

Horizontal GBR with simultaneous implant placement in anterior maxillary teeth

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Patient

47 years old, female, no systemic diseases, no oral pathologies .

Clinical situation

Patient comes to dental office 7 days after a motorcycle accident presenting severe trauma in anterior maxillary teeth. Tooth #1.1 presents a complicated oblique crown-root fracture. Tooth #2.1 is avulsed and lost. Tooth #2.2 presents a horizontal fracture at CEJ level.

Surgical solution

Horizontal GBR in areas #2.1 and #2.2 using creos™ syntogain S granules and creos™ xenoprotect collagen membrane. Simultaneous implant placement of N1™ Implants with customized healing abutment and immediate provisionalization.

Restorative solution

Provisional: 2 sets of PMMA screw-retained temporary crowns.

Definitive: 2 individual zirconia-layered implant-supported fixed dental prostheses on Universal Abutments TCC.

Surgery date(s)

Crown lengthening: January 8th, 2021

GBR and implant: March 25th, 2022

Total treatment time

22 months

Tooth position(s)

#2.1 and #2.2





Extraoral view.



Intraoral views.
Lower teeth are overlaying the upper gum, which may cause implant loading problems.
Decision to go for an interim restoration, 1-year orthodontic treatment, and then implant placement on #2.1 and #2.2.



#1.1: Complicated oblique crown fracture.
#2.1: Avulsed tooth.
#2.2: Horizontal fracture at CEJ level.

Initial Clinical Situation

Treatment Planning

Surgical Procedure

Restorative Procedure

Outcome



Tooth #1.1 with coronal oblique fracture and displacement.
Complete absence of tooth #2.1



Clinical aspect 15 days after trauma.



Tooth #2.2 with horizontal fracture at CEJ level and below.

Treatment Planning Sequence

Phase 1: Tissue healing, Endo-Perio-Resto and fixed interim restoration [1.1-x-2.2].

Phase 2: Orthodontic aligner treatment to correct overbite and provide restorative space.

Phase 3: After 1 year – GBR, implant placement, custom healing abutment [#2.2] and immediate provisionalization [#2.1].

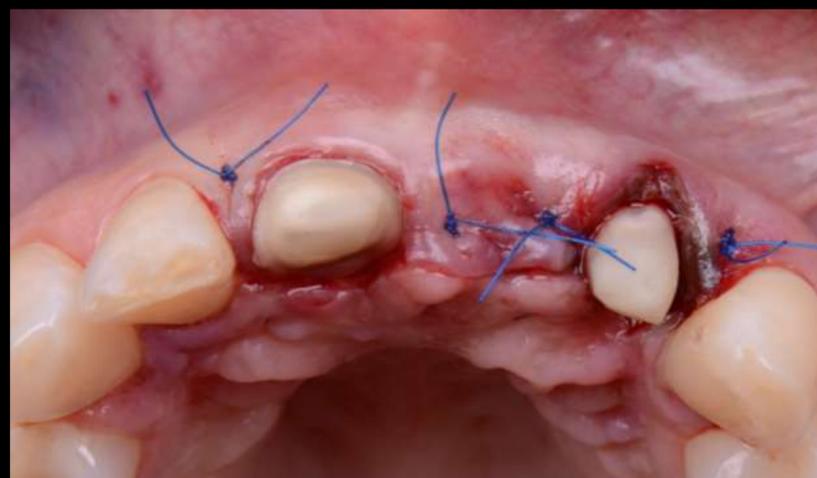
Phase 4: Soft tissue management with new implant provisionals to achieve final contours.

Phase 5: Definitive Restoration.

Phase 1&2 : Endo-Perio-Resto [1.1-x-2.2] and Ortho treatment prior to reconstructive implant surgery

