

Comparison of Partial Extraction Therapy and Conventional Bone Grafting in the Anterior Maxilla : A Clinical Report Within a Single Patient



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Introduction

Preservation of soft tissue contours is a major esthetic challenge in anterior implant rehabilitation.

This clinical report presents two implant placement protocols
1) immediate placement with partial extraction therapy (socket shield technique)
2) delayed placement with bone grafting performed within the same patient.



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Data collection

CAD

CAM

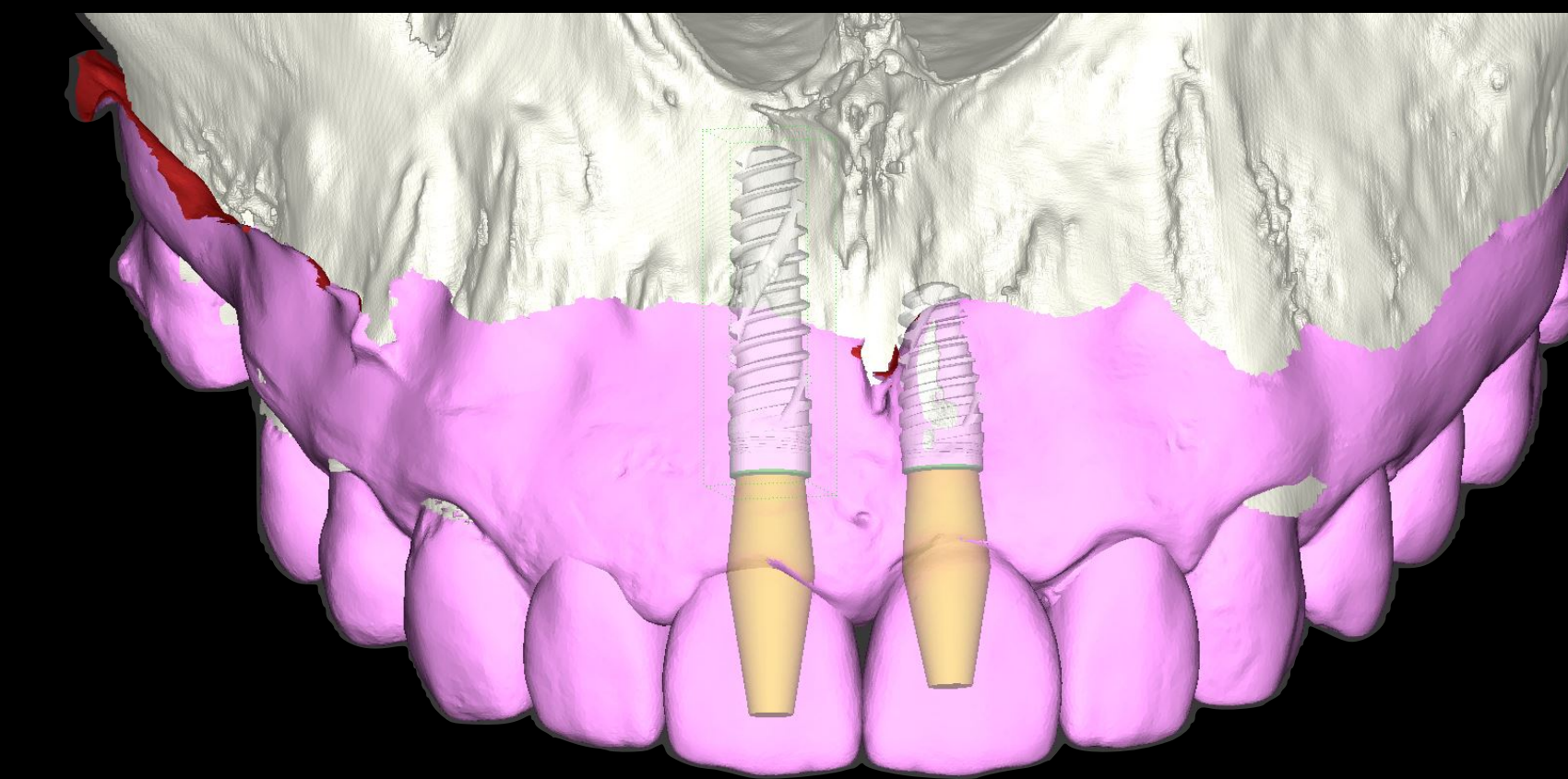
Initial intra-oral frontal view in situ



Interim fixed provisional restoration



Prosthetic-driven implant position



Additive manufactured s-CAIS



