Achieving Optimal Implant Aesthetics Using a Team Approach

NJSPID

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American Academy of Periodontology (AAP) Disclosure

I am currently an officer of the AAP Board of Trustees.

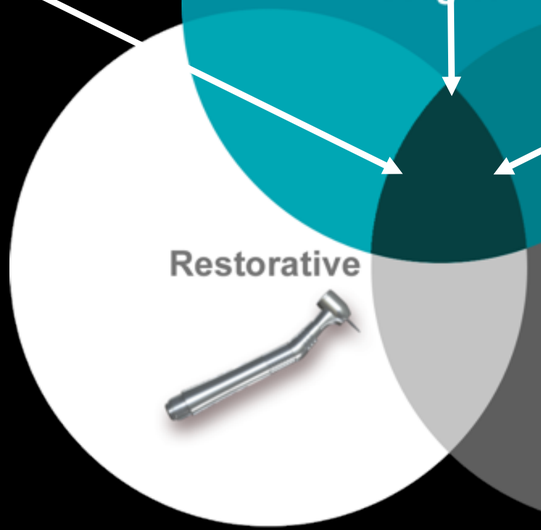
The opinions expressed are my own and do not necessarily represent the opinions of the American Academy of Periodontology

Ana Becil Giglio, D.D.S.
Secretary/Treasurer, American Academy of Periodontology

Planning

Collaboration

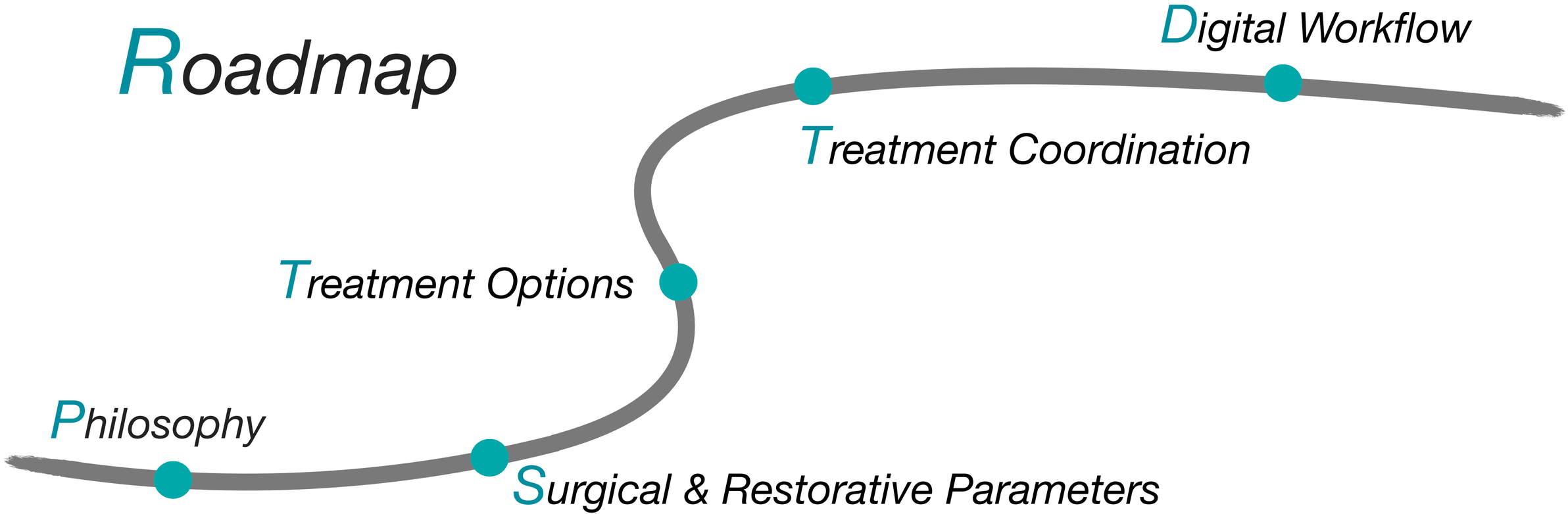
Coordination



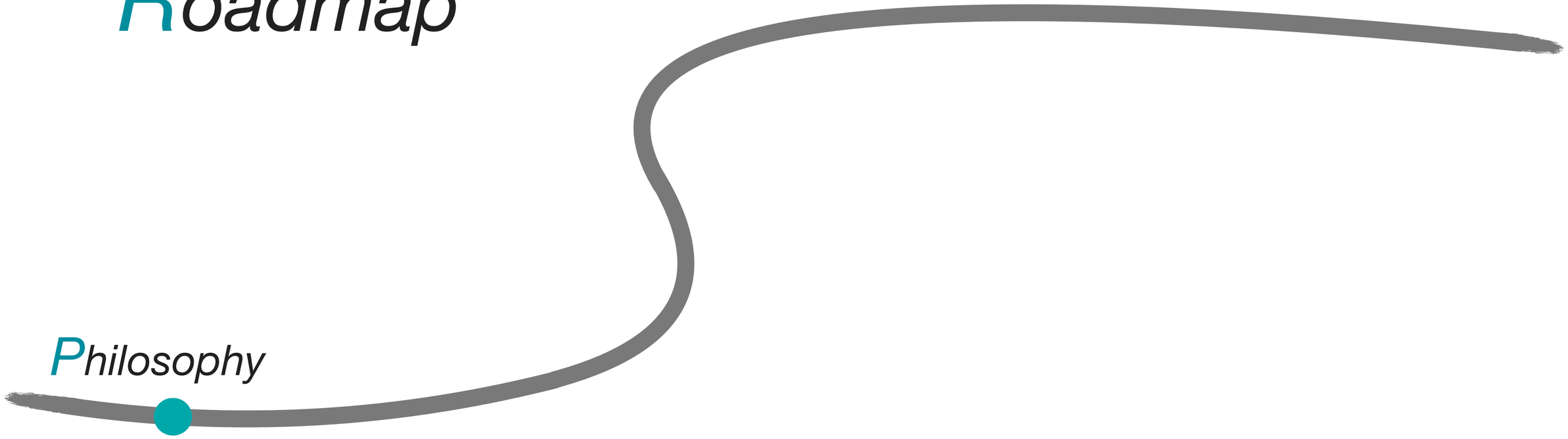
Objectives

- Achieve Optimal Aesthetics
- Comprehend the Peri-Implant Complex
- Treatment Plan & Coordinate Effectively
- Reduce Treatment Time
- Improve Patient Care & Comfort

Roadmap


Digital Workflow
Treatment Coordination
Treatment Options
Philosophy
Surgical & Restorative Parameters

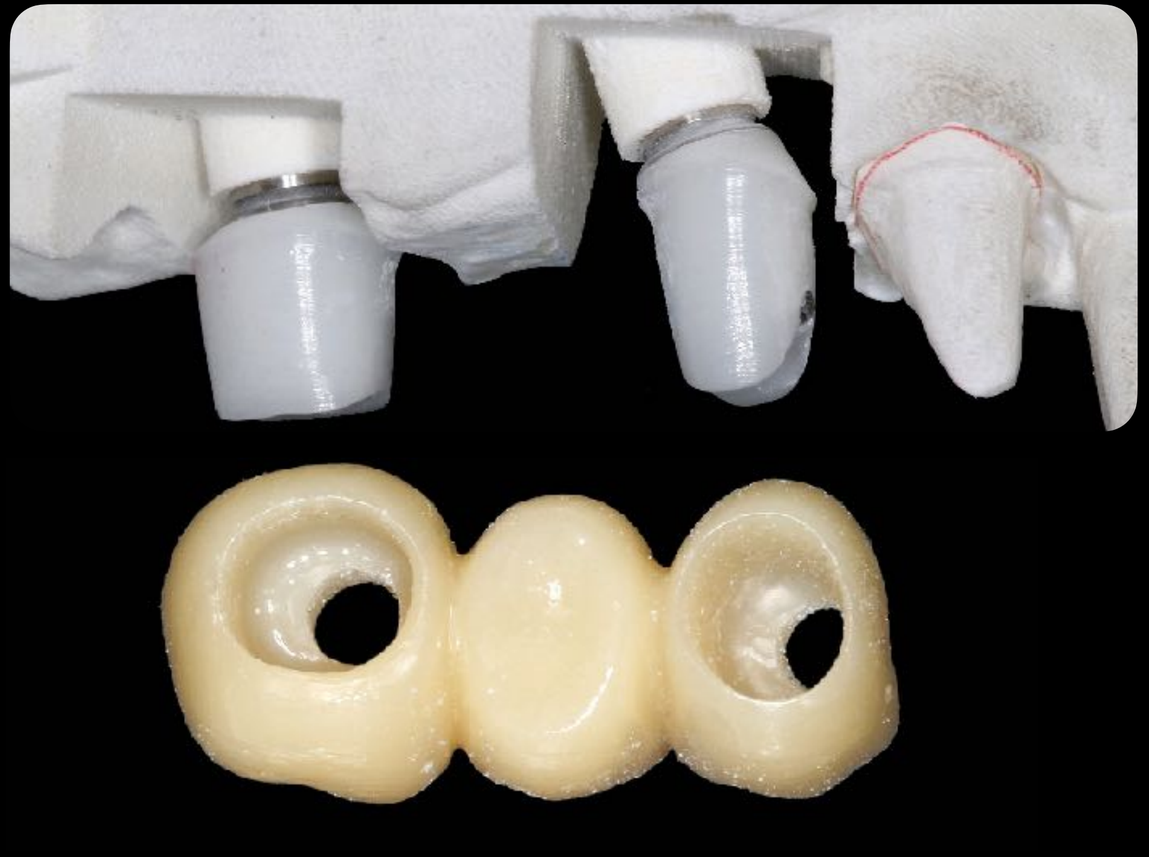
Roadmap











One Abutment/One Time

Prevention of peri-implant marginal bone loss

Tallarico M, et al. Definitive abutments placed at implant insertion and never removed: Is it an effective approach? A systematic review and meta-analysis of randomized controlled trials. J Oral Maxillofac Surg 2018; 76:316-324.

Literature Review

Patient Selection

Surgical Skill

Bone Quality

Implant Length

Occlusal Forces

Bone Quantity

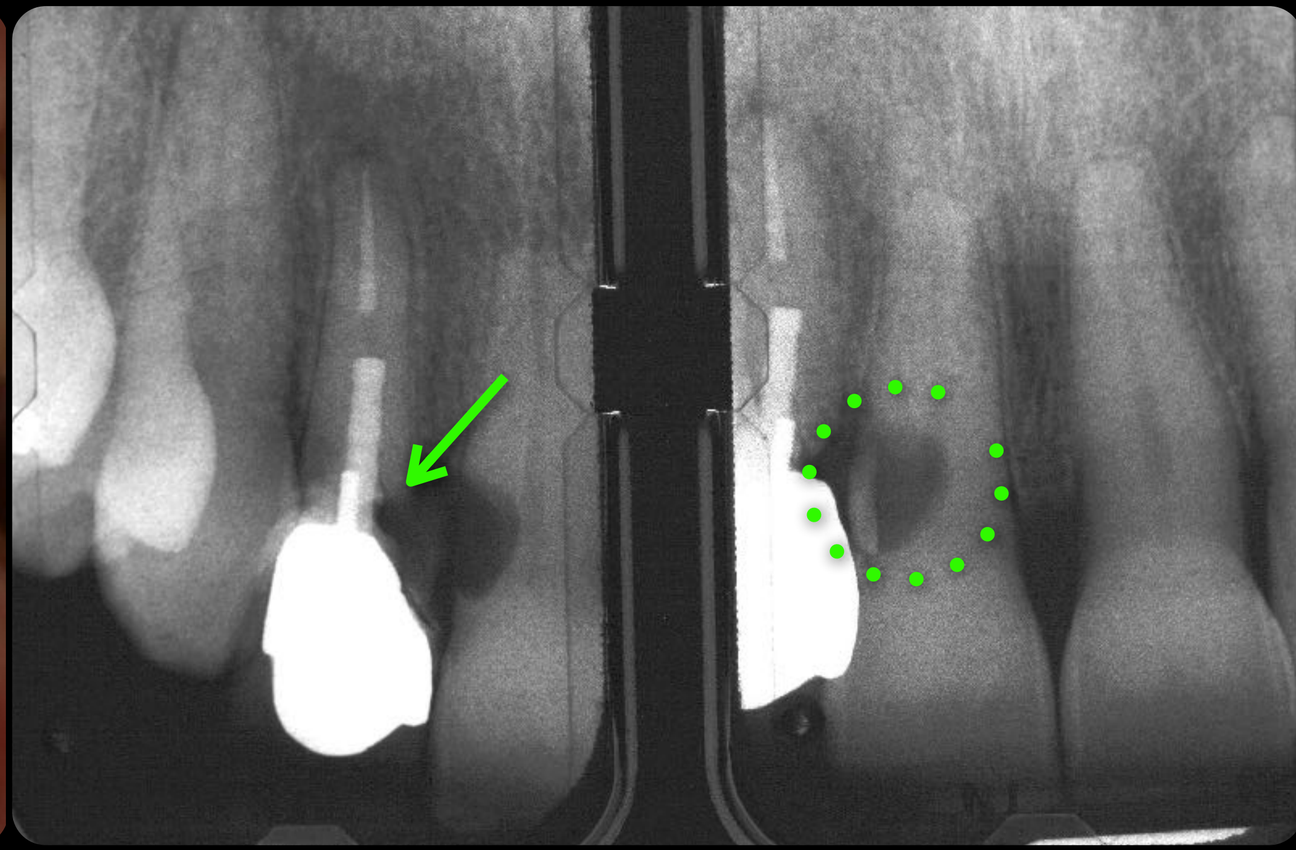
Primary Stability

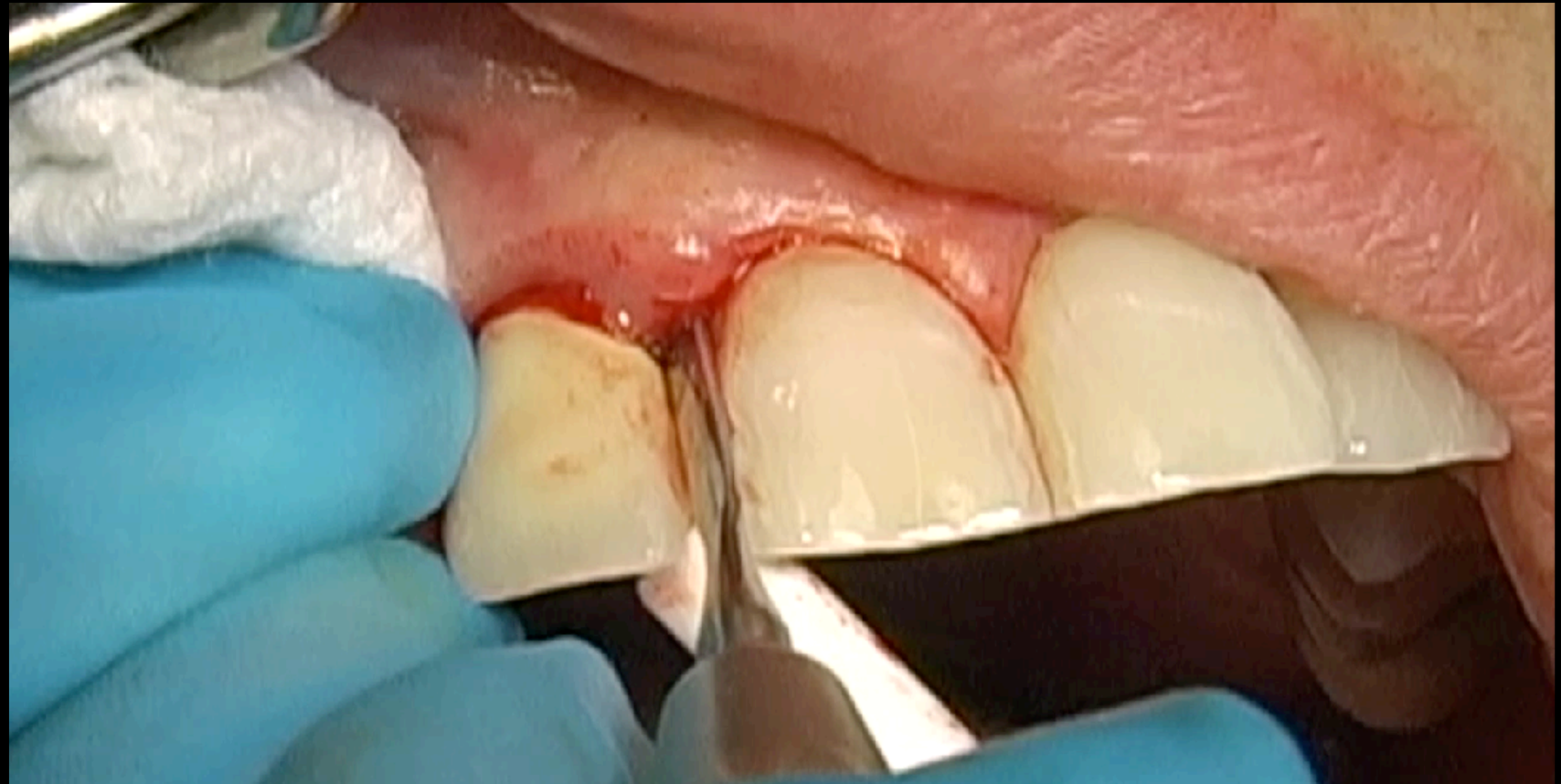
Implant Design

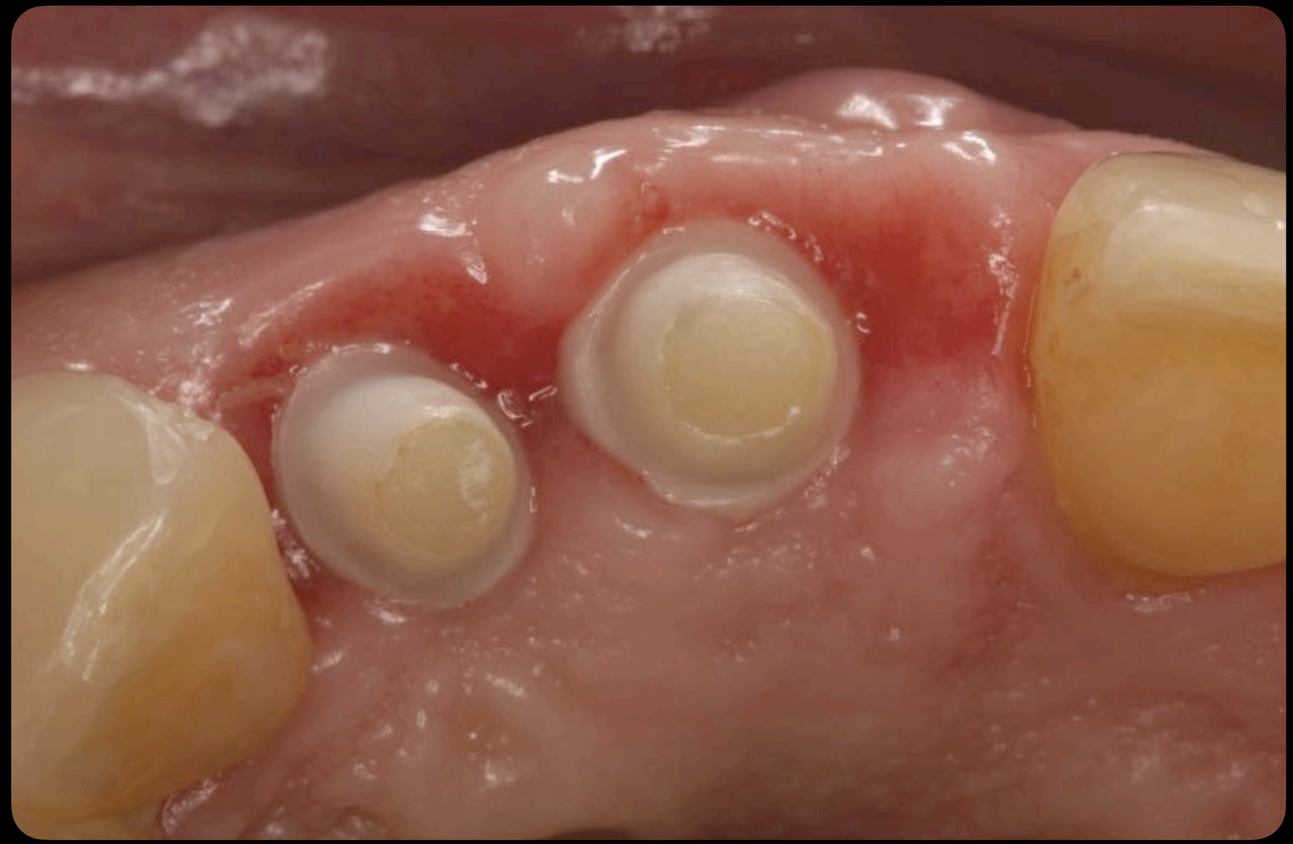
Gapski R, et al. Critical review of immediate implant loading. Clin Oral Impl Res 2003;14:515-527.

Gapski R, et al. Critical review of immediate implant loading. Clin Oral Impl Res 2003;14:515-527.

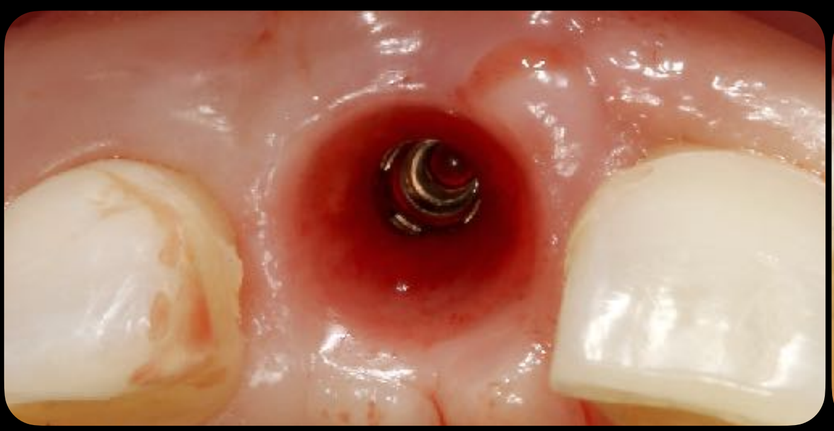

Linda

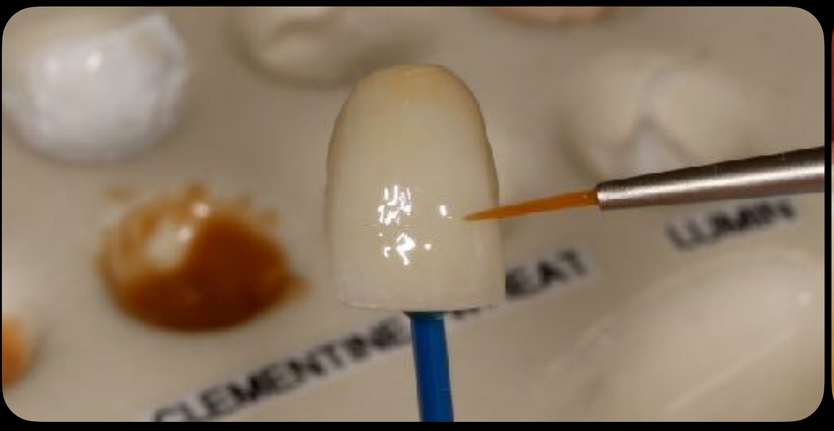






One Surgery / One Abutment / One Time





Advantages

- Support Papillae
- ↓Dis/Reconnection
- Custom Shading
- Retrievability

What have we learned in 30+ years?

