AIE
Advanced Implant Educators

TBS INOX USA®

For Lifetime Smiles MINEC MegaGen Implant Co., LTD.

Immediate Implantation & Partial Extraction Therapy

Vertical sectioning

SLOWDENTISTRY®

Isaac Tawil DDS MS

NYU COLLEGE OF DENTISTRY
NEW YORK UNIVERSITY


We can preserve quality of life
While preserving & enhancing esthetics
1
2
3
4
5. None of these
AIE
Advanced Implant Educators


AIE
Advanced Implant Educators

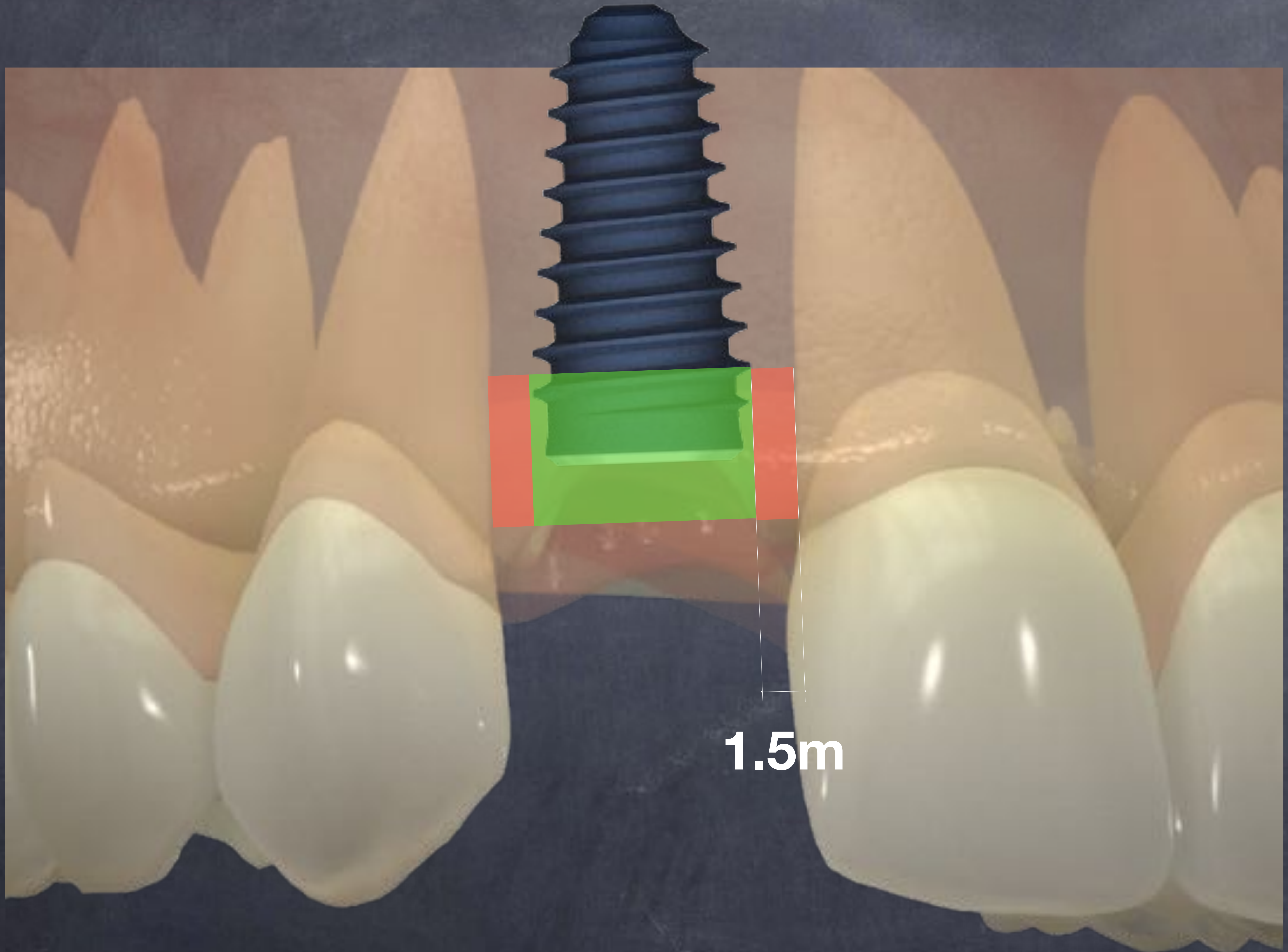

Treatment for Success
Increase efficiency
Maximize profitability
Reduce surgical treatment
=
Enhance patient experience

PROPER 3D POSITION

Prostheticly
Driven
Crown Down
Philosophy


Keep your perspective
Dont miss the forest for the trees

Distance from Natural Tooth



Mesio-distally: The implant should be at a distance of 1.5 mm from the adjunct teeth. This is the minimal distance although there are some articles that even showed that 2 mm would be an improvement (Gastaldo 2004).

Apico-coronally: This distance should be 3-4 mm distance from the gingival margin of the future restoration. In immediate implants the reference is the gingival distance of the removed teeth. If there is no teeth previously, a wax- up should create a reference of the future restoration.

Apico-coronally: This distance should be 3-4 mm distance from the gingival margin of the future restoration. In immediate implants the reference is the gingival distance of ... no teeth previously, a ... ref ... n.

Apico-coronally: This distance should be 3-4 mm distance from the gingival margin of

of

ref

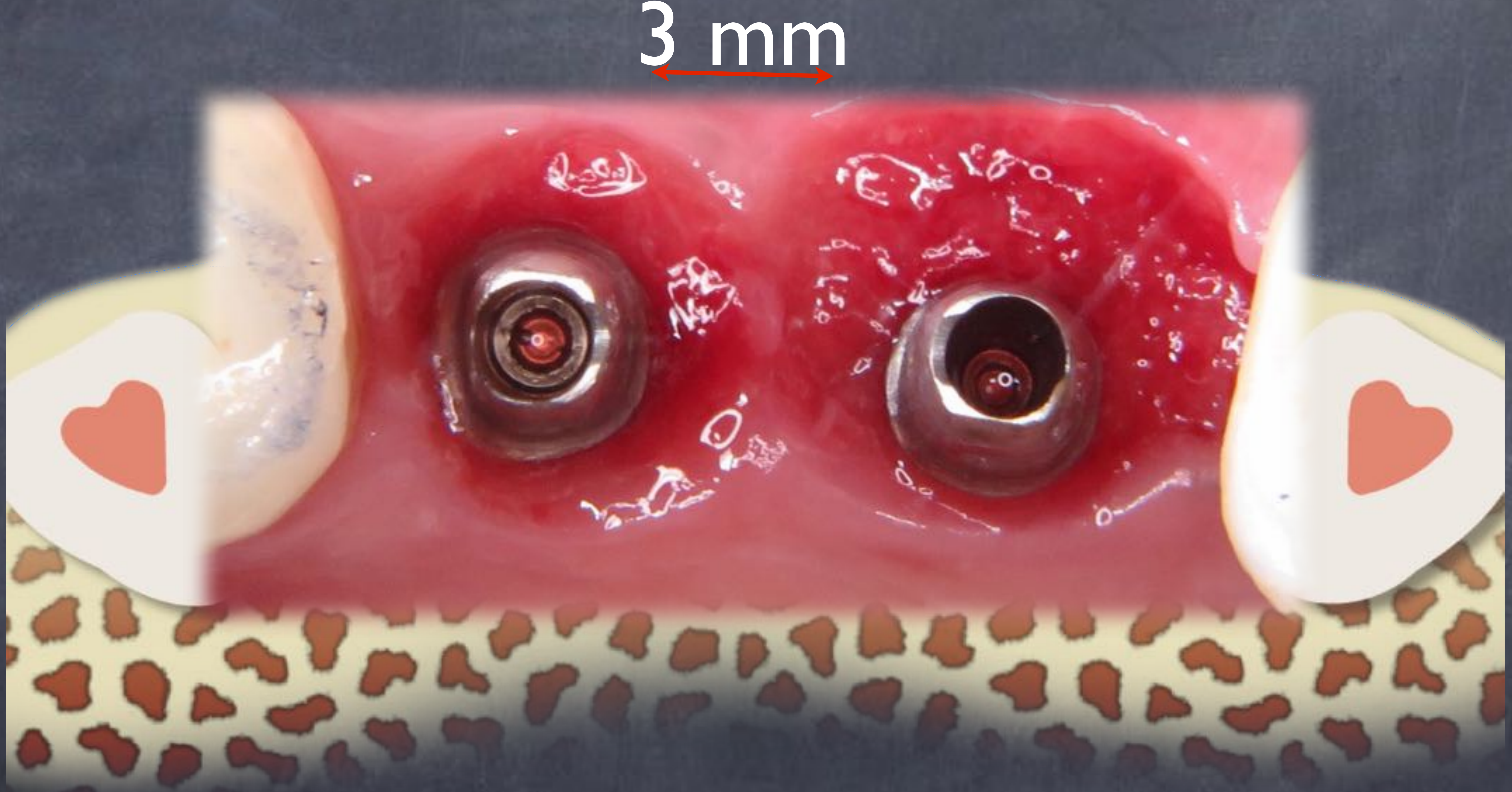
Inter-implant Distance: The minimum distance between 2 implants to retain vertical and horizontal hard and soft tissue 3mm at the implant-abutment level(Tarnow,Cho, Wallace J Perio 2000).

Allows vascularity to papilla and osseous crest

Emergence Profile

Inter-implant Distance: The minimum distance between 2 implants to retain vertical and horizontal hard and soft tissue 3mm at the implant-abutment level(Tarnow,Cho, Wallace J Perio 2000).

Allows vascularity to papilla and osseous crest



Emergence Profile

Timing of Implant placement in relation to tooth extraction

Approach

Type 1	→	Immediately following tooth extraction
Type 2	→	Complete soft tissue coverage of the socket
Type 3	→	Substantial radiographic bone fill of the socket
Type 4	→	Fully healed ridge

Hammerle et al. 2004

Timing of Implant placement in relation to tooth extraction

Approach

Type 1

Type 2

Type 3

Type 4

Each has advantages and disadvantages but each is suitable for specific clinical situation

Hammerle et al. 2004

Timing of Implant placement in relation to tooth extraction

Approach

Type 1		**Immediate**
Type 2	Which one of these is more appropriate when an anterior tooth needs to be replaced by an implant ?	**Early** (6-8 weeks)
Type 3		**Delayed** (12-18 weeks)
Type 4		**Late** (above 18 weeks)

Hammerle et al. 2004

Timing of Implant placement in relation to tooth extraction

Still remains a controversial issue

Nemcovsky CE, et al. 2002

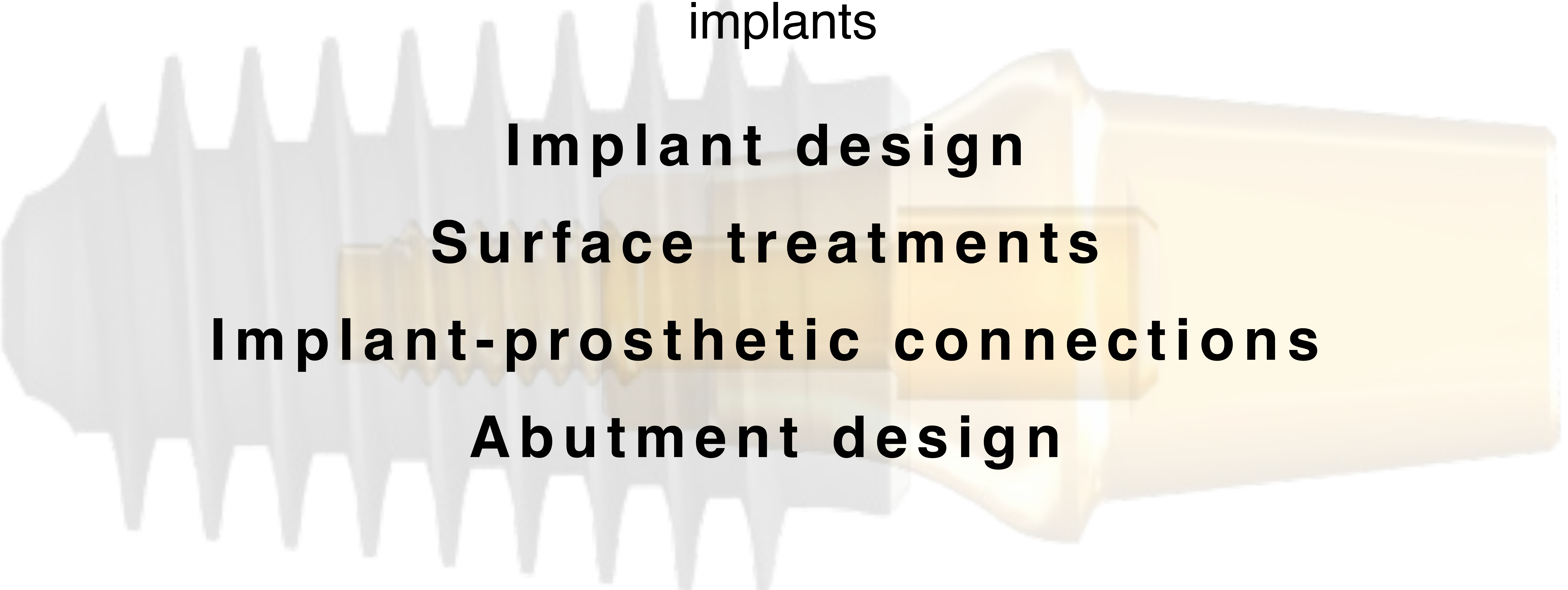
Chen ST, et al. 2007

Kan JYK, et al. 2007

Evans CJD, et al. 2008

"Immediate implant placement has a *greater risk* of facial marginal defect and gingival recession *compared* to early or delayed placement"

Over the years, many solutions have been proposed in order to improve the clinical performance of dental implants



Implant design

Surface treatments

Implant-prosthetic connections

Abutment design

Impact of Dental Implant Surface Modifications on Osseointegration. Smeets R, Stadlinger B, Schwarz F, Beck-Broichsitter B, Jung O, Precht C, Kloss F, Gröbe A, Heiland M, Ebker T, Biomed Res Int. 2016

Immediate Implants Benifits

Minimally Invasive and More Efficient

less surgery
less trauma
less pain
less morbidity

faster
better esthetic
increased preservation
function

What happens if you do delay

What happens if you do delay

Classification of Molar Extraction Sites for Immediate Dental Implant Placement: Technical Note

Richard B. Smith, DDS[1]/Dennis P. Tarnow, DDS[2]

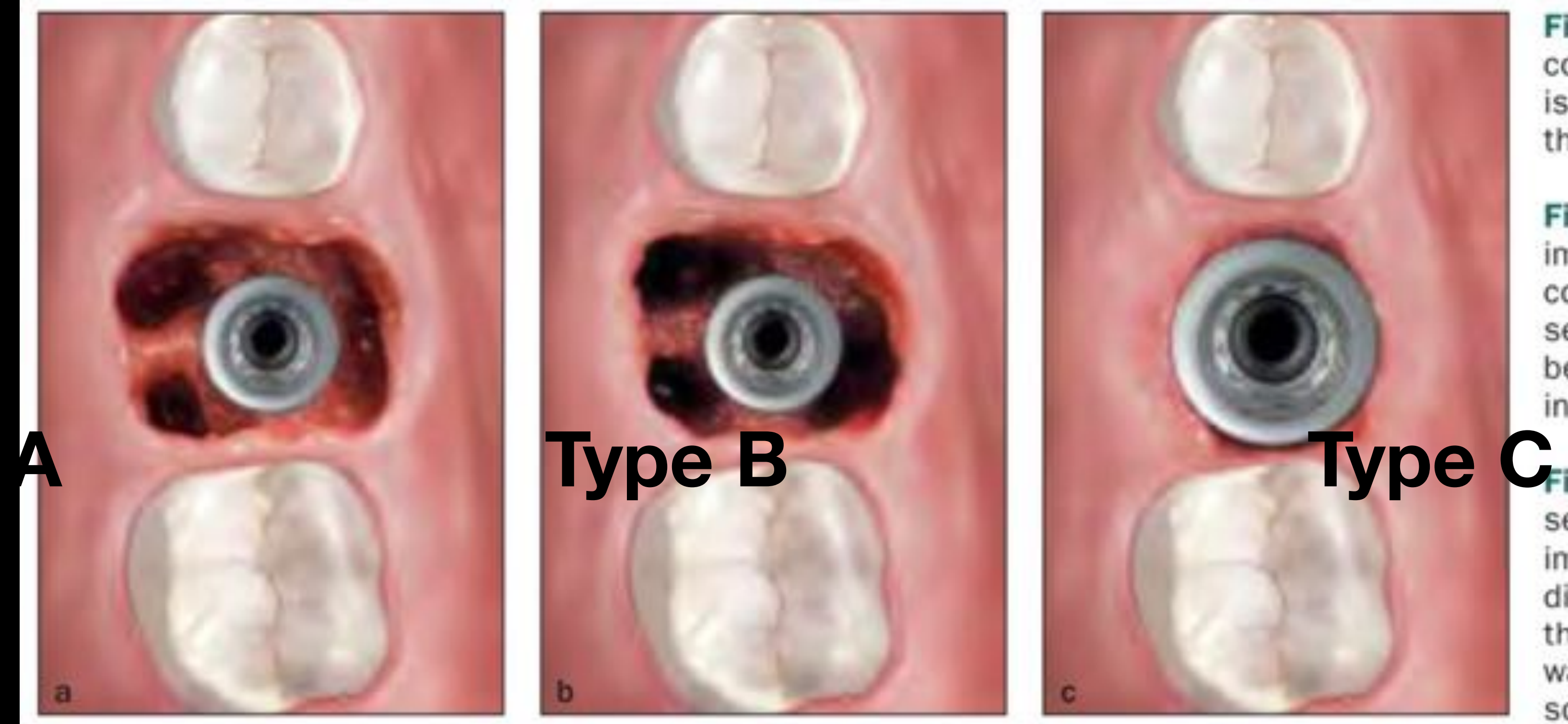


Fig 1a Type A socket. The coronal portion of the implant is completely contained within the septal bone.

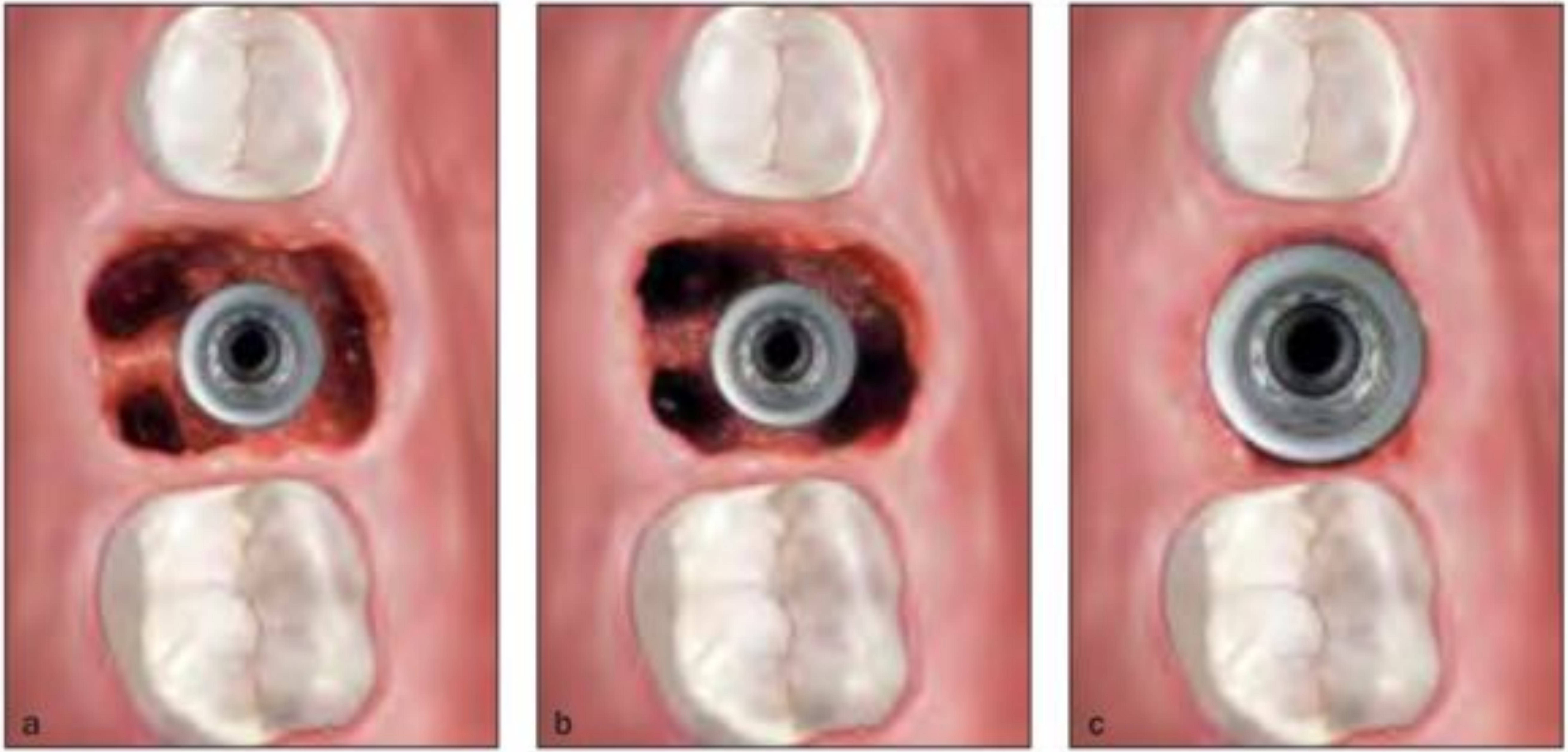
Fig 1b Type B socket. The implant is stabilized but not completely contained by the septal bone; a gap is present between the implant and the inner socket walls.

Fig 1c Type C socket. No septal bone is available for implant stabilization. A wide-diameter implant must engage the inner aspects of the socket walls and/or bone apical to the socket to be stable.

Fig 2 *(left)* Maxillary first molar sectioned prior to extraction.

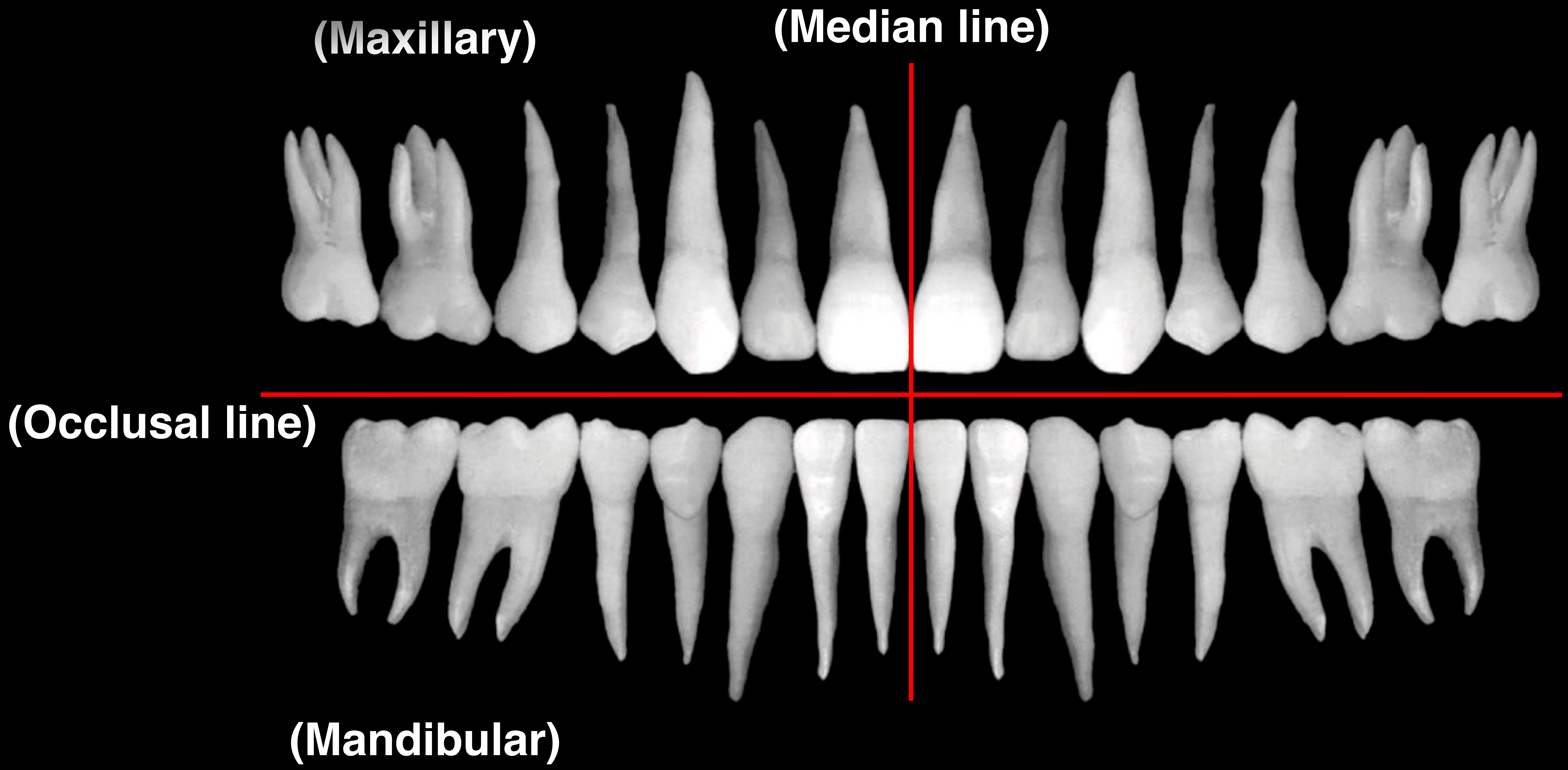
Fig 3 *(right)* Implant placed in the septal bone and at the base of the root trunk/top of the furcation results in adequate running room for proper prosthetic emergence profiles.

Immediate for Molars



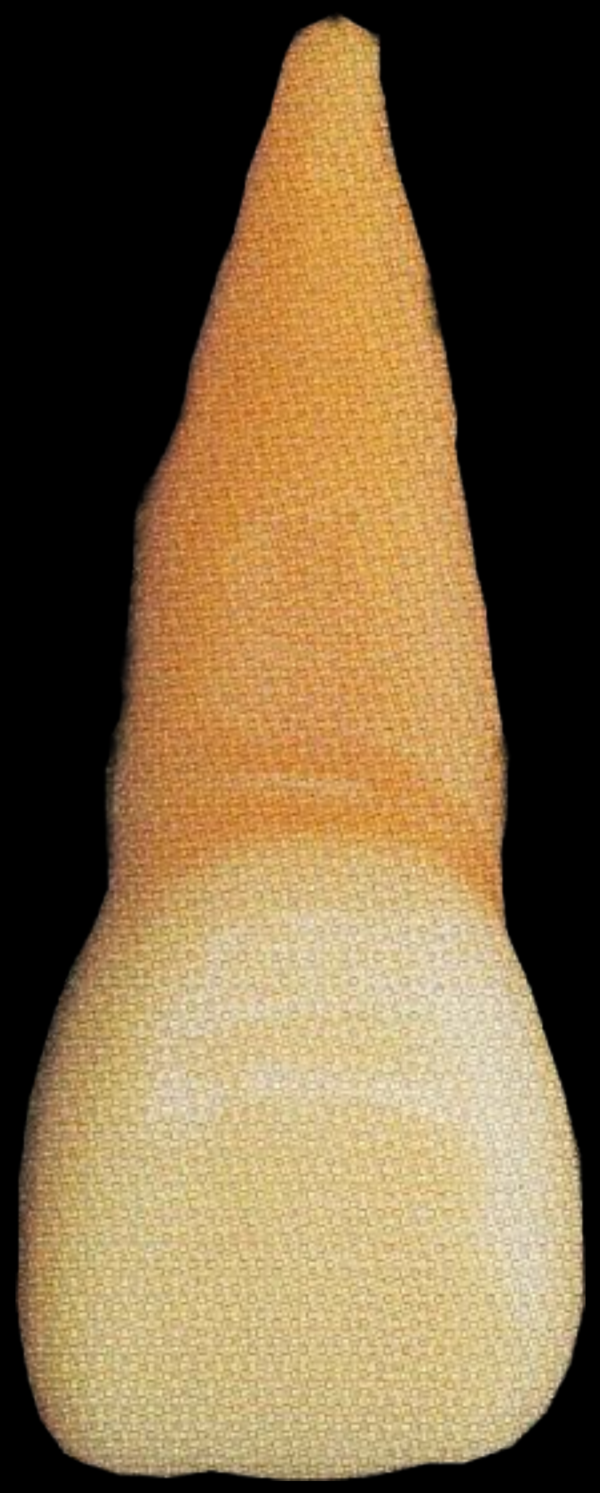

The human surgical guide
for Immediate Molars

Tooth Morphology

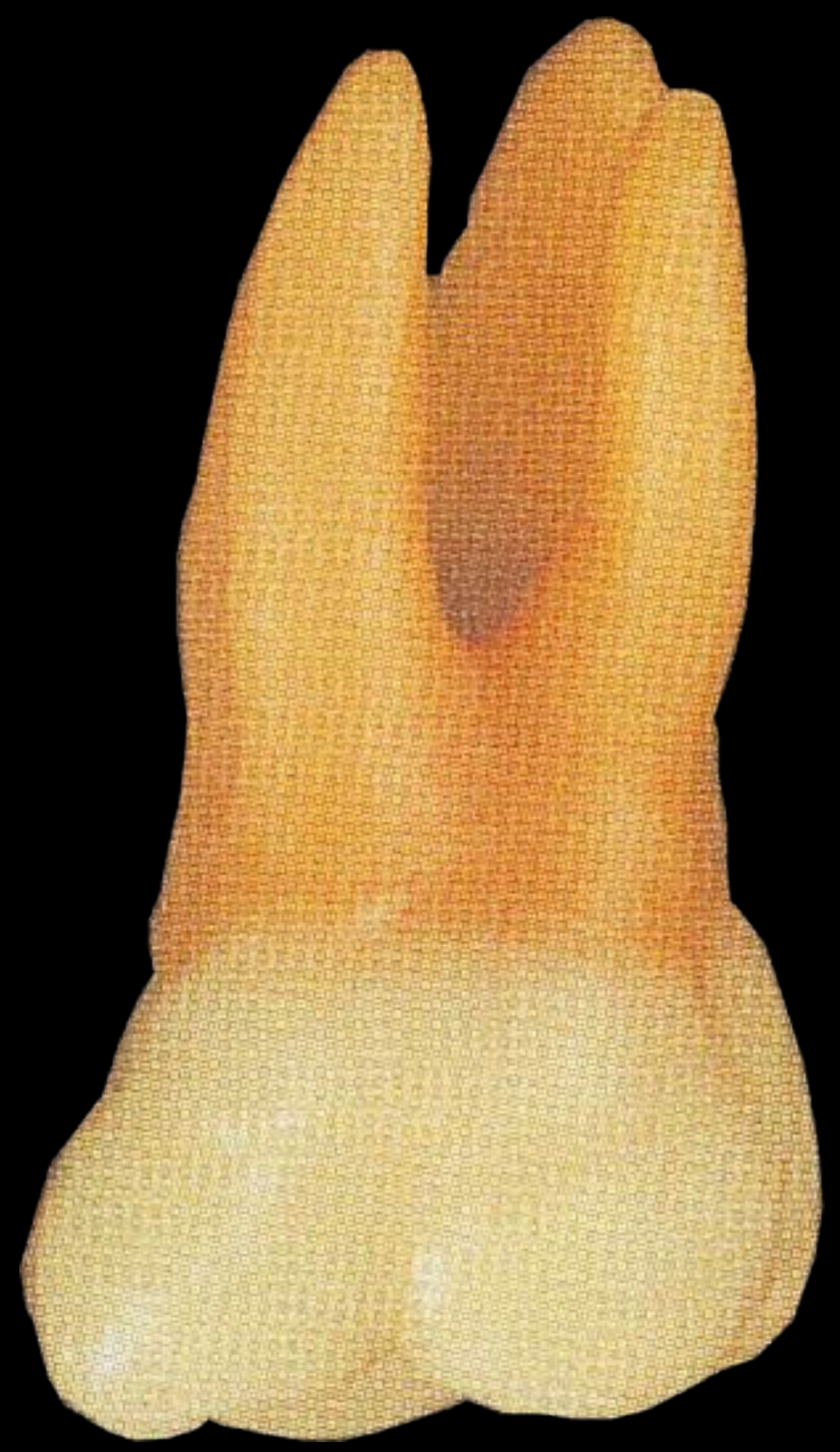


Tooth Morphology

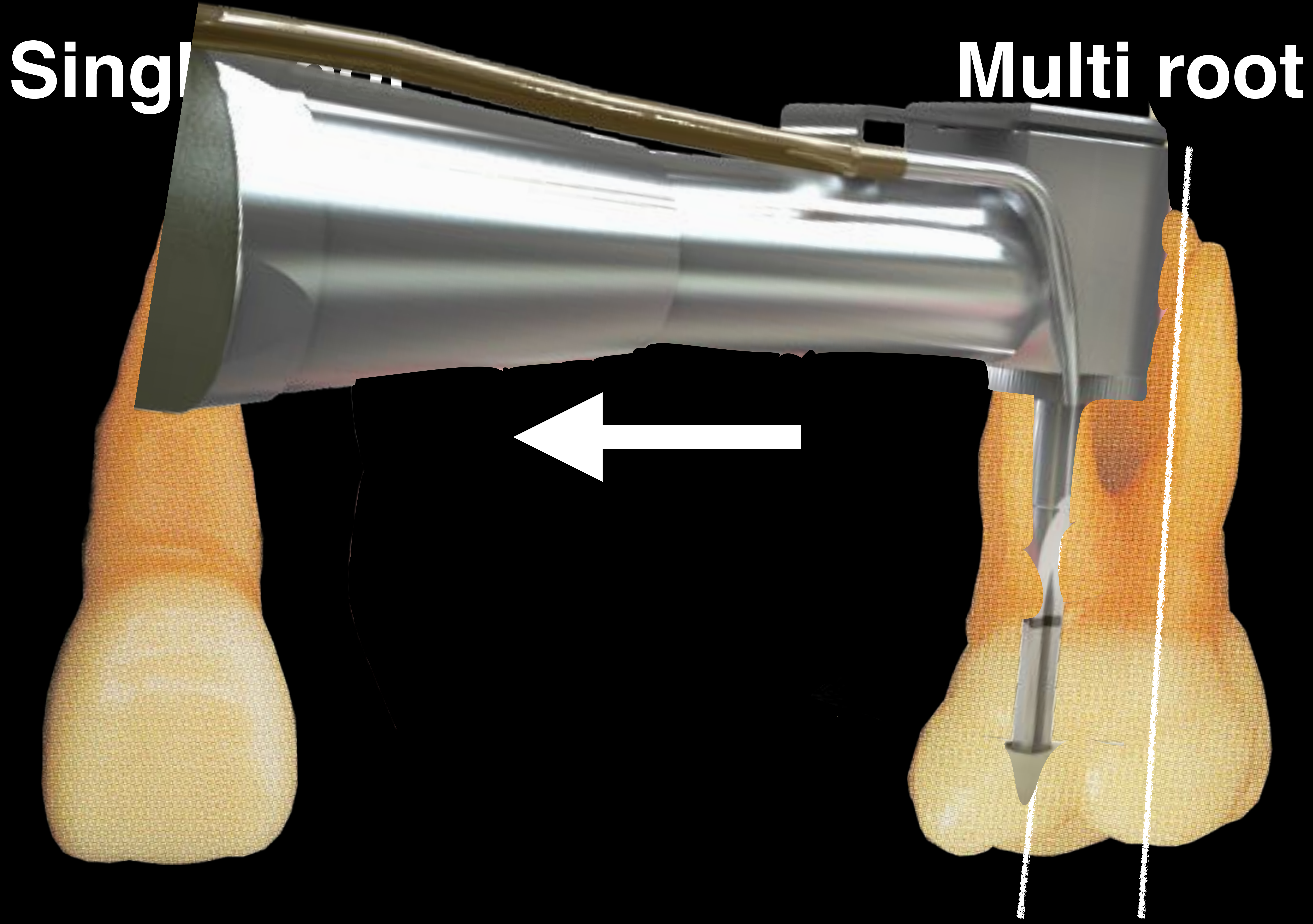
Single root



Multi root

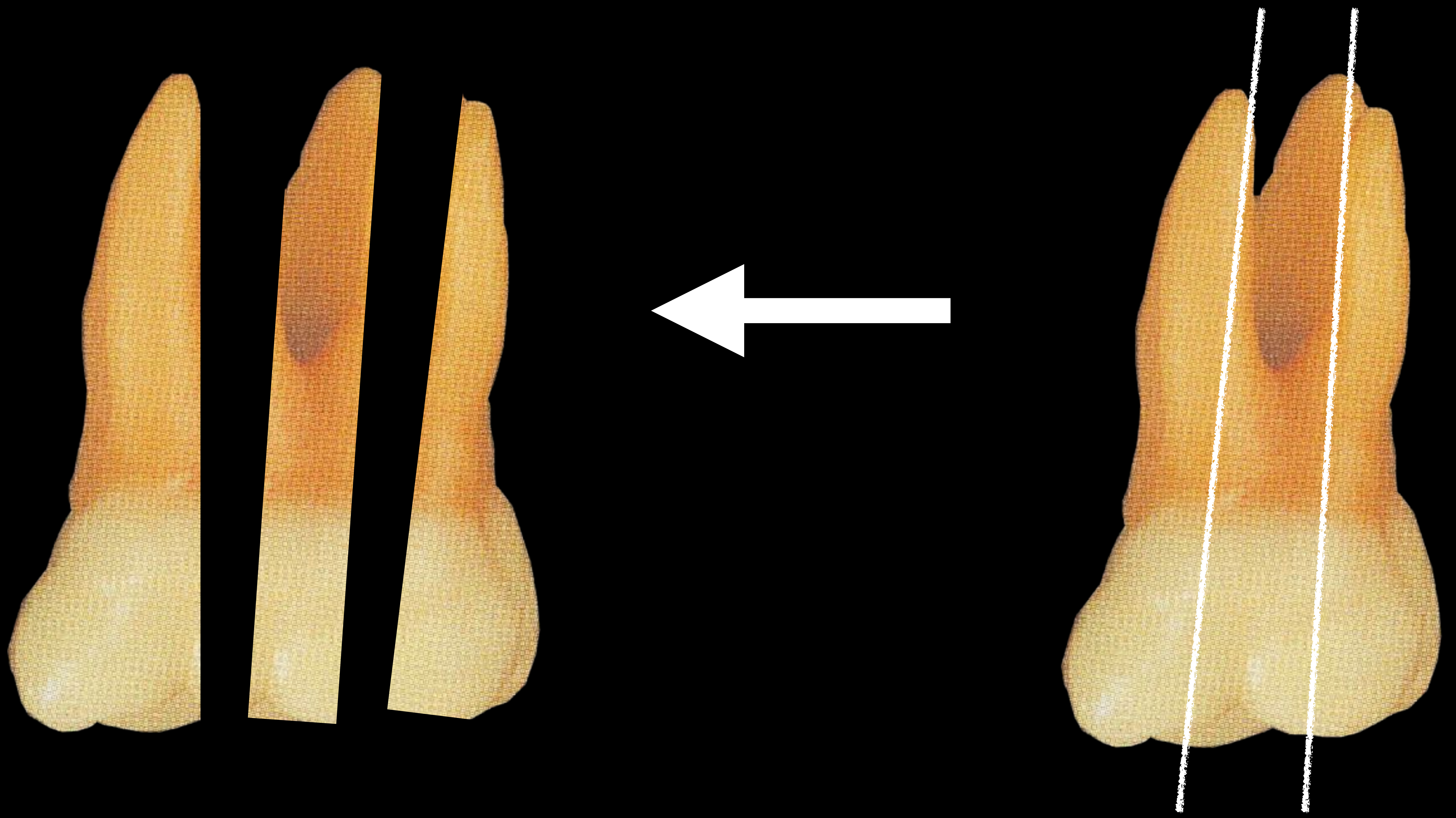


Tooth Morphology



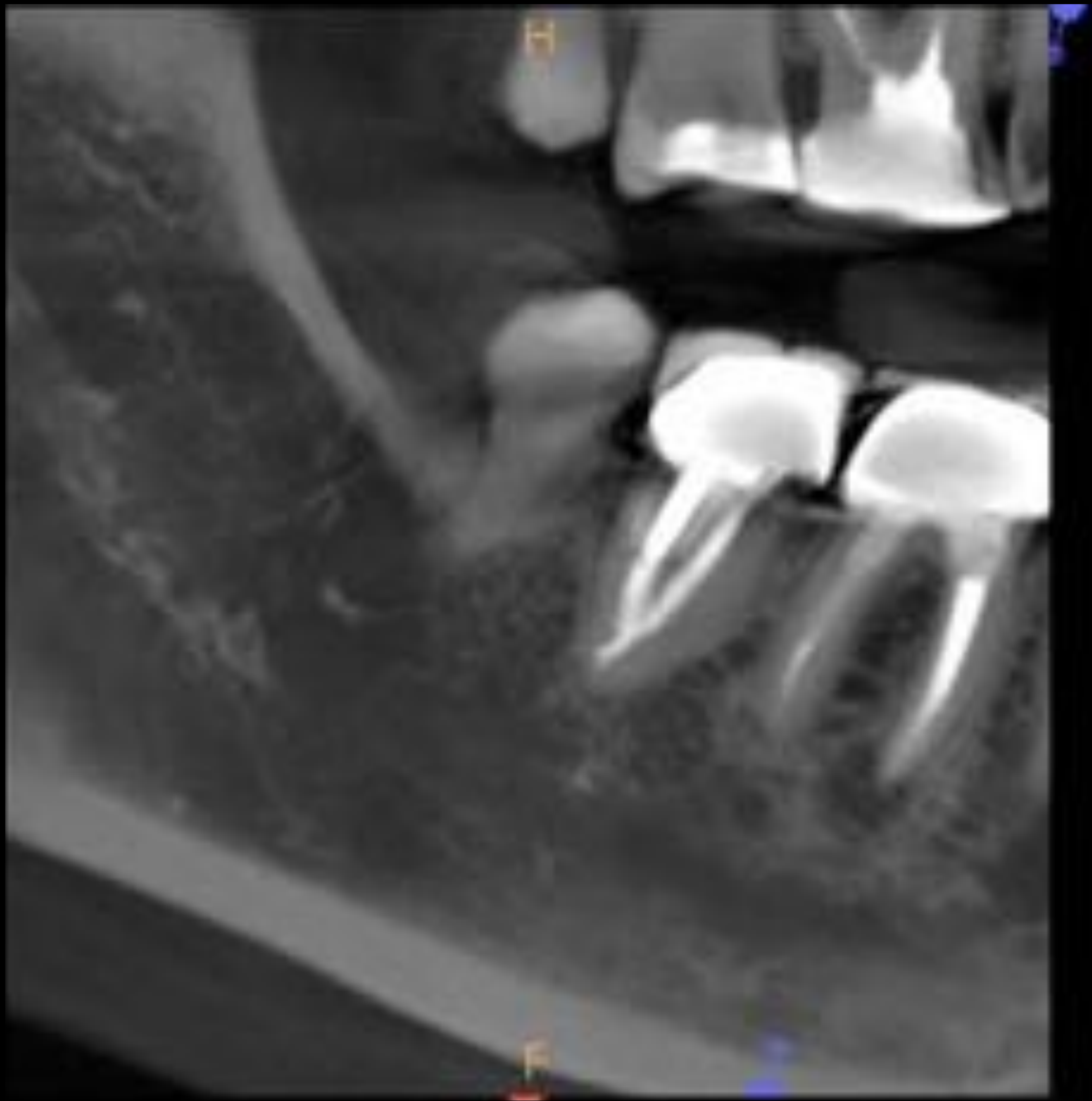
Tooth Morphology

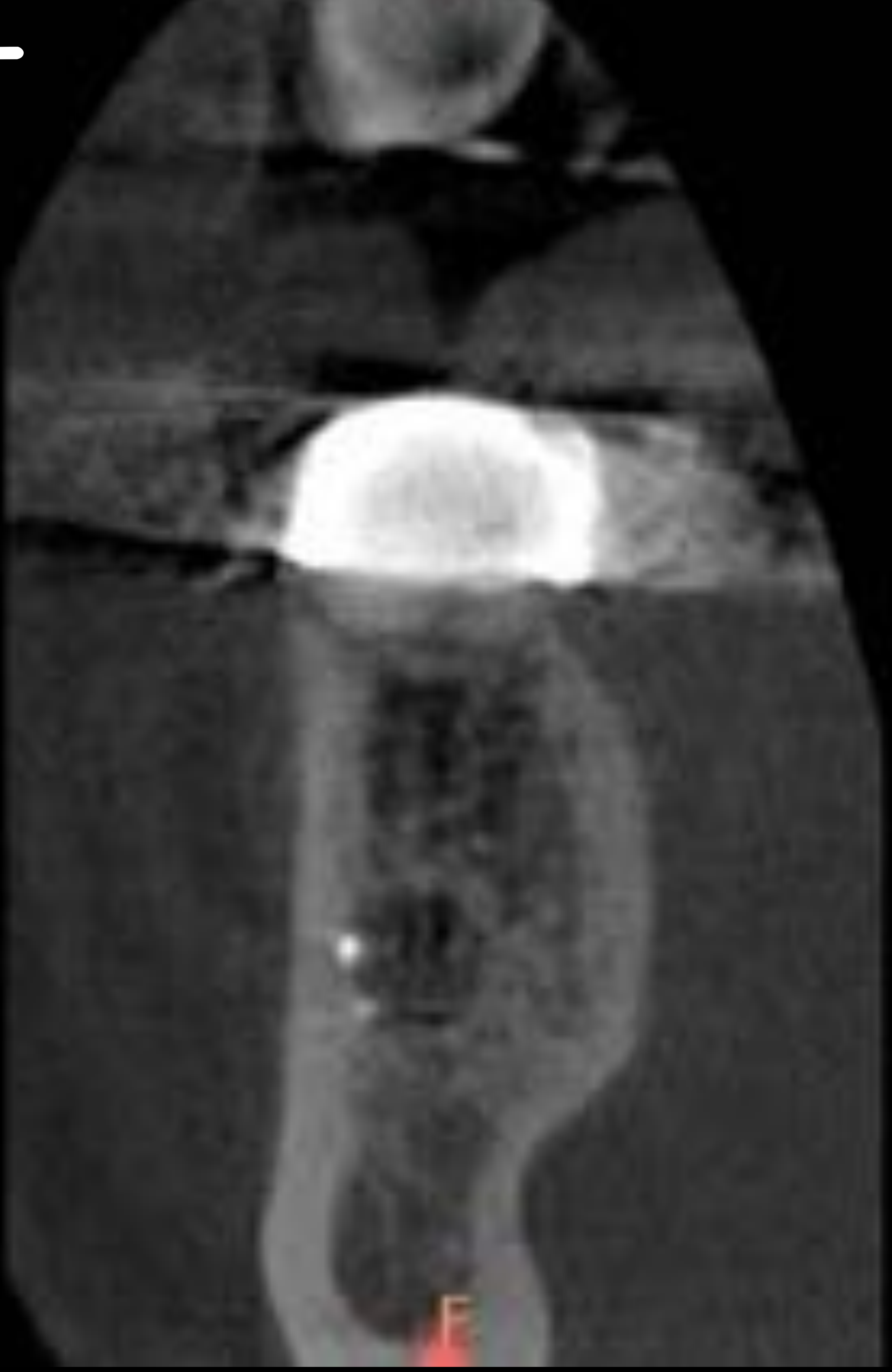
3 Single roots **Multi root**



The human surgical guide for Immediate Molars DTR (Drill Thru Roots)

