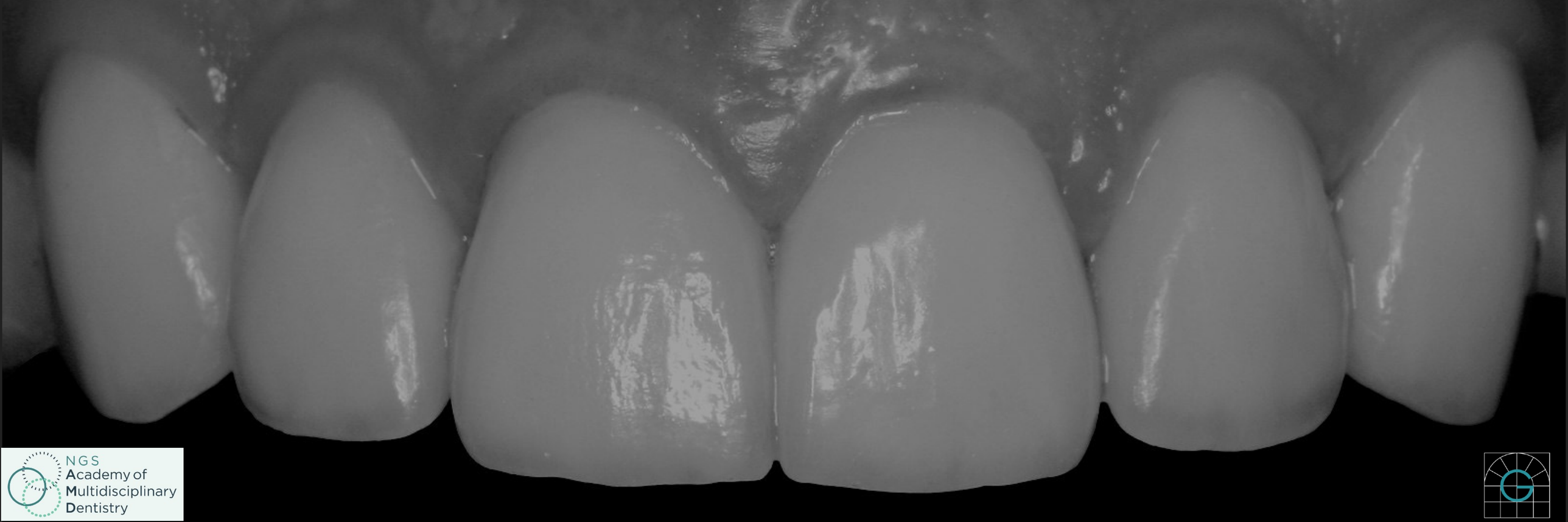

NGS
Academy of
Multidisciplinary
Dentistry

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

Conflict of Interest Disclosure

KOL for Asiga, Keystone Dental Group

Graziano D. Giglio, D.D.S.


dental

Planning

Collaboration

Coordination

Surgical

Restorative

Restorative

Technology

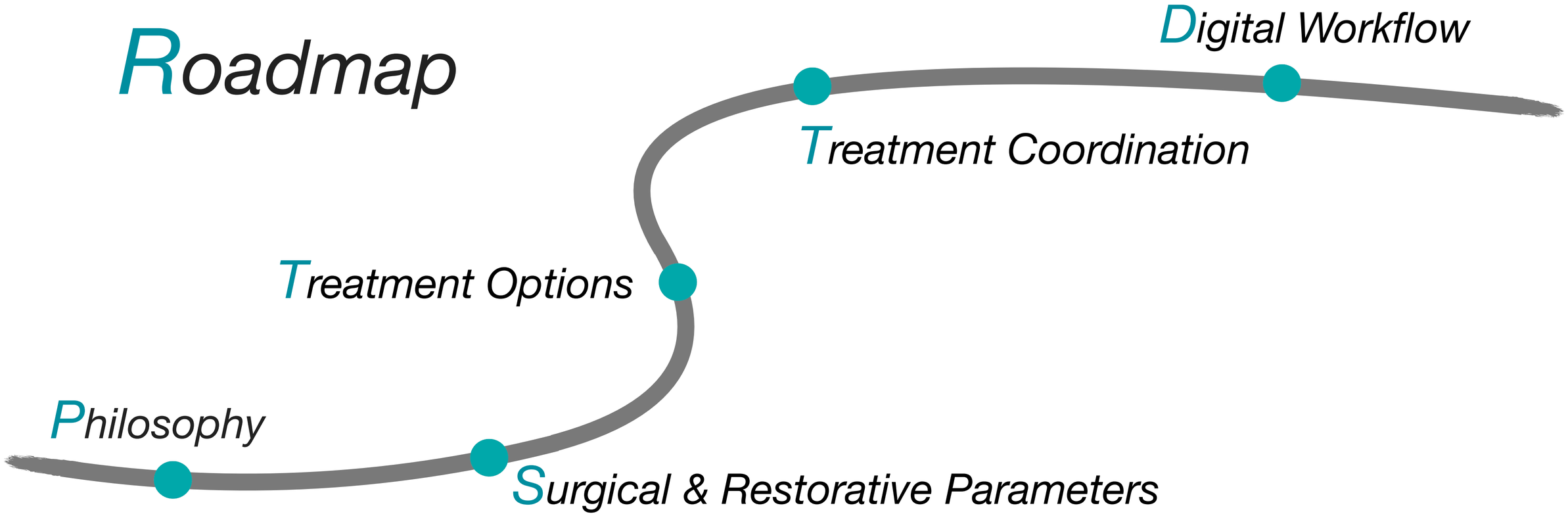
Technology

Objectives

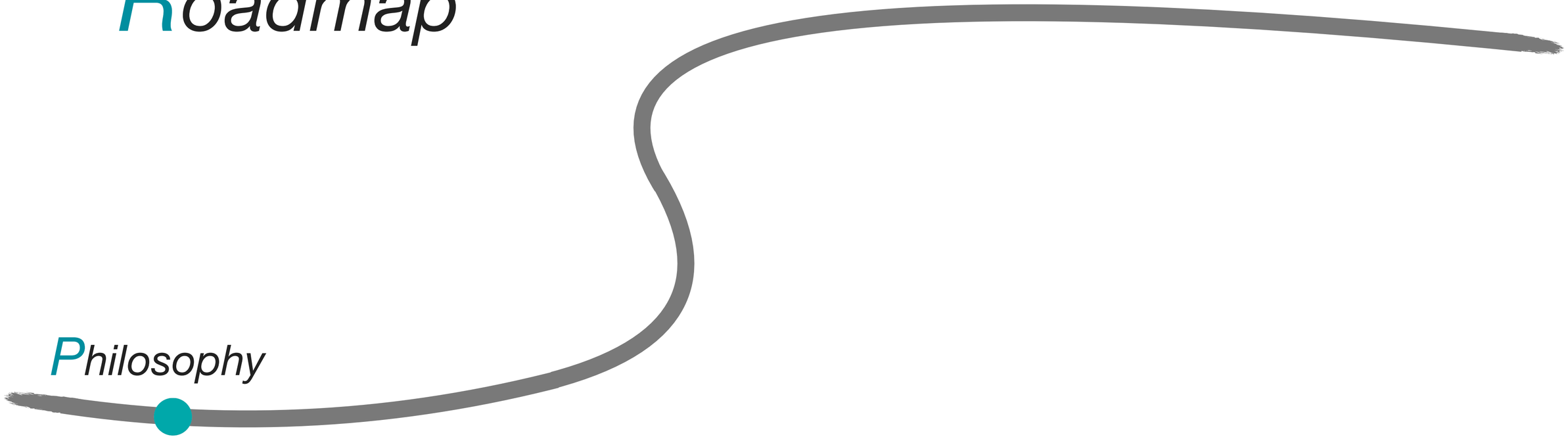
- Improve Patient Care & Comfort
- Comprehend the Peri-Implant Complex
- Treatment Plan & Coordinate Effectively
- Reduce Treatment Time
- Achieve Optimal Aesthetics

Giglio G, Giglio, AB. Achieving Optimal Implant Aesthetics Using a Team Approach. J Prosthetic Dent Digital. Parts 1 & 2, October & November 2023.

Roadmap


Digital Workflow
Treatment Coordination
Treatment Options
Philosophy
Surgical & Restorative Parameters

Roadmap



Consensus 2017

Abutment Dis/Reconnection

Canullo

Decrease number of Dis/Reconnection

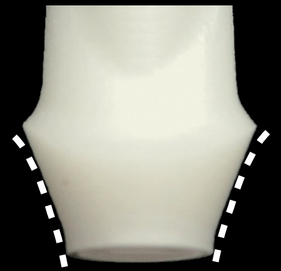
Platform Switching

Implant Neck

Gracis

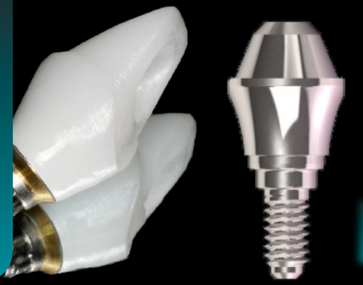
Concave Sub-gingival Contour

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



Chu

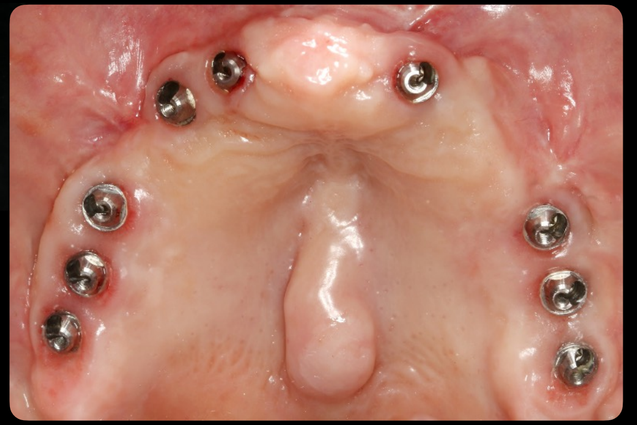
Restorative Emergence Profile

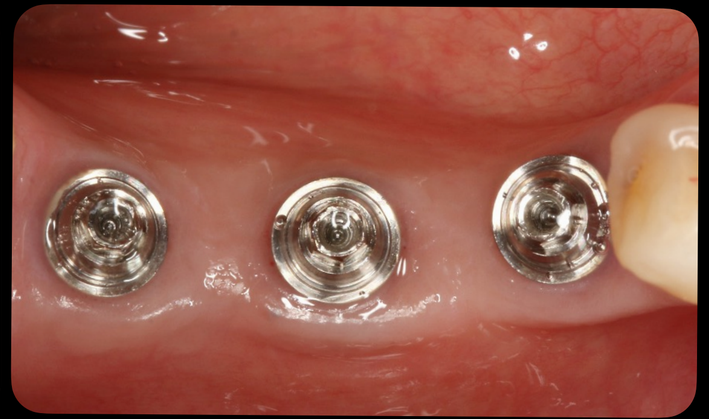


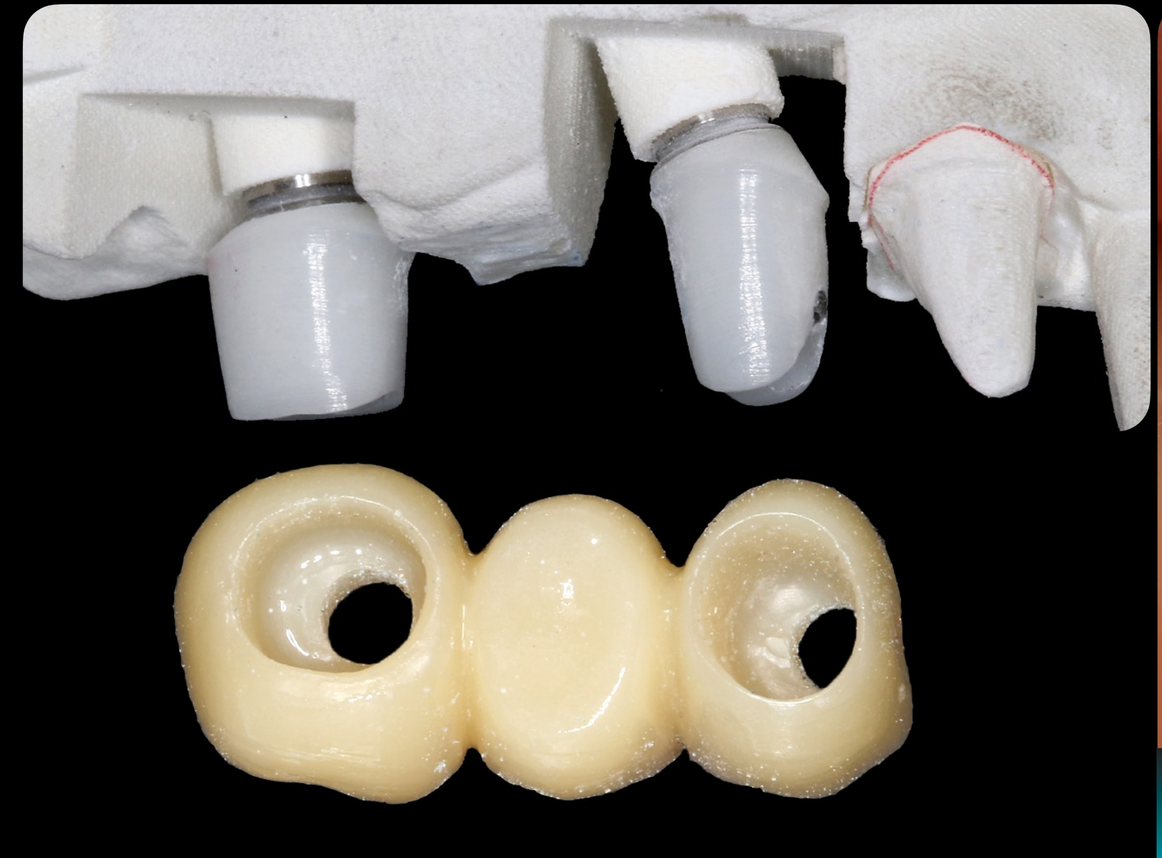
Zarauz

Customized vs Standardized

Int J Periodontics Restorative
Dent, Vol 40/1, 2020







Sarafidou K, et al. Screwmentable implant-supported prostheses: A systematic review. J Prosthet Dent. 2021:S0022-3913(21)00506-0.

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

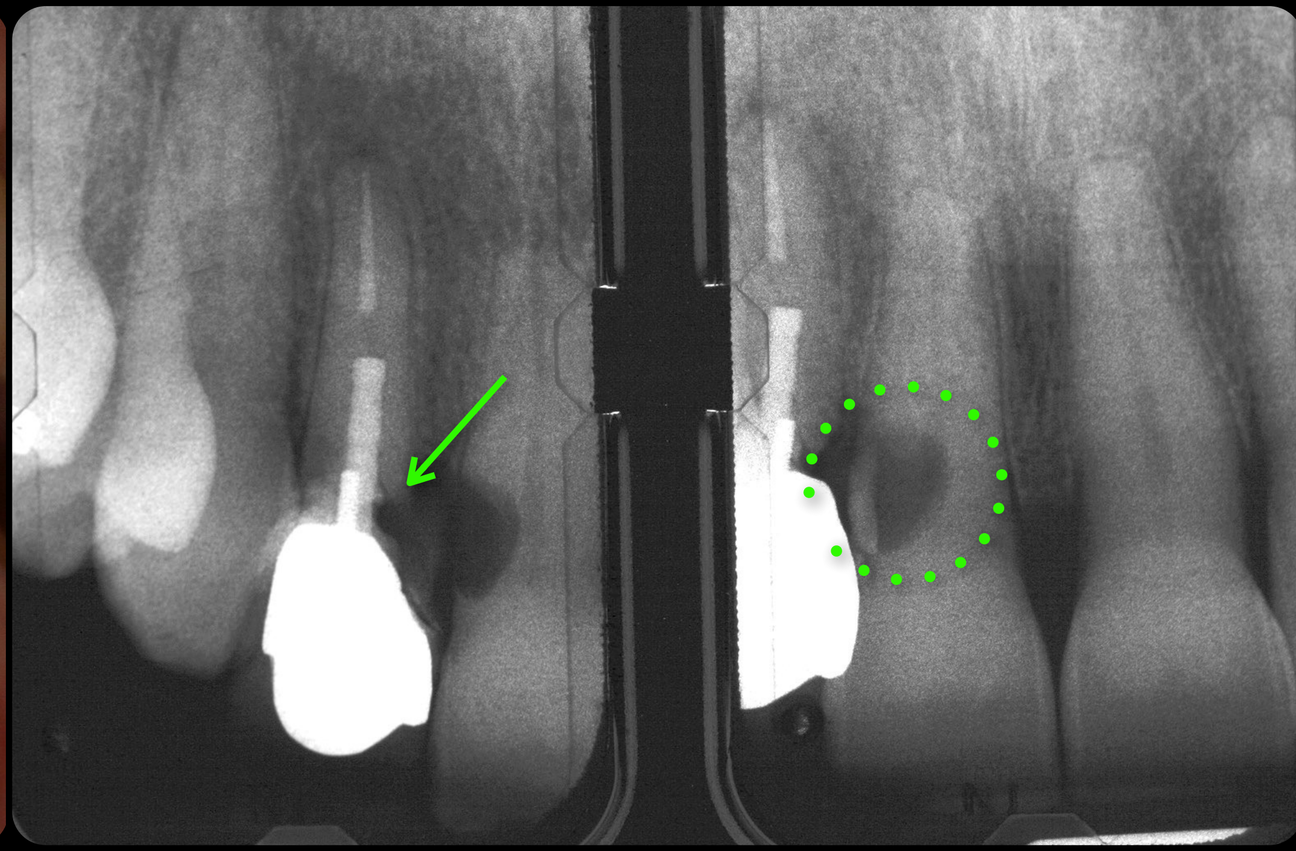
Primary Stability

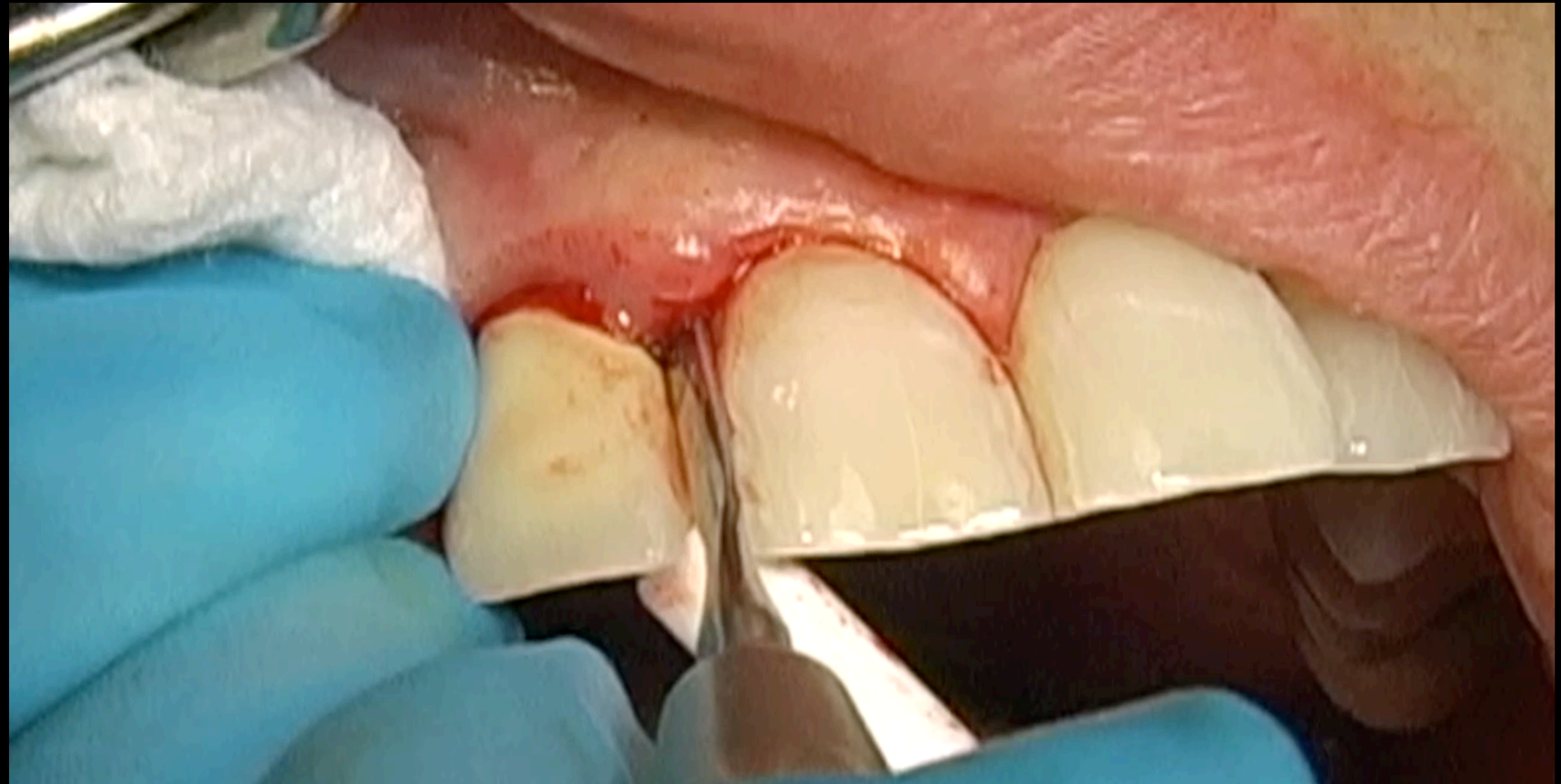
Implant Design

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

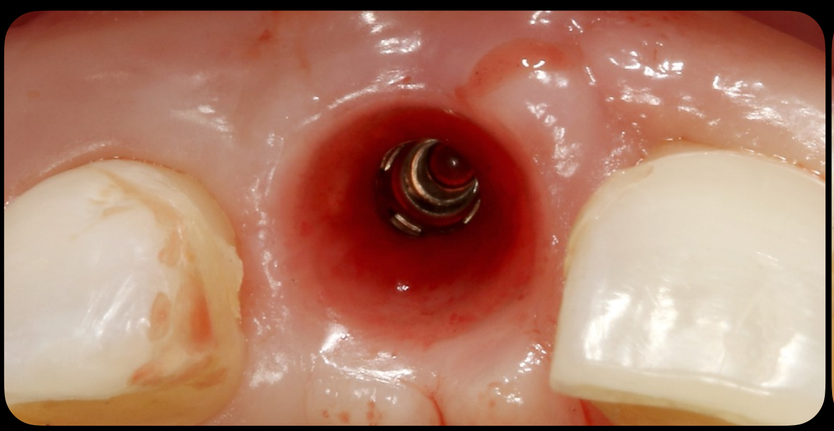
Gapski R, et al. Critical review of immediate implant loading. Clin Oral Impl Res 2003;14:515-527.