Consensus 2017

Abutment Dis/Reconnection

Canullo

Reduce
Dis/Reconnection

Platform
Switching

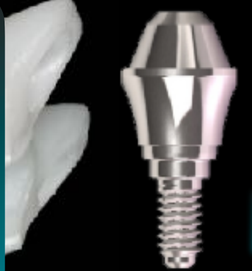
Implant Neck

Gracis

Chu

Concave Sub-gingival
Contour

High Esthetics: Ceramic
Low Esthetics: Metallic
Soft Tissue Grafting
Ti-Base Hybrid



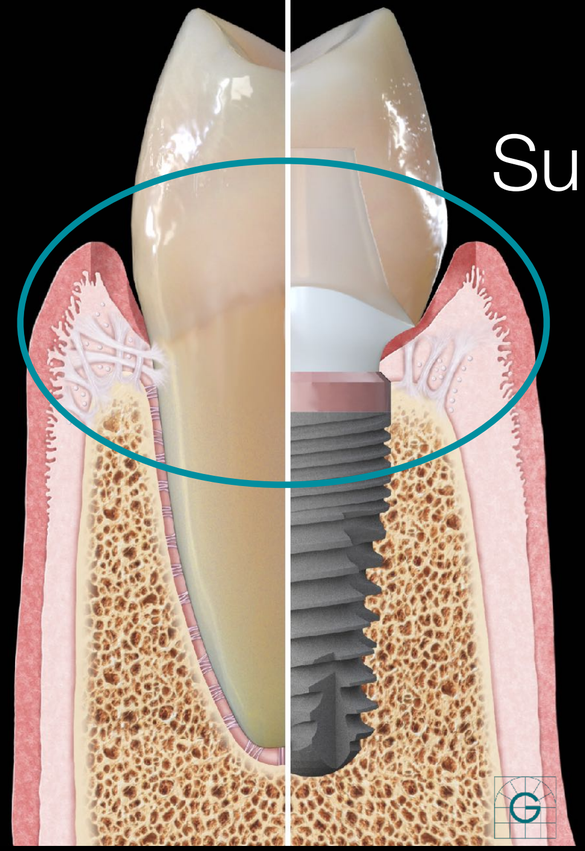
Zarauz

Restorative Eme

vs Standardized

Roadmap

Peri-Implant Complex



Supracrestal Fibers

PDL

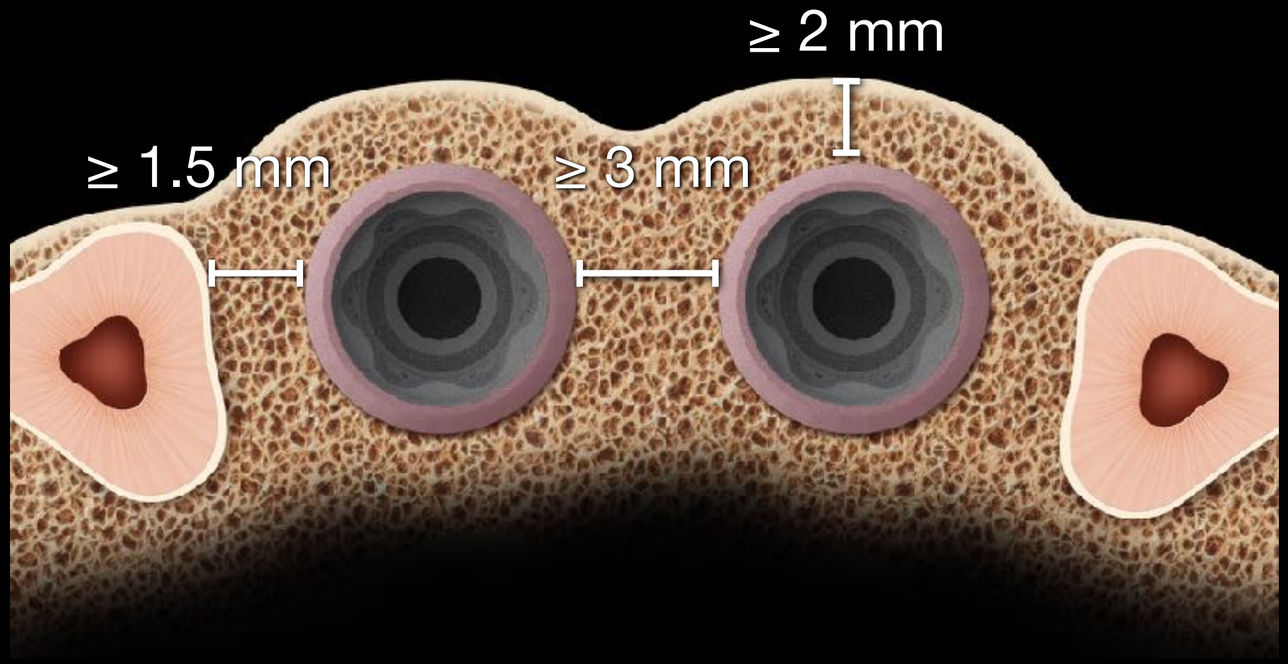
~~Supracrestal Fibers Attach to the Implant~~

~~PDL~~

SE-Sulcular Epithelium
JE-Junctional Epithelium

Surgical

- Hard Tissue



Esposito M, et al. Clin Oral Implant Res 1993
Tarnow, D et al. J Periodontol 2000
Grunder U, et al. Int J Periodontics & Restorative Dent 2005

Surgical

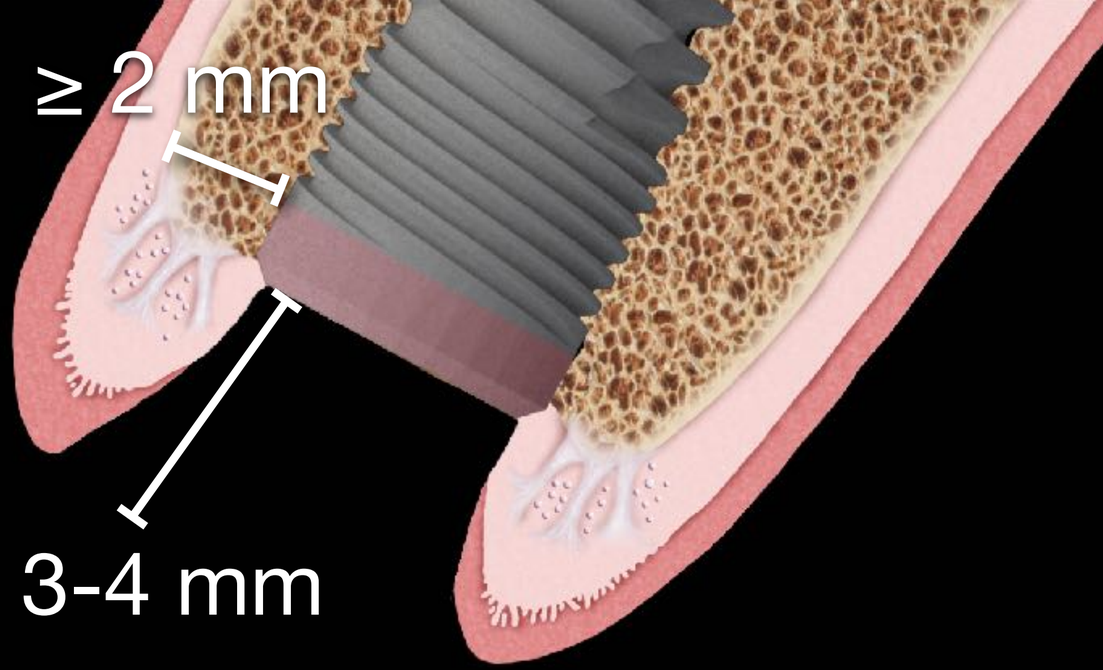
- Hard Tissue
- Soft Tissue

Berglundh T, Lindhe J. J Clin Periodontol 1996
Linkevicius T, et al. Clin Implant Dental Relat Res 2015
Rungcharassaeng K, et al. Int J Periodontics & Restorative Dent 2017

VSTT = Vertical Soft Tissue Thickness
HSTT = Horizontal Soft Tissue Thickness

Surgical

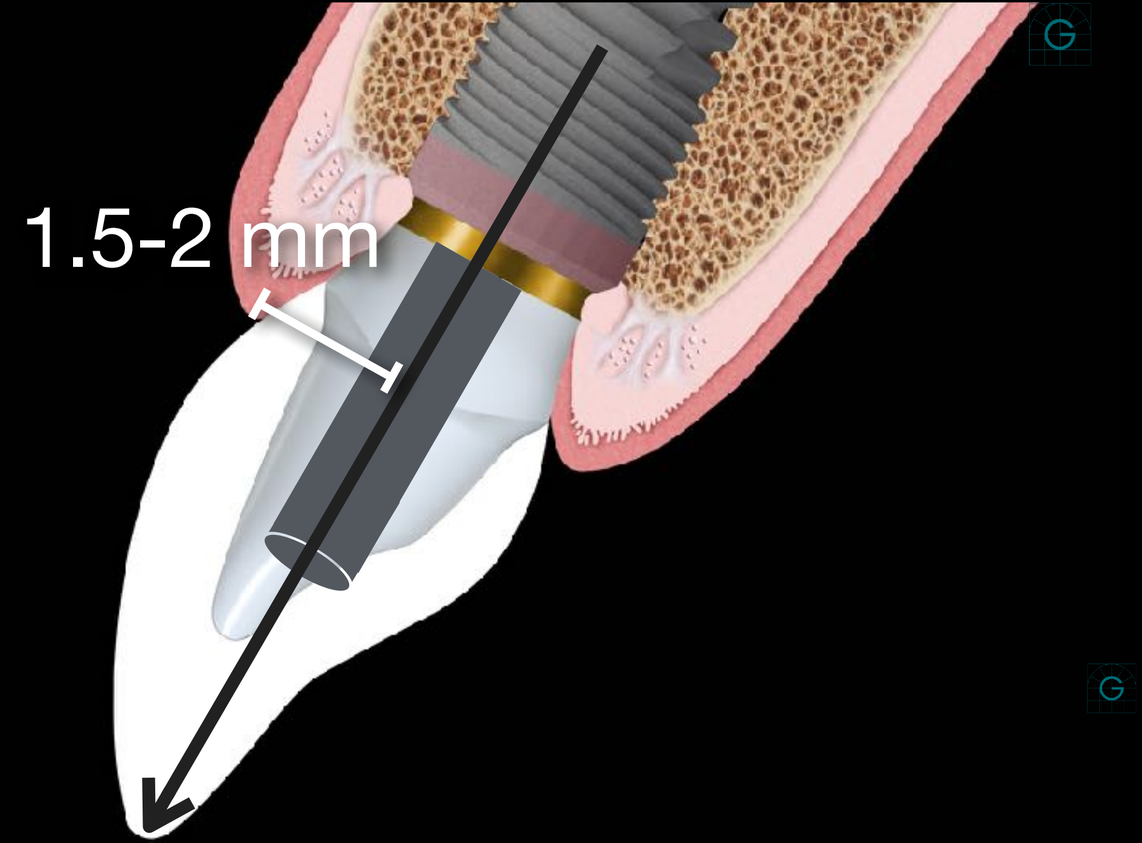
- Hard Tissue
- Soft Tissue
- 3D Implant Position



Grunder U, et al. Int J Periodontics & Restorative Dent 2005

Surgical

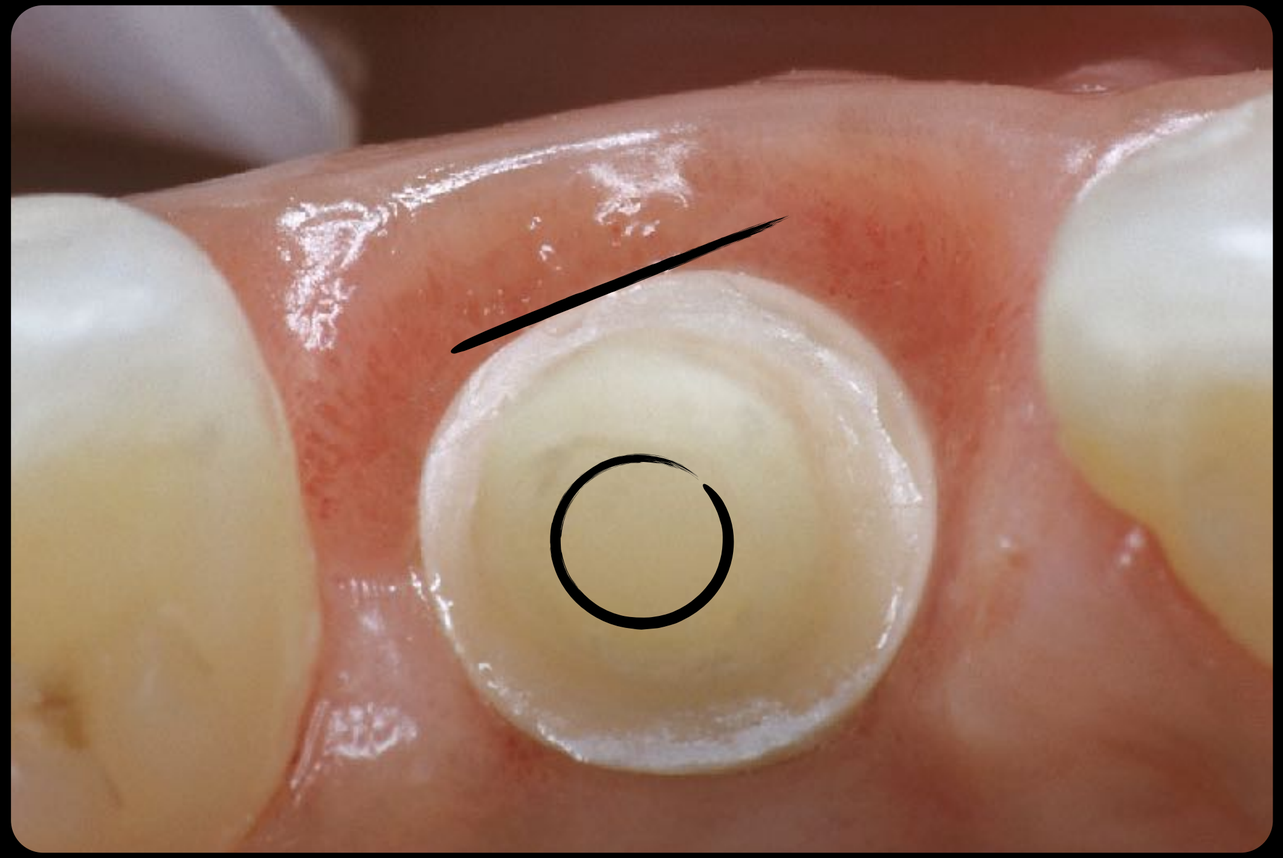
- Hard Tissue
- Soft Tissue
- 3D Implant Position



Grunder U, et al. Int J Periodontics & Restorative Dent 2005

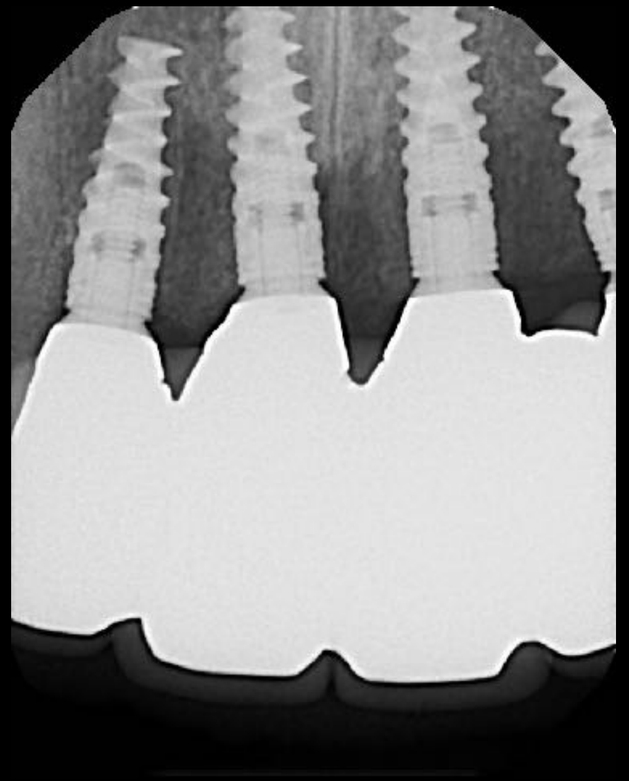
Surgical

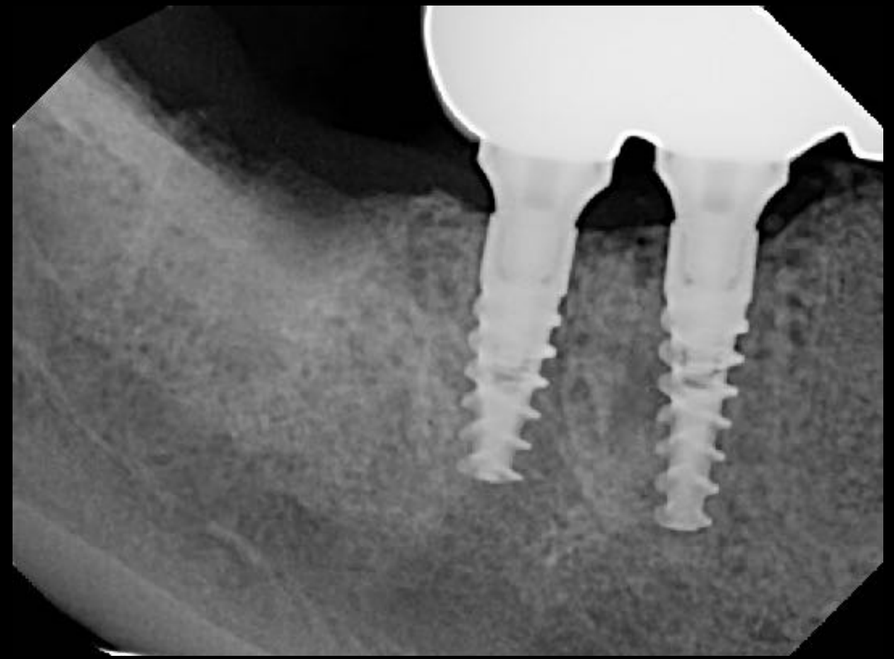
- Hard Tissue
- Soft Tissue
- 3D Implant Position



Surgical

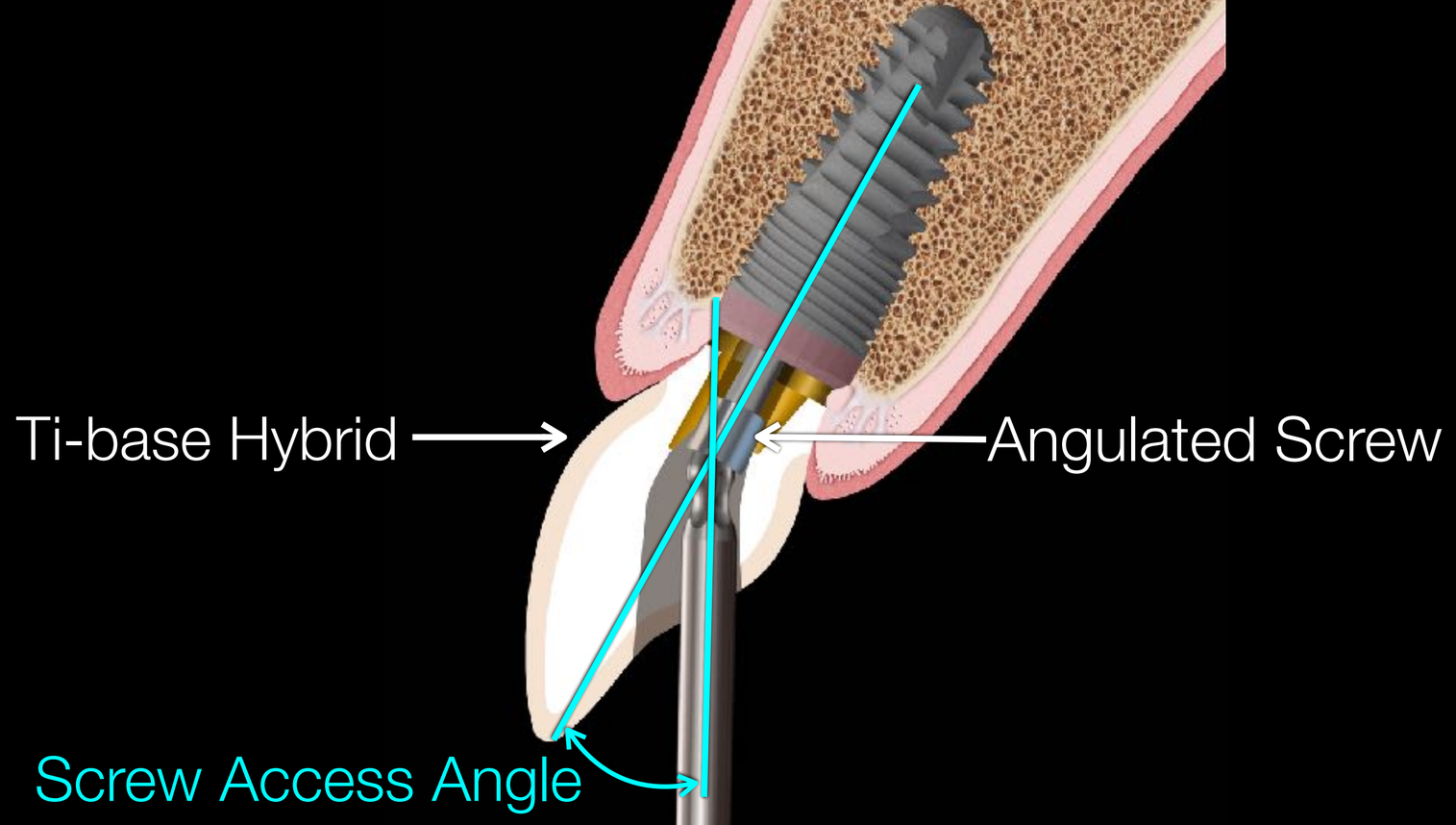
- Hard Tissue
- Soft Tissue
- 3D Implant Position
- Implant Size