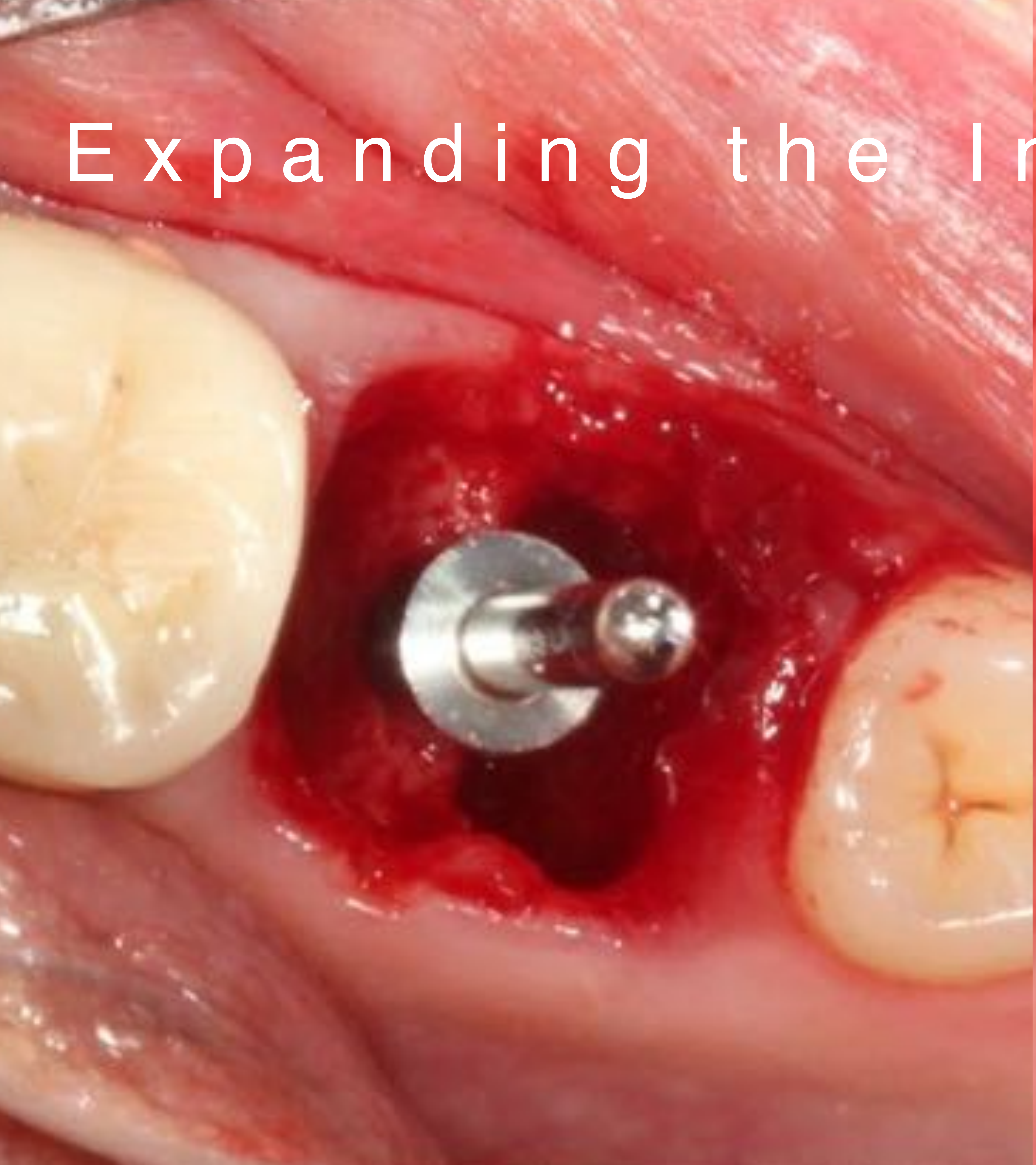
CBCT



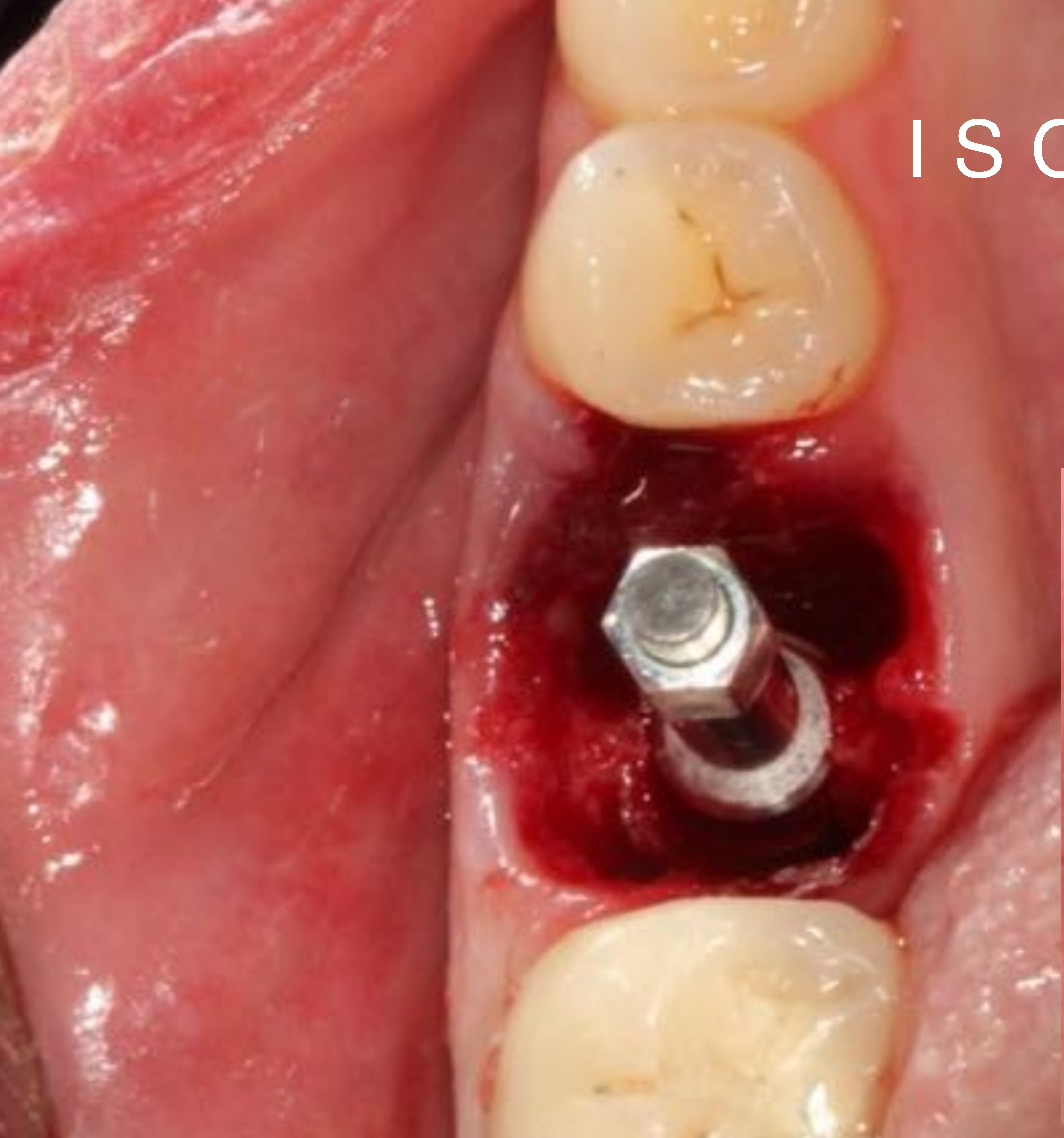



Drill Through Root

Expanding the Inter septal bone



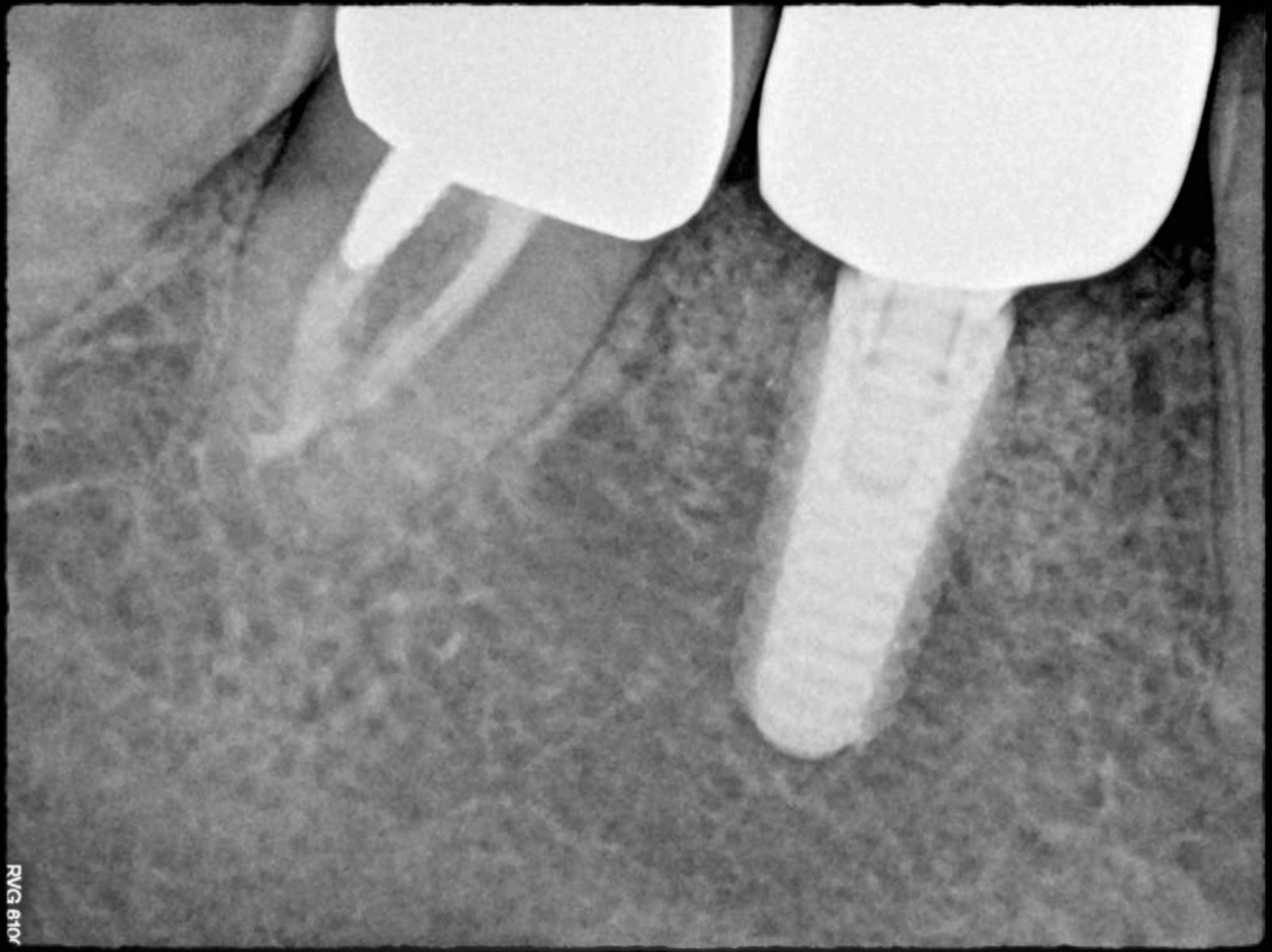
ISQ

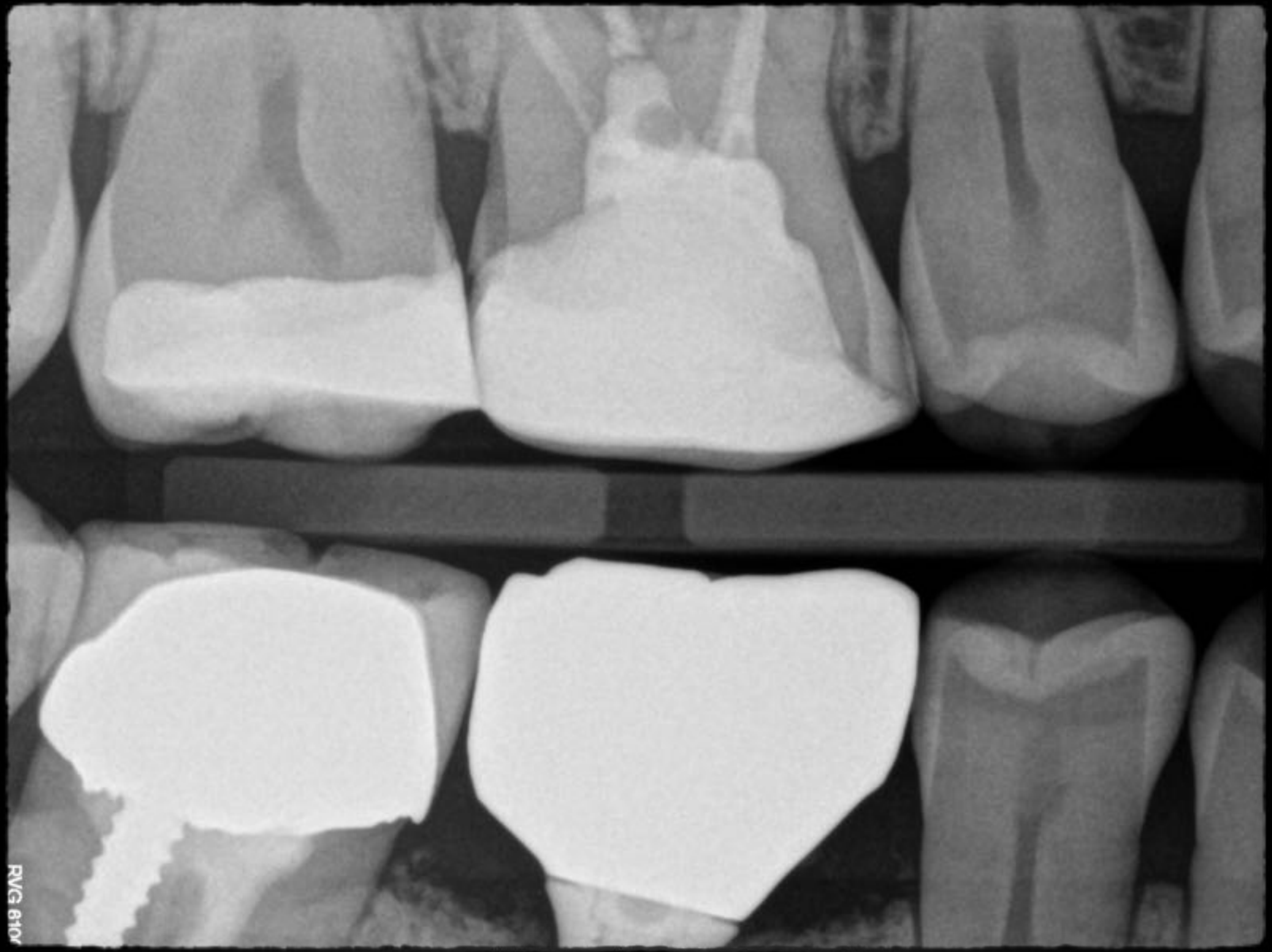


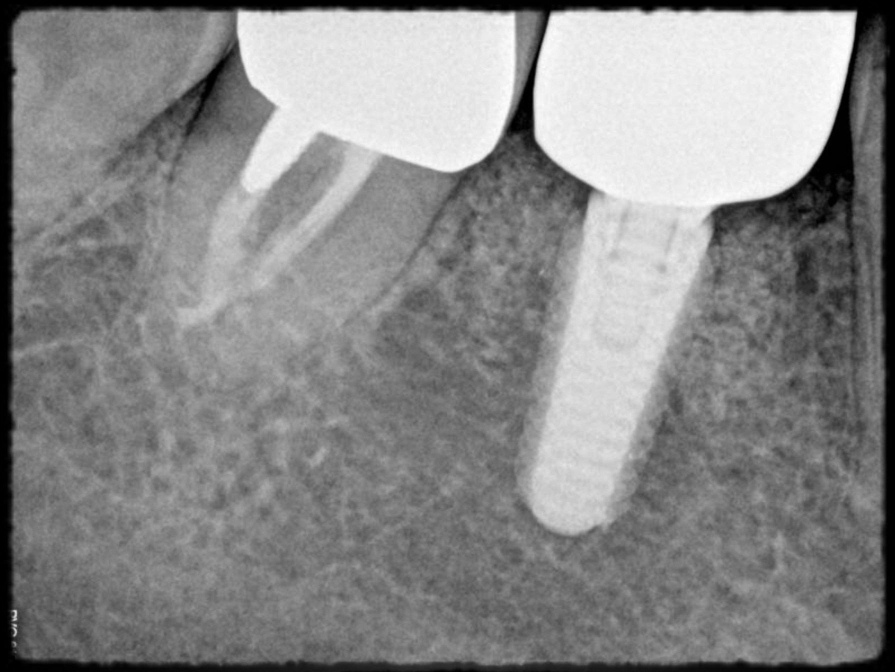
8 weeks post op

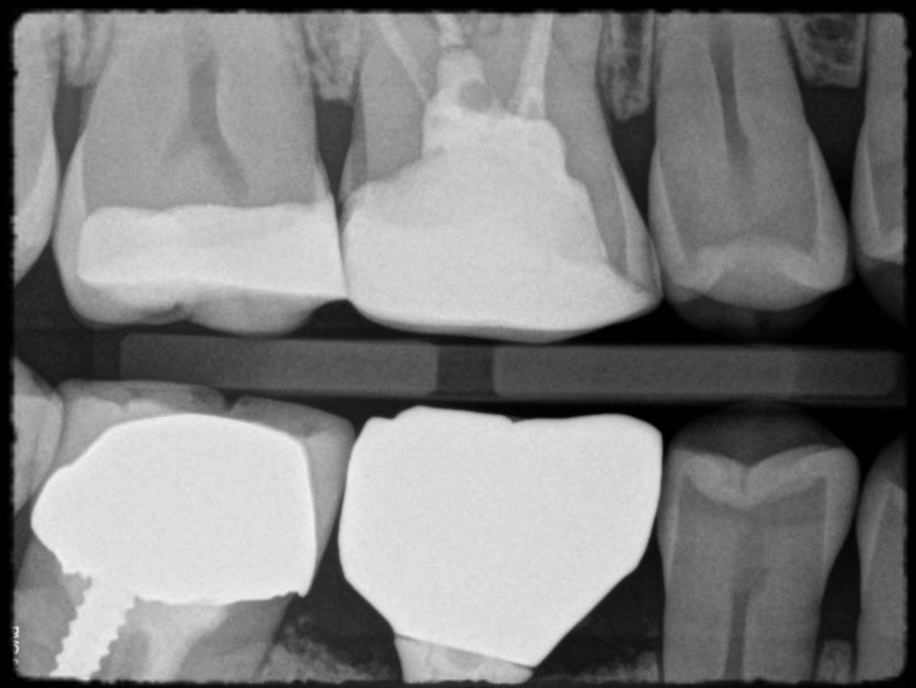

OPEN TRAY IMPRESSION

5 Year follow up





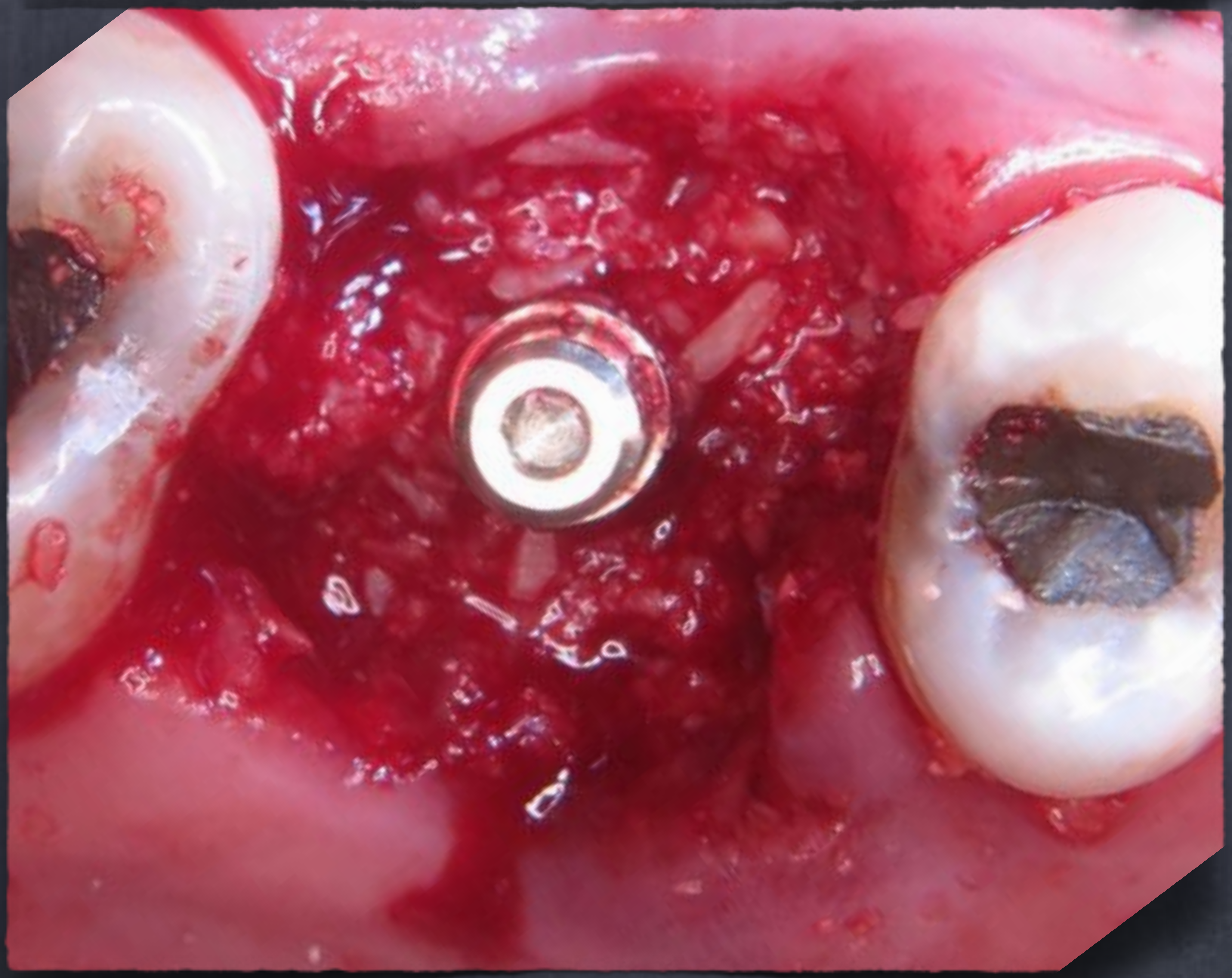


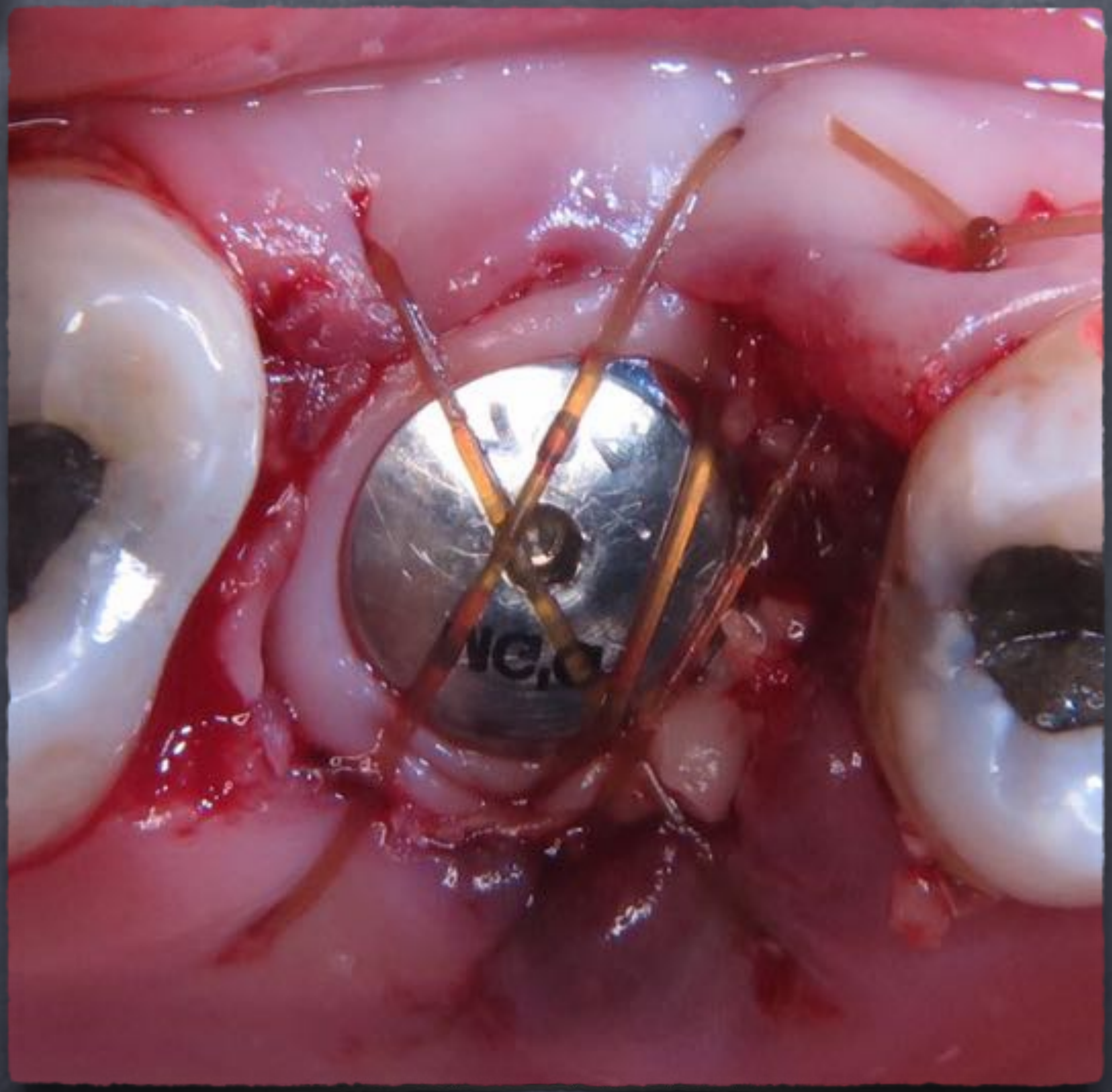


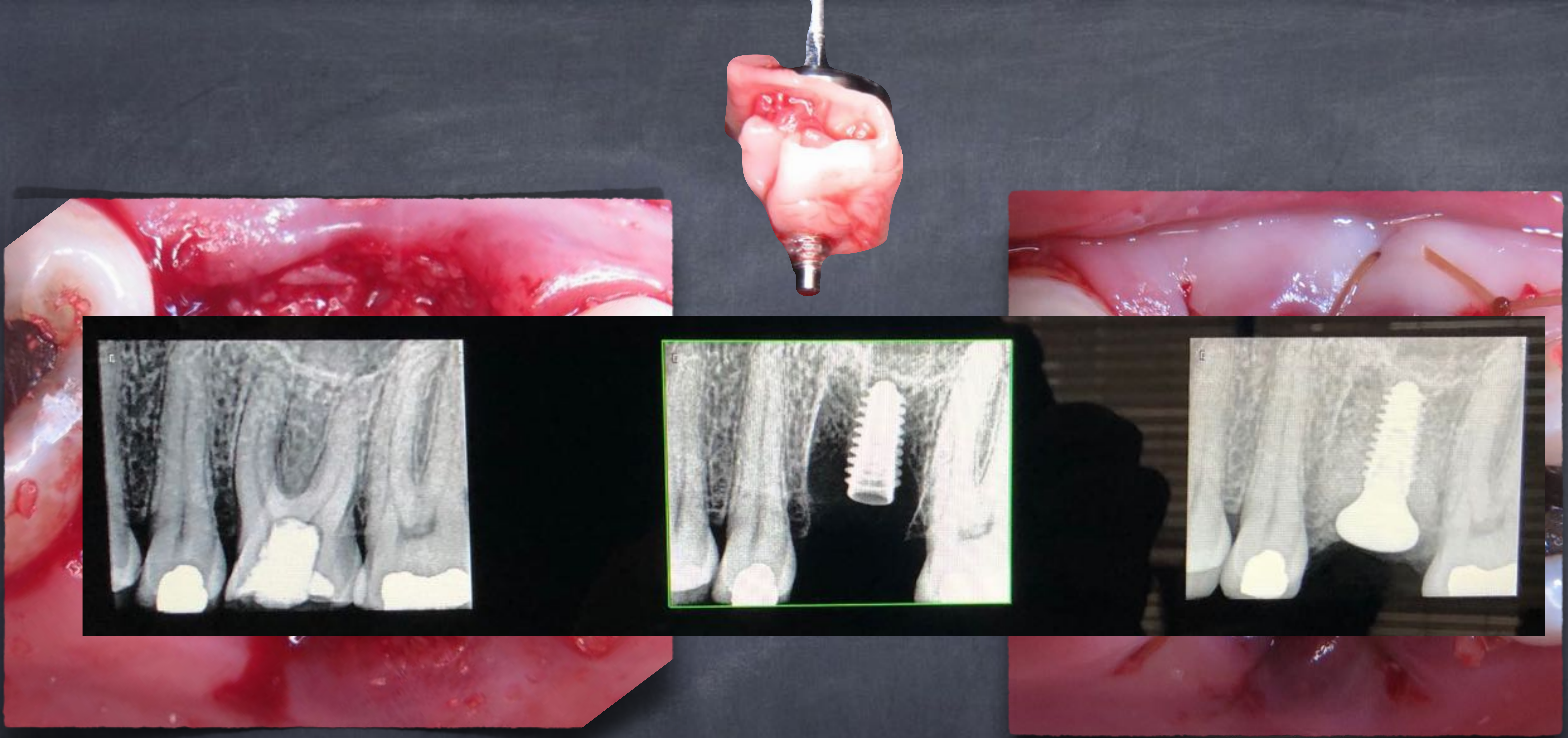
5 Year follow up

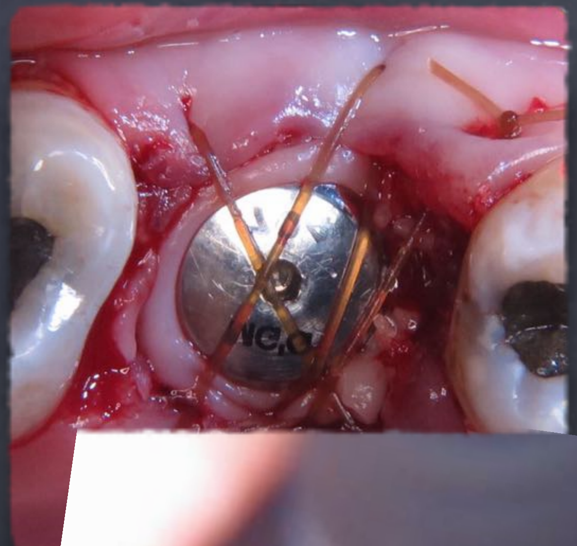

RVG 6100

PRF

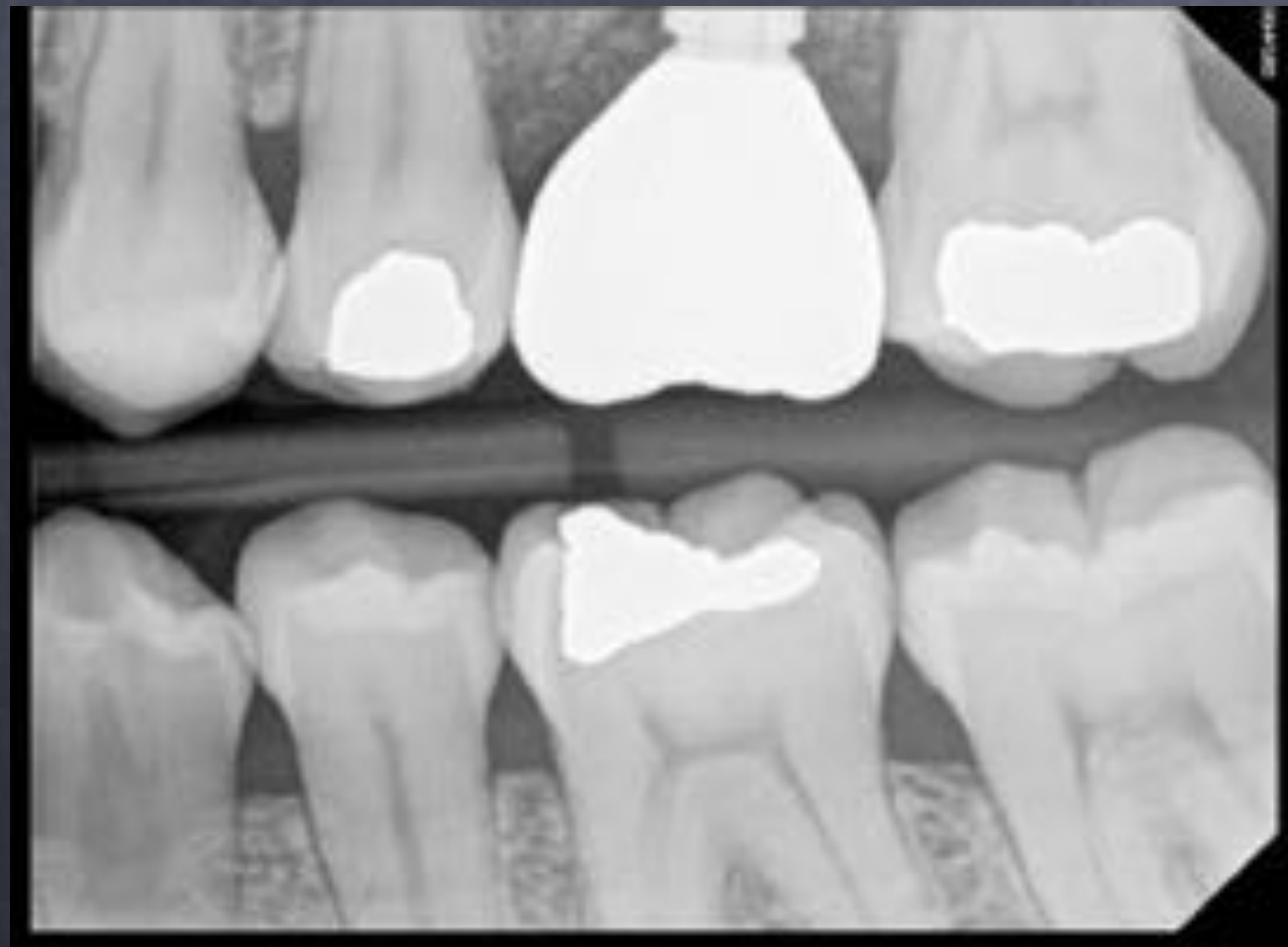
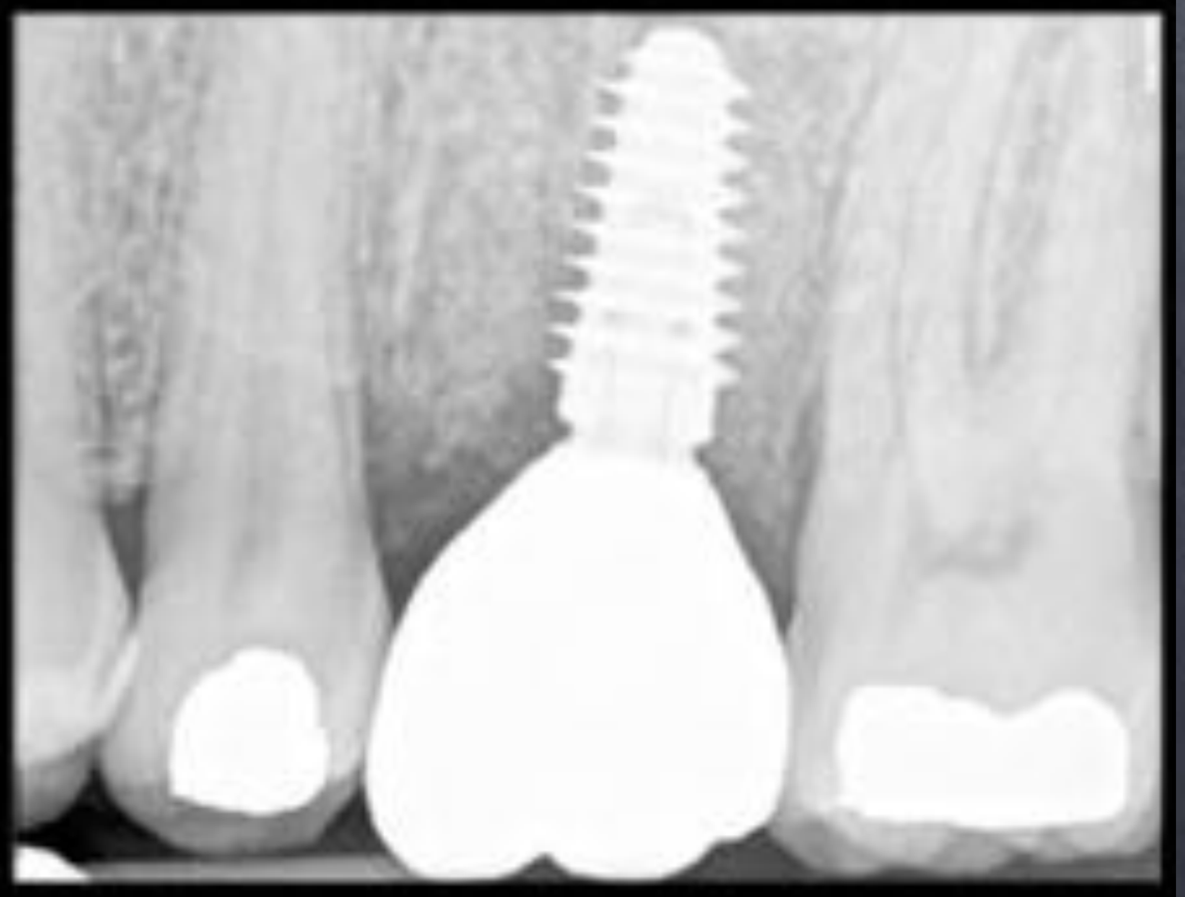










Bawabeh Dolly
05/08/2019 13:32:3
RVG 6

Integration mode: AVG. Slice thickness: 180 µm.
A
R
L
P
FDK
Integration mode: AVG. Slice thickness: 14.9 mm.
H
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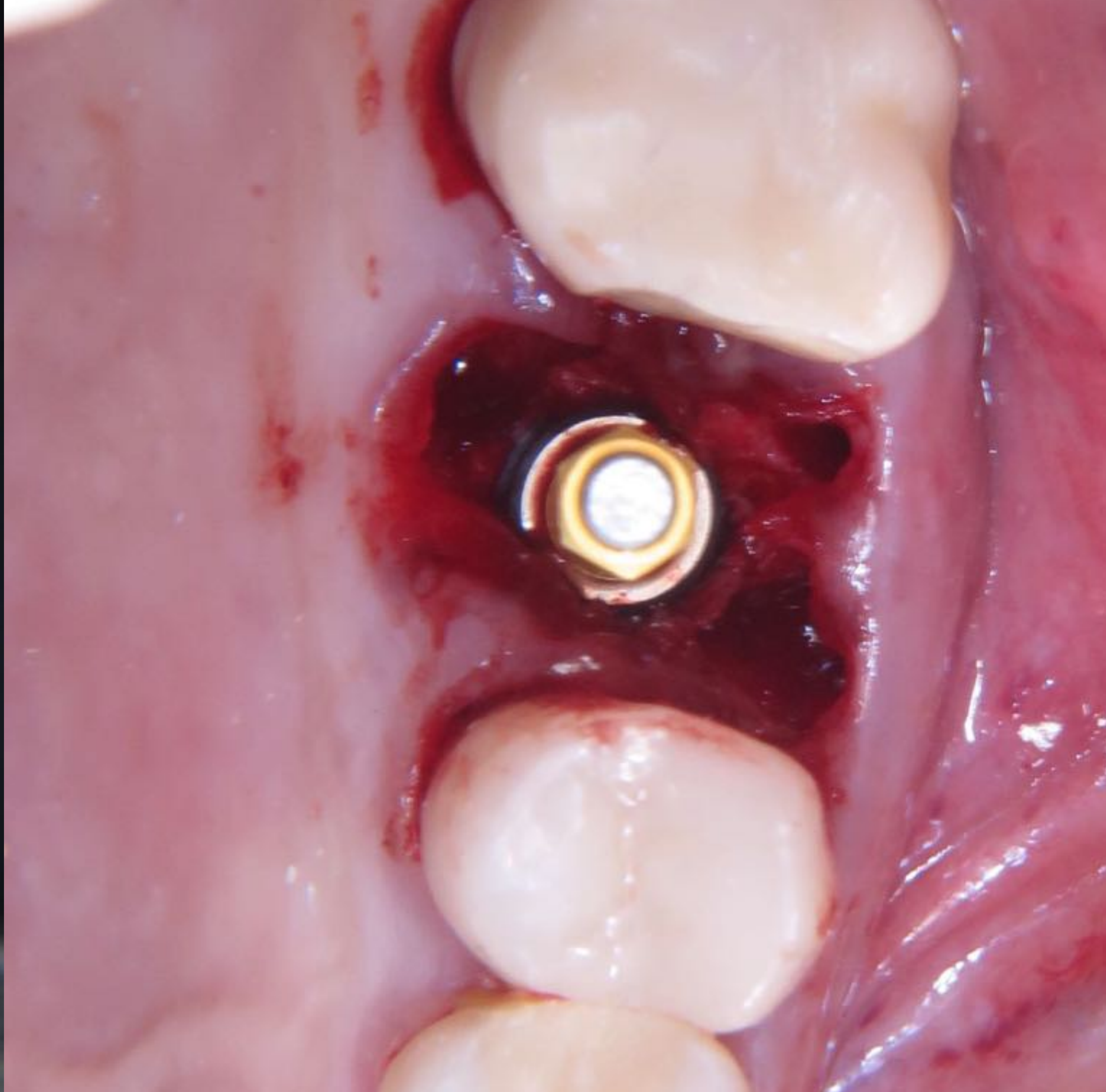
F
FDK
L
Slice spacing: 1.6 mm.
H
B
L
F
FDK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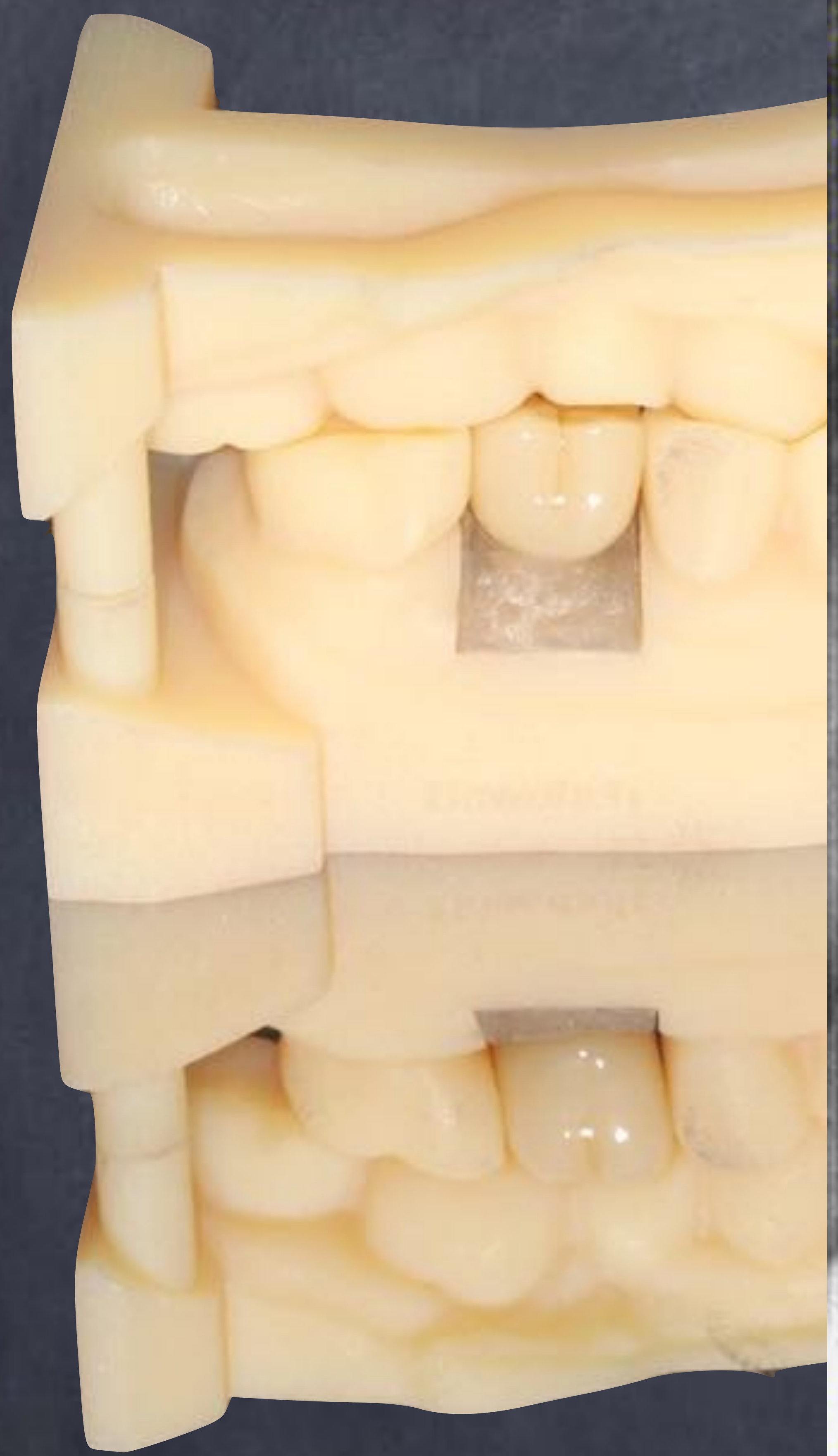
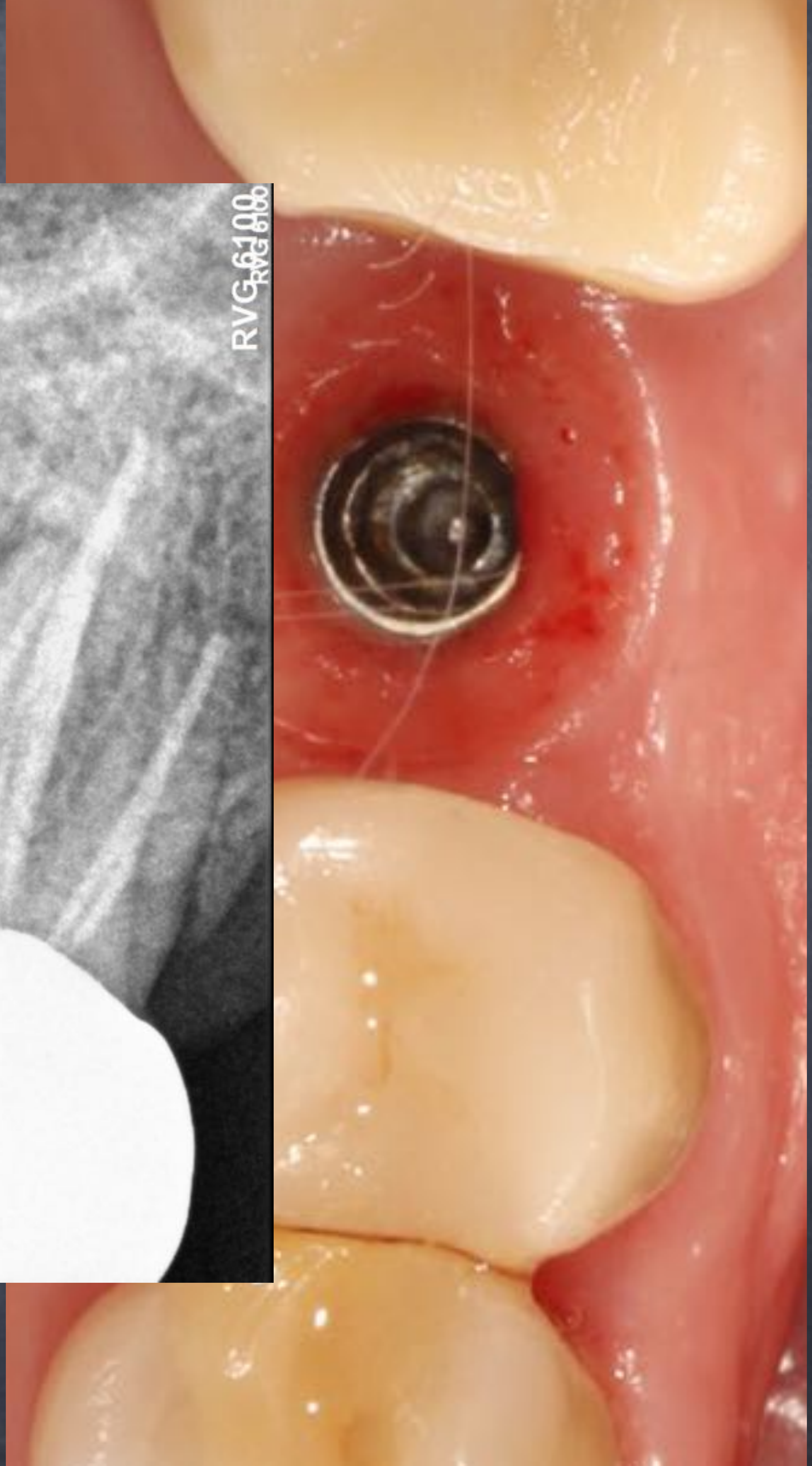
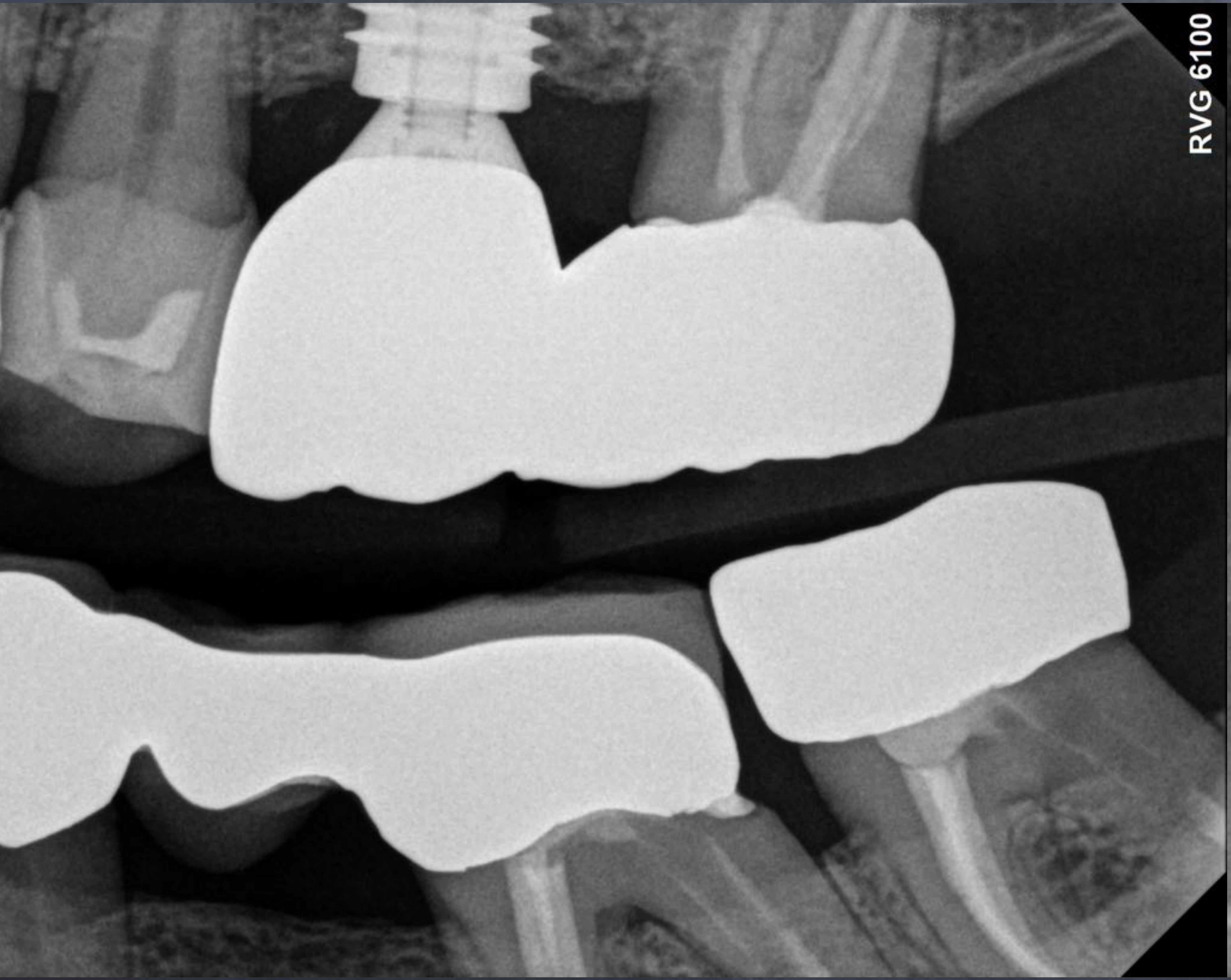
03/18/2020 12:33:50
RVG 6100