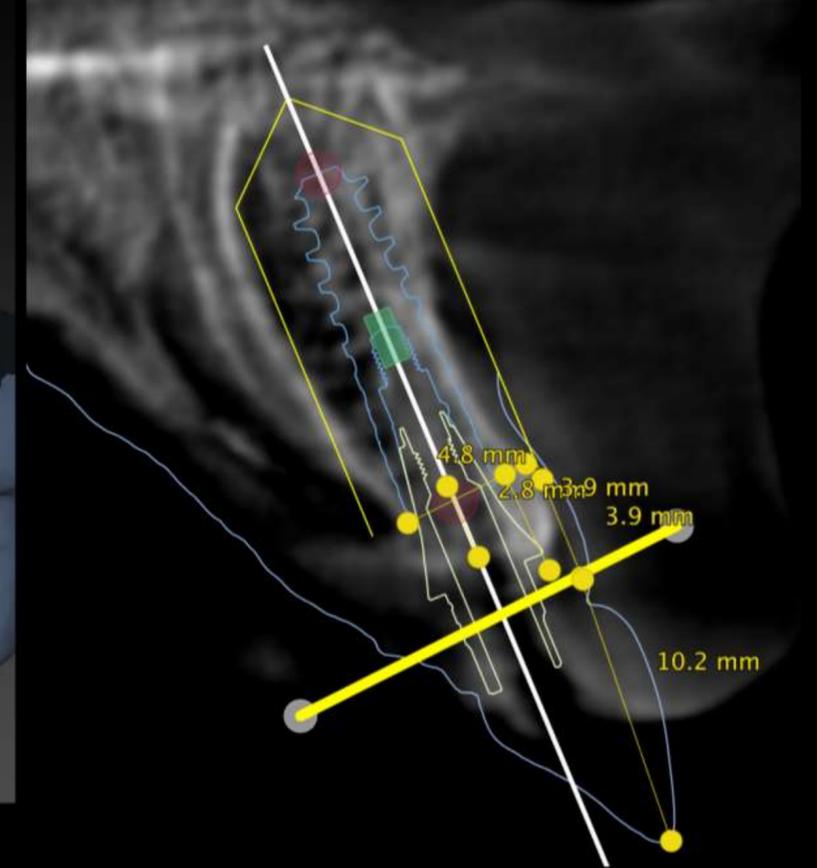
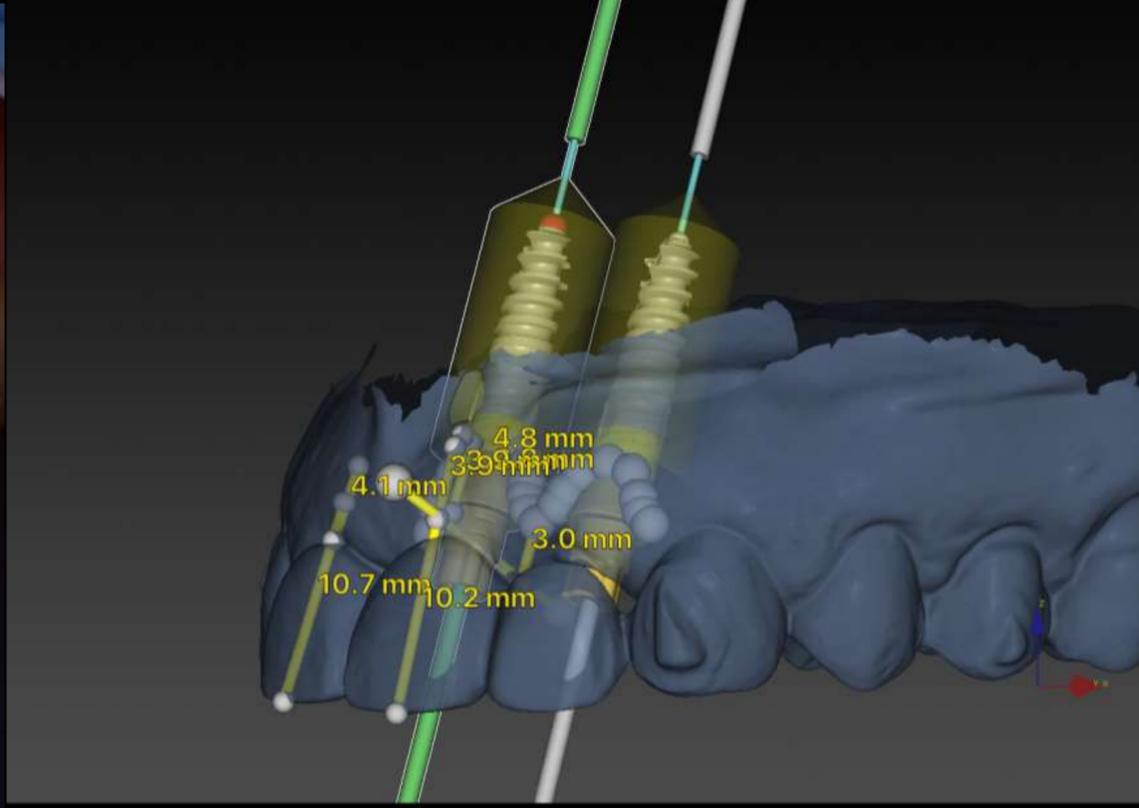


[#1.1-#2.2]: Palatal crown lengthening, intra-surgical isolation, root canal treatment, abutment build-up (#2.2) and teeth preps.