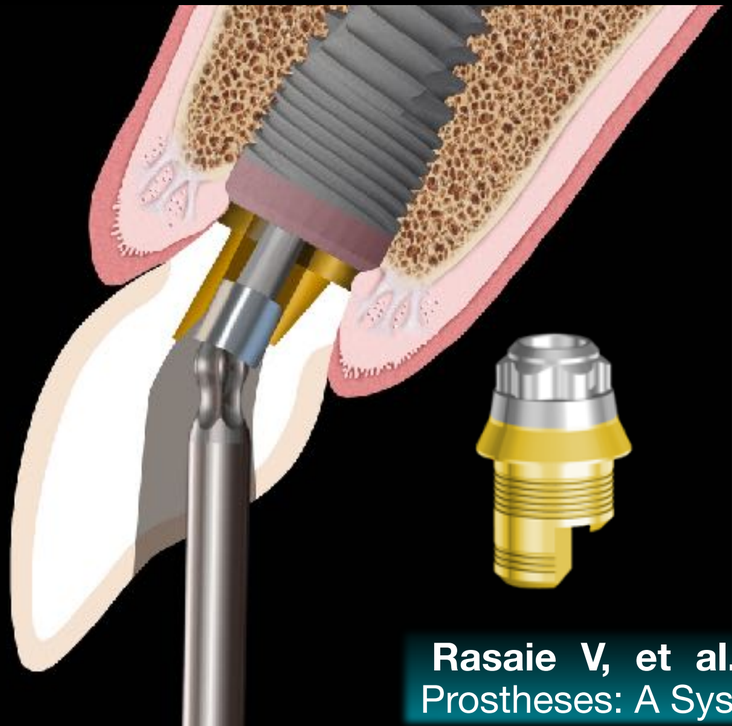


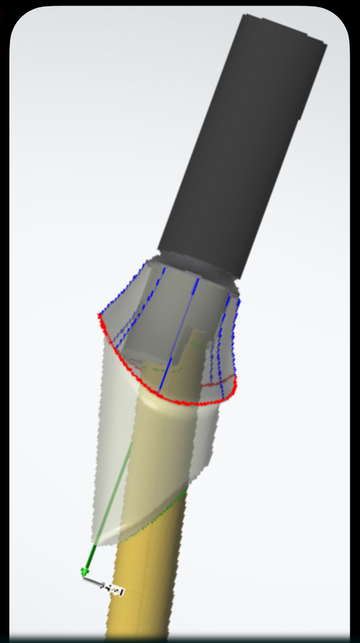
Restorative

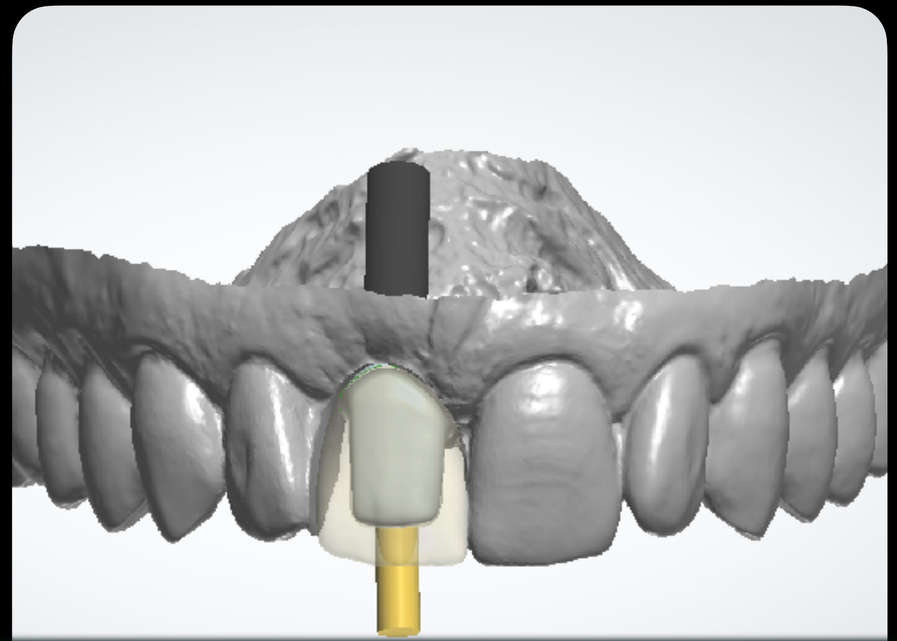
- Screw Access Angle



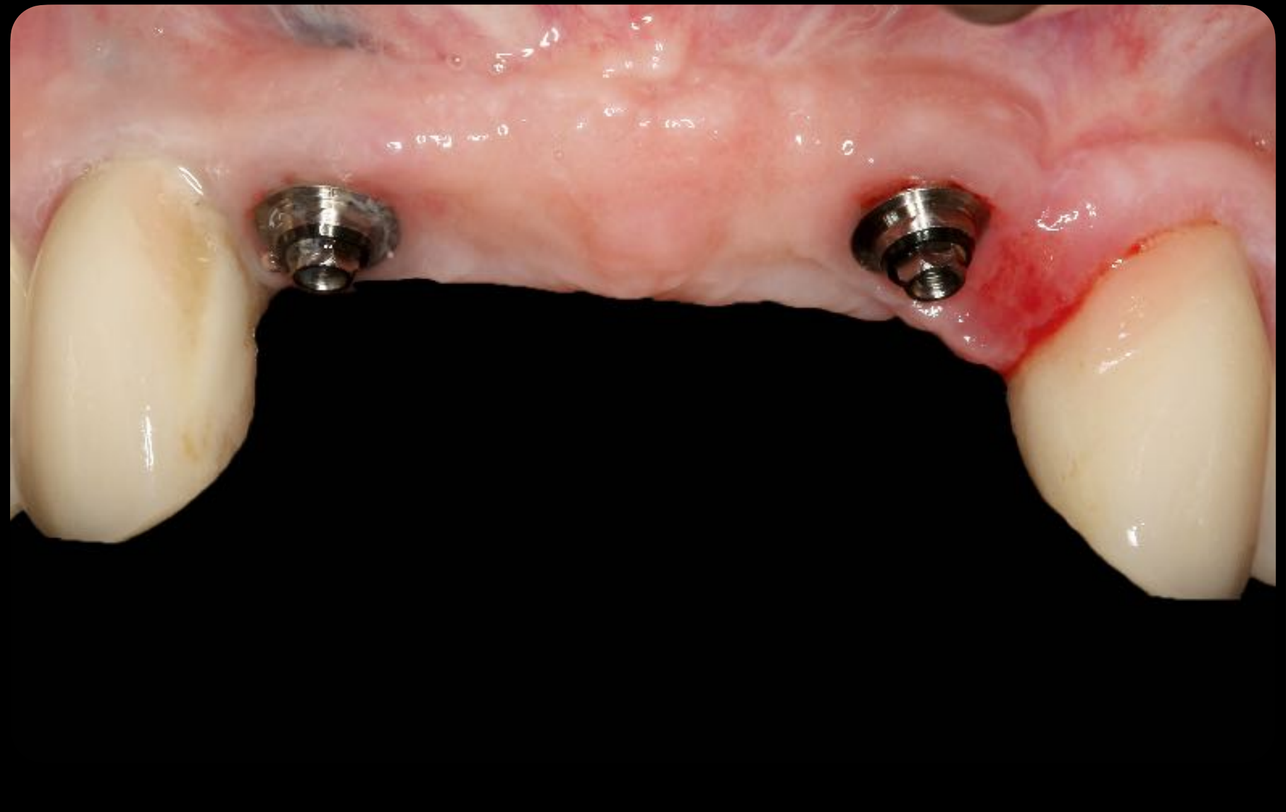
Angulated Screw

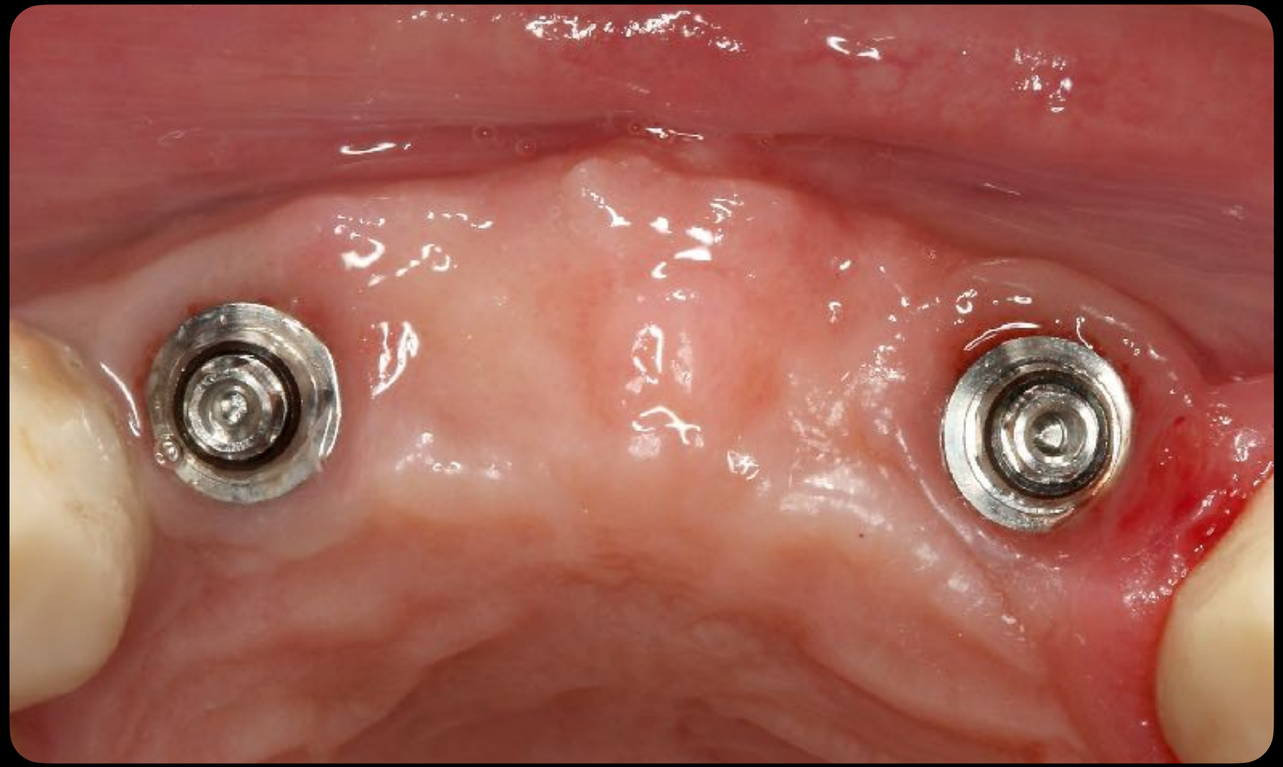


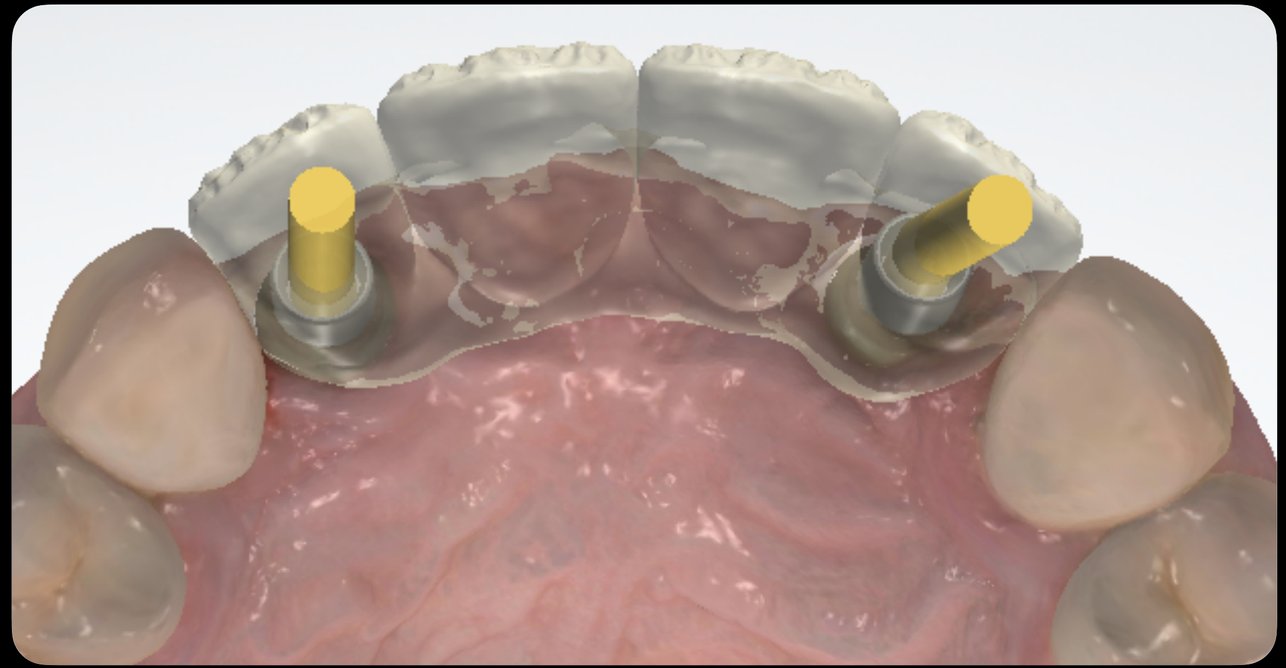




Rasaie V, et al. Clinical and Laboratory Outcomes of Angled Screw Channel Implant Prostheses: A Systematic Review. Eur J Dent 2022 ; Feb 21:10.1055/s-0041-1740298 .



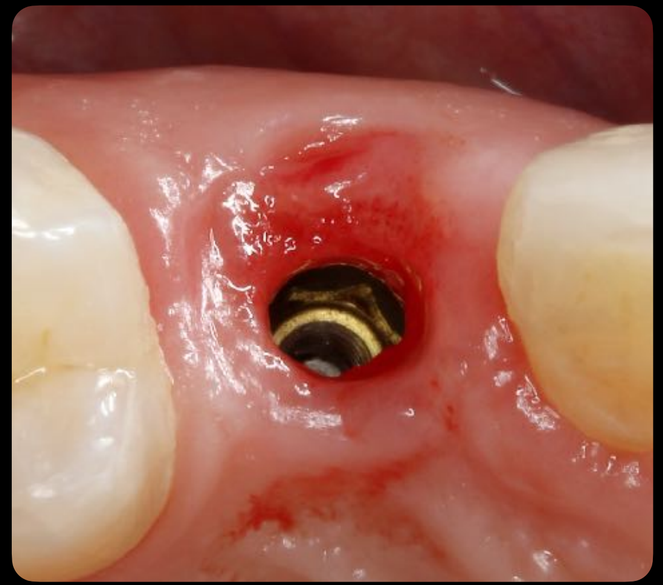





Angulated
Prosthetic Screw

Restorative

- Screw Access Angle
- Abutment Dis/Reconnect

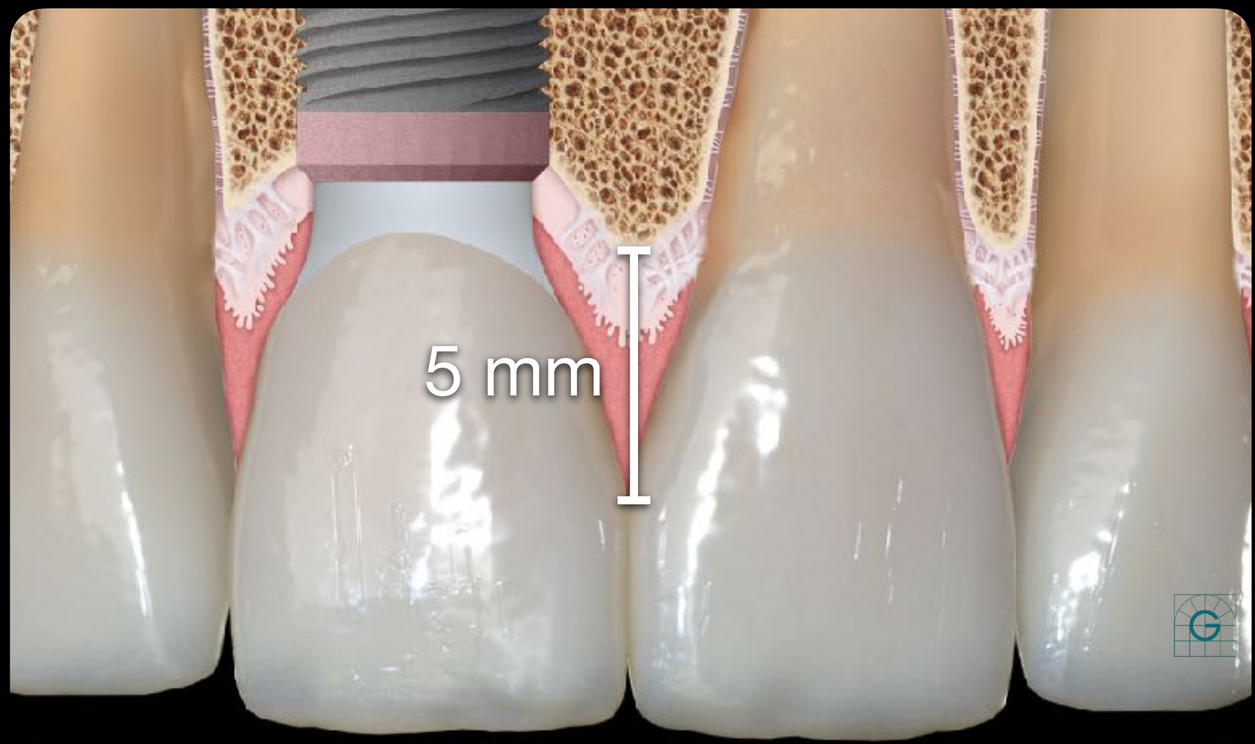


Abrahamsson I, et. al. J Clin Periodontol 1997

Koutouzis T, et al. Int J Oral Maxillofac Implants 2017

Restorative

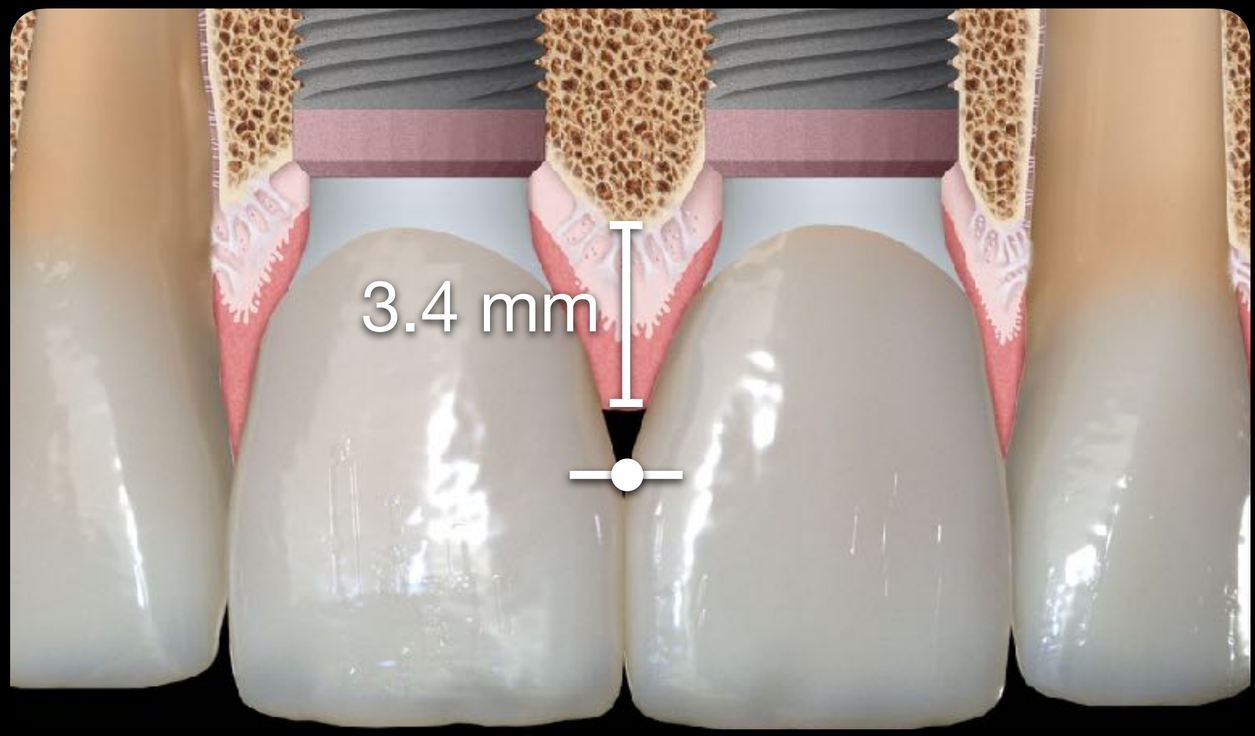
- Screw Access Angle
- Abutment Dis/Reconnect
- Prosthetic Contours



Choquet V, et al. J Periodontol, 2001

Restorative

- Screw Access Angle
- Abutment Dis/Reconnect
- Restorative Contours



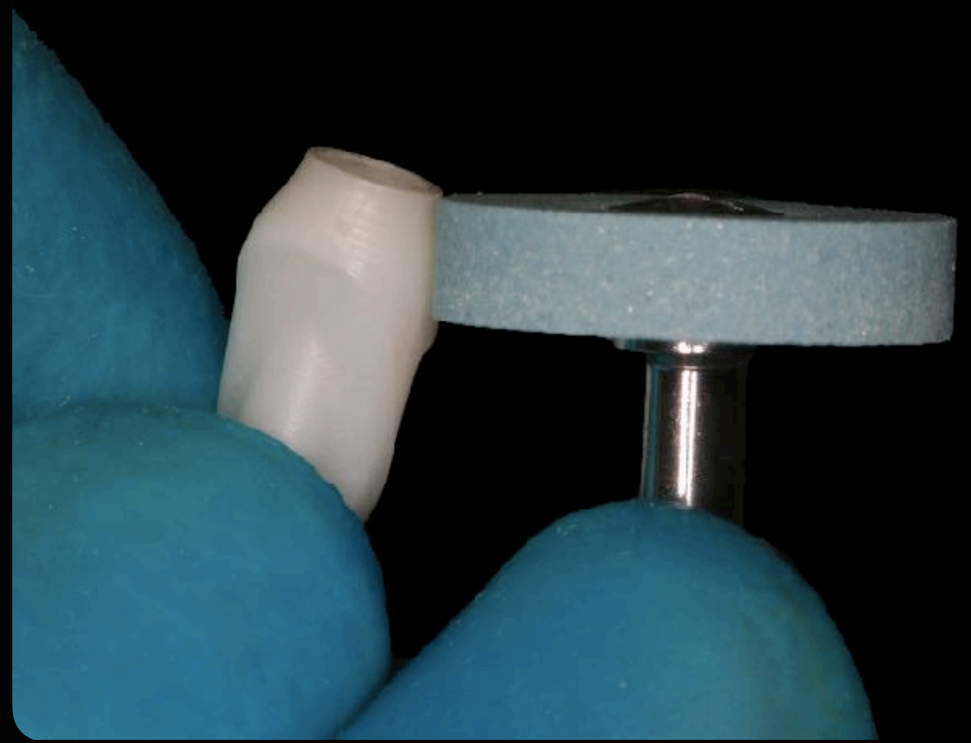
Tarnow D, et al. J Periodontol 2003

Restorative

- Screw Access Angle
- Abutment Dis/Reconnect
- Restorative Contours

Restorative

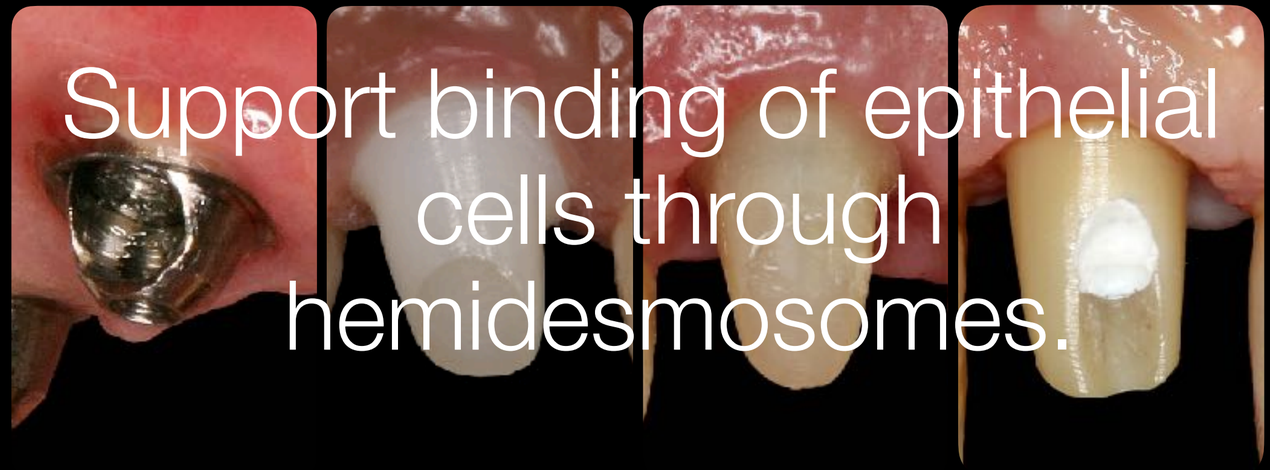
- Screw Access Angle
- Abutment Dis/Reconnect
- Restorative Contours



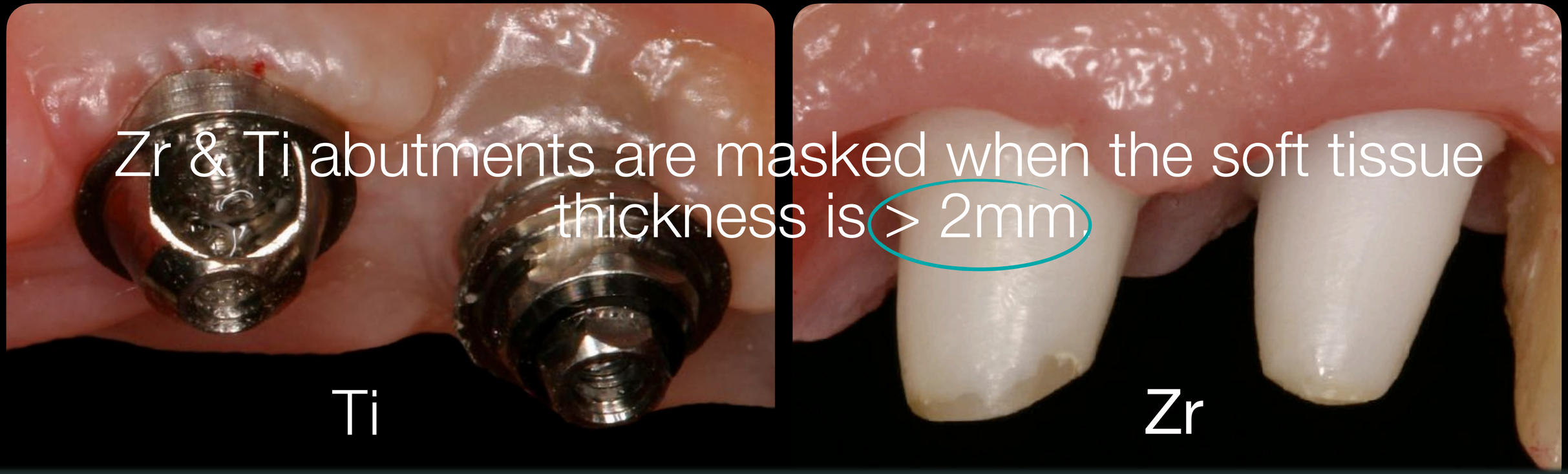
Chu, et al. Int J Periodontics & Restorative Dent 2020

Restorative

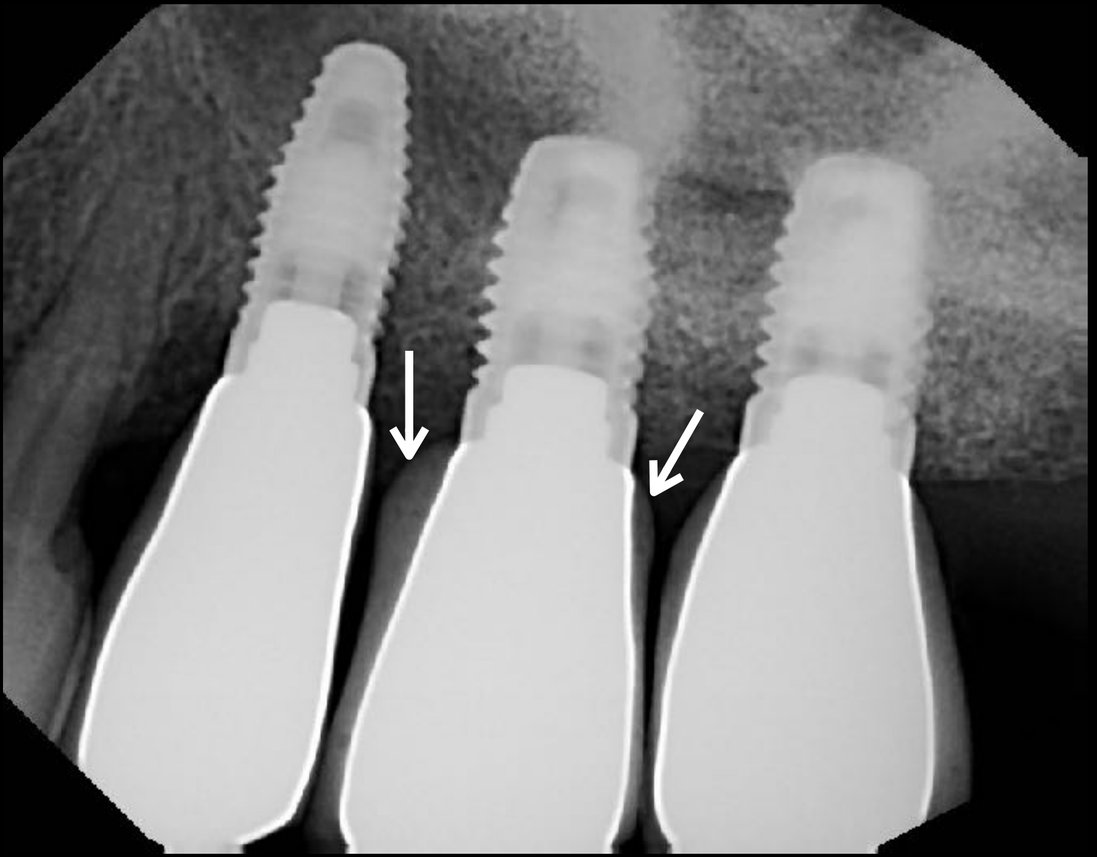
- Screw Access Angle
- Abutment Dis/Reconnect
- Restorative Contours
- Restorative Materials



Obake E, et al. Adhesion Properties of Human Oral Epithelial-Derived Cells to Zirconia. Clin Implant Dent Relat Res 2016;18:906-916.



van Brakel, et al. The Effect of Zirconia and Titanium Implant Abutments on Light Reflection of the Supporting Soft Tissues. Clin Oral Implants Res 2011;22(10):1172-1178.