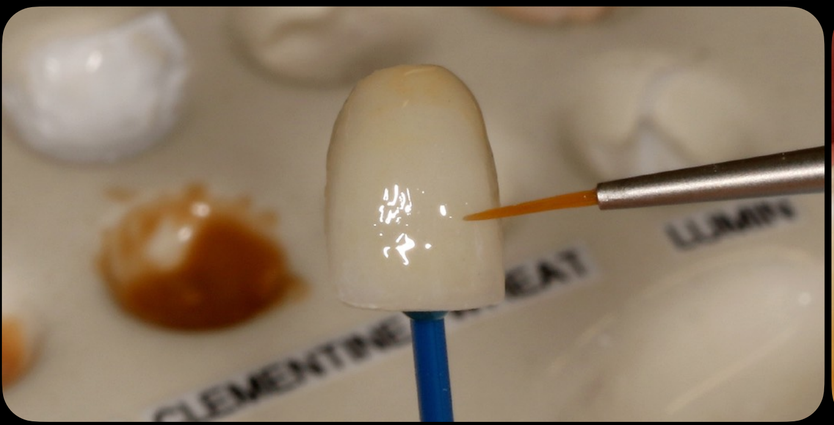

Linda

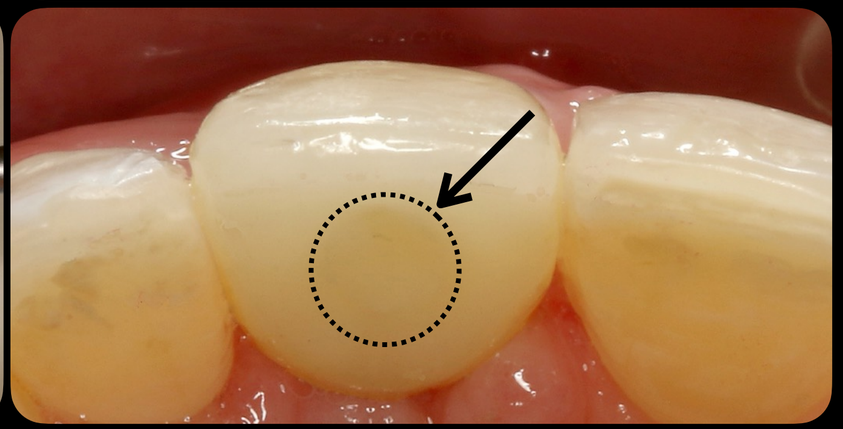





One Surgery / One Abutment / One Time

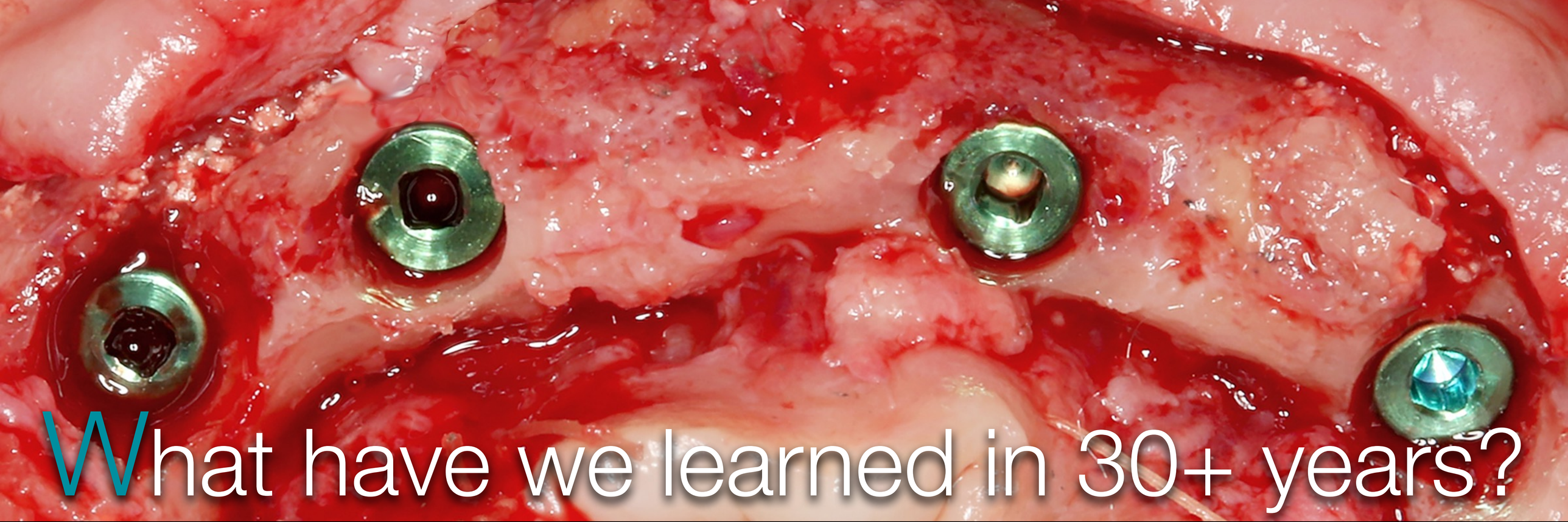






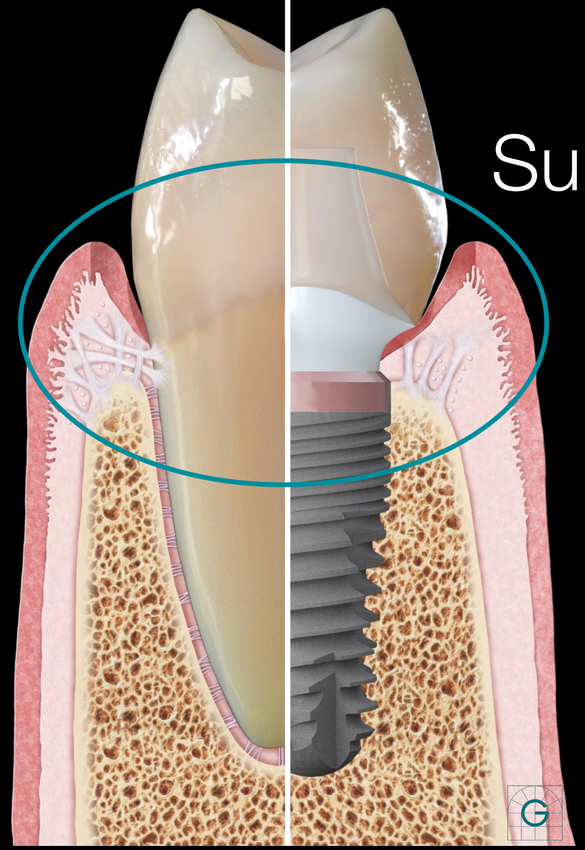
Advantages

- Equigingival Margin
- Support Papillae
- Custom Shading
- Retrievability

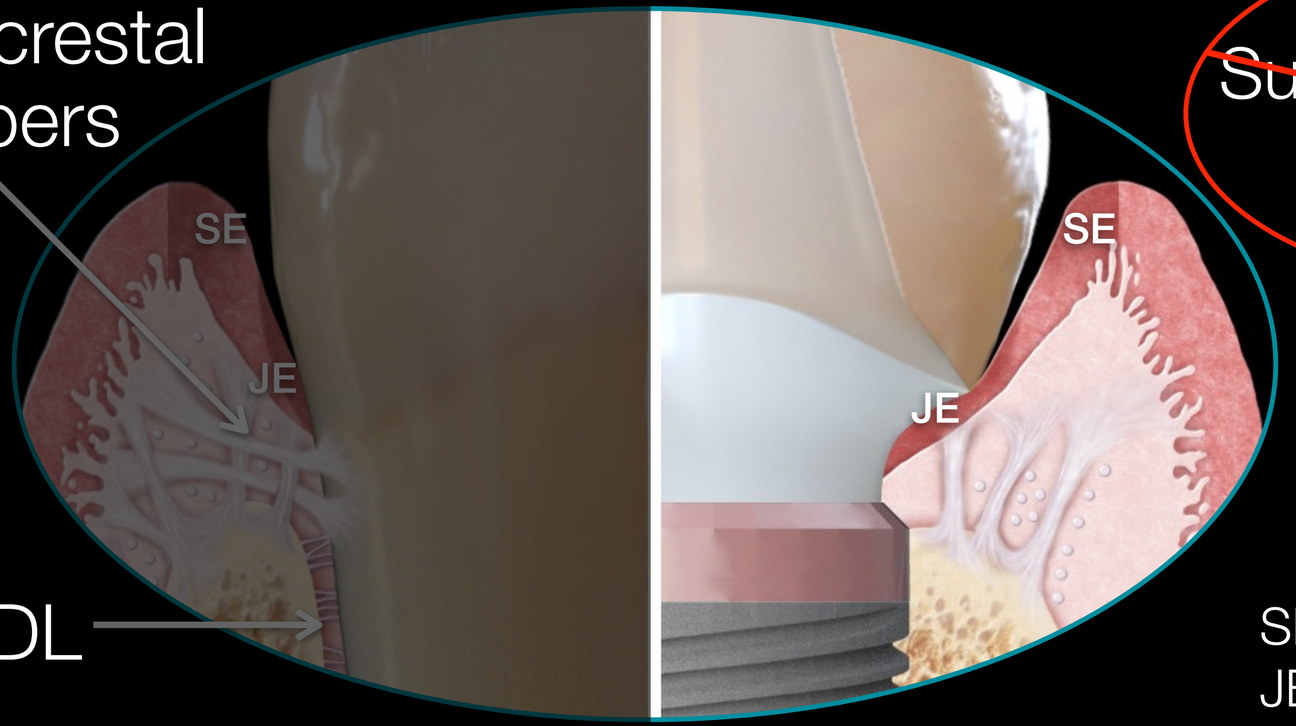

What have we learned in 30+ years?

Roadmap

Peri-Implant Complex



Supracrestal Fibers



PDL

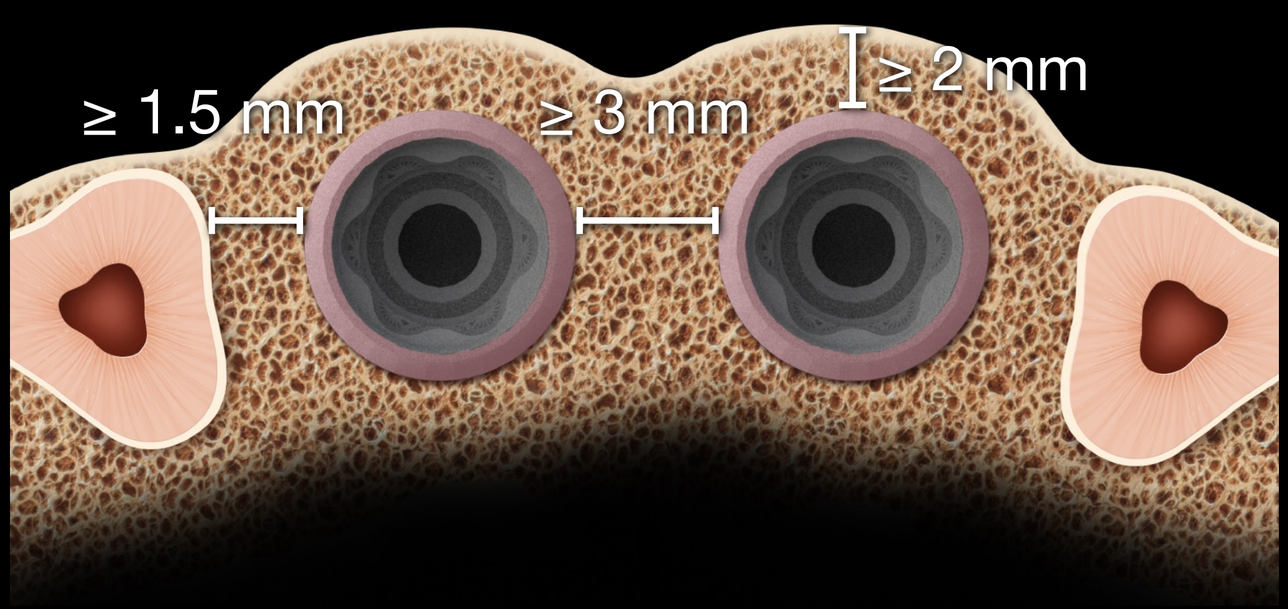
~~Supracrestal Fibers Attach to the Implant~~

~~PDL~~

SE-Sulcular Epithelium
JE-Junctional Epithelium

Surgical

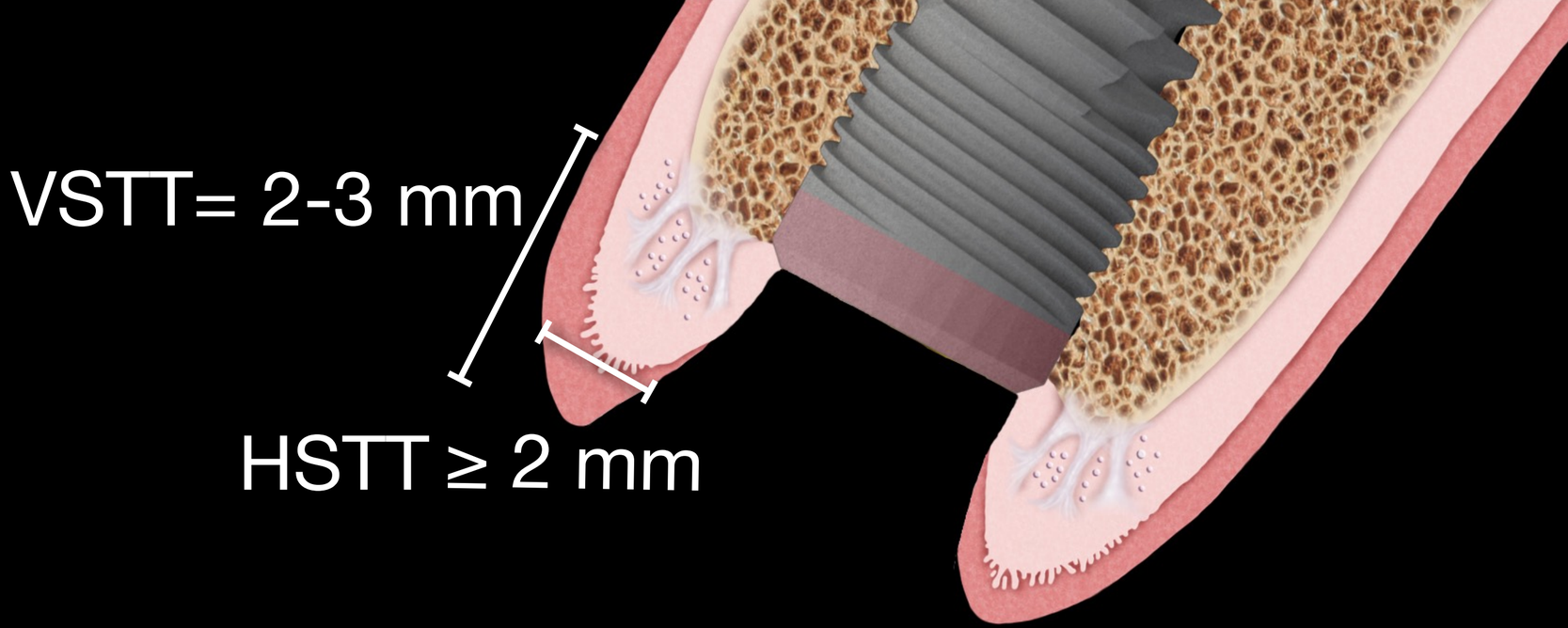
- Hard Tissue



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

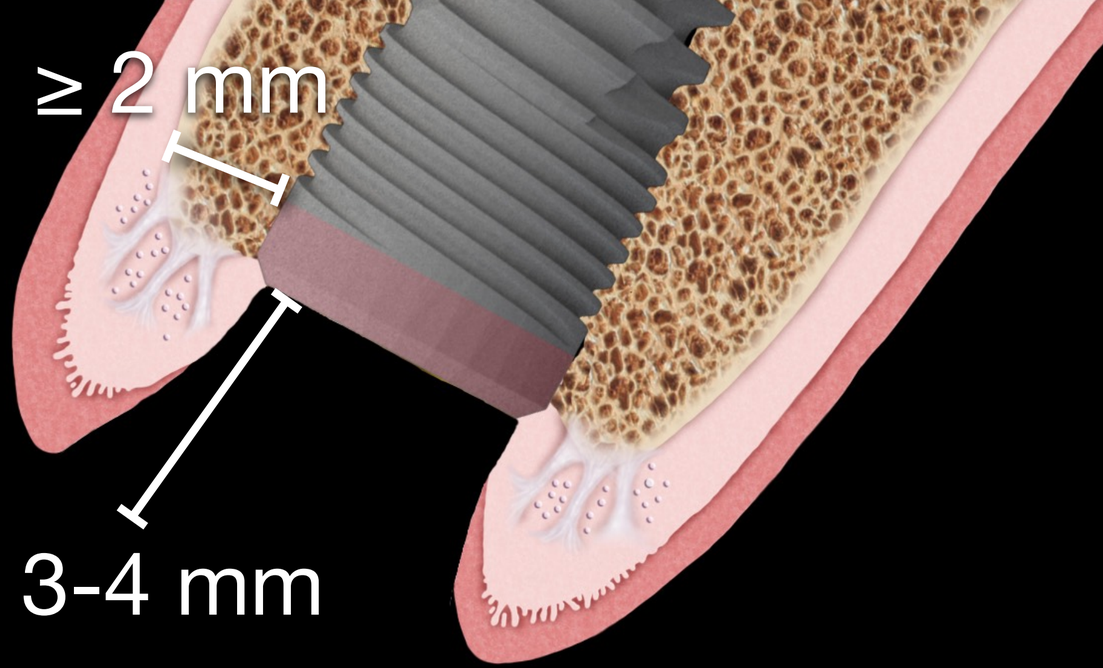


Berglundh T, Lindhe J. J Clin Periodontol 1996
Linkevicius T, et al. Clin Implant Dental Relat Res 2015
Rungcharassaeng K, et al. Int J Periodontics & Restorative Dent 2012

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

Surgical

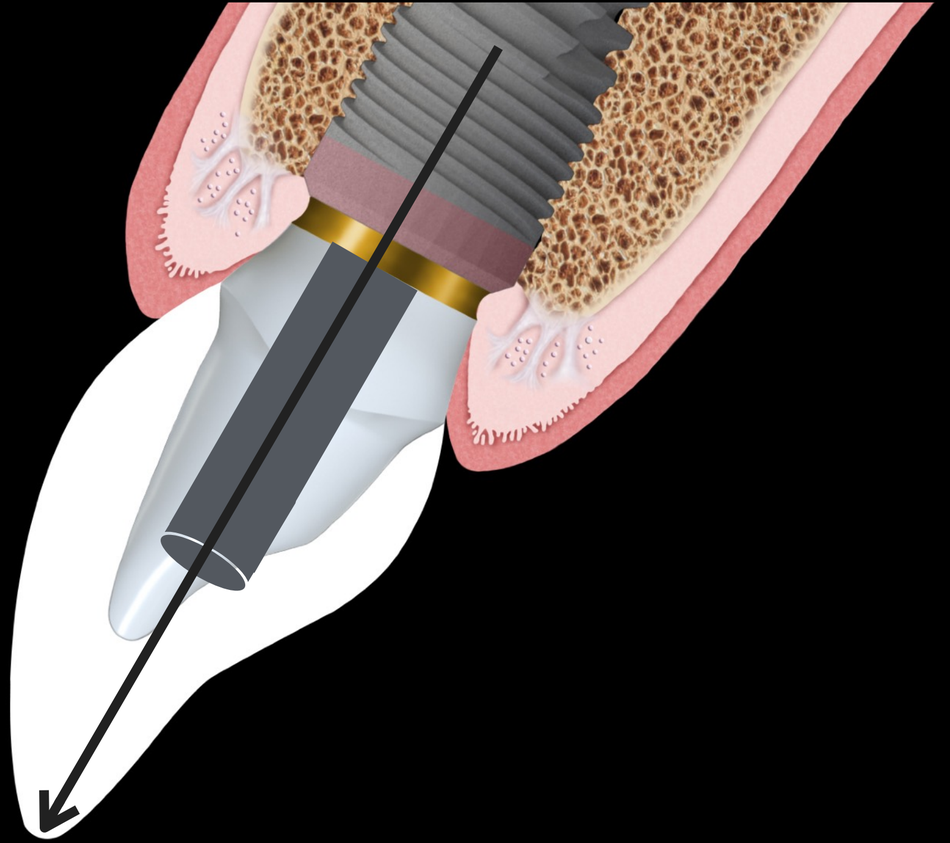
- Hard Tissue
- Soft Tissue
- 3D Implant Position



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

Surgical

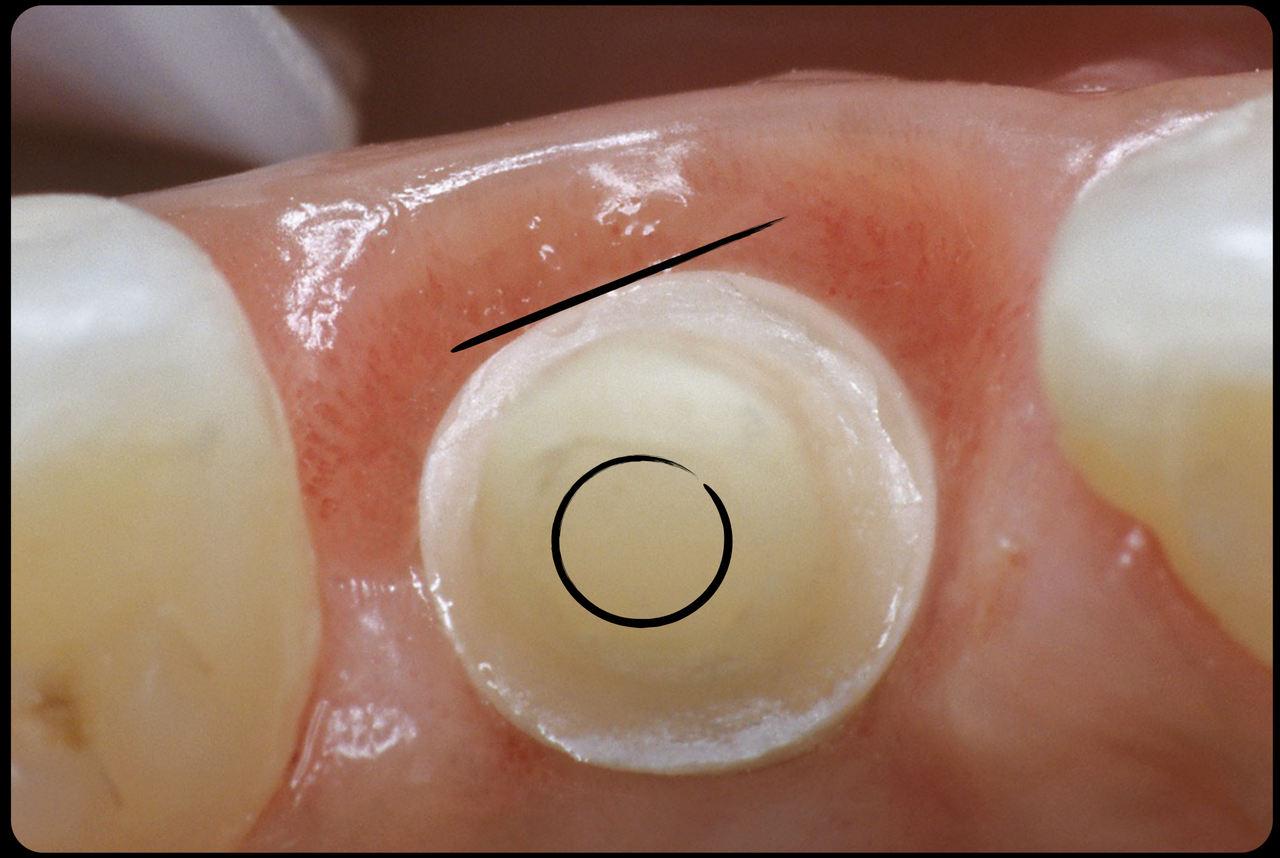
- Hard Tissue
- Soft Tissue
- 3D Implant Position