Initial extra-oral frontal view in situ



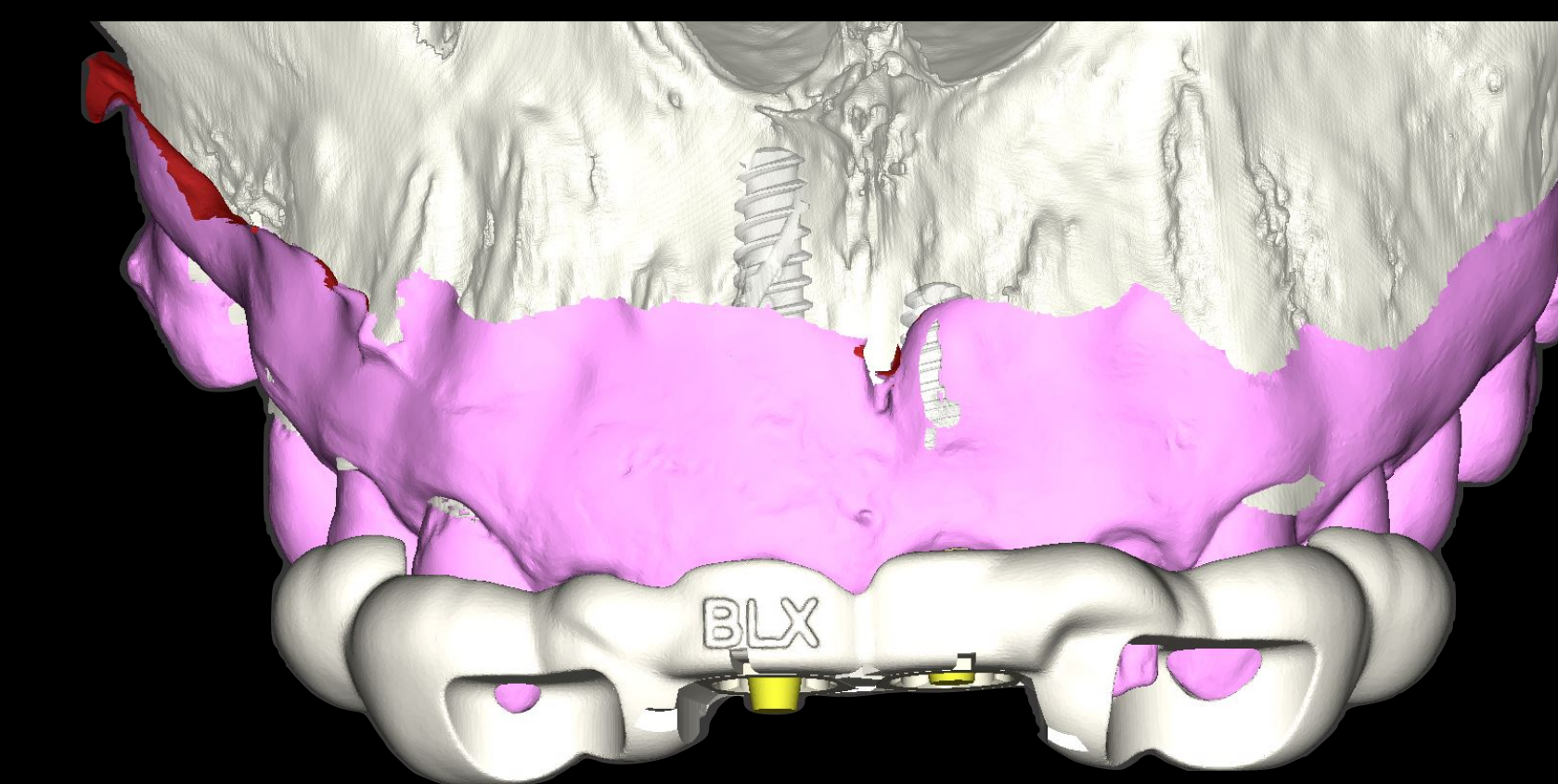
Initial extra-oral frontal view in situ



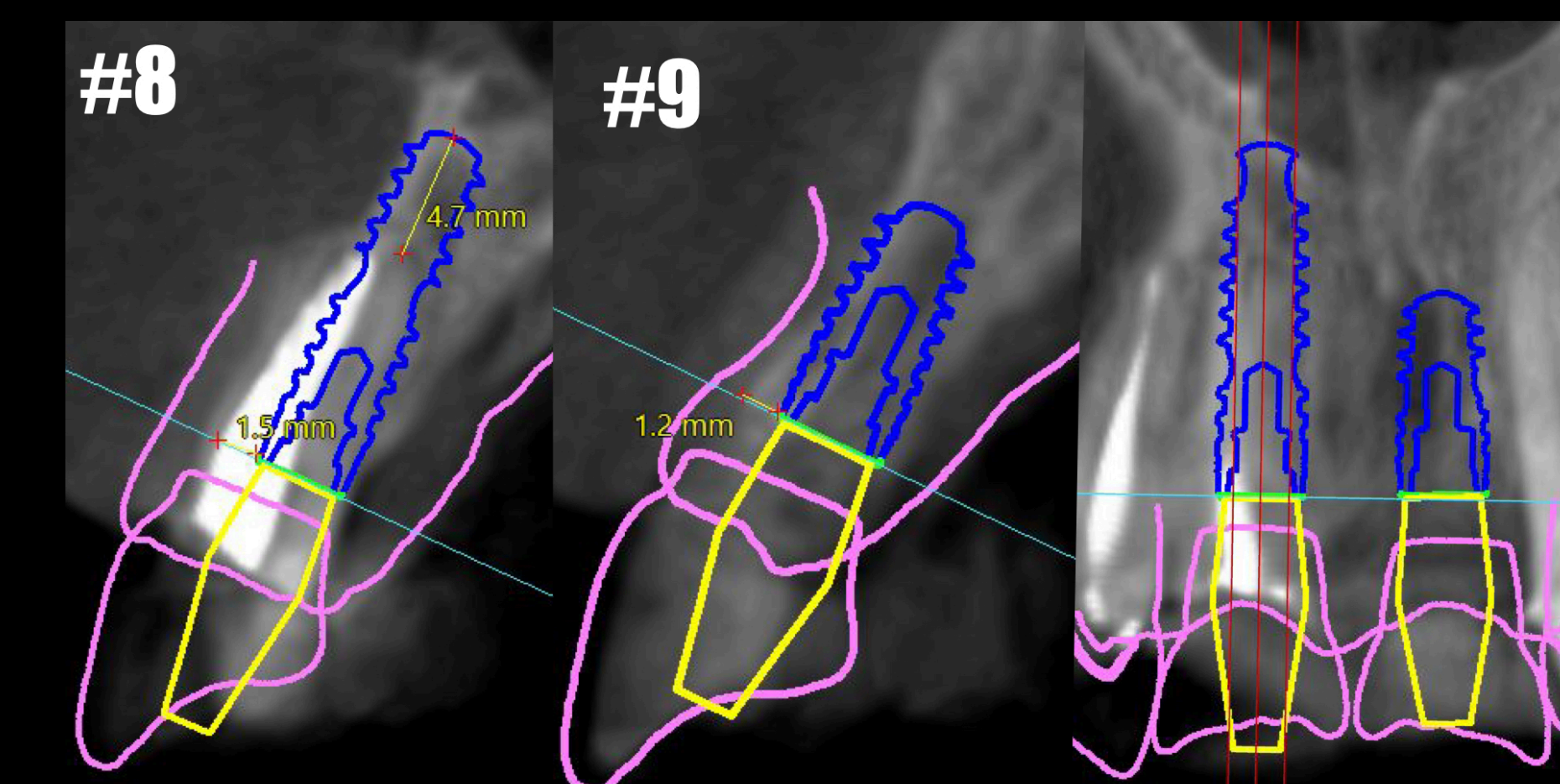
Methods

- Interim restoration fabricated
- Intraoral scan and CBCT acquired
- Digital diagnostic wax-up superimposed on CBCT
- Prosthetic-driven virtual implant positioning and guided planning

s-CAIS(static-computer aided surgical guide)