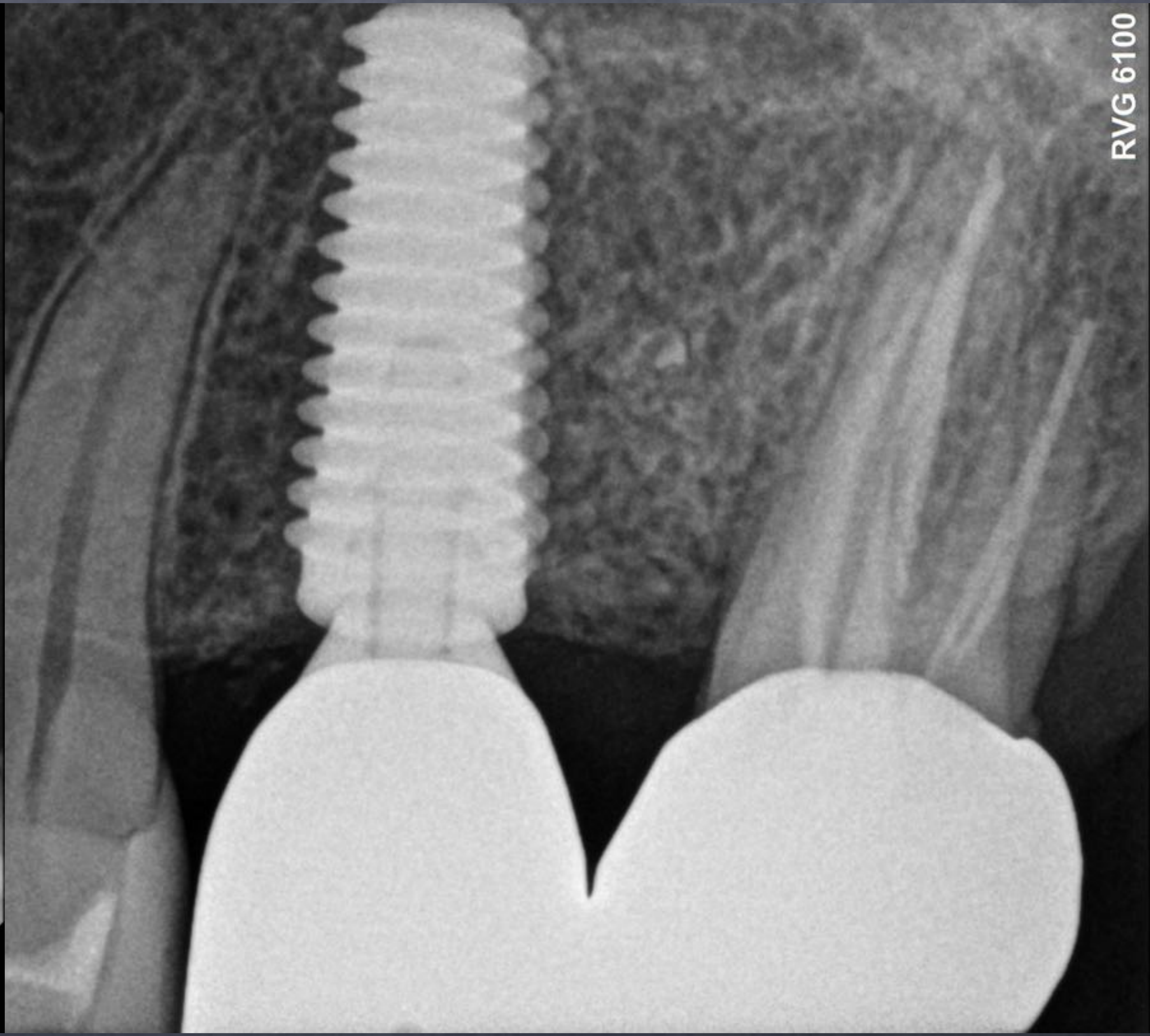



03/03/2020 11:12:55
Bawabeh Dolly
RVG 6100

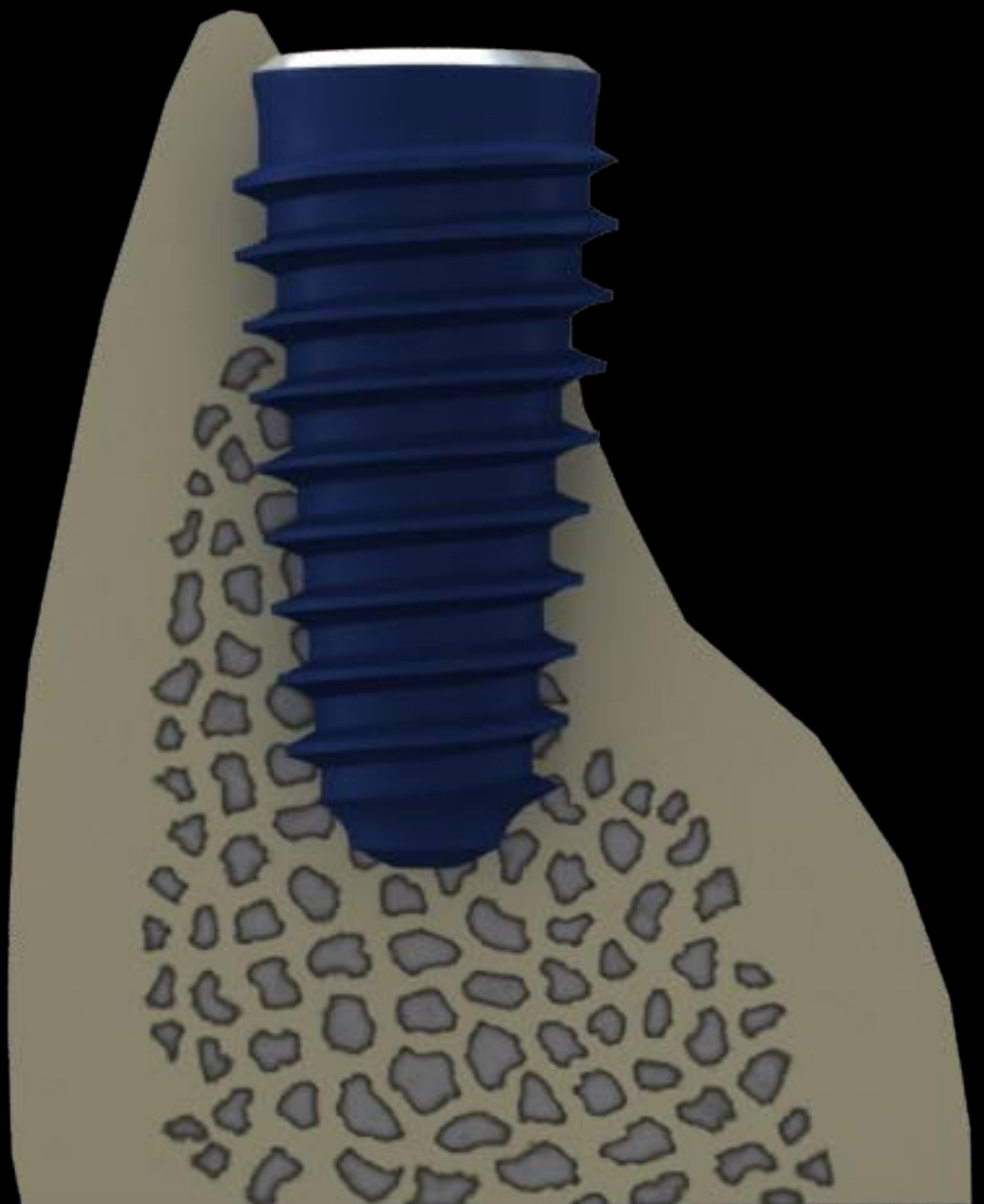


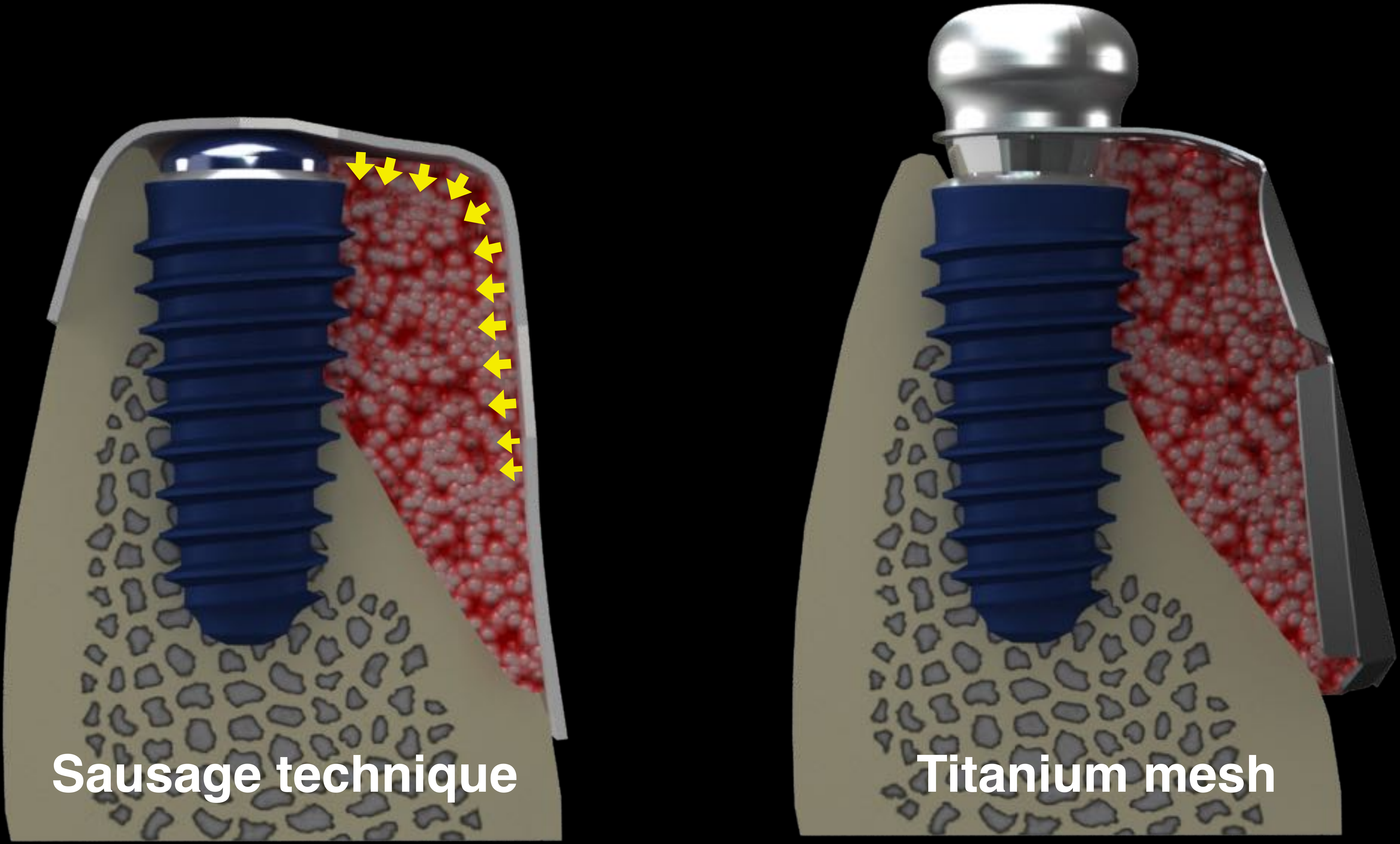

Required
79414 Rev 0


RVG 6100

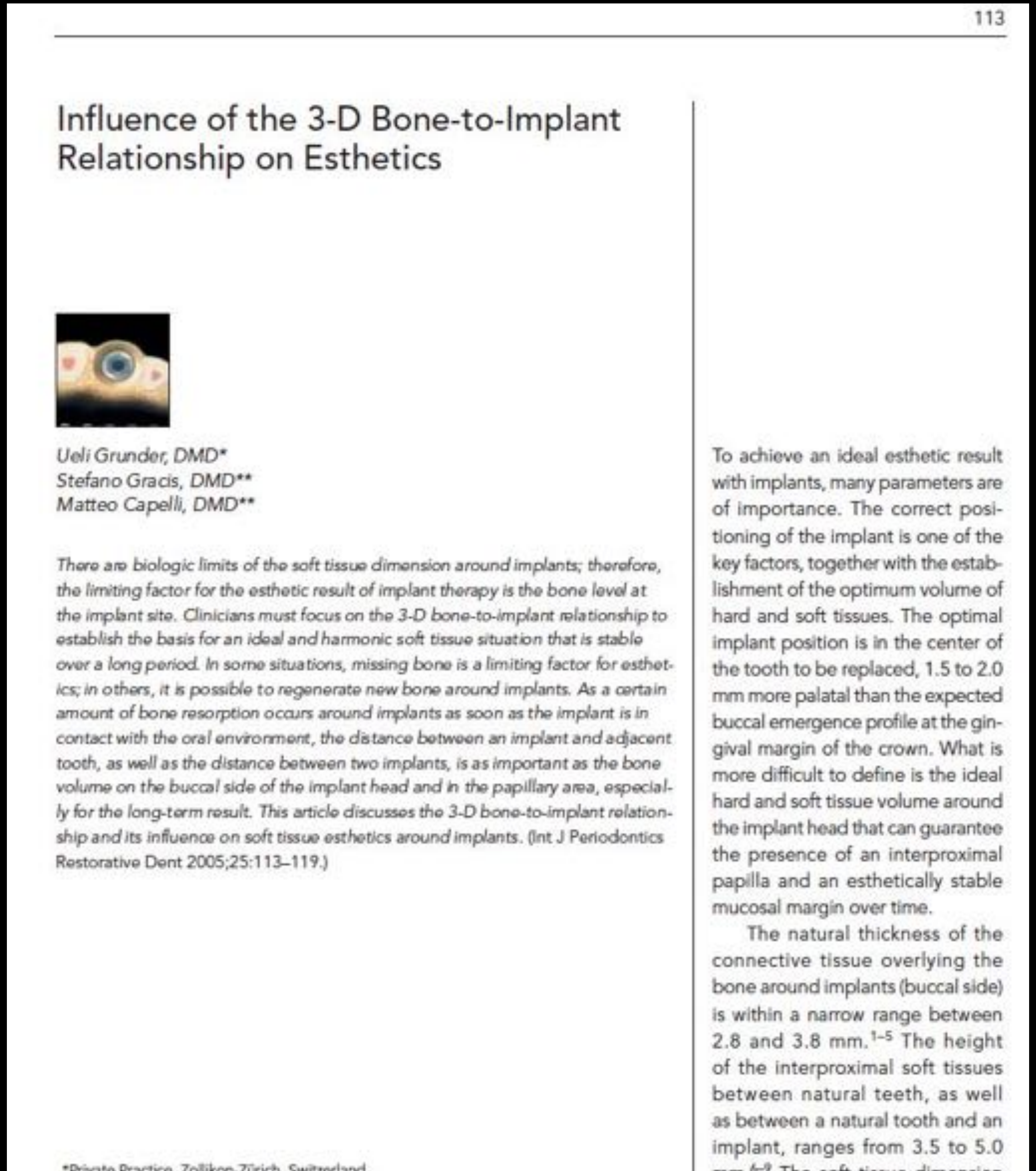

RVG 6100

Without Buccal Plate we must rebuild




Sausage technique
Titanium mesh

2 mm is important in GBR for the ideal regeneration!



113

Influence of the 3-D Bone-to-Implant Relationship on Esthetics

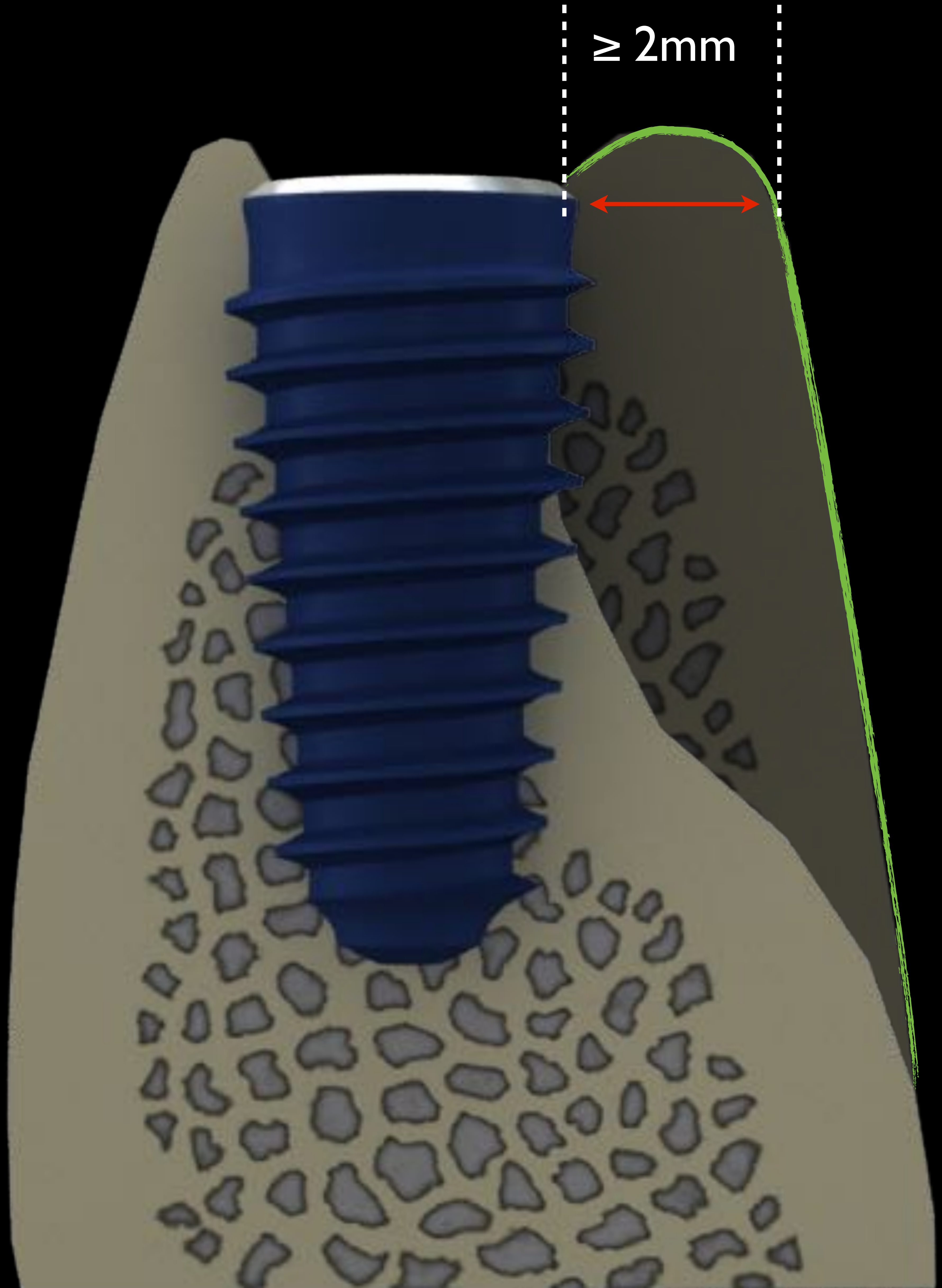
*Ueli Grunder, DMD**
*Stefano Gracis, DMD***
*Matteo Capelli, DMD***

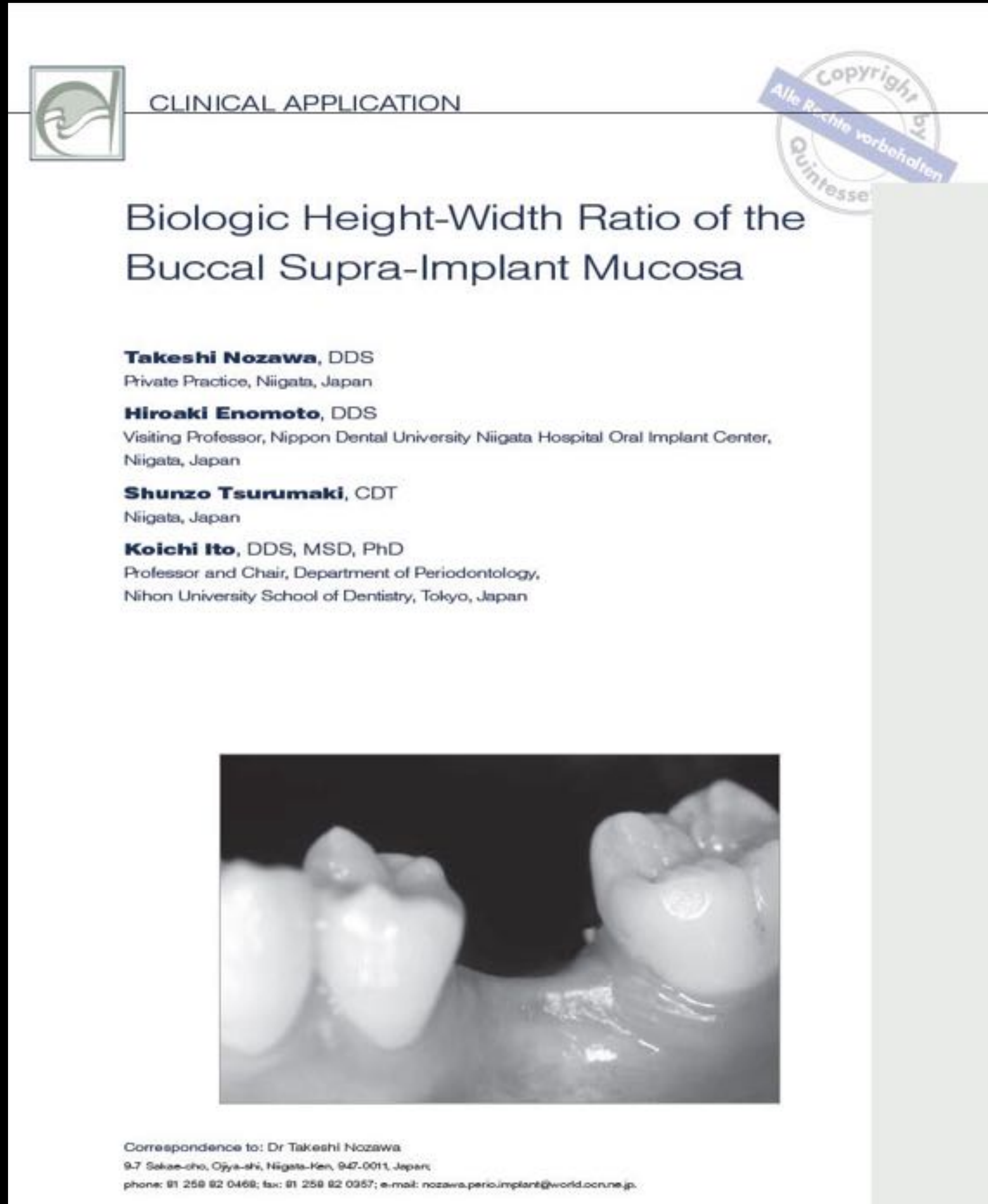
There are biologic limits of the soft tissue dimension around implants; therefore, the limiting factor for the esthetic result of implant therapy is the bone level at the implant site. Clinicians must focus on the 3-D bone-to-implant relationship to establish the basis for an ideal and harmonic soft tissue situation that is stable over a long period. In some situations, missing bone is a limiting factor for esthetics; in others, it is possible to regenerate new bone around implants. As a certain amount of bone resorption occurs around implants as soon as the implant is in contact with the oral environment, the distance between an implant and adjacent tooth, as well as the distance between two implants, is as important as the bone volume on the buccal side of the implant head and in the papillary area, especially for the long-term result. This article discusses the 3-D bone-to-implant relationship and its influence on soft tissue esthetics around implants. (Int J Periodontics Restorative Dent 2005;25:113–119.)

To achieve an ideal esthetic result with implants, many parameters are of importance. The correct positioning of the implant is one of the key factors, together with the establishment of the optimum volume of hard and soft tissues. The optimal implant position is in the center of the tooth to be replaced, 1.5 to 2.0 mm more palatal than the expected buccal emergence profile at the gingival margin of the crown. What is more difficult to define is the ideal hard and soft tissue volume around the implant head that can guarantee the presence of an interproximal papilla and an esthetically stable mucosal margin over time.

The natural thickness of the connective tissue overlying the bone around implants (buccal side) is within a narrow range between 2.8 and 3.8 mm.[1–5] The height of the interproximal soft tissues between natural teeth, as well as between a natural tooth and an implant, ranges from 3.5 to 5.0

*Private Practice, Zollikon-Zürich, Switzerland





CLINICAL APPLICATION

Biologic Height-Width Ratio of the Buccal Supra-Implant Mucosa

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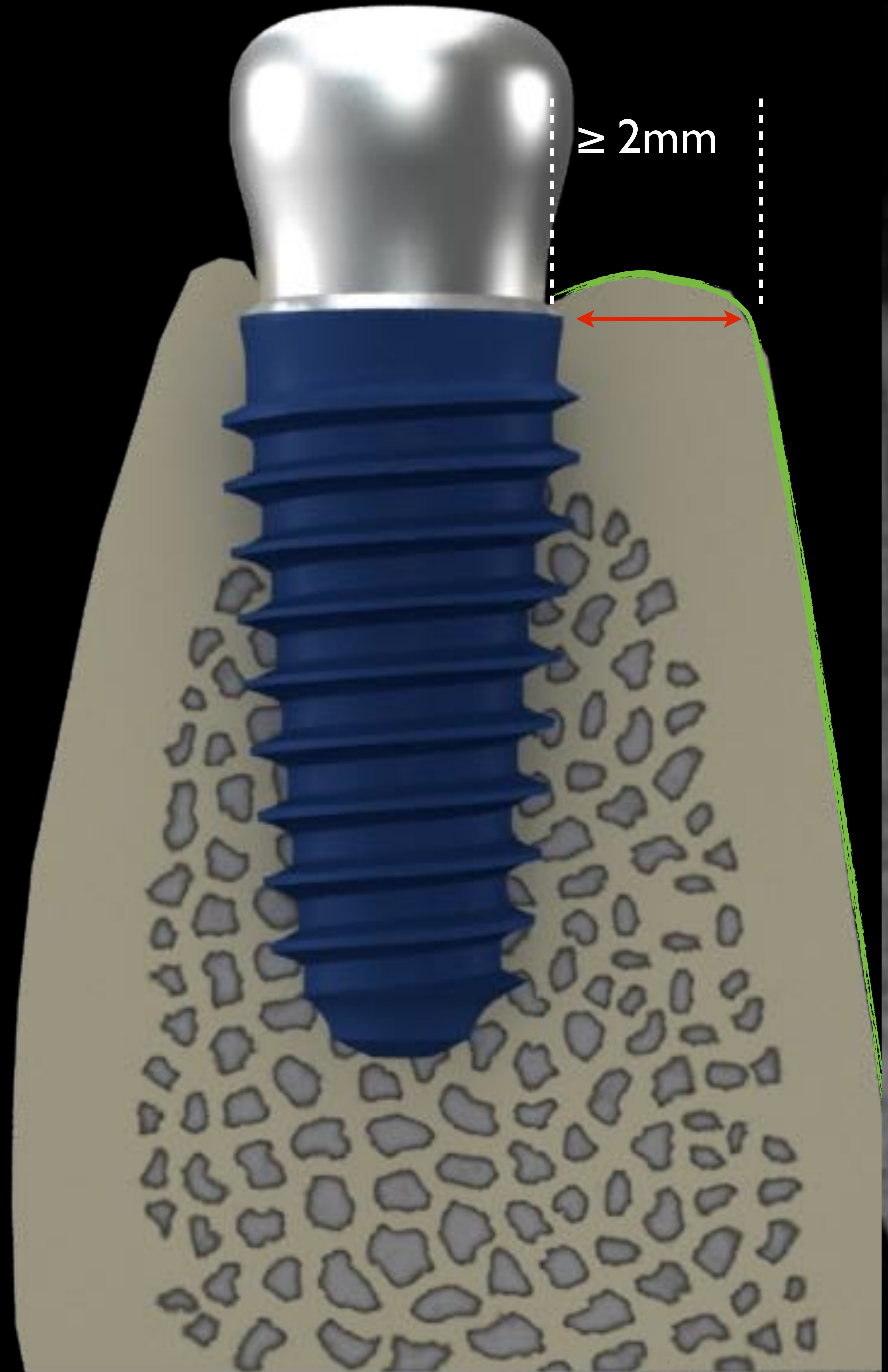
What it should be for ideal regeneration?



KometaBio
Tissue Engineering

8 minutes fro m extraction to graft material
including sterilization process

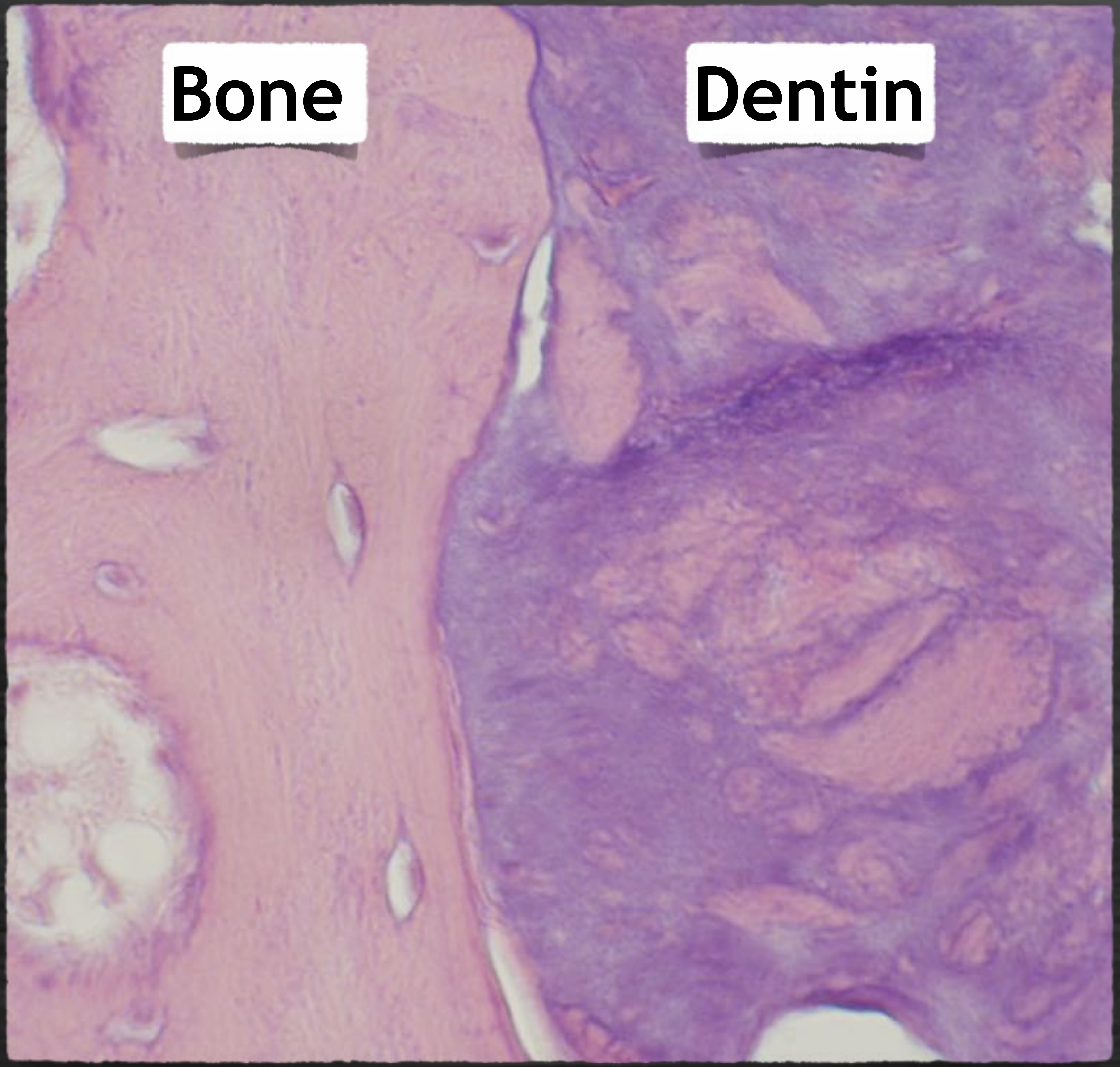
Bone and teeth are similar chemically

=

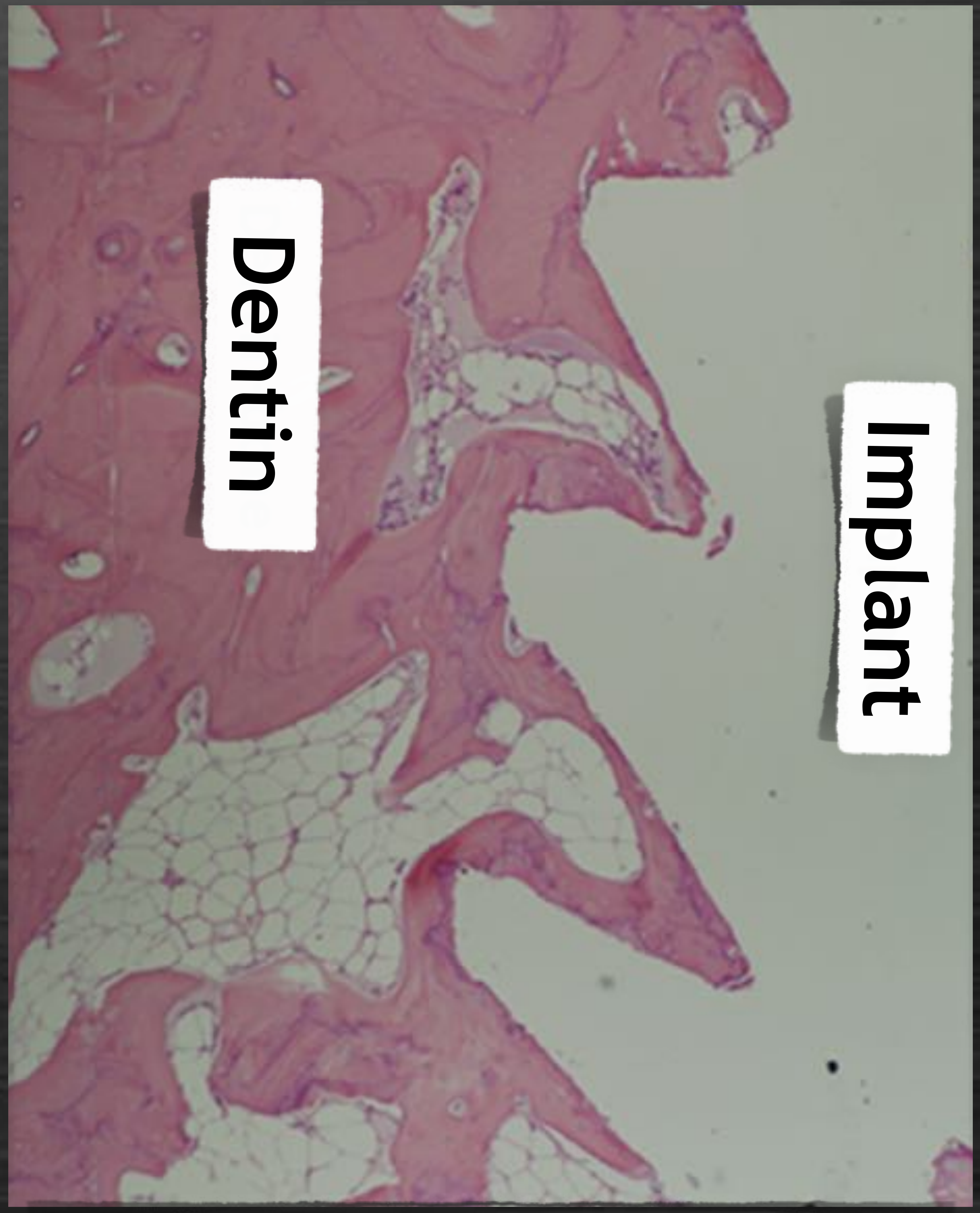
Enamel (10%)	HA (Crystalline Calcium Phosphate) Water and Collagen	96% 4%
Dentin (80%)	HA Collagen type I Water	70% 20% 10%
Cementum (5%)	HA Collagen type I Water	45% 33% 22%
BMP's and GF's	Typically more than in bone	

Cortical Bone	HA (Crystalline Calcium Phosphate) Collagen type I Water	60% 30% 10%

Dentin to Bone - Interface



Dentin to Implant - Interface



Scientific Evaluation

Research on Bone-Dentin interface goes back to the 70's.