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

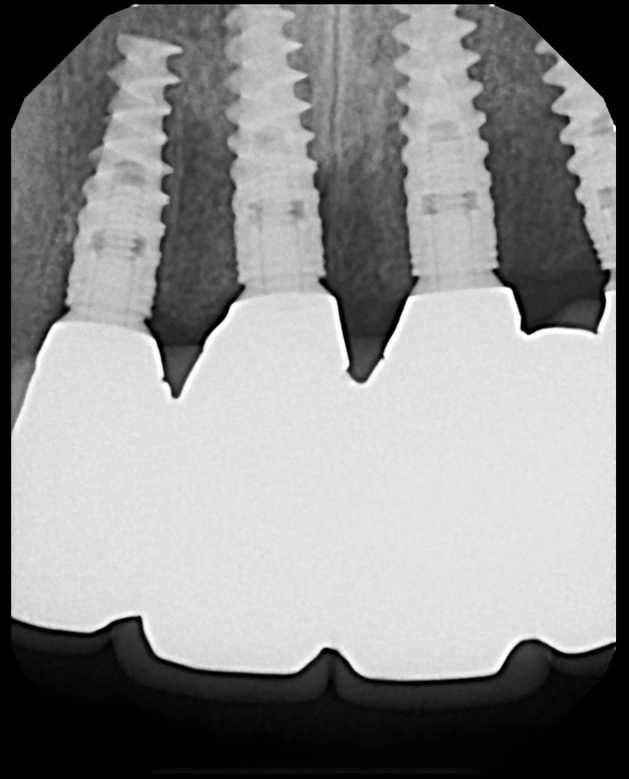
Surgical

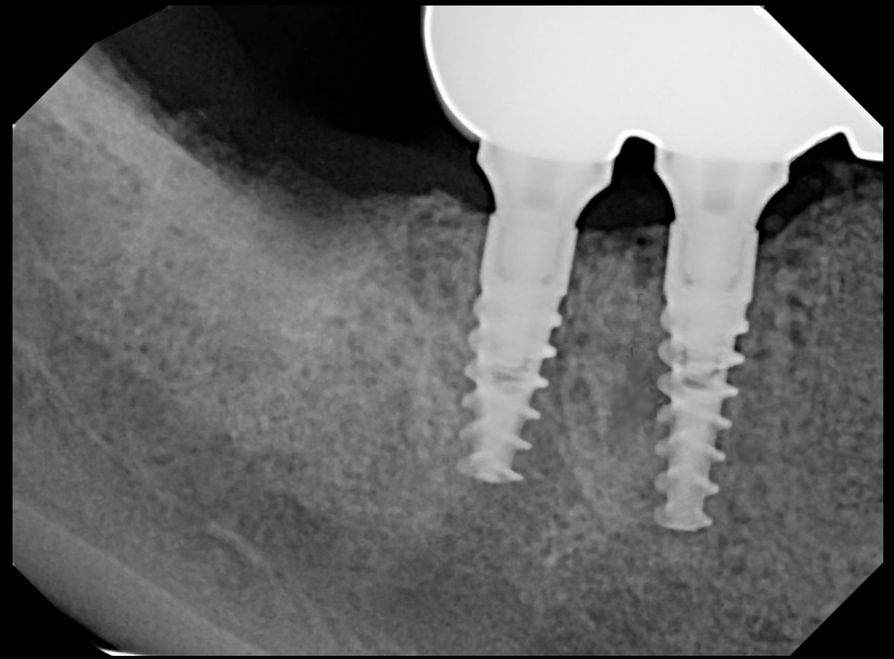
- Hard Tissue
- Soft Tissue
- 3D Implant Position



Surgical

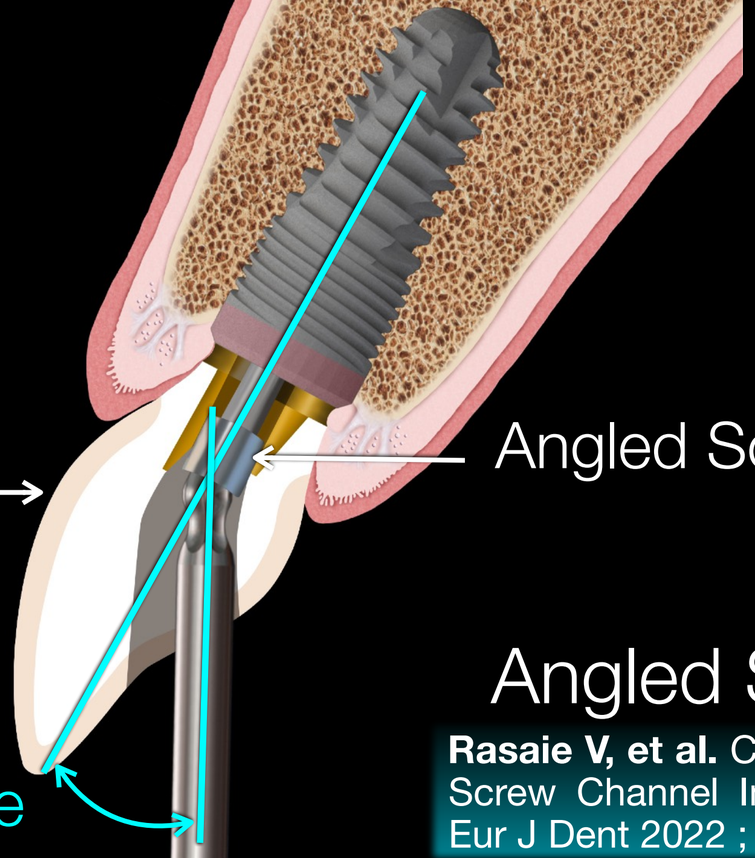
- Hard Tissue
- Soft Tissue
- 3D Implant Position
- Implant Size





Restorative

- Screw Access Angle

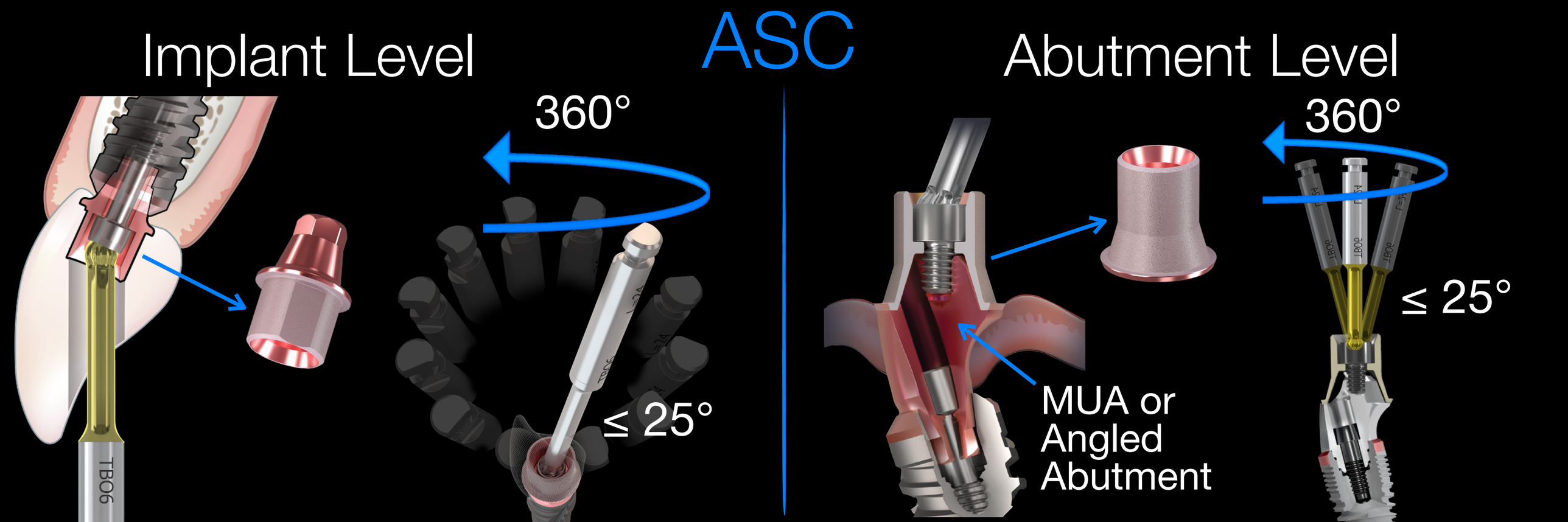


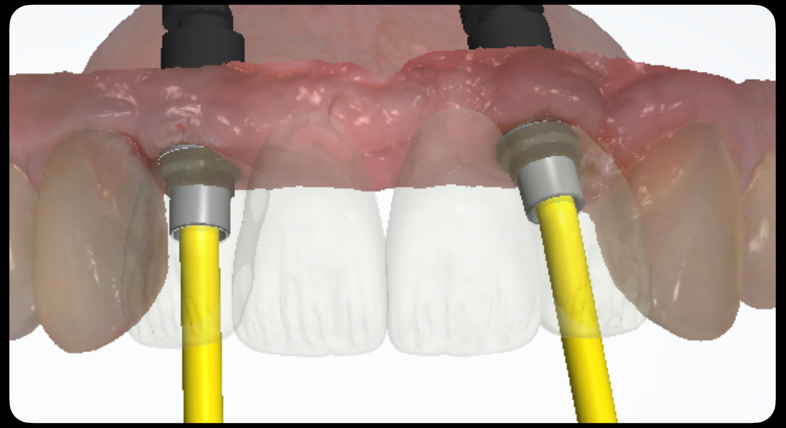
≤ 25°

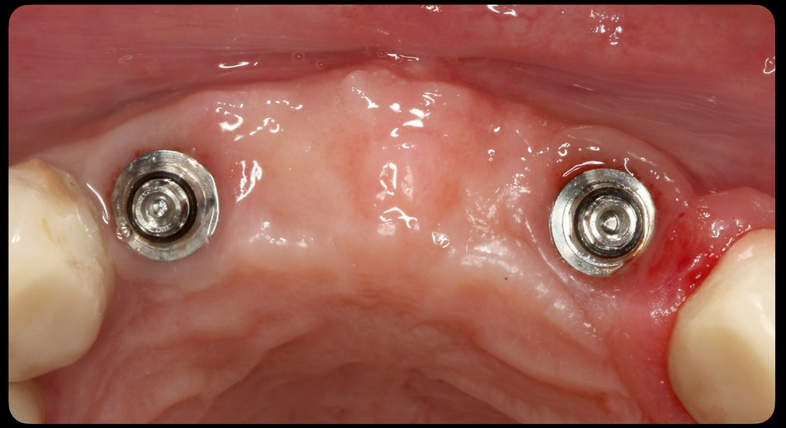
Screw Access Angle

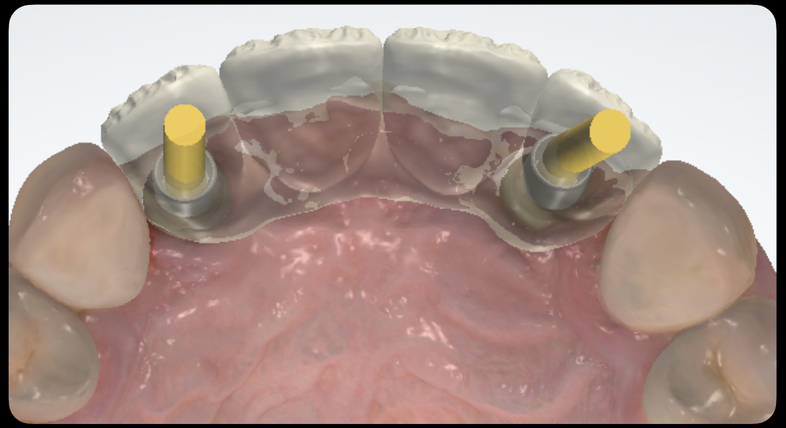
Angled Screw Channel (ASC)

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 .


Implant Level
ASC
Abutment Level
360°
≤ 25°
MUA or
Angled
Abutment
360°
≤ 25°
TBO6







Angled Prosthetic Screw

Restorative

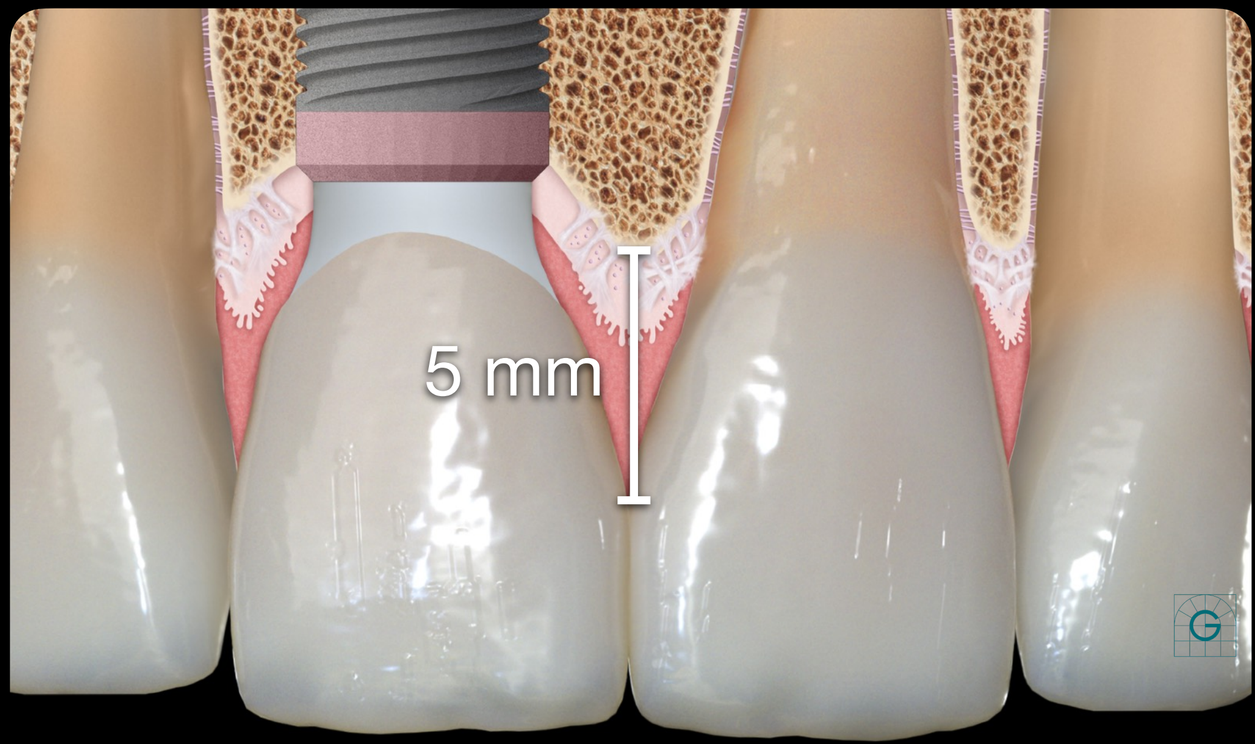
- Screw Access Angle
- Abutment Dis/Reconnect

Abrahamsson I, et. al. J Clin Periodontol 1997

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

Restorative

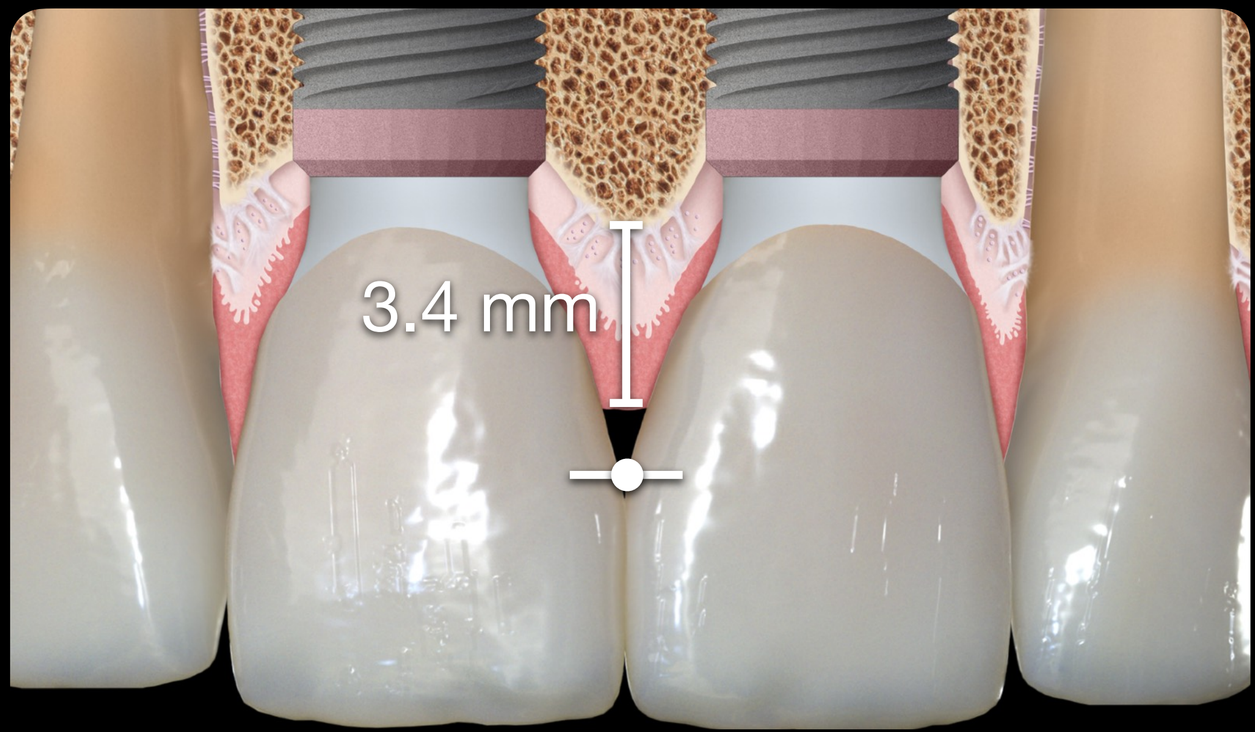
- Screw Access Angle
- Abutment Dis/Reconnect
- Restorative Contours



Choquet V, et al. J Periodontol, 2001

Restorative

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



Tarnow D, et al. J Periodontol 2003

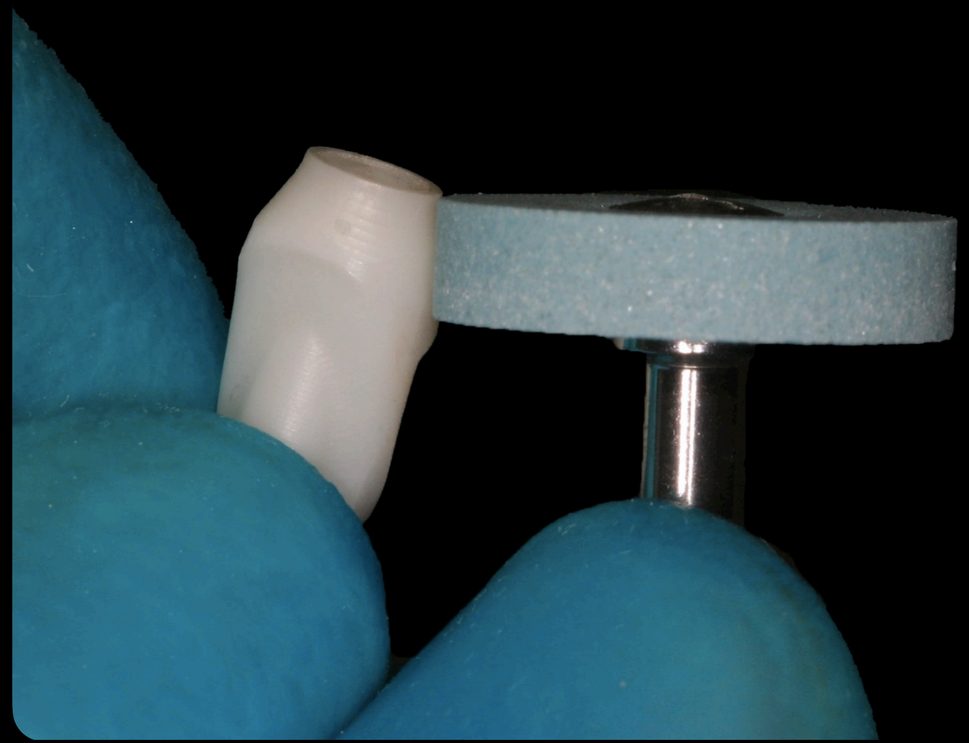
Restorative

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

Salama et al. Developing optimal peri-implant papillae within the esthetic zone. J Esthet Dent 1995;7(3):125-9.

Restorative

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



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

Restorative

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

Abrahamsson I, et al. J Clin Periodontol 1998.

Abrahamsson I, Cardaropoli G. Clin Oral Impl Res 2007.

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

Clinical Objectives

↑ *Epithelial adhesion*

↓ *Biofilm accumulation*

↓ *Inflammatory response*

Scotti R, et al. Early biofilm colonization on polished- and glazed-zirconium ceramic surfaces. Preliminary results. Minerva Stomatol. 2006 Sept;55(9):493-502. PMID: 1714642.

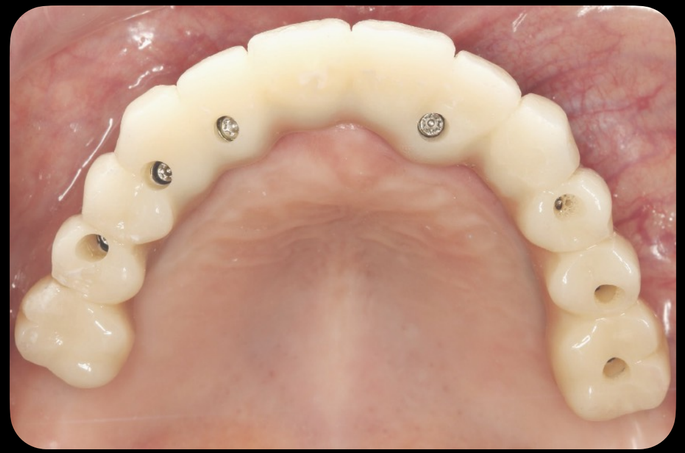
Subgingival Ceramics

1. *Polish*
2. *Avoid ~~porcelain~~*
3. *Polish off ~~glaze~~*

Brunot-Gohn, C, et al. Soft tissue adhesion of polished versus glazed lithium disilicate ceramic for dental applications. Dent Mater, 2013;29:e205-12.