Cross-section of implant position



- CBCT demonstrated insufficient buccal bone at sites #8 and #9
- Site #8: Partial extraction therapy (socket shield technique)
- Site #9: Conventional bone grafting

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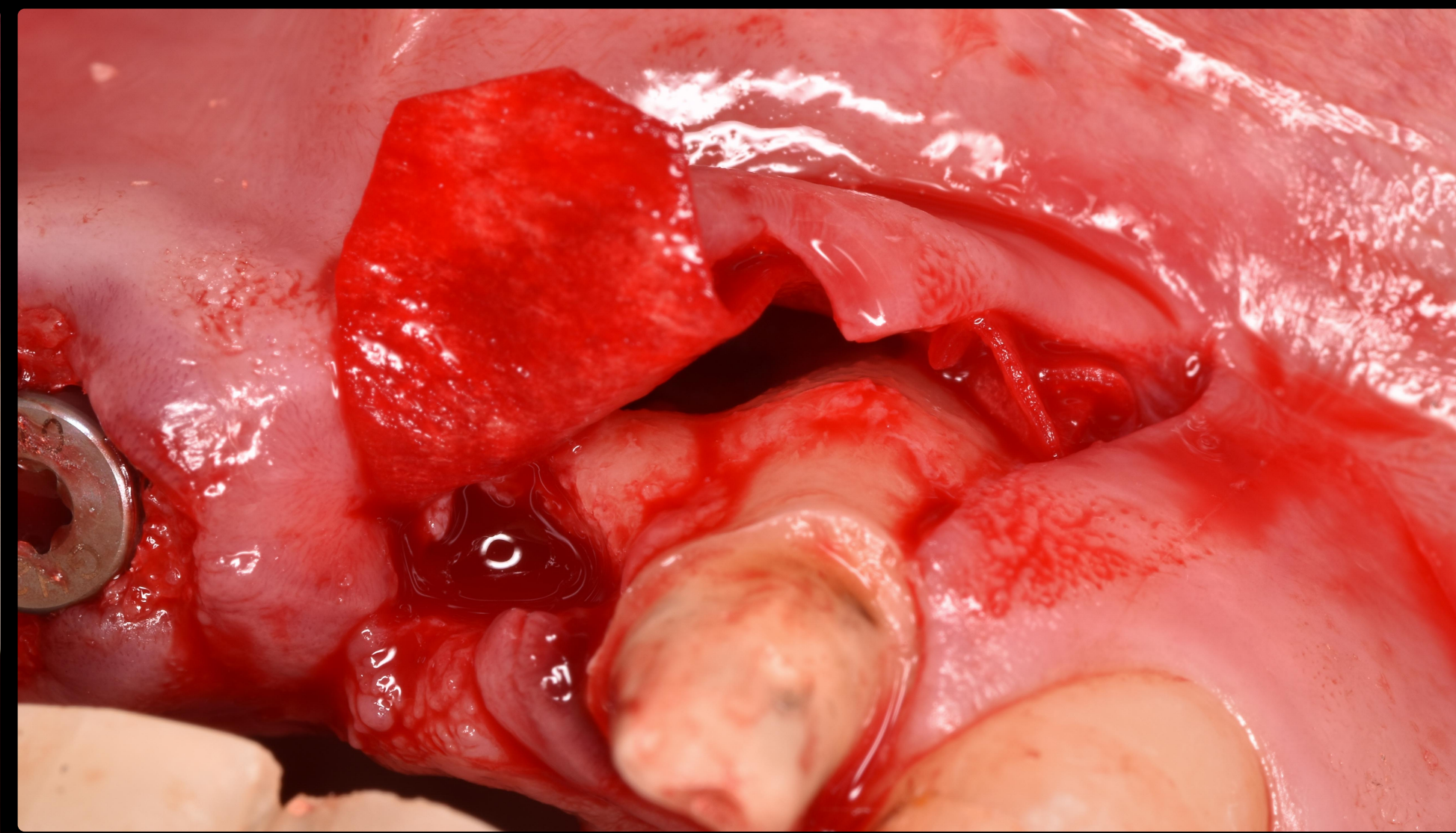
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#8 socket shield technique



