

The Combination of Striate+ membrane in conjunction with MinerOss X Plug for Providing Hard Tissue Regeneration in Socket Preservation Procedure

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Background

There is considerable knowledge about the healing process of extraction wounds, including the contour changes caused by bone resorption. Preserving the alveolus during extraction is essential for optimal implant placement. Various alveolar ridge preservation techniques have been suggested, involving grafting materials with or without barrier membranes, but none have proven to be superior.

Aim

To compare changes in horizontal ridge width in patients undergoing alveolar ridge preservation using a xenogeneic collagen plug with and without a non-crosslinked collagen membrane.

Materials and Methods

6-month randomized clinical trial.

Outcomes of interest included clinical, radiographic, and ultrasonographic changes in hard and soft tissues, as well as histological evidence of new bone formation.



Group 1 (Bone Graft Only), n = 10



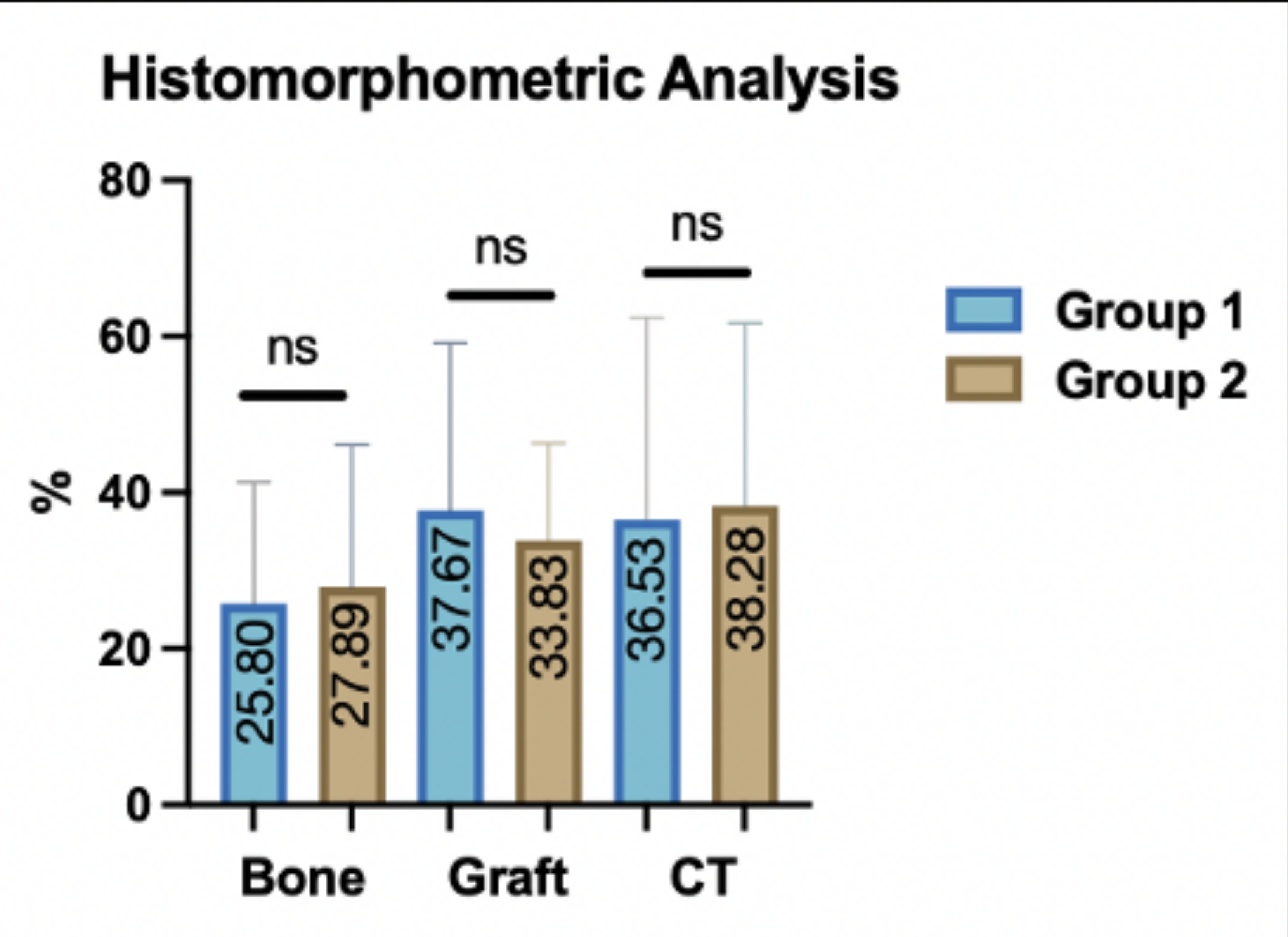
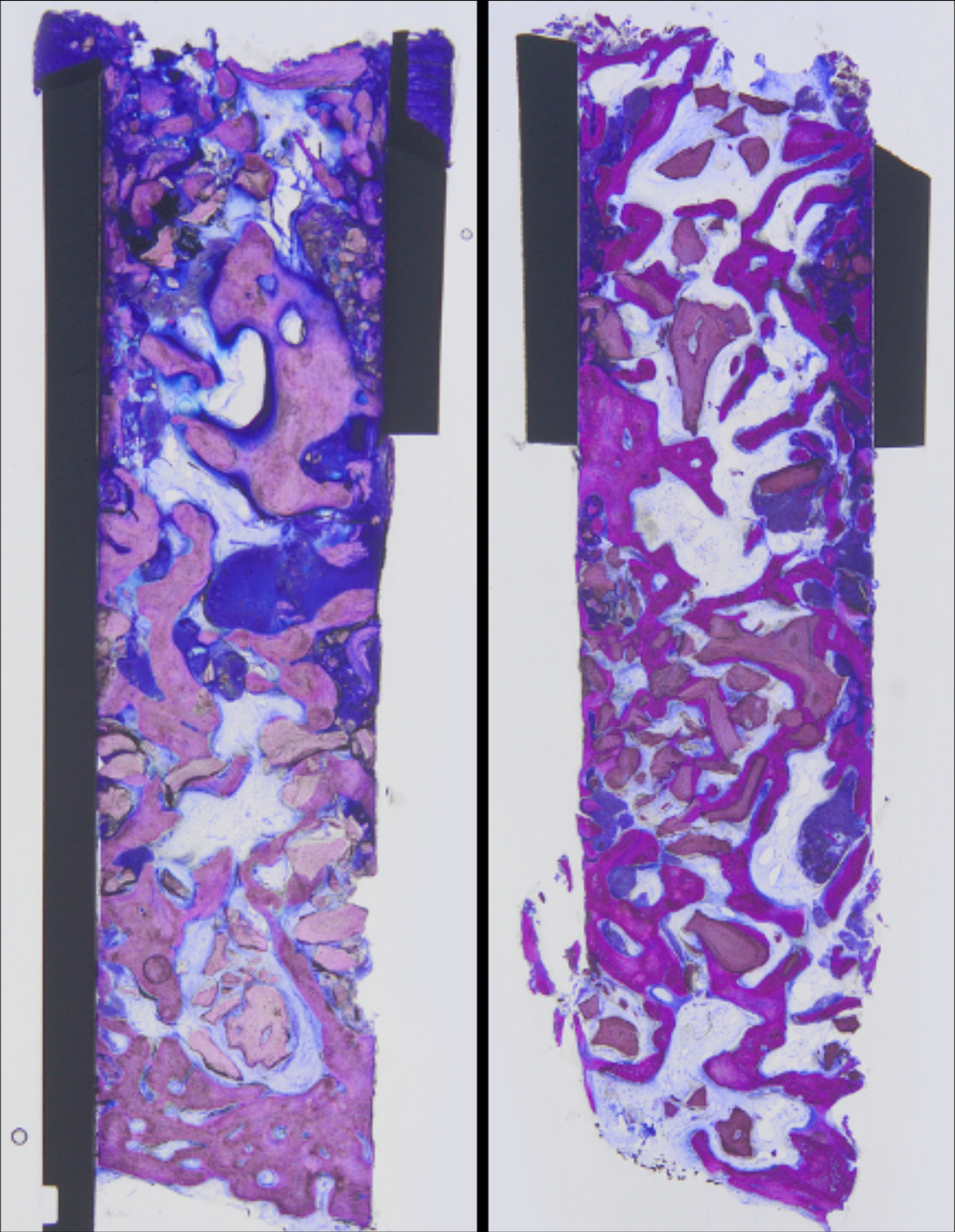
Group 2 (Bone Graft+Membrane), n = 10