Restorative

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

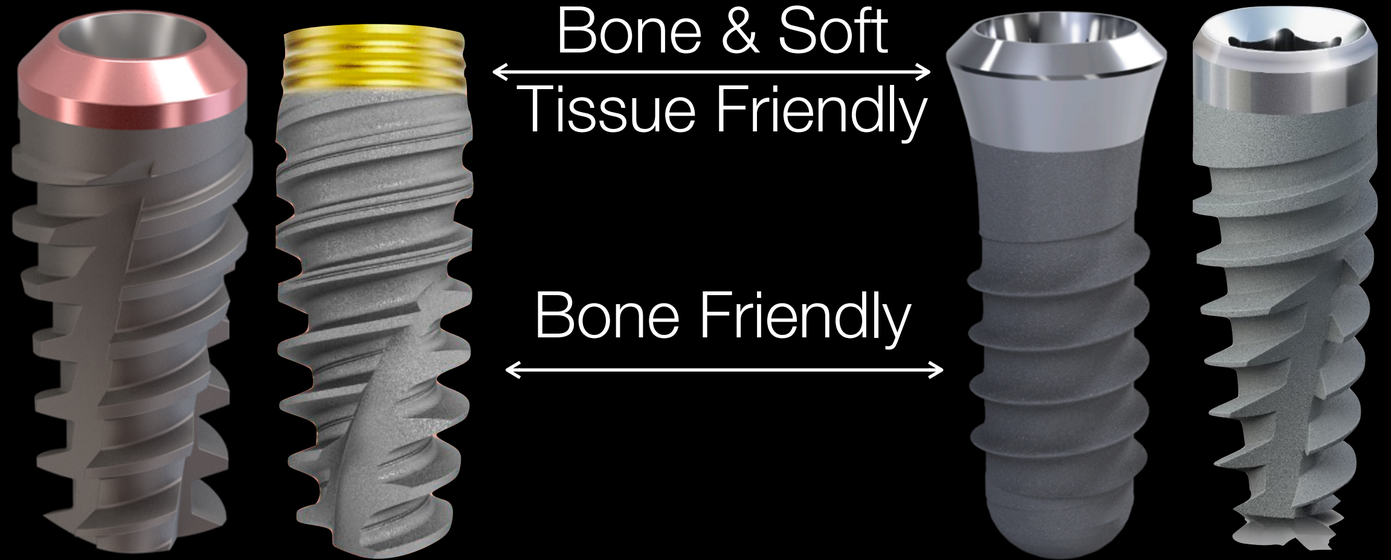
Restorative

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

Sheridan RA et al. Implant Dent. 2016

Implant Collar Features

- Hybrid Design



Gracis S, et al. Int J Periodontics & Restorative Dent, 2020
Silva CS, et al. Materials, 2022;15(9):3150

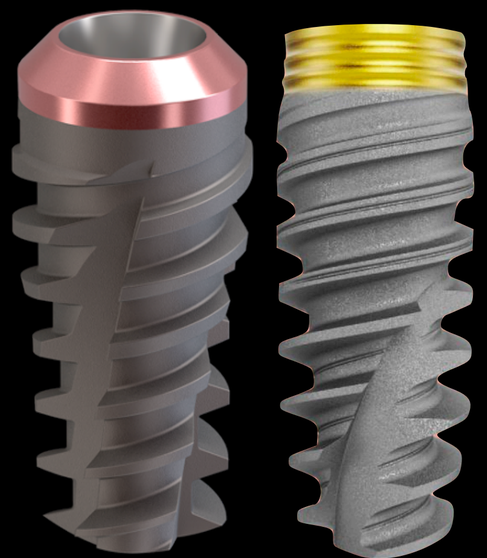
Implant Collar Features

- Hybrid Design
- Collar Surface

~~Roughened Implant Collar~~

Anodized

Machined Ti



Bone & Soft Tissue Friendly

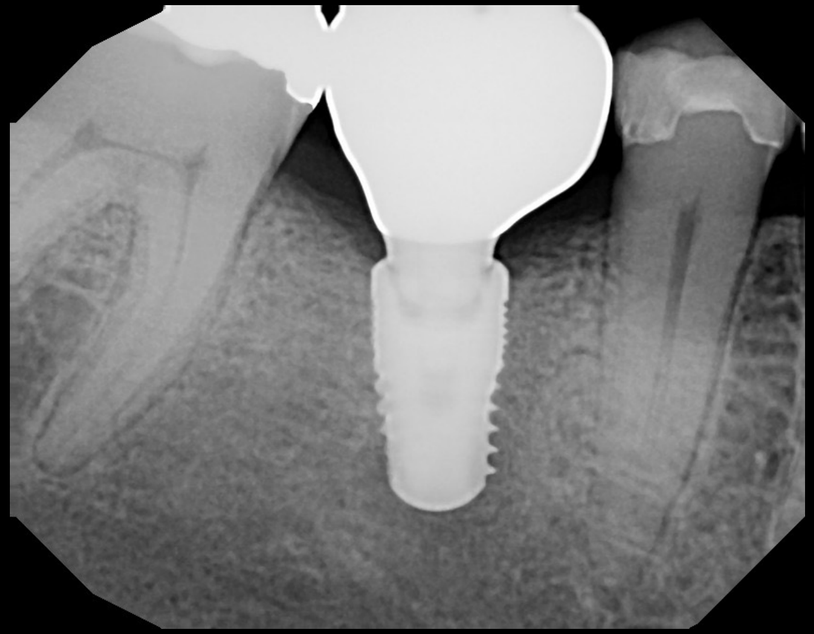
Bone Friendly

Gracis S, et al. Int J Periodontics & Restorative Dent, 2020
Silva CS, et al. Materials, 2022;15(9):3150

Implant Collar Features

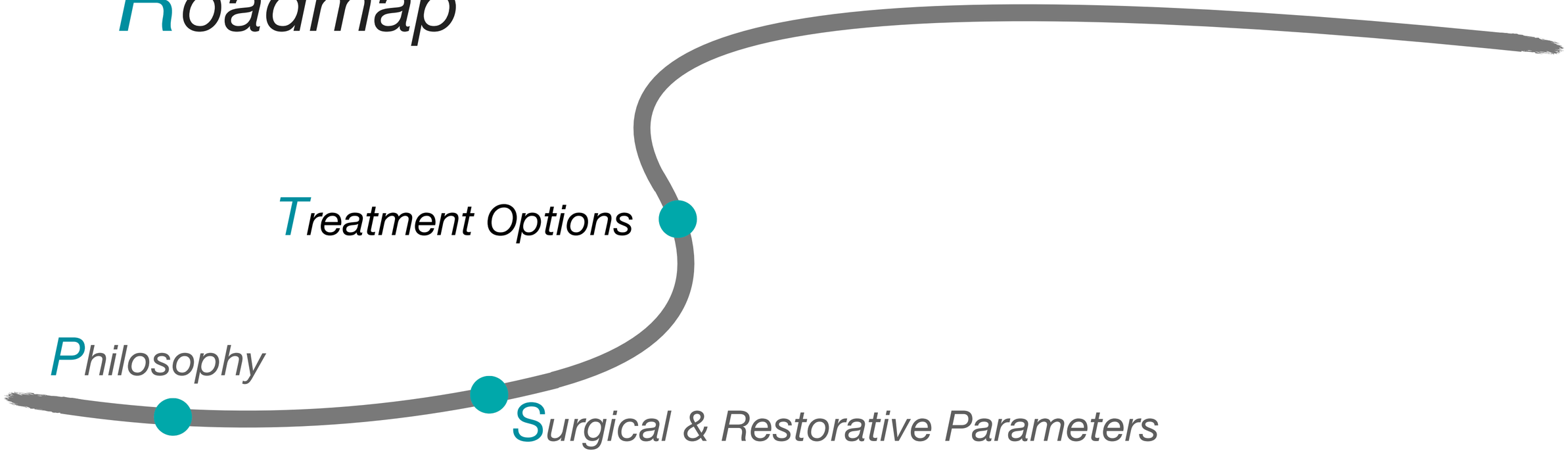
- Hybrid Design
- Collar Surface
- Abutment-Implant Connection

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.

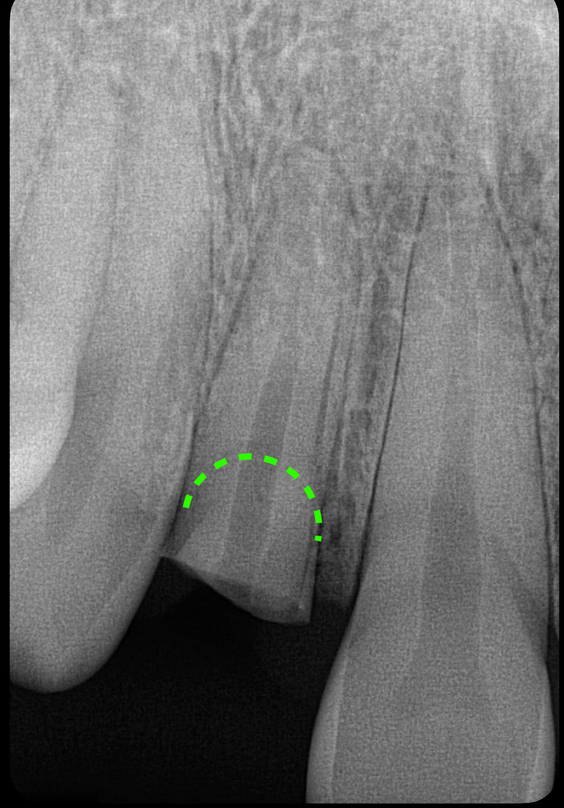
Roadmap

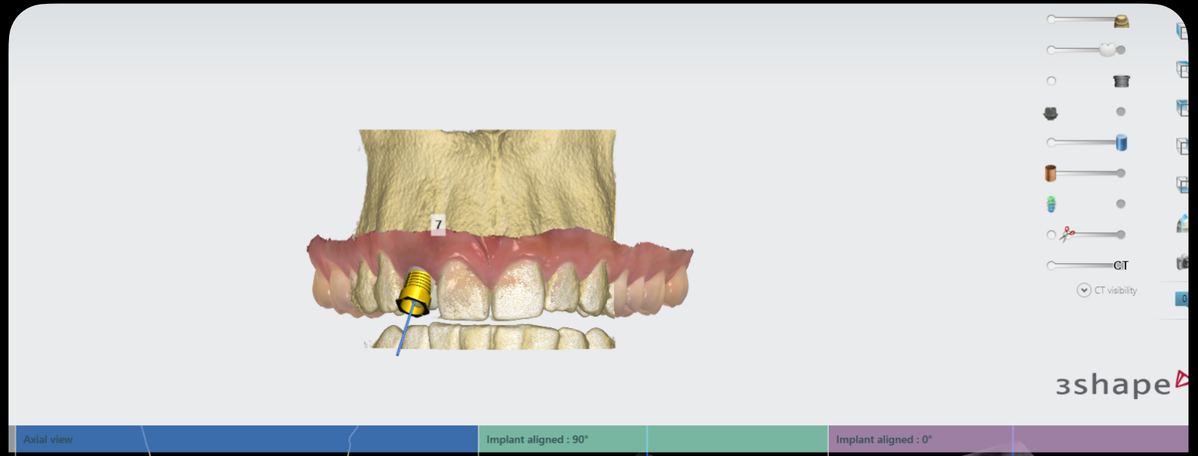

Treatment Options
Philosophy
Surgical & Restorative Parameters

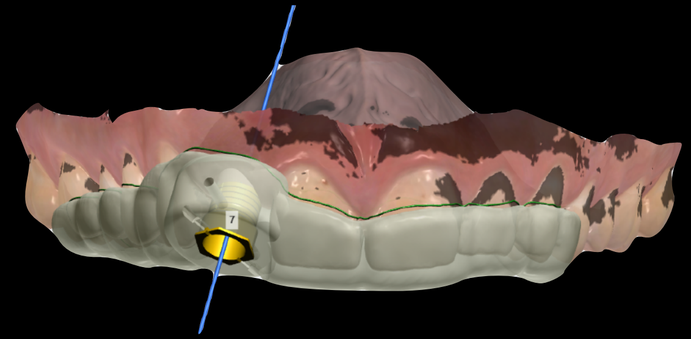
Treatment Options

- Immediate Placement
  & Loaded Provisional

Alonzo




7
CT
CT visibility
3shape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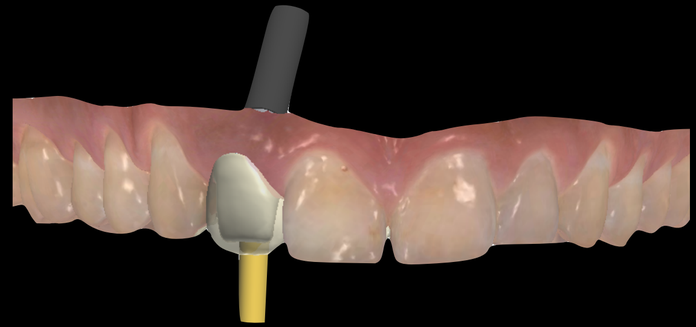
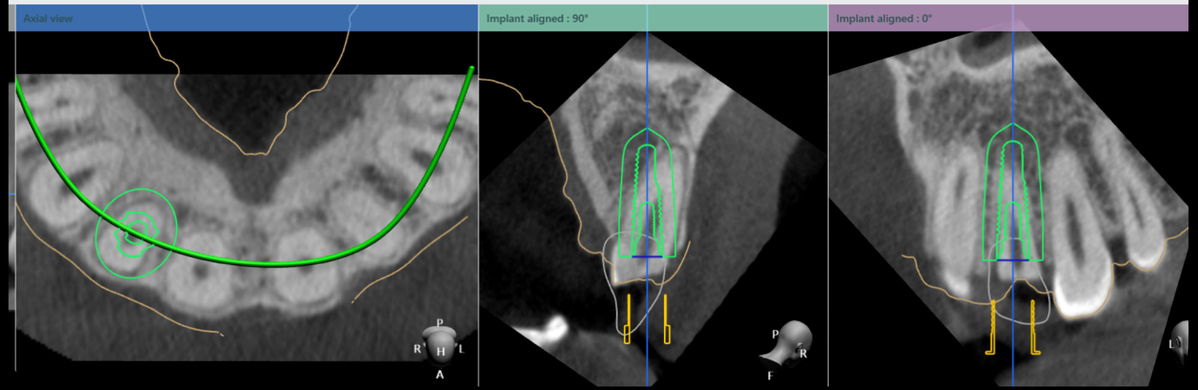
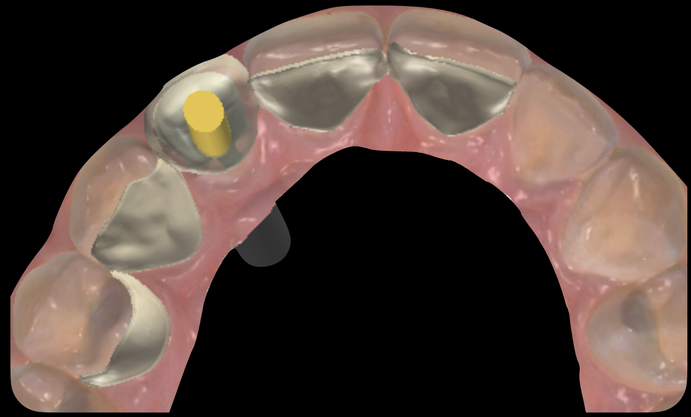
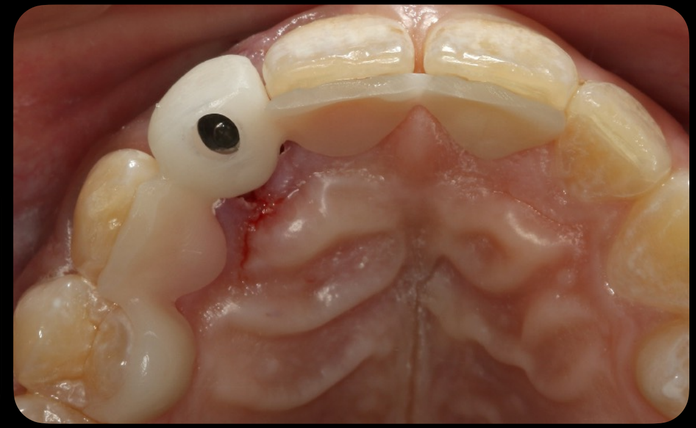



Axial view
Implant aligned : 90°
Implant aligned : 0°
P
R
H
L
A
P
R
F
L



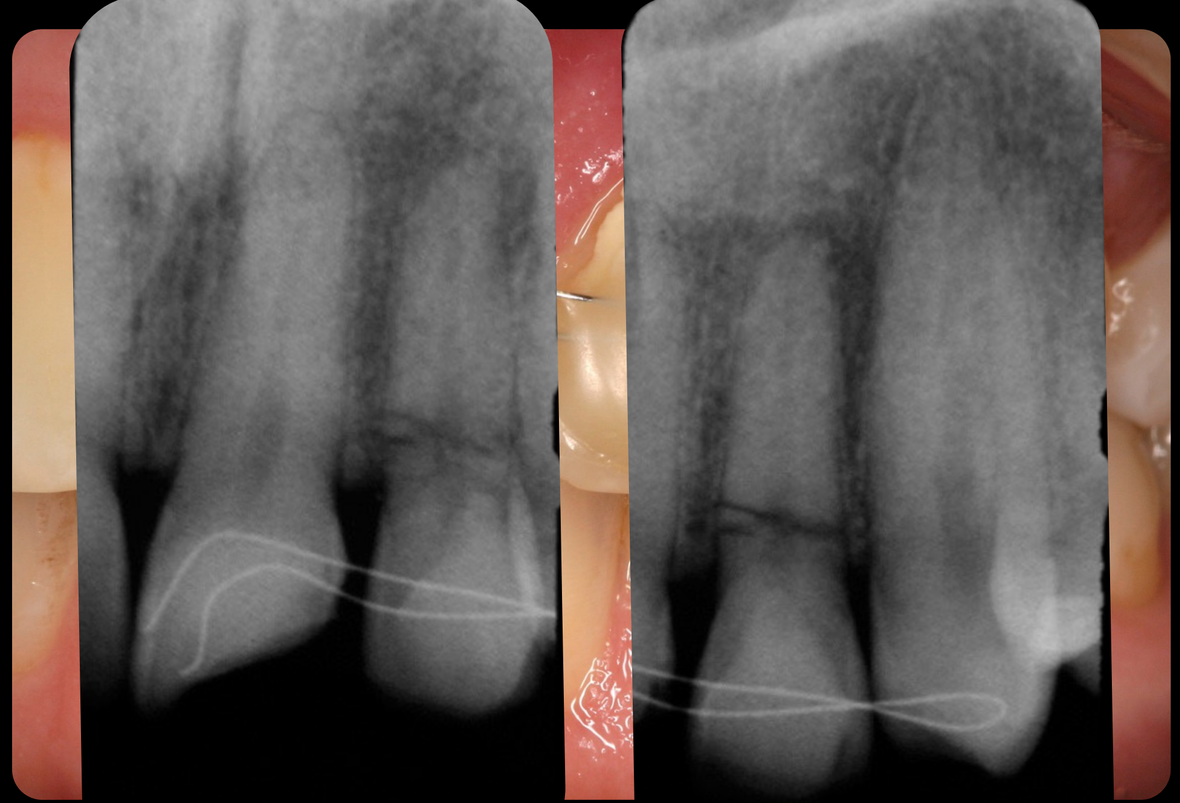


One Surgery / One Abutment / One Time

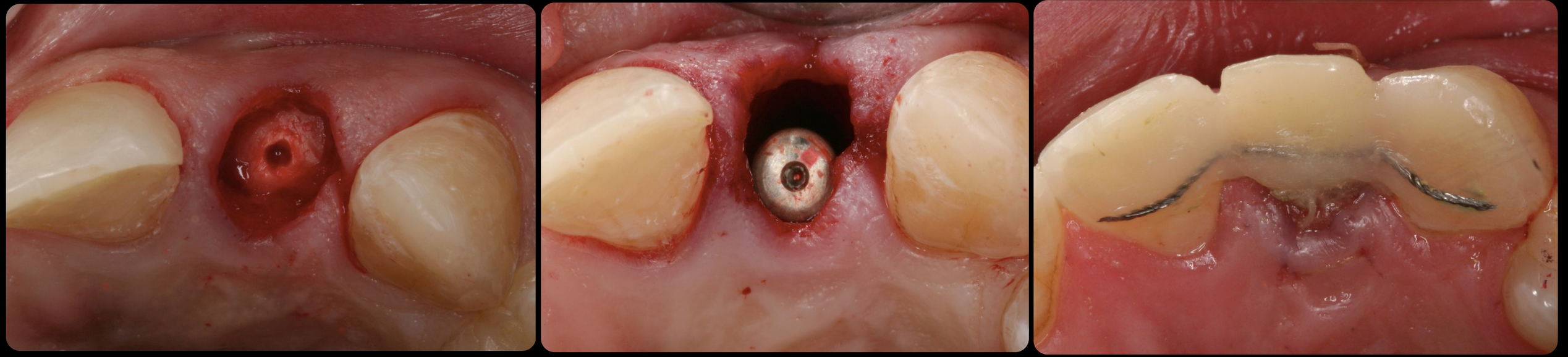
Erika Ramirez, CDT *Marjola Pakola, CDT* *Shmuel Koenov, MDT*

