.32mm (range from 0.42 to 2.62 mm)
 - No significant difference was noticed in MBL between different sectors or implant diameters (3.0 and 3.5 mm)

Background and Aim

Narrow diameter implant (NDI) could present an effective alternative to bone augmentation or orthodontic procedures in areas of limited bone volume or in situations where the space is limited by adjacent teeth.

The aim of this study was to evaluate the success and survival rates as well as crestal bone loss (CBL) of NDI placed respectively in mandible and in maxilla.

Conclusion

Despite the limitations of the study, our findings showed that NDI can be considered as a possible alternative treatment for the replacement of incisors and premolar with promising survival rates and stable marginal bone levels However, longer follow-up and comparative studies are needed to confirm these results.

Methods and Materials

- A retrospective study enrolled all patients treated with implants 3.5 and 3.0 mm in diameter placed in the mandible or in maxilla.
- Healthy patients with no systematic illness affecting bone metabolism and no signs of infection were included/ no restriction for sexes or age.
- Follow-up period: more than one year after implant placement.
- The known implant length was used as a reference to calibrate the linear measurements of marginal bone loss on digital periapical radiograph.
- Outcome criterions: survival rates / marginal bone loss.
- The mean values of different variables were calculated for each implant and patient. An independent sample t-test was used to analyze the radiographic differences between implant diameter, and within sectors comparisons were performed with ANOVA.

References

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