Results

A total of 20 patients completed the study (4 female and 6 male in group 1, 5 female and 5 male in group 2).

The mean ± SD age is 54.25 ± 17.08 years (group 1, 52.08 ± 16.61; group 2 55.70 ± 18.30).

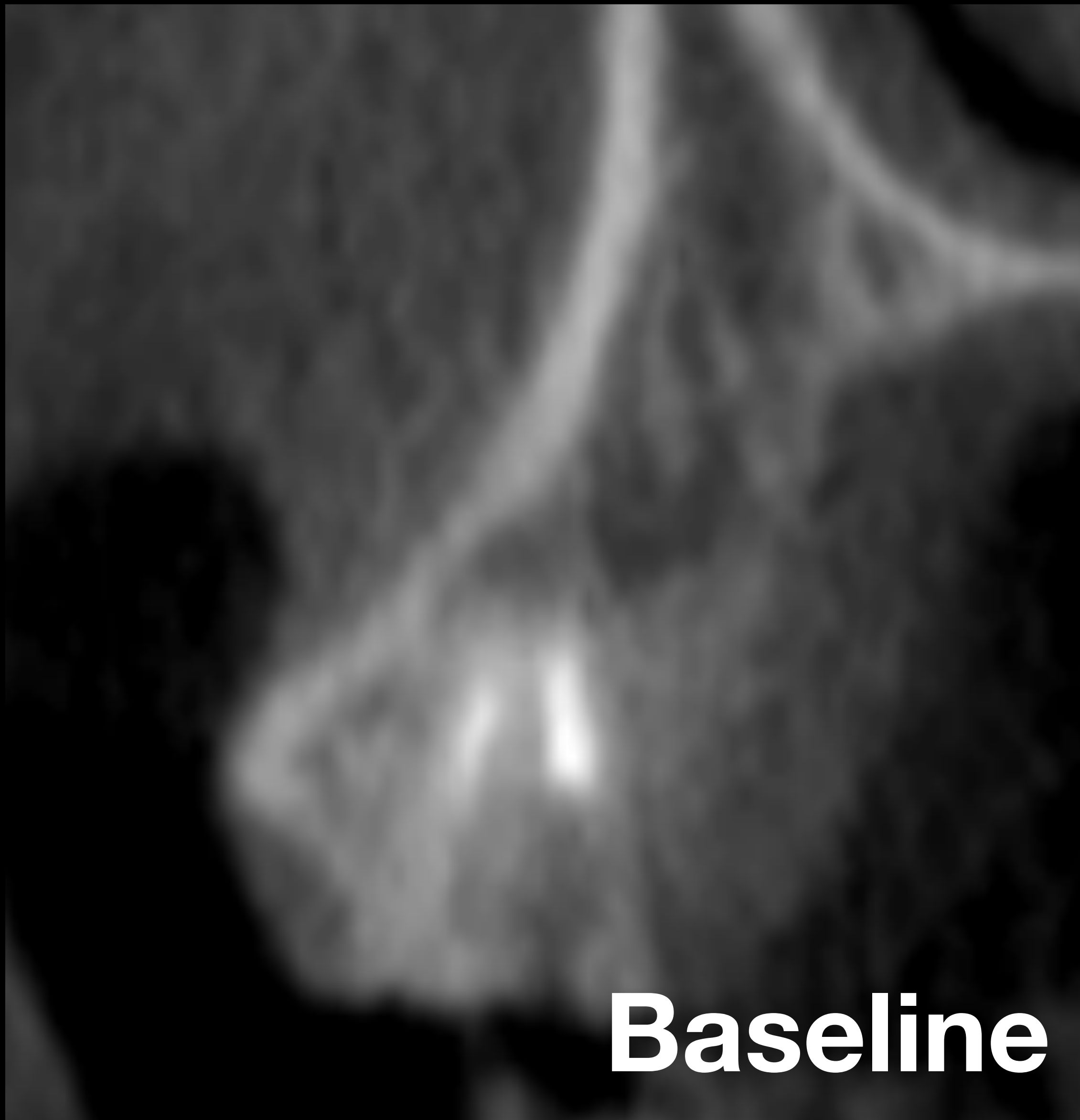
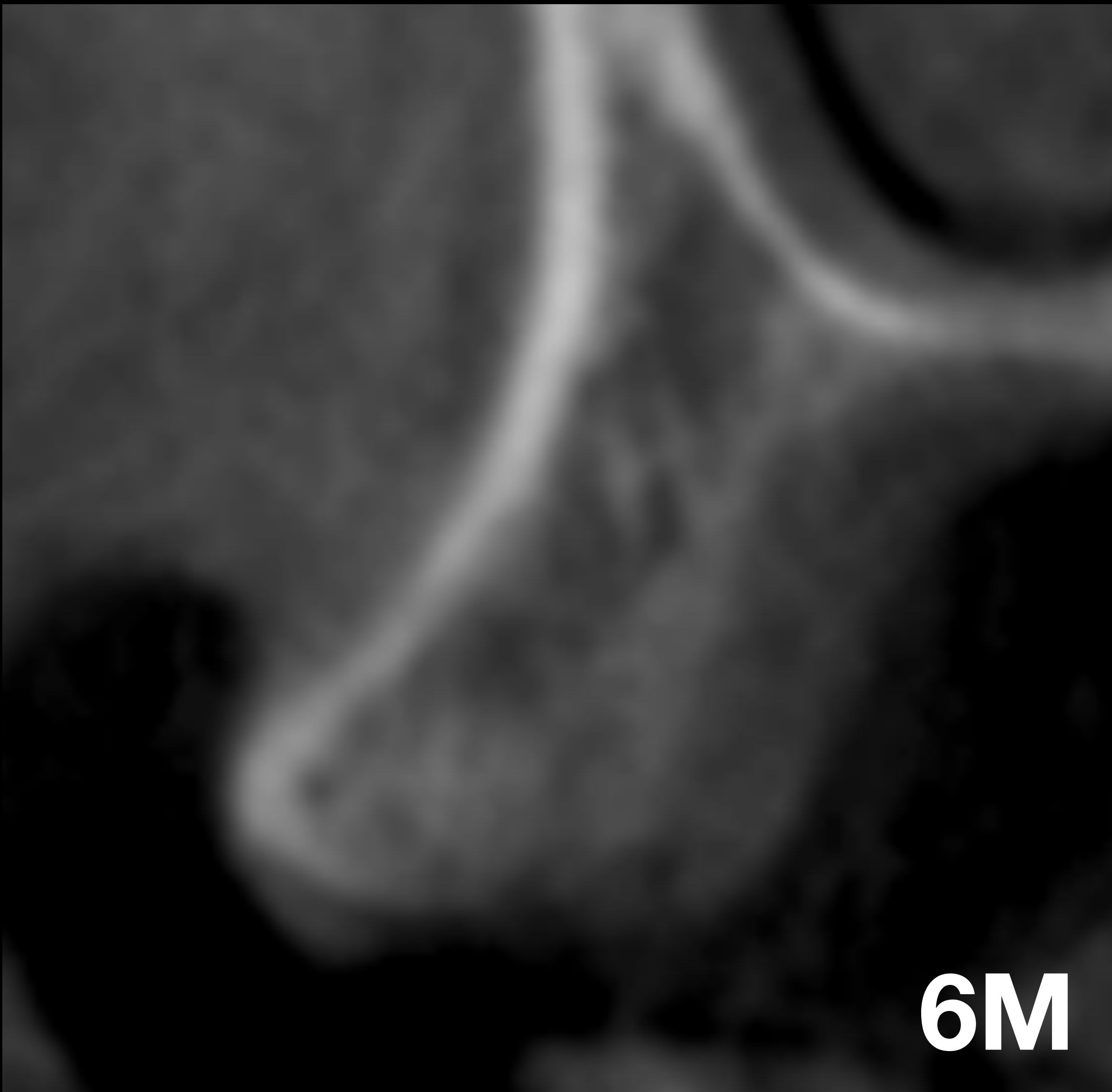
