



Abstract

Background/Aim: The aim of this comparative clinical study was to radiographically evaluate the crestal bone level changes in soft tissue level implants versus bone level implants with platform-switched/hexagonal abutment connection placed in a single-stage manner in the mandibular molar region.

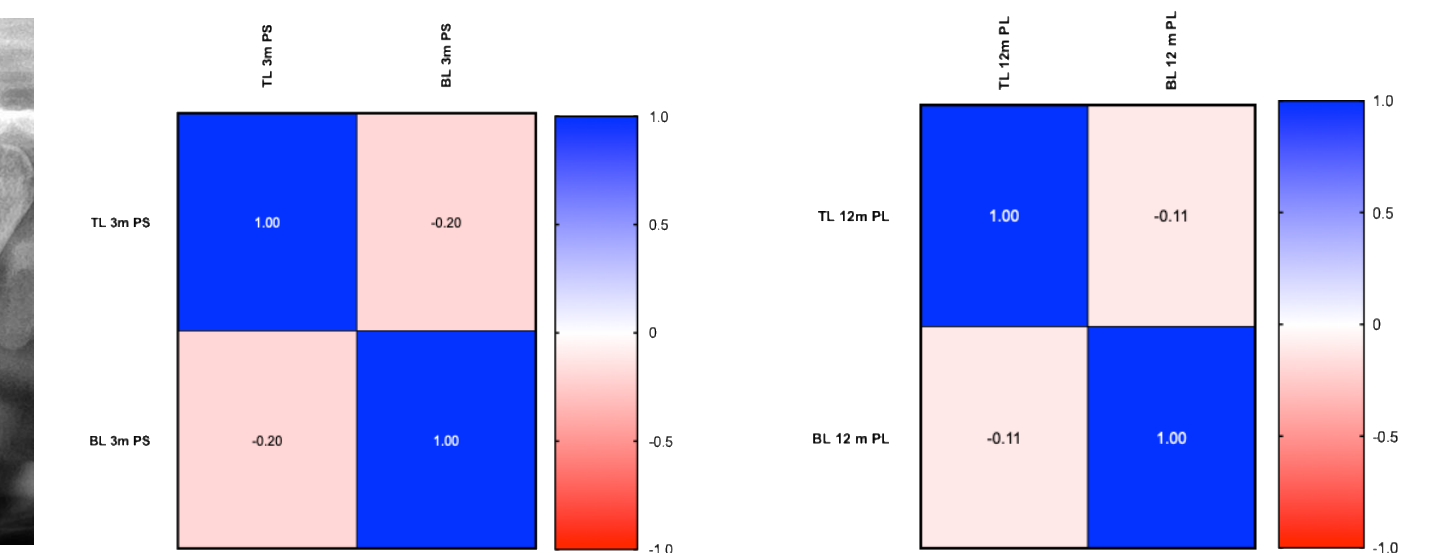
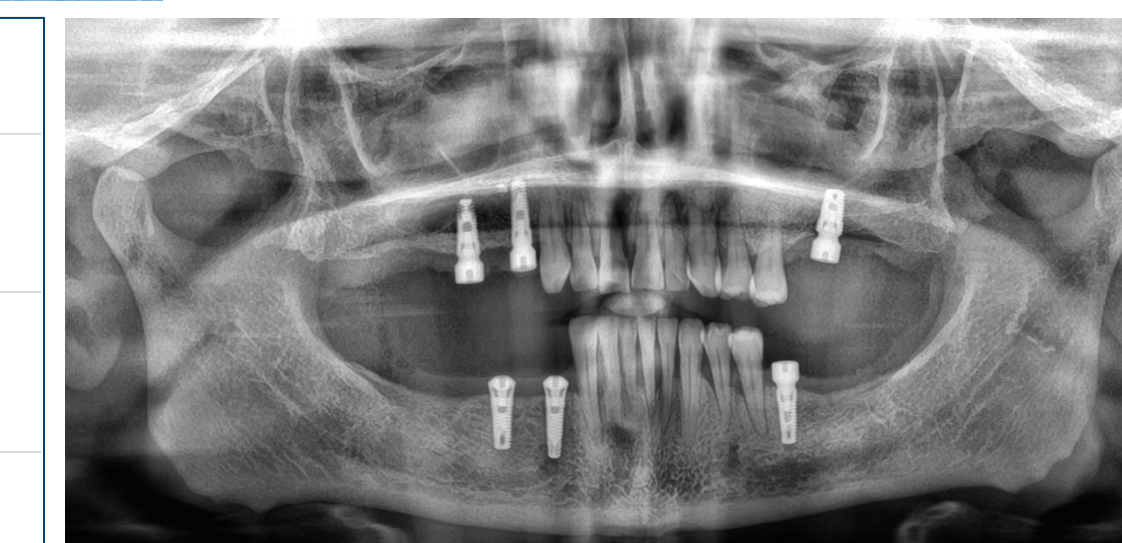
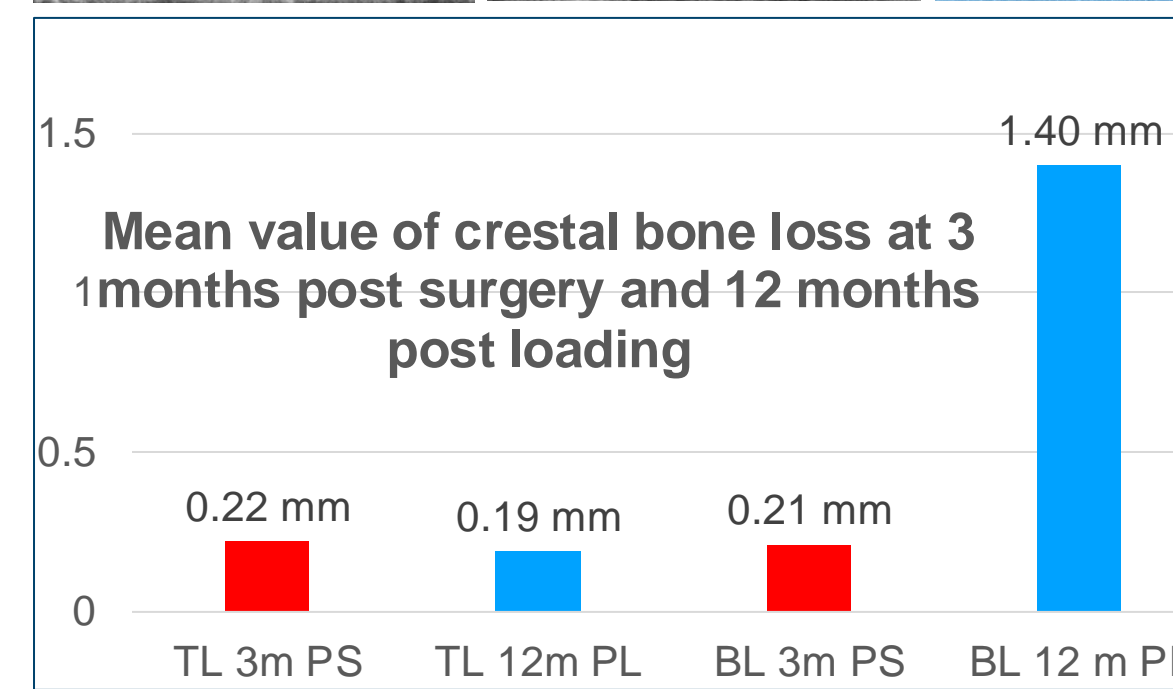
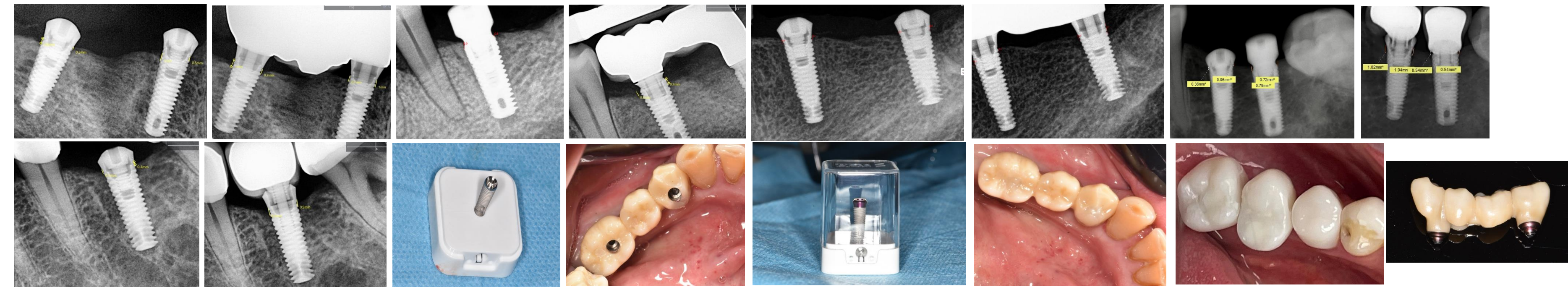
Material and Methods: The general inclusion criteria were non-smoking patients missing single or multiple teeth in the posterior mandible. Individuals with systemic diseases, poor oral hygiene and periodontal diseases were excluded from the study. Local inclusion criteria were sufficient bone width for implant placement and vertically gingival thickness > 3mm. Patients were divided into control group: soft-tissue level implants, (TRI Octa, TRI, Swiss) that included 18 patients who received 30 implants; test group: bone level implants, (TRI Vent, TRI, Swiss) including 15 patients who received 30 implants. The crestal bone level (CBL) was assessed with digital software measurement in peri-apical radiographs imaged using the paralleling technique. The radiographical assessment was done at three time points: the time of implant surgery, 3 months later and 12 months post loading with screw-retained zirconia restorations.