Restorative

- Screw Access Angle
- Abutment Dis/Reconnect
- Prosthetic Contours
- Restorative Materials
- Screw vs Cement Retention

Sailer I et al. Cemented and screw-retained implant reconstructions: a systematic review of the survival and complication rates. Clin Oral Implants Res. 2012;23:163-201.

Restorative

- Screw Access Angle
- Abutment Dis/Reconnect
- Prosthetic Contours
- Restorative Materials
- Screw vs Cement Retention
- Occlusion

Sheridan RA et al. Implant Dent. 2016

Mutually Protected

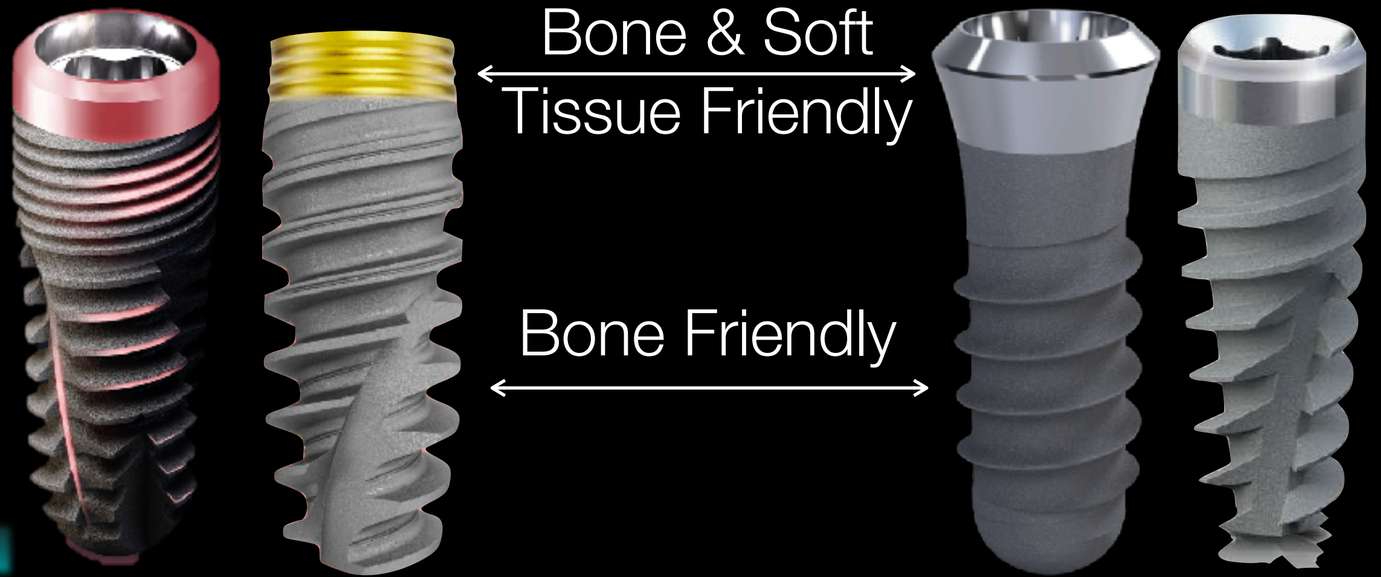
Implant Collar Features

- Collar Surface

Hybrid Design

Anodized

Machined Ti

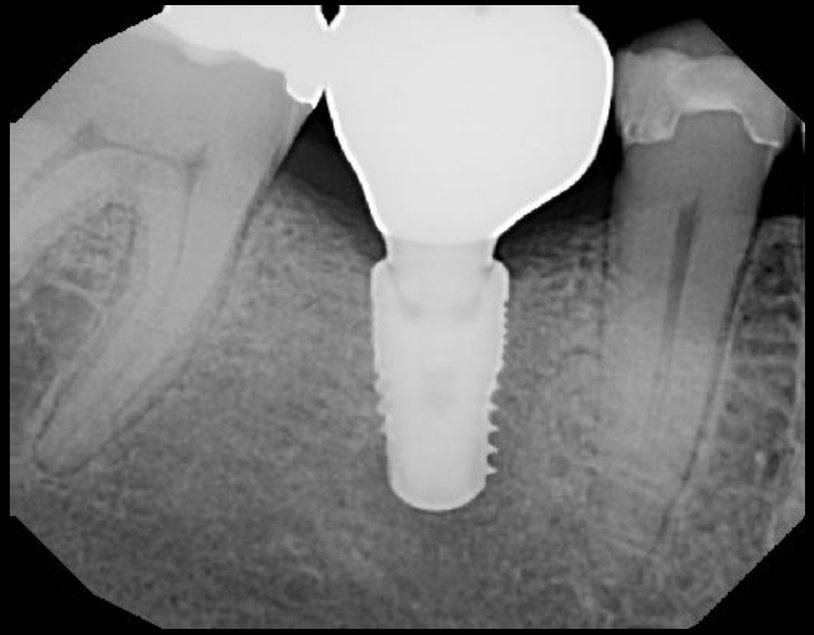


Gracis, et al. Int J Periodontics & Restorative Dent, 2020

Implant Collar Features

- Collar Surface
- Abutment-Implant Connection

Platform switch



Lazzara RJ, Porter SS. Platform switching: A new concept in implant dentistry for controlling postrestorative crestal bone levels. Int J Periodontics Restorative Dent 2006.

Surgical

Implant-Tooth ≥ 1.5 mm

Implant-Implant ≥ 3.0 mm

Labial Bone ≥ 2 mm

VSTT= 2-3 mm

HSTT ≥ 2 mm

1.5-2 mm Palatal Placement

3-4 mm Apical to Gingival Crest

Narrow Diameter

Restorative

Contact Pt-Bone Crest = 5 mm

Mean Papillary Ht = 3.4 mm

Abutment Dis/Reconnection

Concave Subgingival Contour

Zr Abutment in Aesthetic Area

Ti, Zr, Al_2O_3, & LS_2-Epithelial Attachment

Avoid Subgingival Porcelain

Favor Screw Retention

Mutually Protected Occlusion

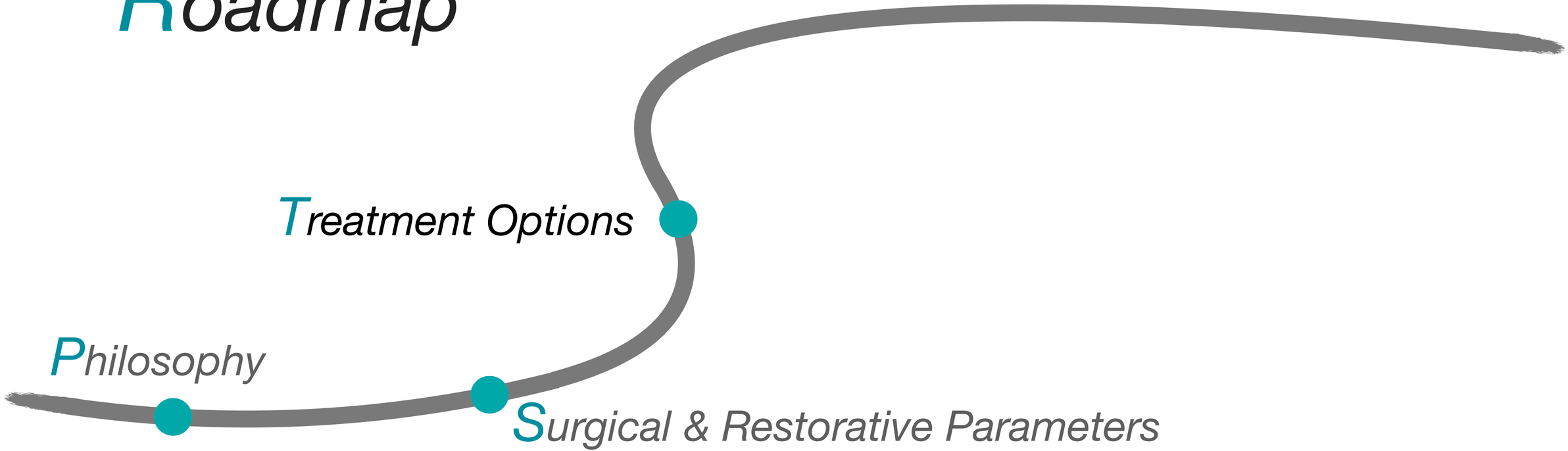
Implant Collar

Hybrid Design

Avoid Roughened Collar

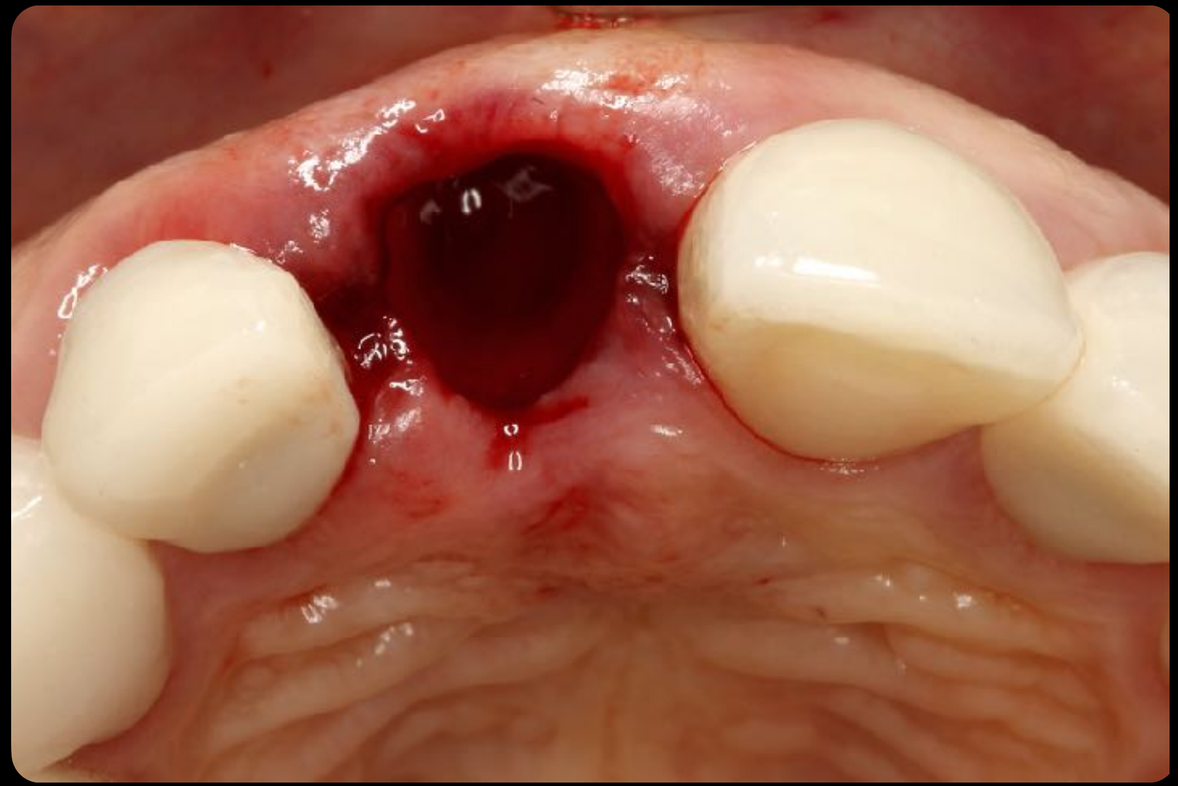
Platform Switch

Roadmap

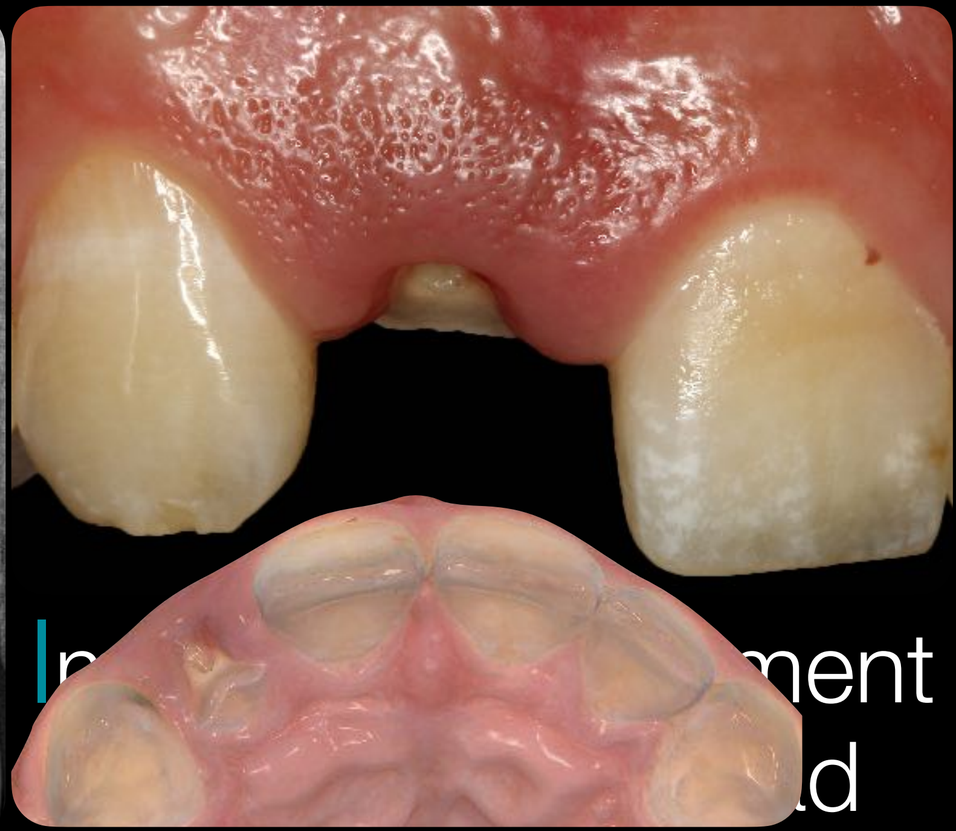

Treatment Options
Philosophy
Surgical & Restorative Parameters

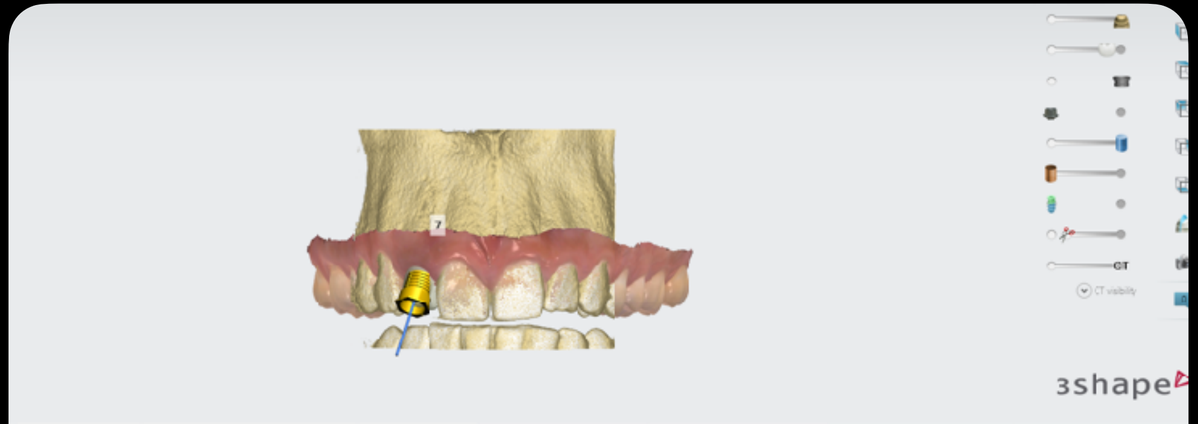
Treatment Options

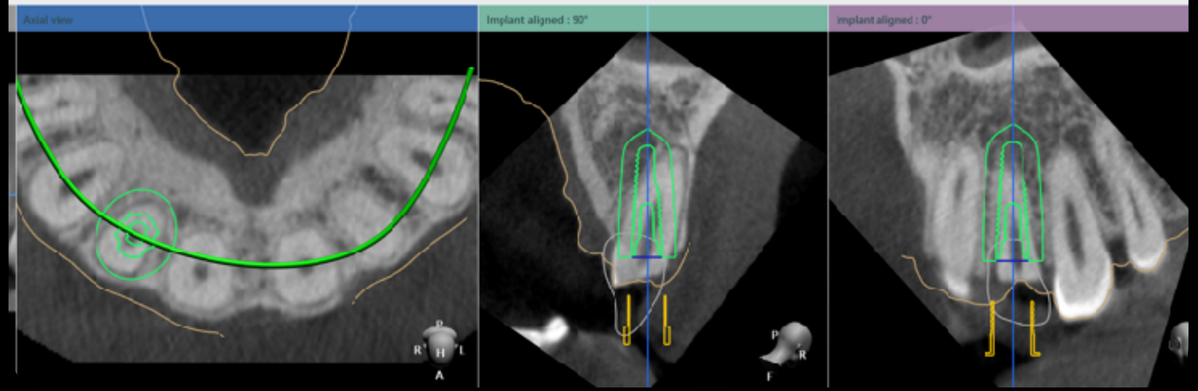
- Immediate Placement & Loaded Provisional

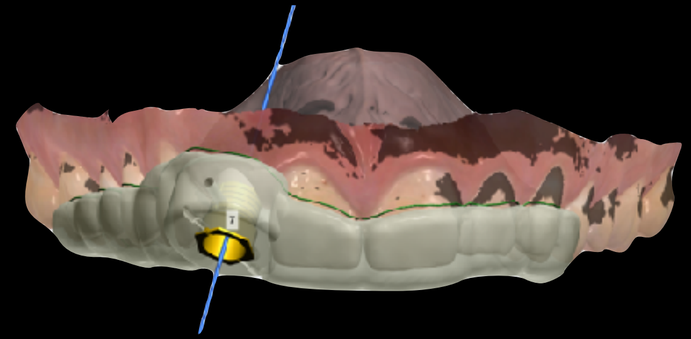


Immediate Tooth Replacement




7
CT
CT visibility
3shape


Axial view
Implant aligned : 90°
Implant aligned : 0°
R
H
L
A
P
F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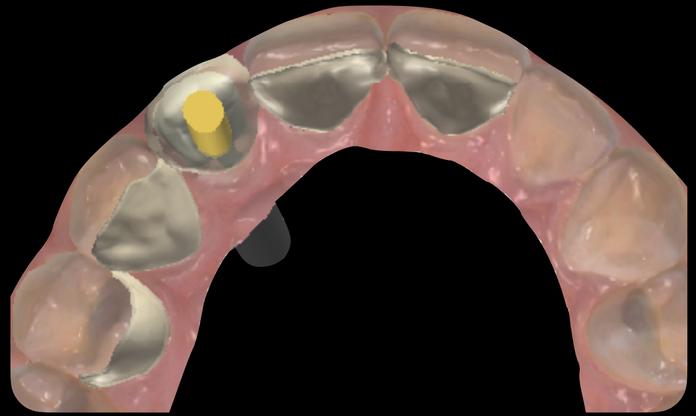
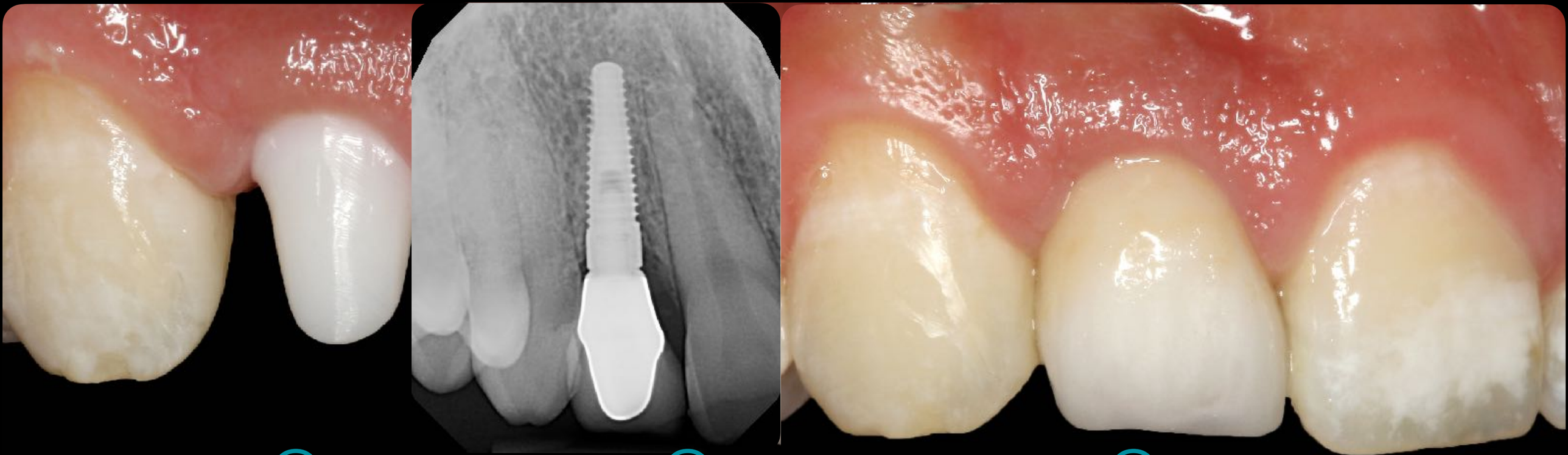
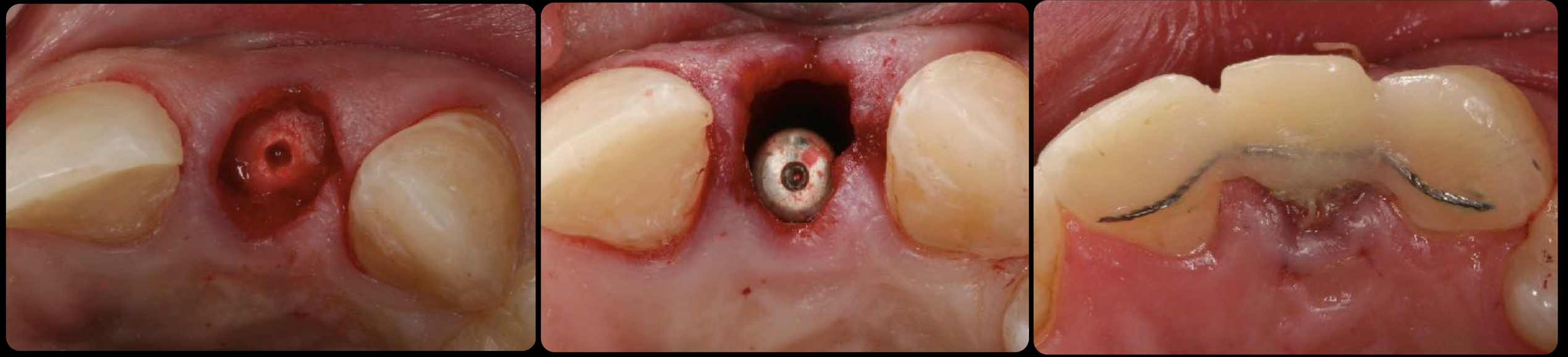
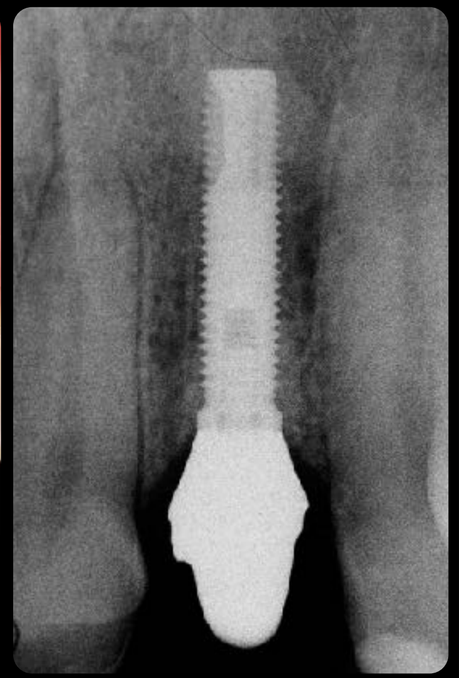



One Surgery / One Abutment / One Time

Treatment Options

- Immediate Placement & Loaded Provisional
- Immediate Placement & Resin-Bonded Provisional