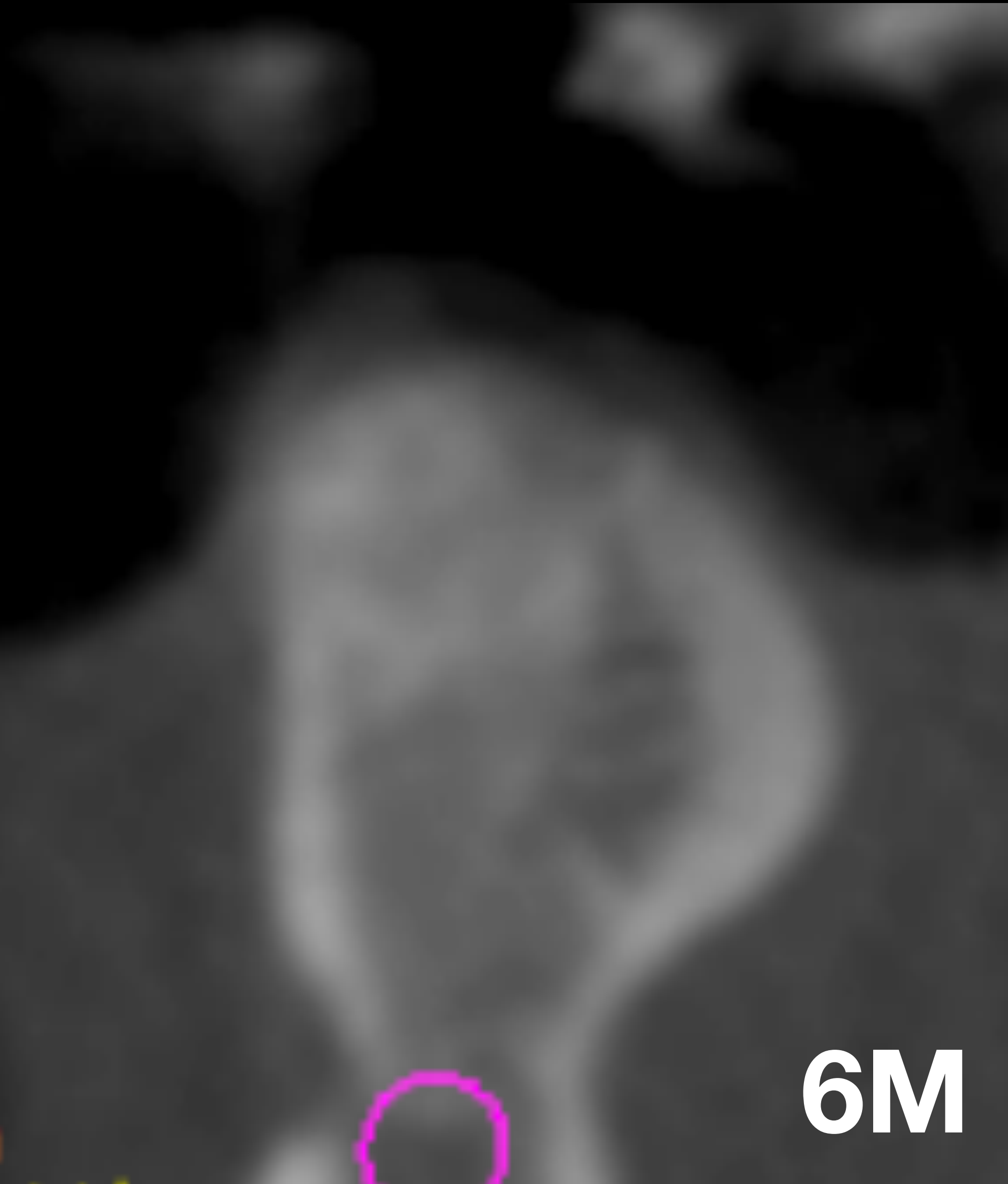
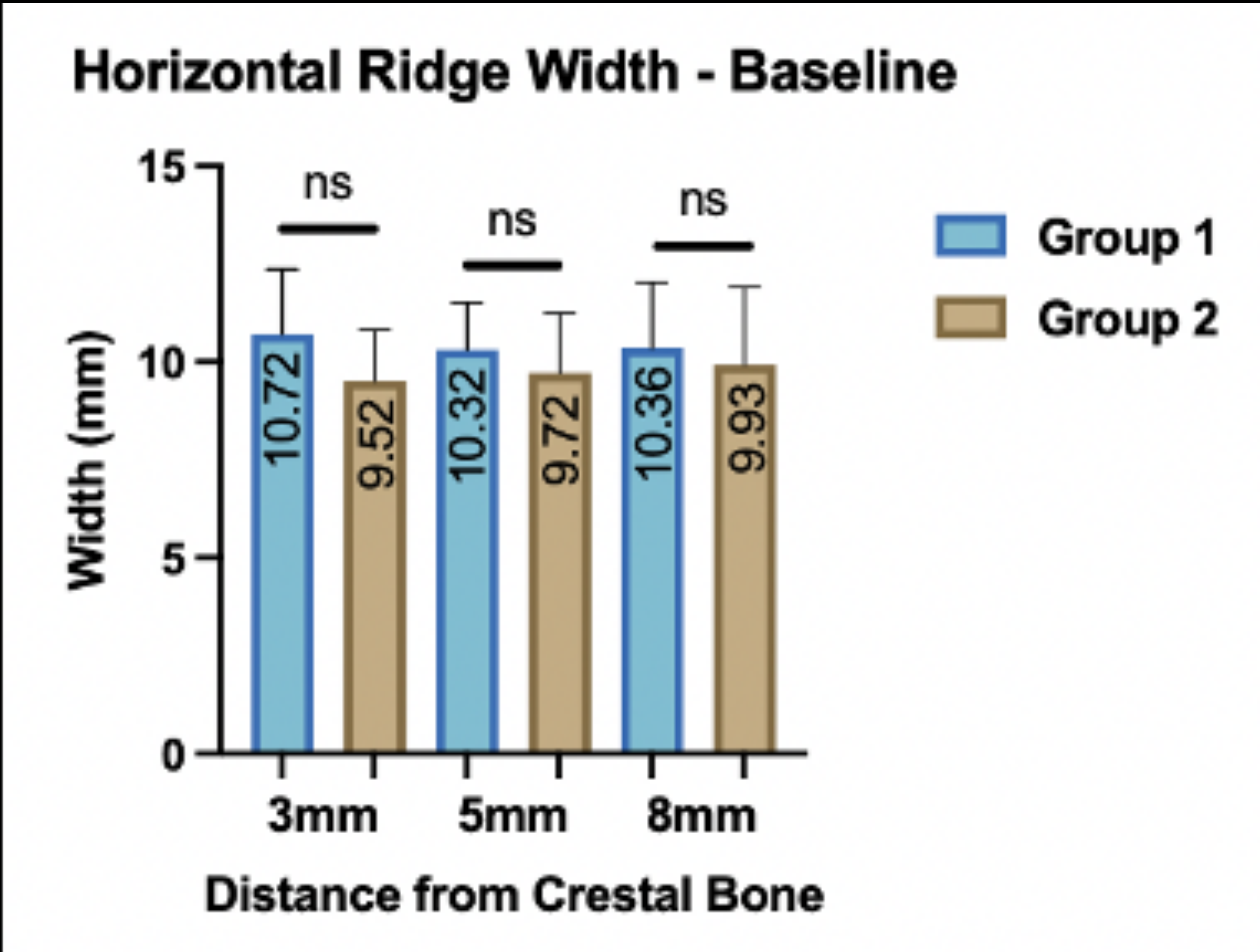
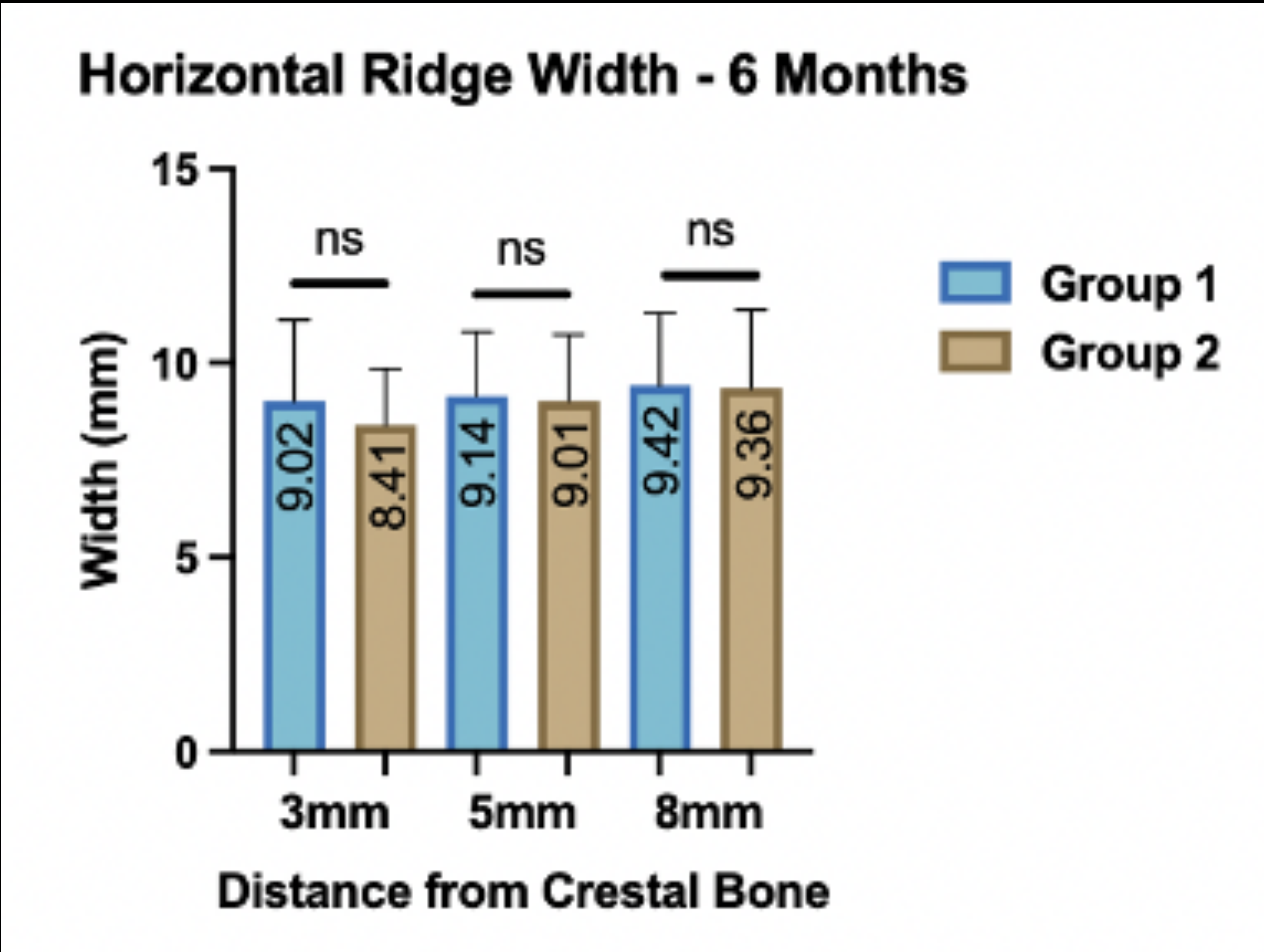