[#1.1-#2.2]: Interim provisional and orthodontic aligners at 12 months of healing.

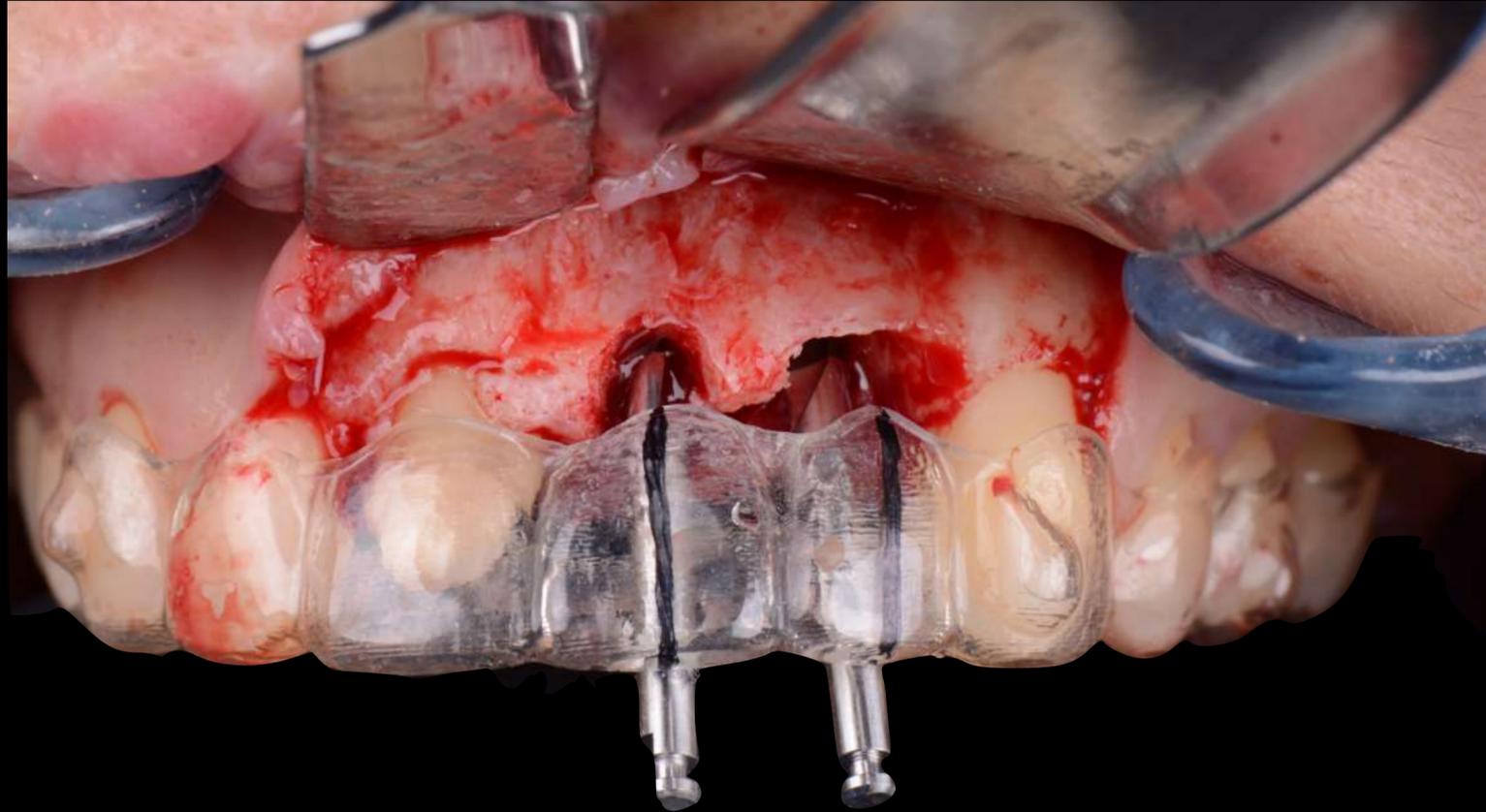
Phase 3: GBR, implant placement, custom healing abutment [#2.2] and immediate provisionalization [#2.1]