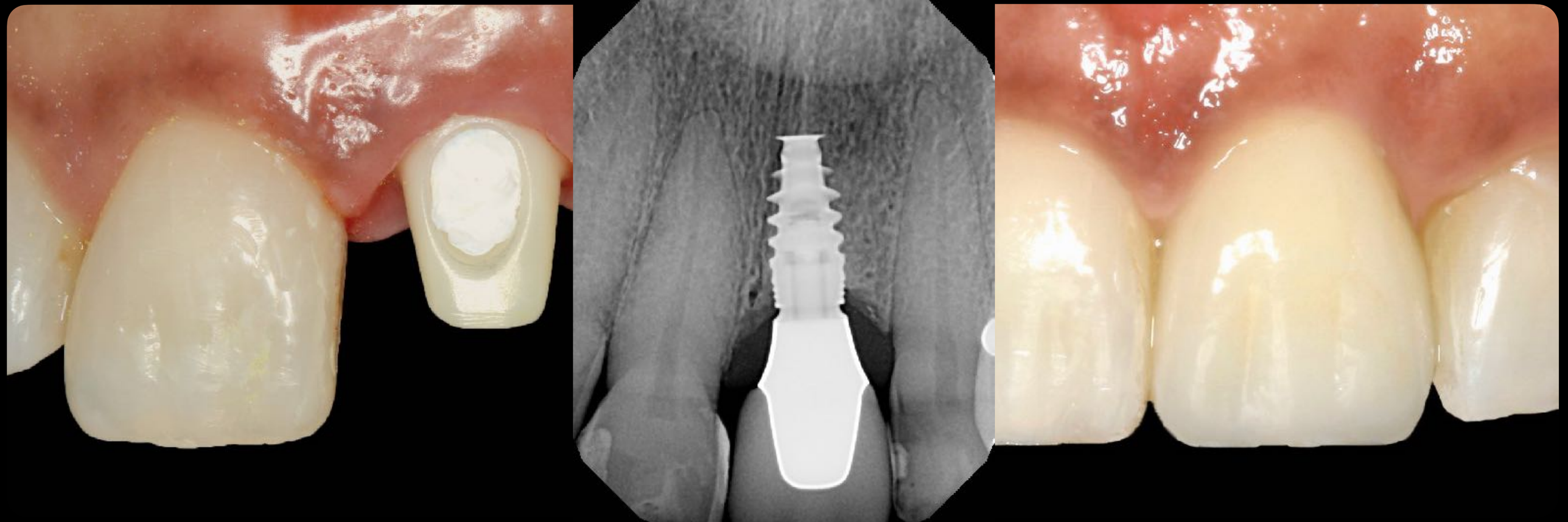




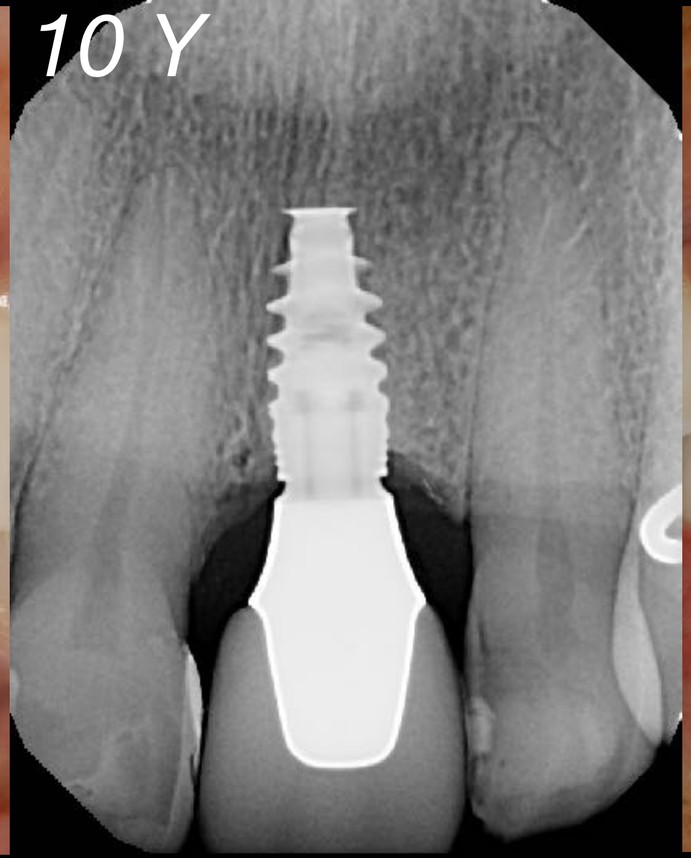

10 Y

Treatment Options

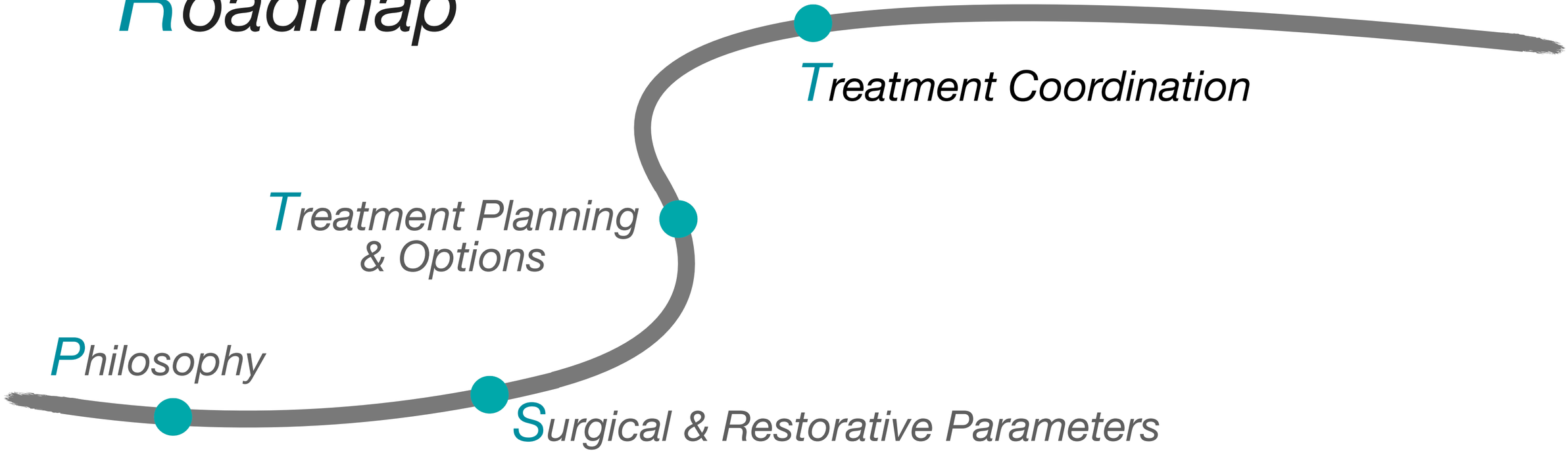
- Immediate Placement & Loaded Provisional
- Immediate Placement & Resin-Bonded Provisional
- Delayed Placement, Resin-Bonded Provisional & Subsequent Loaded Provisional




Lavina

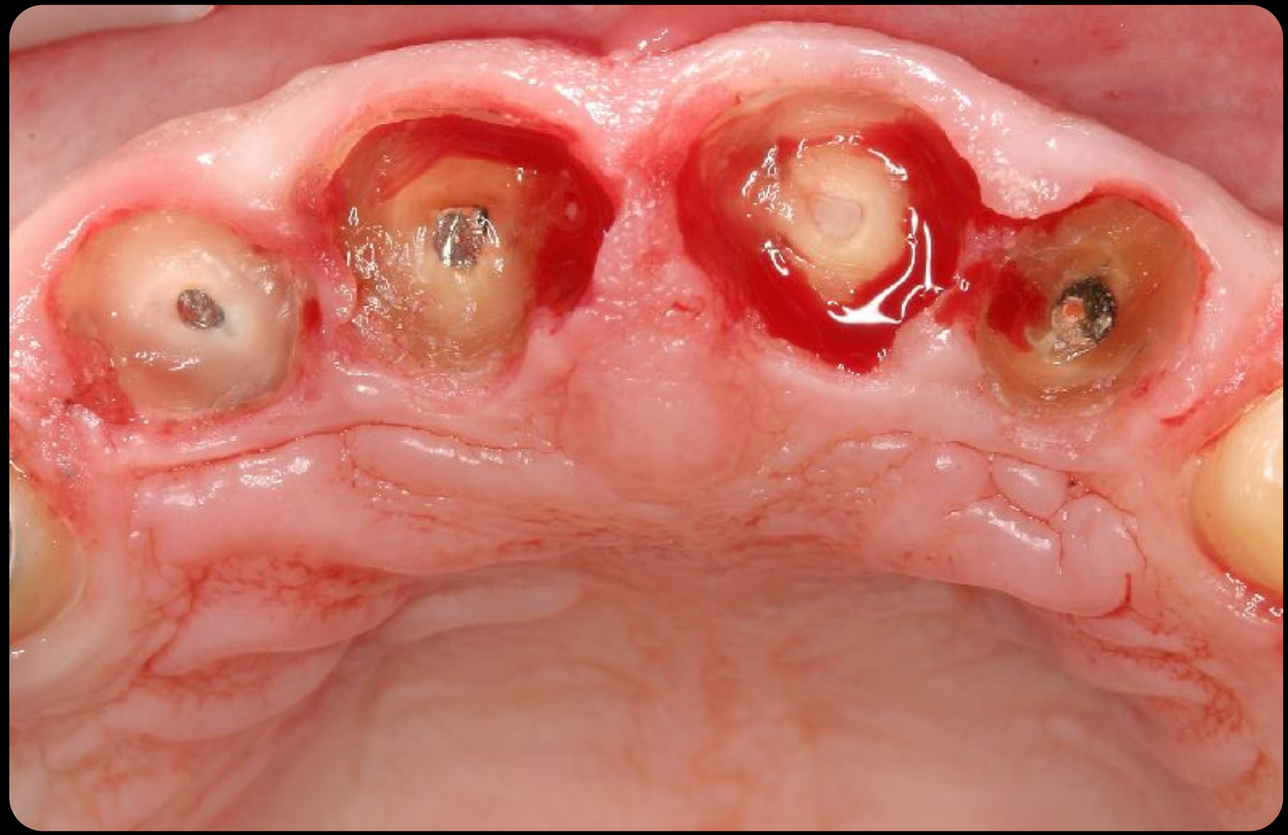

10 Y

Roadmap

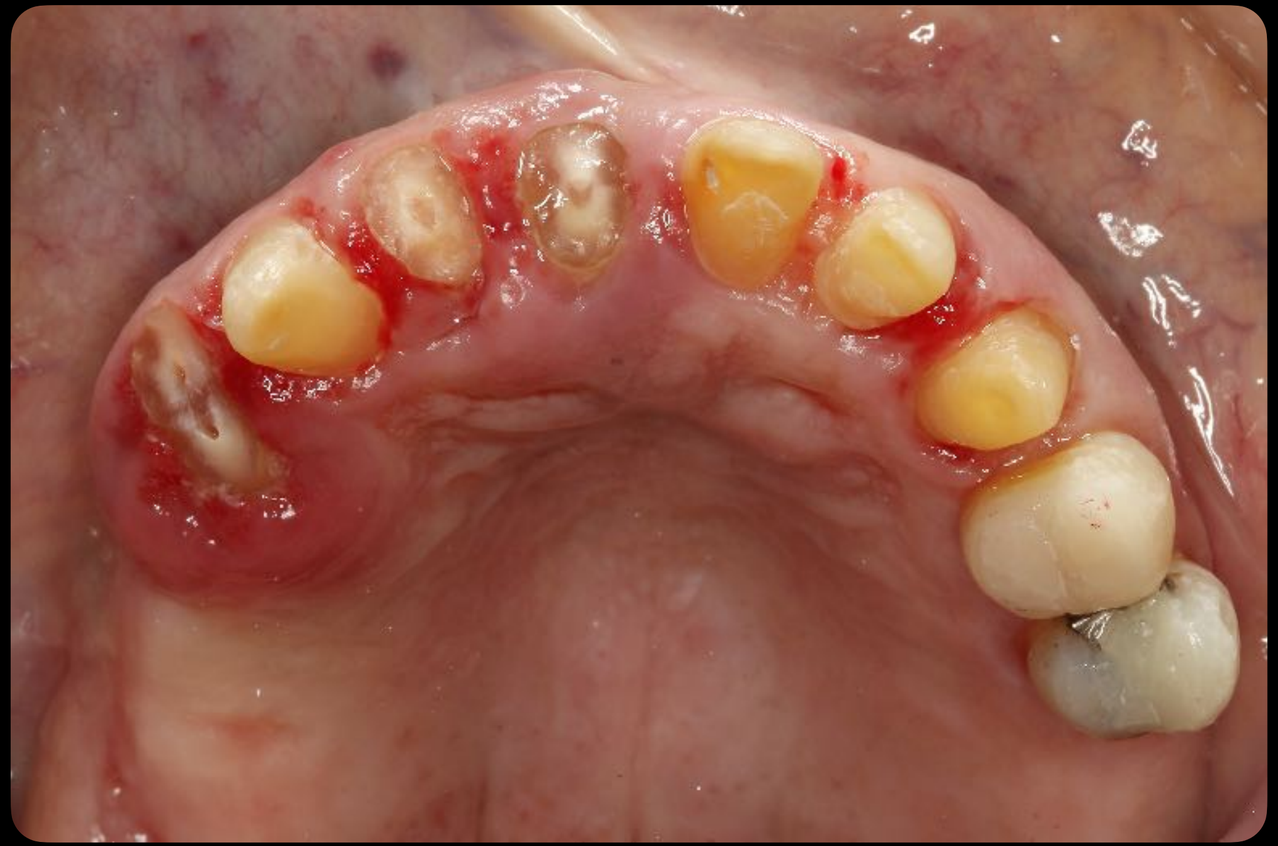

Treatment Coordination
Treatment Planning
& Options
Philosophy
Surgical & Restorative Parameters

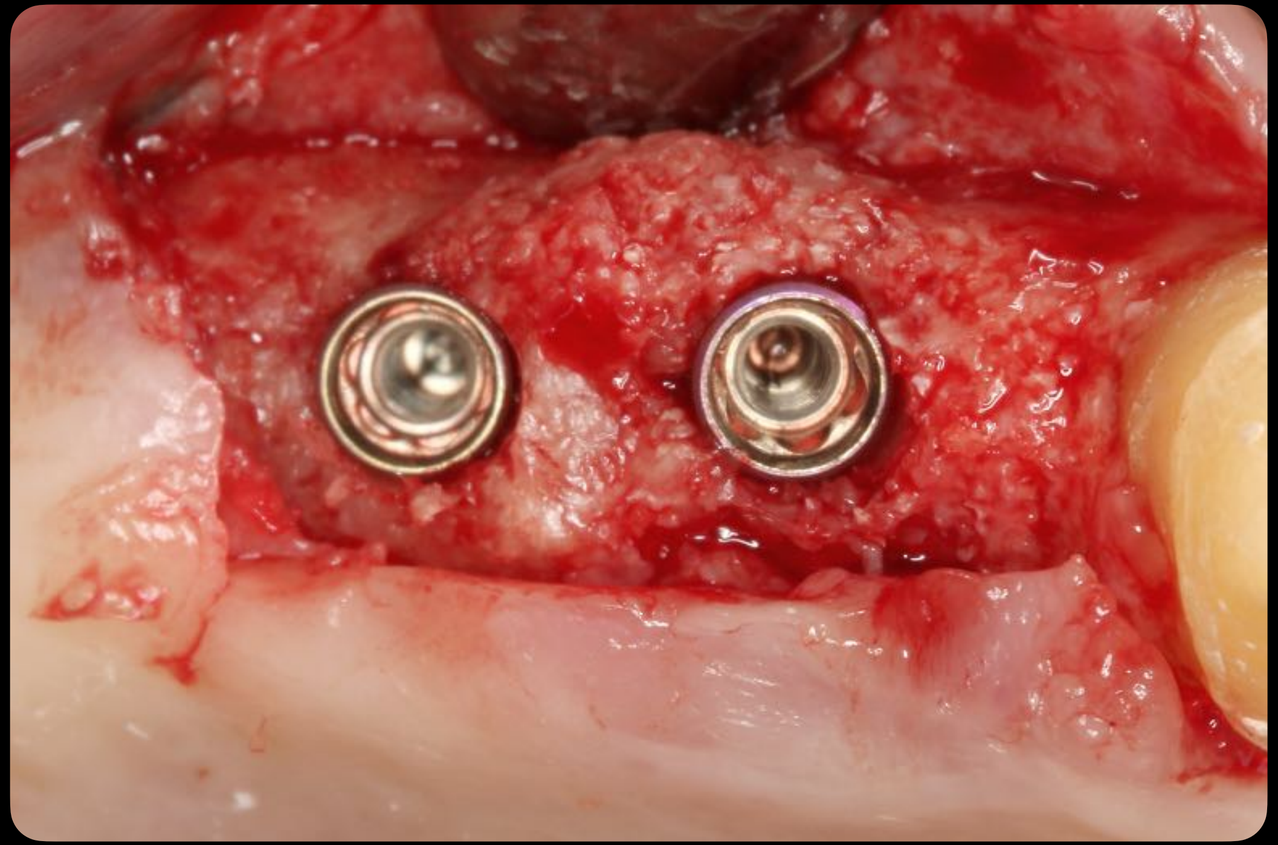
Treatment Coordination

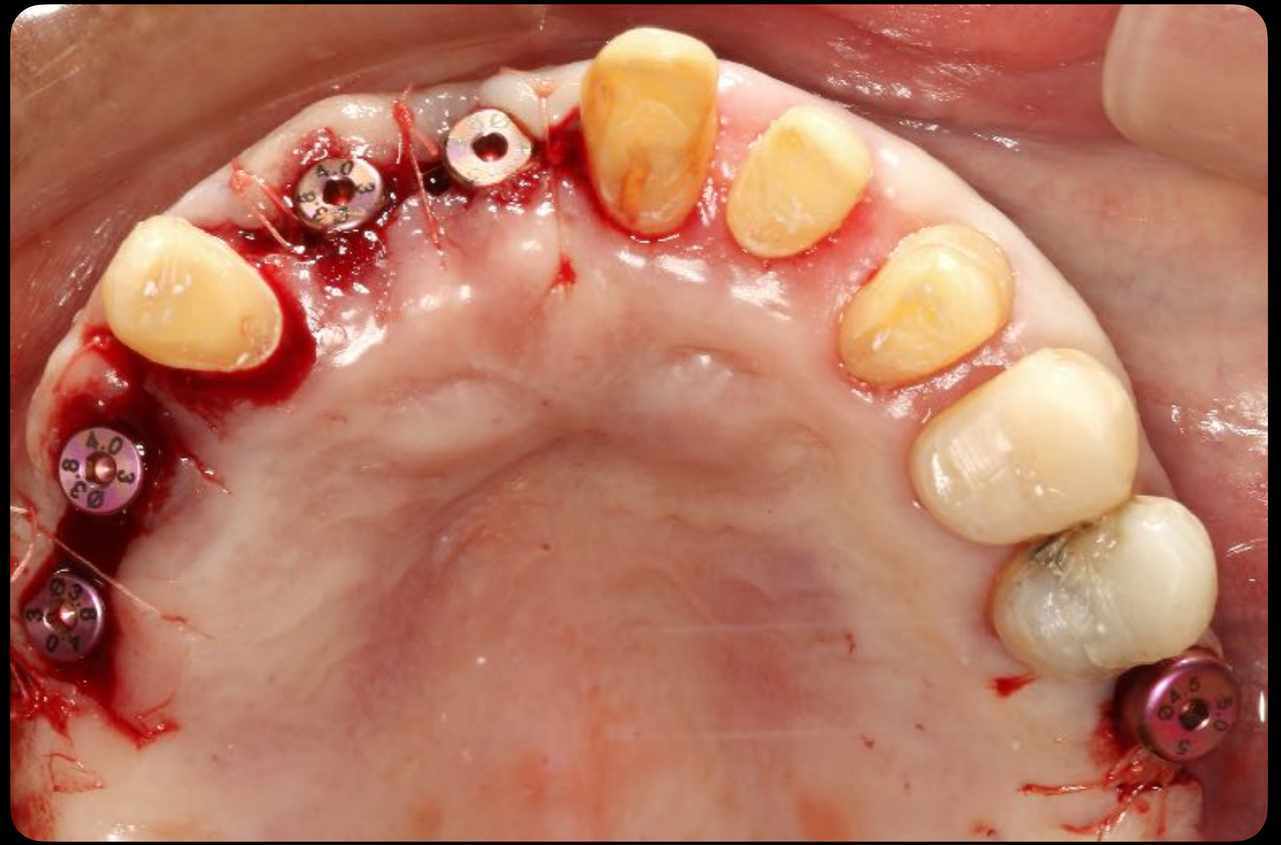
Pre-surgical Decoronation
& Provisionalization

