



Impact of restorative contours on marginal bone of tissue level implants: A retrospective study

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Introduction

Factors associated with peri-implantitis have been studied extensively and one such factor is implant restorations. Particularly, emergence angle (EA) of >30 degrees and a convex profile of implant restoration contours have been associated with bone loss. However, these findings are limited to bone level implants.

Aim

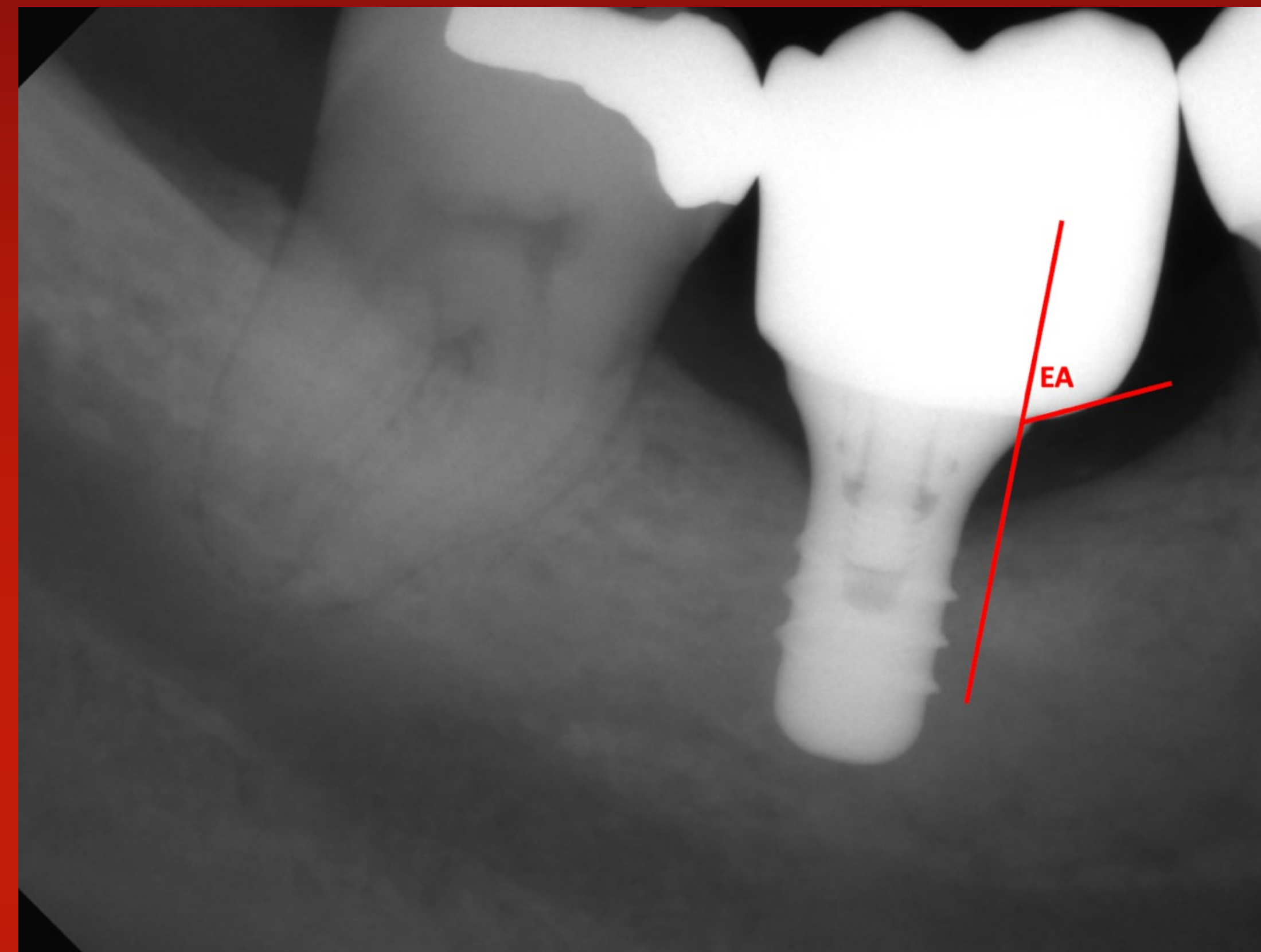
Evaluate the effect of EA and profile on marginal bone around tissue level (TL) implants.