Treatment Options

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



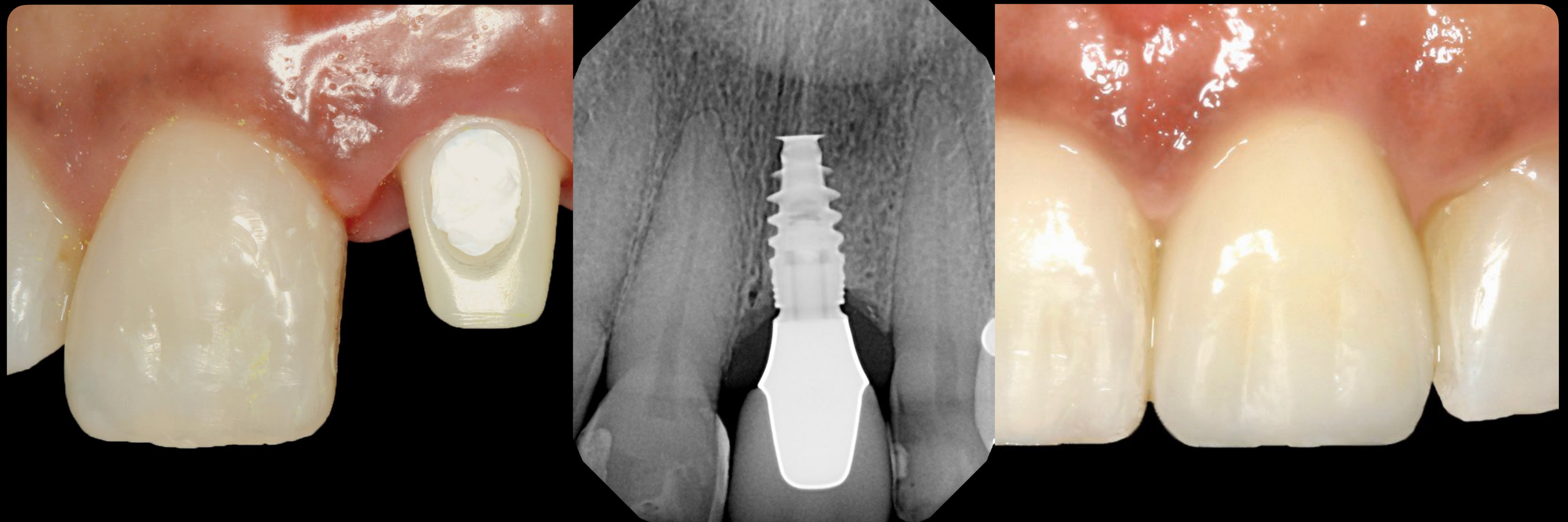
Rob

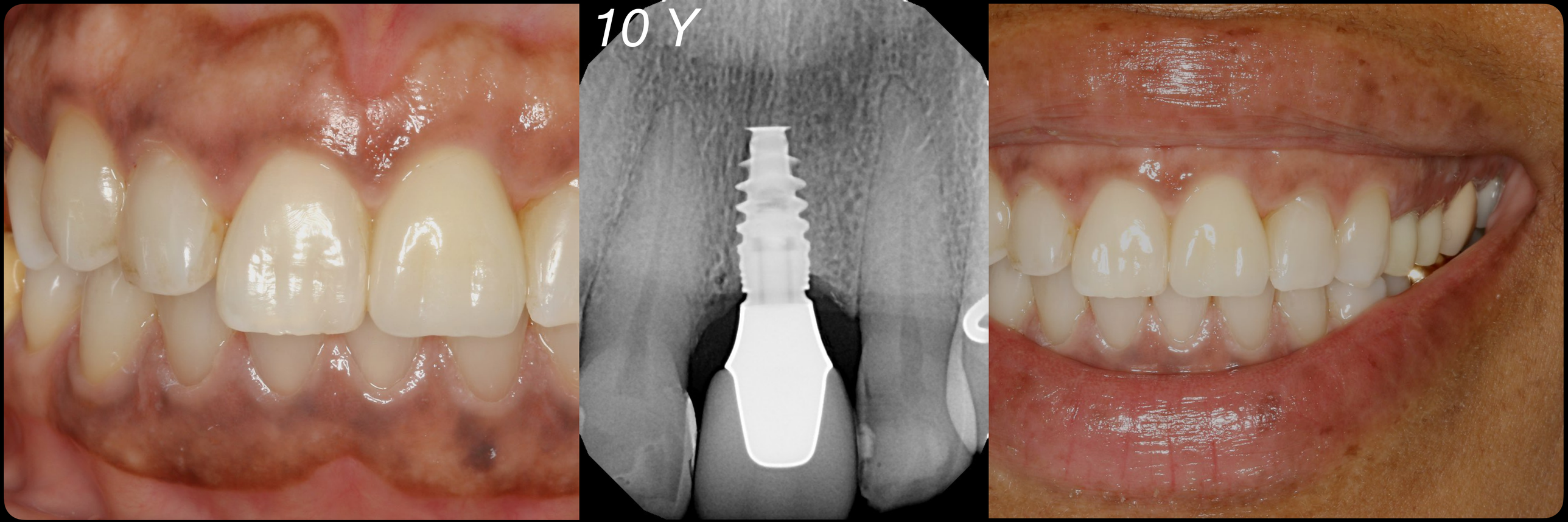



10 Y

Treatment Options

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

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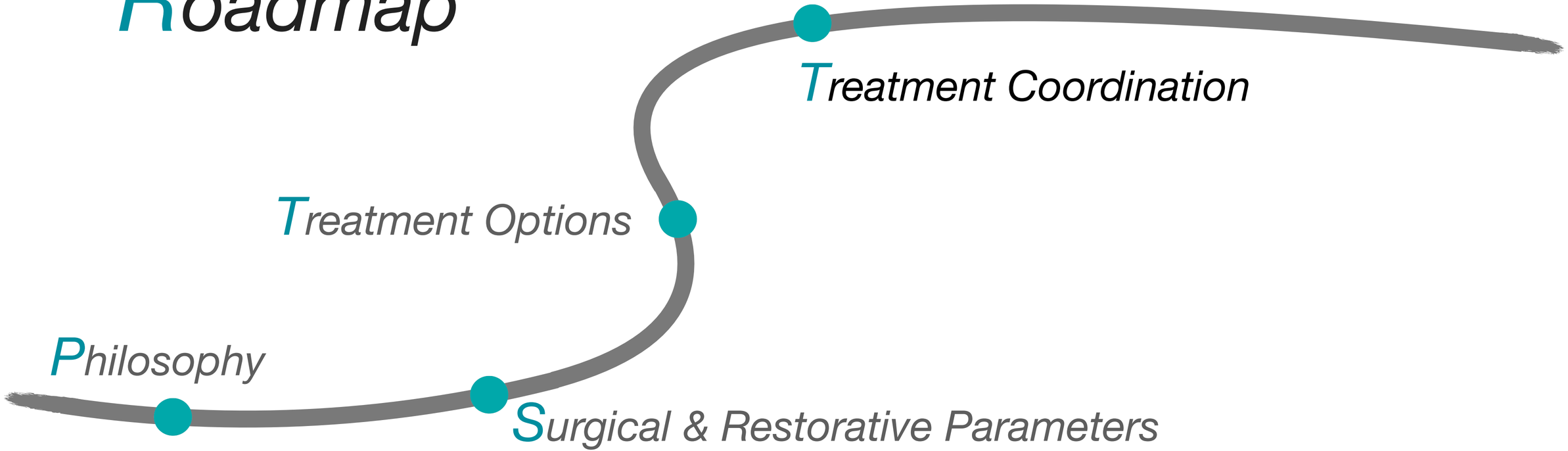
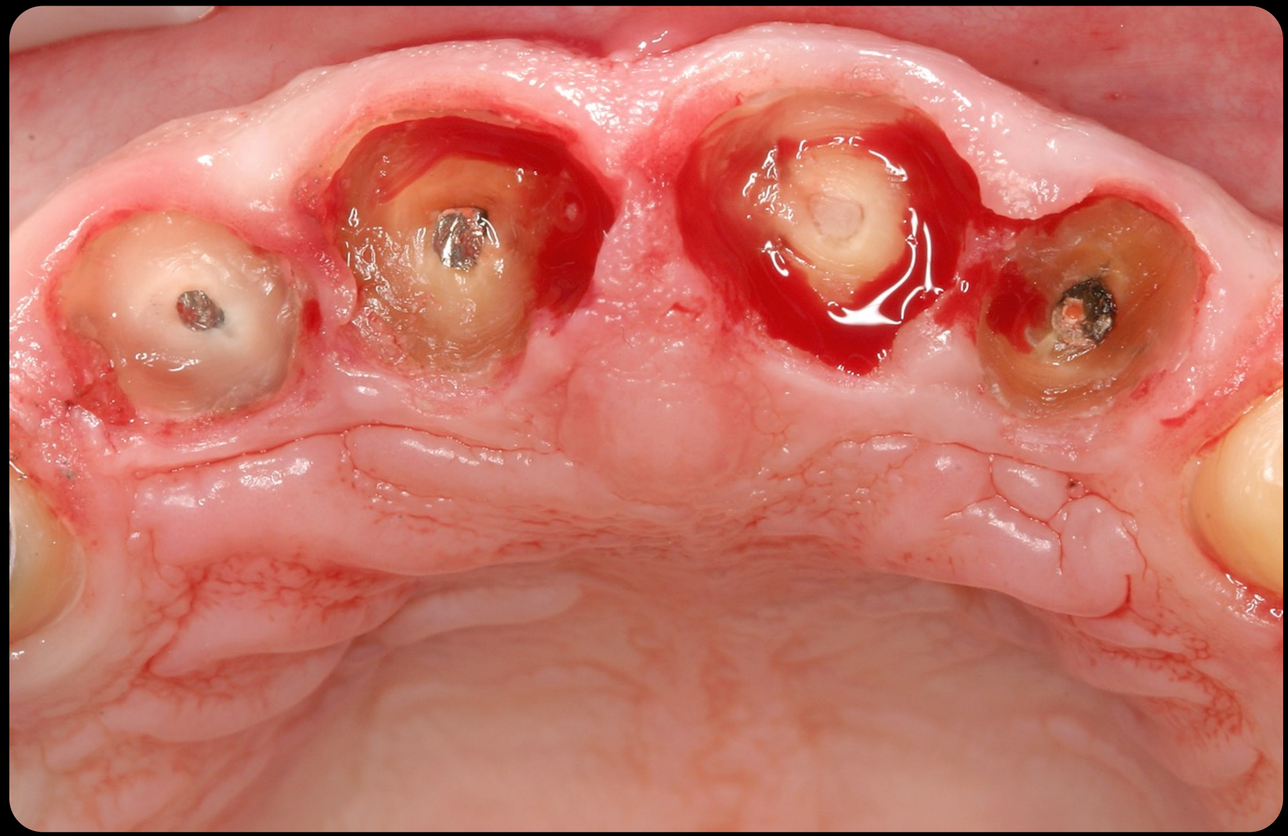
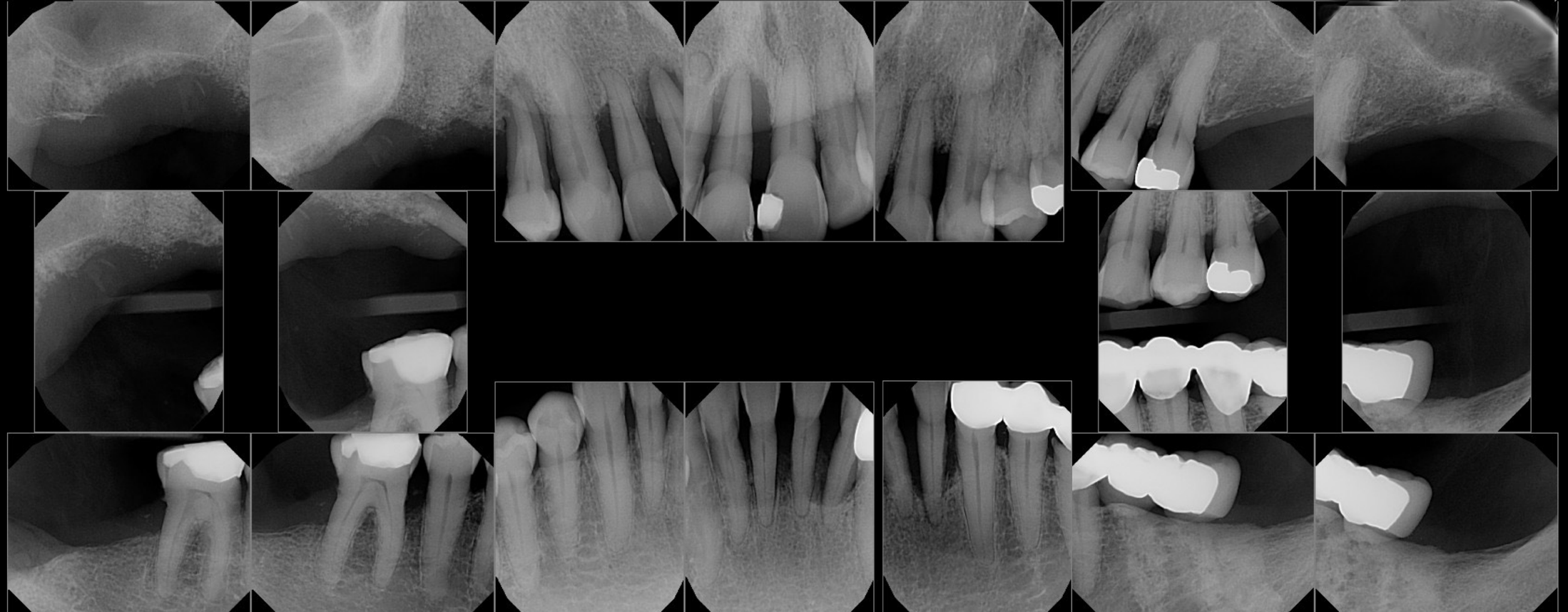
Roadmap

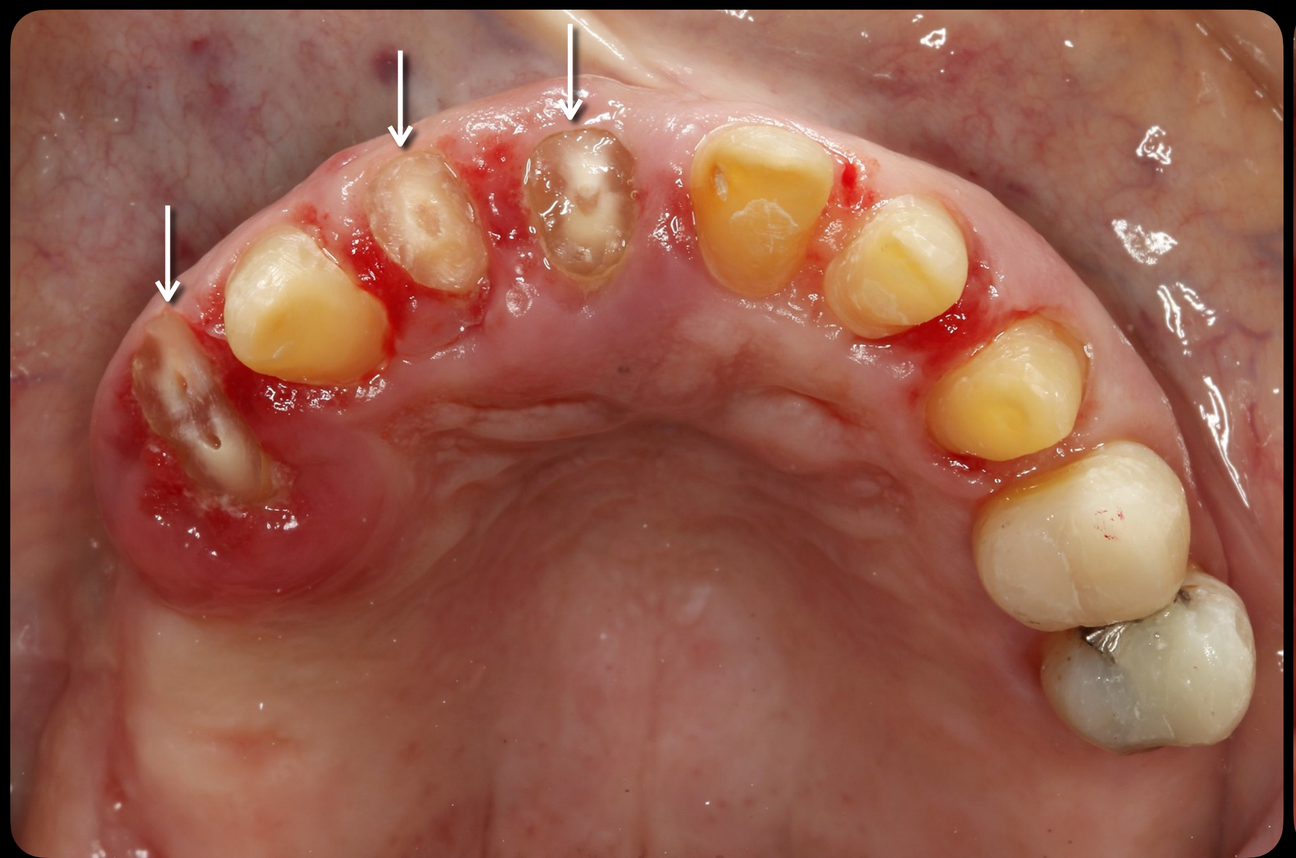

Treatment Coordination
Treatment Options
Philosophy
Surgical & Restorative Parameters

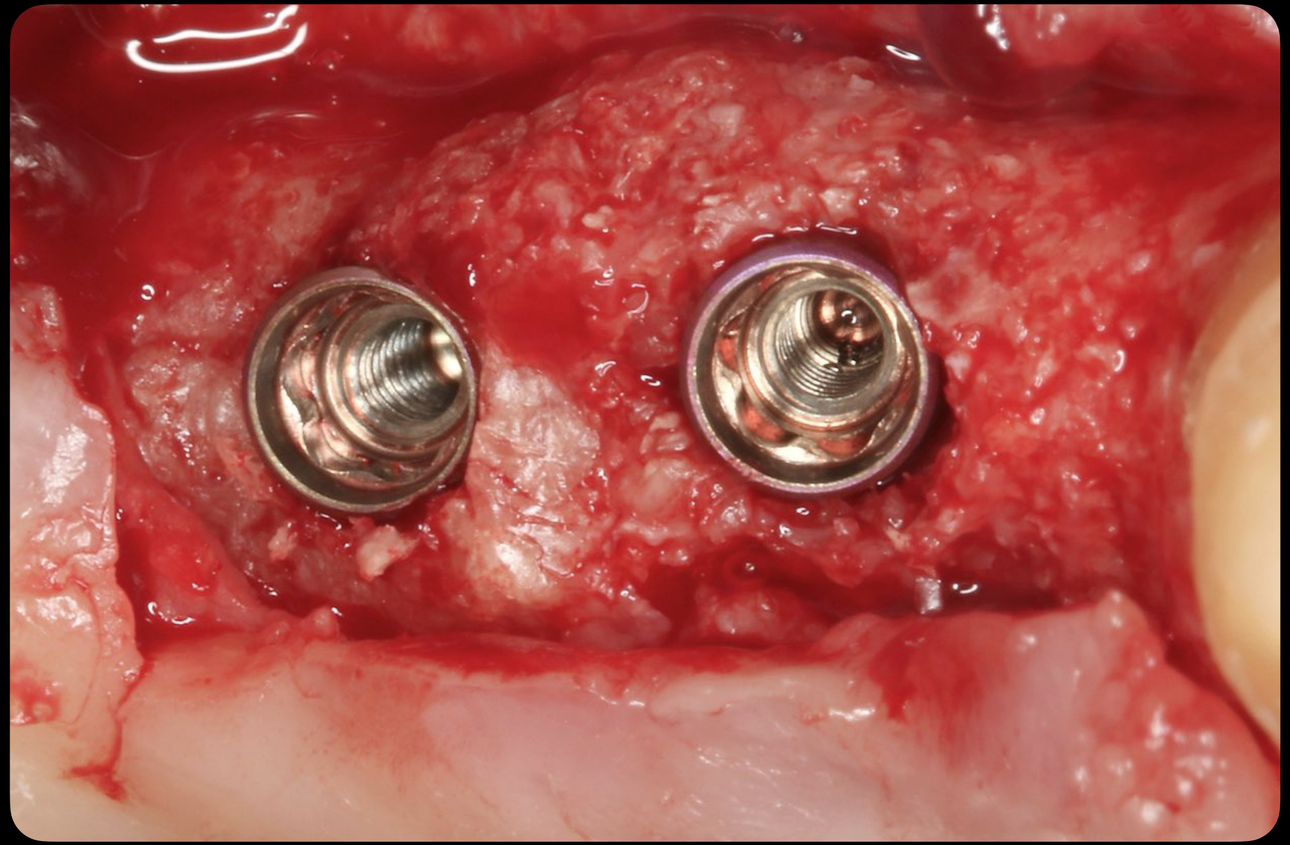
Treatment Coordination

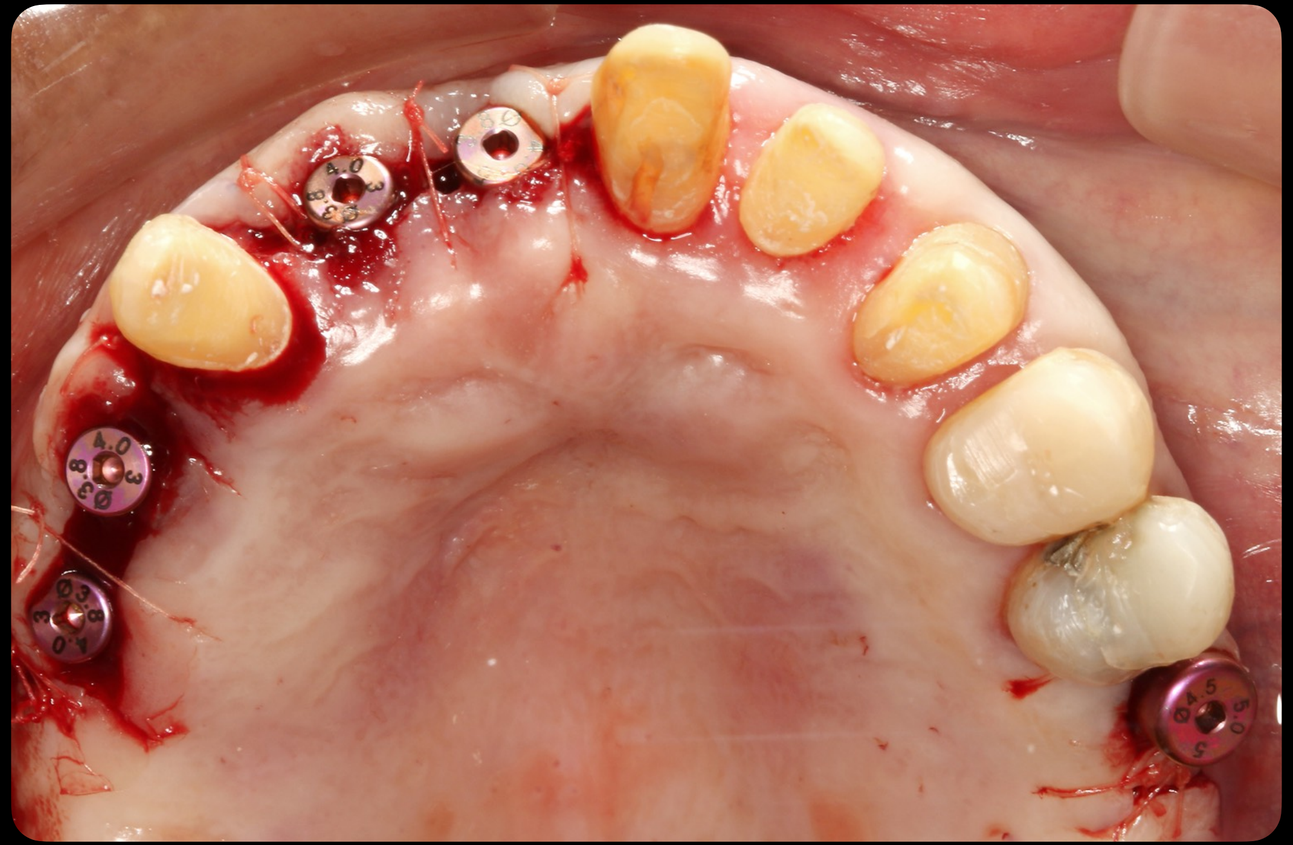
- Pre-surgical Decoronation & Provisionalization