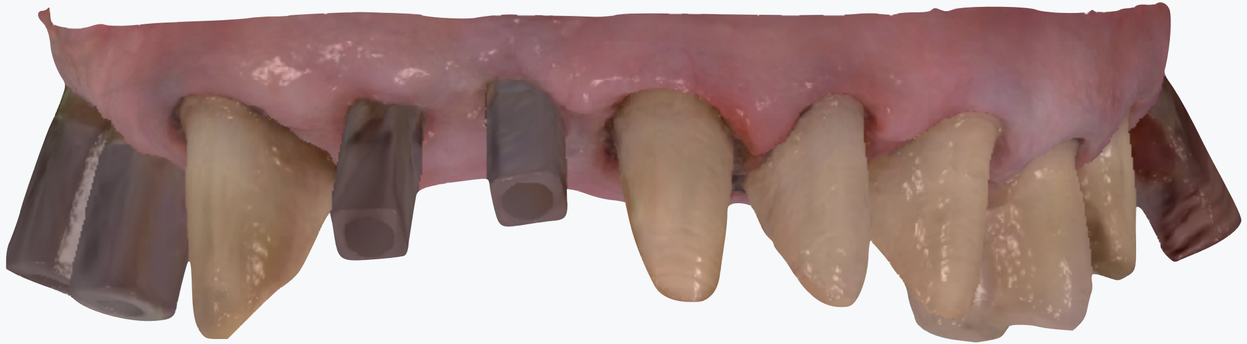


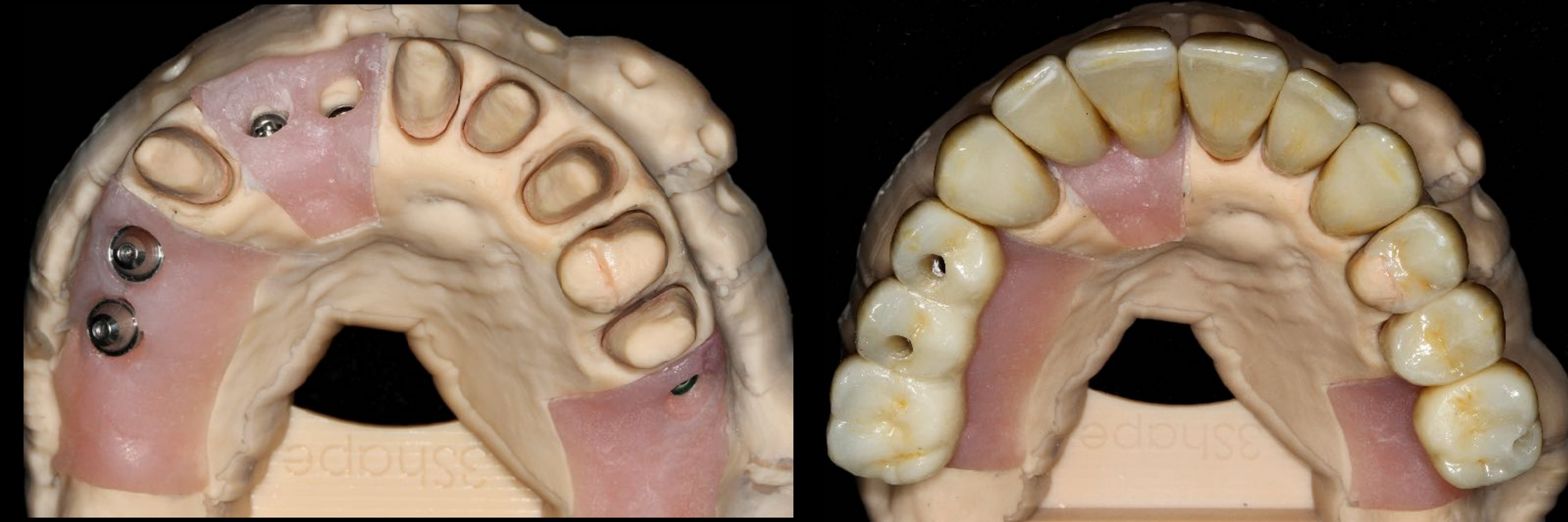

Leo

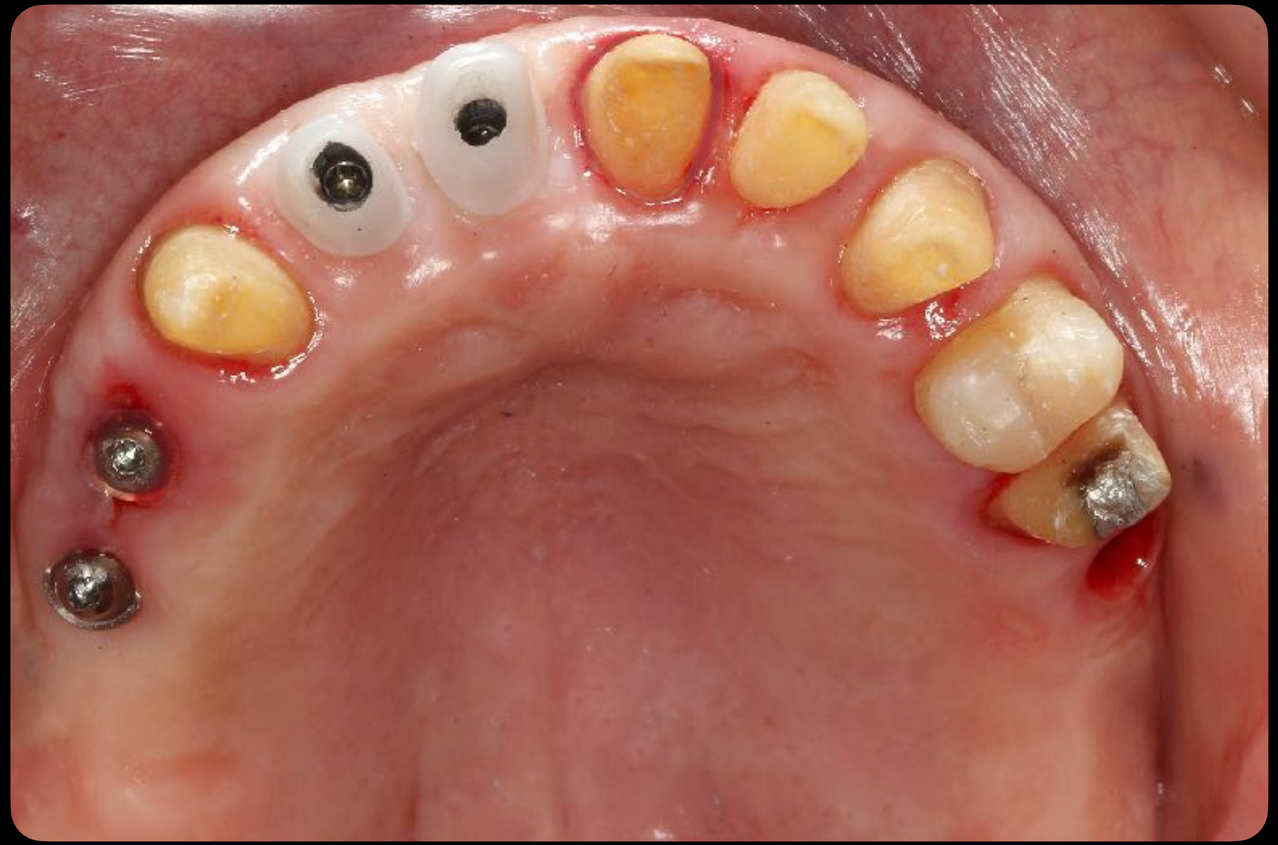



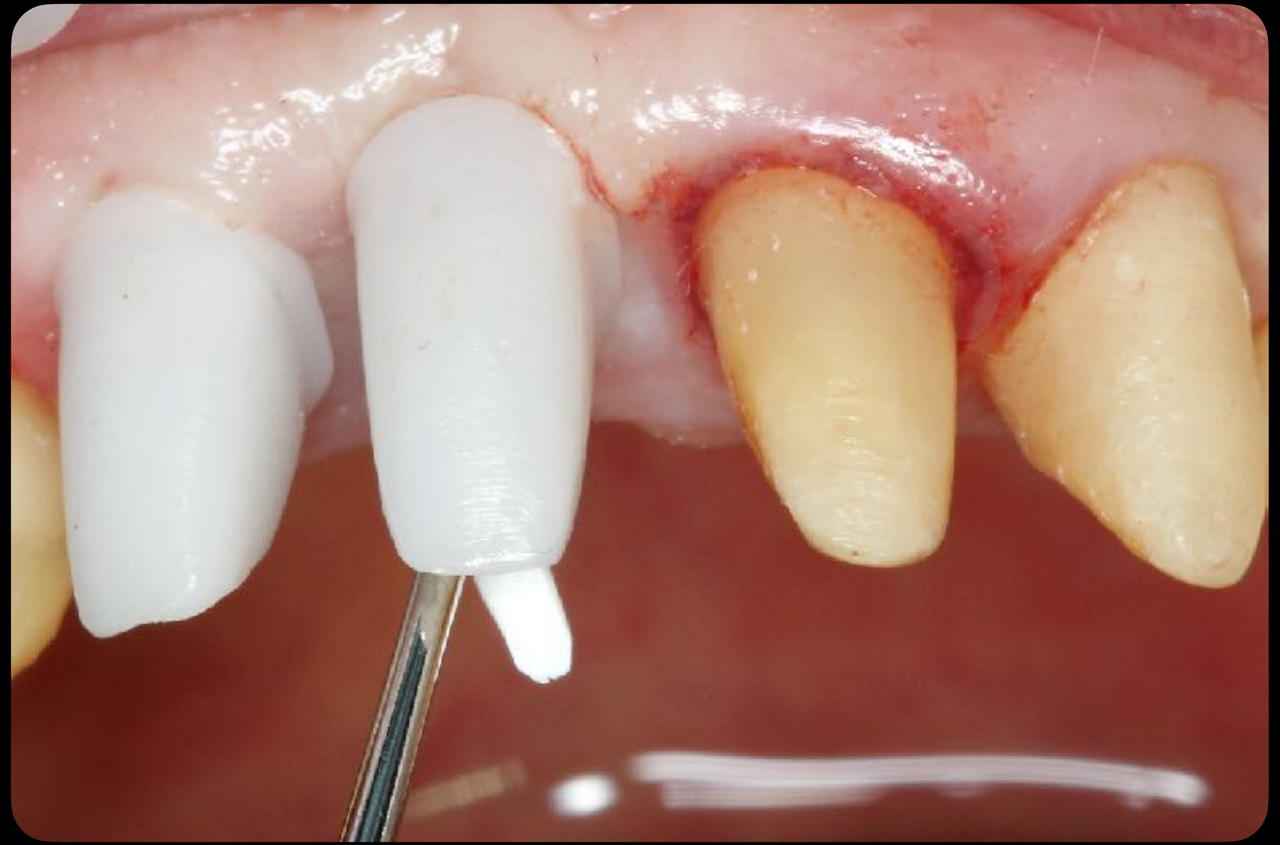


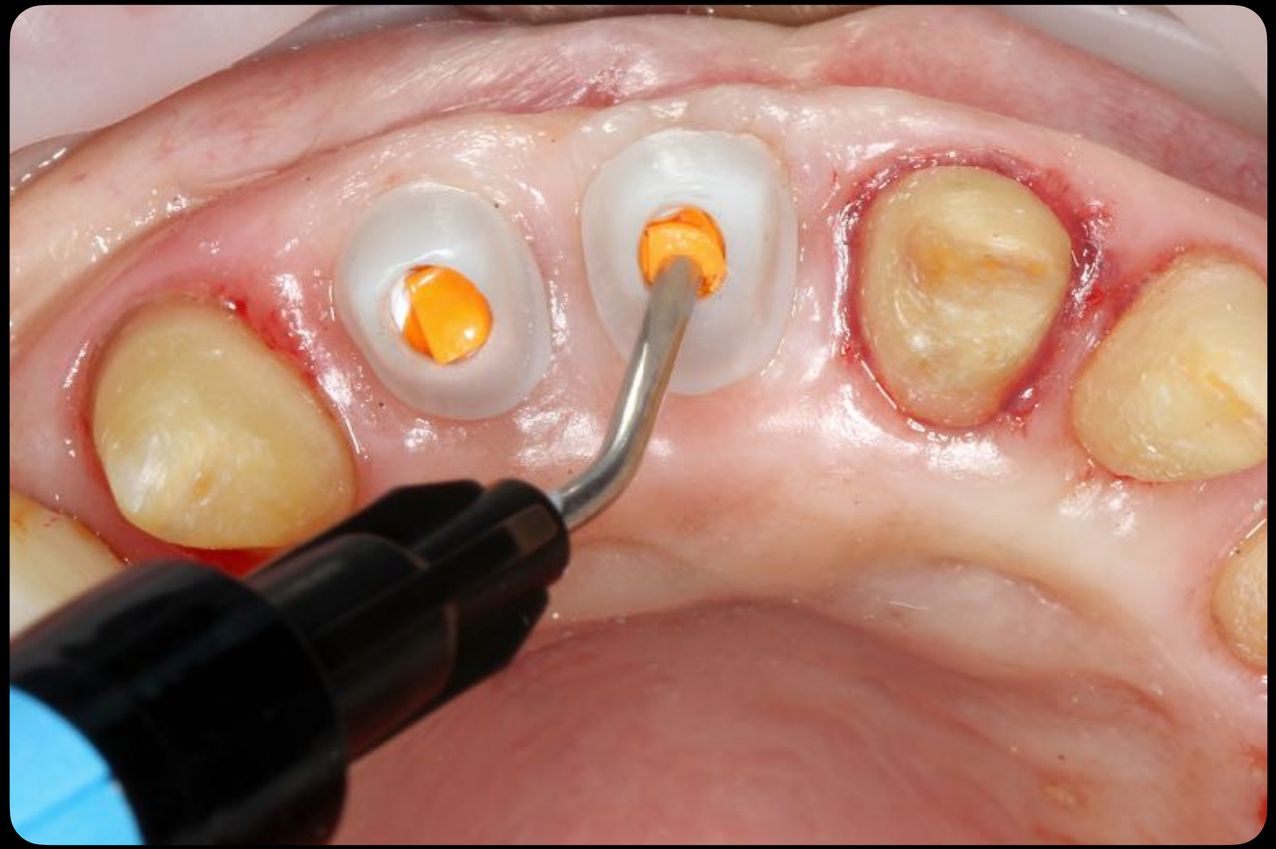


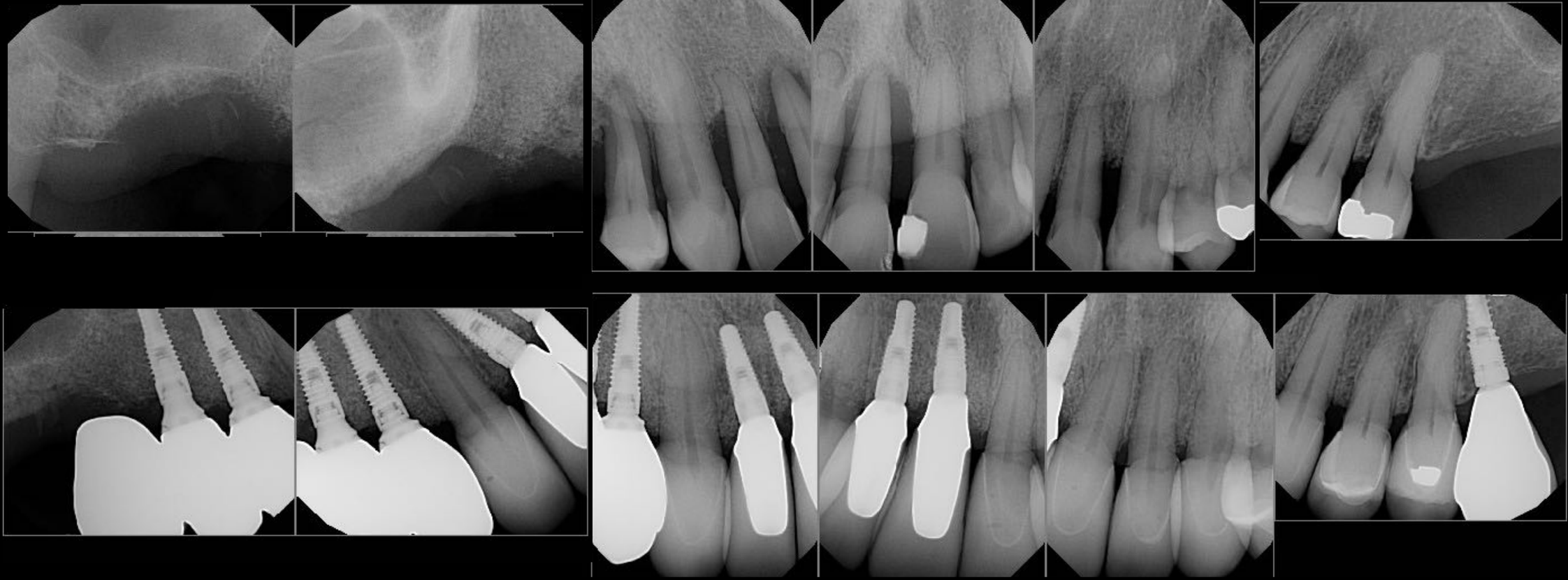


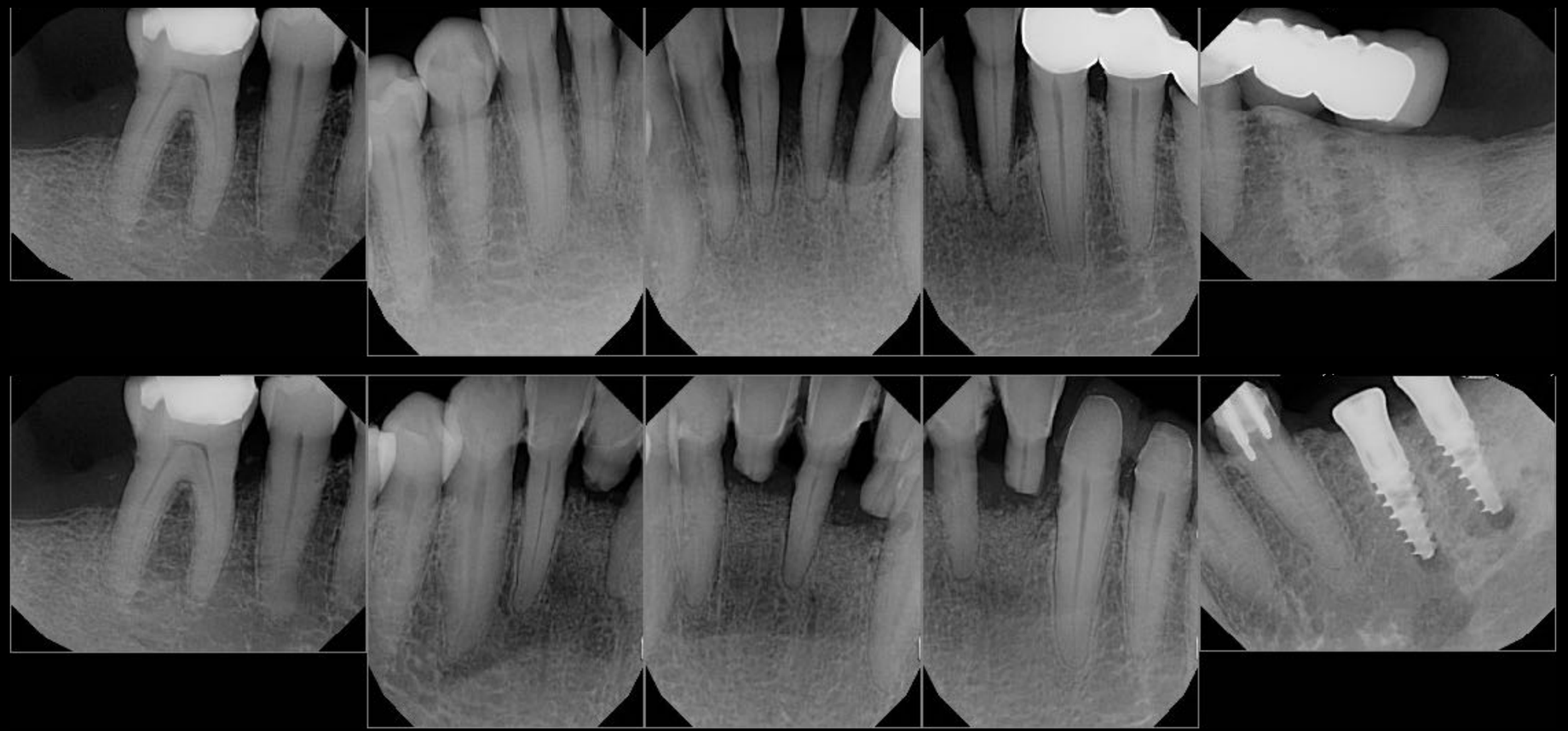






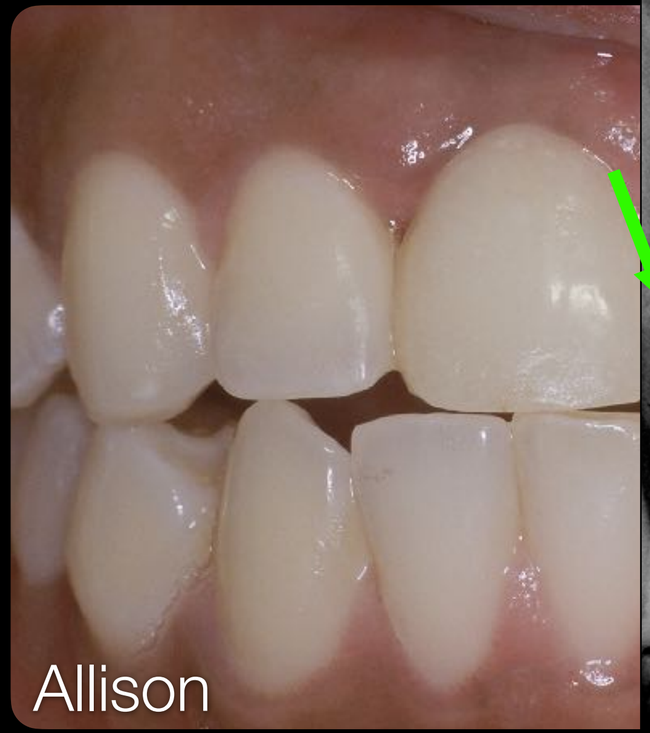


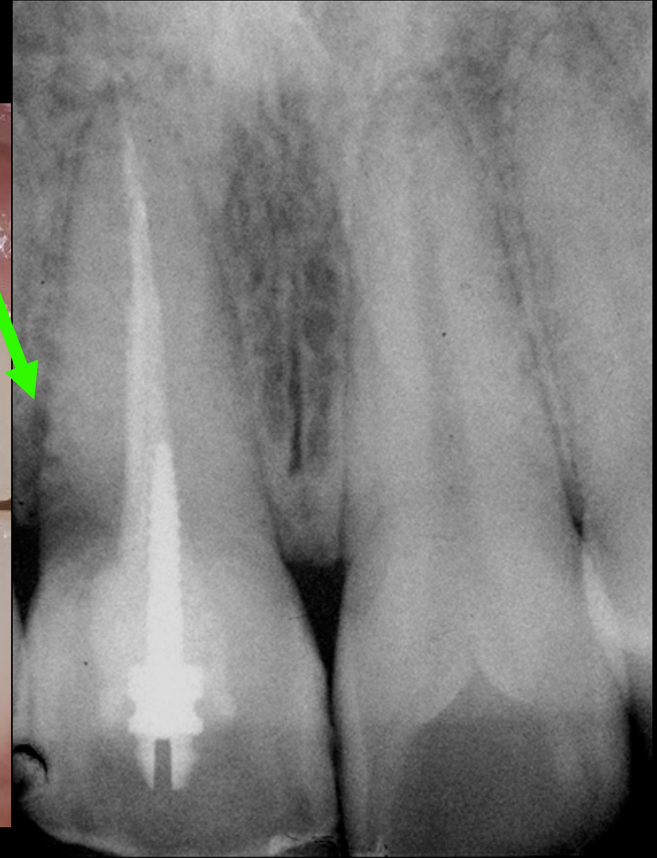




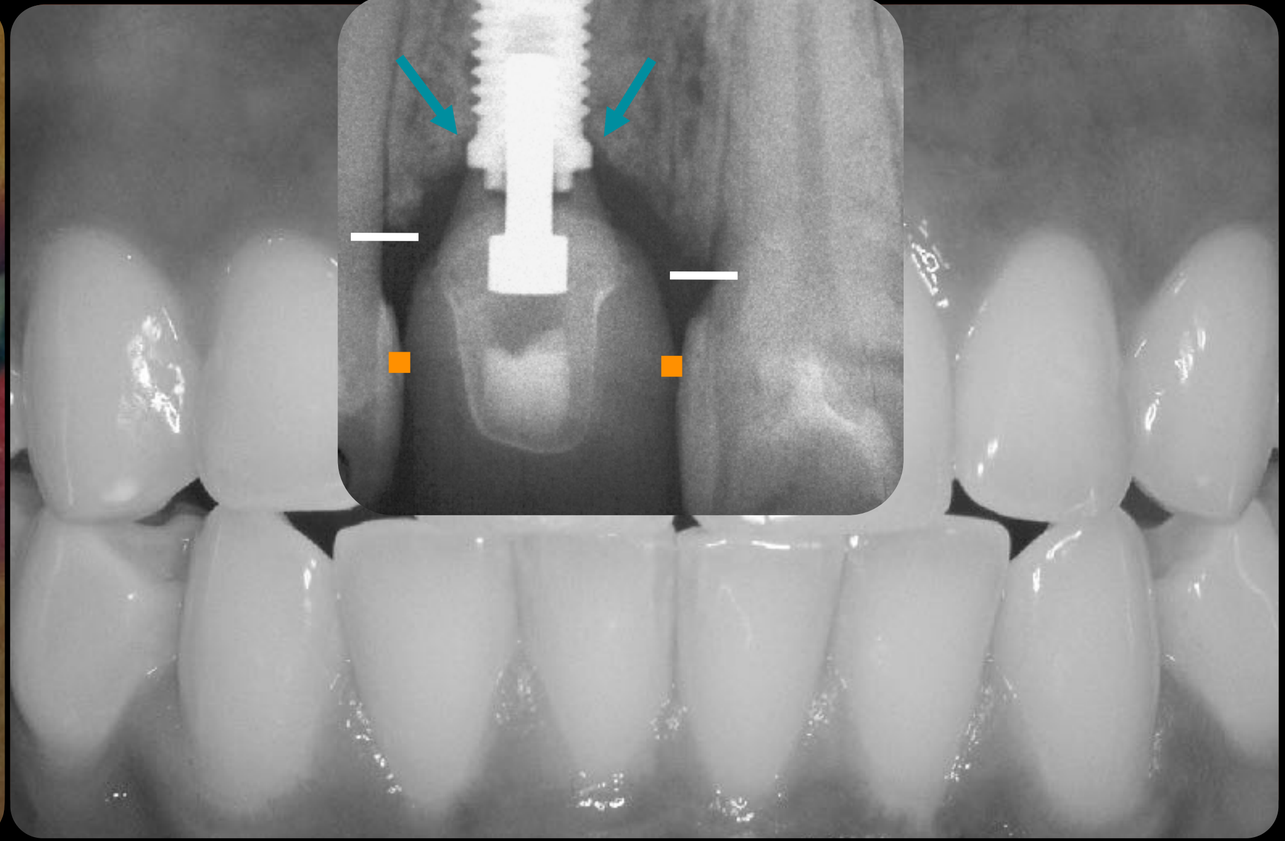
Treatment Coordination

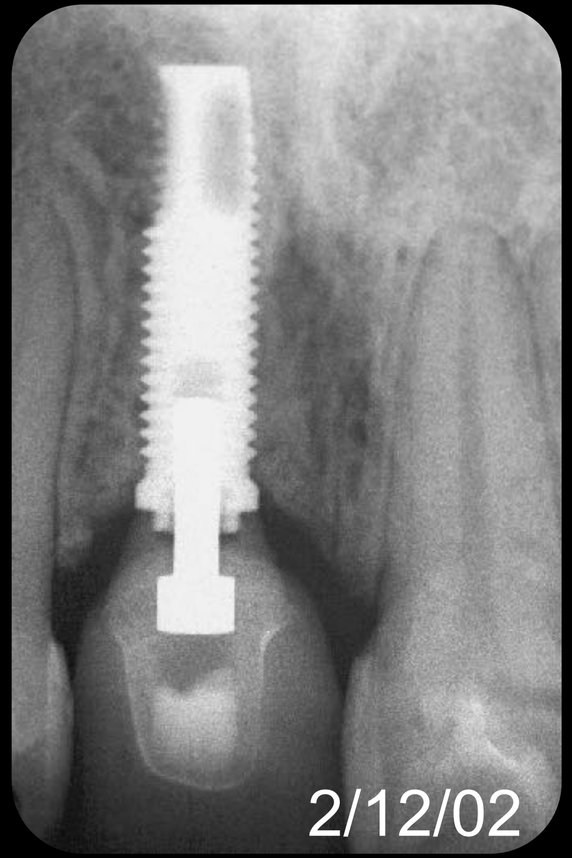
- Pre-surgical Decoronation & Provisionalization
- Orthodontic Therapy





Salama H, Salama M. Int J Periodontics Restorative Dent 1993;13:313-333.