Methods

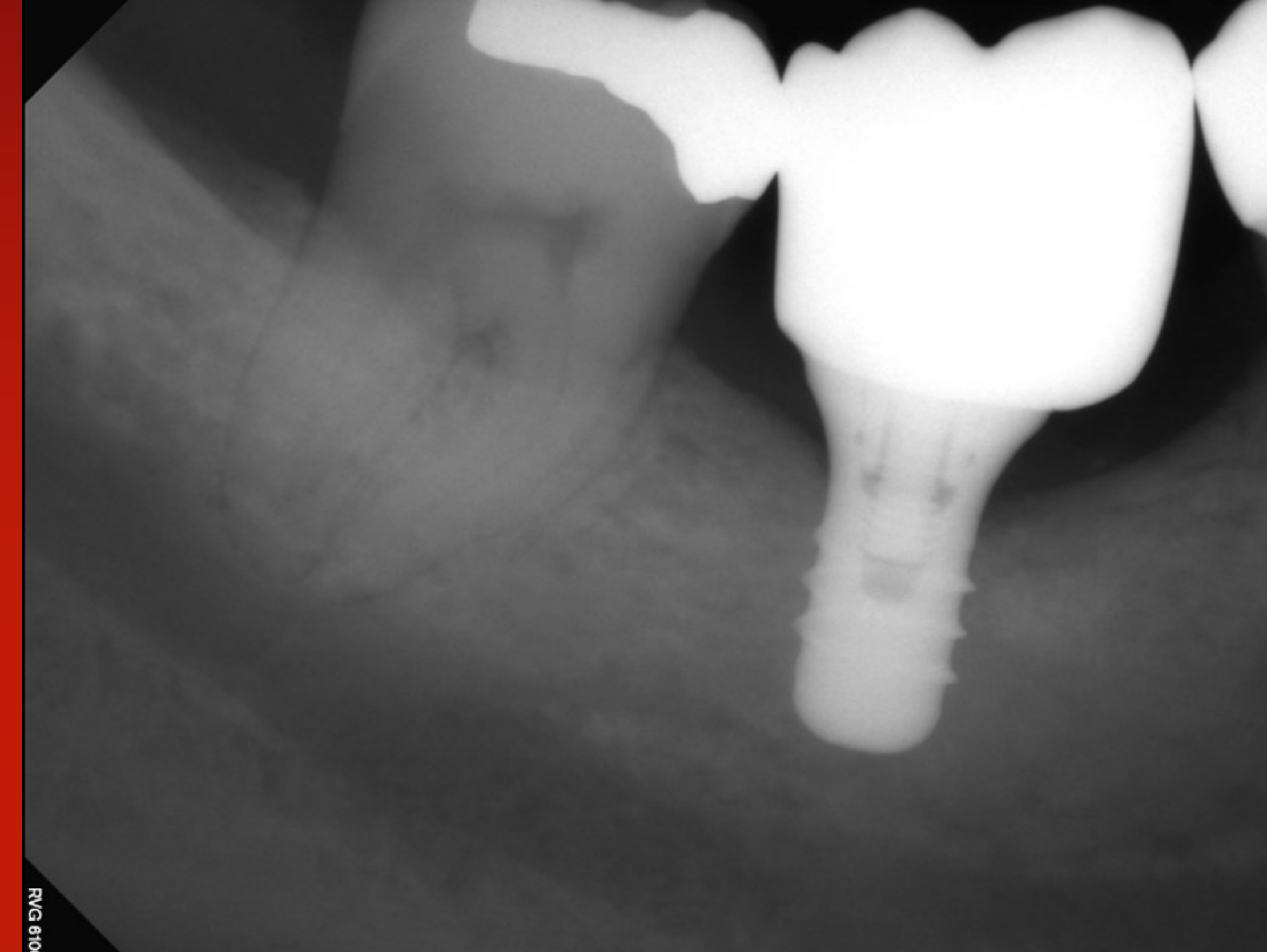
Patient charts were analyzed retrospectively between 2011 and 2023 for dental implants placed at the University of Louisville, Graduate Periodontics Department.

Radiographs were used to evaluate crestal bone levels, EA, and profile on the M and D of TL implant restorations, with a minimum of 1 year follow-up and up to 12 years. The change in crestal bone levels was recorded from the restorative platform to the crest at baseline (T0), up to 2 years (T1), 2-5 years (T2), and 6 years or more (T3), post restoration.

PA showing the EA at T1 (1 year)



MBL at T1 (1 year)



Results

200 implants placed in 100 patients were analyzed for this study. The mean age was 64.5 ± 11 years. The pivotal angle found in this study was $\geq 40^\circ$.

TL implants having an EA of $\geq 40^\circ$ exhibited less bone loss compared to implants that had an emergence angle $< 40^\circ$ ($p < 0.05$). These results were consistent over all the 3 time points analyzed. No correlation was found between EA being either $< 40^\circ$ or $\geq 40^\circ$, and emergence profile.

However, a statistically significant difference was found between restorations with a convex profile to ones with a straight profile on the distal surface. For every degree of the implant restoration, convex profiles had about 0.04 mm more bone loss compared to straight profiles ($p < 0.05$).

Conclusion

Interestingly, it was found that TL implants had less bone loss when EA was $\geq 40^\circ$.

This finding is contrary to the prevailing evidence, but it is important to note that those findings pertain to bone level implants.

PA showing stable MBL at T2 (5 years)