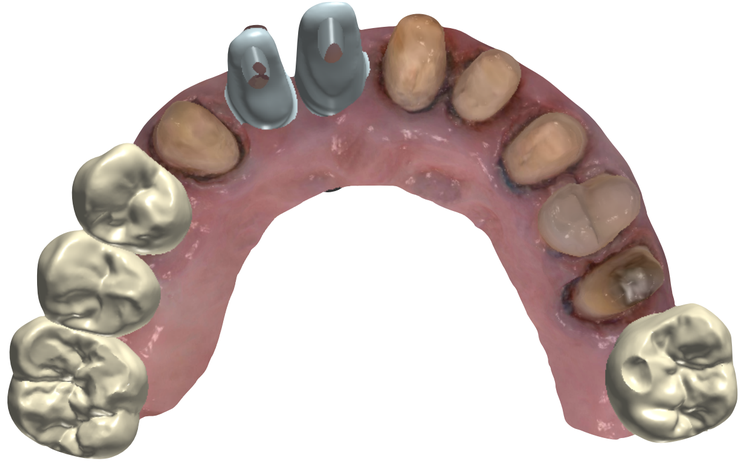


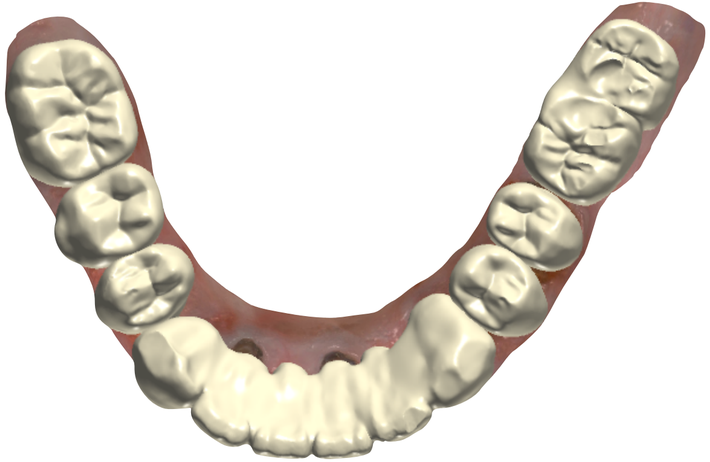







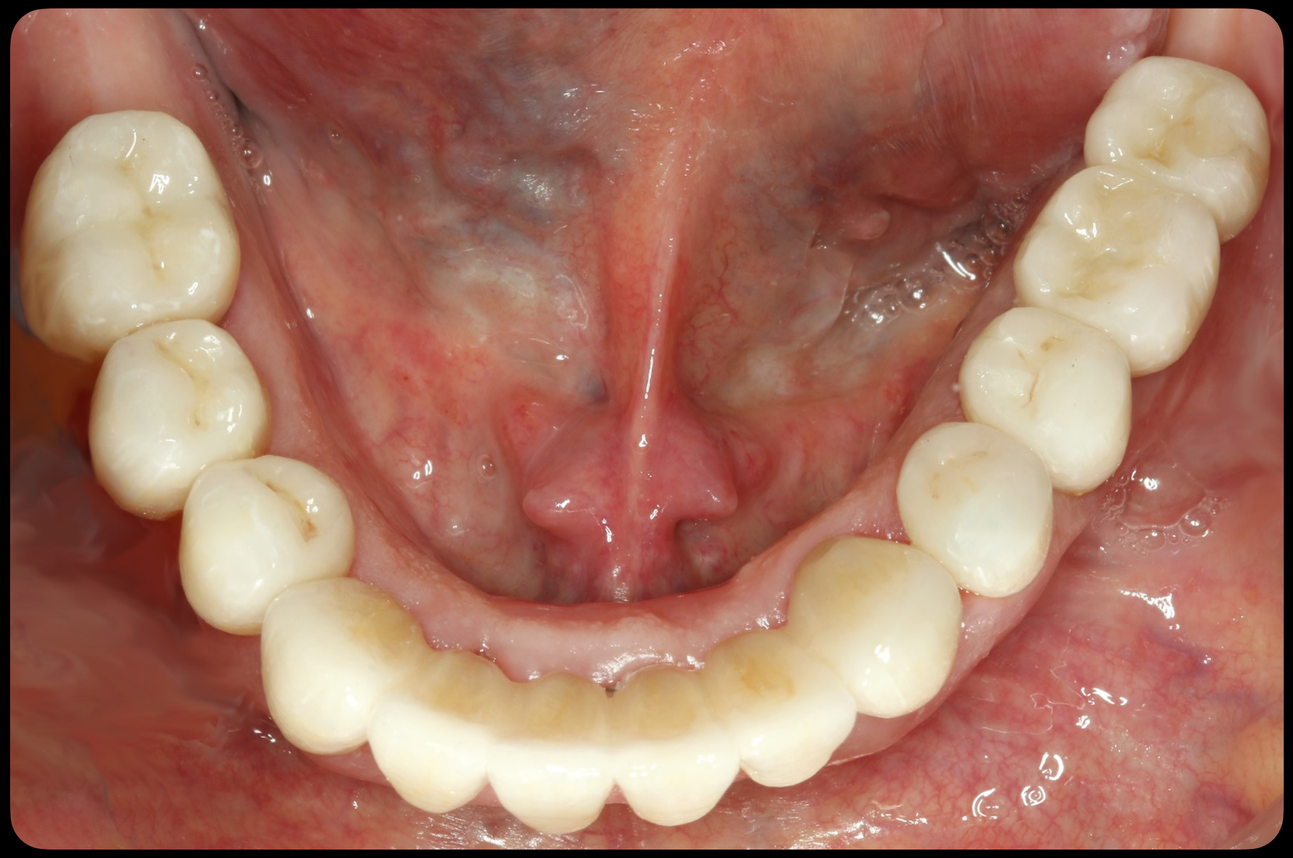


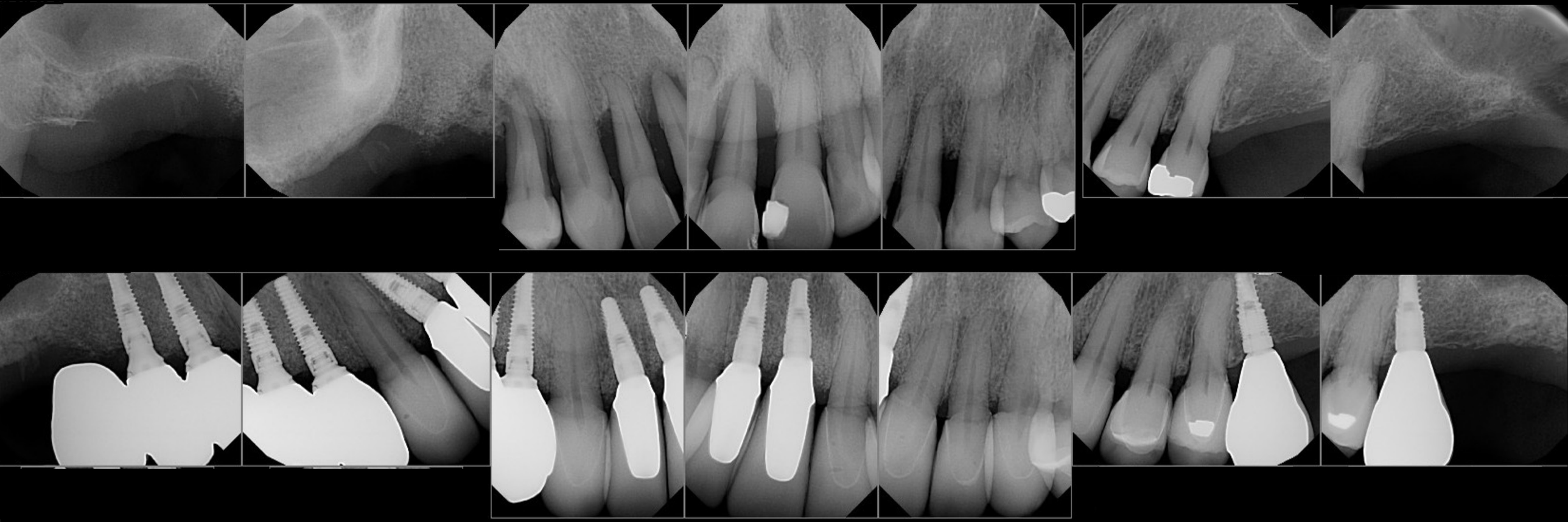


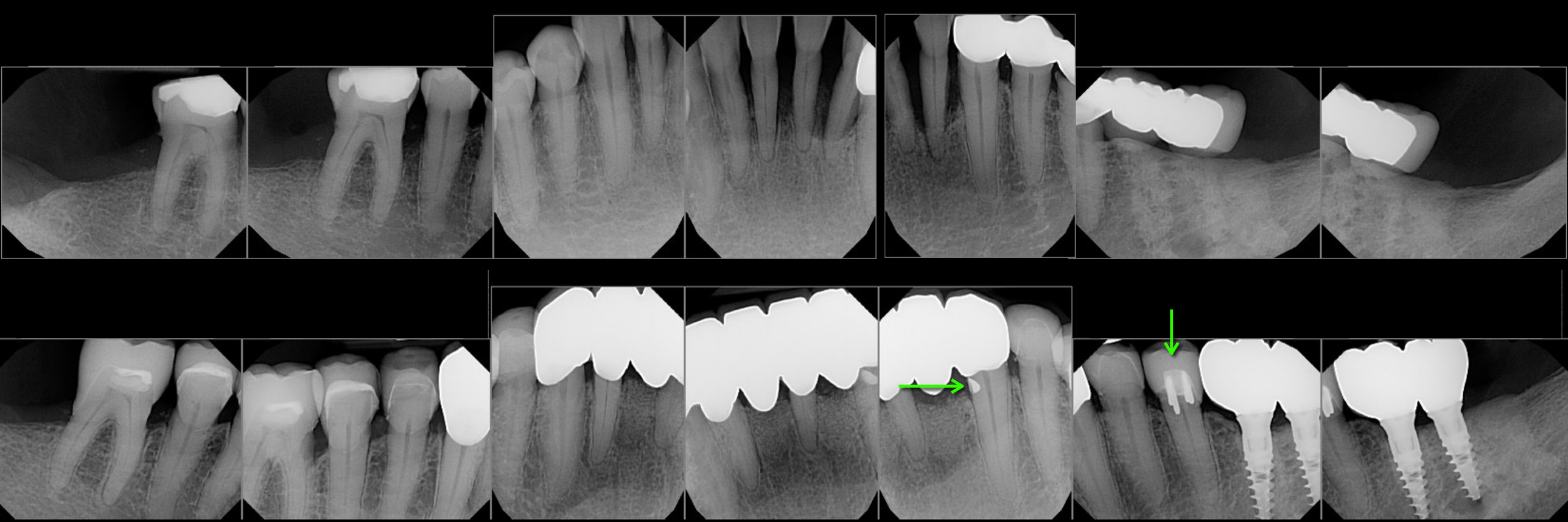



Zr ISP
LS2 Single Units
LS2 Veneer
Zr ISP


LS_2 Veneers
Zr FPD
LS_2 Crowns
LS_2 Crown
Zr ISP

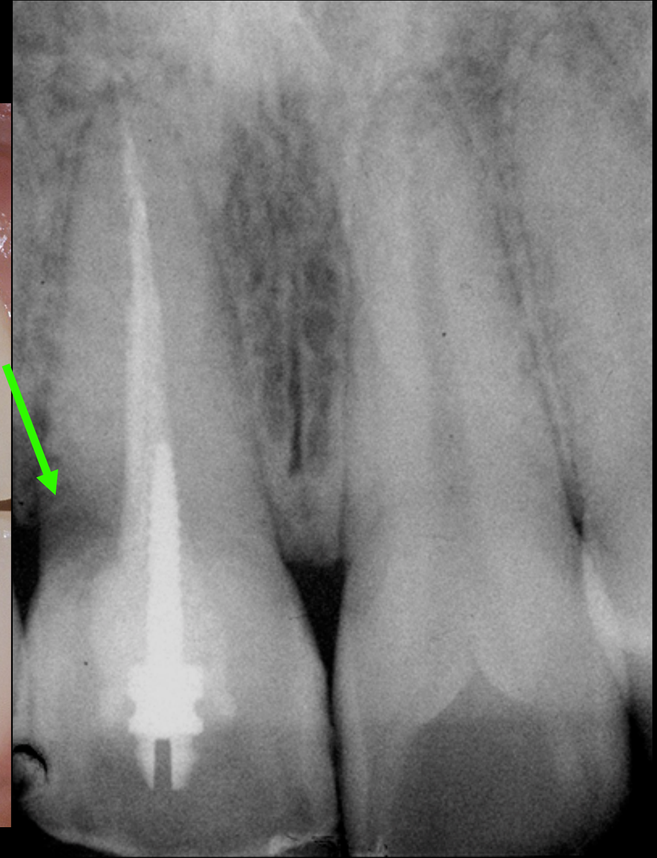





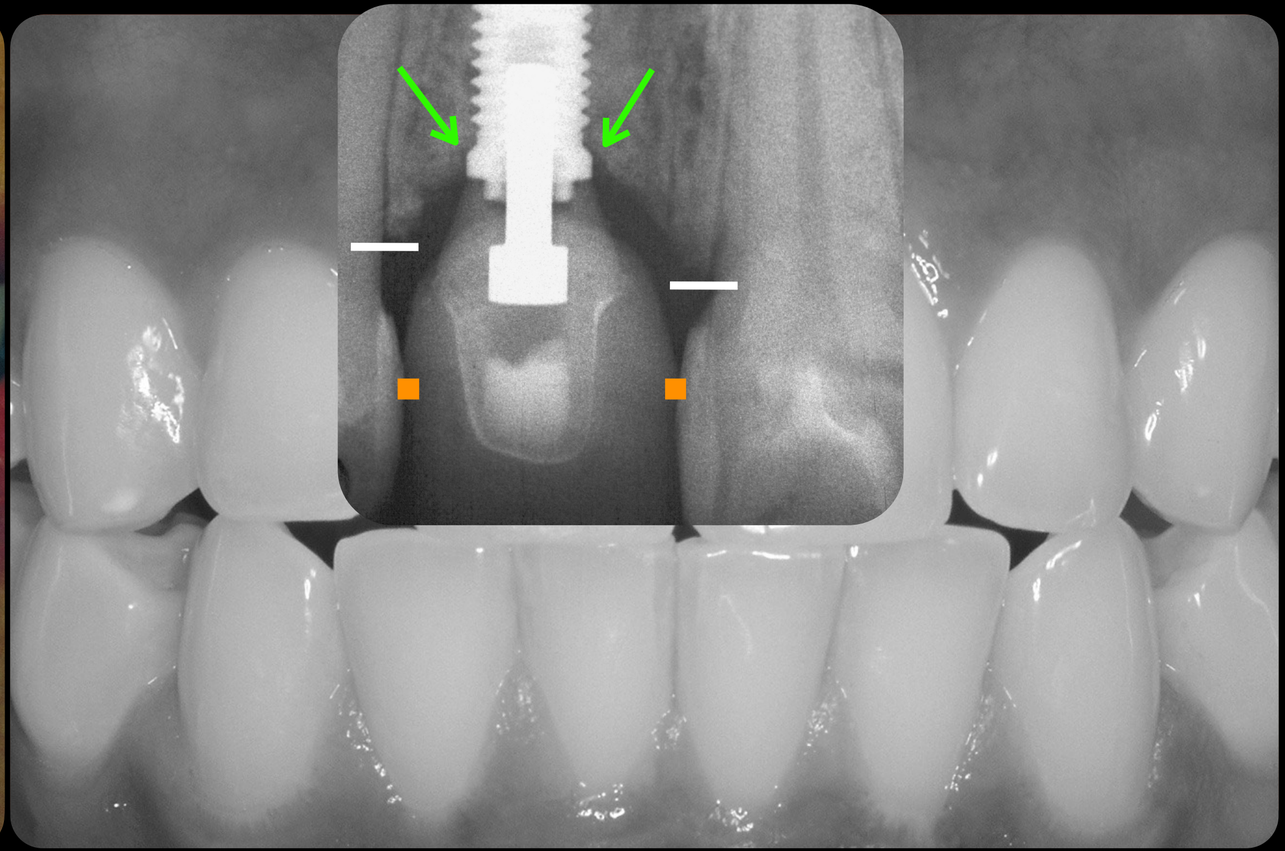


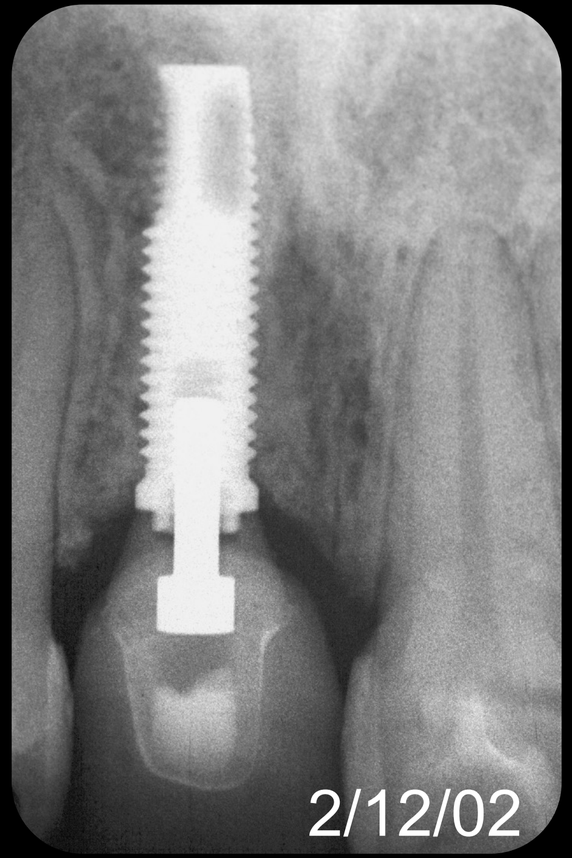
Treatment Coordination

- Pre-surgical Decoronation & Provisionalization
- Orthodontic Therapy



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

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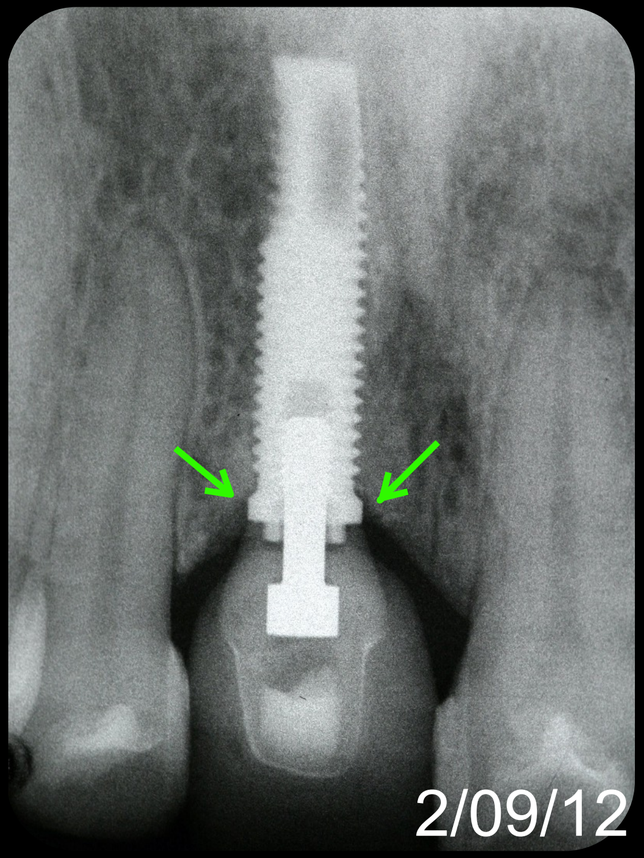
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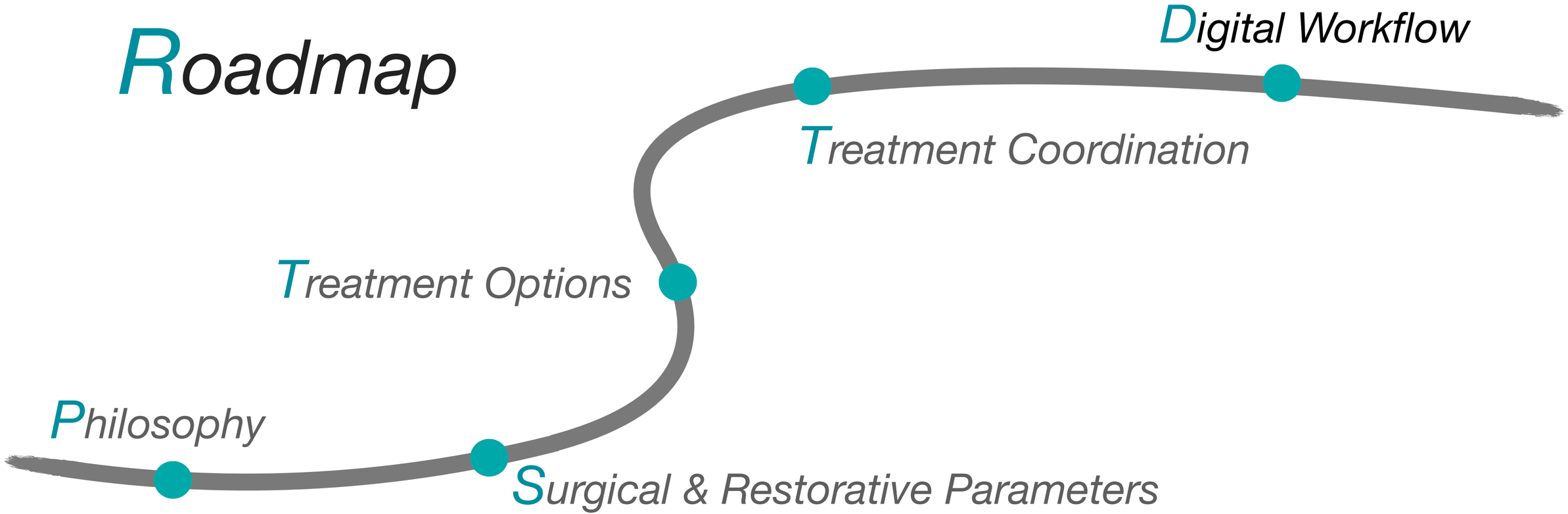
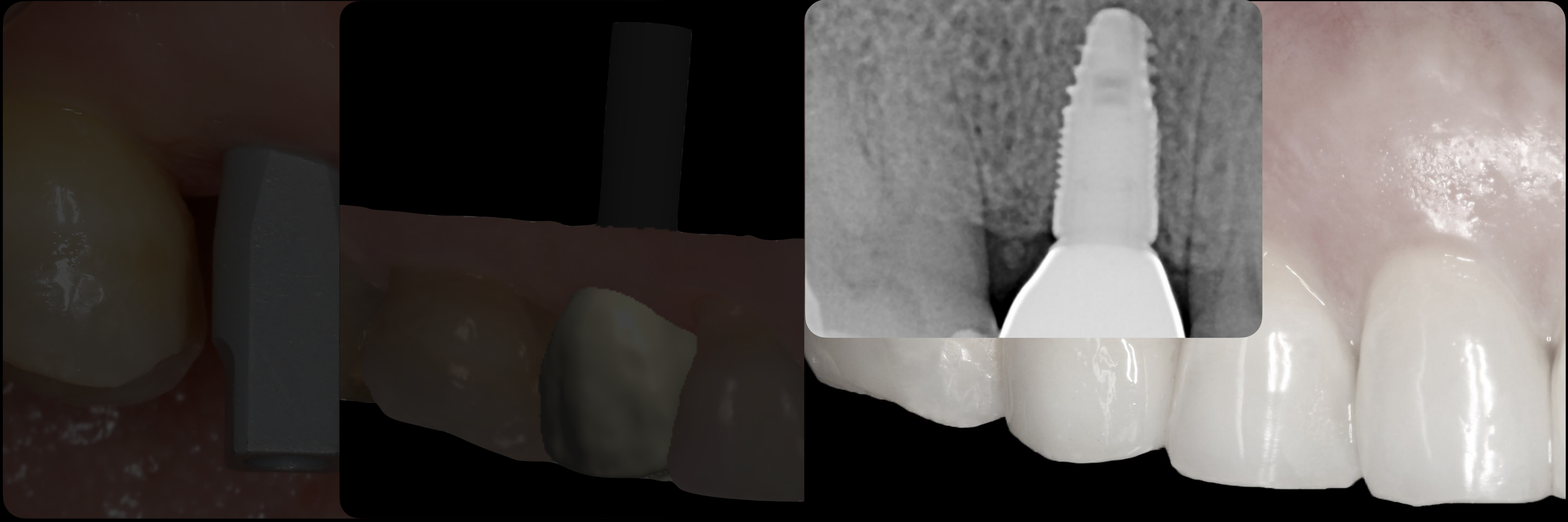
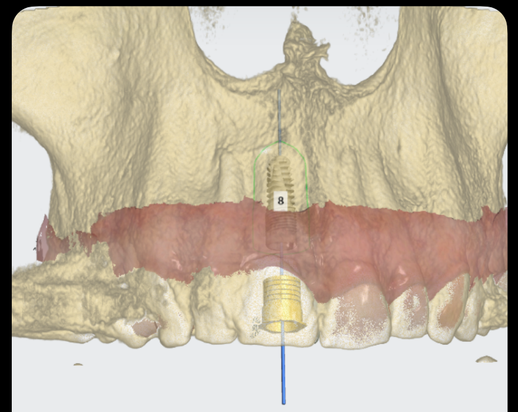
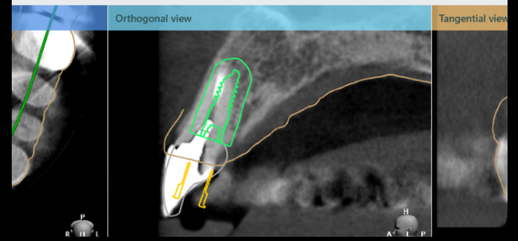
Roadmap


Digital Workflow
Treatment Coordination
Treatment Options
Philosophy
Surgical & Restorative Parameters