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- A Novel Procedure to Process Extracted Teeth for Immediate Grafting of Autogenous Dentin. *Itzhak Binderman, Gideon Hallel , Casap Nardy , Avinoam Yaffe, and Lari Sapoznikov. Interdisciplinary Medicine and Dental Science. 2014*

Scientific References

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2014
- Tissue Engineering of Bone: Critical Evaluation of Scaffold Selection. Itzhak Binderman, Avinoam Yaffe, Yuval
1Department of Oral Biology, Maurice and Gabriela Goldschleger,School of Dental Medicine, Sackler Fac
- Processed Allogenic Dentine as A Scaffold for Bone Healing: An in vivo study; 1 Dr. AL-Namnam, N.M., 1 Shan
- Healing Mechanism and Clinical Application of Autogenous Tooth Bone Graft Material ; Intech; chapter 16; 2013
- Human Dentin as Novel Biomaterial for Bone Regeneration ; Masaru Murata1, Toshiyuki Akazawa2; Interchope
- A New Method for Alveolar Bone Repair Using Extracted Teeth for the Graft Material; Tomoki Nampo,* Junichi W
- Evaluation of Osteoconductive and Osteogenic Potential of a Dentin Based Bone Substitute Using a Calvarial Defec
Dentistry;2012
- Bone Engineering Using Human Demineralized Dentin Matrix and Recombinant Human BMP-2; University of Ho
- Bone Graft Material Using Teeth; Young-Kyun Kim; Seoul National University Bundang Hospital, Seongnam
- Clinical application of auto-tooth bone graft material; Seoul National University Bundang Hospital, Seongnam
- Autograft of Dentin Materials for Bone Regeneration; Masaru Murata1, Toshiyuki Akazawa2; ; Intech;
- Development of a novel bone grafting material using autogenous teeth; ORAL AND MAXILLOFACIAL SURGERY
- New bone formation around xenogenic dentin grafts to rabbit tibia marrow; Al-Asfour A, Andersson L.; Dent Trar
- Dentin xenografts to experimental bone defects in rabbit tibia are ankylosed and undergo osseous replacement; And
- A prospective study on the effectiveness of newly developed autogenous tooth bone graft material for sinus bone gra
Young Yun, Young-Kyun Kim; Journal of Advanced Prosthodont 2014;6:528-38
- Autogenous teeth used for bone grafting: a comparison with traditional grafting materials; Young Kyun Kim, DDS,
National University, Chosun University, and Kangwon National University;
- Analysis of Organic Components and Osteoinductivity in Autogenous Tooth Bone Graft Material; Young-Kyun Kin
Katsutoshi Ito; Department of Oral and Maxillofacial Surgery, Section of Dentistry, Seoul National Universi
Oral and Maxillofacial Surgery, College of Dentistry, Dankook University, Department of Oral and Maxillofa
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Tissue Biology, 16(3),95-113.
- Development of a novel bone grafting material using autogenous teeth. Kim, YK., Kim, SG., Byeon, JH., Lee, HJ
Pathol Oral Radiol Endod., 109., 4., 496-503.
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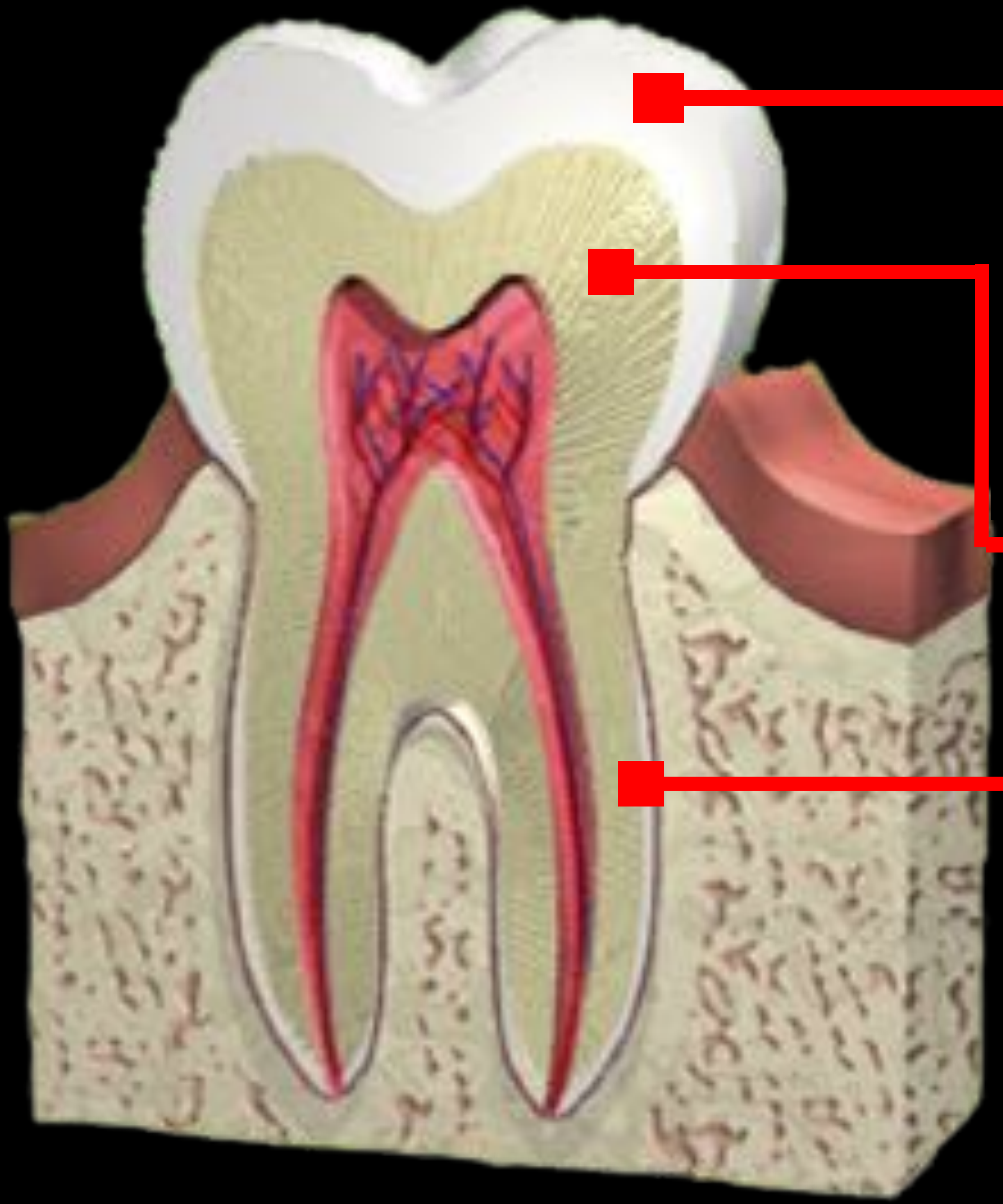
alveolar ridge augmentation: a proof-of-concept study. J Clinical Periodontol 2016; 43: 345–353. doi: 10.1
Deusseldorf, Deusseldorf, Germany;

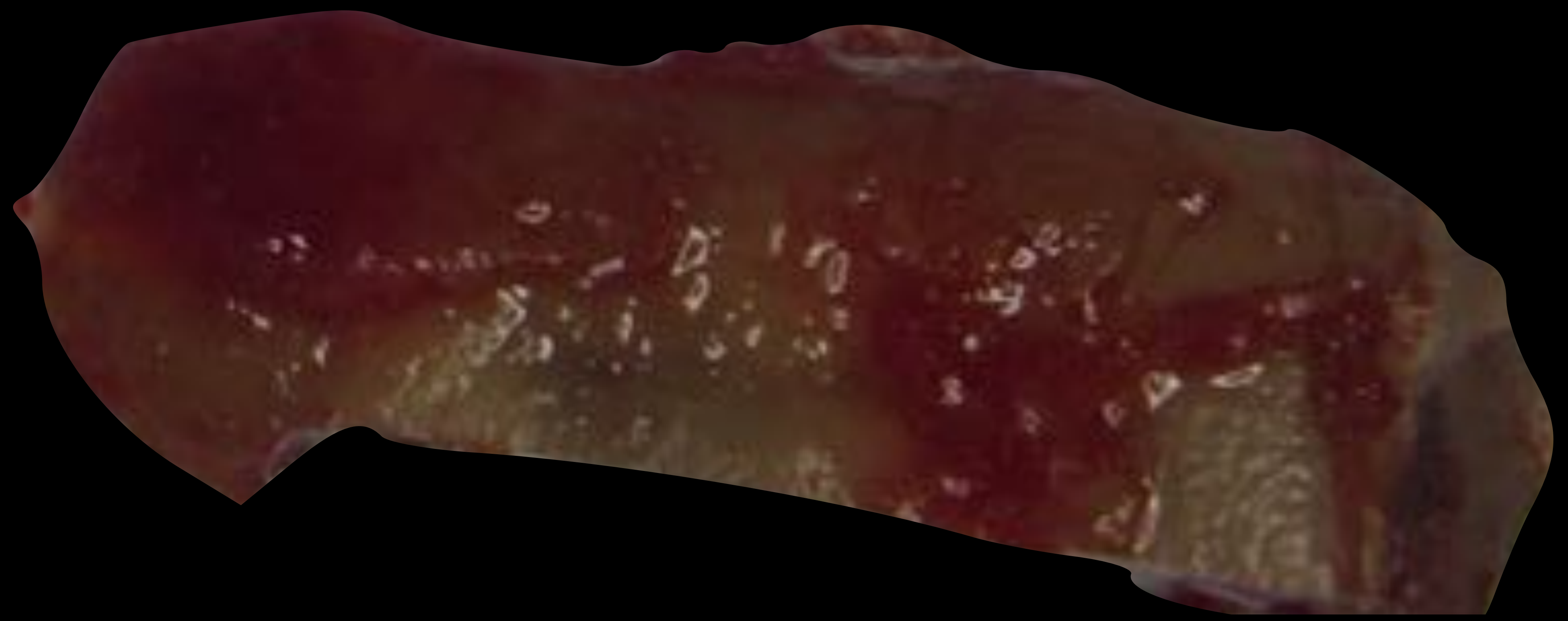


Enamel 96% HA
(Xenograft)

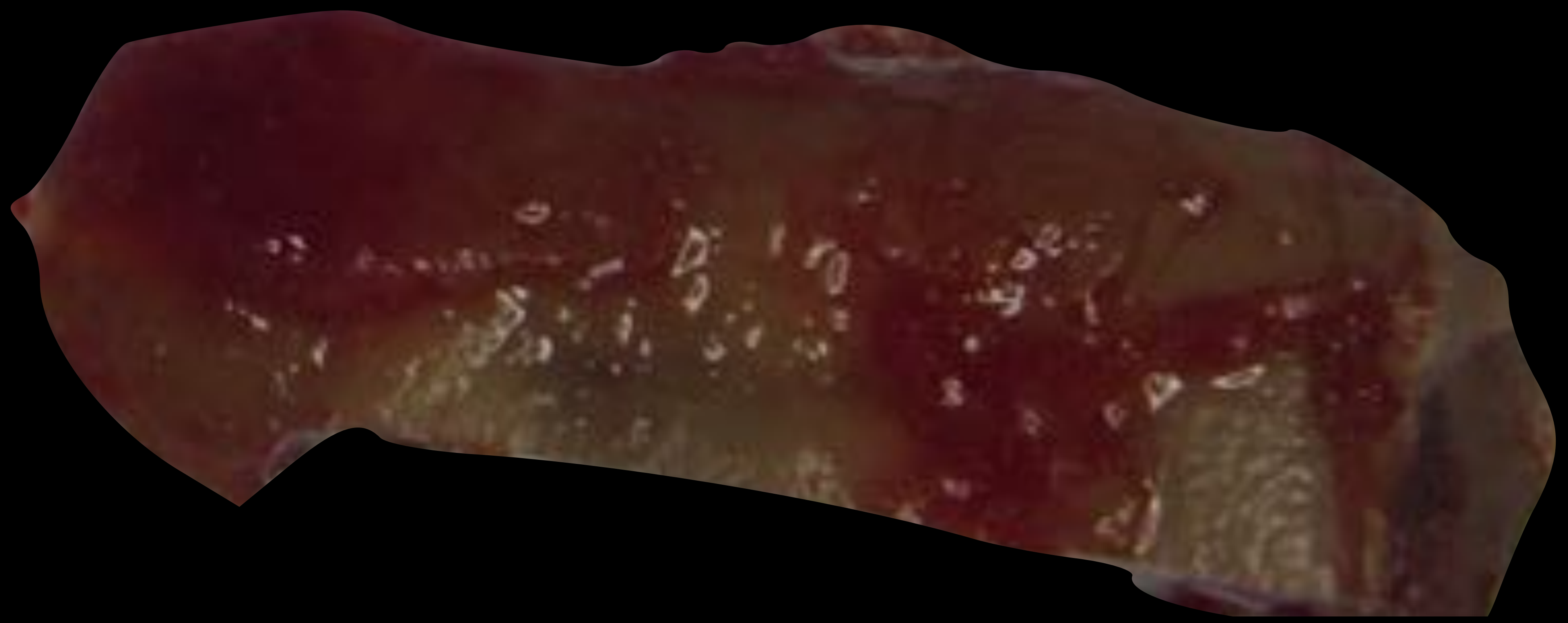
Dentin
(Demineralized bone)

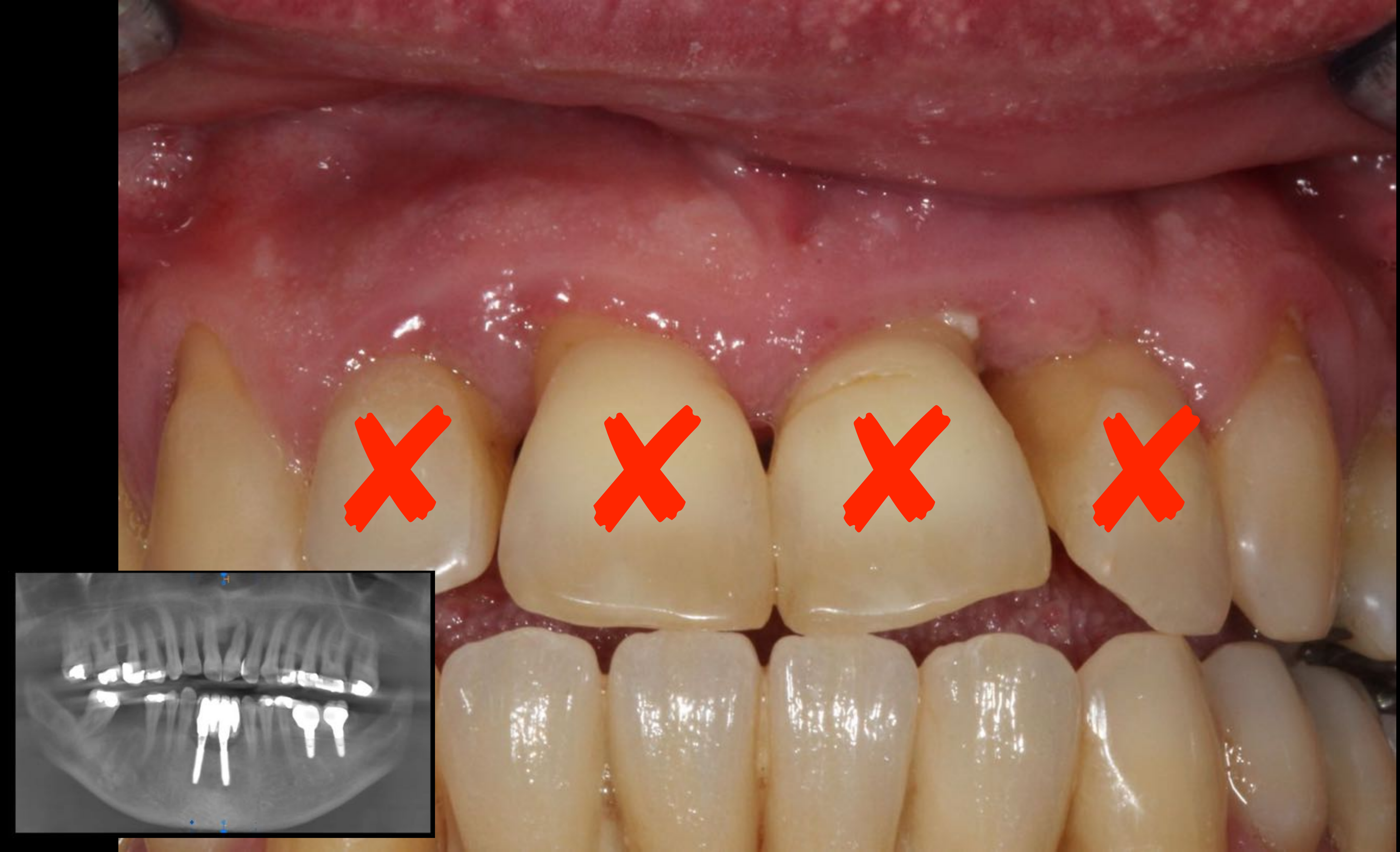
Cementum
(Mineralized bone)

Dentin ground graft



Dentin ground graft



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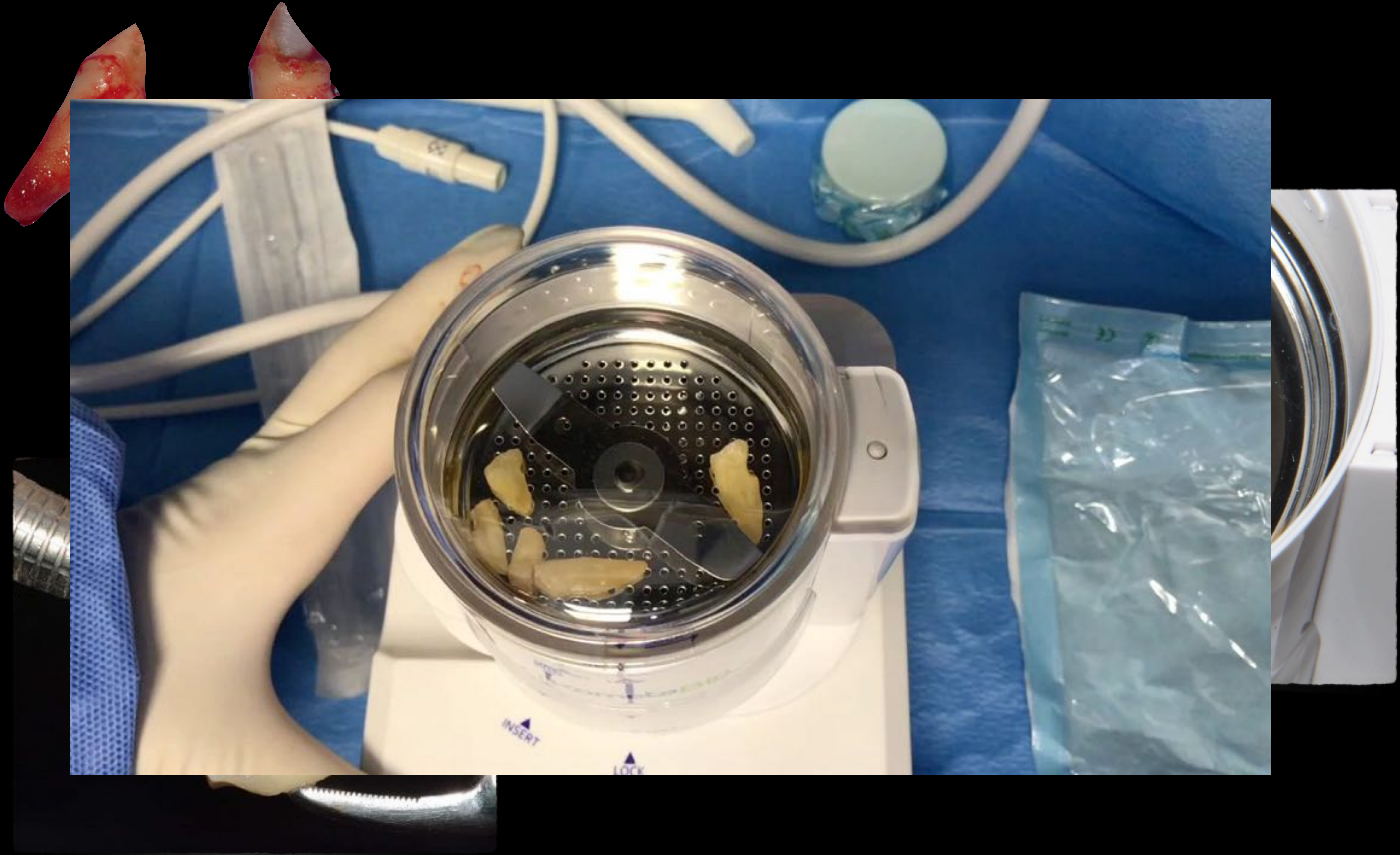
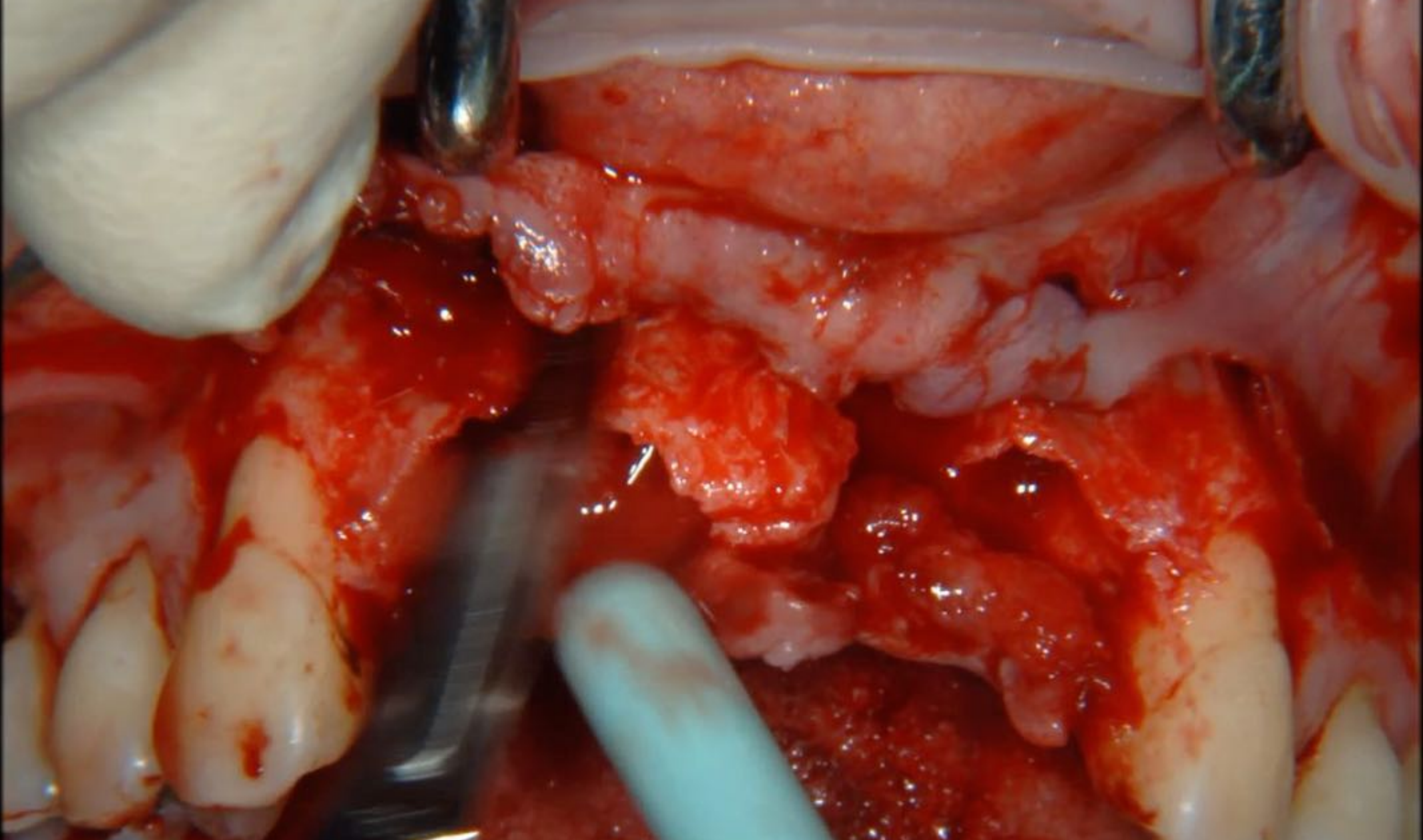
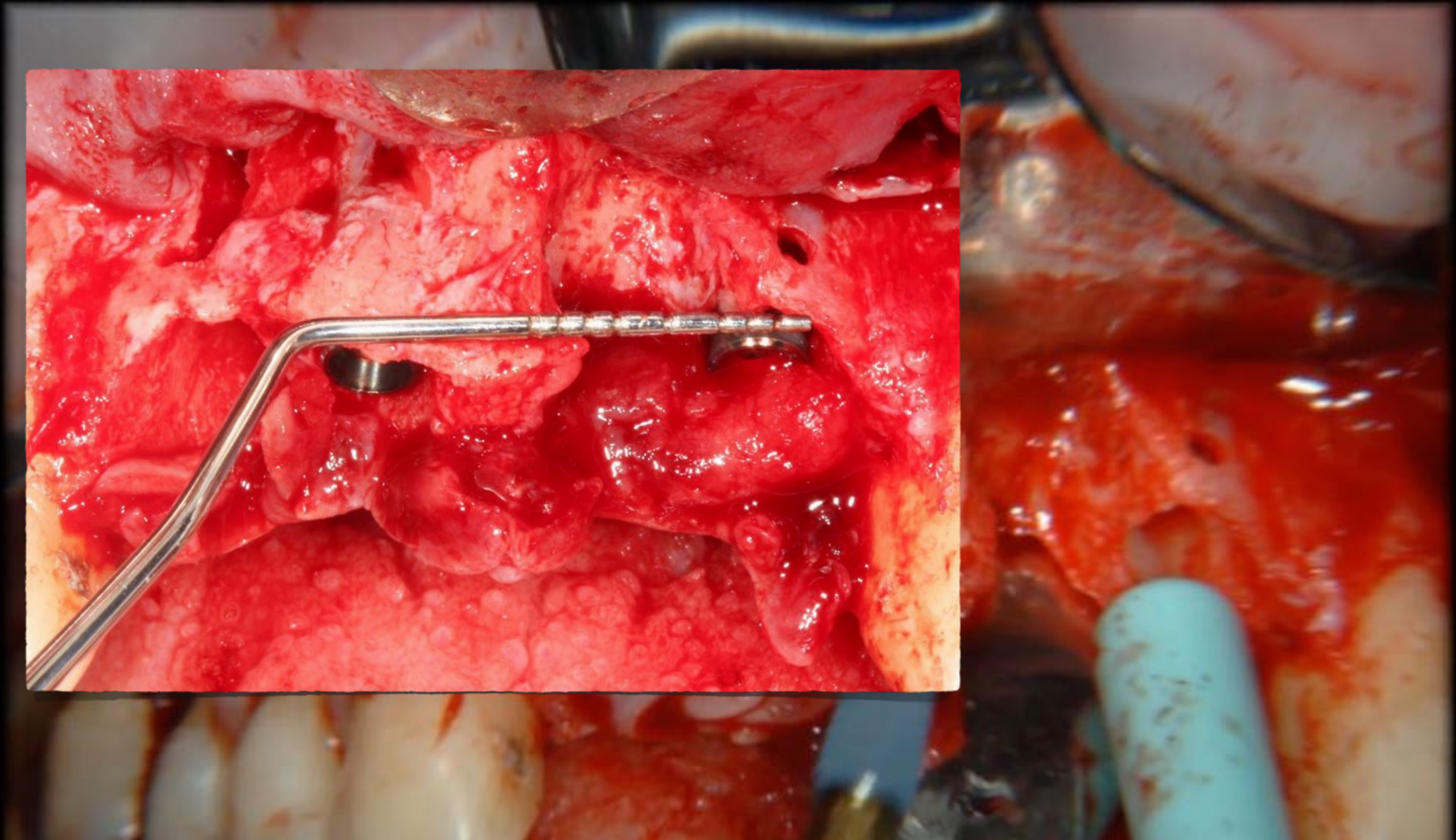
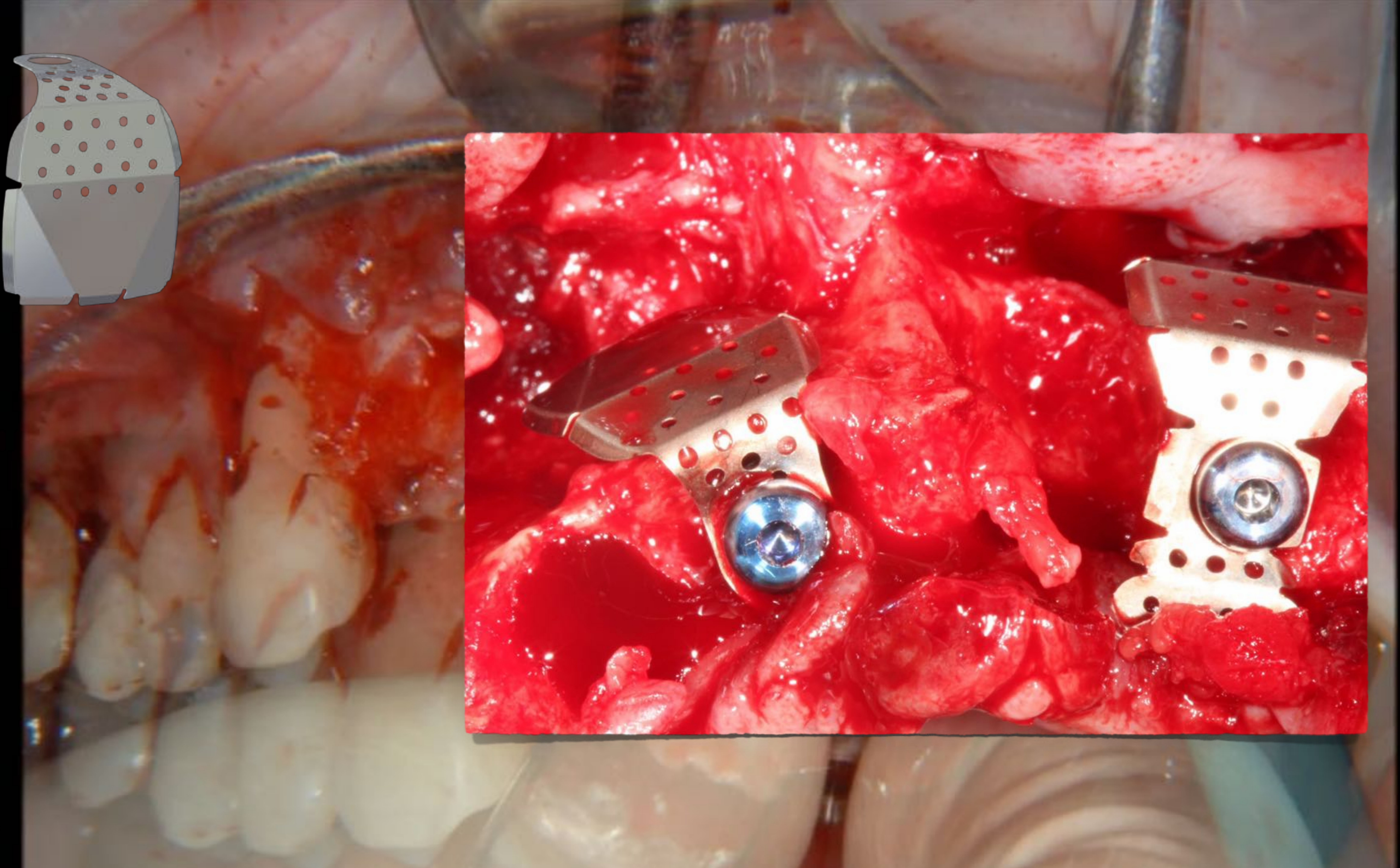

INSERT
LOCK







3 month removal of i-Gen mesh


5 Years
H
H
B
L
2.9mm
B
L
B
L


5 Years
H
H
3.2mm
B
L
B
L
B
L


L R
5 Years

Hindawi Publishing Corporation
BioMed Research International
Volume 2016, Article ID 5126838, 12 pages
http://dx.doi.org/10.1155/2016/5126838

Hindawi

Clinical Study

Alveolar Ridge Reconstruction with Titanium Meshes and Simultaneous Implant Placement: A Retrospective, Multicenter Clinical Study

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[4] *Department of Oral and Maxillofacial Surgery, Lithuanian University of Health Science, LT-44307 Kaunas, Lithuania*
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Received 30 September 2016; Accepted 18 October 2016

Academic Editor: Eitan Mijiritsky

Objective. To evaluate horizontal bone gain and implant survival and complication rates in patients treated with titanium meshes placed simultaneously with dental implants and fixed over them. *Methods.* Twenty-five patients treated with 40 implants and simultaneous guided bone regeneration with titanium meshes (i-Gen®, MegaGen, Gyeongbuk, Republic of Korea) were selected for inclusion in the present retrospective multicenter study. Primary outcomes were horizontal bone gain and implant survival; secondary outcomes were biological and prosthetic complications. *Results.* After the removal of titanium meshes, the CBCT evaluation revealed a mean horizontal bone gain of 3.67 mm (±0.89). The most frequent complications were mild postoperative edema (12/25 patients: 48%) and discomfort after surgery (10/25 patients: 40%); these complications were resolved within one week. Titanium mesh exposure occurred in 6 patients (6/25 : 24%): one of these suffered partial loss of the graft and another experienced complete graft loss and implant failure. An implant survival rate of 97.5% (implant-based) and a peri-implant marginal bone loss of 0.43 mm (±0.15) were recorded after 1 year. *Conclusions.* The horizontal ridge reconstruction with titanium meshes placed simultaneously with dental implants achieved predictable satisfactory results. Prospective randomized controlled trials on a larger sample of patients are required to validate these positive outcomes.

1. Introduction

Dental implants are a predictable treatment procedure for the prosthetic rehabilitation of partially and fully edentulous patients [1–3].

An adequate bone volume is required for insertion of dental implants [4, 5]; the absence of a sufficient amount of horizontal and vertical bone is a problem that can affect the survival and success rates of dental implants in the short, medium, and long term [4, 5].

Since frequently patients present with bone defects of variable entity [4, 5], different surgical techniques have been proposed to restore the ideal anatomical conditions required for implant insertion or to allow simultaneously positioned implants to succeed [6–14]. These techniques include onlay/inlay bone grafting [6, 7], distraction osteogenesis [8], maxillary sinus augmentation [9], inferior alveolar nerve transposition [10], alveolar ridge split [11], and guided bone regeneration (GBR) with resorbable [12] and nonresorbable membranes, such as those in polytetrafluoroethylene (PTFE) [13] or titanium [14].

GBR is considered one of the most predictable of these techniques in terms of clinical outcomes, as reported by several systematic reviews of the literature [12–15], particularly

…tes of i-Gen 25 cases

…ears after loading

97.5%

1/2013 - 4/2016

I failure

Megagen International Network of Education and Clinical Research

Advanced Implant Educators

5 keys to consider for success with Immediate Implant

(I) BUCCAL PLATE
(II) PRIMARY STABILITY
(III) IMPLANT DESIGN
(IV) FILLING OF THE GAP
(V) TISSUE BIOTYPE

5 keys to consider for success with Immediate Implant

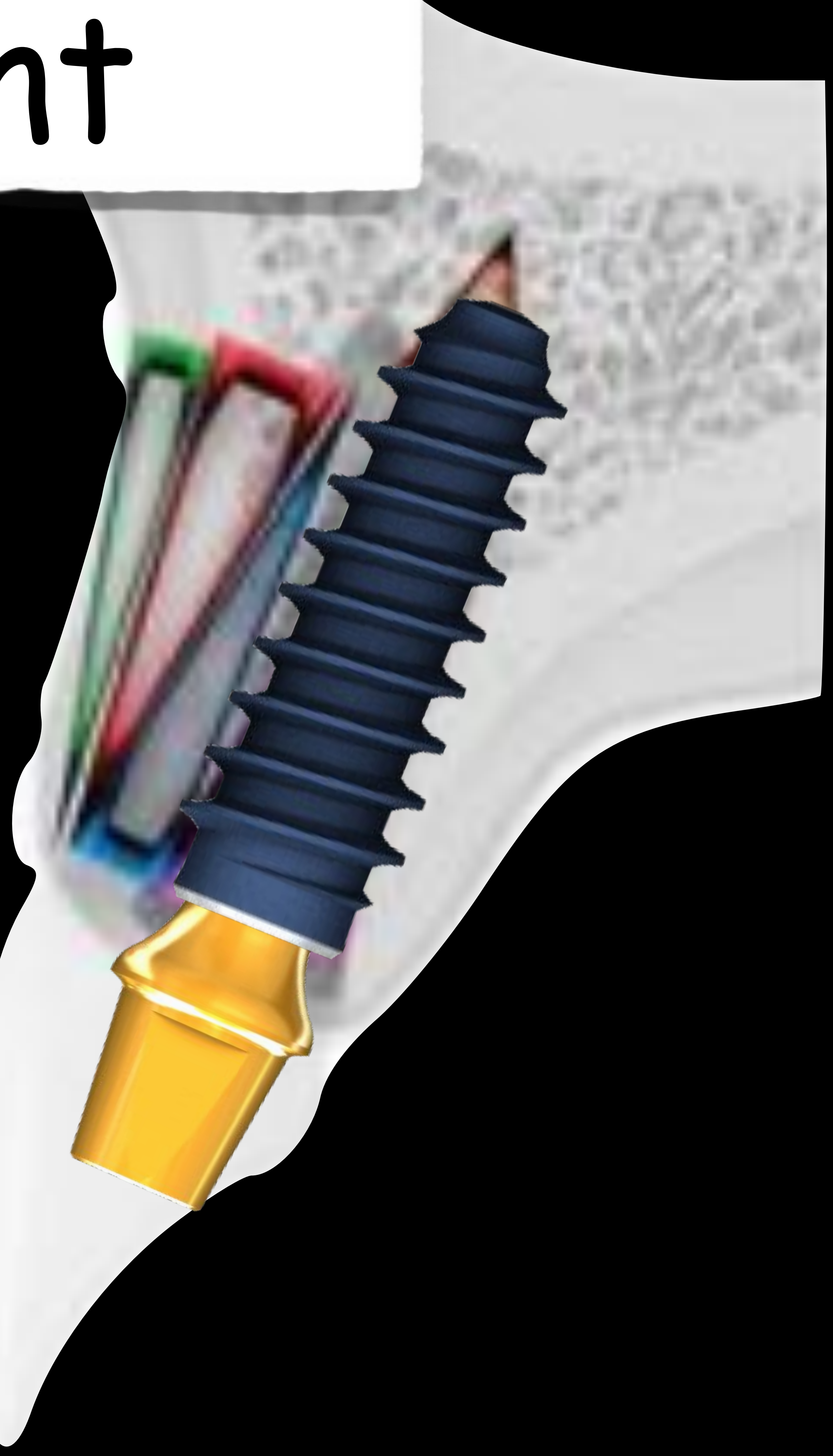
(I) BUCCAL PLATE

(II) PRIMARY STABILITY

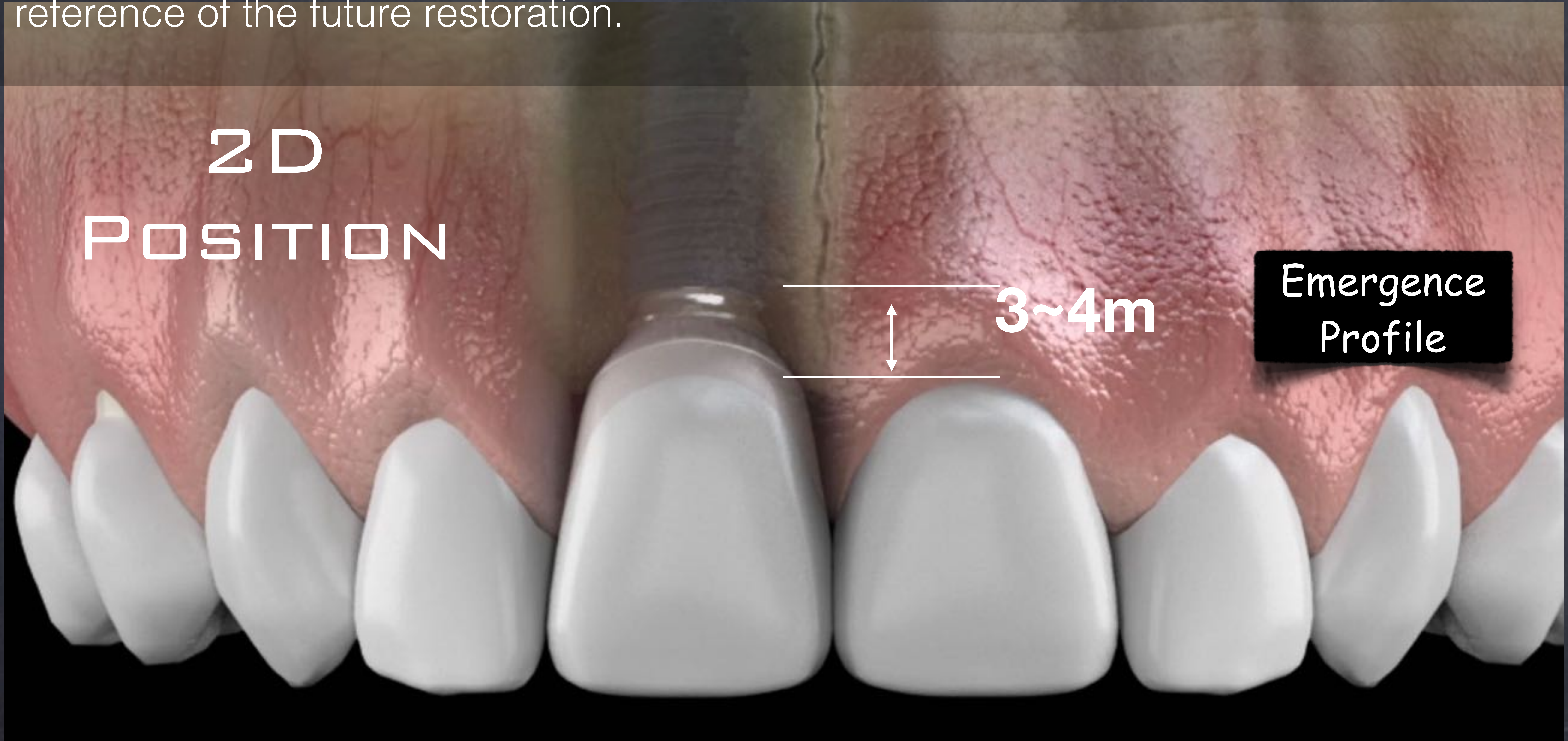
(III) IMPLANT DESIGN

(IV) FILLING OF THE GAP

(V) TISSUE BIOTYPE



Apico-coronally: This distance should be 3-4 mm distance from the gingival margin of the future restoration. In immediate implants the reference is the gingival distance of the removed teeth. If there is no teeth previously, a wax- up should create a reference of the future restoration.



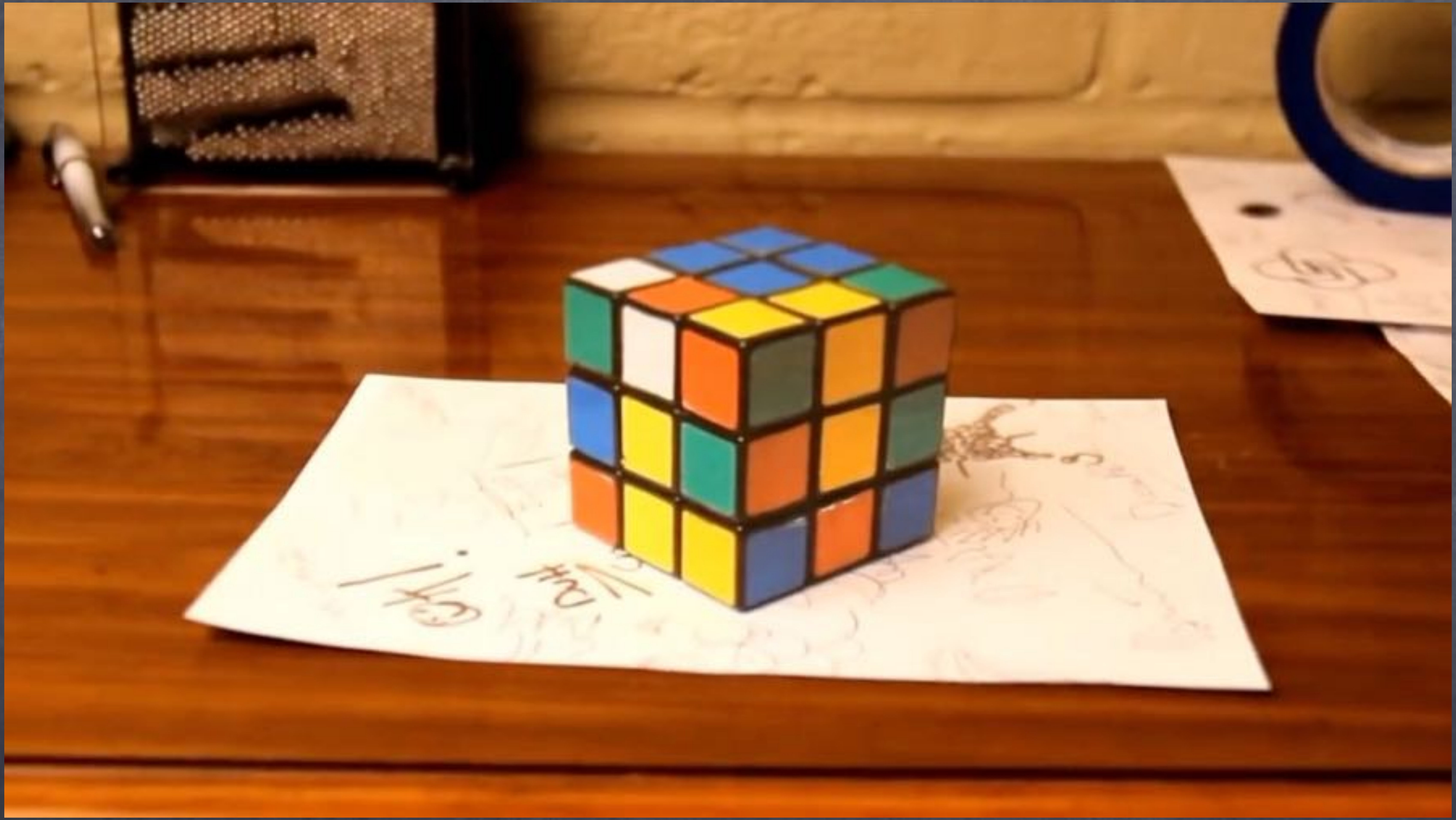
Apico-coronally: This distance should be 3-4 mm distance from the gingival margin of the future restoration. In immediate implants the reference is the gingival distance of … no teeth previously, a … ref … n.

Apico-coronally: This distance should be 3-4 mm distance from the gingival margin of ... ance of ... ref...

2D VS 3D

Perception vs Reality

2D VS 3D



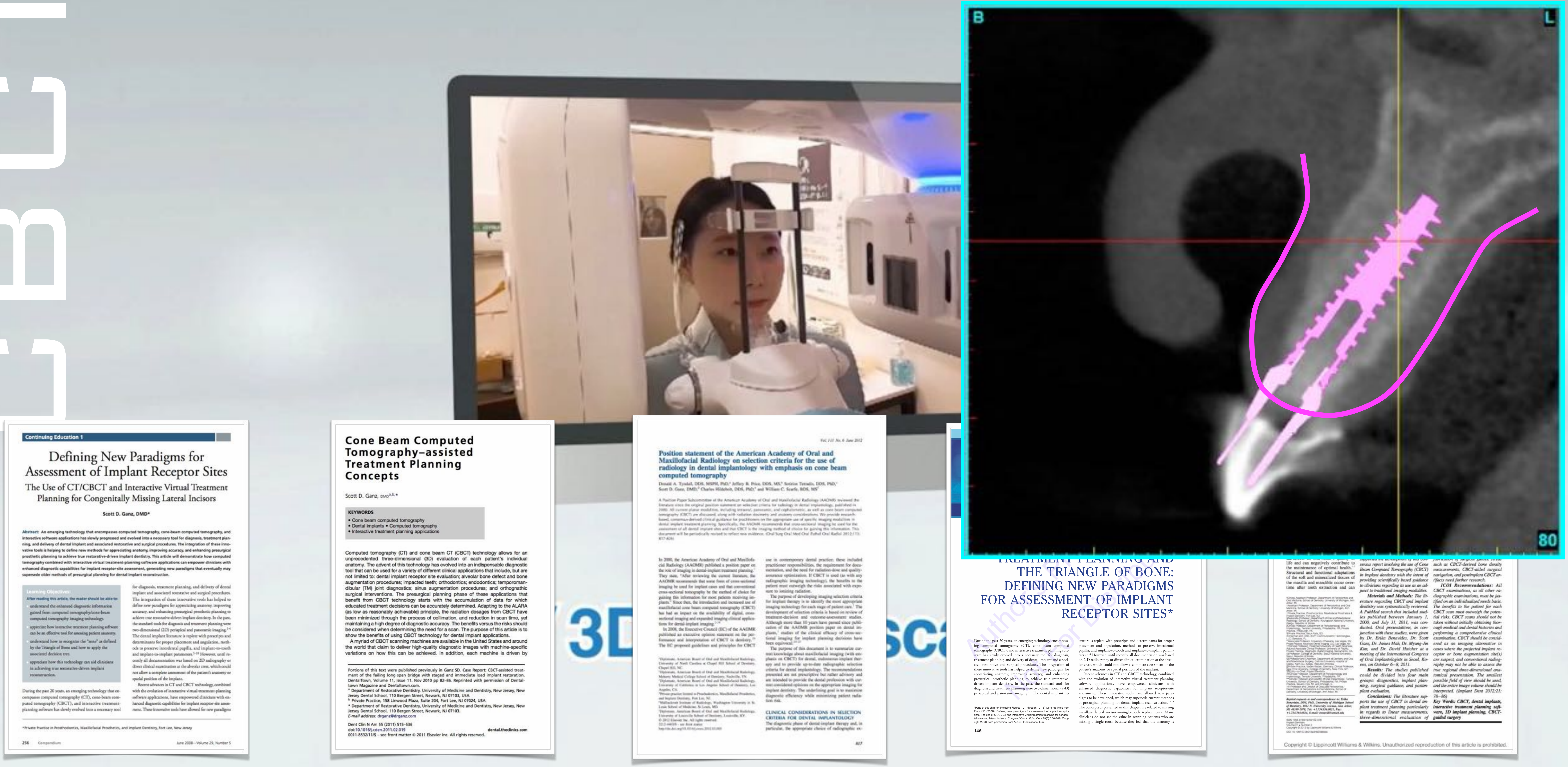
Perception vs Reality


3D CBCT
Puts the information is in our hands
Reality

R2 GATE Turning imagination into reality

Becoming The Standard Of Care

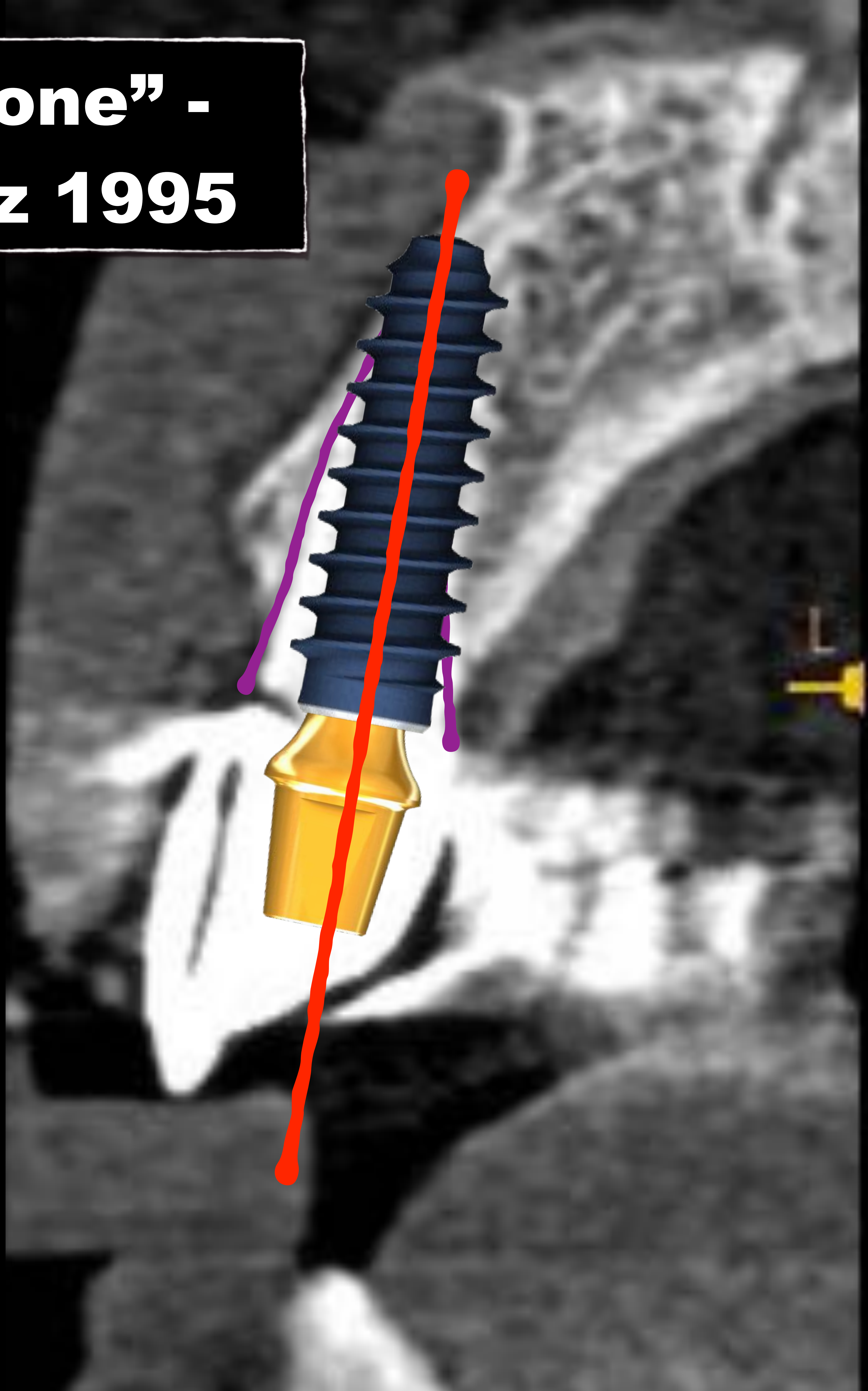
CBCT



The "Triangle of Bone" - Decision Tree: Ganz 1995

The "Triangle of Bone" - Decision Tree: Ganz 1995

- Evaluate the bone
- Is there enough bone within the TOB to place an implant.
- Recognize the presence of a concavity.
- Determine width and length of implant.