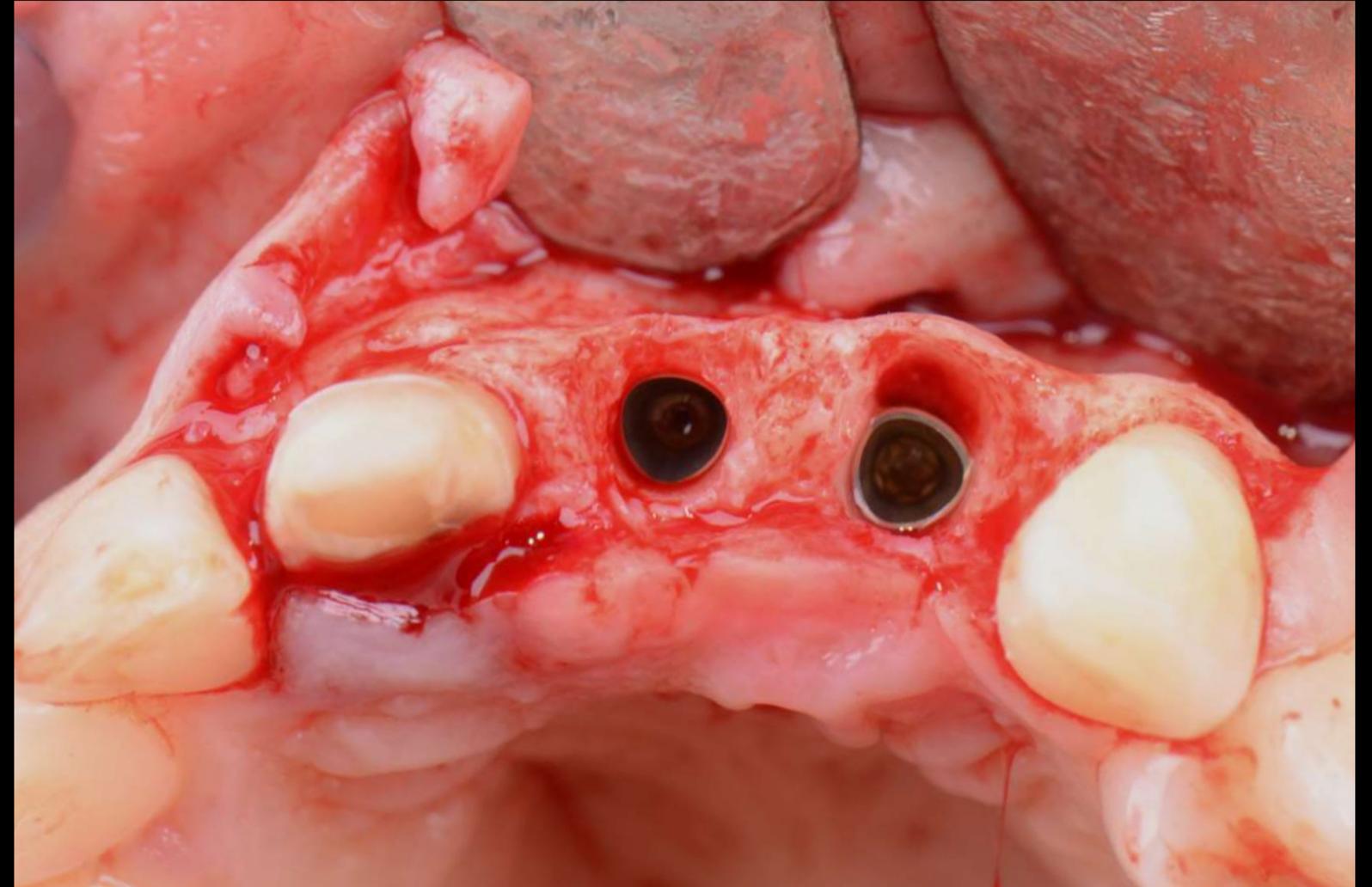
Implant planning on DTX Studio™ Implant. Notice insufficient bone width on the buccal aspect of implant #2.1 requiring additional GBR.