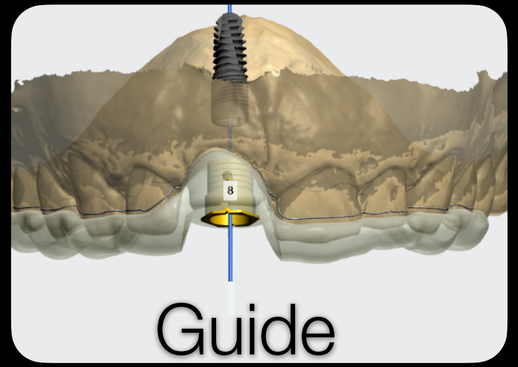



Delayed Placement
& Immediate Load

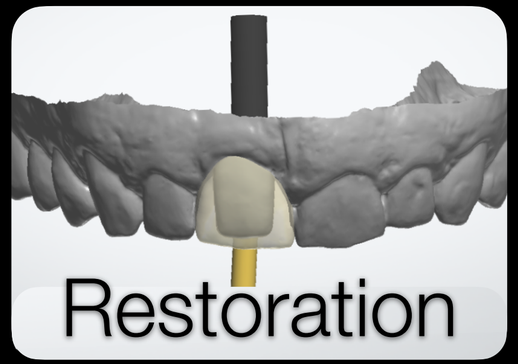




Planning



Guide

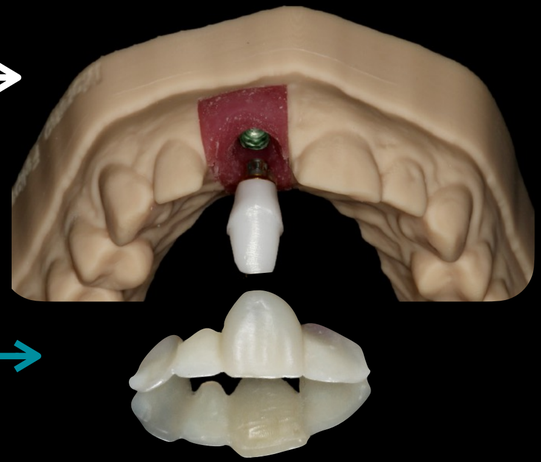


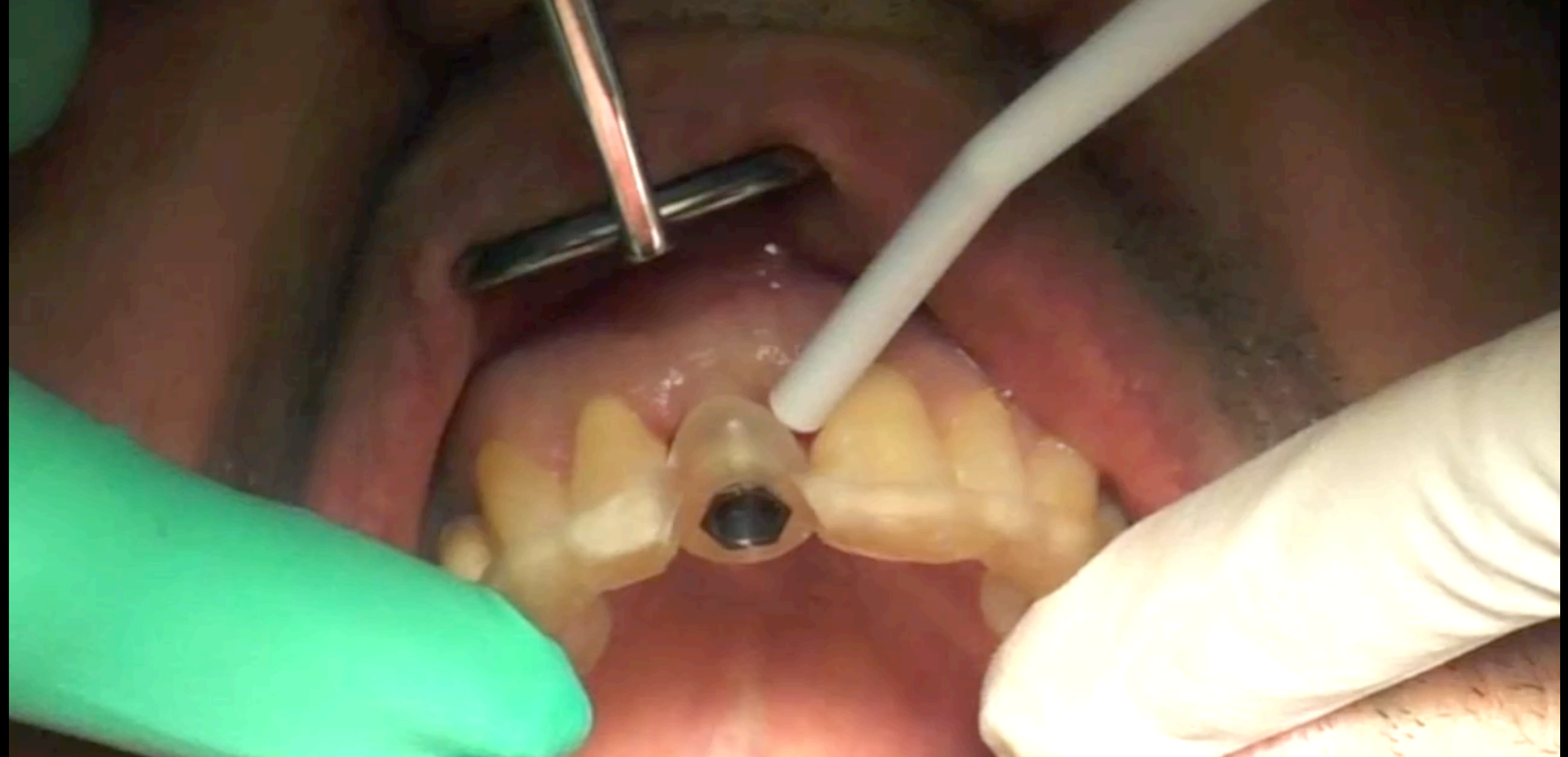
Restoration

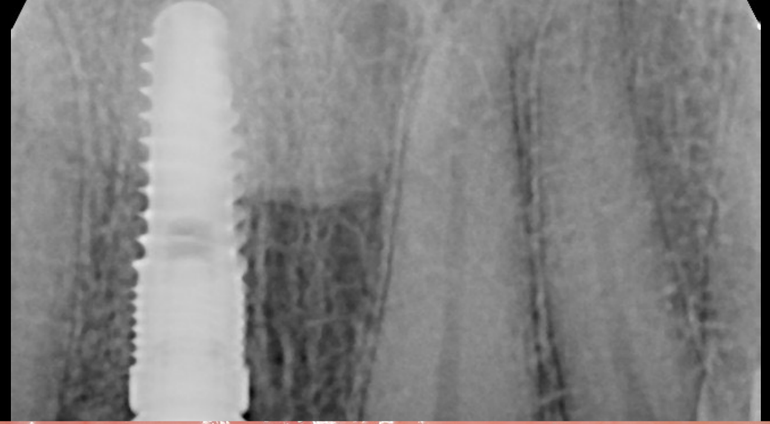
CAD

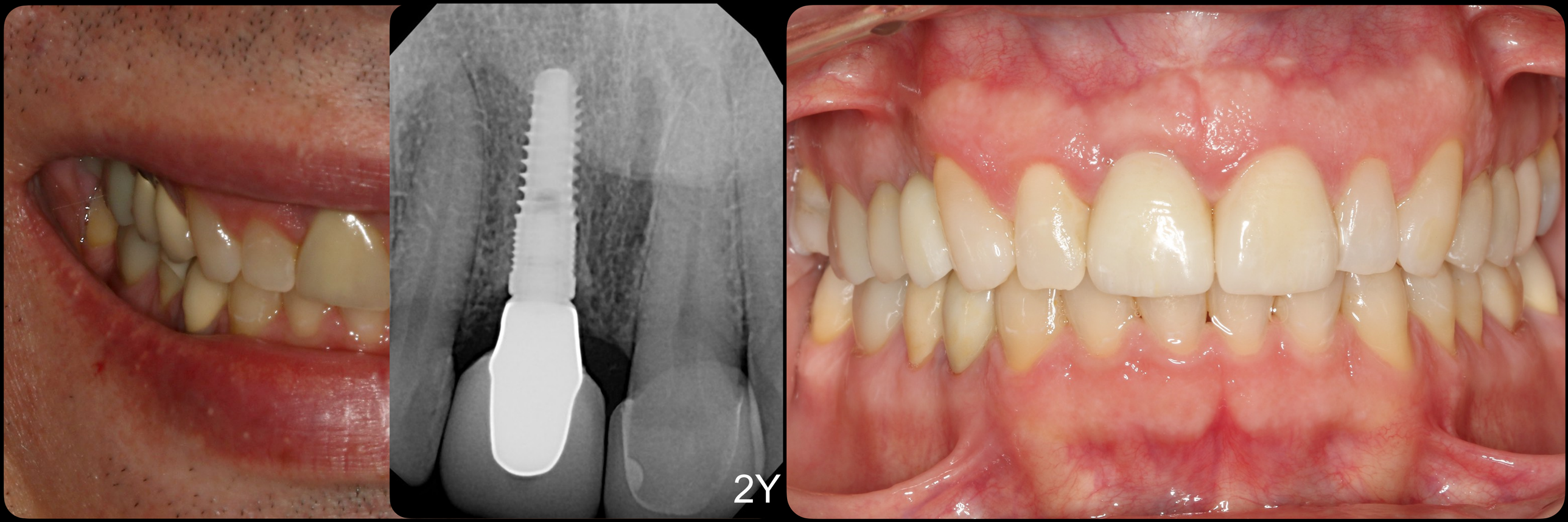
Print

Mill





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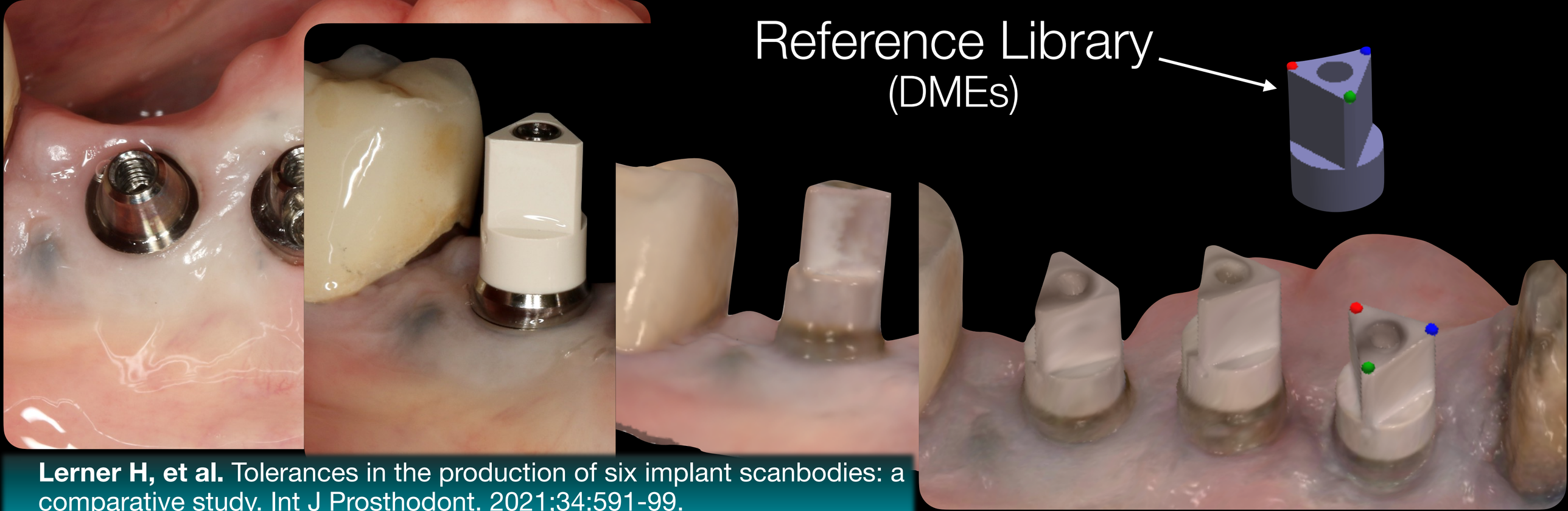
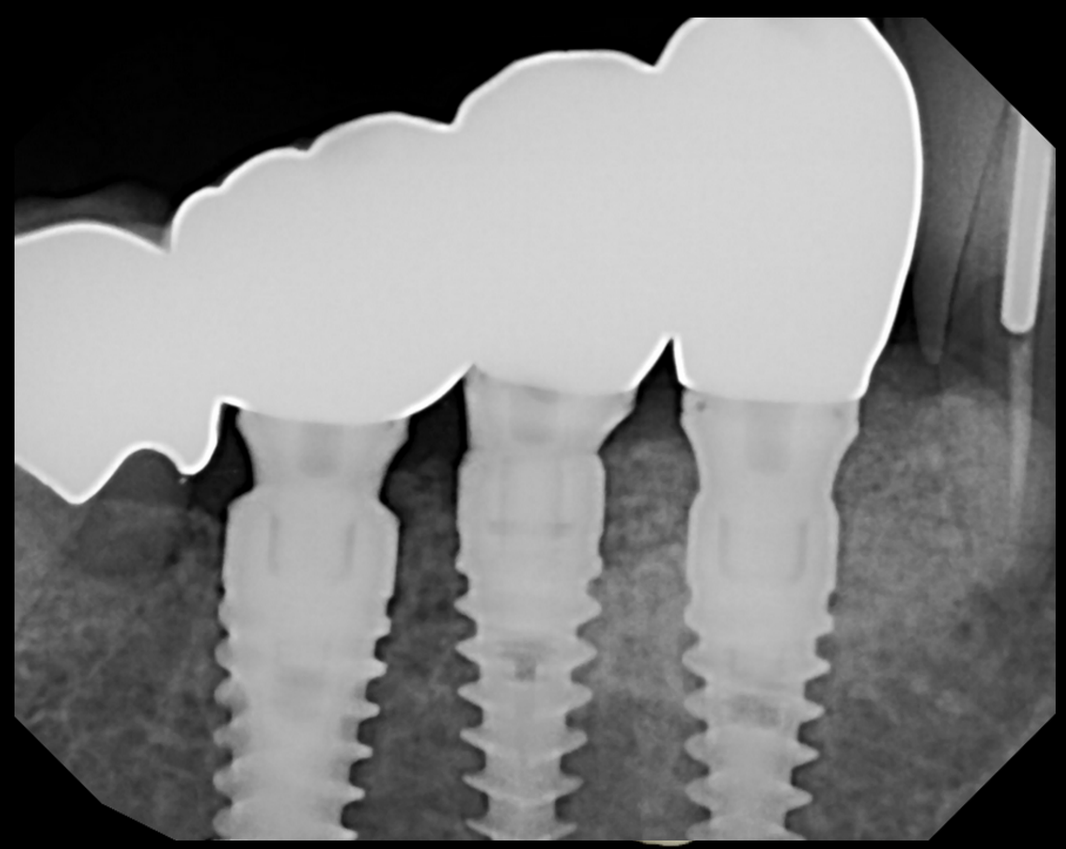
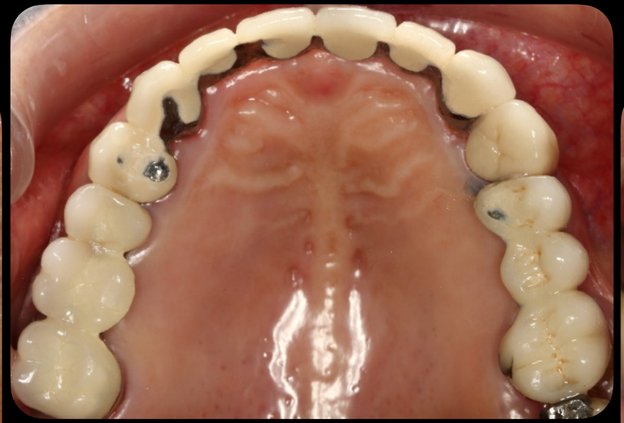
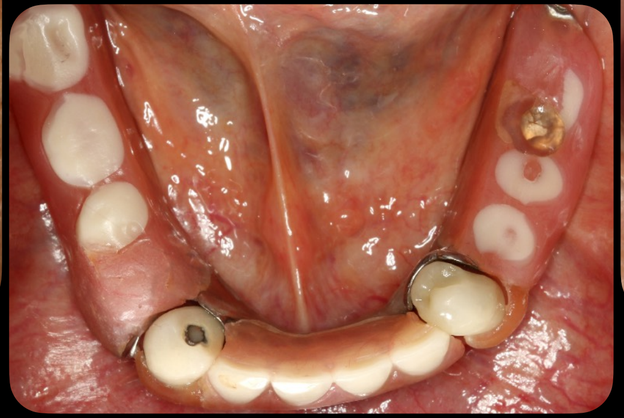


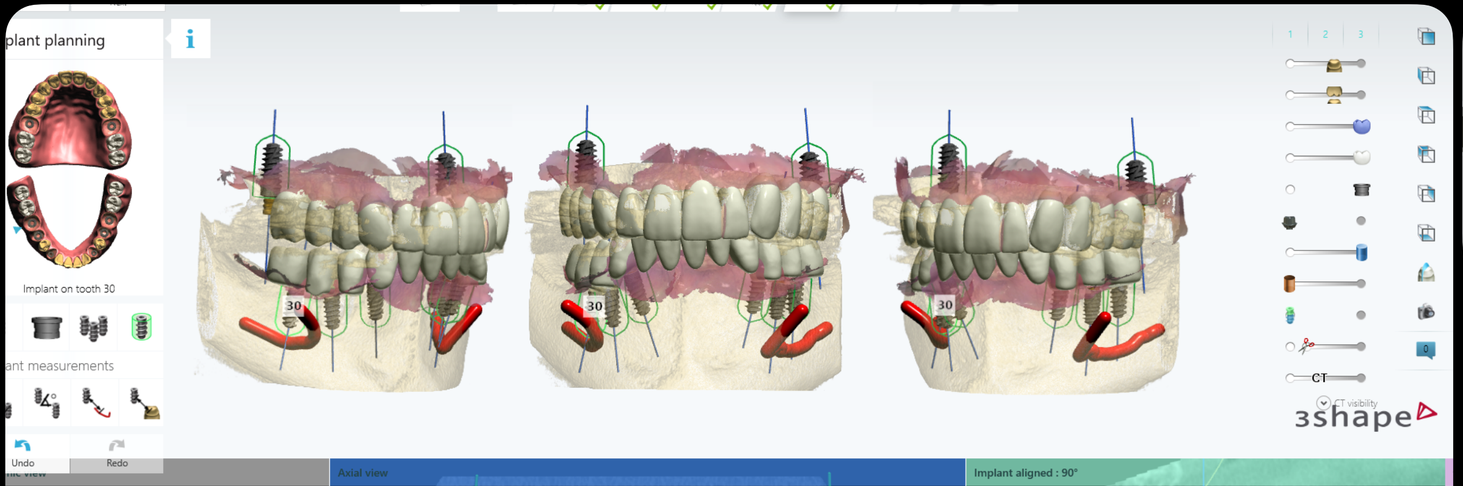
Lerner H, et al. Tolerances in the production of six implant scanbodies: a comparative study. Int J Prosthodont. 2021;34:591-99.





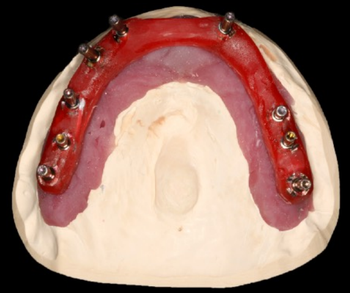


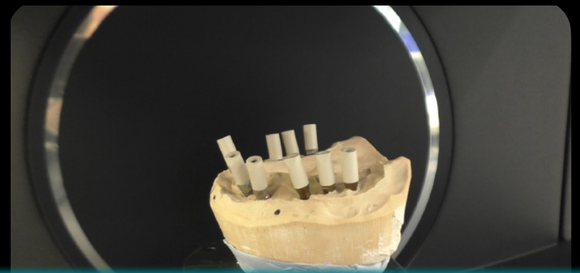
Jian



Seating Guides


Complete-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

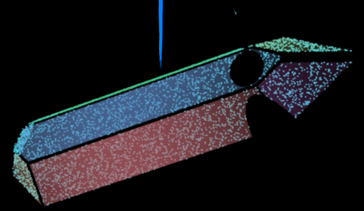
Hussein, MO. Photogrammetry technology in implant dentistry: A systematic review. J Prosthet Dent 2021;09(015):1–9.

Photogrammetry

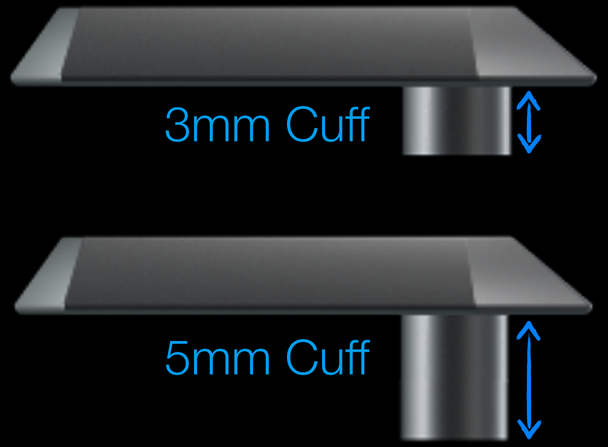
Giglio G, Giglio, A. Achieving optimal implant aesthetics using a team approach. J Prosthetic Dent Digital. Part 2. November 2023.

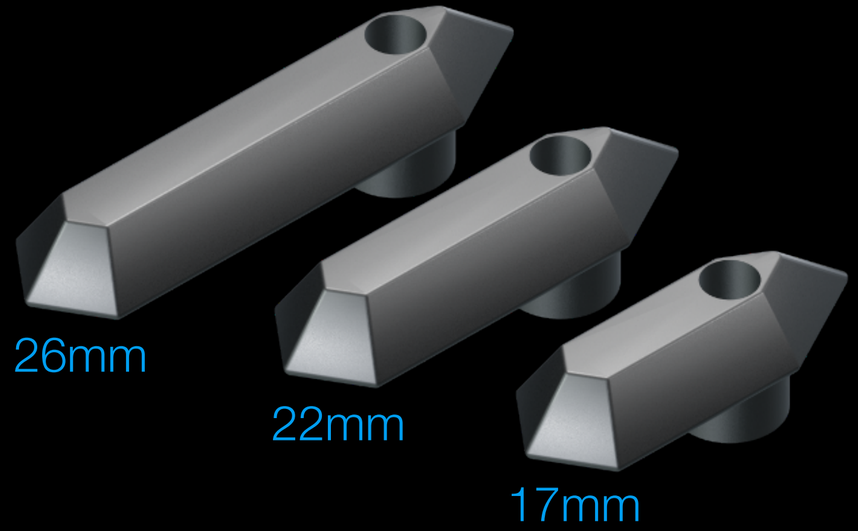
Intraoral Scan

Scan Gauges



Unique Reference Library (DMEs)



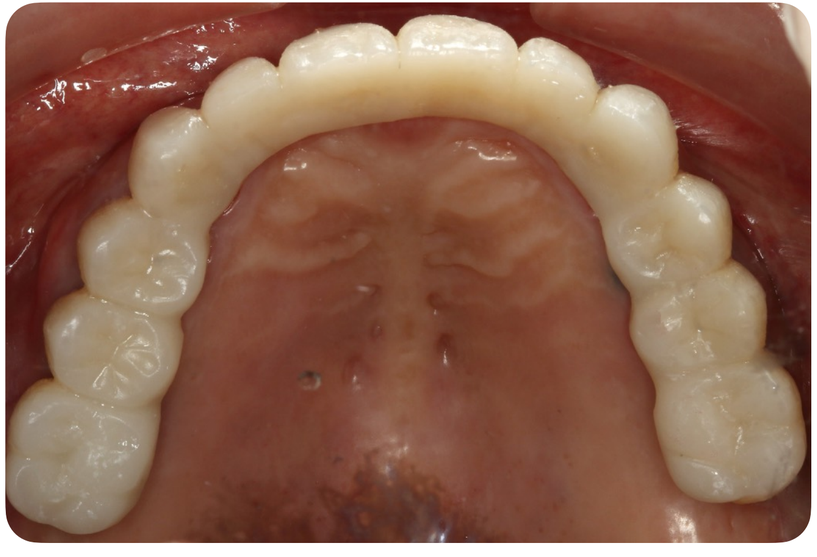


Giglio GD, Giglio AB, Tarnow DP. A Paradigm Shift Using Scan Bodies to Record the Position of a Complete-Arch of Implants in a Digital Workflow. Int J Periodontics Restorative Dent. 2023 Aug 8. doi: 10.11607/prd.6733. Epub ahead of print. PMID: 37552170.

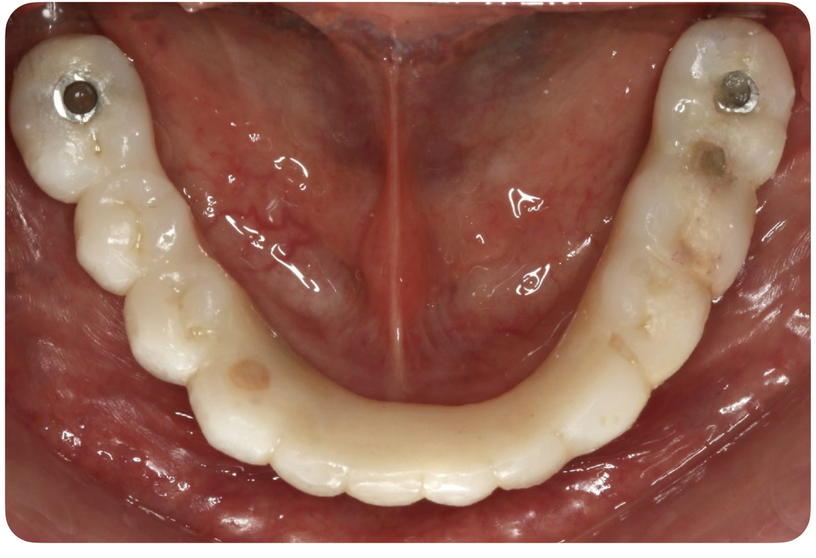
Criteria	Scan Bodies	Scan Gauges
Ease of manipulation in the oral cavity	Yes	No
Allows for easy access of IOS	No	Yes
Requires minimal IOS movement to capture implant position	No	Yes
Ability to place in tight spaces around teeth and other implants	Yes	No
Ability to register implant position & soft tissues in one scan	Yes	No
Ability to capture multiple implant positions in one IOS image	Not Always*	Yes
Ability to record adequate data points from the Z-axis	No	Yes
Reduced stitching resulting in smaller data files	No	Yes
Reduced production tolerances with individualized reference file	No	Yes
Ability to verify implant position clinically	Yes	Yes
Requires multiple data set alignment in the CAD/CAM	Yes	Yes

*The scan bodies must be in very close proximity to capture multiple implants in one IOS image.