- Determine straight or *tapered* design implant.
- Determine one or *two-piece* implant design.
- Determine Abutment Type
- Screw-retained or Cemented
- Determine soft tissue graft, particular bone, or block bone graft to fill defect on facial.

Ganz, SD., Presurgical planning with CT derived fabrication of surgical guides.J Oral Maxillfac Surg 2005;63 [Suppl 2]

Ganz, SD
Various Publications 1995-2015

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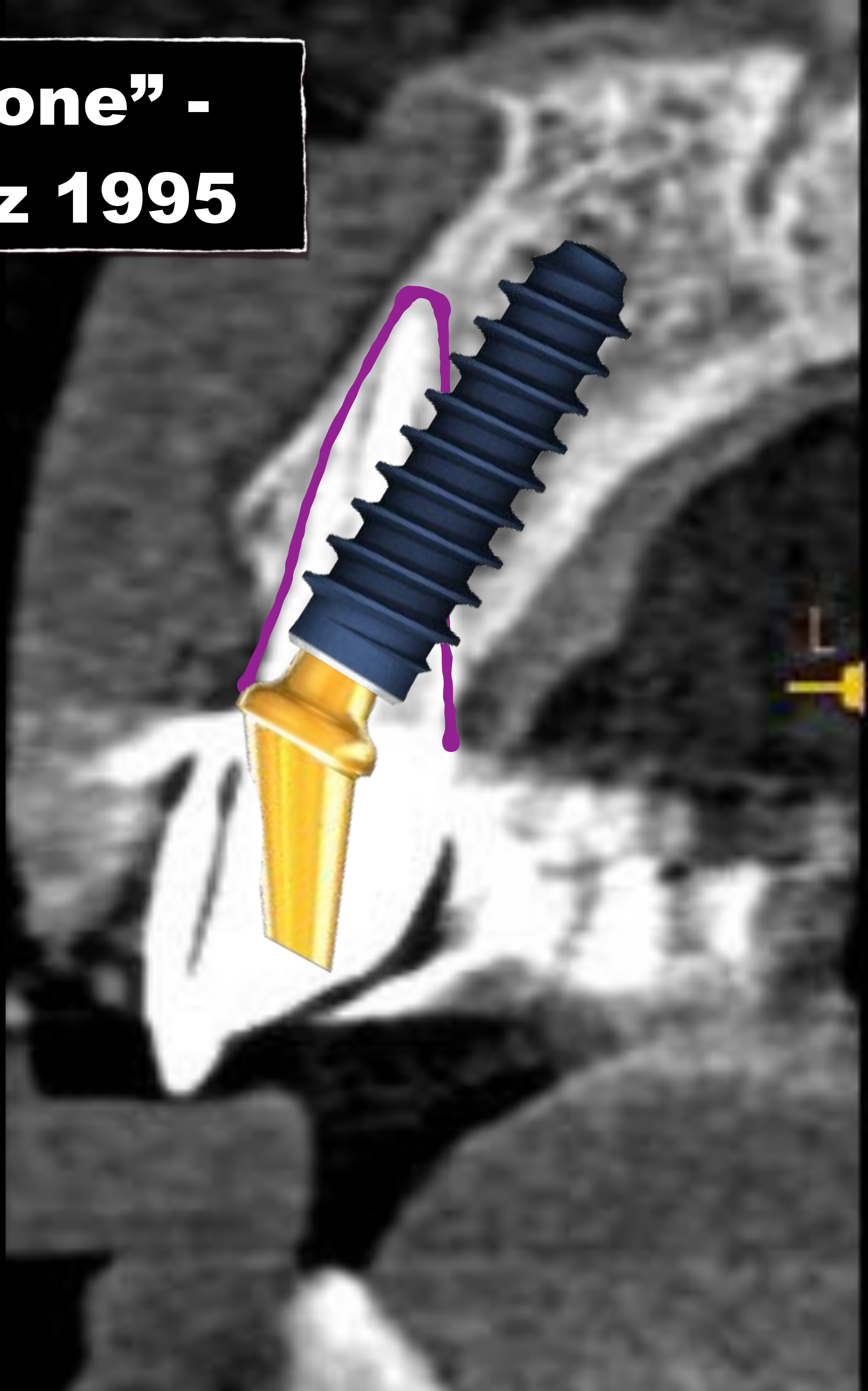

Cementable-angled abutment

Ganz, SD., Presurgical planning with CT derived fabrication of surgical guides.J Oral Maxillfac Surg 2005;63 [Suppl 2]

Ganz, SD
Various Publications 1995-2015

The "Triangle of Bone" - Decision Tree: Ganz 1995

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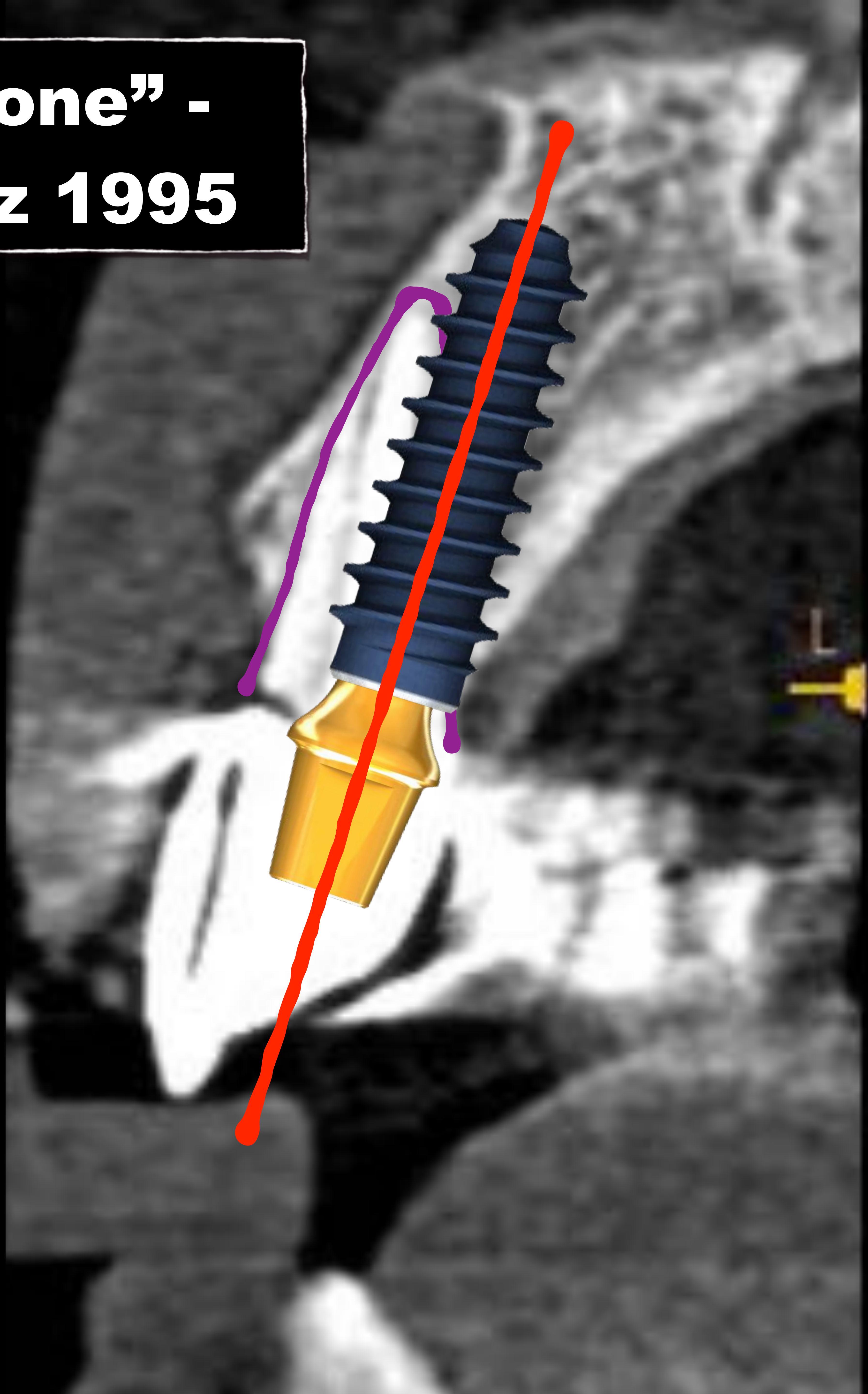

Screw - Retained Crown

Ganz, SD., Presurgical planning with CT derived fabrication of surgical guides.J Oral Maxillfac Surg 2005;63 [Suppl 2]

Ganz, SD
Various Publications 1995-2015

BUCCAL PLATE

Immediate Implantation & Loading
Case Selection

- Intact socket walls

Elian , Cho, Forum, Tarnow. A simplified socket classification and repair technique. Pract Proced Aesthet Dent. 2007;19:99-104

Elian Classification 2007

BUCCAL PLATE

Classification of Sagittal Root Position in Relation to the Anterior Maxillary Osseous Housing for Immediate Implant Placement: A Cone Beam Computed Tomography Study

Joseph Y. K. Kan, DDS, MS[1]/Phillip Roe, DDS, MS[2]/Kitichai Rungcharassaeng, DDS, MS[3]/
Rishi D. Patel, BDS, MS[2]/Tomonori Waki, DDS, PhD[2]/Jaime L. Lozada, DMD[4]/Grenith Zimmerman, PhD[5]

Purpose: *The purpose of this study was to classify the relationship of the sagittal root positions of the maxillary anterior teeth to their respective osseous housings using cone beam computed tomography (CBCT). The frequency of each classification was also reported.* ***Materials and Methods:*** *A retrospective review of CBCT images was conducted on 100 patients (40 men, 60 women; mean age, 53.1 years) who fulfilled the inclusion criteria. The CBCT images were evaluated and the relationship of the sagittal root position of the maxillary anterior teeth to its associated osseous housing was recorded as Class I, II, III, or IV.* ***Results:*** *The frequency distribution of sagittal root position of maxillary anterior teeth indicated that, of the 600 samples, 81.1%, 6.5%, 0.7%, and 11.7% were classified as Class I, II, III, and IV, respectively.* ***Conclusions:*** *An understanding of the clinical relevance of sagittal root position will provide adjunct data for the treatment planning of immediate implant placement and provisionalization in the anterior maxilla. A classification system may lead to improved interdisciplinary communication in treatment planning for implant-based therapy in the anterior maxilla.* Int J Oral Maxillofac Implants 2011;26:873–876

Key words: *anterior maxilla, cone beam computed tomography, esthetics, immediate implant placement, immediate provisionalization, osseous housing, sagittal root position, single-tooth replacement, treatment planning*

Immediate implant placement and provisionalization (IIPP) of a single tooth in the esthetic zone was first advocated in the mid-1990s and has since been considered a predictable treatment option for replacing failing teeth.[1–9] In addition to preserving tissue architecture, reducing treatment time, and providing the patient with the convenience of an immediate tooth replacement,[1,3,7,8] IIPP procedures have also been documented with high success rates when established clinical guidelines are followed.[3,6,9] To ensure successful IIPP, in addition to the presence of an intact bony socket following extraction and the absence of active infection, primary implant stability must be achieved by engaging the implant with the palatal wall and the bone approximately 4 to 5 mm beyond the root apex.[6–8] Unfortunately, because the available bone around the failing tooth may not always be sufficient to achieve primary implant stability, alternative treatment options should be considered. Factors such as root length, sagittal root position (SRP), and the morphology of the osseous housing are important in determining the feasibility of IIPP and must be evaluated via the use of cone beam computed tomography (CBCT). While the effect of root length on the IIPP is easily

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Correspondence to: Dr Joseph Kan, Center for Prosthodontics and Implant Dentistry, Loma Linda University School of Dentistry, Loma Linda, CA 92350. Fax: +909-558-4803. Email: jkan@llu.edu

Fig 1 Class I sagittal root position.

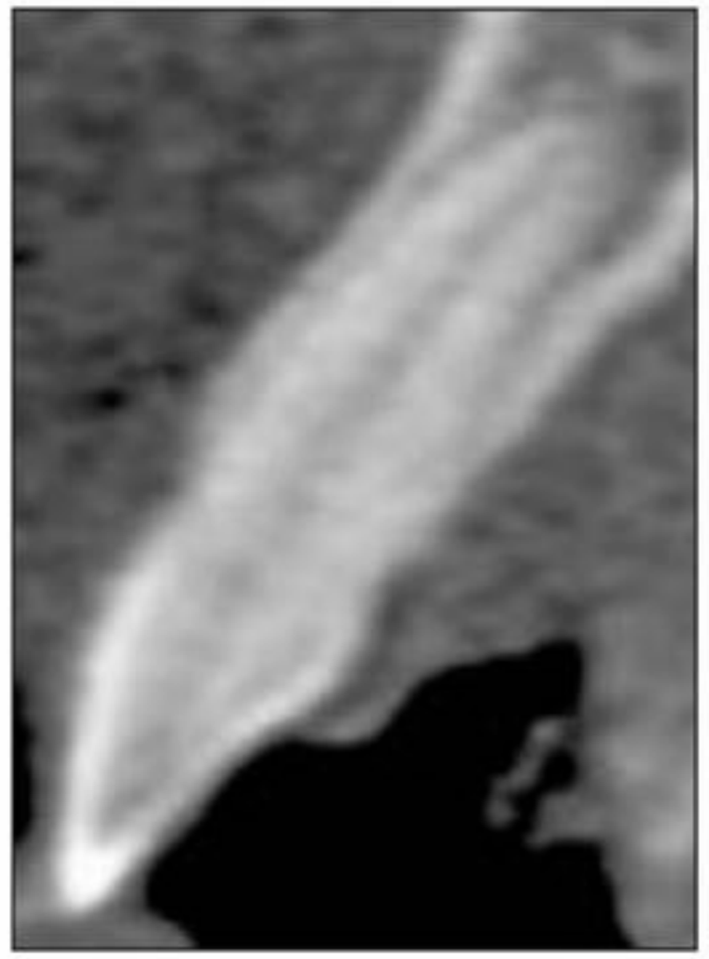


Fig 2 Class II sagittal root position.

Fig 3 Class III sagittal root position.

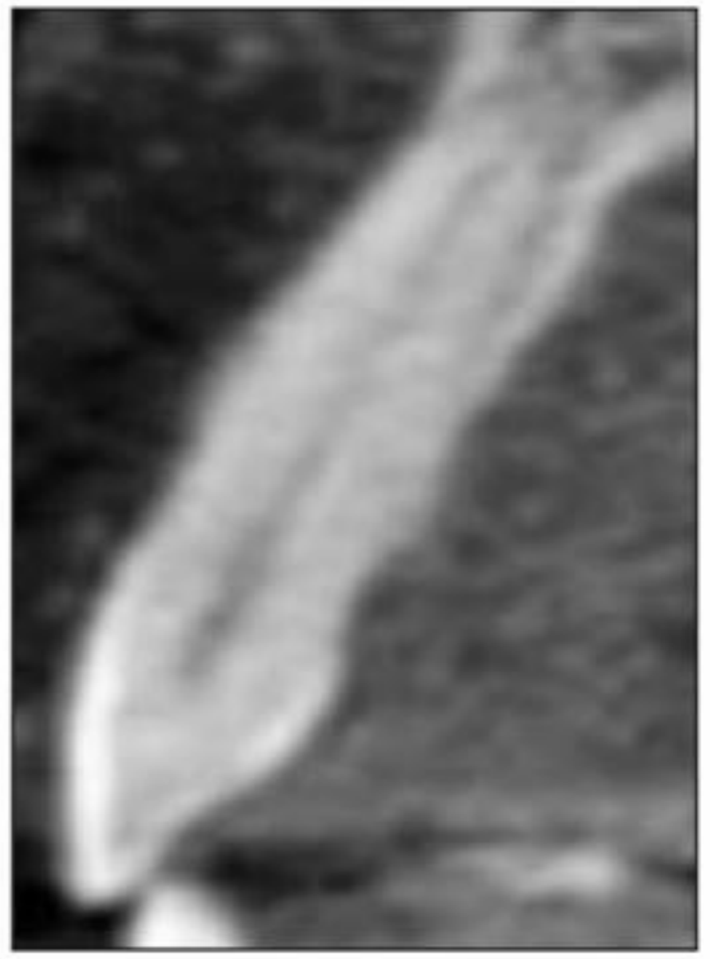


Fig 4 Class IV sagittal root position.

BUCCAL PLATE

Kan et al

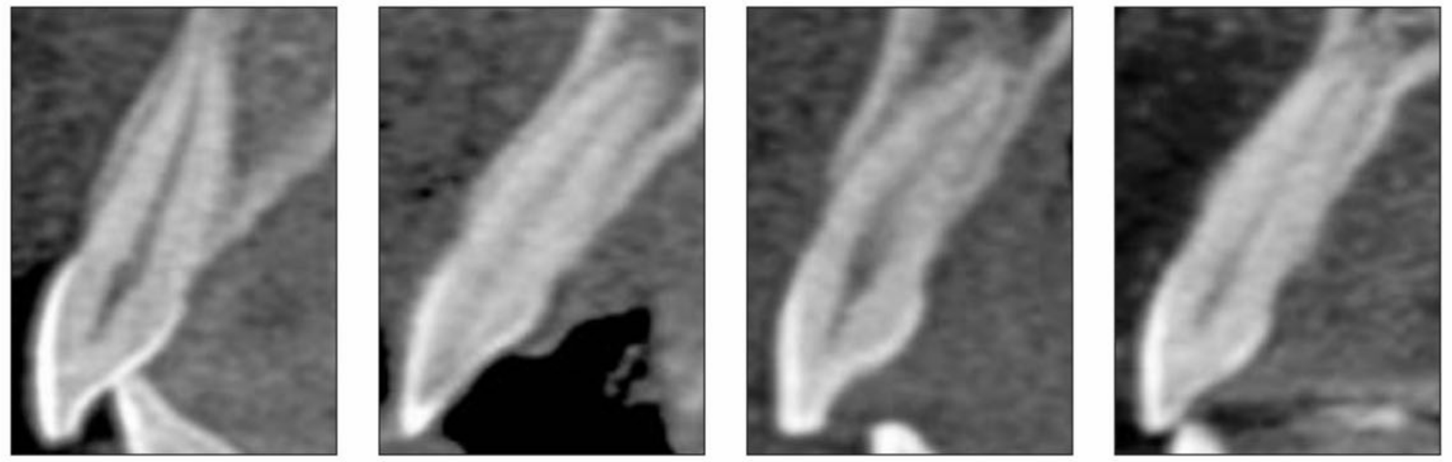
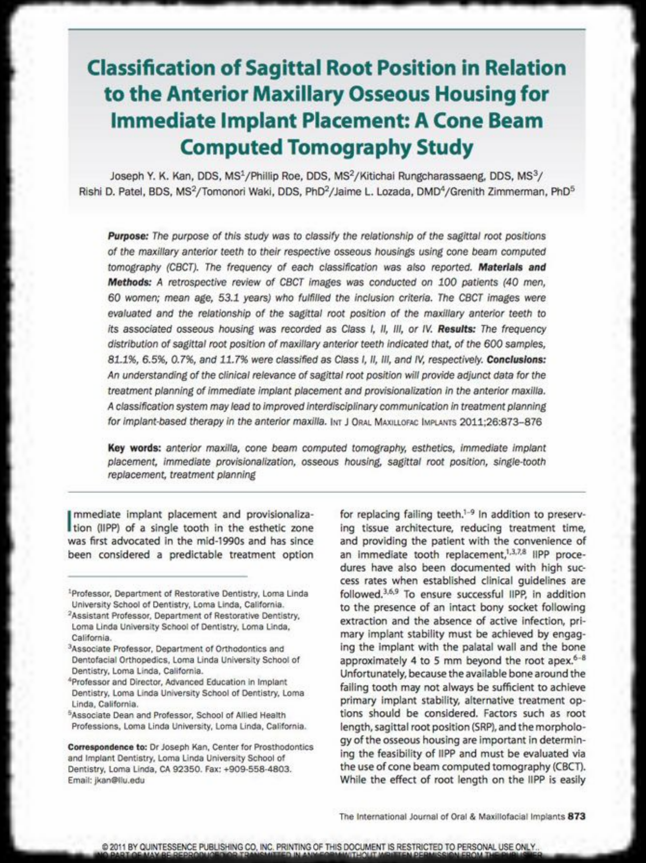


Fig 1 Class I sagittal root position. **Fig 2** Class II sagittal root position. **Fig 3** Class III sagittal root position. **Fig 4** Class IV sagittal root position.

Table 1 Frequency Distribution of Sagittal Root Position Classification

	Percentage (no.)			
SRP	**Central incisor**	**Lateral incisor**	**Canine**	**Overall**
Class I	86.5 (173)	76 (152)	81 (162)	81.1 (487)
Class II	5 (10)	8.5 (17)	6 (12)	6.5 (39)
Class III	0.5 (1)	1.5 (3)	0 (0)	0.7 (4)
Class IV	8 (16)	14 (28)	13 (26)	11.7 (70)
Total	100 (200)	100 (200)	100 (200)	100 (600)



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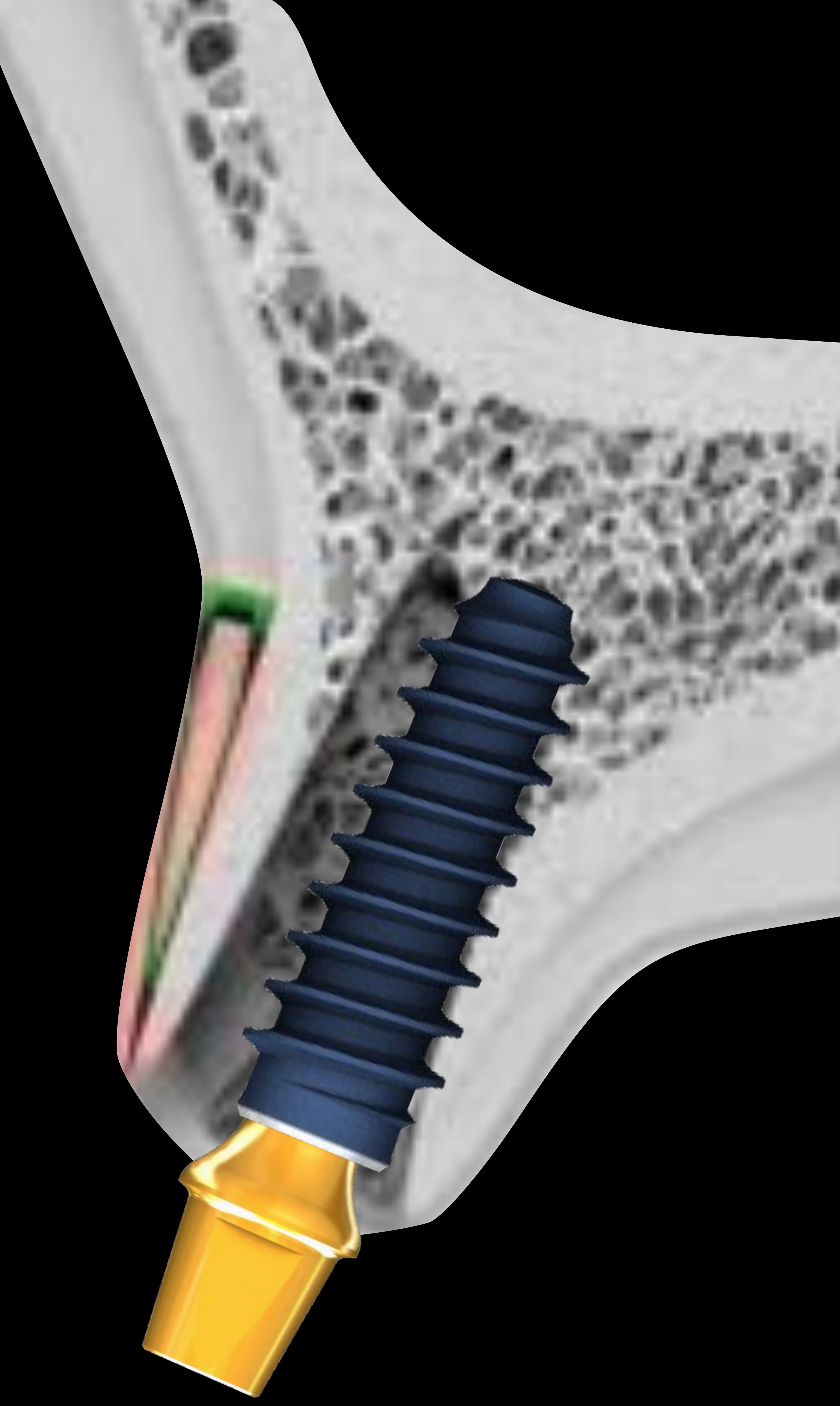
When a buccal bone dehiscence is present the risk of future gingival recession is very high!

Except, if we graft the site by bone substitute and/or
gingival graft if needed.

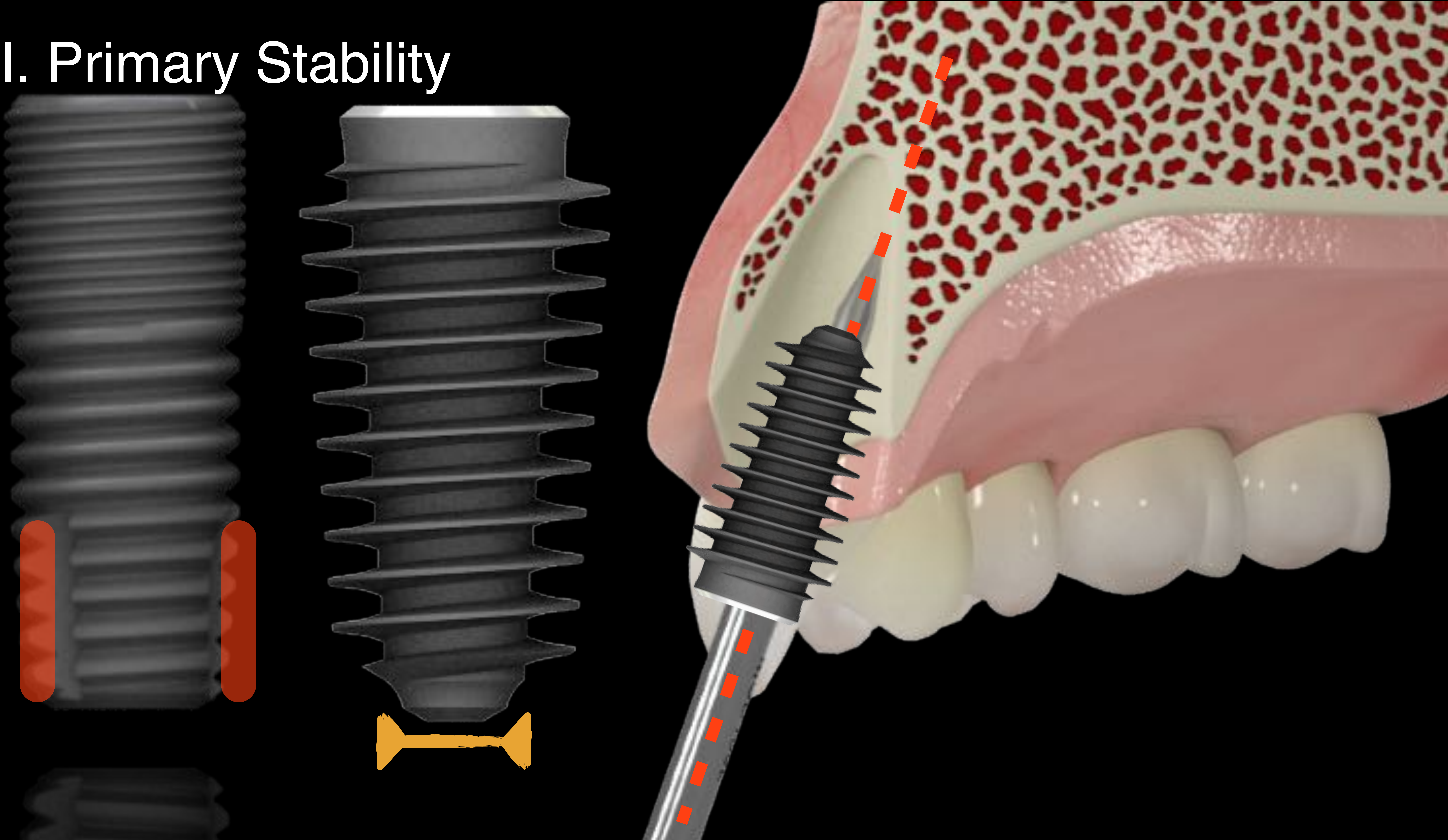
Chen ST, et al. (2007) A prospective clinical study of non-submerged immediate implants: clinical outcomes and esthetic results. Clinical Oral Implants Research

II. Primary Stability

- sufficient bone apical to the extracted tooth's alveolus
- 2-4 mm of bone apical to the alveolus creates stable anchor
- enhanced by the type of implant (tapered design)

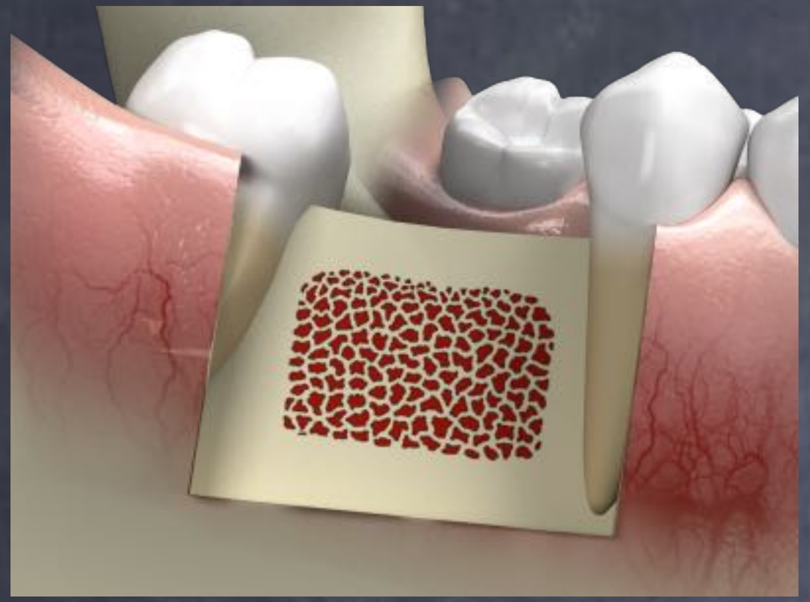


II. Primary Stability

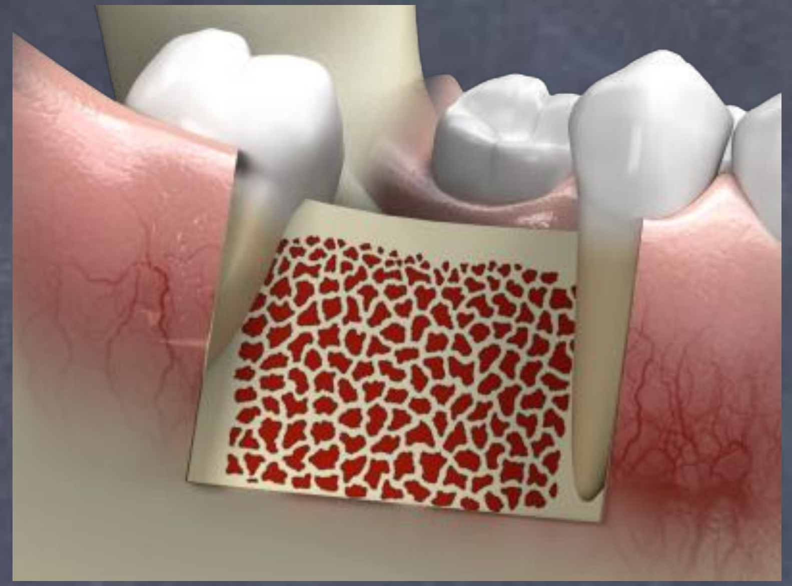



After 4 years
2019

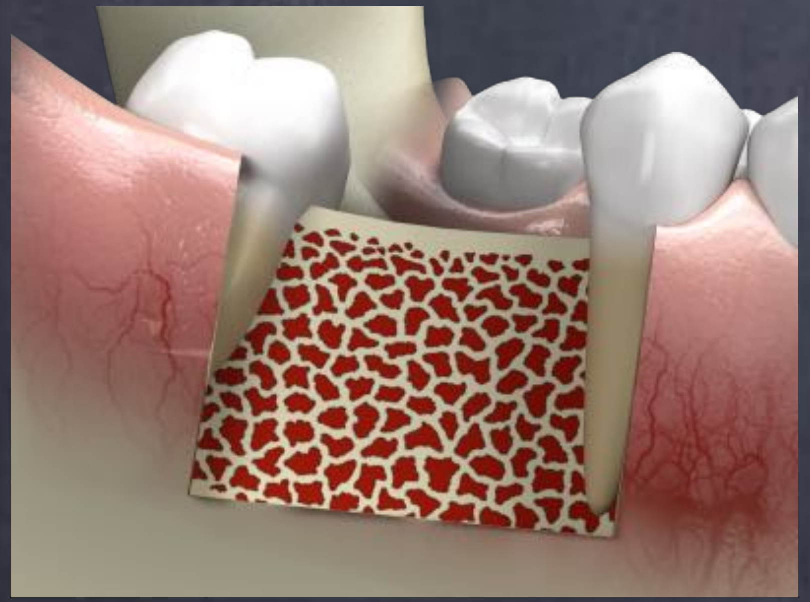
Under Drilling



D1

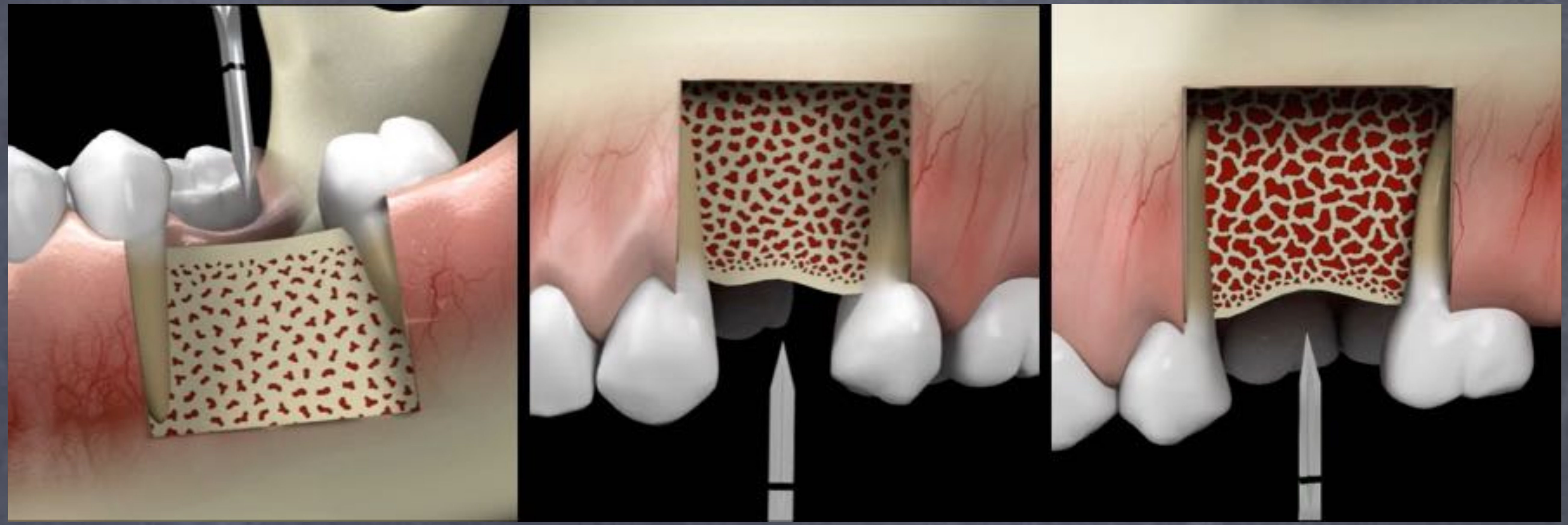


D2



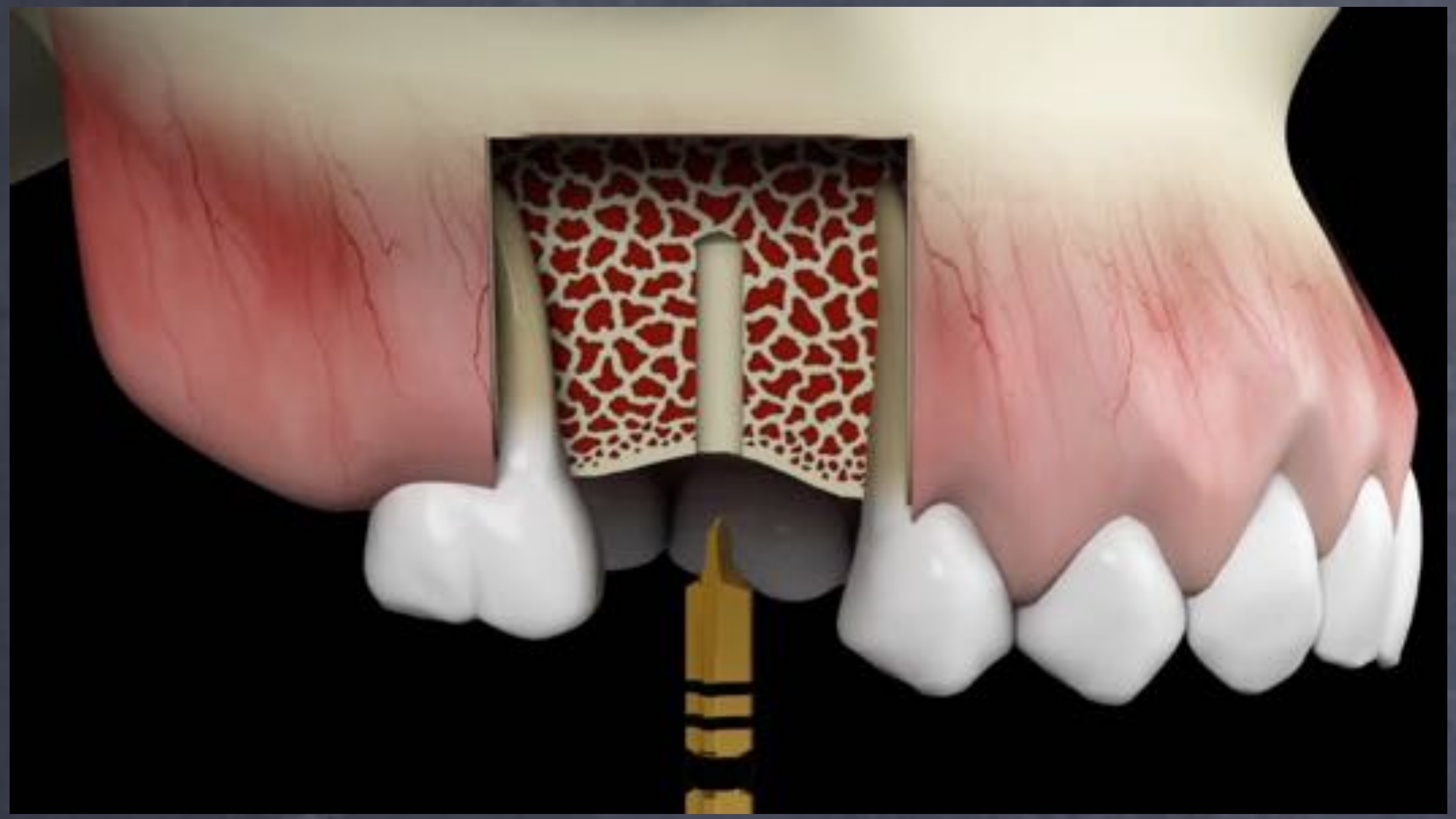
D3

D4-5



D 1 D 2-3 D 4-5

Drilling Technique



Final drill

D 4 2.0 or 2.9

D 5 2

Final drill

D2 3.3 or 3.8

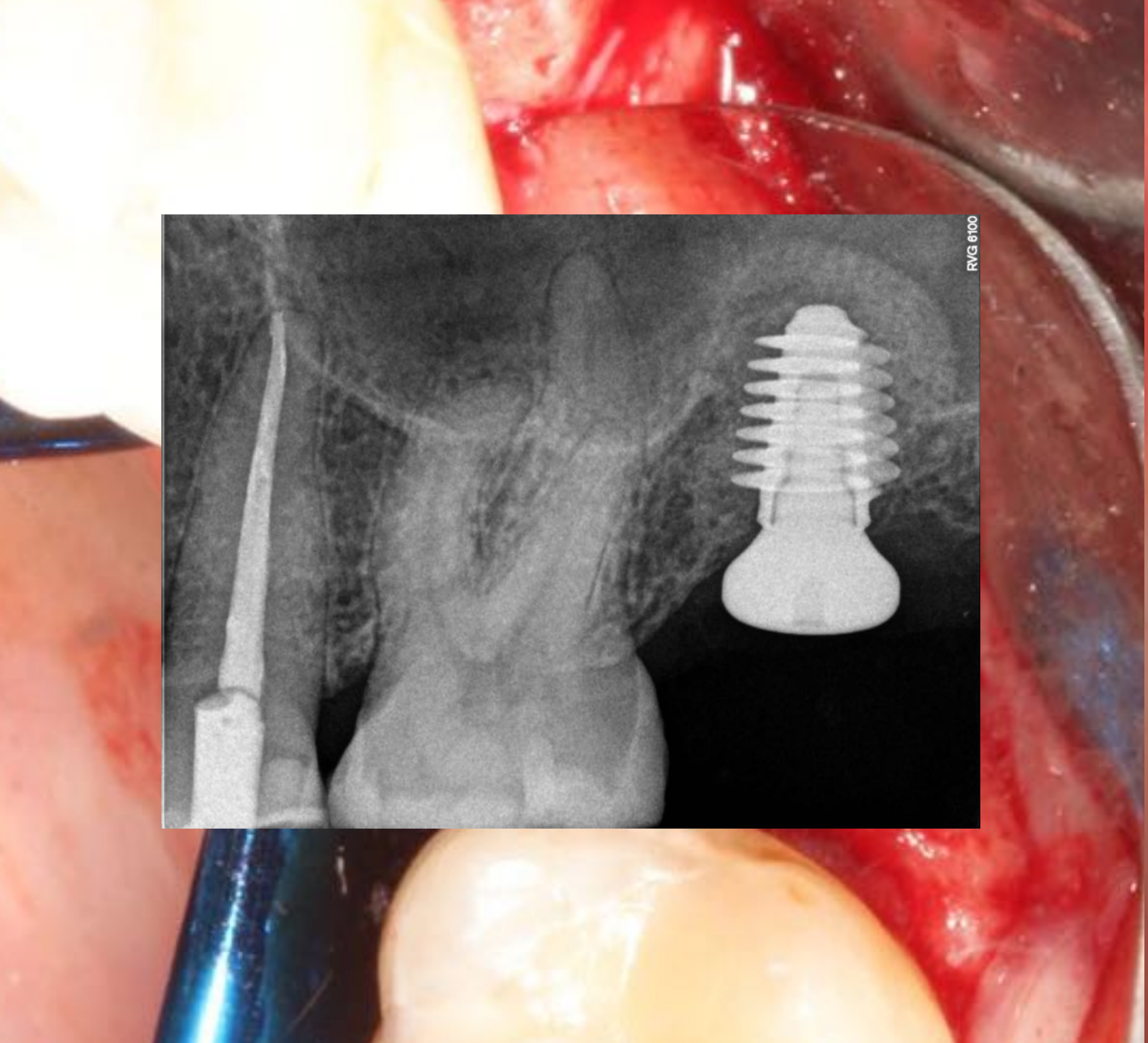
D3 2.9 or 3.3

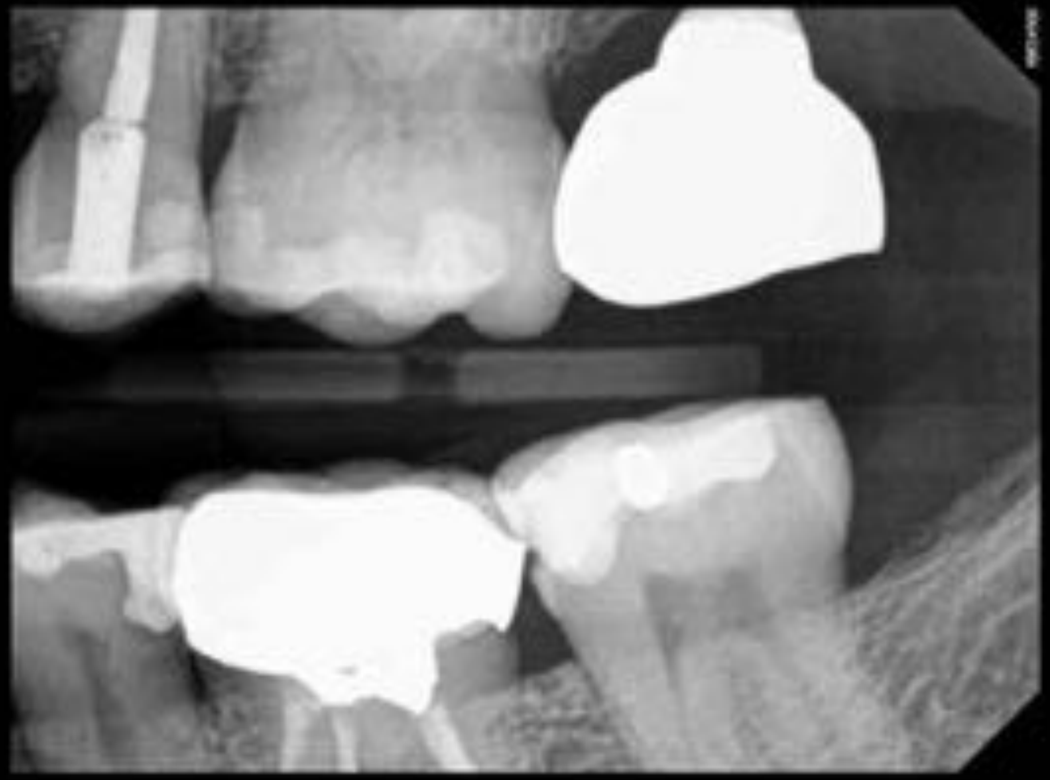
Final drill

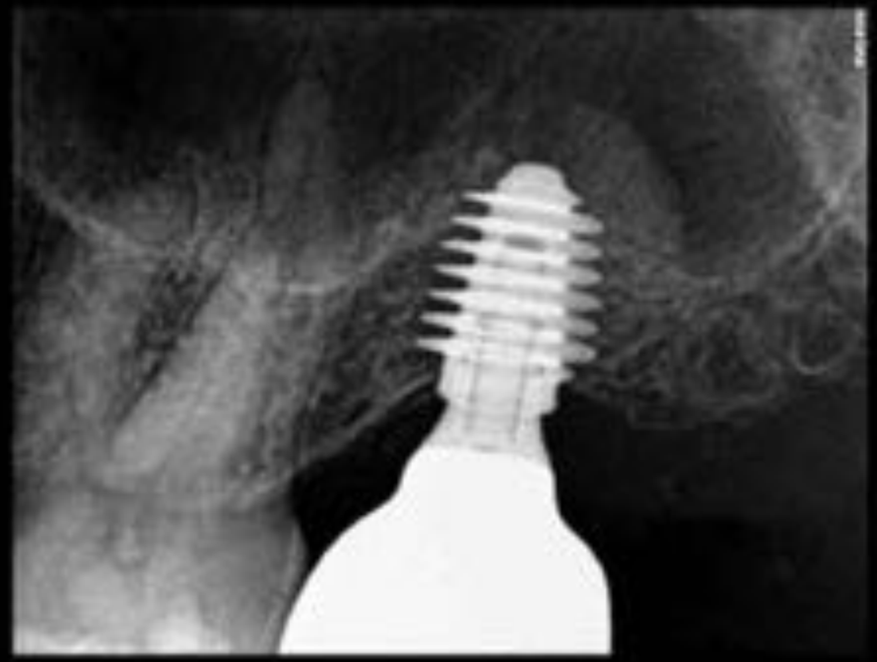
D1 4.3mm


3.3mm Osteotomy

5.5mm implant 3.3mm osteotomy @60ncm


RVG 6100



III. Implant Design

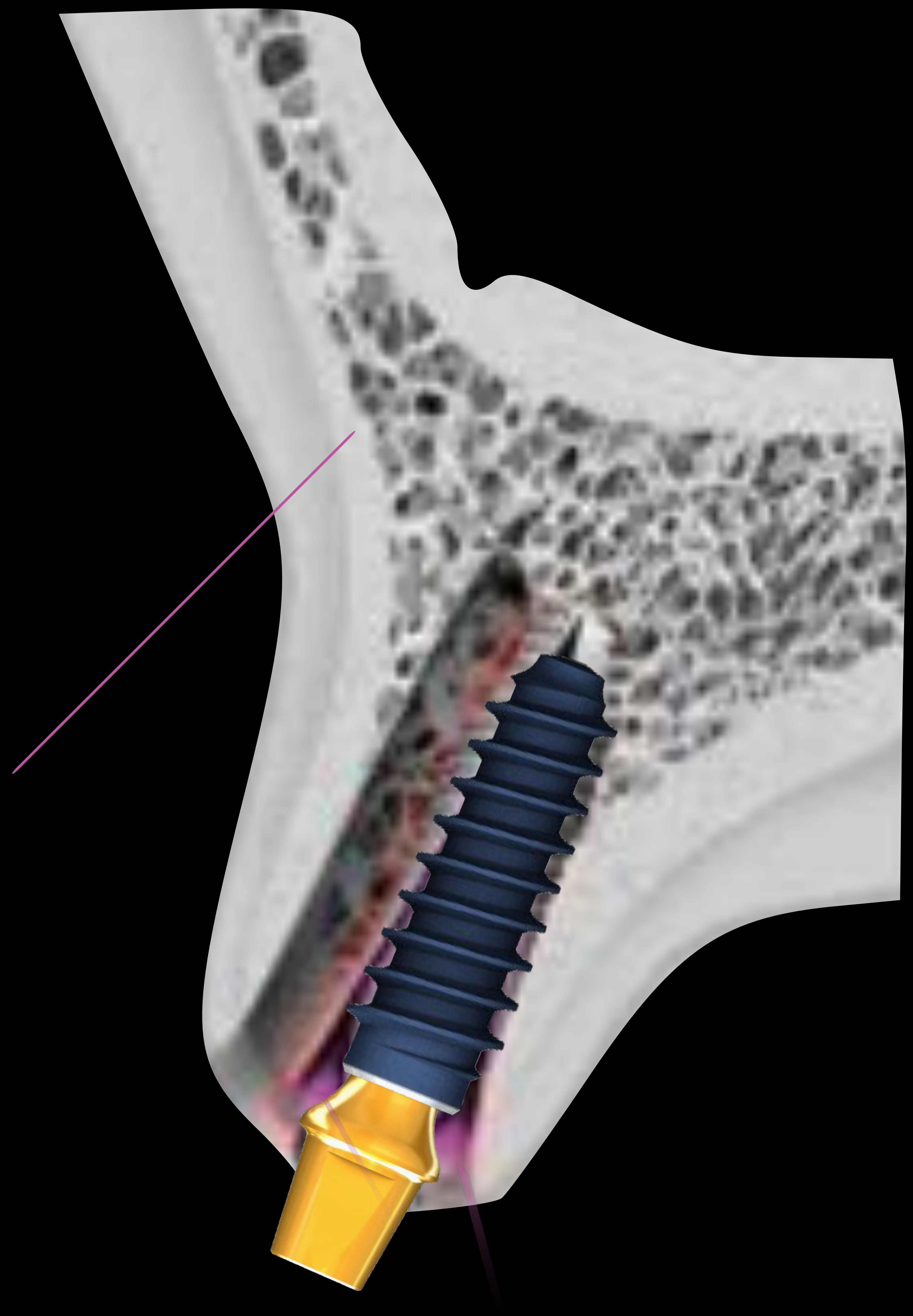
Timing of Implant placement in relation to tooth extraction