Phase 3: GBR, implant placement, custom healing abutment [#2.2], and immediate provisionalization [#2.1]

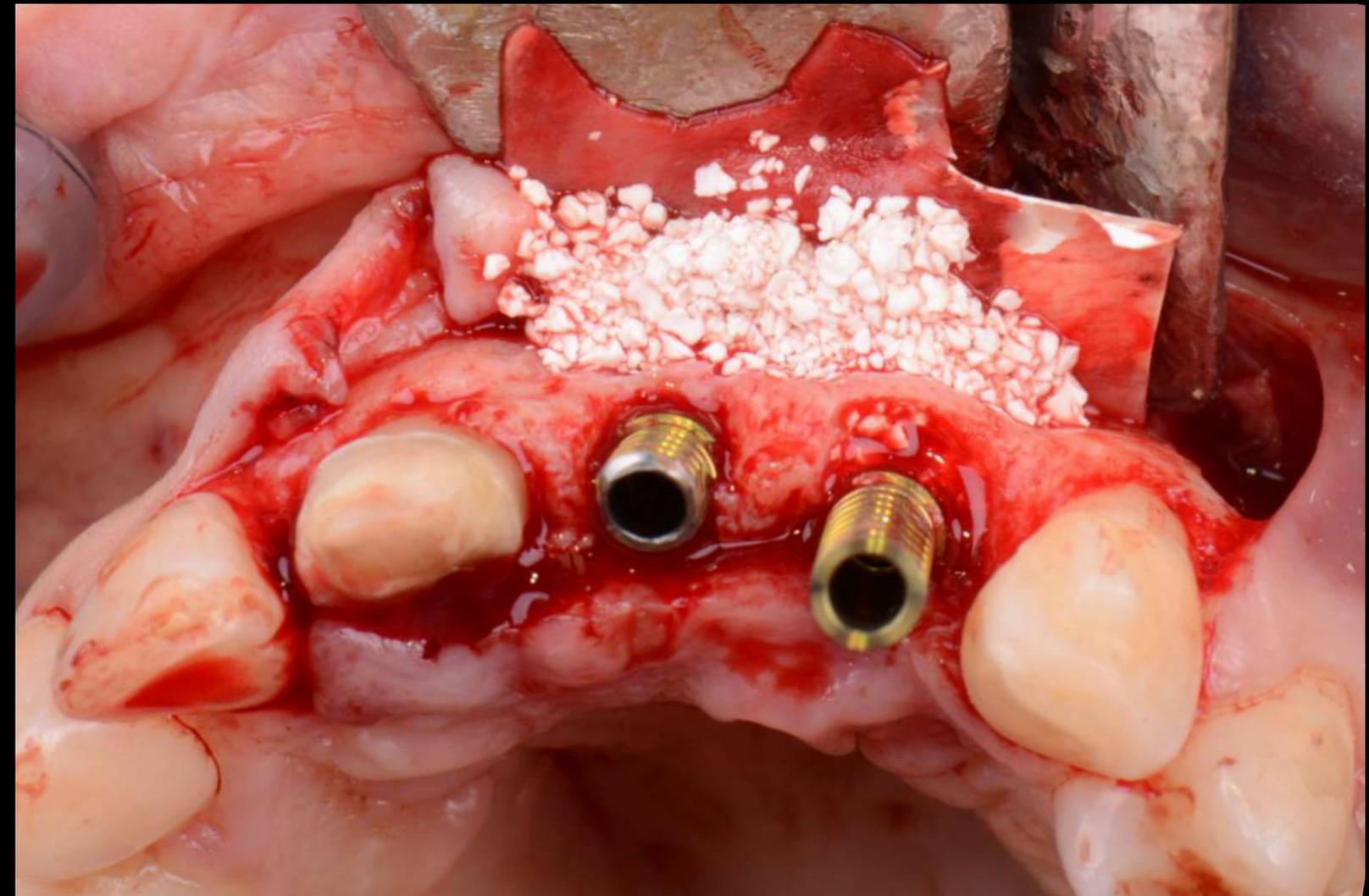
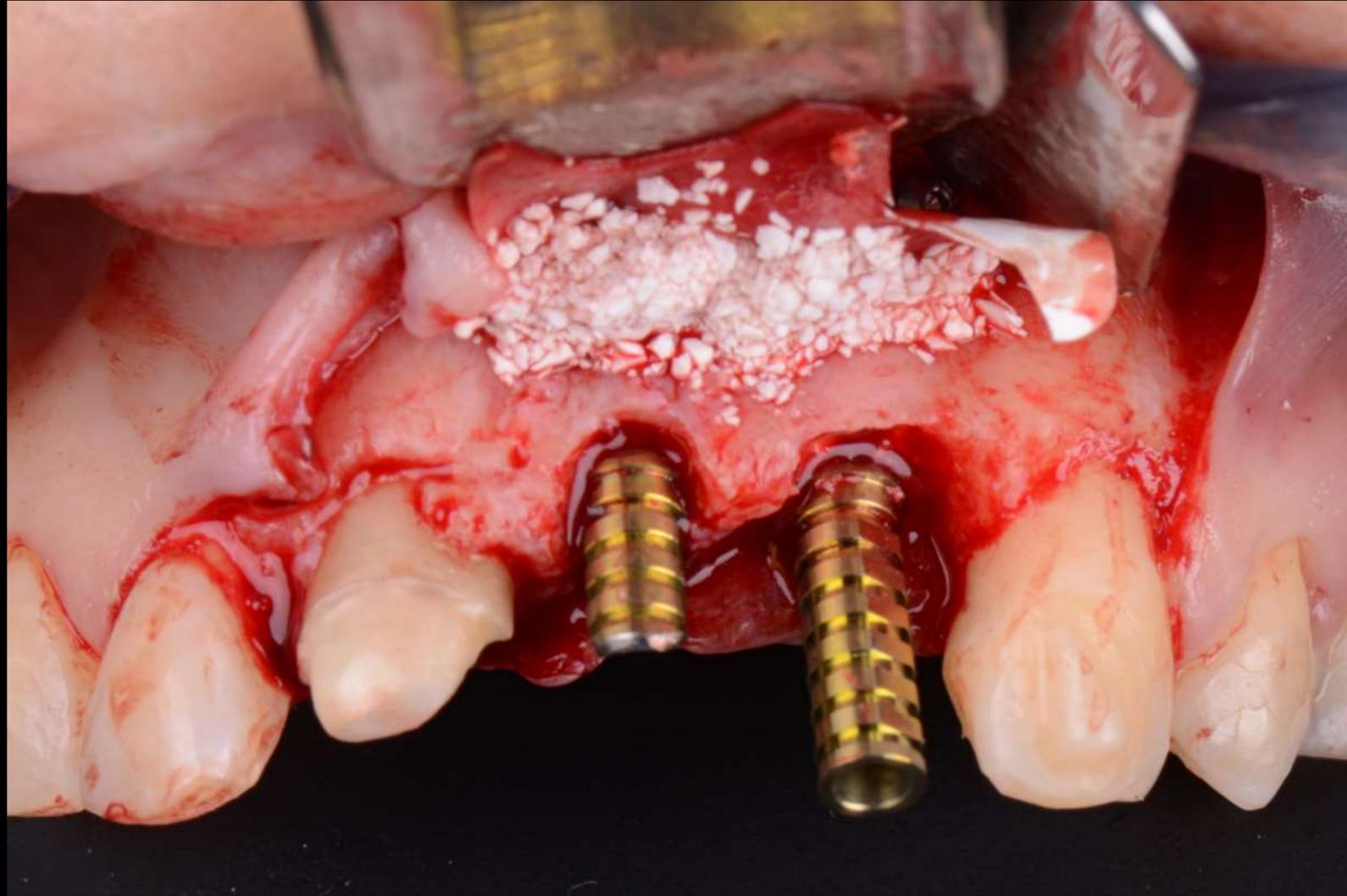