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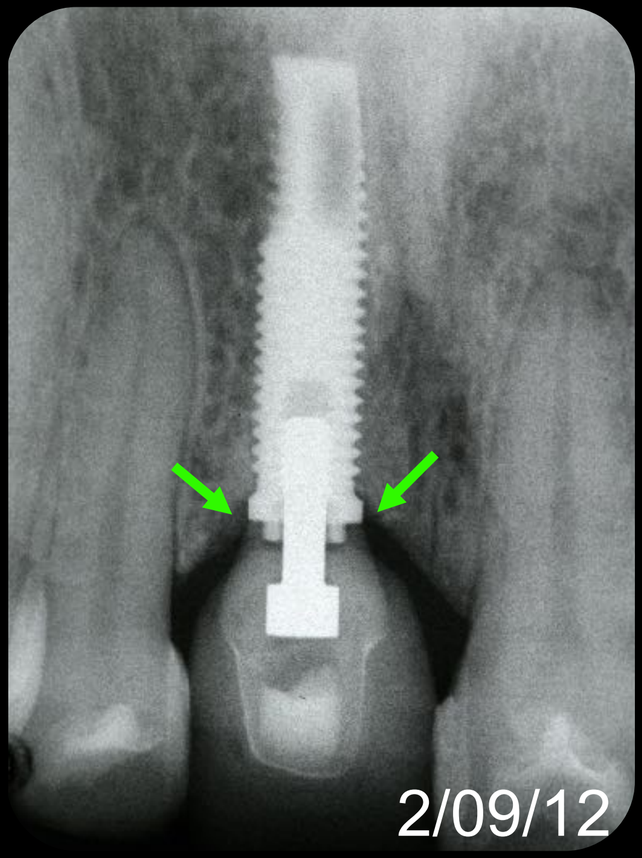
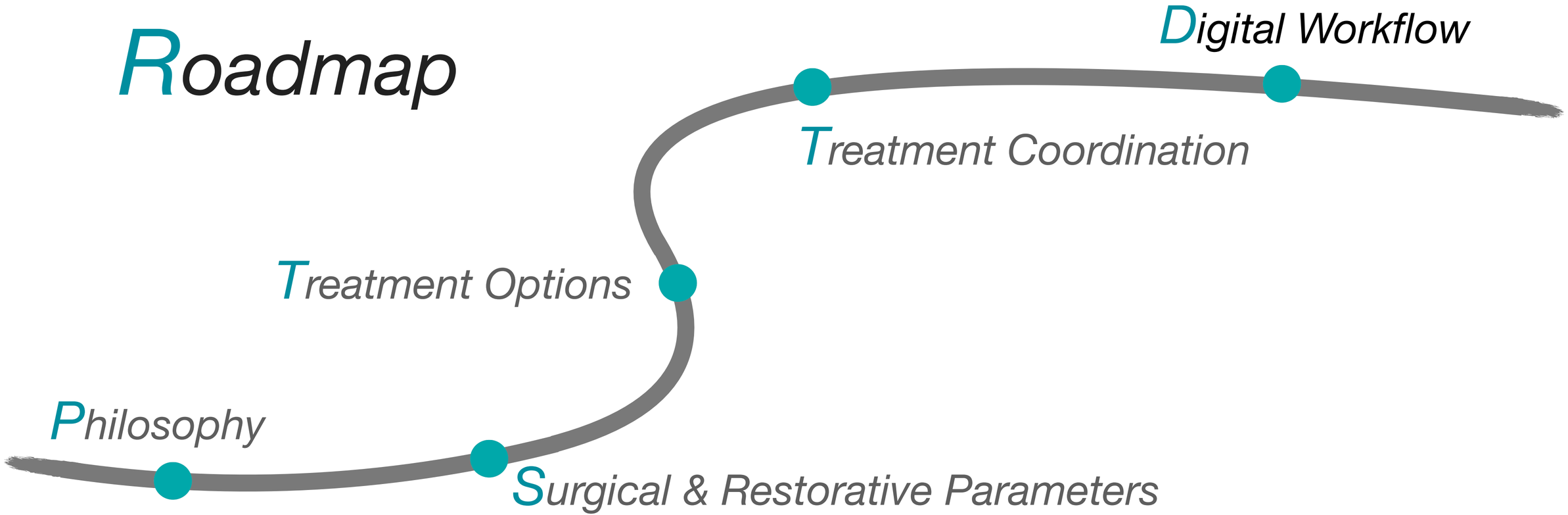
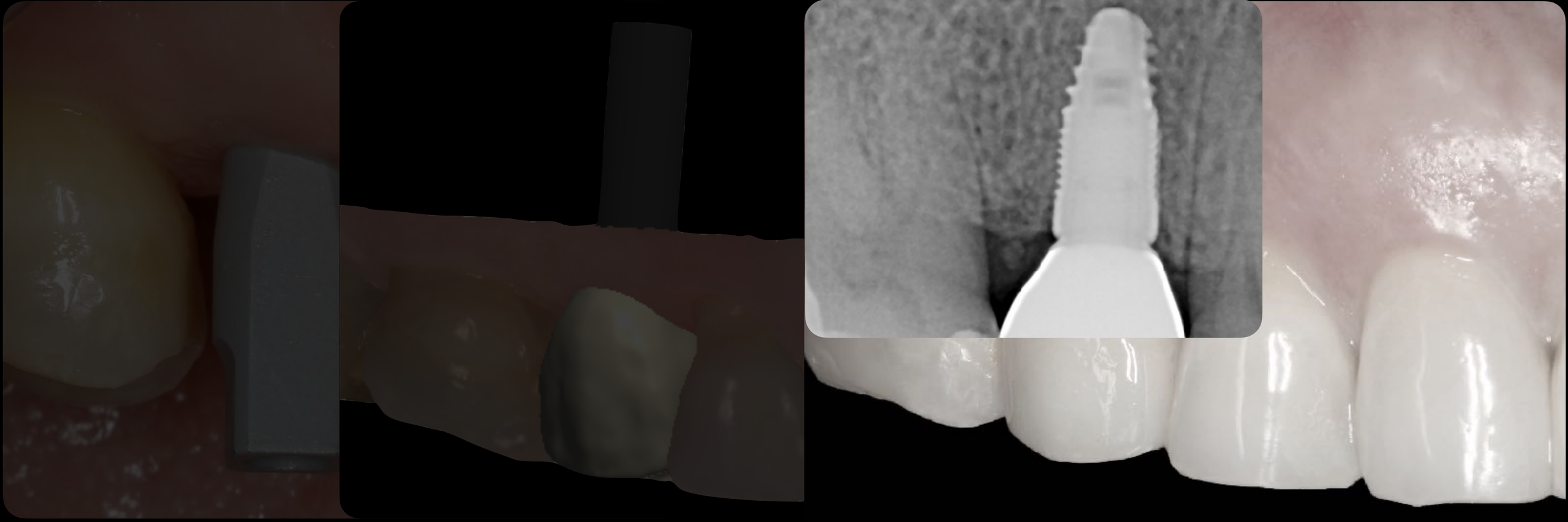
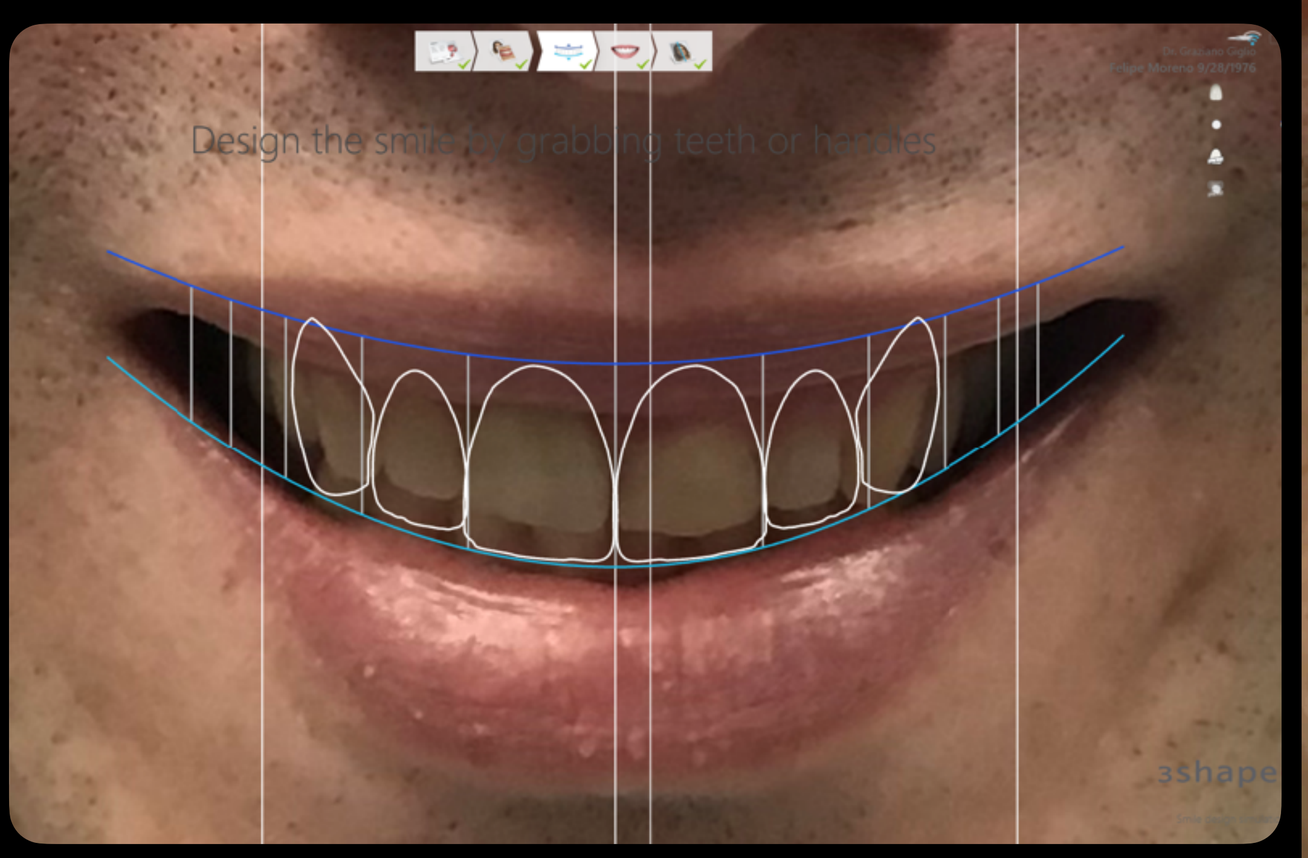

2/09/12

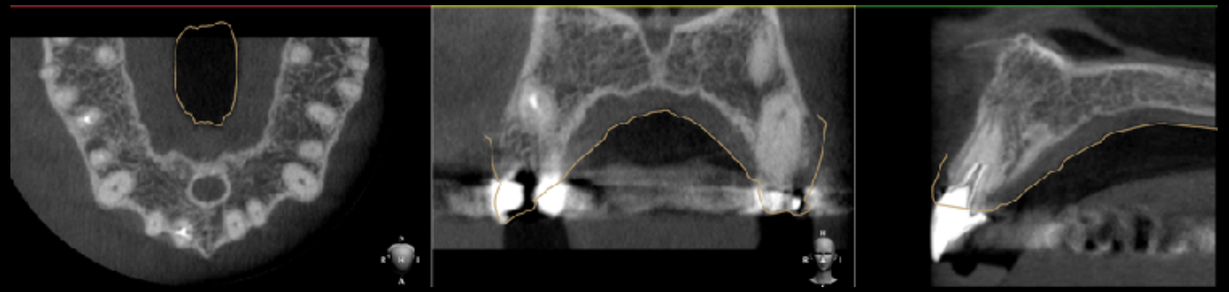
Roadmap


Digital Workflow
Treatment Coordination
Treatment Options
Philosophy
Surgical & Restorative Parameters



Delayed Placement & Immediate Load


Design the smile by grabbing teeth or handles
Dr. Graziano Gegio
Felipe Moreno 9/28/1976
3shape



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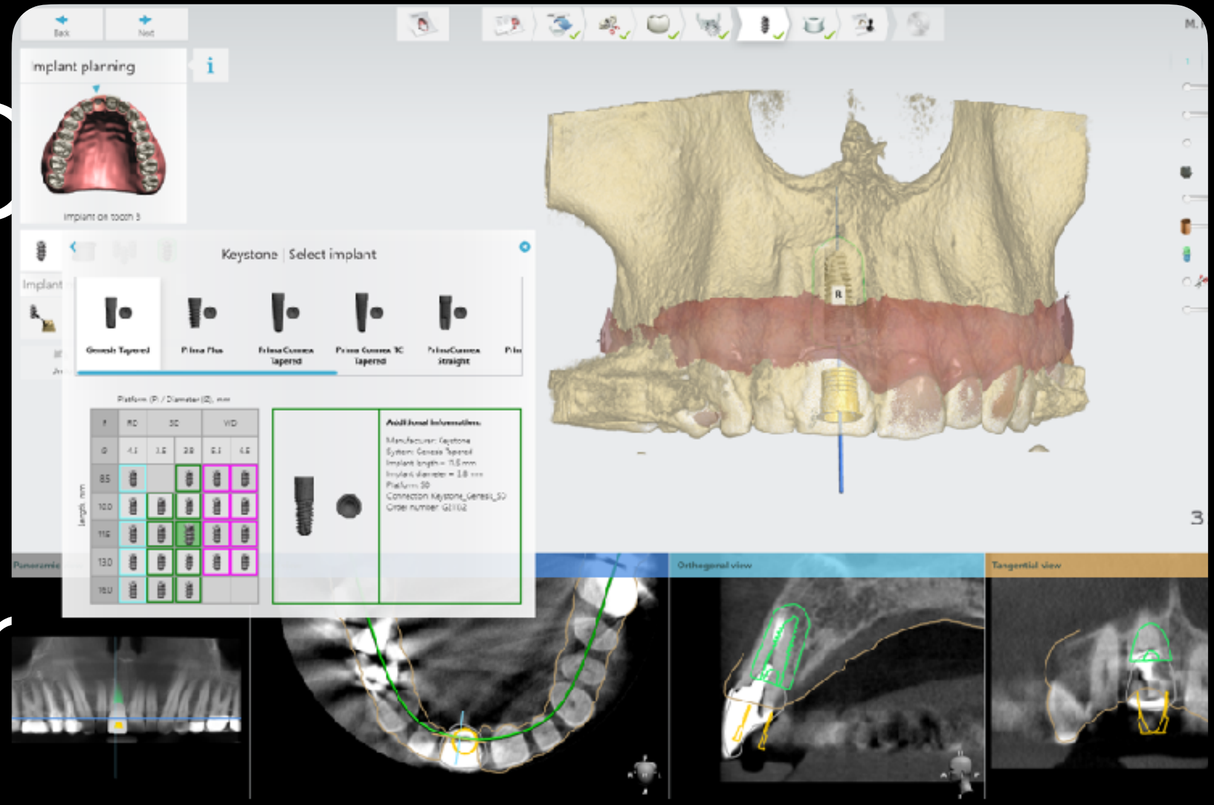
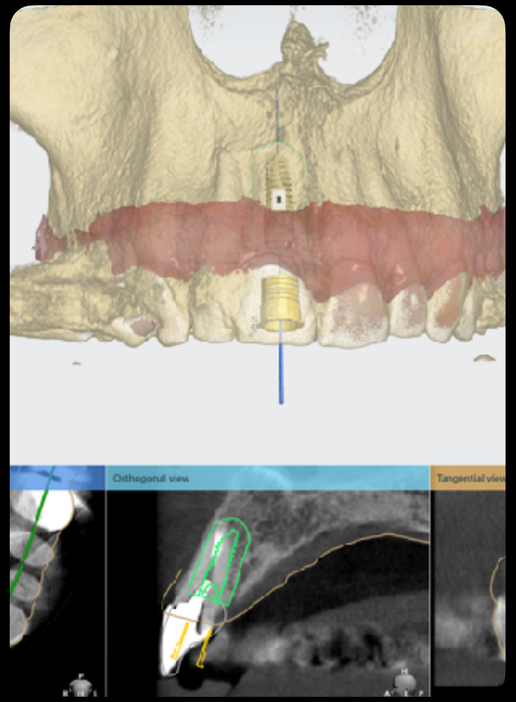
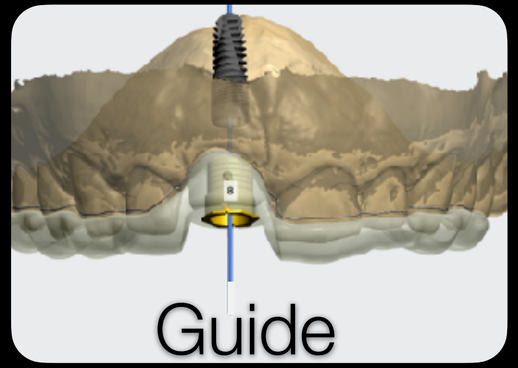
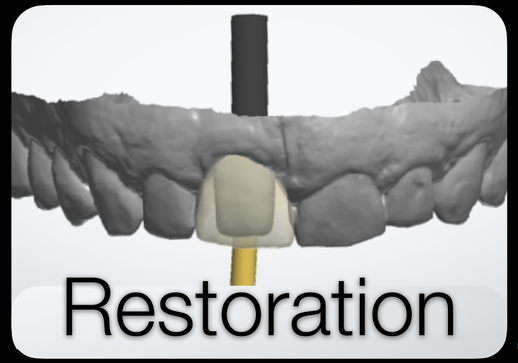

implant planning
Keystone | Select implant
Orthogonal view
Tangential view



Planning



Guide

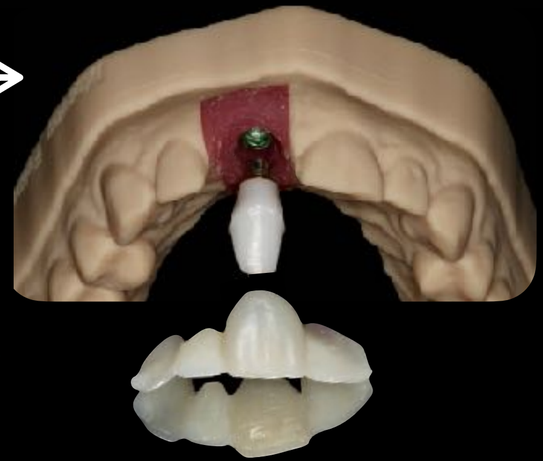


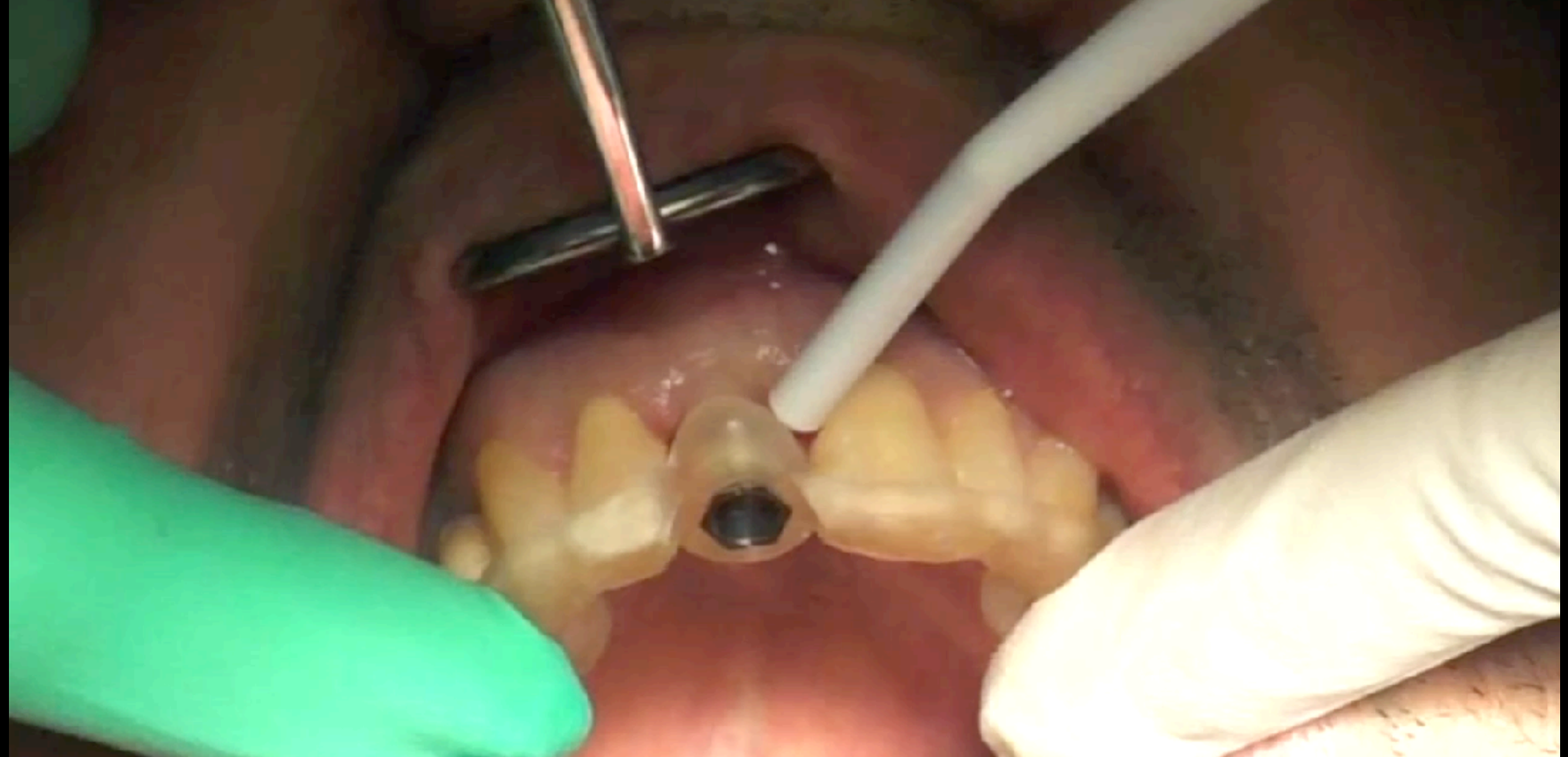
Restoration

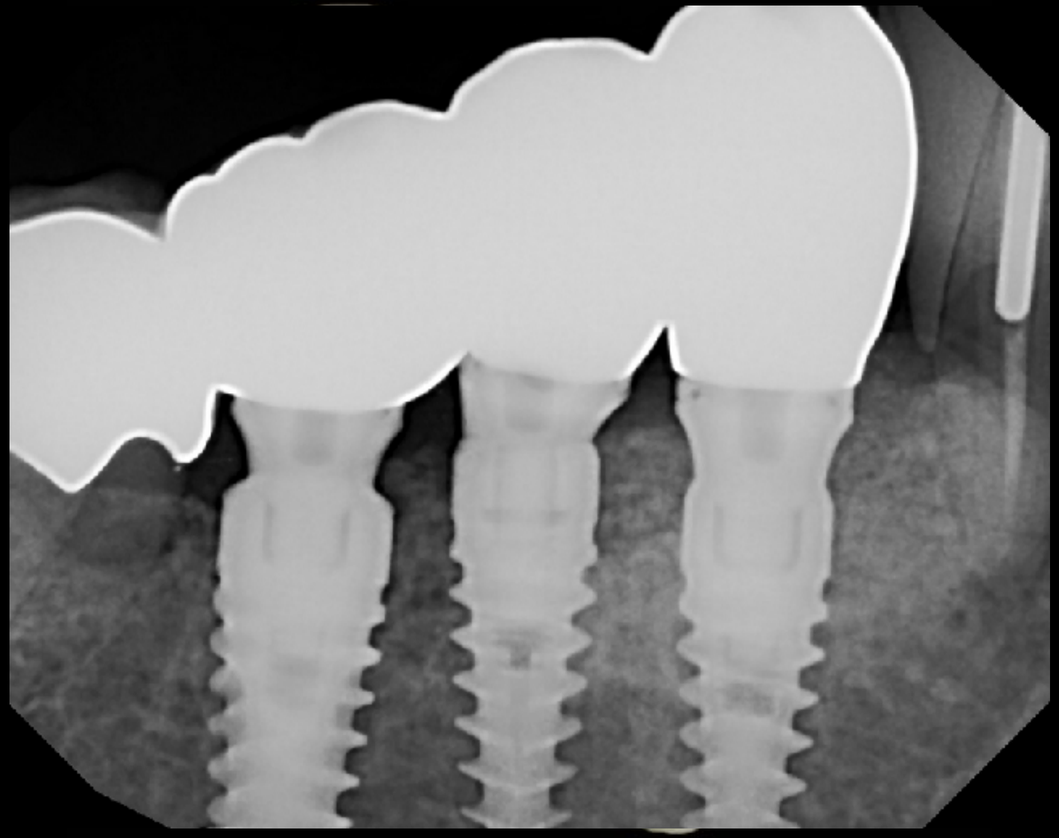
CAD

Print

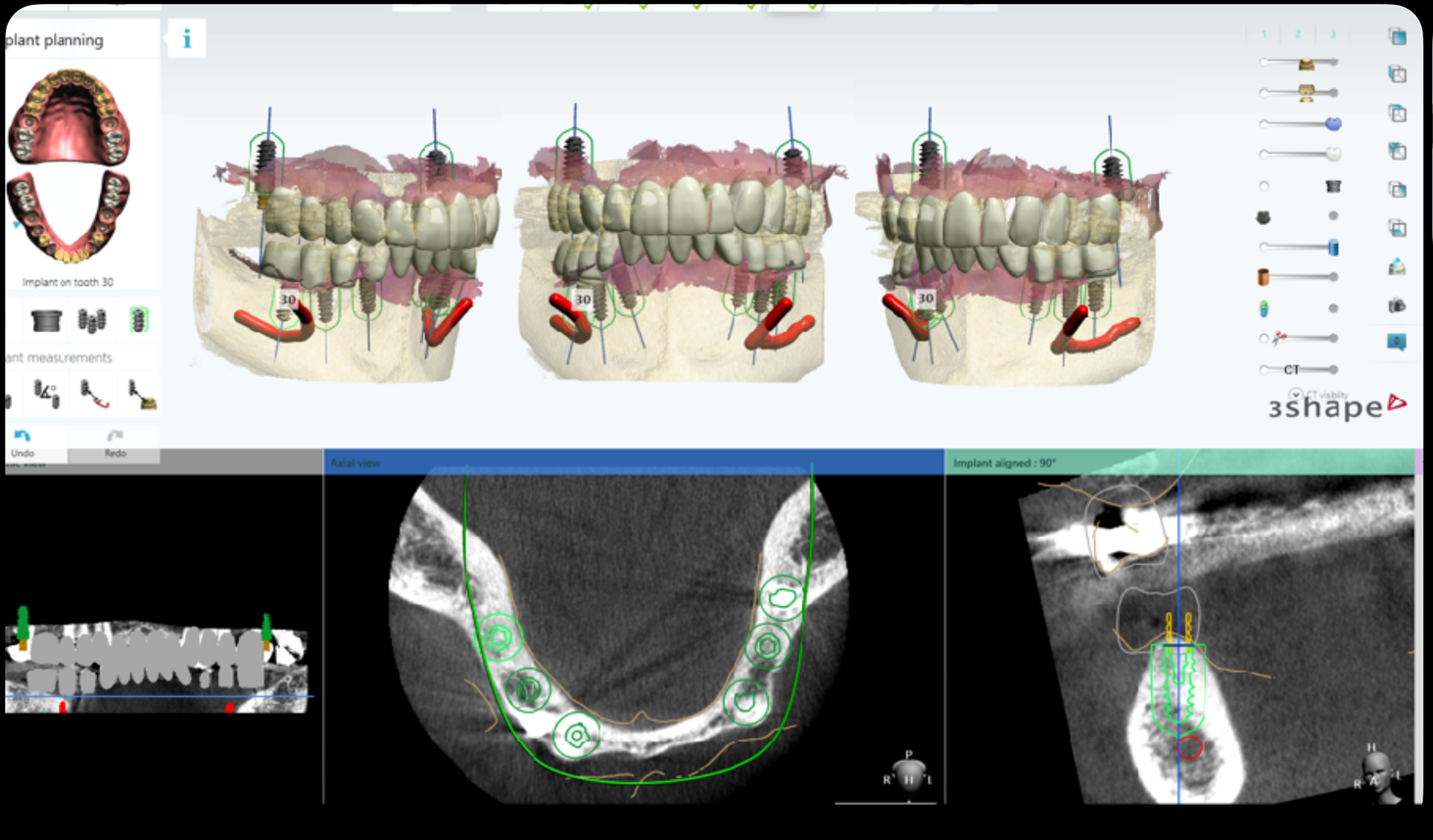
Mill



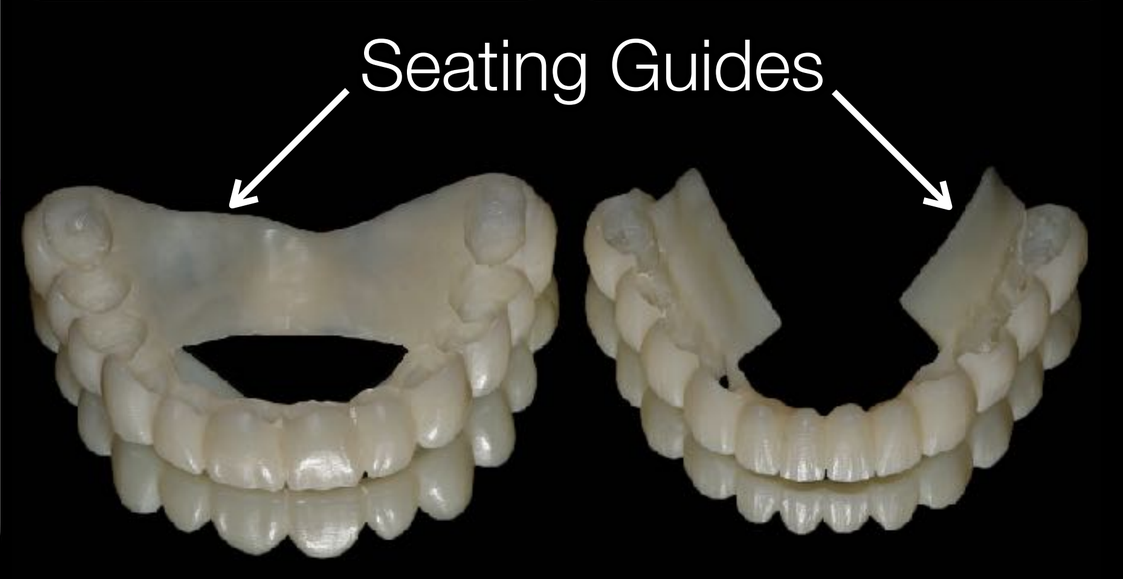




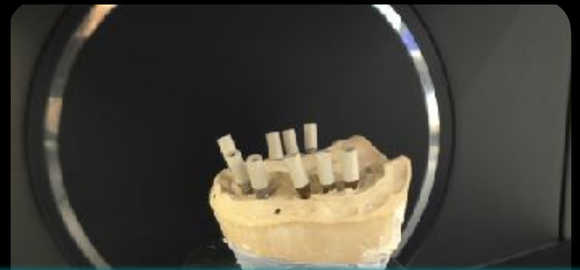
Jian



Seating Guides




Full-Arch Implant Scanning



Kim, KR, et al. Conventional open-tray impression versus intraoral digital scan for implant-level complete arch impression. J Prosthet Dent 2019;122(6):543-549.