Old Protocol Old Design

- Wider Implant neck diameter
- No buccal gap
- No peri-implant bone graft

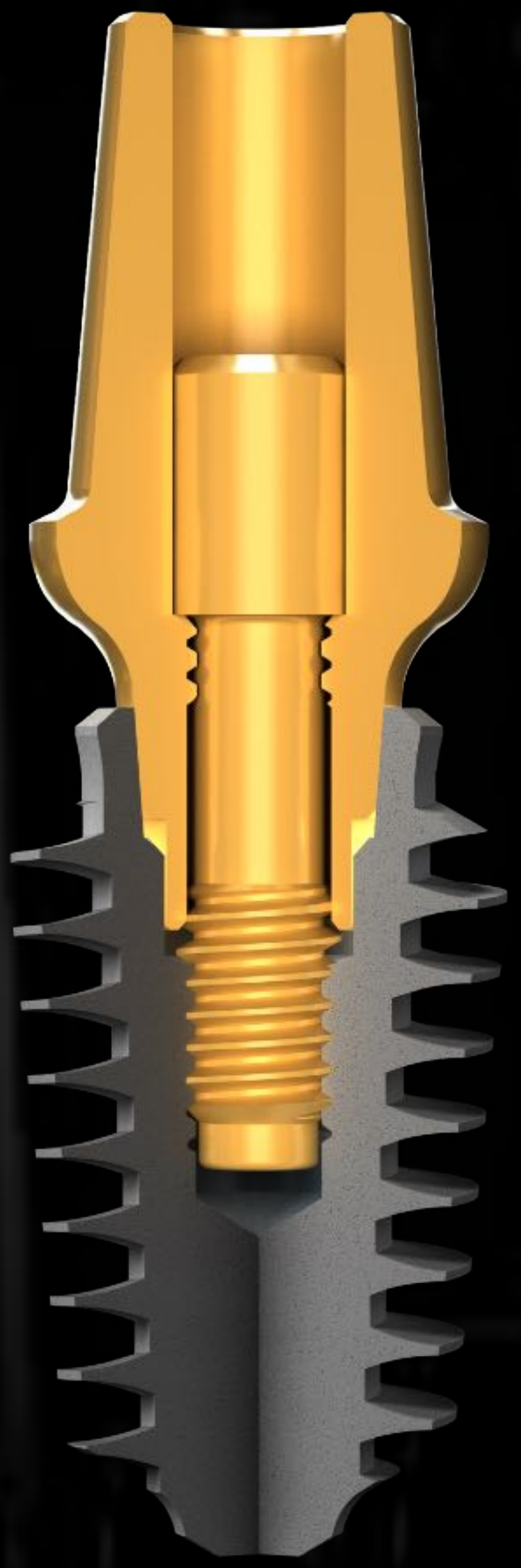
- No connective tissue graft
- No switching platform
- Weak connection (implant abutment)

III. Implant Design



Ideal Fixture

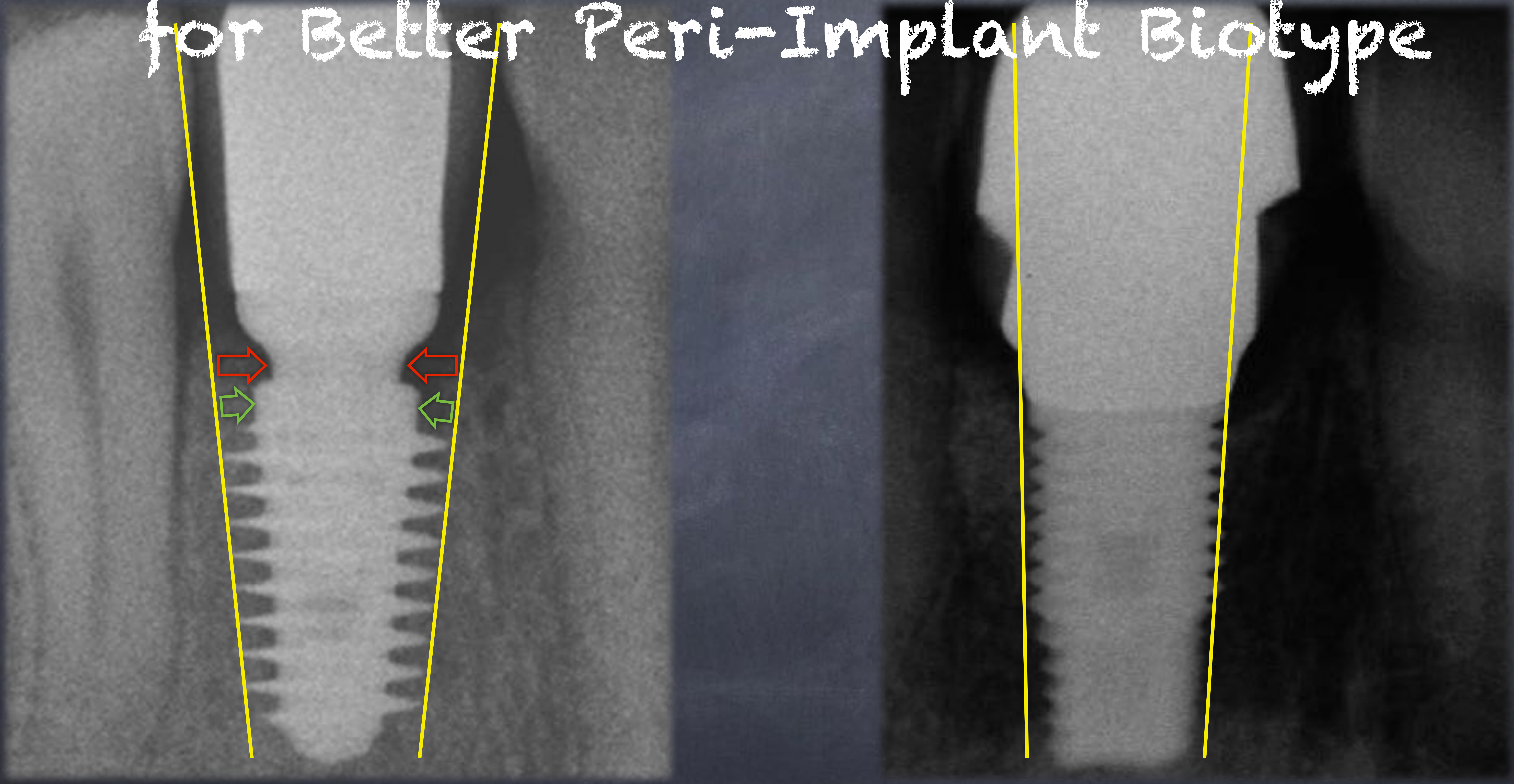
- Less bone reduction
- Excellent initial stability
- Immediate placement
- Immediate provisionalization
- Immediate or early loading
- Fast integration
- Earlier final restoration
- Less crestal bone loss
- Less failure
- Strong body
- Better stability to lateral force



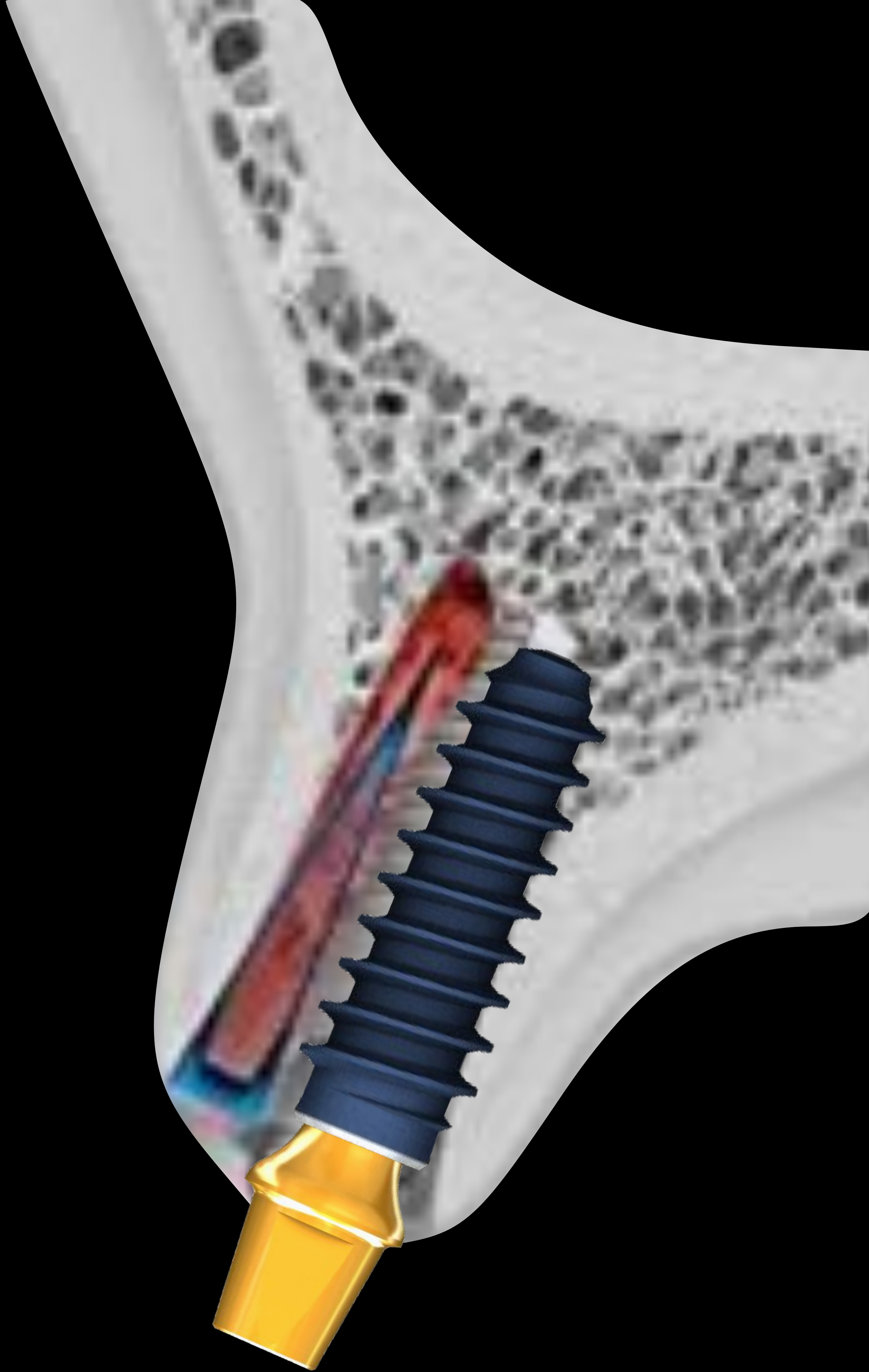
Ideal Abutment

- Stable Connection
- No screw loosening
- Preservation of the crestal bone
- Preservation of the biologic width

Double Offset for Better Peri-Implant Biotype



IV. “Fill the Gap"



Separation of Soft tissue - PDL

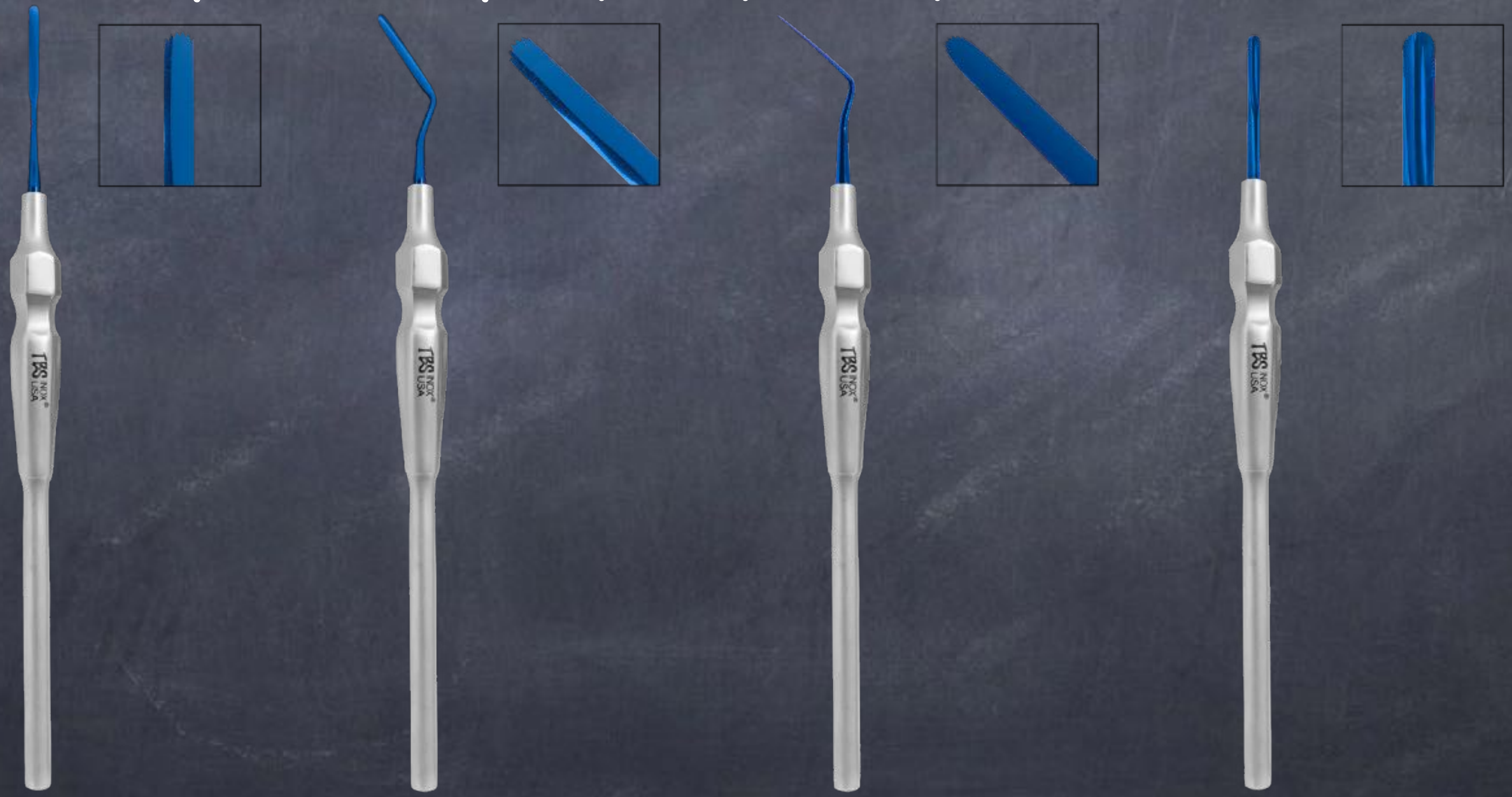
The first step in removing a tooth using the simple technique is to sever or loosen the soft tissue attachment surrounding the tooth.

Instruments are required to sever the soft tissue attachment:

straight or curved periotomes

Initial separation of PDL

Use of peristomes to engage PDL aides in elevation and separation of soft tissue from cementum



Initial separation of PDL

Use of peristomes to engage PDL aides in elevation and separation of soft tissue from cementum

Mechanical Principles for Extractions

1. Expansion of the bony socket

Special Addition

MODIFIED 151
LOWER UNIVERSAL

FRINGS®
forceps with spring

TAWIL
SKU: 33005F

MODIFIED 23
LOWER 3RD MOLARS

FRINGS®
forceps with spring

PATEL
SKU: 33006F

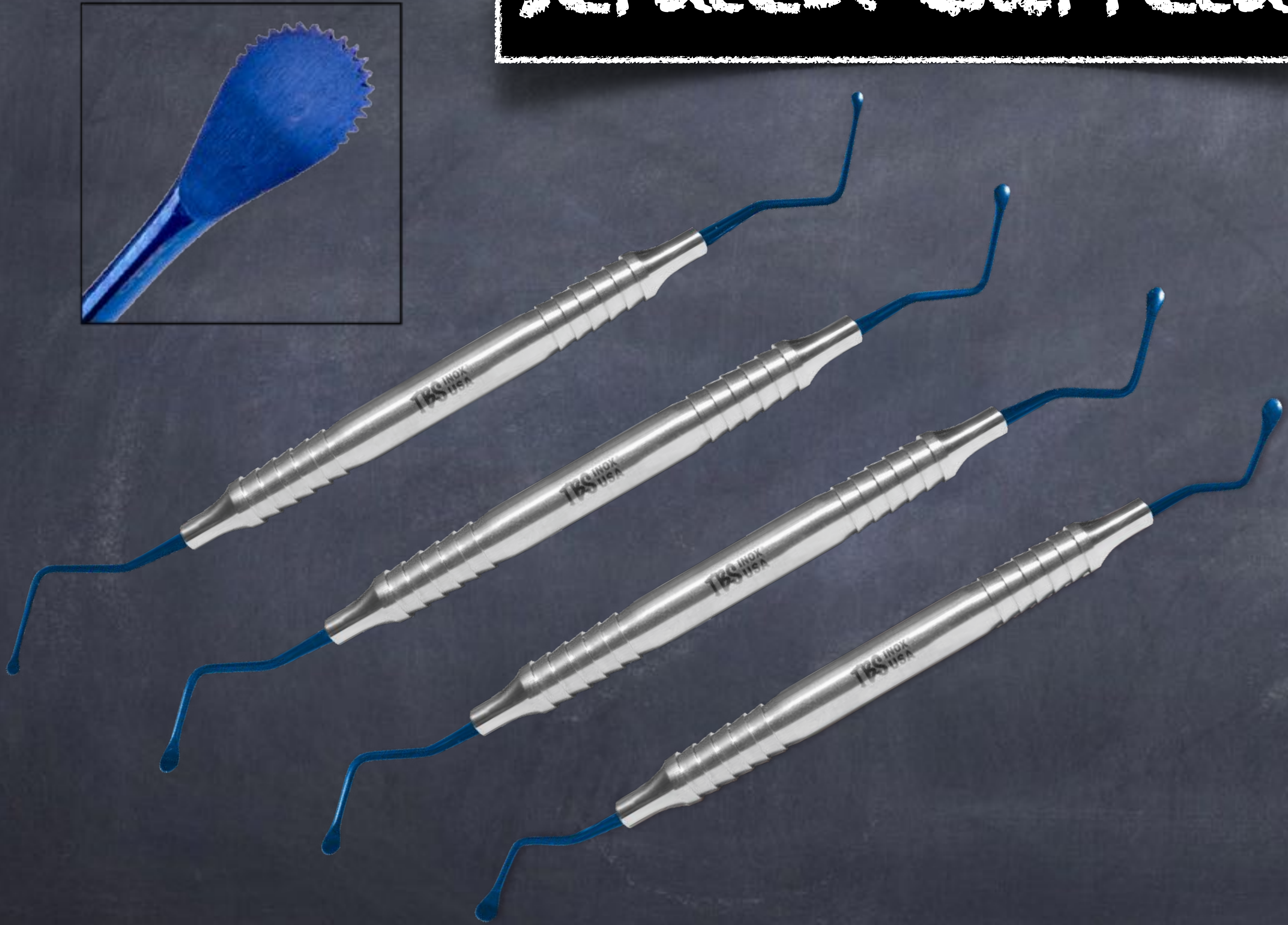
MICRO ROOTS

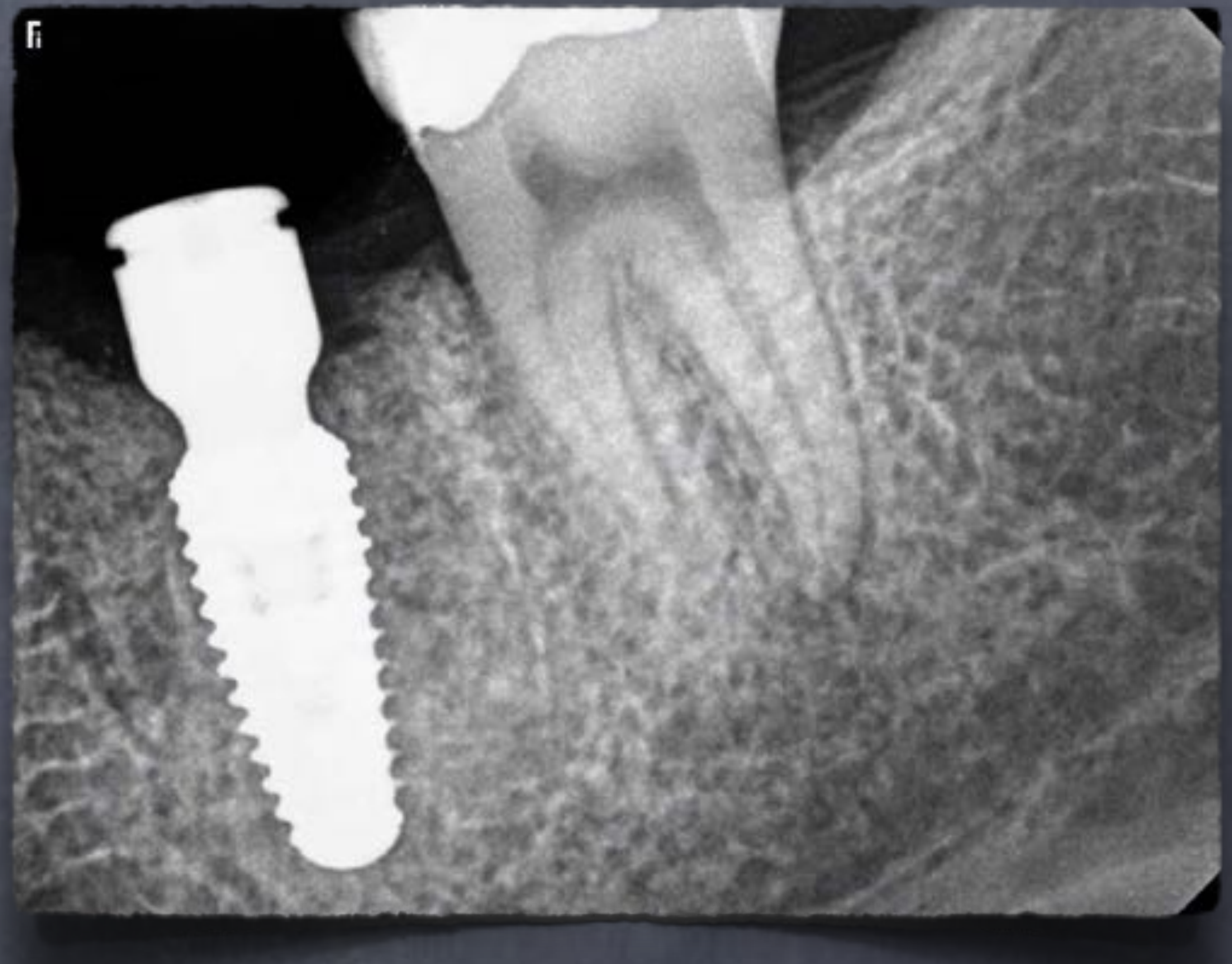
FRINGS®
forceps with spring

GANZ
SKU: 33011F

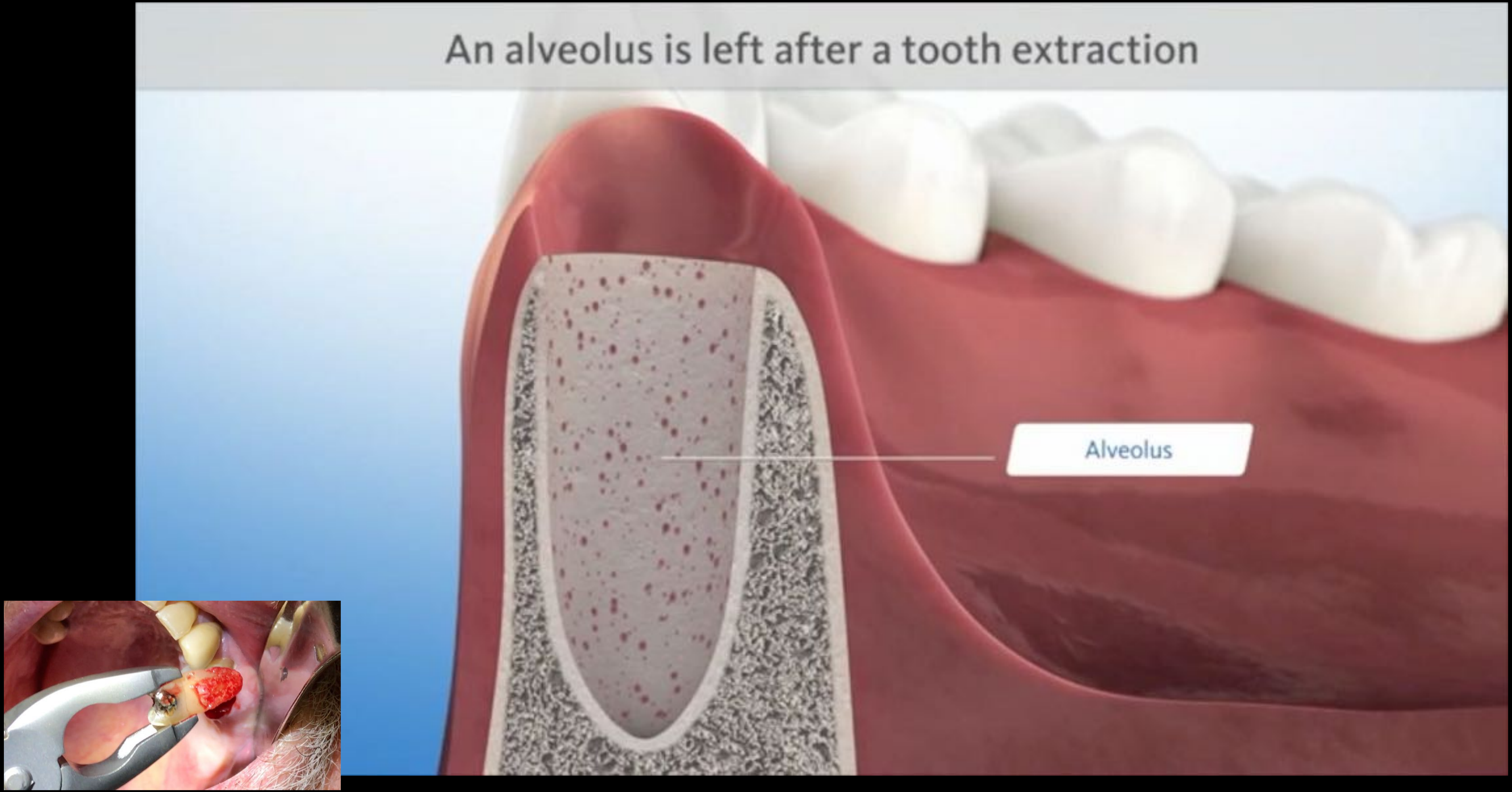
Debridement

Serated Curretage





What happens when we extract a tooth?



What happens when we extract a tooth?

Delaying Implantation (by 6-8 weeks)
-Without socket augmentation

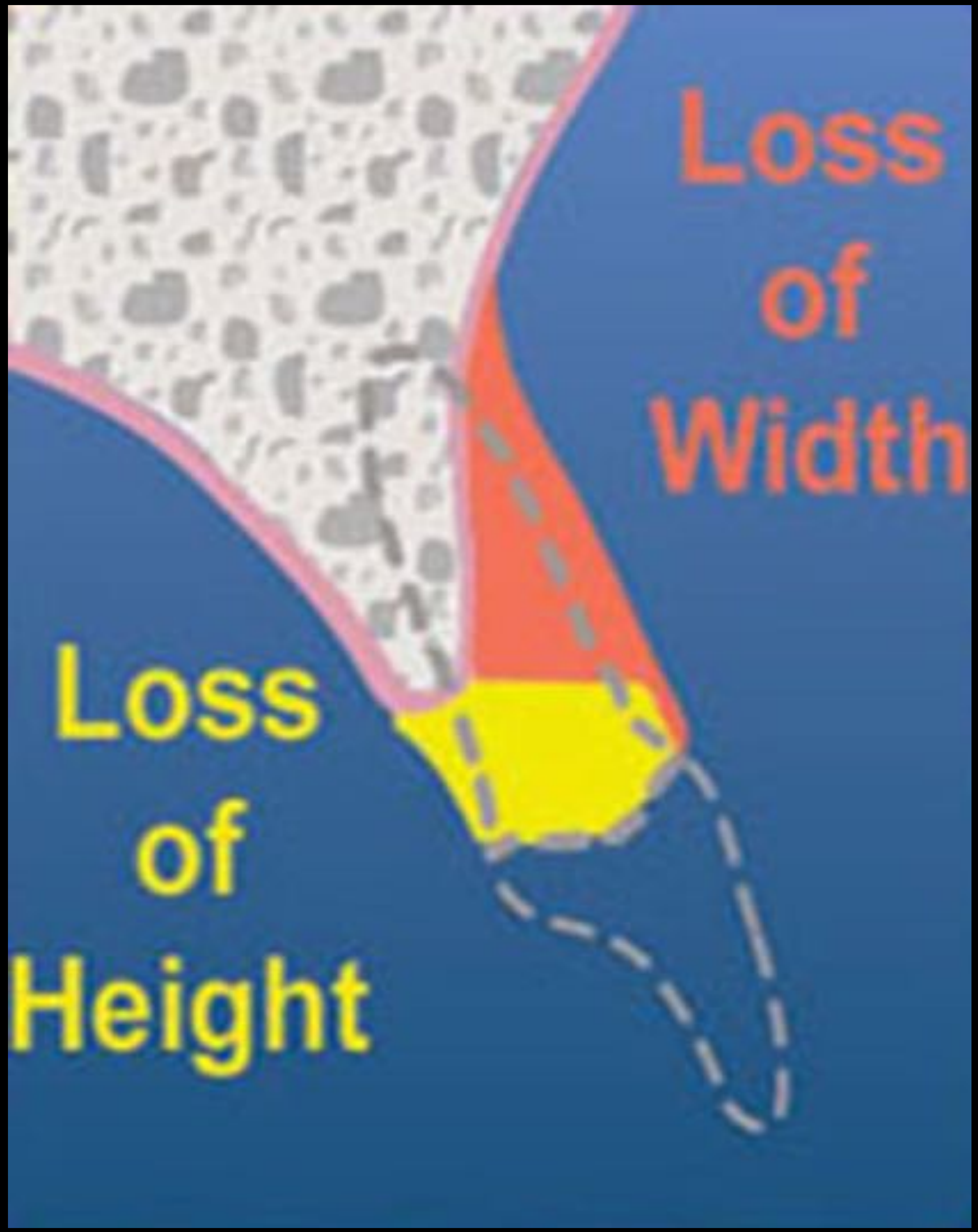
1. Aesthetic problem for the fabrication of conventional or implant supported prostheses

2. Resorption of the buccal wall of the extraction socket make a correct placement of an endosseous implant difficult or even impossible, especially in the anterior part of the maxilla.

3. A buccal concavity in the alveolar process or an implant placed more lingually than the neighboring teeth can result in poor aesthetics

Horowitz R, Holtzclaw D, Rosen PS, ‘Tooth extraction induces significant dimensional changes of the alveolar ridge’. J Evid Based Dent Pract. 2012 Sep;12(3 Suppl):

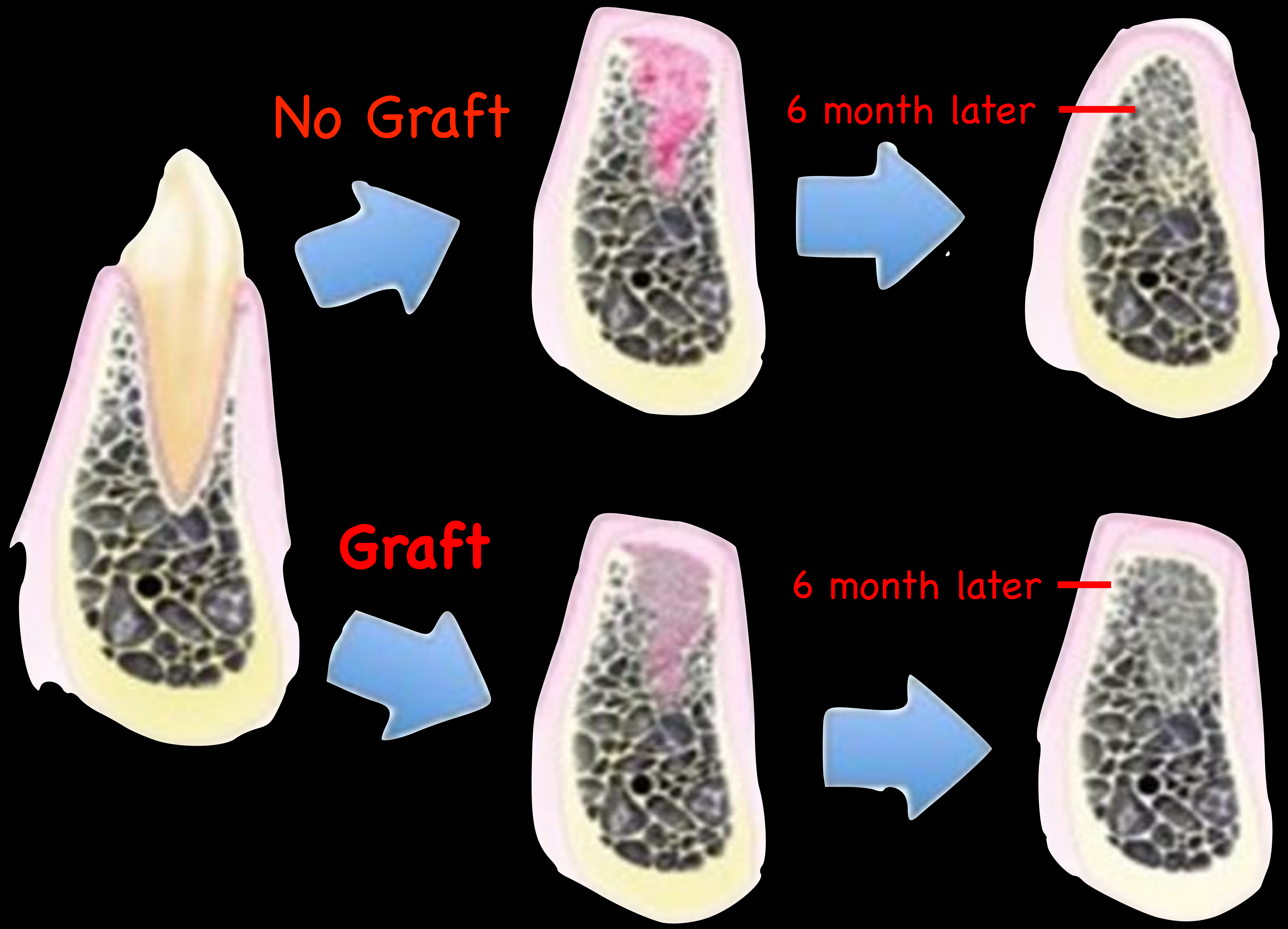
Arau´jo MG, Lindhe J: Dimensional ridge alterations following tooth extraction. An experimental study in the dog. J Clin Periodontol 2005; 32: 212–218.



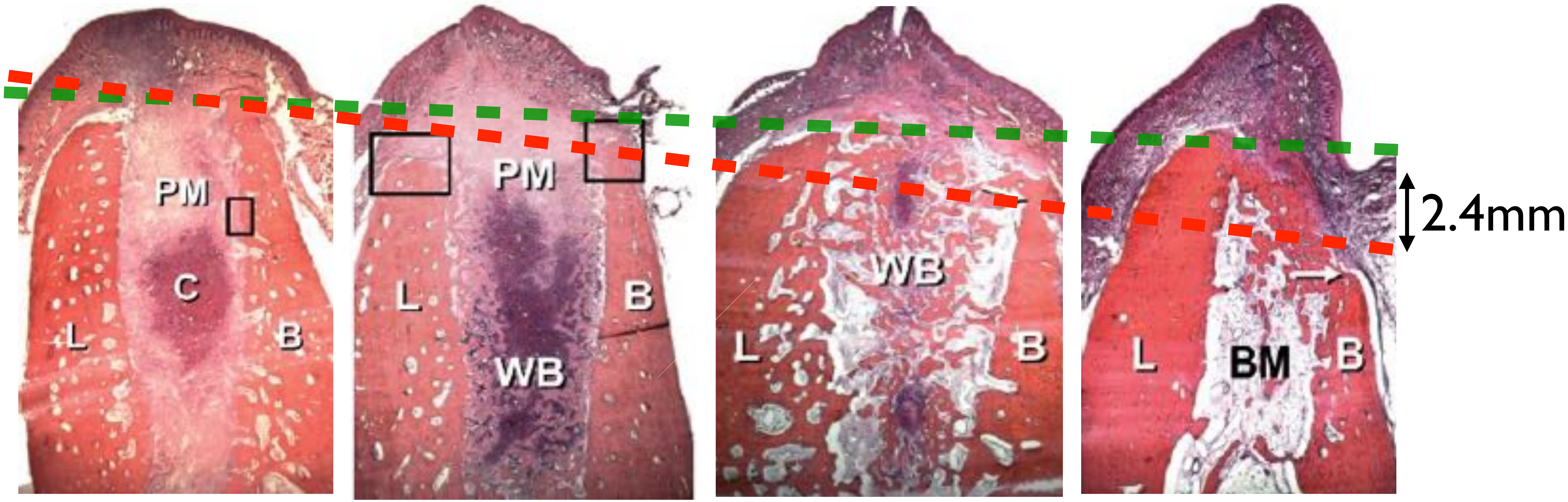
3-6 mm loss of width and
2-3 mm loss of height,
3-6 month after extractions

EXTRACTION SOCKET

To Graft <u>or</u> Not To Graft???

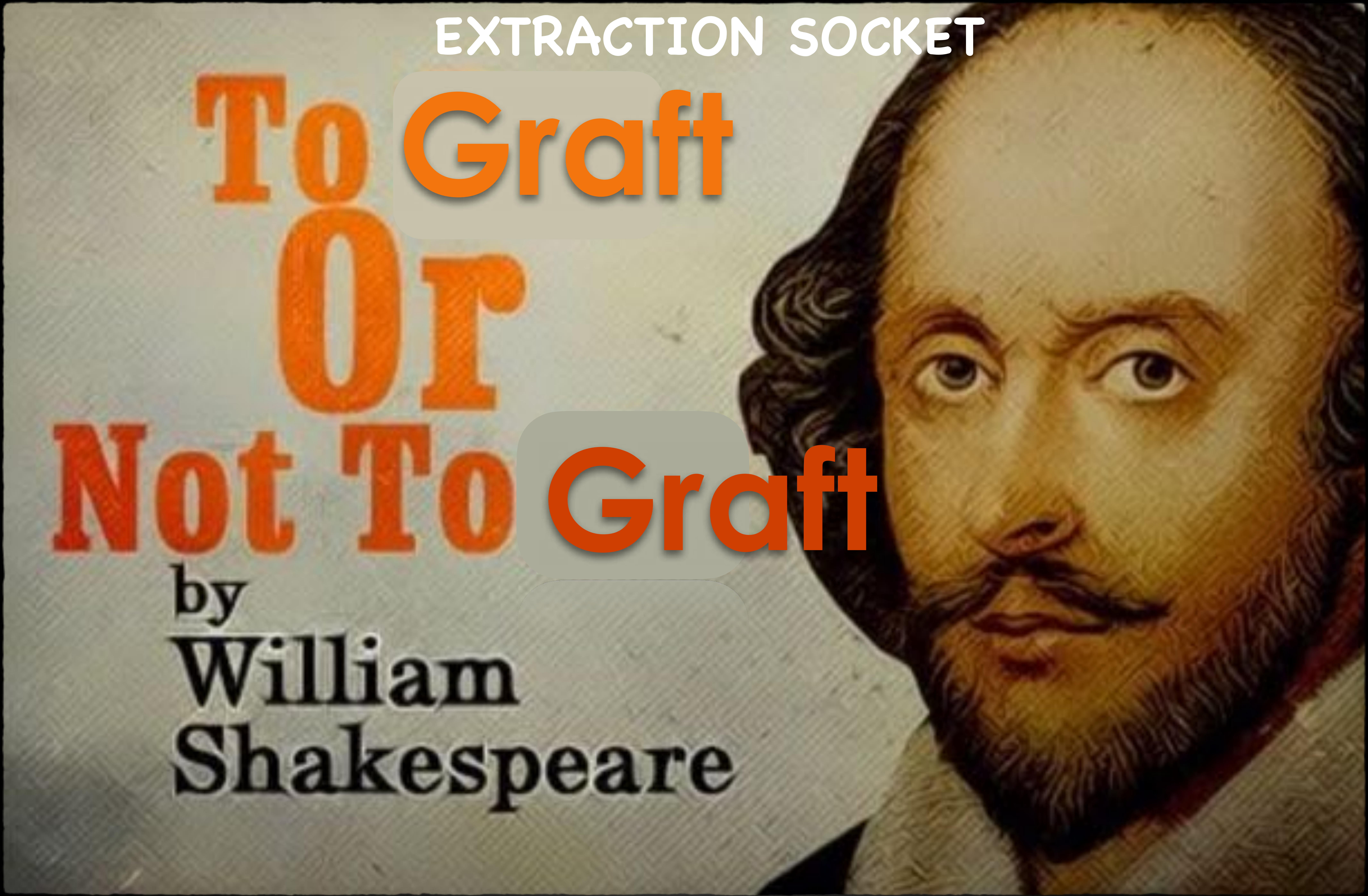


Dimentional Ridge alterations following extraction
An experimental study in the dog



1week　　2 weeks　　3 weeks　　4 weeks

Arau´jo MG, Lindhe J: J Clin Periodontol 2005; FEB 32: 212–218.