OsseoShaper drills through the surgical guide.



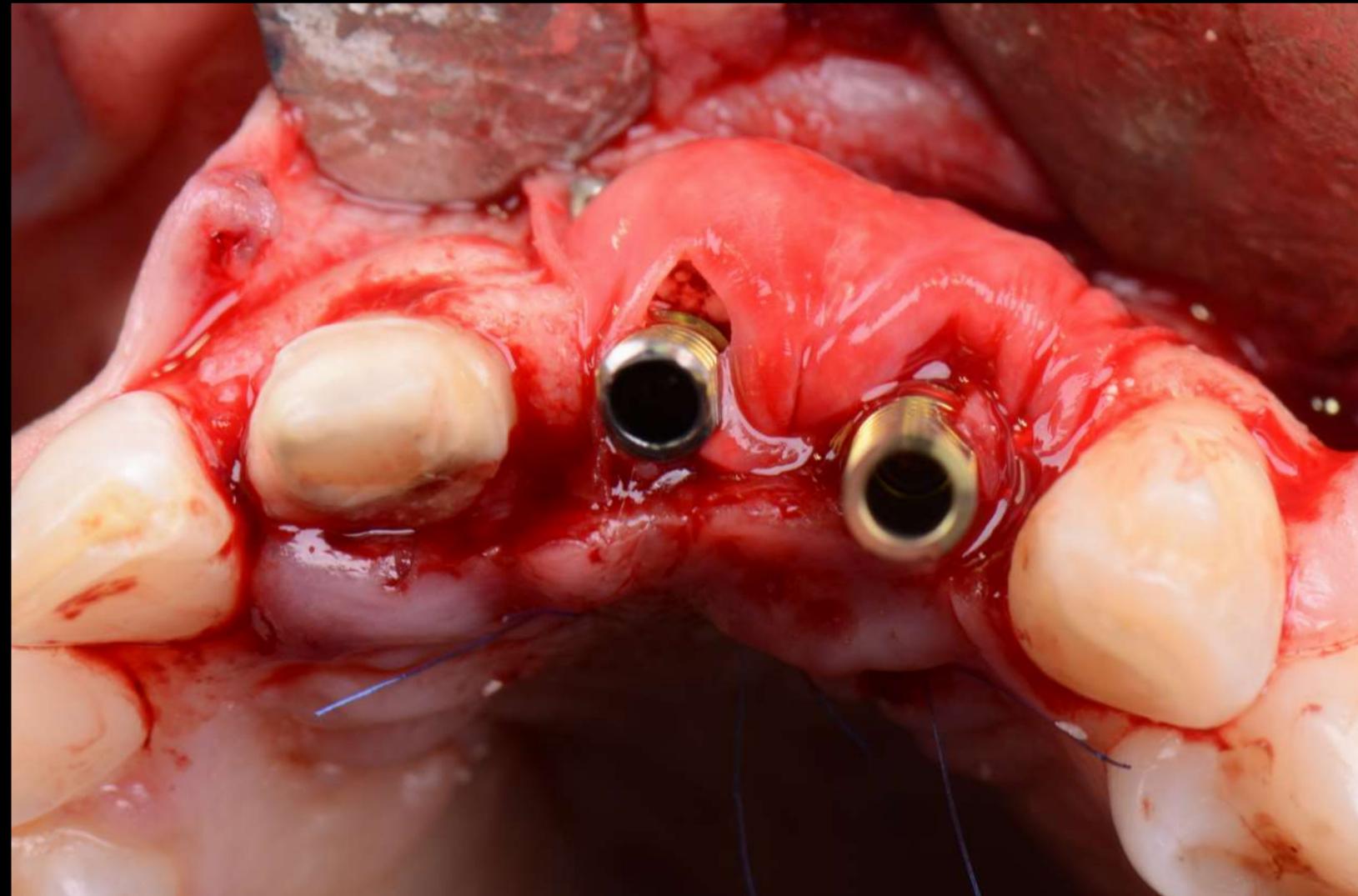
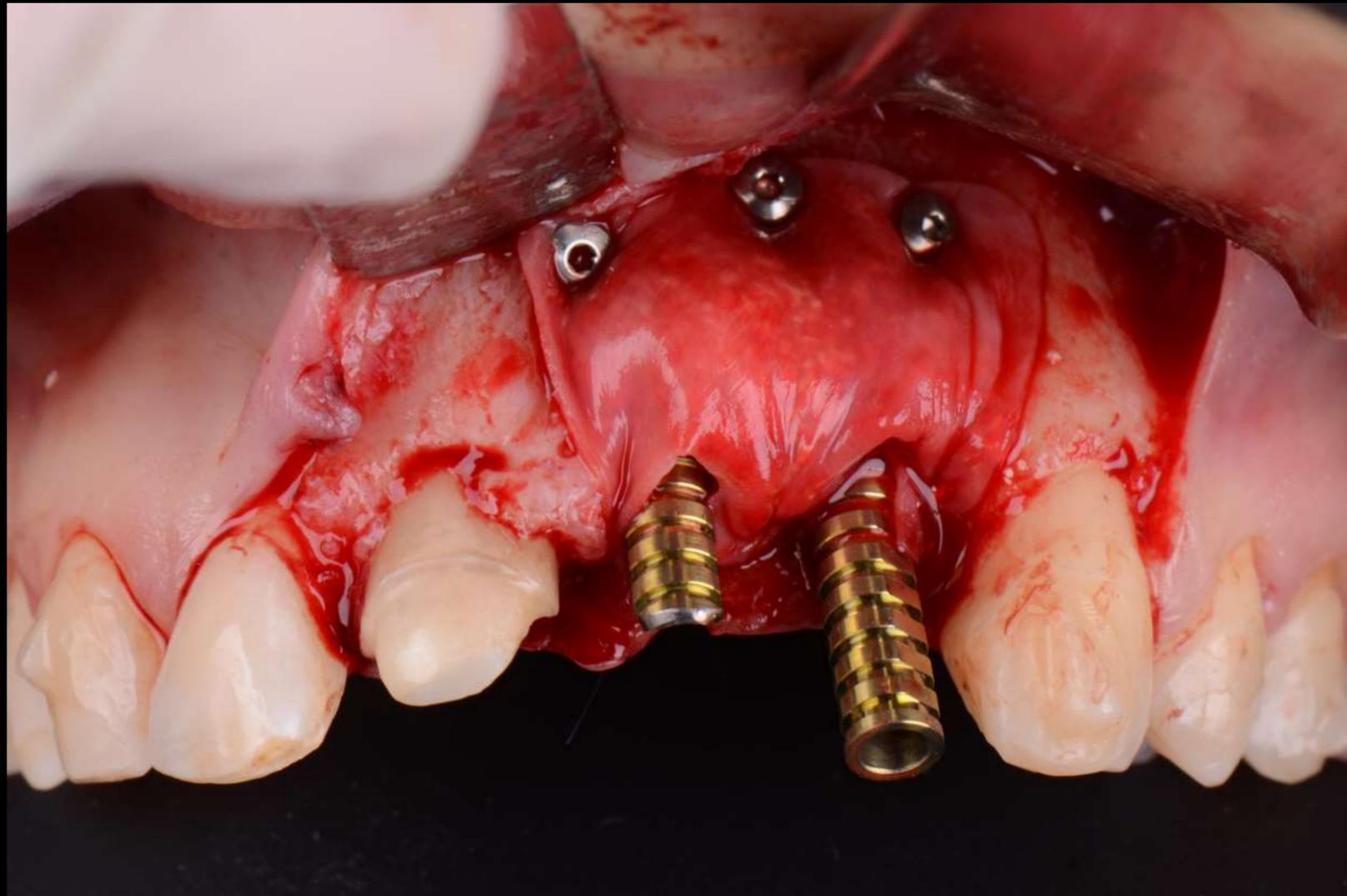
Narrow platform N1™ implants placed in the desired 3D position. Notice insufficient bone width on the buccal aspect of implant #2.1 requiring additional GBR.

Phase 3: GBR, implant placement, custom healing abutment [#2.2] and immediate provisionalization [#2.1]



creos™ syntogain S granules (0.2-1.0mm) placed in the surgical site and creos™ xenoprotect collagen mambrane fixed with titanium tacks in the apical aspect.

Phase 3: GBR, implant placement, custom healing abutment [#2.2] and immediate provisionalization [#2.1]



Buccal volume reconstruction: creos™ syntogain S granules wrapped with creos™ xenoprotect collagen membrane fixed with titanium tacks.