Results: All implants in both groups showed a 100% survival and success rate at 1 year post-surgery. At three months post-surgery, mean CBL for group I was 0,22 mm (SD 0.12), whereas mean CBL for group II was 0.21 mm (SD 0.05), without statistically significant difference. At 12 months post-loading, mean CBL for group I was 0.19 mm (SD 0.03) and mean CBL for group II was 1.4 mm (SD 0.24). There was a statistically significant difference between the CBL in both groups (p < 0.001) at this timepoint.

Conclusion: Both implant designs showed minimal crestal bone loss at 3 months postoperatively. At 1-year post-loading, soft-tissue level implants showed less crestal bone loss compared to bone-level implants with hexagonal platform-switched connection.

Results

At 3 months post-surgery, mean CBL for soft tissue level group (I) was 0,22 mm; mean CBL for bone level group (II) was 0.21 mm. At 12 months post-loading, mean CBL for soft tissue level group was 0.19 mm; mean CBL for bone level group was 1.4 mm. The second timepoint showed statistically significant difference in CBL values.



	TL 3m PS	TL 12m PL	BL 3m PS	BL 12m PL
95% confidence interval				-0,5259 to 0,1822
R squared				0,03900
P value				0,3045
P (two-tailed)				<0,0001
Significant? (alpha = 0.05)				No
Actual median		0,1900		1,410
P value (two-tailed)		<0,0001		<0,001
Significant? (alpha=0.05)		Yes		Yes

Background and Aim

The preservation of the crestal bone plays an important role in long-term survival of osseointegrated dental implants.

The aim of this study was to evaluate the changes of the crestal bone loss in soft tissue level implants versus bone level implants with platform-switched/hexagonal abutment connection placed in a single-stage manner in the mandibular molar region.

Conclusion

Within the limitations of the sample size of this study, both implant designs showed minimal crestal bone loss at 3 months postoperatively. However, at 1-year post-loading, soft-tissue level implants showed less crestal bone loss compared to bone-level implants with hexagonal platform-switched connection, which may have clinical relevance regarding long-term implant survival.

Methods and Materials

The study included healthy, non-smoking patients missing single or multiple teeth in the posterior mandible with sufficient bone width for implant placement and vertically gingival thickness > 3mm. Eighteen patients from group I: soft-tissue level implants, (TRI Octa, TRI, Swiss) received 30 implants.

Fifteen patients from group II: bone level implants, (TRI Vent, TRI, Swiss) received 30 implants.

The crestal bone loss was assessed with digital software measurement in peri-apical radiographs done at the time of implant surgery, 3 months later and 12 months post loading.

References

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