Set 1. Provisional Scans



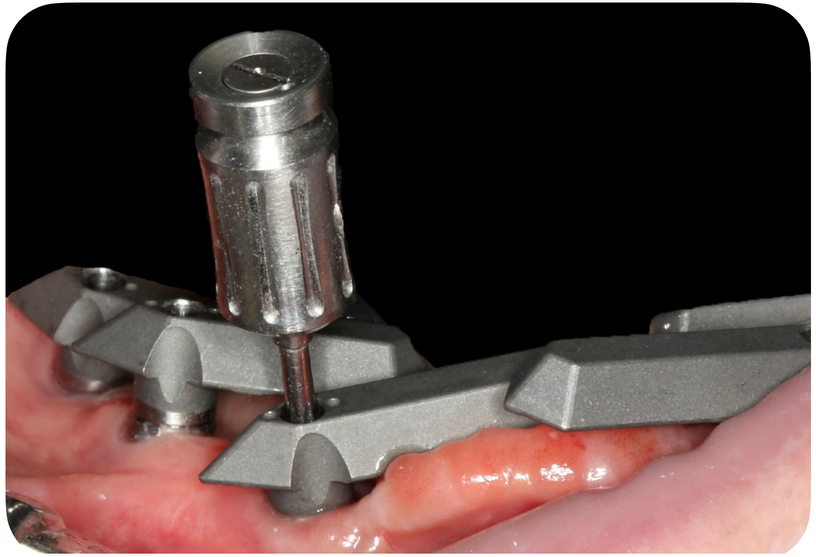
Opposing



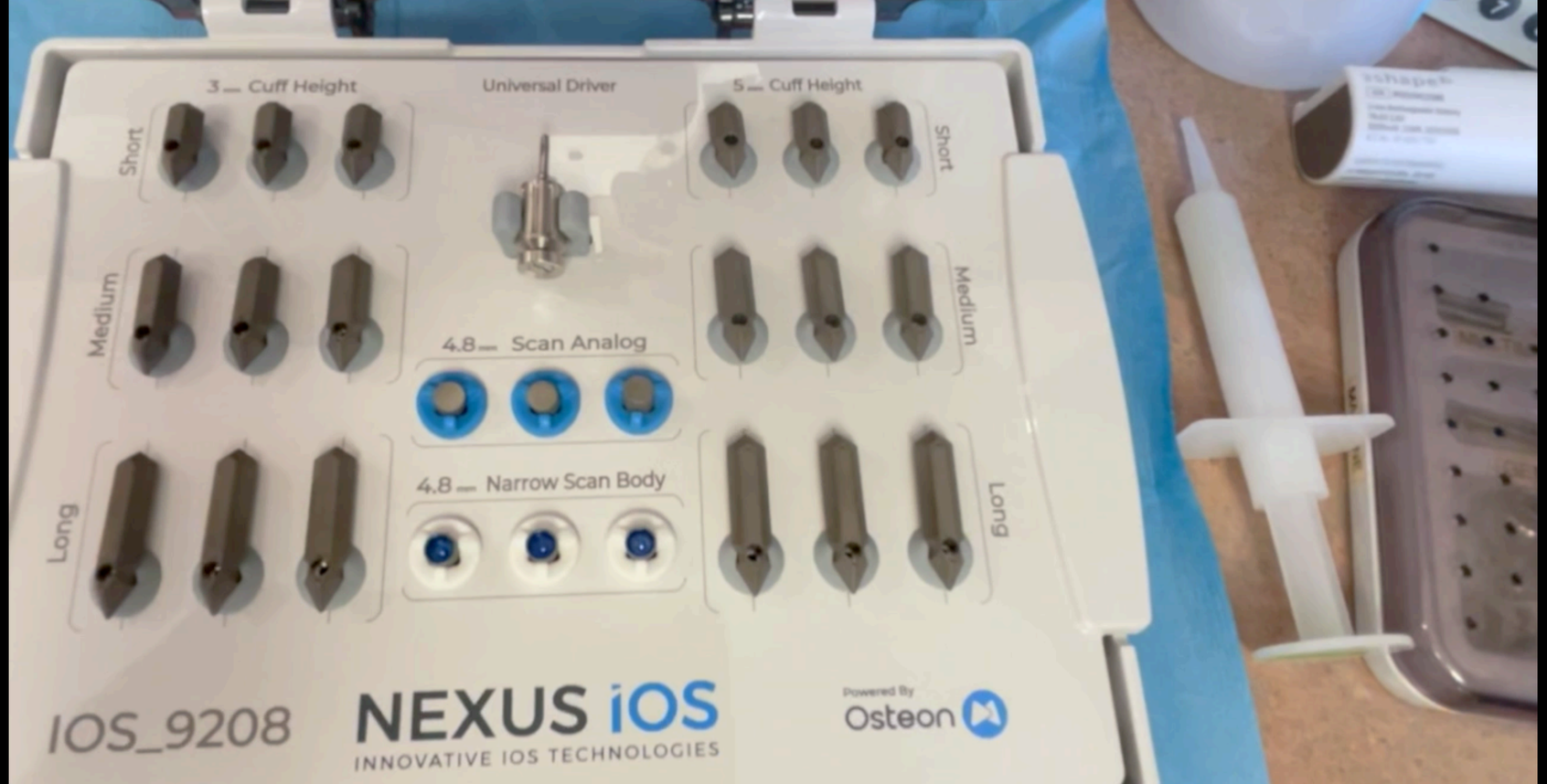
Working

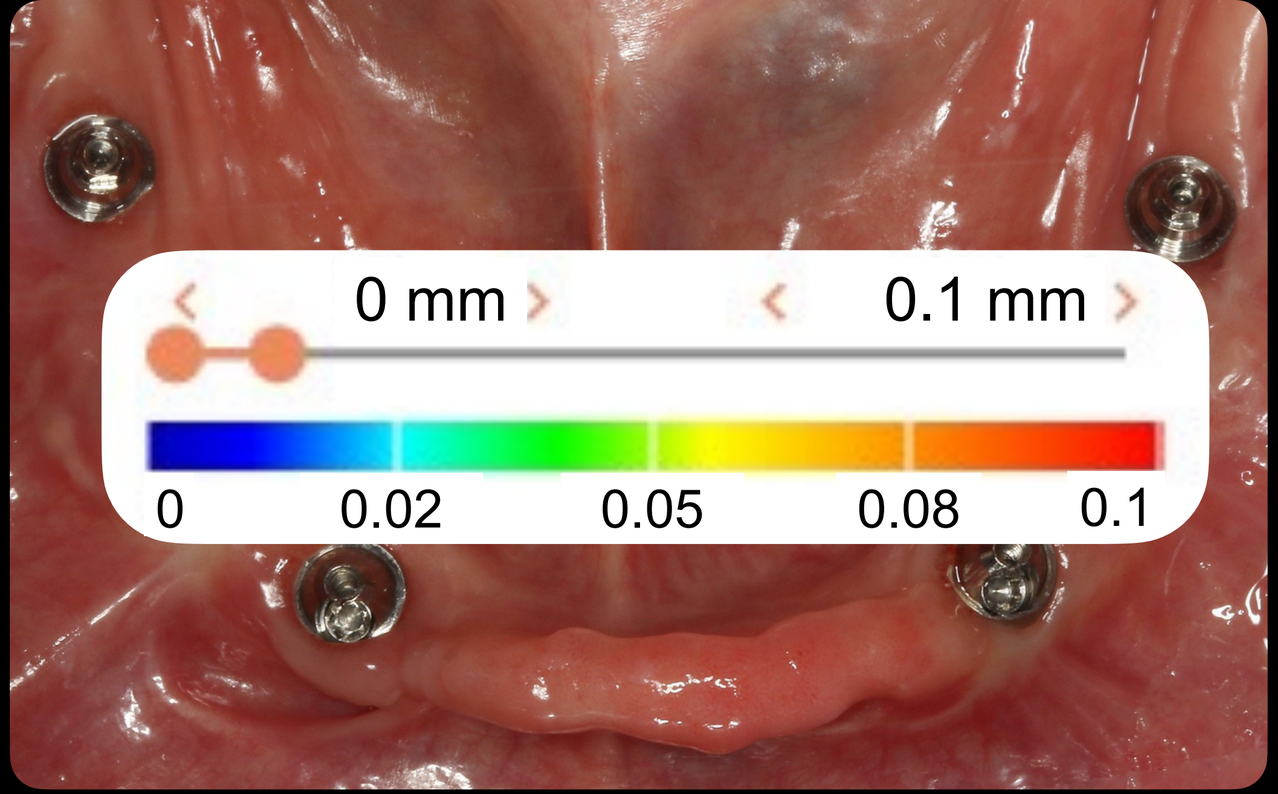
MIP (Rt & Lt)

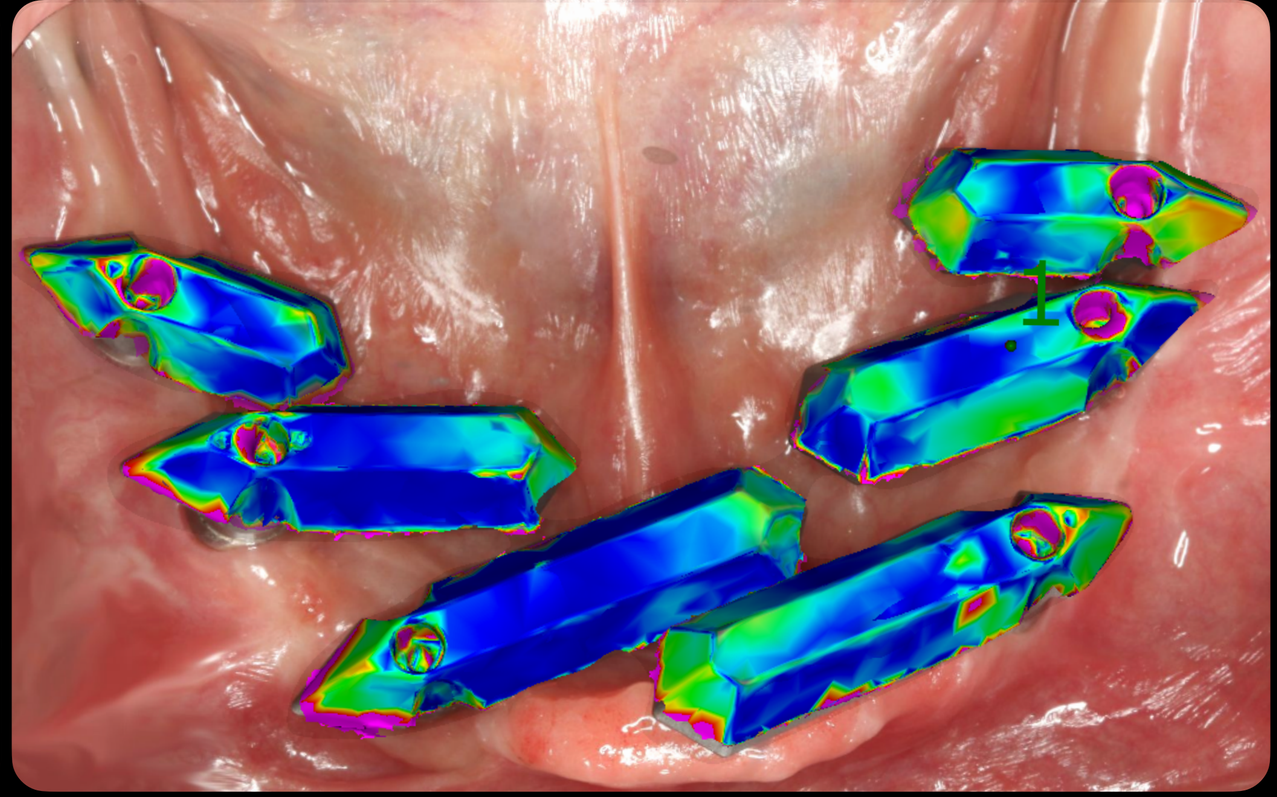
Set 2. Gauge Scans



Placement


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


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 △


Tissue Scan

Scan Sets

1

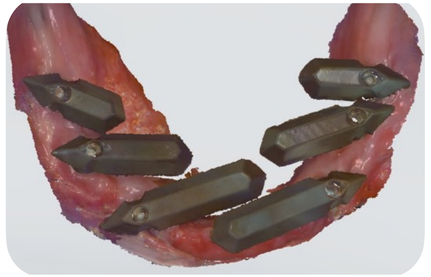
Opposing

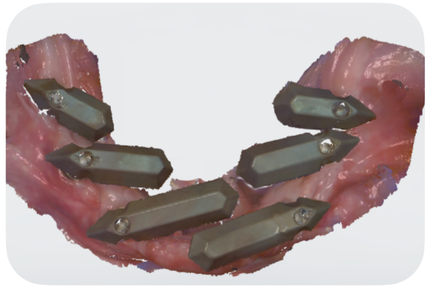
Right MIP

Working

Left MIP

2

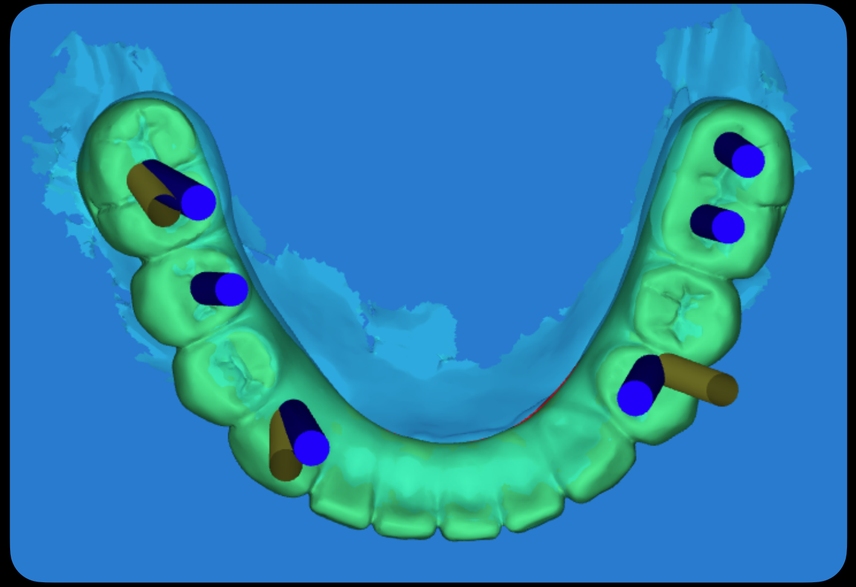




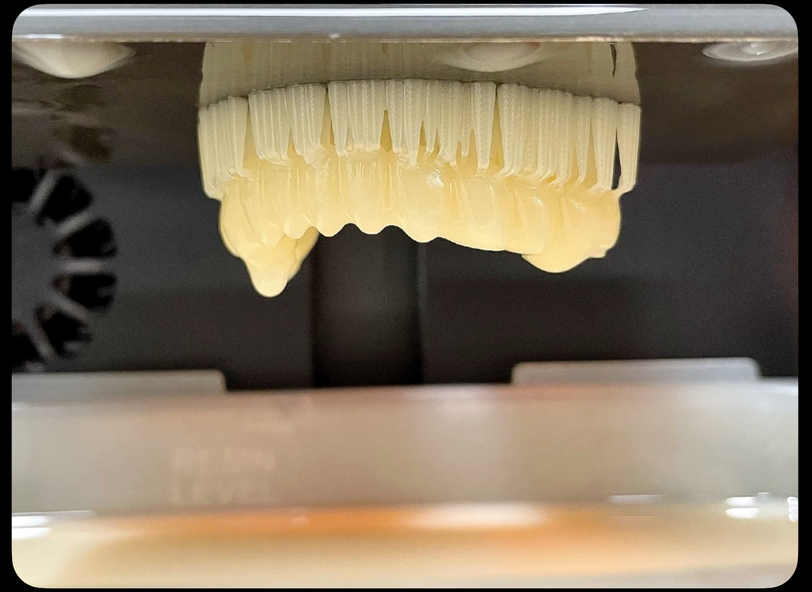
3

Soft Tissue

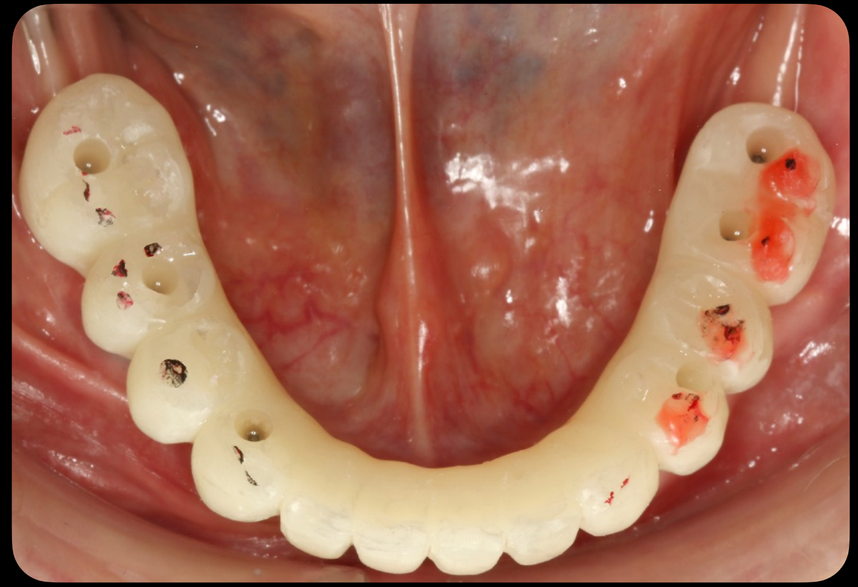
Extraoral



Digital Prosthetic Design



3D Printed



Try-in Prototype

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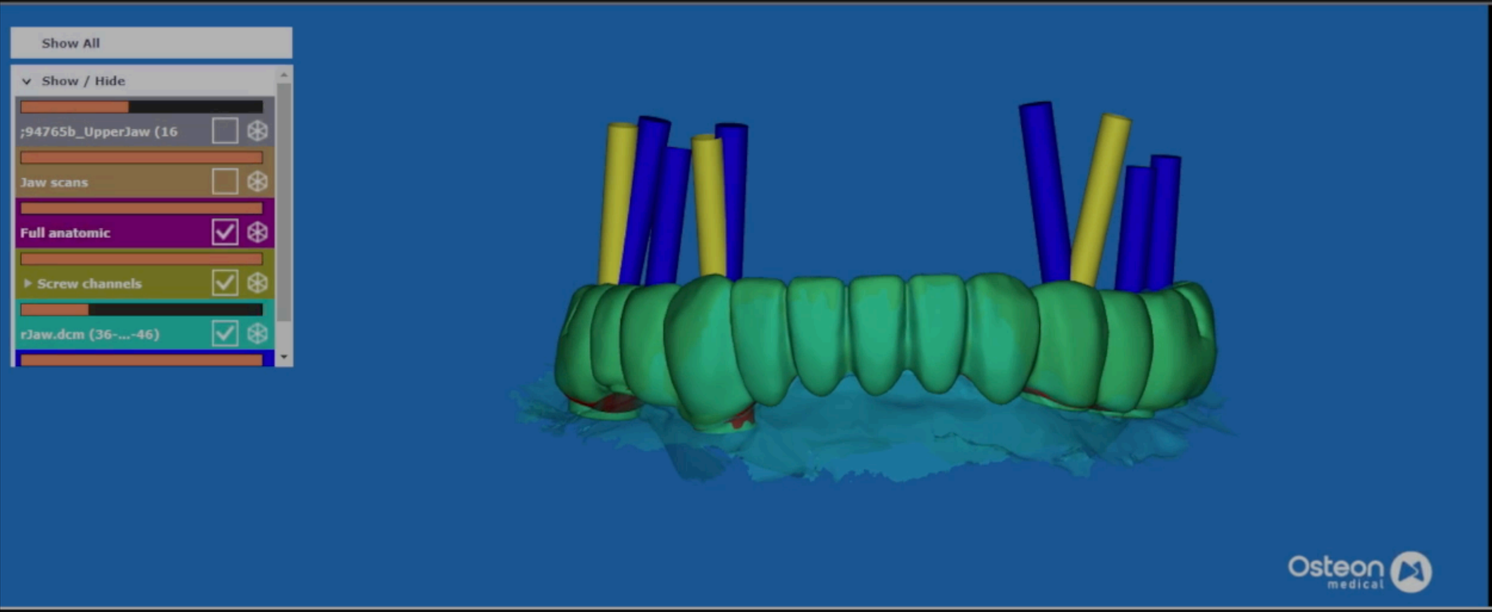
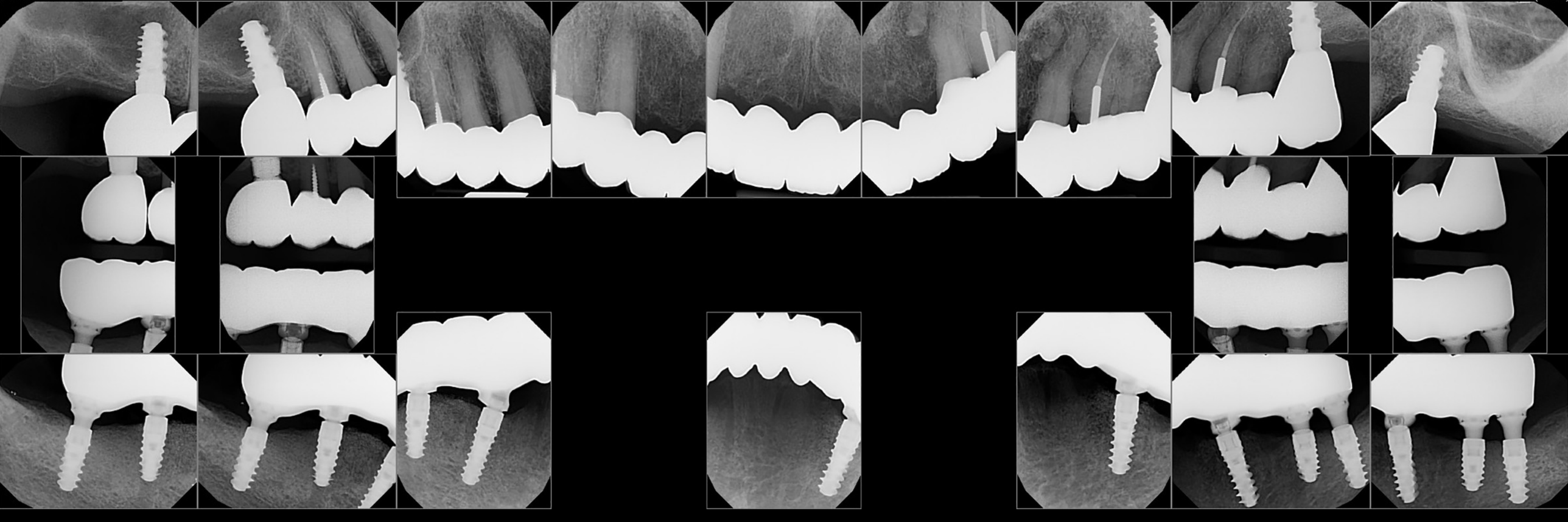


7c9a91_Hsiao_J_326_1600.JPG

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

Achieving optimal implant esthetics using a team approach Part 1 a review of evidence-based criteria in implant treatment

Graziano D. Giglio DDS,[a] and Ana Becil Giglio, DDS[b]

SUMMARY

This video presentation focused on improving the esthetic re-

ABSTRACT

As dental implants have evolved into a universally accepted treatment option, it is essential to identify nuances of the peri-implant complex and their impact on treatment given the increasing evidence of peri-implantitis and implant loss. A thorough knowledge of anatomy and biology, careful

JPD DIGITAL

Achieving optimal implant esthetics using a team approach: Part 2 treatment options, treatment coordination, and integration of digital technology

Graziano D. Giglio, DDS, and Ana Becil Giglio, DDS

Ana Becil Giglio, D.D.S.
dra@gdental.com

@gdental_nyc

Graziano D. Giglio, D.D.S.
dr@gdental.com