Phase 3: GBR, implant placement, custom healing abutment [#2.2] and immediate provisionalization [#2.1]



Restorative steps of immediate provisionalization.

[#2.1]: Immediate provisional splinted to #1.1 and distal cantilever.

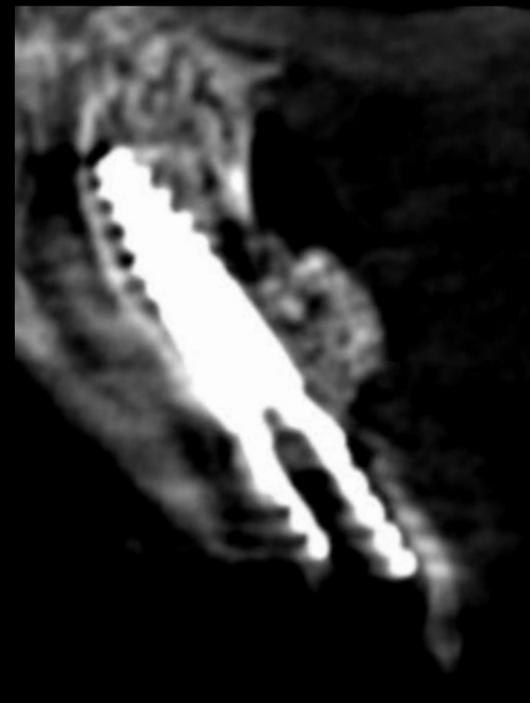
[#2.2]: Custom healing abutment.



Phase 3: GBR, implant placement, custom healing abutment [#2.2] and immediate provisionalization [#2.1]



6 months post-op clinical and radiographic images. Notice the volume gain in the buccal aspect of both implant sites.

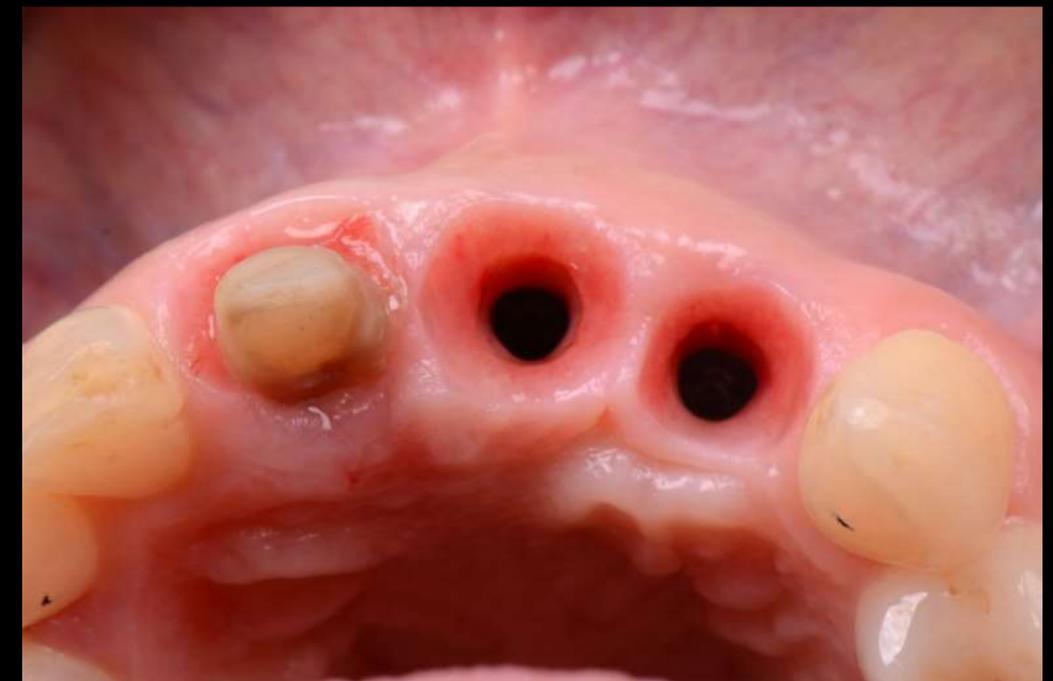
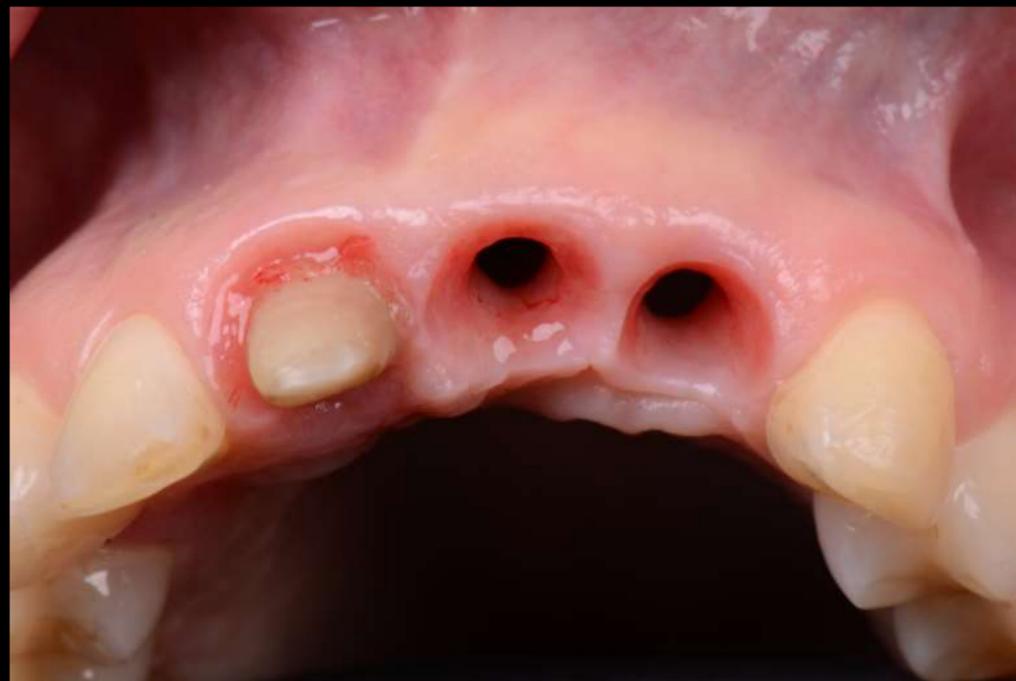


Phase 4: Soft tissue management with new implant provisionals to achieve final contours.