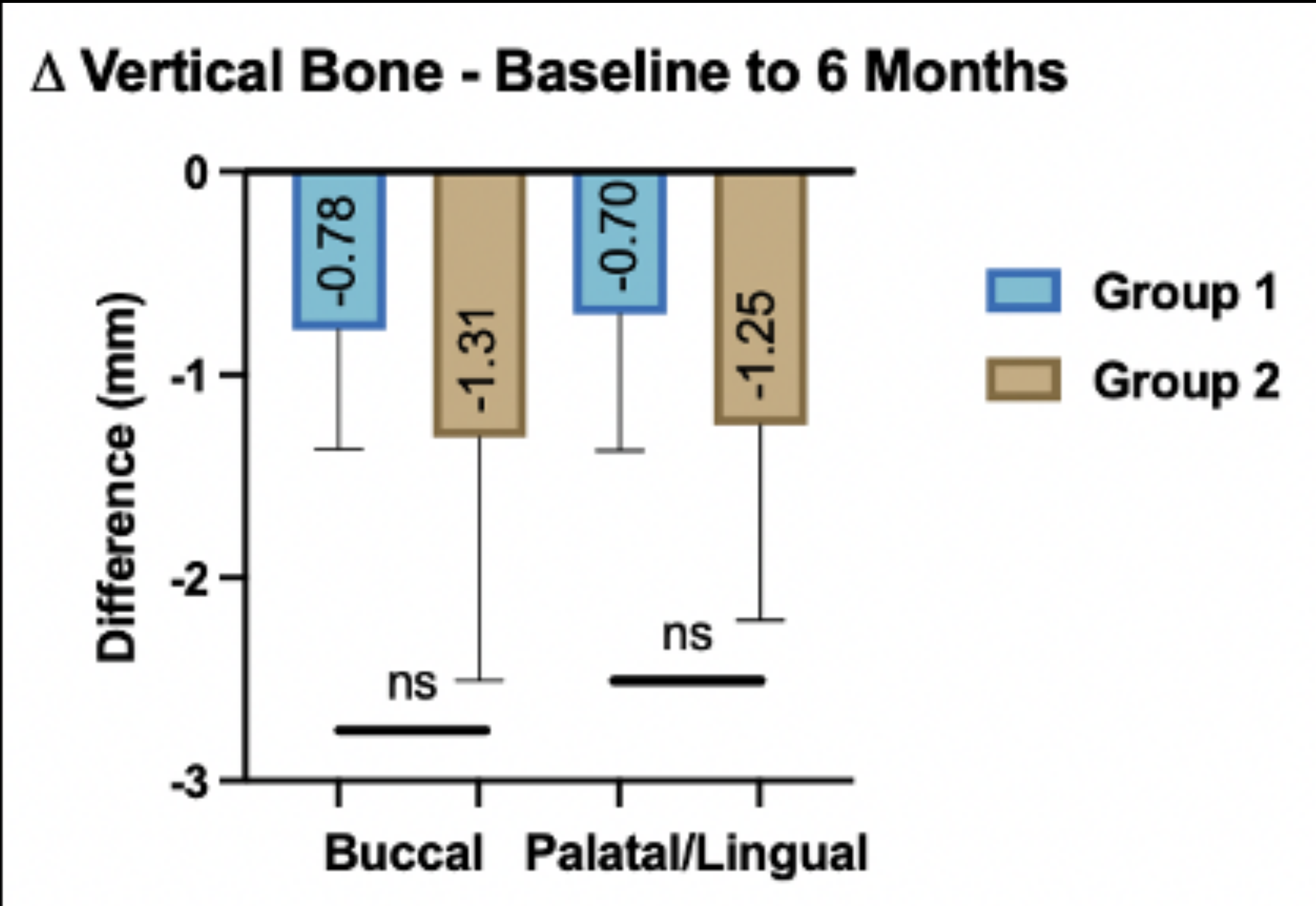
17 teeth in the maxilla and 3 in the mandible (group 1, 9 maxilla and 1 mandible; group 2, 8 maxilla and 2 mandible). 17 premolars and 3 anteriors (group 1, 9 premolars and 1 anterior; group 2, 8 premolars and 2 anteriors).