EXTRACTION SOCKET
To Graft
Or
Not To Graft
by
William
Shakespeare

5 keys to consider for success with Immediate Implant

(I) BUCCAL PLATE

(II) PRIMARY STABILITY

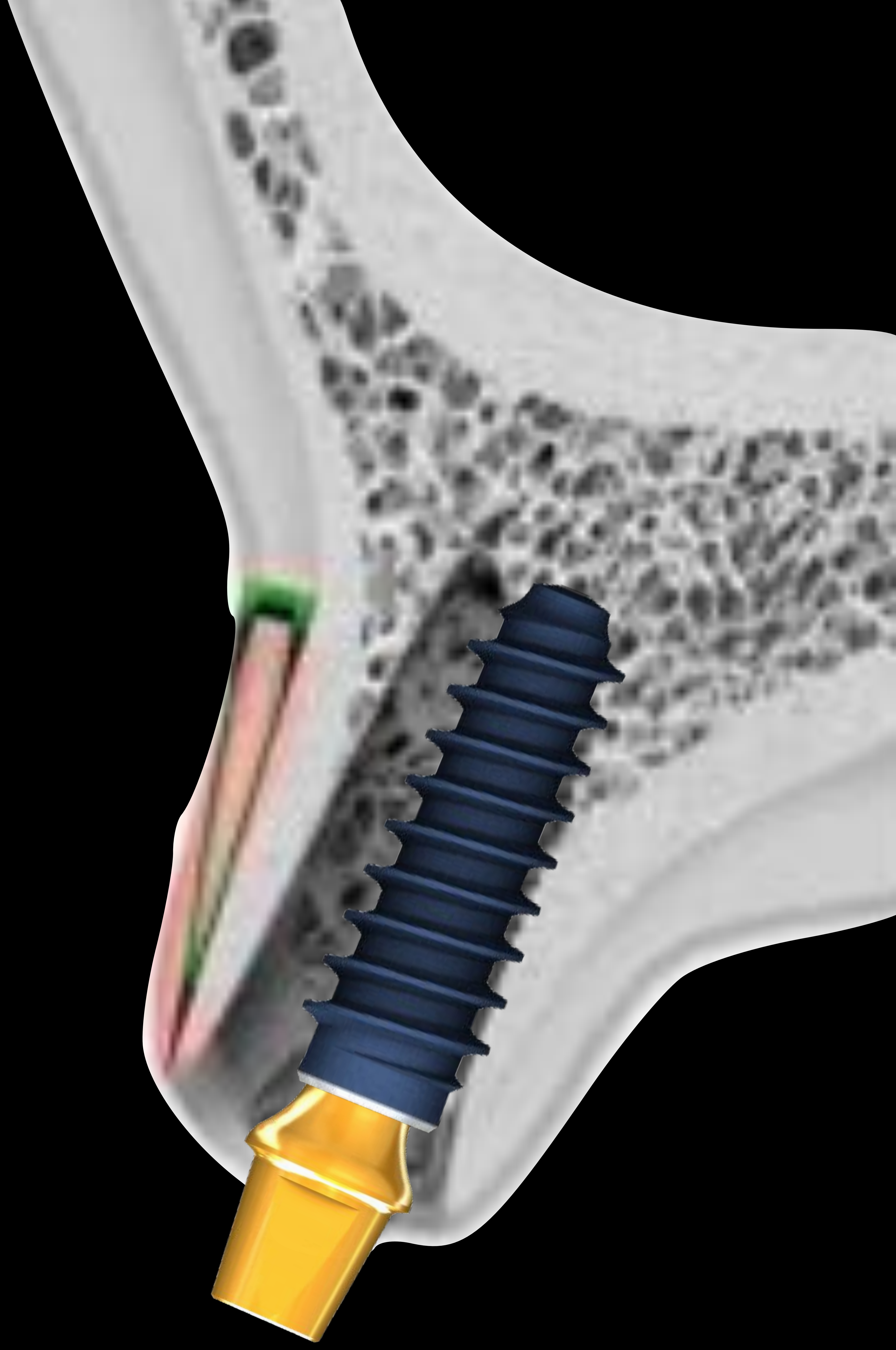
(III) IMPLANT DESIGN

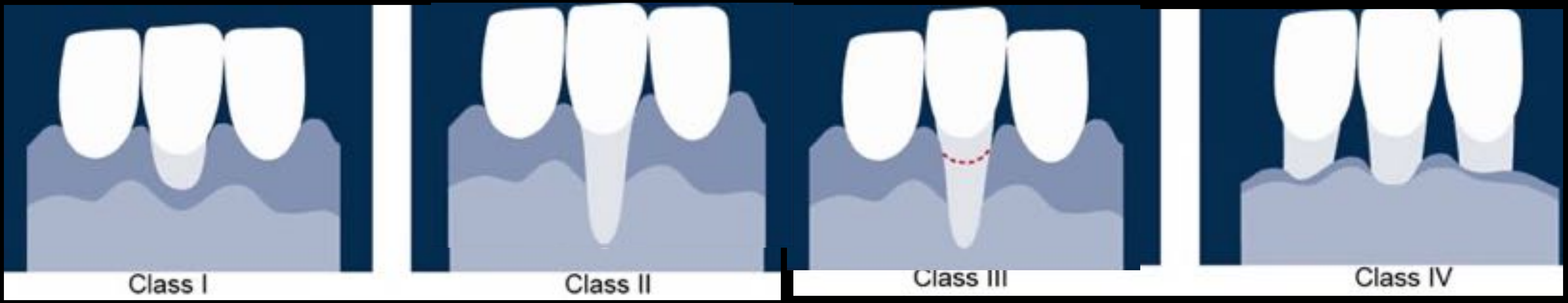
(IV) FILLING OF THE GAP

(V) TISSUE BIOTYPE

V. Biotype

Classifications of gingival defects





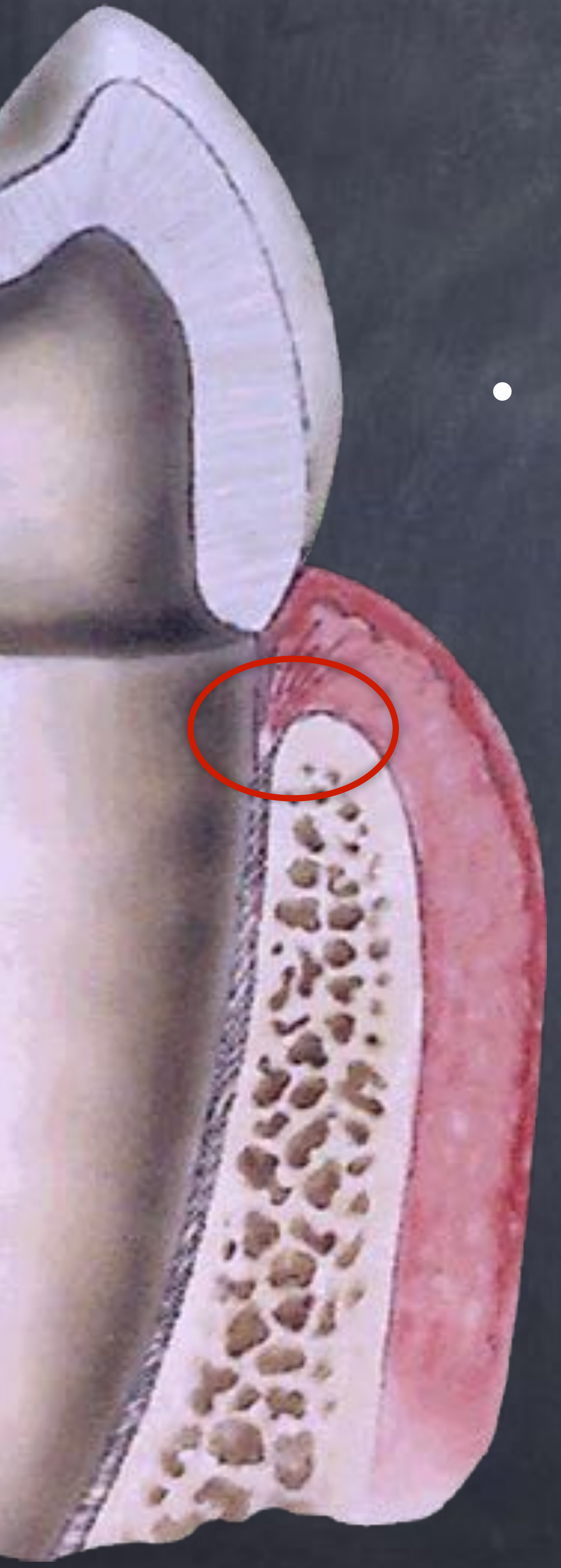
CLASSIFICATION OF MARGINAL TISSUE RECESSION.*

CLASSIFICATION	CRITERIA
Class I	Marginal tissue recession that does not extend to the mucogingival junction
Class II	Marginal tissue recession that extends to or beyond the mucogingival junction, with no periodontal attachment loss (bone or soft tissue) in the interdental area
Class III	Marginal tissue recession that extends to or beyond the mucogingival junction, with periodontal attachment loss in the interdental area or malpositioning of teeth
Class IV	Marginal tissue recession that extends to or beyond the mucogingival junction, with severe bone or soft-tissue loss in the interdental area and/or severe malpositioning of teeth

* Source: Miller.[40]

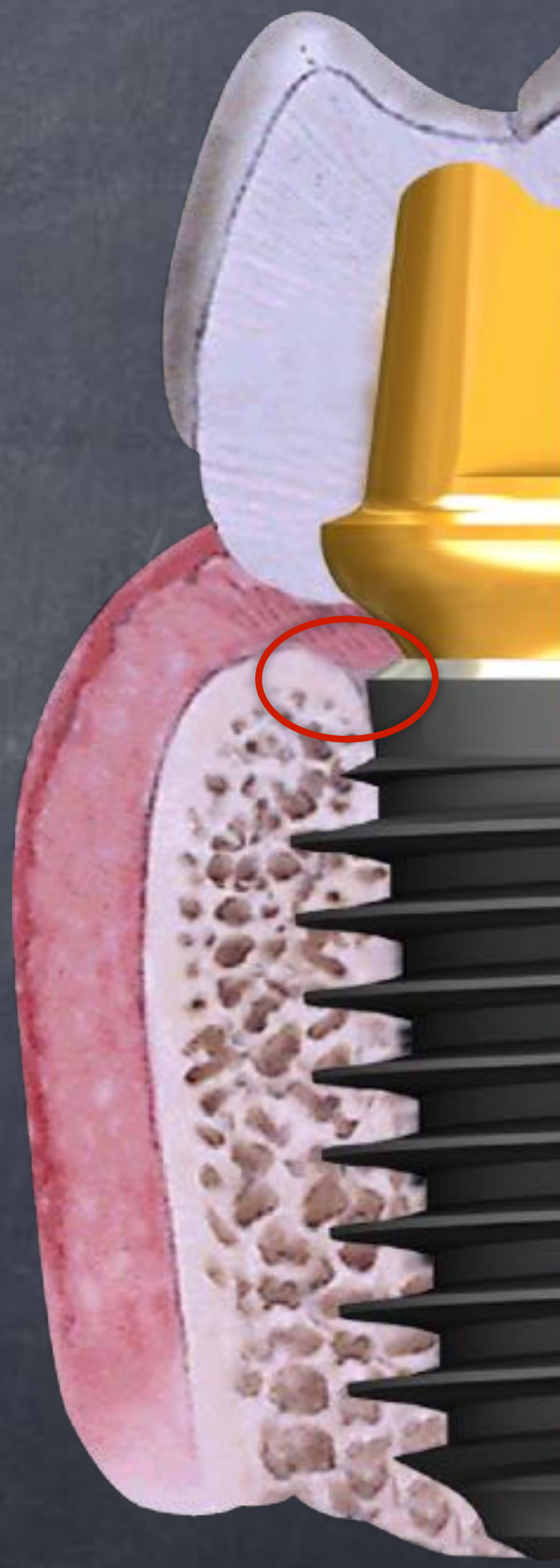
NATURAL TEETH VS. IMPLANTS

Biological Comparisons



- Around teeth, blood supply support originates from the periodontal ligament to the connective tissue ; from the alveolar process to the PDL and then to the CT ; and from the alveolar process to the CT

- Vascular supply **very few vessels** were found in the connective tissue near the transmucosal portion of the implant. This **limited blood supply** makes the peri-implant tissues less resilient to both mechanical and microbiological insults.



A BIOLOGICAL POINT OF VIEW

Stable soft tissue Dimension

Ideal thickness of soft tissue : 3mm

Nozawa, Enomoto et al.

Minimum soft tissue thickness : 2mm

Salama et al.

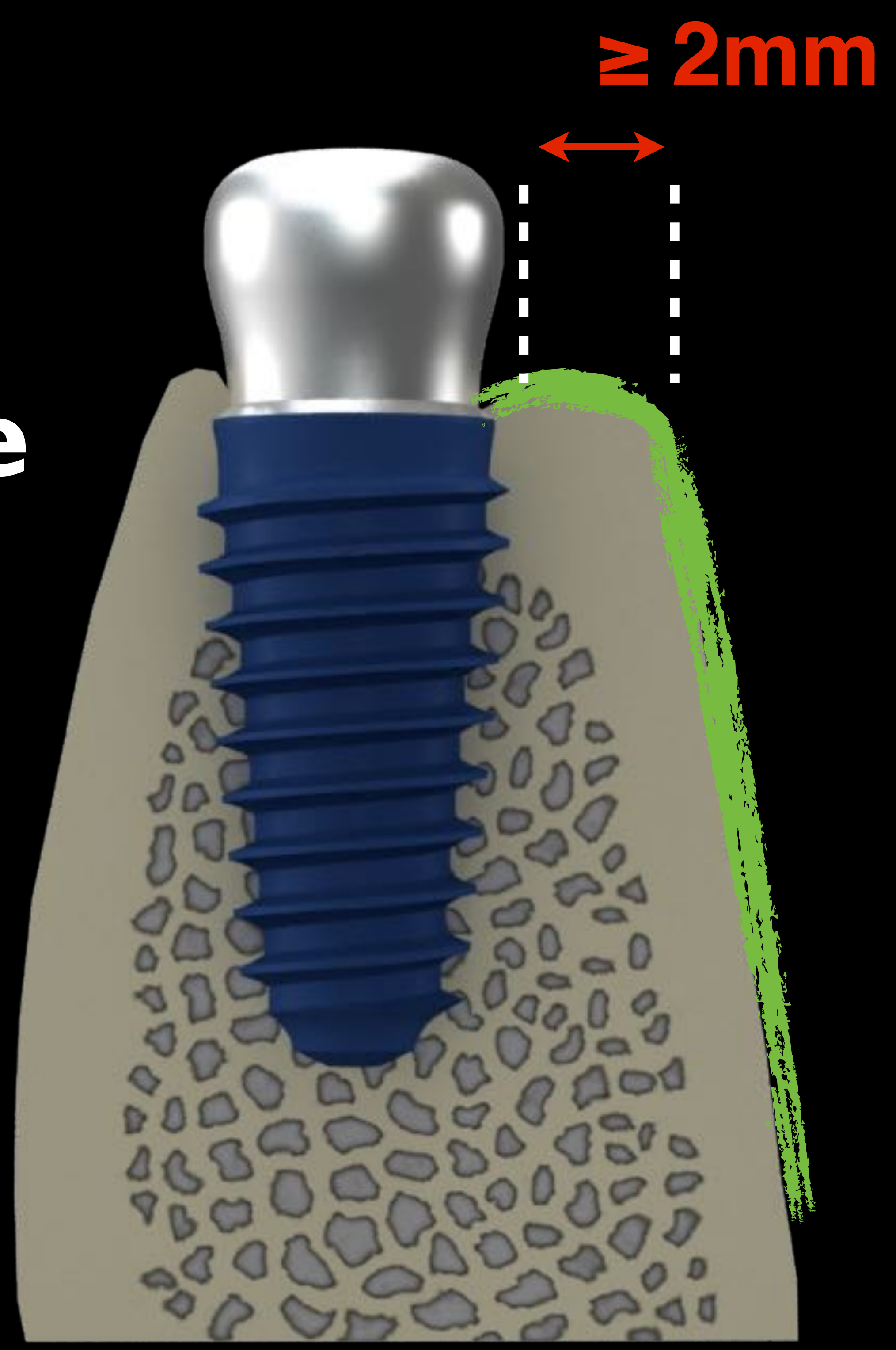
Facial bone thickness

≥1.8mm = no bone loss

Spray et al.

2~4mm

Grunder



Zero Bone Loss Concept

H = 3mm

The Influence of Soft Tissue Thickness on Crestal Bone Changes Around Implants: A 1-Year Prospective Controlled Clinical Trial

Tomas Linkevicius, DDS, Dip Pros, PhD[1]/Peteris Apse, Prof, DDS, Dip Pros, MSc, Dr Habil Med[2]/Simonas Grybauskas, DDS, MOS, MD, RCSEd, PhD[3]/Algirdas Puisys, DDS[3]

Purpose: *The aim of this clinical trial was to evaluate the influence of gingival tissue thickness on crestal bone loss around dental implants after a 1-year follow-up.* **Materials and Methods:** *Forty-six implants (23 test and 23 control) were placed in 19 patients. The test implants were placed about 2 mm supracrestally, whereas the control implants were positioned at the bone level. Before implant placement, the tissue thickness at implant sites was measured with a periodontal probe. After healing, metal-ceramic cement-retained prostheses were constructed. According to tissue thickness, the test implants were divided into A (thin) and B (thick) groups. Intraoral radiographs were performed and crestal bone changes were measured at implant placement and after 1 year.* **Results:** *Mean bone loss around the test implants in group A (thin mucosa) was 1.61 ± 0.24 mm (SE; range, 0.9 to 3.3 mm) on the mesial and 1.28 ± 0.167 mm (range, 0.8 to 2.1 mm) on the distal. Mean bone loss in test group B (thick mucosa) implants was 0.26 ± 0.08 mm (range, 0.2 to 0.9 mm) on the mesial aspect and 0.09 ± 0.05 mm (range, 0.2 to 0.6 mm) on the distal aspect. Mean bone loss around control implants was 1.8 ± 0.164 mm (range, 0.6 to 4.0 mm) and 1.87 ± 0.166 mm (range, 0.0 to 4.1 mm) on the mesial and distal aspects, respectively. Analysis of variance revealed a significant difference in terms of bone loss between test A (thin) and B (thick) groups on both the mesial and the distal.* **Conclusion:** *Initial gingival tissue thickness at the crest may be considered as a significant influence on marginal bone stability around implants. If the tissue thickness is 2.0 mm or less, crestal bone loss up to 1.45 mm may occur, despite a supracrestal position of the implant-abutment interface.* INT J ORAL MAXILLOFAC IMPLANTS 2009;24:712–719

Key words: *biologic width, crestal bone loss, dental implants, microgap, mucosal thickness*

The concept of early crestal bone loss after prosthetic reconstruction of an implant was suggested by Albrektsson et al[1] more than two decades ago. Since then, many factors have been identified as possible reasons for this phenomenon. Overload,[2] the microgap at the implant-abutment interface,[3] a polished implant neck,[4,5] and others have been discussed extensively; however, the stability of the crestal bone remains controversial. Moreover, the influence of mucosal thickness and biologic width formation on crestal bone loss around implants has been discussed only recently and has received little attention in comparison to other factors.[6,7]

It has been proposed that a minimum of 3 mm of peri-implant mucosa is required for a stable epithelial connective tissue attachment to form.[8] This soft tissue extension is usually referred to as the biologic width around implants, and it serves as a protective mechanism for the underlying bone.[9] Some have suggested that if a minimal dimension of gingival tissues is not available, bone loss may occur to ensure the proper development of biologic width.[10] These findings are consistent with prior tooth-related studies, which showed that the establishment of biologic width after tooth crown lengthening involved crestal bone loss.[11]

The transition of alveolar mucosa to peri-implant soft tissues after implant placement is a difficult and complex process. Berglundh et al[12] described the morphogenesis of the peri-implant mucosa and implied that the characteristics of gingival tissues may be important in this process. However, data regarding the relationship between mucosal thickness and marginal bone loss around implants are

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Correspondence to: Dr Tomas Linkevicius, Institute of Odontology, Faculty of Medicine, Vilnius University, Zalgirio str. 115, LT-08217, Vilnius, Lithuania.

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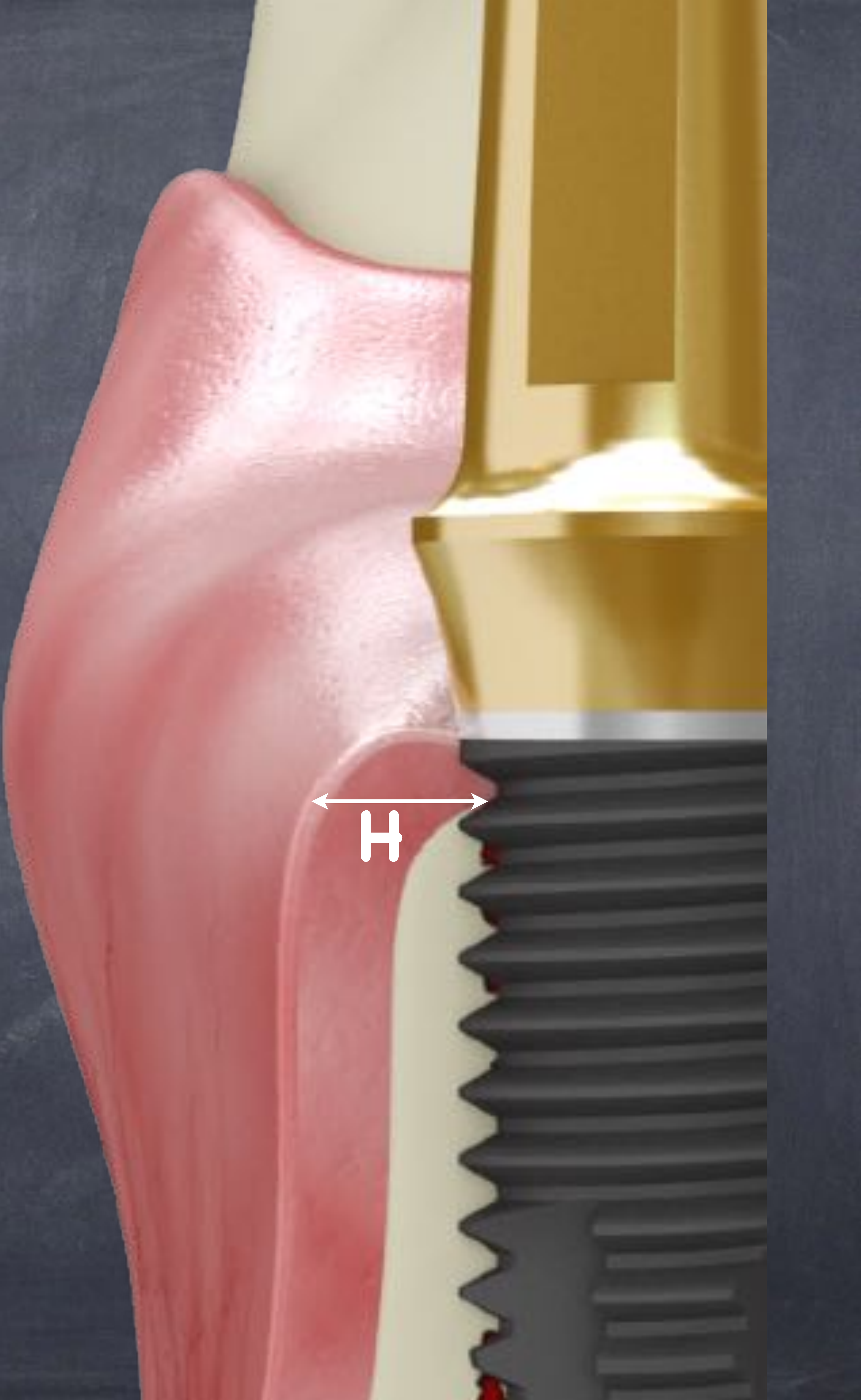


Tomas Linkevicius DDS Phd et al

Increasing Kertinized tissue Thickness and Quality for Implants

Apically Repositioned Flap

Connective Tissue Graft

Free Gingival Graft

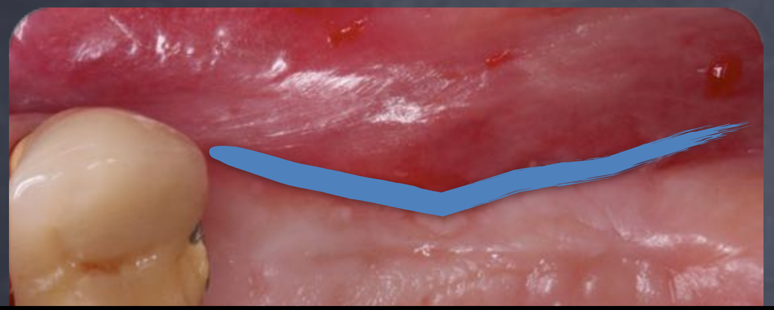
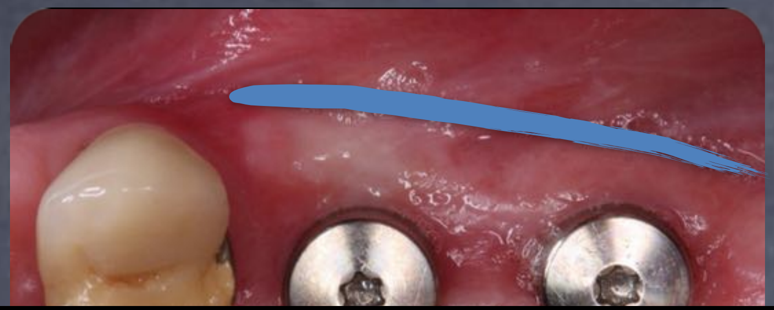
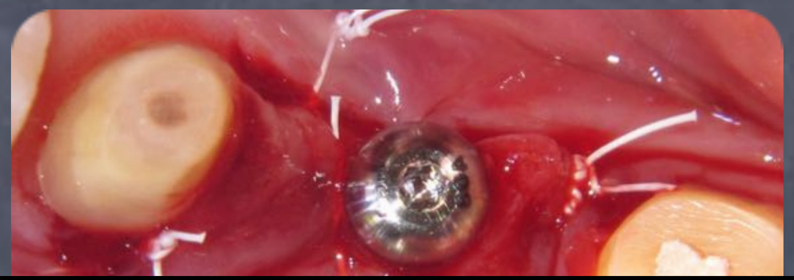
AIE
Advanced Implant Educators

Increasing Kertinized tissue Thickness and Quality for Implants

Apically Repositioned Flap

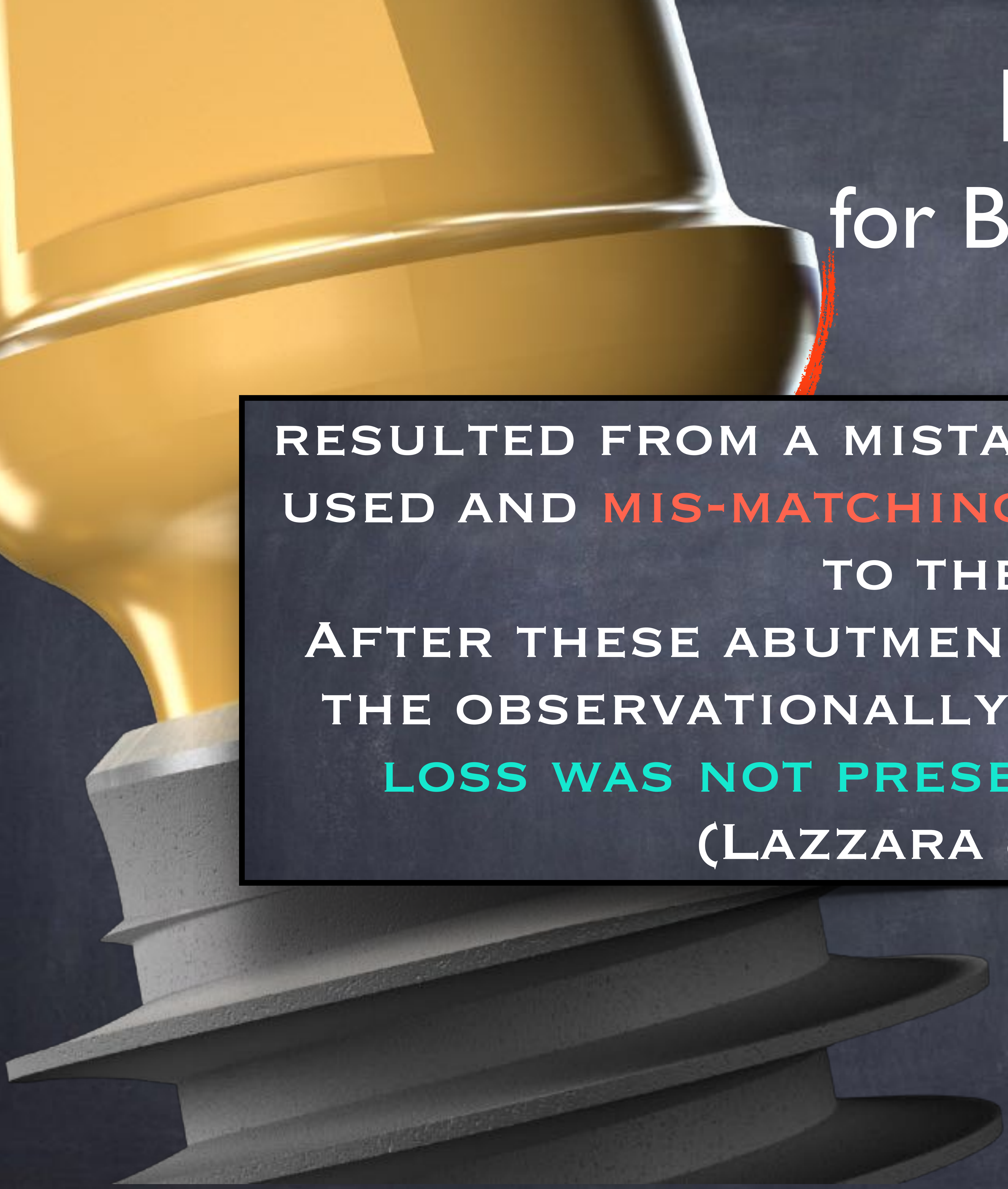
Connective Tissue Graft

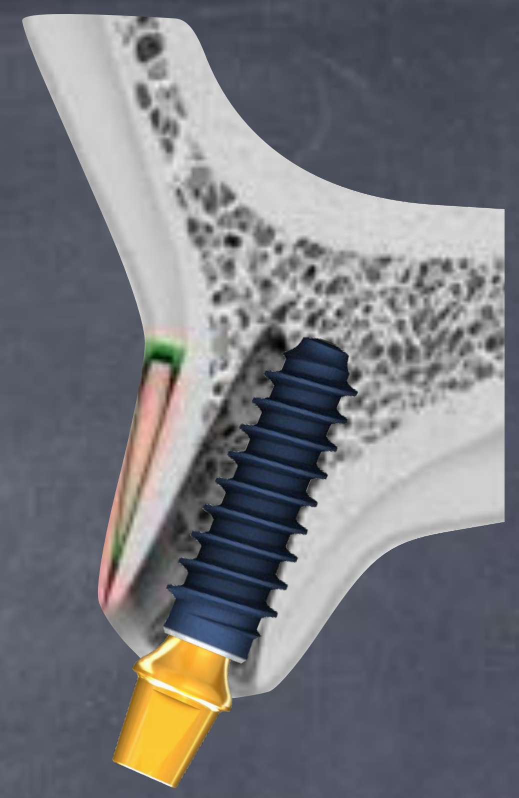
Free Gingival Graft


The Tissue is the Issue





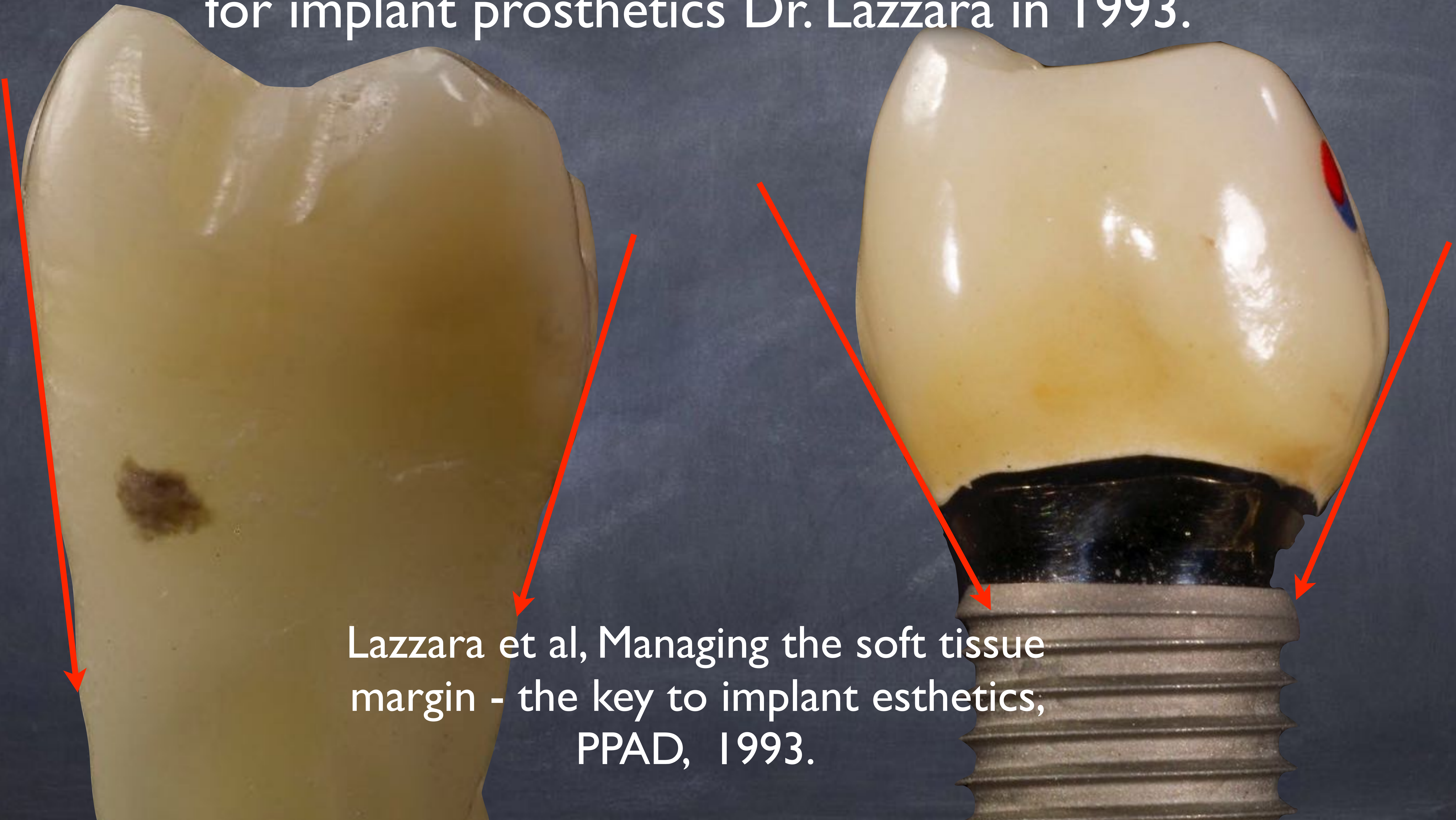


Platform shifting for Better Peri-Implant Biotype

RESULTED FROM A MISTAKE WHEN WIDE IMPLANTS WERE USED AND MIS-MATCHING ABUTMENTS WHERE PROVIDED TO THE CLINICIANS.

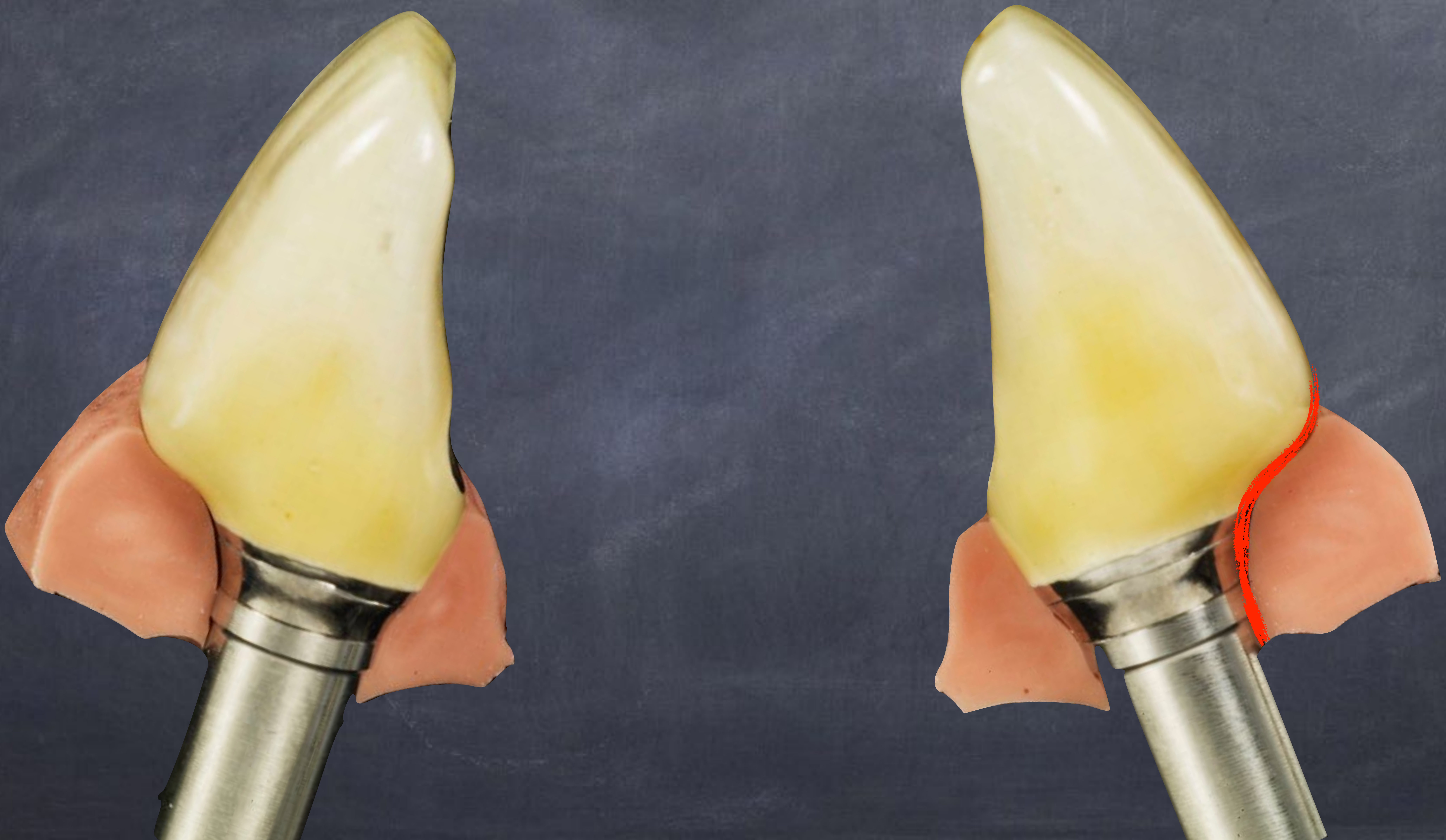
AFTER THESE ABUTMENTS WHERE DELIVERED, DURING THE OBSERVATIONALLY PERIOD, THE MARGINAL BONE LOSS WAS NOT PRESENT IN ALMOST EVERY CASES (LAZZARA & PORTER 2006).

Emergence profile concept - for implant prosthetics Dr. Lazzara in 1993.

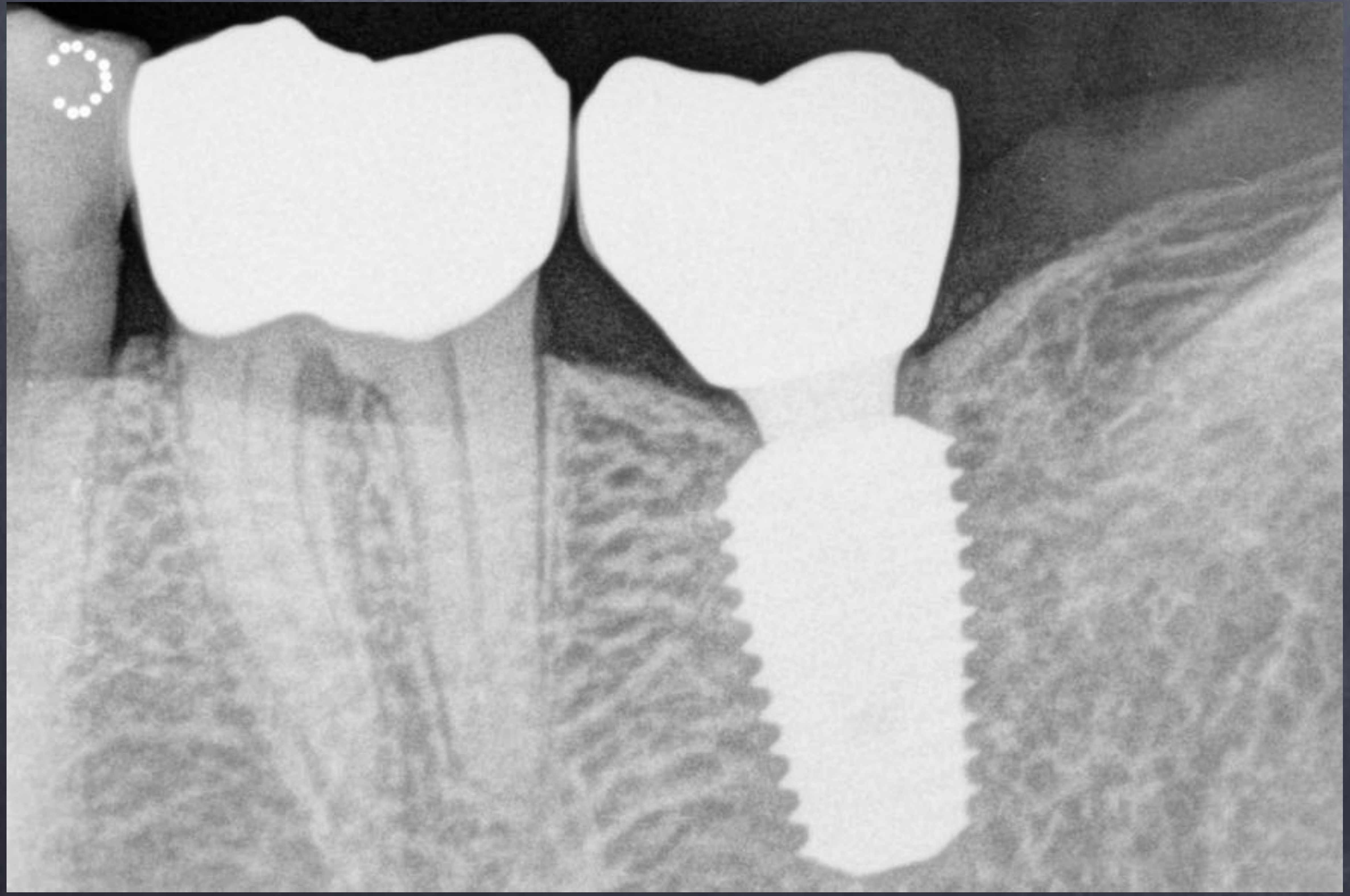


Lazzara et al, Managing the soft tissue margin - the key to implant esthetics, PPAD, 1993.

S-LINE



S-LINE



‘Double Offset’ design for better peri-marginal tissues

Courtesy of Dr Ed Shimaj

A BIOLOGICAL POINT OF VIEW

The **Bone** sets the **Tone**

The **Tissue** is the **Issue** &

<u>The **Buccal Plate** sets your **Fate**</u>

BUCCAL PLATE

Kan et al

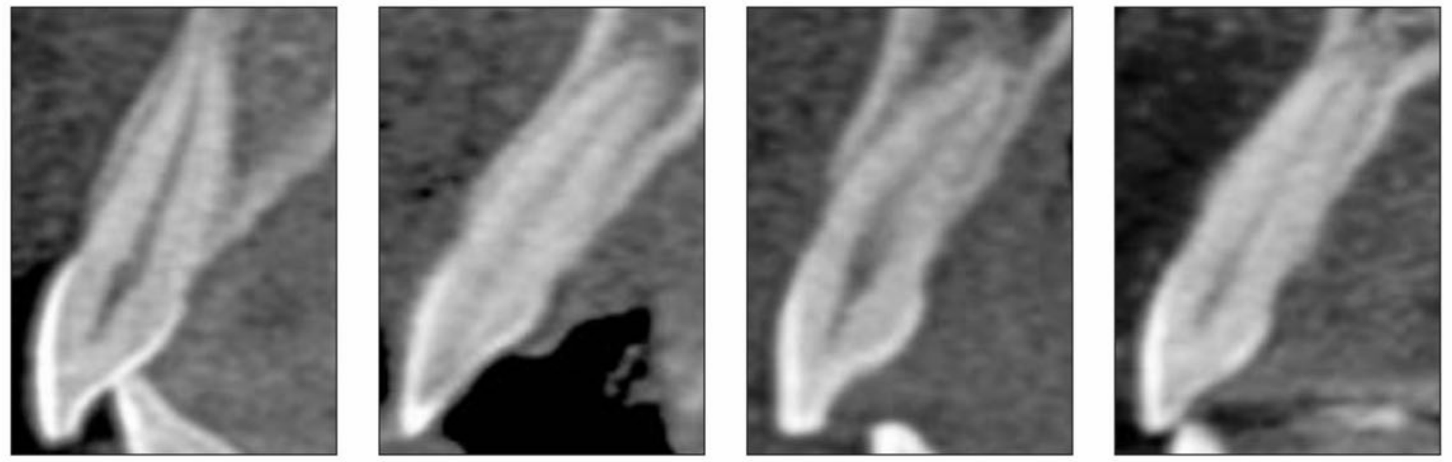
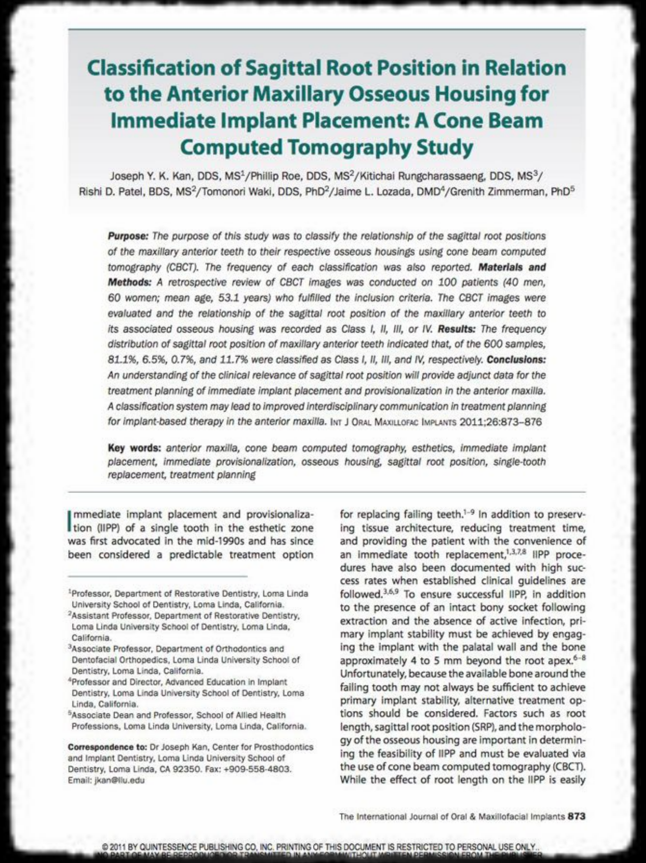


Fig 1 Class I sagittal root position. **Fig 2** Class II sagittal root position. **Fig 3** Class III sagittal root position. **Fig 4** Class IV sagittal root position.