#9 conventional GBR



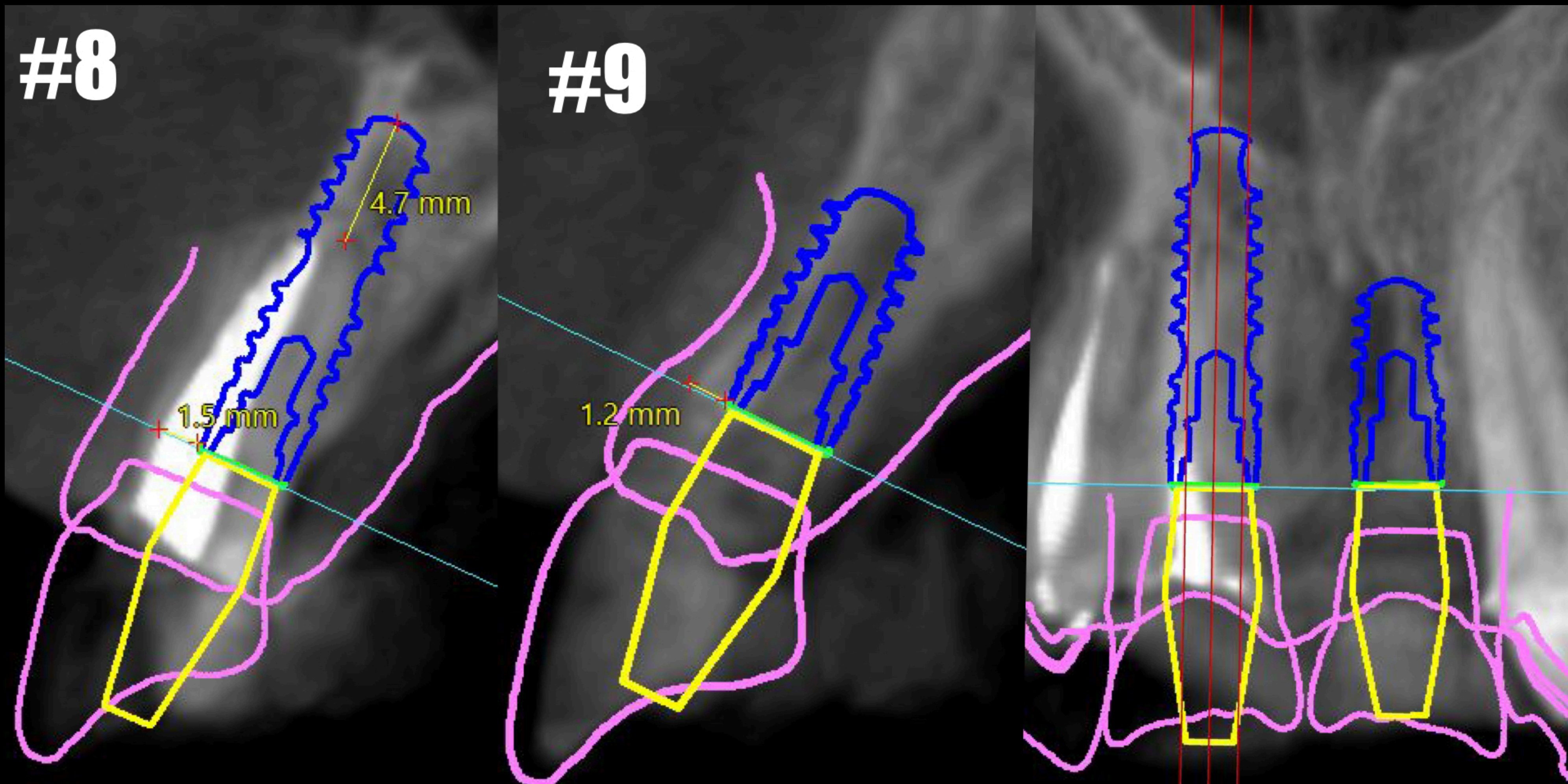
Immediate post-operative view



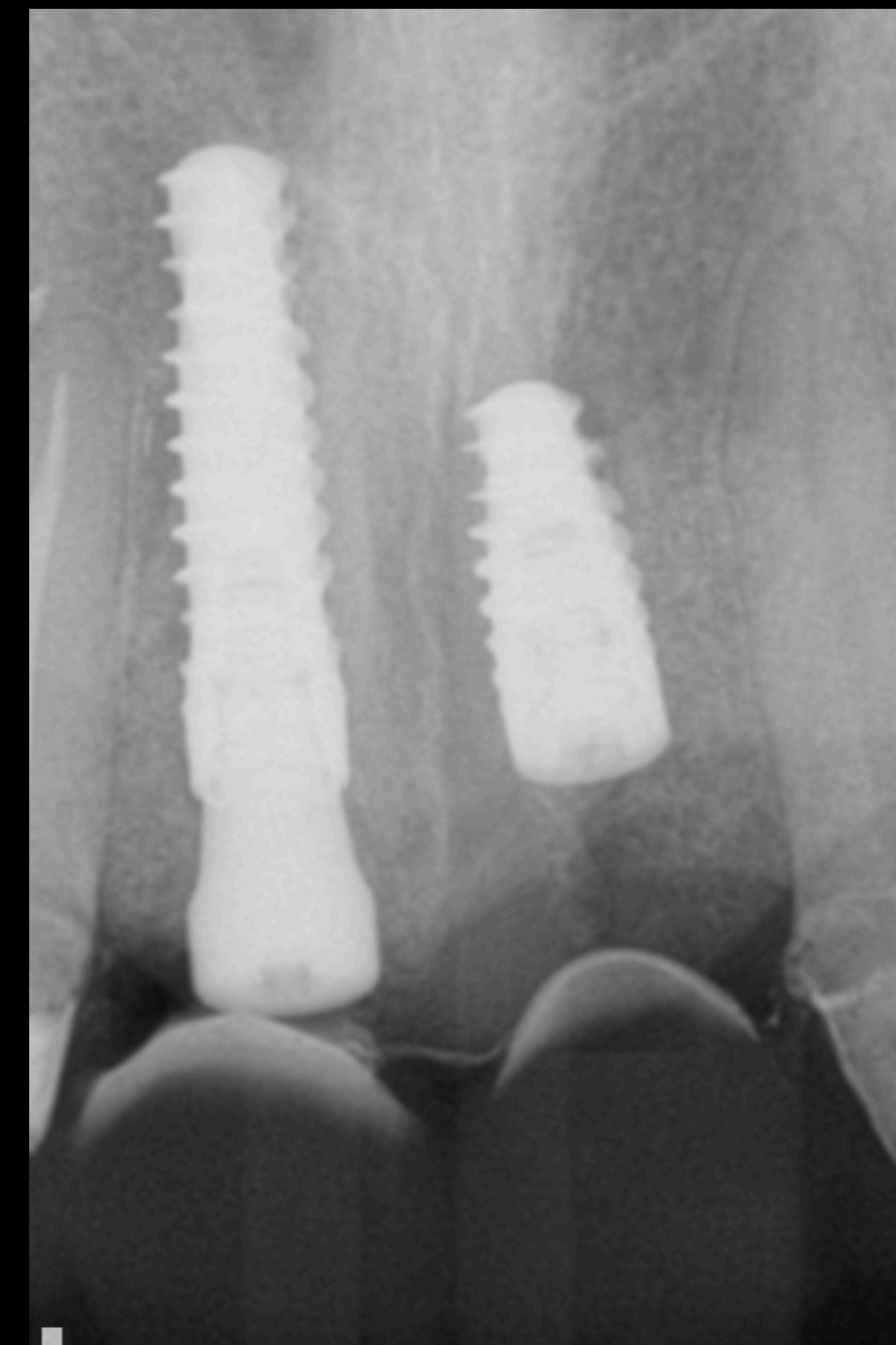
Post-op with interim fixed restoration in situ



Cross-section of implant position



Periapical (PA) radiograph image



- Static computer-assisted guided surgery for implant placement
- Implant-supported provisional restorations fabricated
- Adjacent tooth-supported provisionals used
- Provisionalization guided peri-implant soft tissue maturation

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3M intra-oral frontal view



4.5M intra-oral frontal view



Soft tissue contour (front)