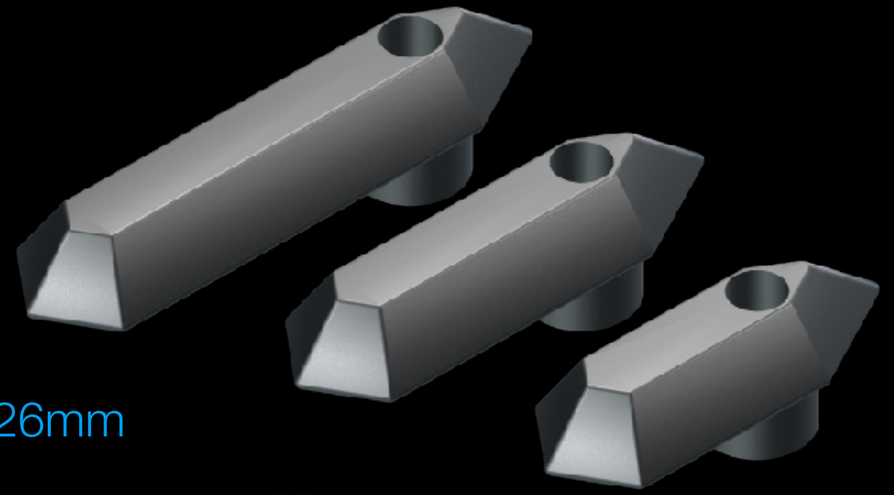
Lab Scan

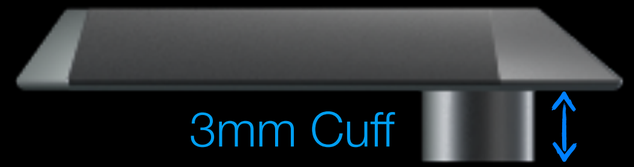
Hussein, MO. Photogrammetry technology in implant dentistry: A systematic review. J Prosthet Dent 2021;09(015):1–9.

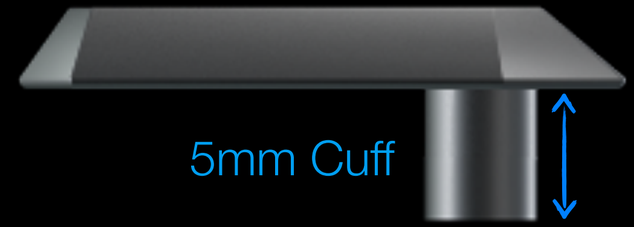
Photogrammetry

Intraoral Scan


3mm CuffHeight
Universa Driver
5mm CuffHeight
Short
Short
Medium
Medium
4.8mm Scan Analog
4.8mm Narrow Scan Body
Long
Long
IOS-9111
NEXUS iOS
INNOVATIVE IOS TECHNOLOGIES
Osteon medical


26mm
22mm
17mm


3mm Cuff


5mm Cuff

Scan Gauges

Set 1. Provisional Scans

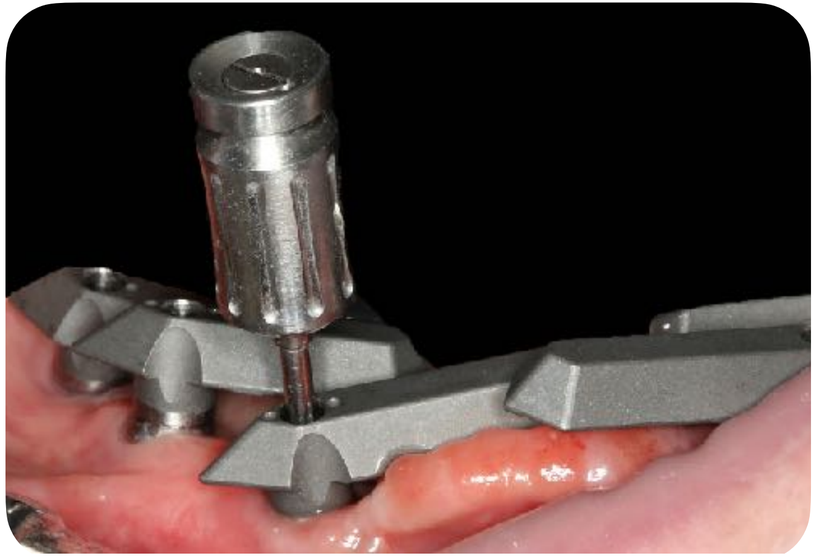
Opposing

Working

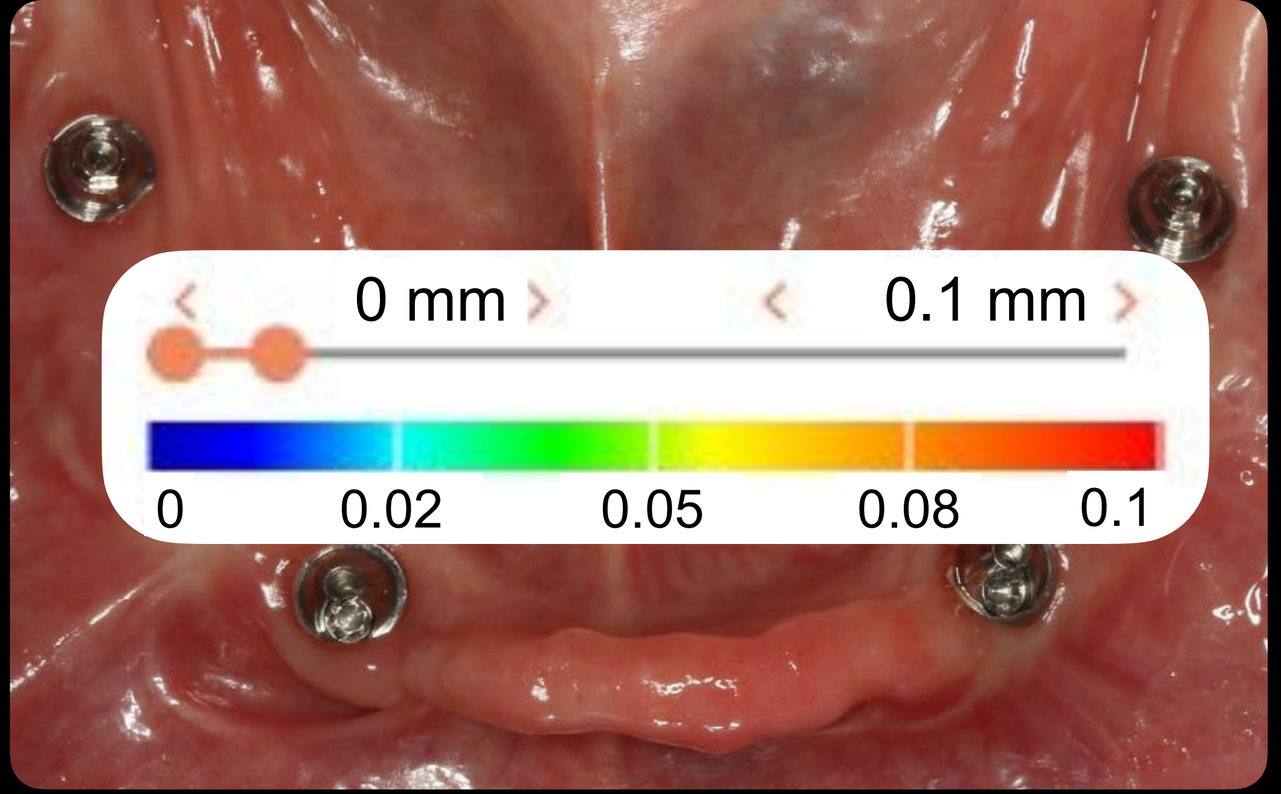
MIP (Rt & Lt)

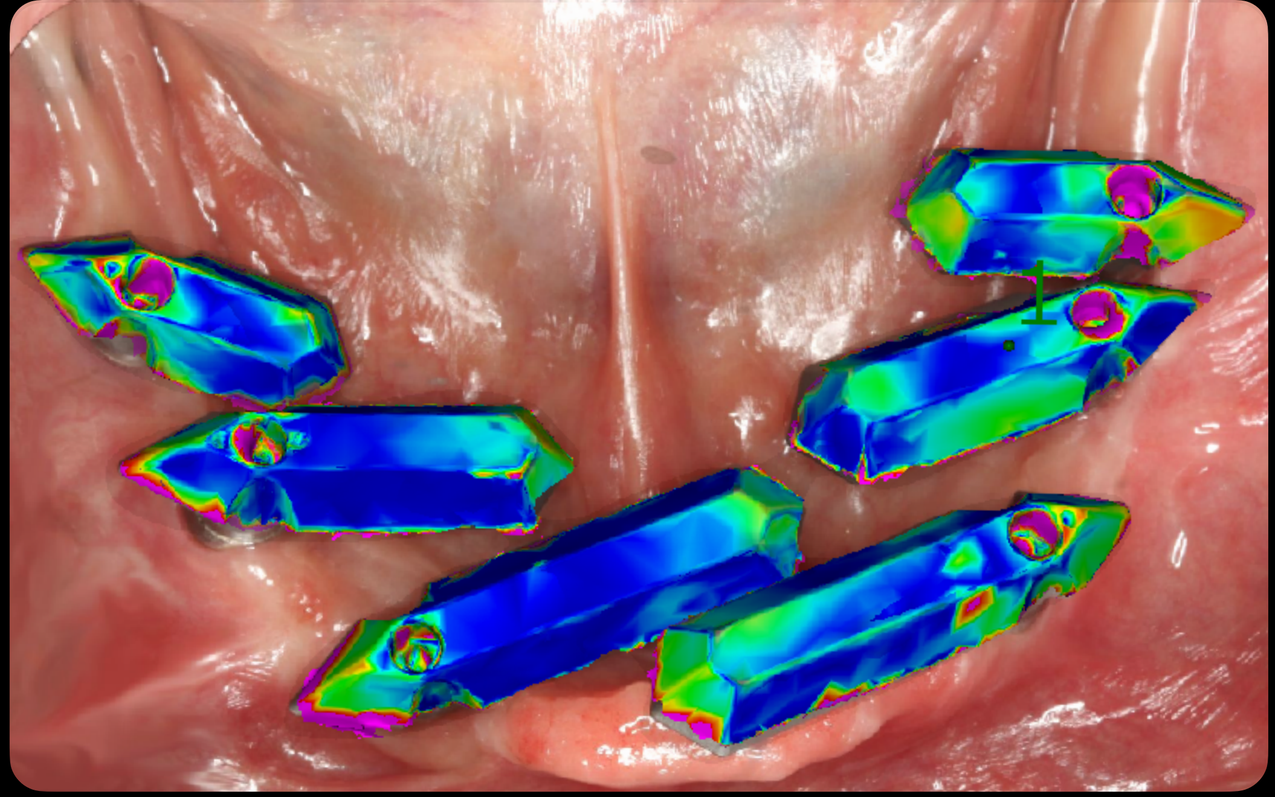

NEXUS iOS
INNOVATIVE IOS TECHNOLOGIES
Short
Universal Driver
5 — Cuff Height
Short
Medium
4.8 — Scan Analog
Osteon
4.8 — Narrow Scan Body
Medium
Long
IOS_9208
NEXUS iOS
INNOVATIVE IOS TECHNOLOGIES
Osteon

Set 2. Gauge Scans

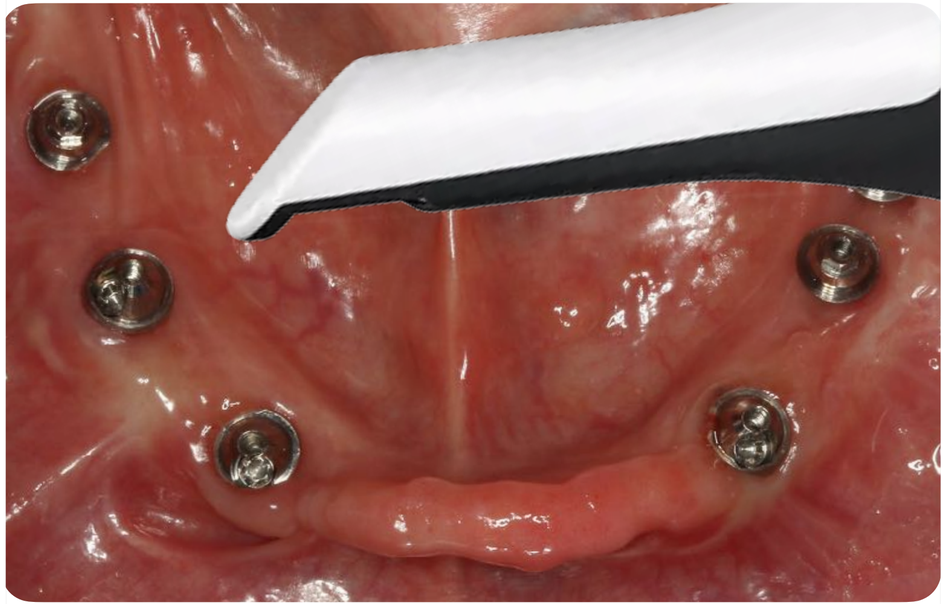


Placement


0 mm
0.1 mm
0
0.02
0.05
0.08
0.1



Set 3. Tissue & Extraoral Provisional Scans



Place 3 Scan Analogs Forming the Largest △

Scan Sets

1

Opposing

Right MIP

Working

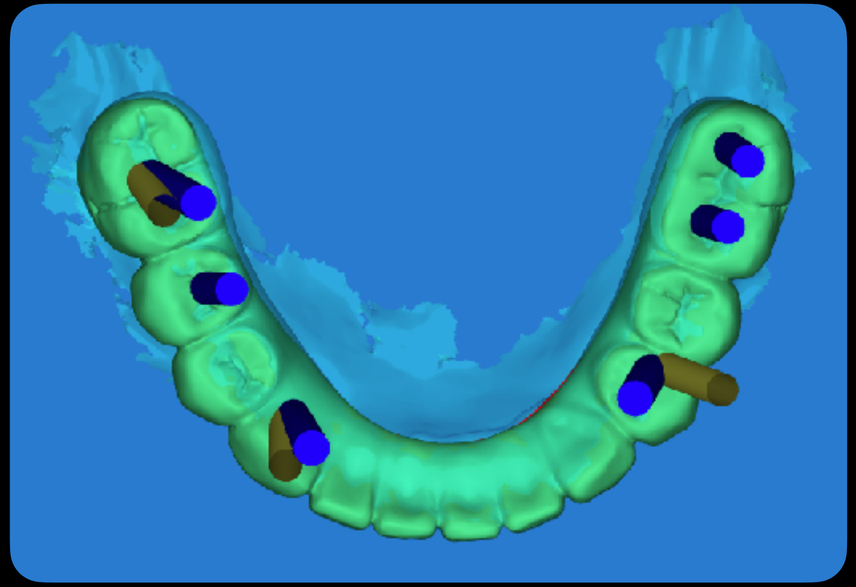
Left MIP

2

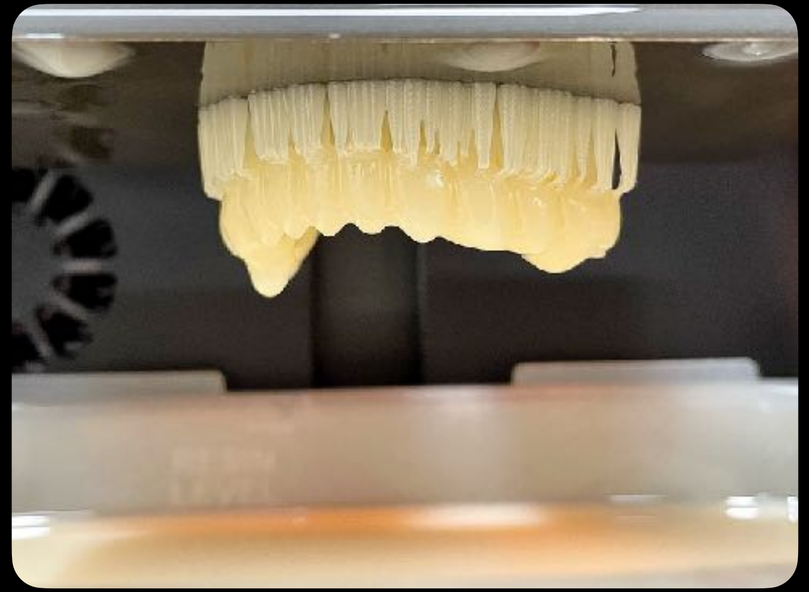
3

Soft Tissue

Extraoral

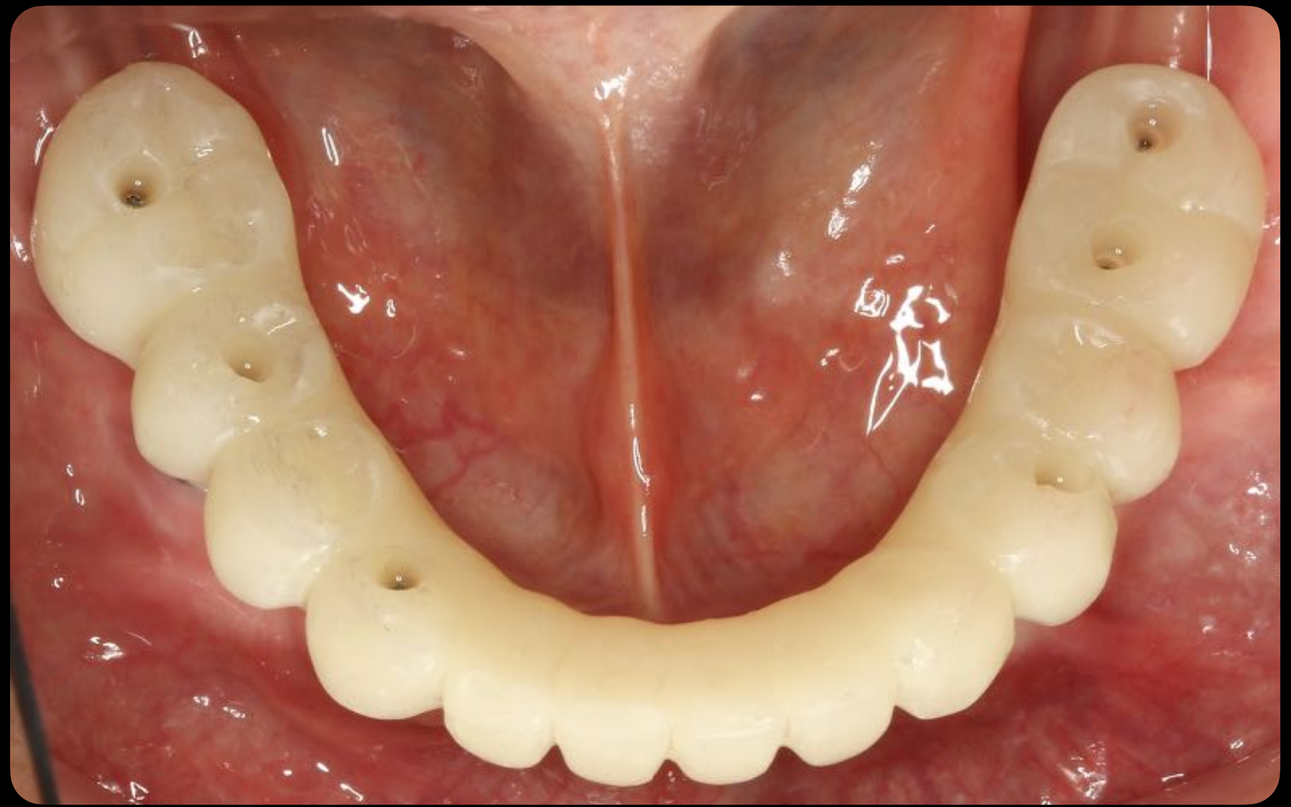


Digital Prosthetic Design

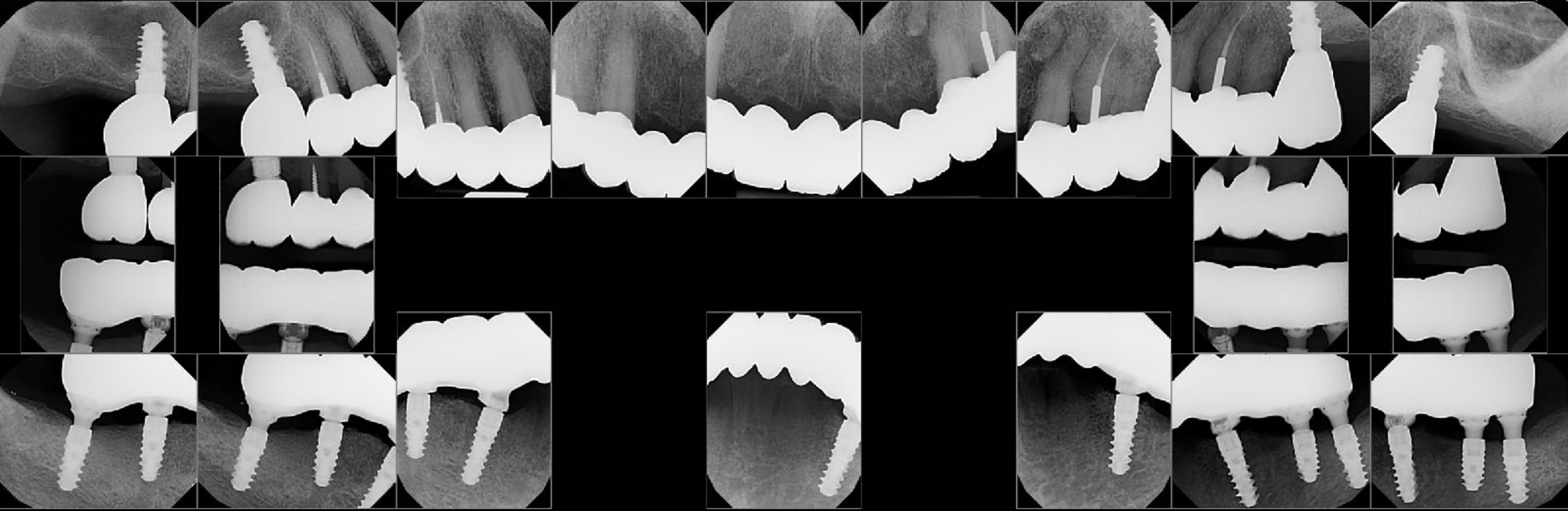


3D Printed

Try-in Prototype



El-Haddad **H, et al**. Laboratory Evaluation of Implant Metal Acrylic Prosthesis Design: Influence of Mono Acrylic Veneer. Int J Oral Maxillofac Implants 2020;35:100-106.



Take Home Messages

- Primary Stability
- Correct Implant Position
- Sufficient Hard and Soft Tissues
- One Surgery/One Abutment/One Time
- Proper Prosthetic Design
- Biocompatible Restorative Materials

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https://www.gdental.com/events/