Implants are integrated. Start of the soft tissue management phase.

Phase 4: Soft tissue management with new implant provisionals to achieve final contours.



Final BOPT (Biologically Oriented Preparation Technique) preparation on #1.1 and definitive emergence profile created at the implant sites.

Phase 5: Definitive restoration.



Elos Accurate® Scan Body in place for final implant-level digital impression and prototype of the restorations.

Phase 5: Definitive restoration.

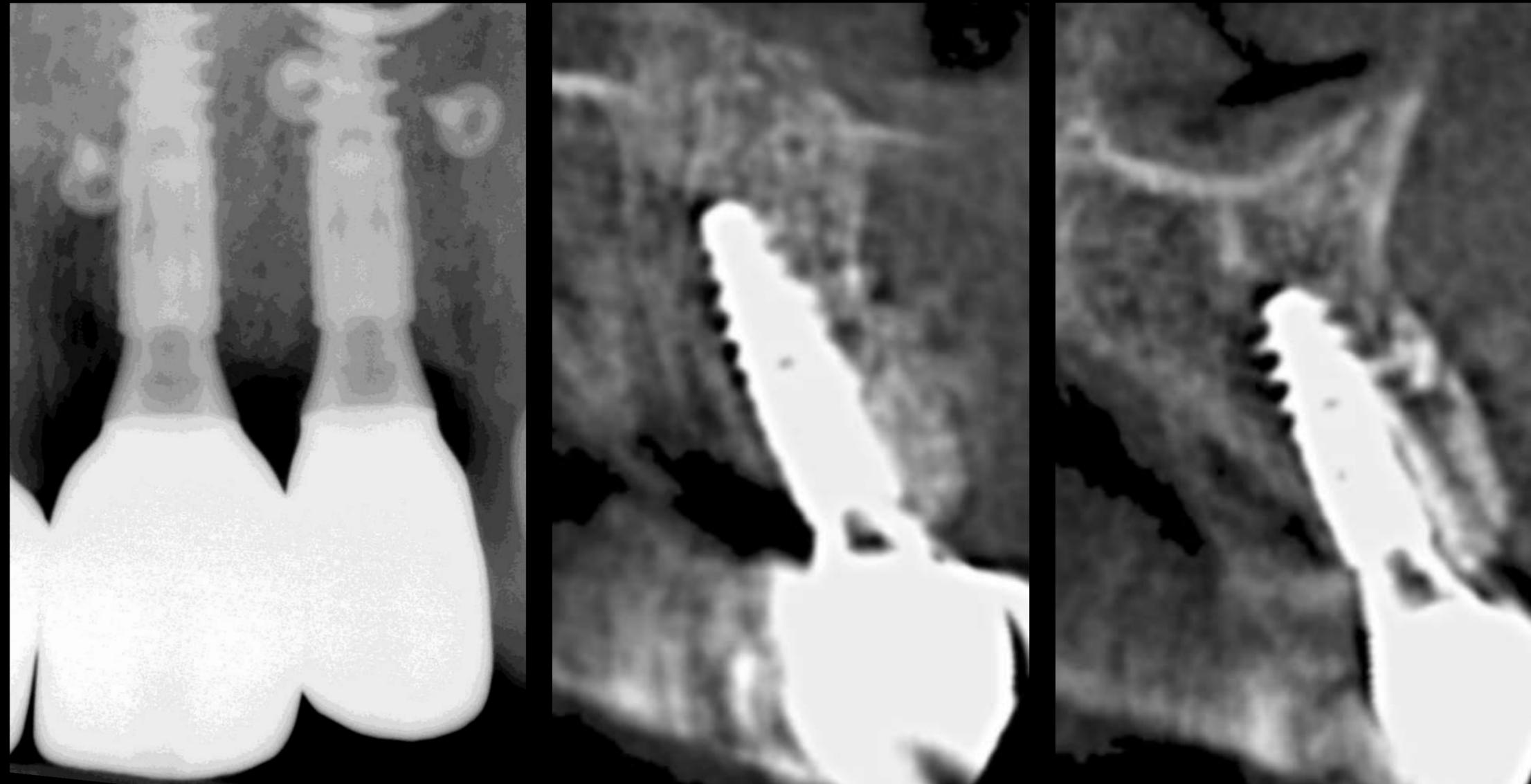


Definitive full contour zirconia crown in tooth #1.1 and screw-retained implant-supported crowns in positions #2.1 and #2.2.

Phase 5: Definitive restoration.



Occlusal and 3/4 view with the recovered horizontal volume.

Phase 5: Definitive restoration.

9 months after surgery. Peri-apical X-Ray and CBCT cross-sectional cuts at time of delivery of the final restorations.
Notice the inter-proximal peak of bone preserved in between the adjacent implants and the horizontal volume gain at the buccal aspect of both implants.

Case courtesy of Dr. Ignacio Ginebreda



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