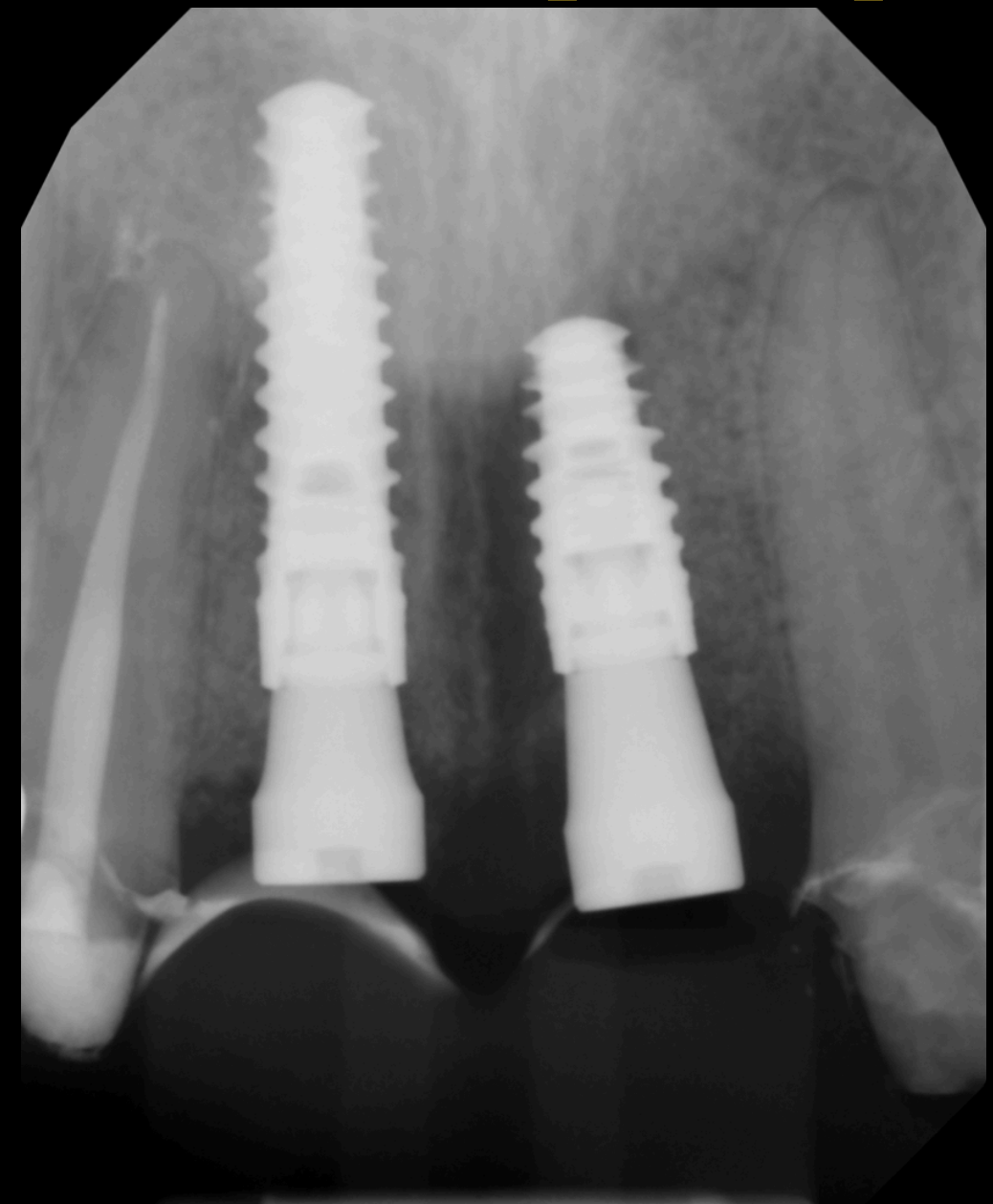
extra-oral frontal view in situ



Intra-oral frontal view at delivery



PA at 3M post-op



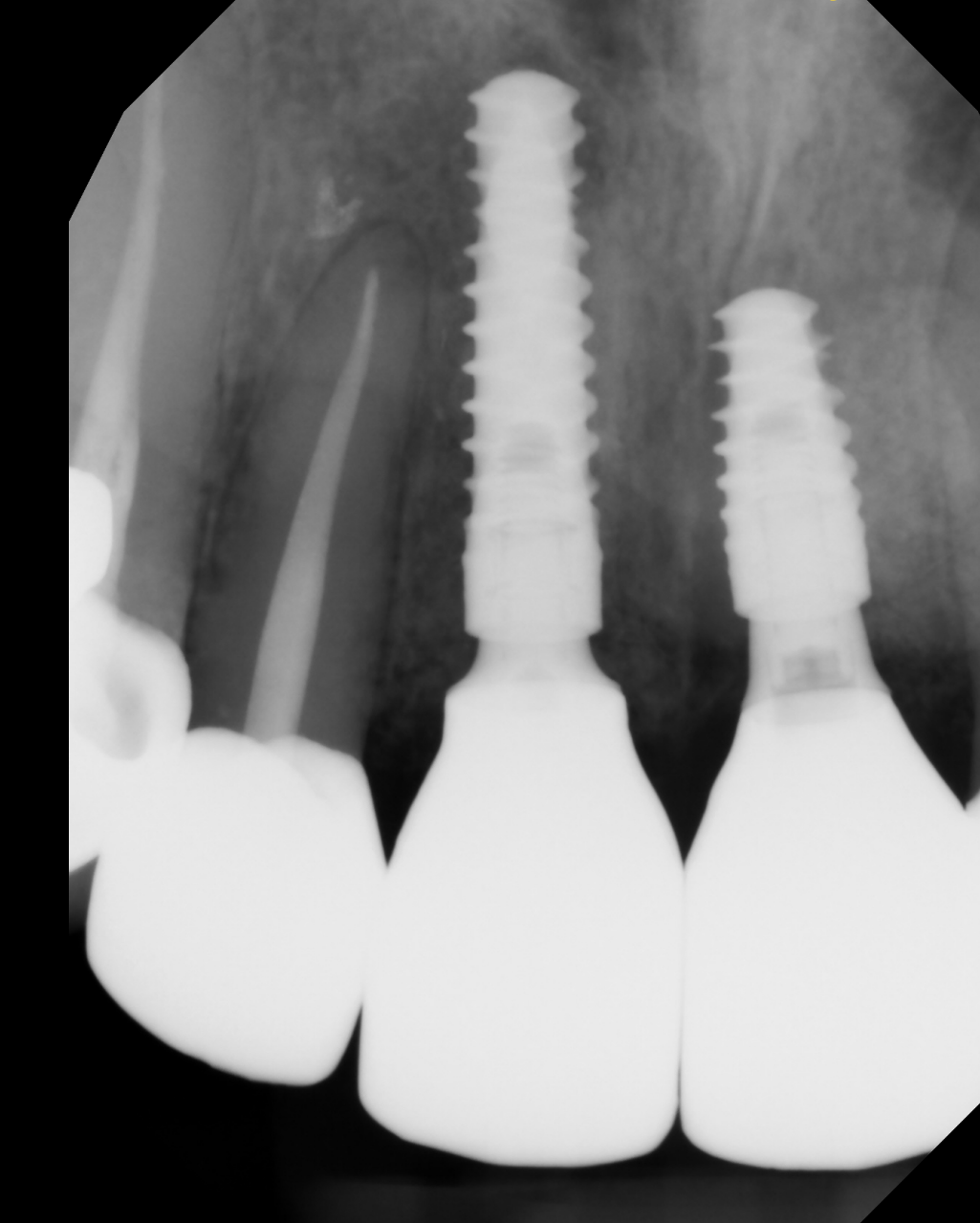
PA at 4.5M post-op



Soft tissue contour (occlusal)



PA at delivery



Results

- Successful osseointegration at both sites (4 months)
- PET site (#8): stable buccal contour and favorable soft tissue adaptation
- GBR site (#9): minor buccal contour flattening
- Definitive screw-retained monolithic zirconia implant-supported FDPs delivered

Anodized
Angle screw-channel(ASC) Ti-base

Anodized Ti-base

Monolithic Zirconia



Monolithic Zirconia

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Intra-oral frontal view at 2y follow-up



Conclusion

- Stable peri-implant tissues and favorable esthetics at 2 years (both sites)
- Socket shield site demonstrated superior soft tissue architecture
- Within a single-patient comparison, PET showed esthetic advantages in the anterior maxilla
- Integration of a precise digital workflow and careful case selection is critical

Ogawa T, et al (2022), Hürzeler MB ,et al (2010), Atieh MA, et al (2021), Kotsakis GA, et al (2023)