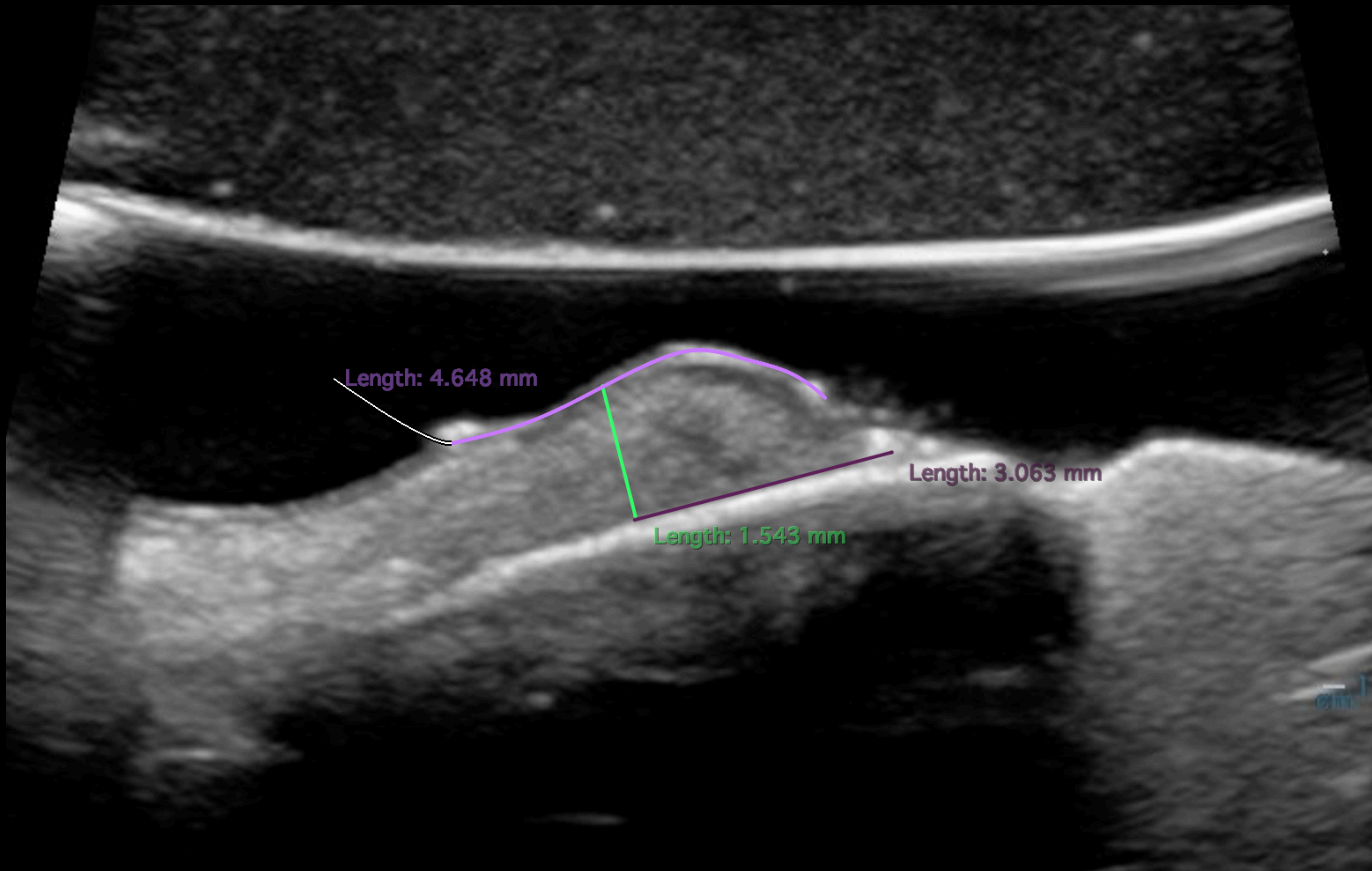


Clinical Outcomes	Group 1	Group 2	P Value
BBT (Baseline)	1.02 ± 0.44 mm	0.93 ± 0.45 mm	0.662
KTW (Baseline)	4.50 ± 1.60 mm	4.80 ± 1.03 mm	0.624
KTW (6 Months)	4.80 ± 1.48 mm	4.80 ± 1.14 mm	0.999
GT (Baseline)	1.05 ± 0.16 mm	1.05 ± 0.28 mm	0.999
GT (6 Months)	1.22 ± 0.25 mm	1.20 ± 0.35 mm	0.650
Ridge Width (6 Months)	8.80 ± 2.00 mm	7.74 ± 2.10 mm	0.263

Group 1 (Bone Graft Only)

Group 2 (Bone Graft+Membrane)





Ultrasound evaluations were consistent with clinical measurements.

Ultrasonographic Outcomes	Group 1	Group 2	P Value
KTW (Baseline)	4.91 ± 1.13 mm	4.35 ± 1.15 mm	0.286
KTW (3 Months)	4.24 ± 1.04 mm	4.38 ± 1.29 mm	0.806
KTW (6 Months)	3.65 ± 0.89 mm	3.60 ± 1.00 mm	0.909
GT (Baseline)	1.26 ± 0.69 mm	0.98 ± 0.45 mm	0.392
GT (3 Months)	1.05 ± 0.22 mm	1.31 ± 0.39 mm	0.182
GT (6 Months)	1.08 ± 0.24 mm	1.20 ± 0.40 mm	0.489

Conclusion

The use of the xenogeneic collagen plug alone results in comparable clinical, radiographic, ultrasonographic, and histologic outcomes to its combination with a non-crosslinked collagen membrane. This approach simplifies the treatment process by reducing costs, shortening procedure time, and minimizing the need for additional materials, making it a practical and effective option for improving treatment outcomes.

References

1. Avila-Ortiz G, Gubler M, Romero-Bustillos M, Nicholas CL, Zimmerman MB, Barwacz CA. Efficacy of Alveolar Ridge Preservation: A Randomized Controlled Trial. J Dent Res. 2020 Apr;99(4):402-409.
2. Couso-Queiruga E, Weber HA, Garaicoa-Pazmino C, Barwacz C, Kalleme M, Galindo-Moreno P, Avila-Ortiz G. Influence of healing time on the outcomes of alveolar ridge preservation using a collagenated bovine bone xenograft: A randomized clinical trial. J Clin Periodontol. 2023 Feb;50(2):132-146.
3. Hong HR, Chen CY, Kim DM, Machtei EE. Ridge preservation procedures revisited: A randomized controlled trial to evaluate dimensional changes with two different surgical protocols. J Periodontol. 2019 Apr;90(4):331-338.