Table 1 Frequency Distribution of Sagittal Root Position Classification

	Percentage (no.)			
SRP	**Central incisor**	**Lateral incisor**	**Canine**	**Overall**
Class I	86.5 (173)	76 (152)	81 (162)	81.1 (487)
Class II	5 (10)	8.5 (17)	6 (12)	6.5 (39)
Class III	0.5 (1)	1.5 (3)	0 (0)	0.7 (4)
Class IV	8 (16)	14 (28)	13 (26)	11.7 (70)
Total	100 (200)	100 (200)	100 (200)	100 (600)



Classification of Sagittal Root Position in Relation to the Anterior Maxillary Osseous Housing for Immediate Implant Placement: A Cone Beam Computed Tomography Study

Joseph Y. K. Kan, DDS, MS[1]/Phillip Roe, DDS, MS[2]/Kitichai Rungcharassaeng, DDS, MS[3]/ Rishi D. Patel, BDS, MS[2]/Tomonori Waki, DDS, PhD[2]/Jaime L. Lozada, DMD[4]/Grenith Zimmerman, PhD[5]

Purpose: *The purpose of this study was to classify the relationship of the sagittal root positions of the maxillary anterior teeth to their respective osseous housings using cone beam computed tomography (CBCT). The frequency of each classification was also reported.* **Materials and Methods:** *A retrospective review of CBCT images was conducted on 100 patients (40 men, 60 women; mean age, 53.1 years) who fulfilled the inclusion criteria. The CBCT images were evaluated and the relationship of the sagittal root position of the maxillary anterior teeth to its associated osseous housing was recorded as Class I, II, III, or IV.* **Results:** *The frequency distribution of sagittal root position of maxillary anterior teeth indicated that, of the 600 samples, 81.1%, 6.5%, 0.7%, and 11.7% were classified as Class I, II, III, and IV, respectively.* **Conclusions:** *An understanding of the clinical relevance of sagittal root position will provide adjunct data for the treatment planning of immediate implant placement and provisionalization in the anterior maxilla. A classification system may lead to improved interdisciplinary communication in treatment planning for implant-based therapy in the anterior maxilla.* Int J Oral Maxillofac Implants 2011;26:873–876

Key words: *anterior maxilla, cone beam computed tomography, esthetics, immediate implant placement, immediate provisionalization, osseous housing, sagittal root position, single-tooth replacement, treatment planning*

Immediate implant placement and provisionalization (IIPP) of a single tooth in the esthetic zone was first advocated in the mid-1990s and has since been considered a predictable treatment option for replacing failing teeth.[1–9] In addition to preserving tissue architecture, reducing treatment time, and providing the patient with the convenience of an immediate tooth replacement,[1,3,7,8] IIPP procedures have also been documented with high success rates when established clinical guidelines are followed.[3,6,9] To ensure successful IIPP, in addition to the presence of an intact bony socket following extraction and the absence of active infection, primary implant stability must be achieved by engaging the implant with the palatal wall and the bone approximately 4 to 5 mm beyond the root apex.[6–8] Unfortunately, because the available bone around the failing tooth may not always be sufficient to achieve primary implant stability, alternative treatment options should be considered. Factors such as root length, sagittal root position (SRP), and the morphology of the osseous housing are important in determining the feasibility of IIPP and must be evaluated via the use of cone beam computed tomography (CBCT). While the effect of root length on the IIPP is easily

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[4]Professor and Director, Advanced Education in Implant Dentistry, Loma Linda University School of Dentistry, Loma Linda, California.
[5]Associate Dean and Professor, School of Allied Health Professions, Loma Linda University, Loma Linda, California.

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Sagittal Root Position in Relation to the Anterior Maxillary Osseous Housing For Immediate Implant Placement

Positioned against the labial cortical plate

Centered in the middle of the alveolar housing without engaging either the labial or the palatal cortical plates at the apical third of the root

Positioned against palatal cortical plate

Two thirds of the root is engaging both the labial and the palatal cortical plates

Is there another way?

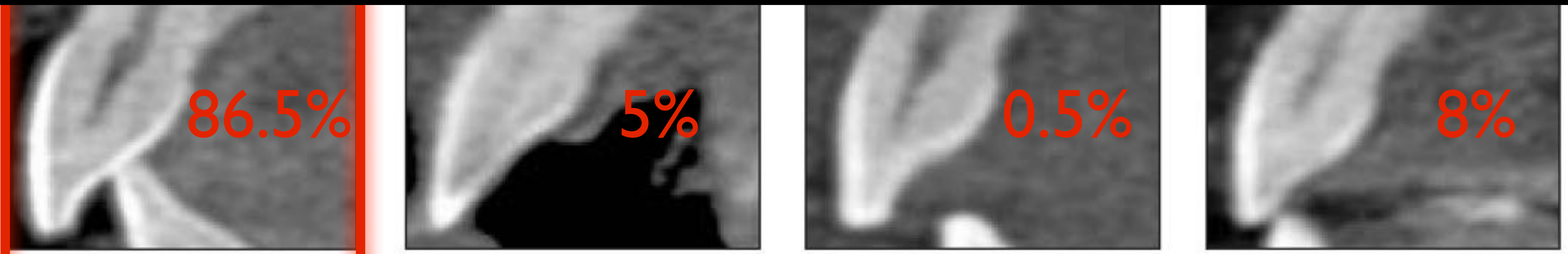


Fig 1 Class I sagittal root position.

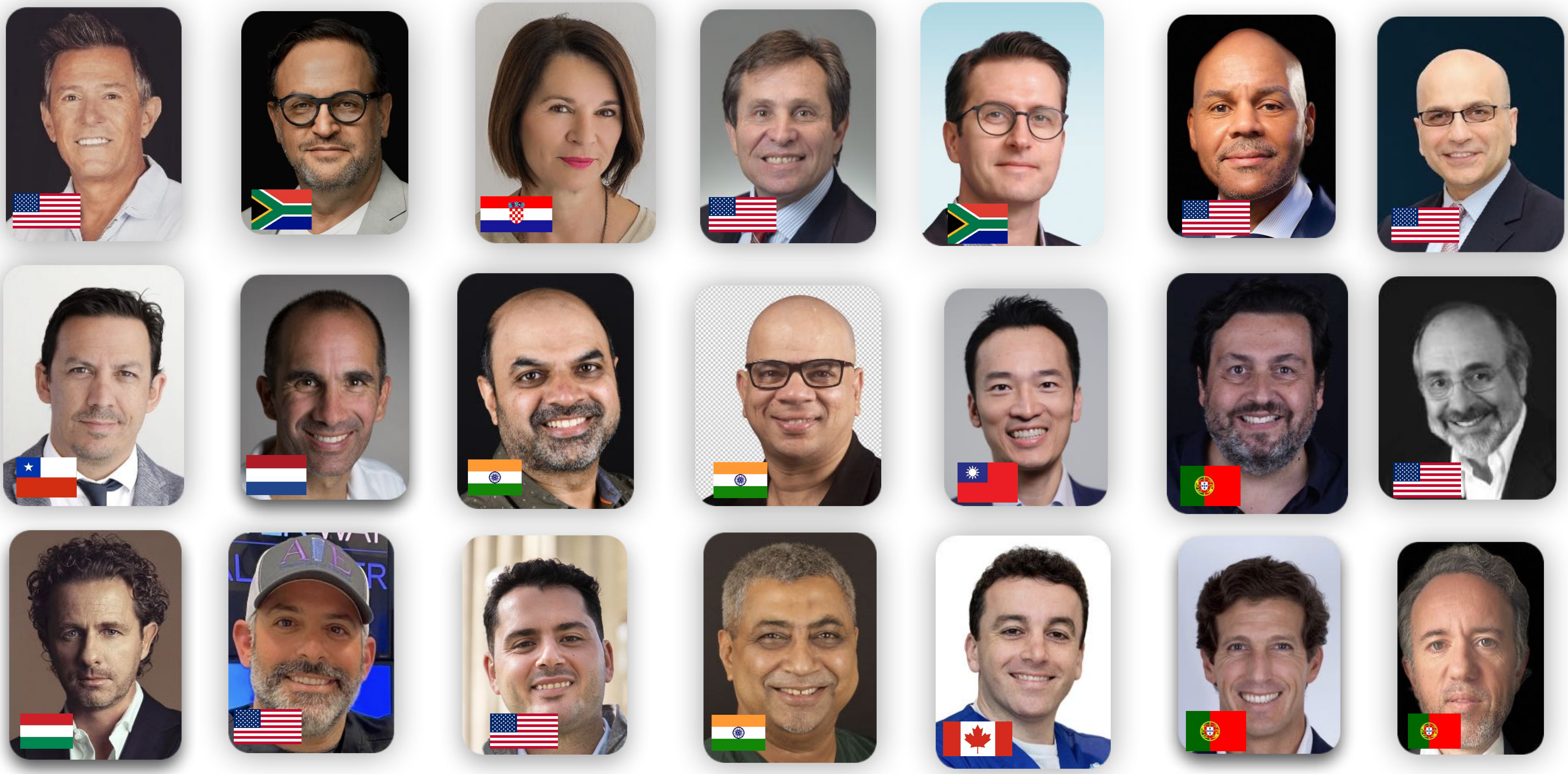
Fig 2 Class II sagittal root position.

Fig 3 Class III sagittal root position.

Fig 4 Class IV sagittal root position.

Joseph Y. K. Kan et al. Classification of Sagittal Root Position in Relation to the Anterior Maxillary Osseous Housing For Immediate Implant Placement: A Cone Beam Computed Tomography Study. IJOMI Volume 26, Number 4, 2011

PET Global Research Group



dentalxp

pet research group

Nordland & Tarnow, 1998

New Tools

Courtesy: Miguel Stanley DDS

FUTURE DIRECTIONS

Partial Extraction Therapies

"PET" Partial Extraction Therapies is a term first described on Dentalxp.com in 2015 that encompasses any and ALL terms and procedures that involve the maintenance or utilisation of all or parts of the tooth root, PDL and cementum above and below the alveolar bone to preserve ridge form and soft tissue levels.

This first started as "SRT" Submerged Root Technique in 2007 Salama & Ishikawa and then onto "SS" Socket Shield in 2010 Hurzeler & Zuhr, "Root Membrane Technique" in 2014 Mitsias & Siormpas, "PS" Pontic Shield in 2014 Glocker and then in 2016 Gluckman & Salama.

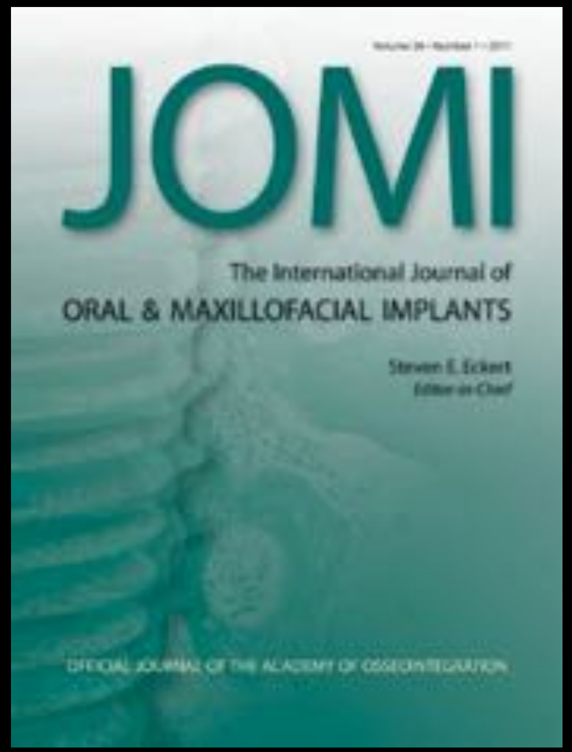

12 YEARS AGO


FUTURE DIRECTIONS
SOCKET SHIELD
PONTIC SHIELD
ROOT MEMBRANE
PARTIAL EXTRACTION THERAPIES
J-SHIELD
ROOT SUBMERGENCE
HEMISECTION
PROXIMAL SOCKET SHIELD
ROOT T BELT

12 YEARS OF ROOT MEMBRANE

2006 2019

Siormpas KD, Mitsias ME, Kontsiotou-Siormpa E, Garber D, Kotsakis GA. Immediate implant placement in the esthetic zone utilizing the “root-membrane" technique: clinical results up to 5 years postloading. Int J Oral Maxillofac Implants. 2014;29(6):1397-405.



Technological Advances to Accurately Assess Treatment Outcomes

3D - Volumetric Analysis

Gap Dist. 0.1901
Gap Dist. -0.0648
Gap Dist. -0.4023


Gap Dist. -0.1605
Gap Dist. -0.5356
Gap Dist. 0.6567


Gap Dist. 0.1293
Gap Dist. -0.4318
Gap Dist. -0.4561


Non-inferiority testing per implant location
2-D subtractive assessment
3-D rendered superimposition
Mid facial 3
Mid facial 2
Mid facial 1
Mesial 3
Mesial 2
Mesial 1
Distal 3
Distal 2
Distal 1
Control
Non-inferiority margin
–0.25
0.00
0.25
0.50
Average was.....0.2mm!

Immediate Implant Placement in the Esthetic Zone Utilizing the "Root-Membrane" Technique: Clinical Results up to 5 Years Postloading

Konstantinos D. Siormpas, DDS[1]/Miltiadis E. Mitsias, DDS, MSc, PhD[2]/
Eleni Kontsiotou-Siormpa, DDS[3]/David Garber, DMD[4]/Georgios A. Kotsakis, DDS[5]

Purpose: *To clinically evaluate immediate implant placement with simultaneous intentional retention of the buccal aspect of the root and to report longitudinal data on survival of implants placed with the use of this novel technique.* **Materials and Methods:** *A retrospective case series of implants placed with the root-membrane technique in the maxillary anterior region of adult patients was conducted. Clinical and radiographic analysis was performed to assess implant success and to evaluate the survival of the retained root fragment based on predetermined criteria. A Kaplan-Meier method analysis was used to estimate the 5-year success rate of implants placed with this technique.* **Results:** *Data from 46 patients (median follow-up time, 40 months; range, 24 to 60 months) were evaluated. Each patient contributed one implant site in this study. All implants successfully maintained osseointegration at the end of the follow-up period for a 100% cumulative survival rate, based on clinical and radiographic criteria. Radiographic examination revealed good crestal bone stability with mean crestal bone loss on the mesial and distal aspects of the implants estimated to be 0.18 ± 0.09 mm and 0.21 ± 0.09 mm, respectively. The only complication noted in this patient cohort was apical root resorption of a single retained root fragment that did not interfere with the osseointegration of the implant.* **Conclusion:** *The intentional retention of the buccal aspect of the root with its periodontal apparatus during immediate implant placement can lead to predictable and sustainable osseointegration of implants placed in the maxillary anterior region of healthy adults.* Int J Oral Maxillofac Implants 2014;29:1397–1405. doi: 10.11607/jomi.3707

Key words: *alveolar bone preservation, dental implant, dentin fragment, esthetics, immediate implant placement, root retention*

The replacement of a maxillary anterior tooth with an implant is a complex surgical procedure, mainly because of the cascade of events that follow every tooth extraction.[1,2] Alveolar ridge resorption is a physiologic process that cannot be entirely prevented based on current evidence.[3–8] Ridge resorption can be categorized as a multifactorial phenomenon that is partially attributed to the loss of blood supply that is derived from the periodontal ligament (PDL) prior to tooth extraction.[9]

The buccal plate of the teeth in the maxillary anterior dentition is most often very thin, leading to significant dimensional alterations during the immediate postextraction period.[10,11] The aforementioned alterations are three-dimensional and lead to apical migration of the soft tissue at the crest of the ridge as well as concavities on the flat facial surface of the ridge.[12] When an implant is placed in such a compromised site, it is very challenging for the clinician to achieve an esthetic emergence profile for the implant-supported restoration. Recreating a mucosal zenith at the same level as that of the gingival zenith points of the proximal teeth is equally challenging, even if significant tissue grafting is performed.[13]

In retrospective, early attempts for an evidence-based approach to the documentation of the magnitude and significance of this phenomenon can be dated back to the early 1960s.[14–16] The intentional retention of roots was the first approach that was introduced

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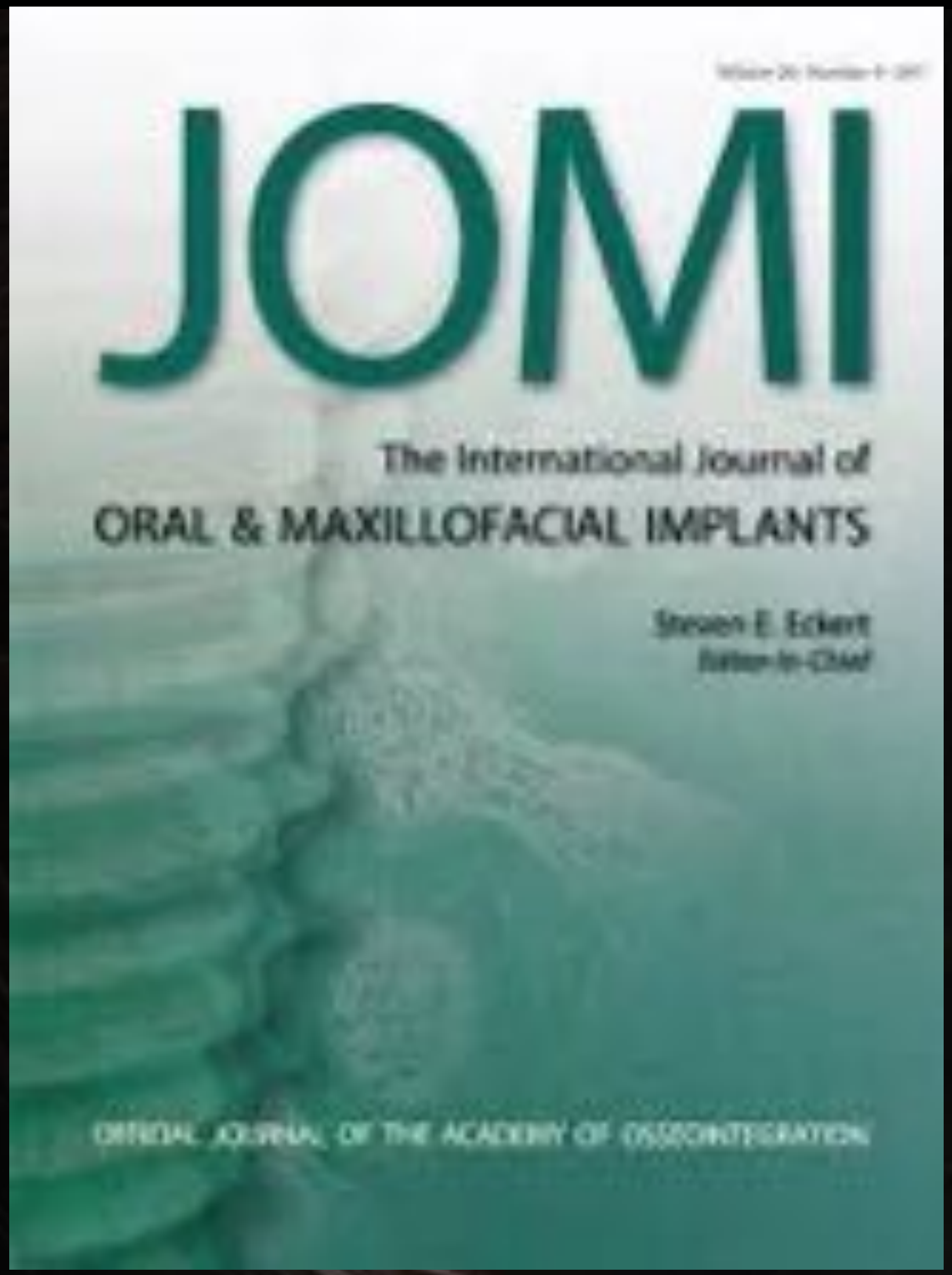
[5]Resident, Advanced Education Program in Periodontology, Division of Periodontology, University of Minnesota, Minneapolis, Minnesota, USA.

Correspondence to: Dr Georgios A. Kotsakis, Advanced Education Program in Periodontology, University of Minnesota, 515 Delaware Street SE, Minneapolis, MN 55455. Email: kotsa001@umn.edu



Siormpas KD, Mitsias ME, Kontsiotou-Siormpa E, Garber D, Kotsakis GA. Immediate implant placement in the esthetic zone utilizing the "root-membrane" technique: clinical results up to 5 years postloading. Int J Oral Maxillofac Implants 2014;29:1397-405.

Miltiadis Mitsias, Konstantinos Siormpas, Eleni Kontsiotou-Siormpa, Hari Prasad, David Garber, Georgios A Kotsakis. A step-by-step description of immediate implant rehabilitation in the esthetic region utilizing the ''root-membrane'' technique. Int J Periodontics Restorative Dent 2015;35:835-41.

The Root Membrane Technique: A Retrospective Clinical Study With Up to 10 Years of Follow-up

Konstantinos D. Siormpas, DDS,* Miltiadis E. Mitsias, DDS, MSc, PhD,† Georgios A. Kotsakis, DDS, MS,‡ Isaac Tawil, DDS, MSc,§ Michael A. Pikos, DDS,¶ and Francesco G. Mangano, DDS, PhD||

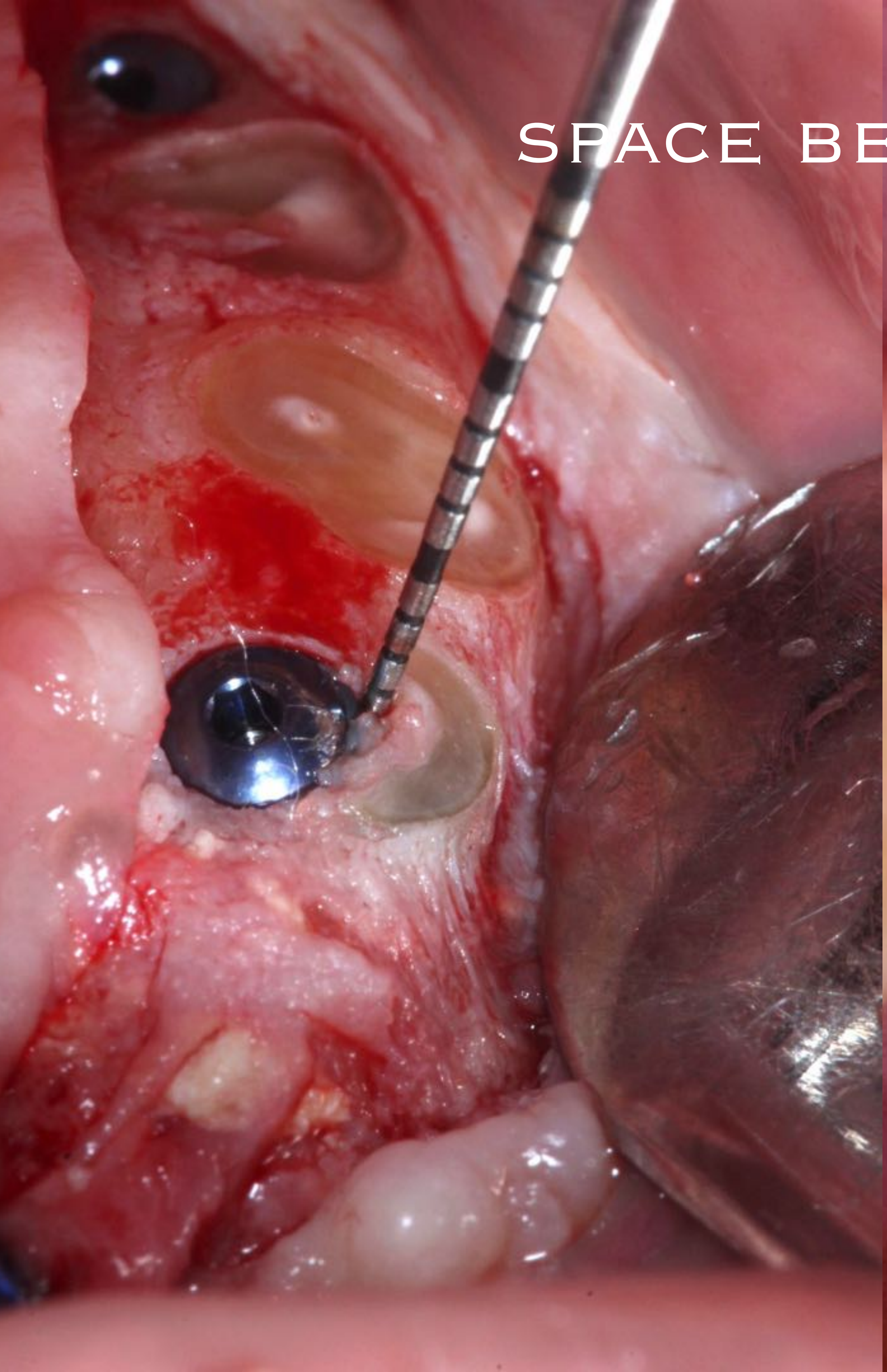
Purpose: *Immediate implant placement in conjunction with intentional root retention is a recently introduced technique, but the majority of existing documentation is limited to short-term reports with low level of evidence. Hence, the aim of this study was to document the long-term clinical and radiographic results of the root membrane technique.*

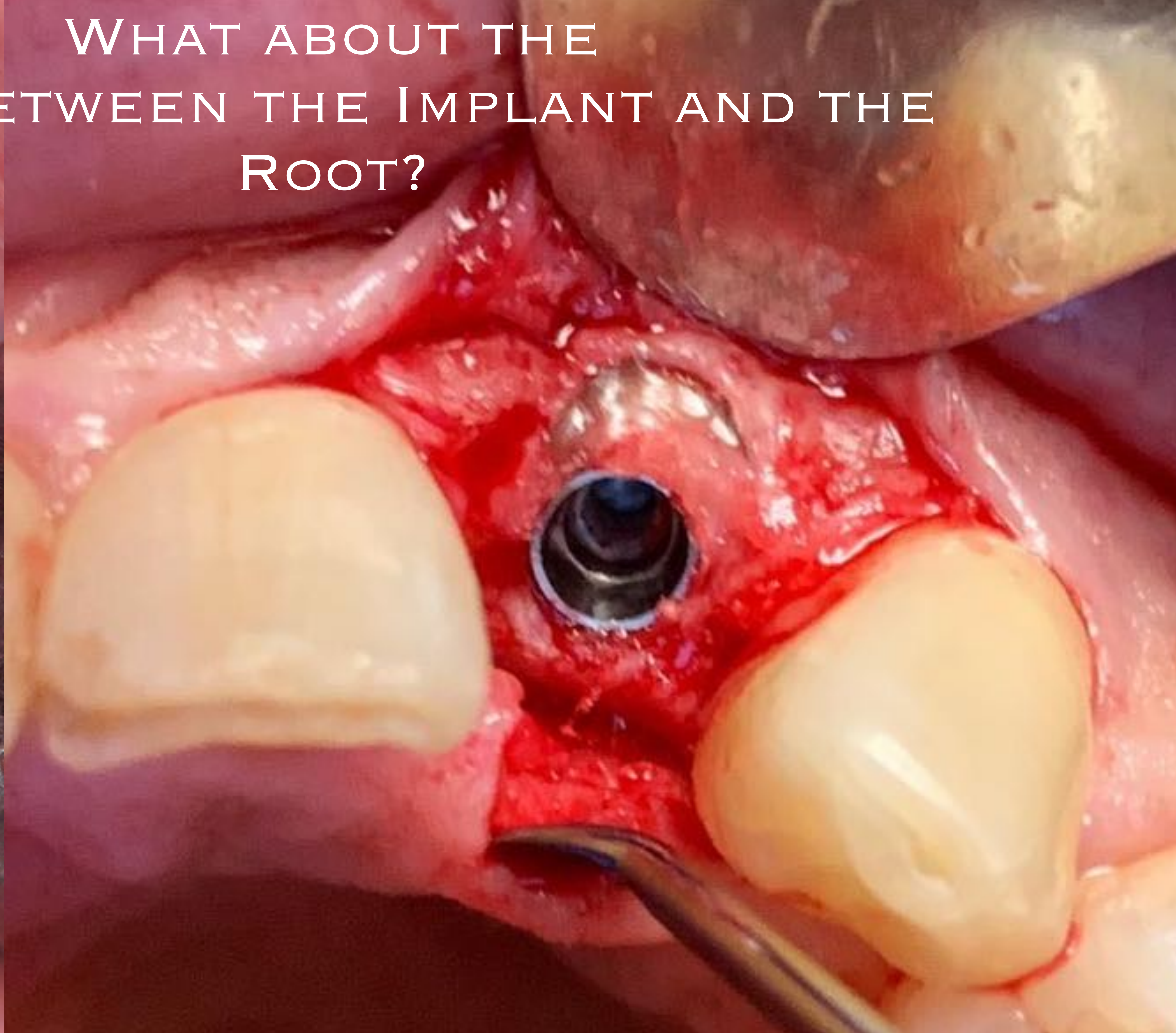
Methods: *This retrospective study reports on clinical results of*

Results: *A sample of 182 patients (82 men and 100 women, age range: 18–83 years) received 250 immediate implants (230 maxilla, 20 mandible) after the root membrane concept and followed-up for a mean of 49.94 months (±32.5). Overall, 5 implant failures were recorded for a 10-year cumulative patient-level implant survival rate of 96.5%. Considering mechanical and biological complications, the 10-year cumulative implant success*

Osseointegrated implants represent the most popular therapeutic solution for replacing compromised and nonrestorable teeth.[1–3] A fixed implant-supported restoration must, however, be able to meet all the biological, functional, and aesthetic requirements, to be defined as truly successful.[3–5] Until recently, the main focus of implant dentistry had been function and not aesthetics.[5,6] Contemporaneously, however, implant rehabilitation is mainly focused toward aesthetic reconstruction of edentulism.[5–8] A pre-

What about the space between the Implant and the Root?





2.5 Impact Factor

THE ROOT MEMBRANE TECHNIQUE:

HUMAN HISTOLOGIC EVIDENCE AFTER FIVE YEARS OF FUNCTION

MITSIAS M, SIORMPAS K, KOTSAKIS G, GANZ S, MANGANO C, LEZZI G

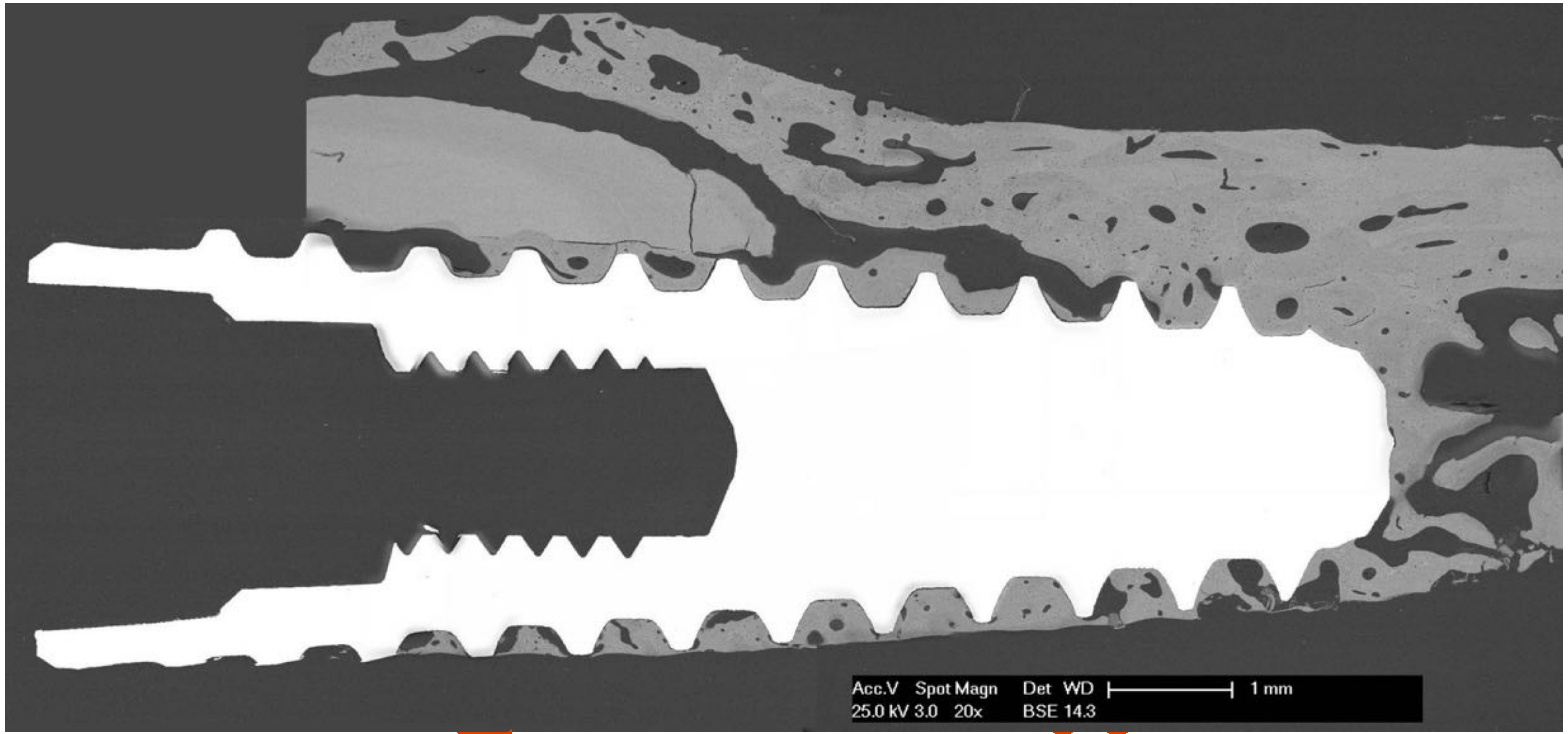
BIOMED RES INT 2017, OCT, IN PRESS...

Human Histology never lies....

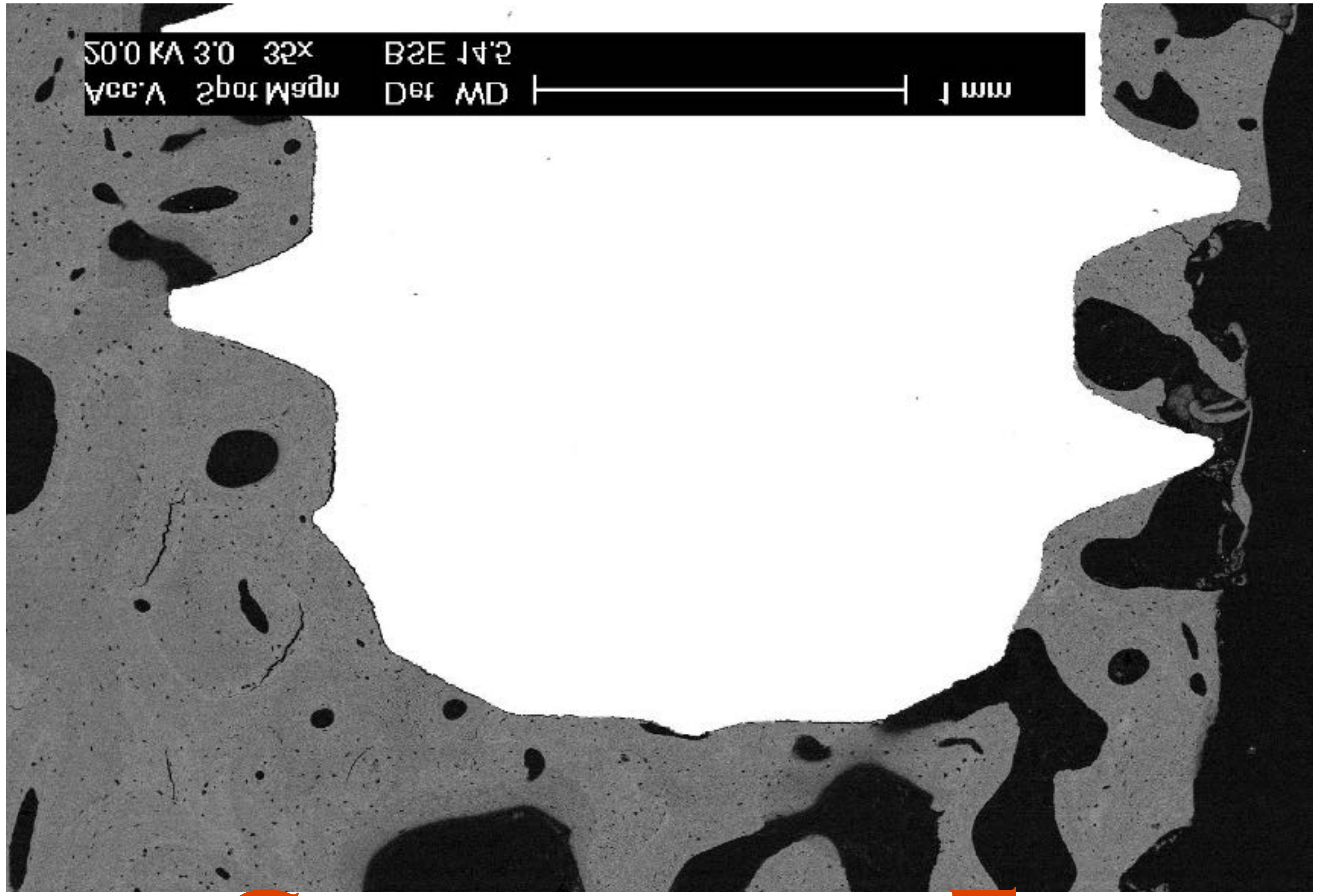

Titanium
Bone
Bone
Root

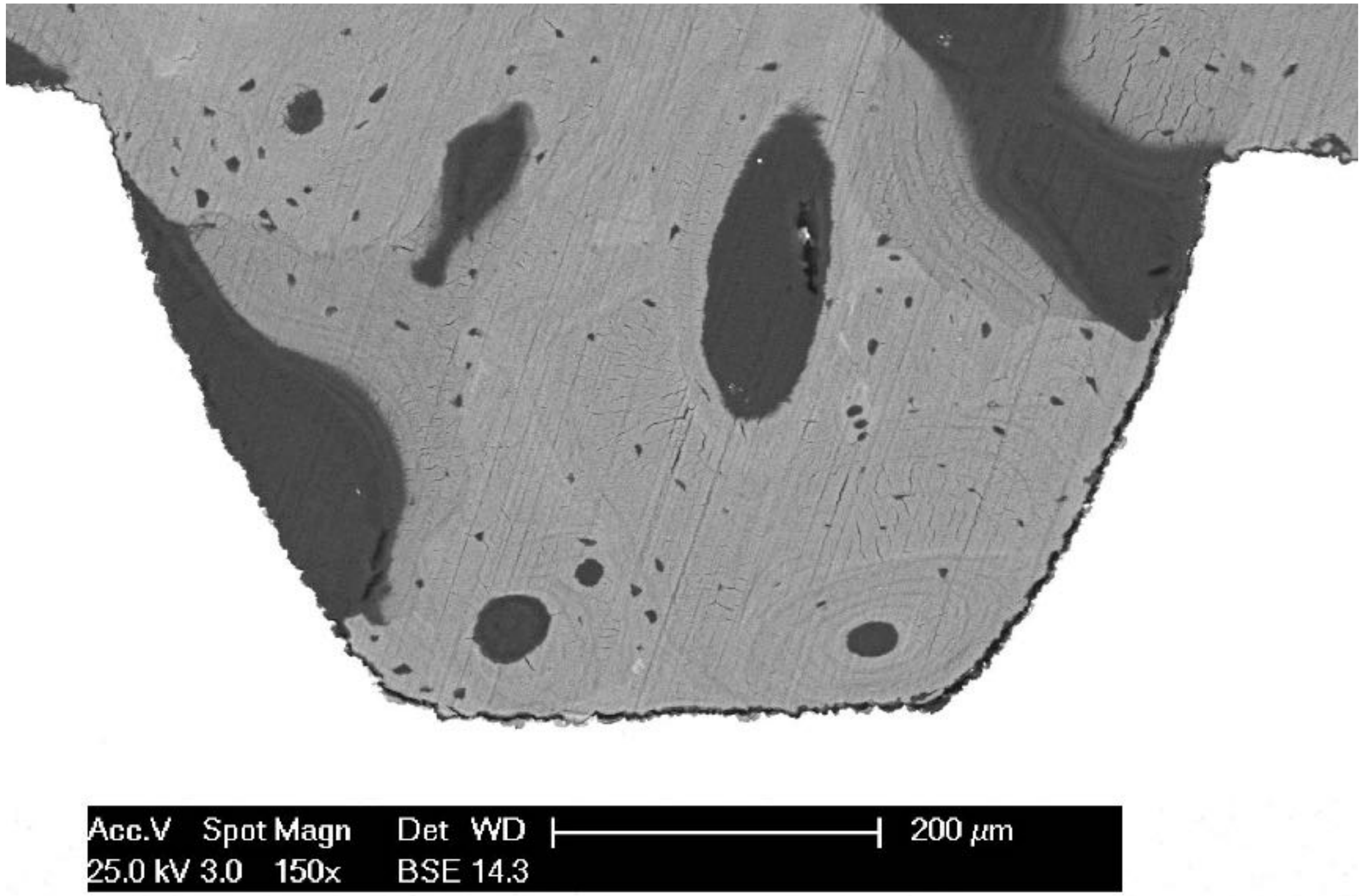
76,2% BIC...!!!

NON- INFILTRATED CONNECTIVE TISSUE



Scanning Electron Microscopy





Scanning Electron Microscopy

Human histological evidence of new bone formation and osseointegration between root dentin (unplanned socket shield) and dental implant

Schwimer C, Pette G, Du Toit J, Gluckman H, and Salama M.

Human Histologic Evidence of New Bone Formation and Osseointegration Between Root Dentin (Unplanned Socket-Shield) and Dental Implant: Case Report

Charles Schwimer, DMD, BS[1]/Gregory A. Pette, DMD, MS[2]/Howard Gluckman, BDS, MChD (OMP)[3]/Maurice Salama, DMD[4]/Jonathan Du Toit, BChD, MSc(Dent)[5]

The socket-shield technique described 7 years ago has since grown in its reporting in the literature as a valid method of ridge preservation at immediate implant placement. To date, large clinical cohorts with up-to-4-year follow-up have been reported. Additionally, evidence of tissue histology at the dental implant and socket-shield has been demonstrated in the animal model. However, human histologic evidence has not yet been available, and the clinician's uncertainty regarding the tissues that may form between the socket-shield and dental implant may remain unanswered until now. This case report presents the first human histologic evidence that bone may entirely fill the space between root dentin and an osseointegrated implant surface. Int J Oral Maxillofac Implants 2018;33:e19–e23. doi: 10.11607/jomi.6215

Keywords: *dental implant, implantology, partial extraction therapies, ridge preservation, socket-shield*

Literature reporting on the retention of the tooth root or part of the tooth root to maintain alveolar ridge volume and offset postextraction collapse has been growing in recent years.[1] The socket-shield technique has been proposed as such a method, sectioning the facial root portion for it to remain submerged in situ with its physiologic attachment to bundle bone intact.[2] The hypothesis asserts that this root portion, when retained, circumvents the destruction of Sharpey's fibers inserted into bundle bone and "shields" the facial alveolar ridge from collapsing adjacent to the implant.[2,3] The literature to support this theory is growing.[1–14] As yet, the technique requires additional data to advocate in everyday practice, especially data ranking higher in the hierarchy of scientific evidence.

Hürzeler and coworkers[2] as well as Bäumer and coworkers[3] have provided valuable histologic evidence of the healed socket-shield and implant sectioned from the alveolar ridge. Yet, these have been presented in the canine model. The clinician may still be uncertain as to what tissue grows between the socket-shield and dental implant in a human. Is it periodontal ligament, new cementum, or partial or full periodontal regeneration? Will the identification of this tissue architecture affect the decision-making when selecting the socket-shield technique to offset resorptive complications at immediate implant placement? The objective of this case report was to present the first human histologic evidence that demonstrates the healing possibility of new bone and osseointegration between root dentin and dental implant.

CASE REPORT

A woman aged 45 years presented to the offices of her periodontist for a routine check-up, and provided a history that included among others discomfort and vague sensation associated with her implant crown at the left maxillary first premolar site. The patient's medical history was noncontributory. The dental history entailed loss of the premolar tooth 2 years prior and an immediate implant being placed. A period of submerged healing followed, with subsequent implant exposure and definitive restoration with a cement-retained crown. Intraoral examination noted no overt inflammation, peri-implant mucositis, or tissue

[1]Private Practice, Pittsburgh, Pennsylvania, USA.
[2]Private Practice, Naples, Florida, USA.
[3]Director, Implant and Aesthetic Academy, Specialist in Periodontics and Oral Medicine, The Implant Clinic, Cape Town, South Africa.
[4]Clinical Assistant Professor of Periodontics, University of Pennsylvania, Philadelphia, Pennsylvania; Medical College of Georgia, Augusta, Georgia; Private Practice, Atlanta, Georgia, USA.
[5]Resident, Department of Periodontics and Oral Medicine, University of Pretoria, Faculty of Health Sciences, School of Dentistry, South Africa.

Correspondence to: Dr Charles Schwimer, 6201 Steubenville Pike, McKees Rocks, PA, 15136, USA. Email: F40chuck@aol.com

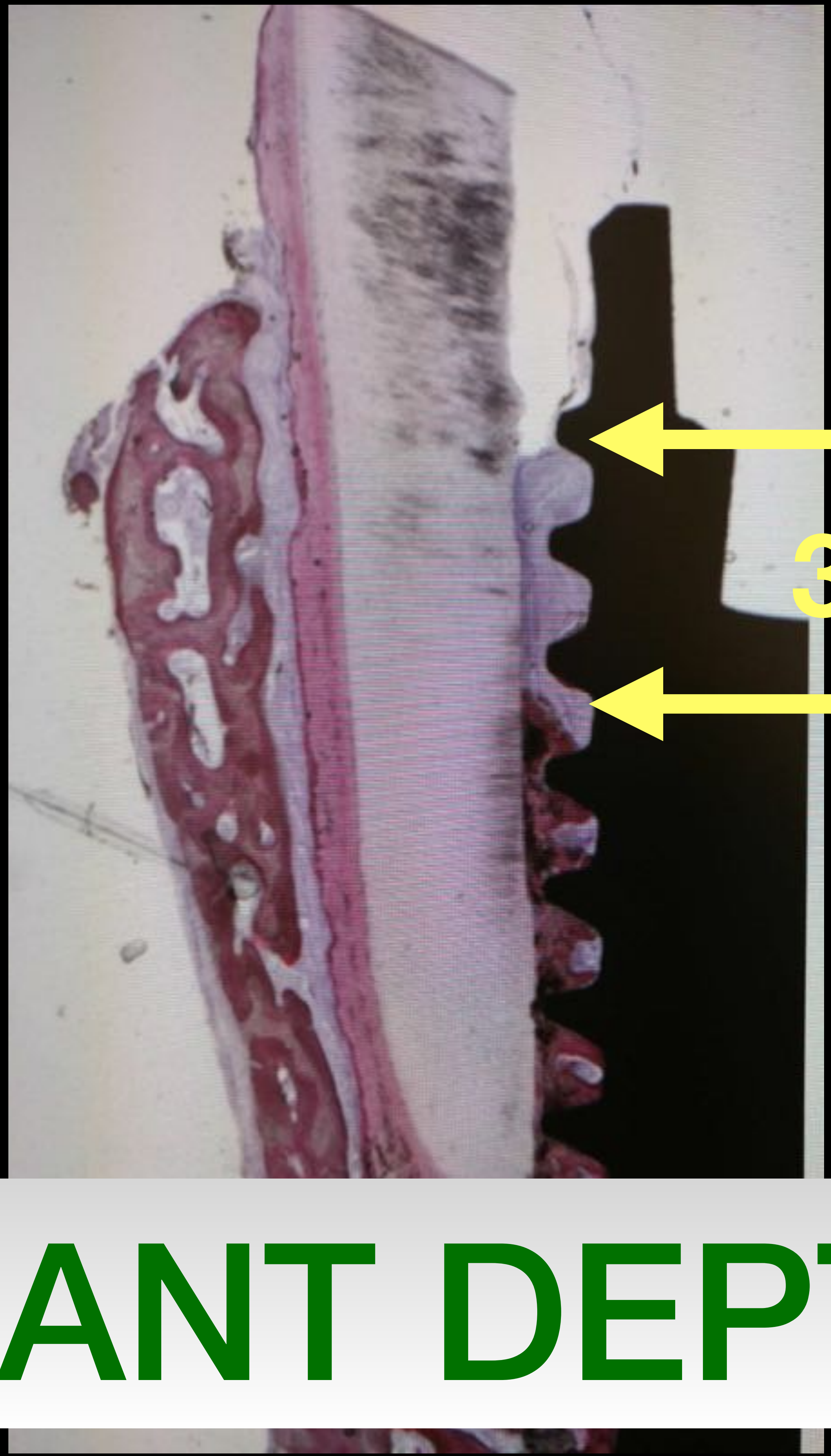
X40

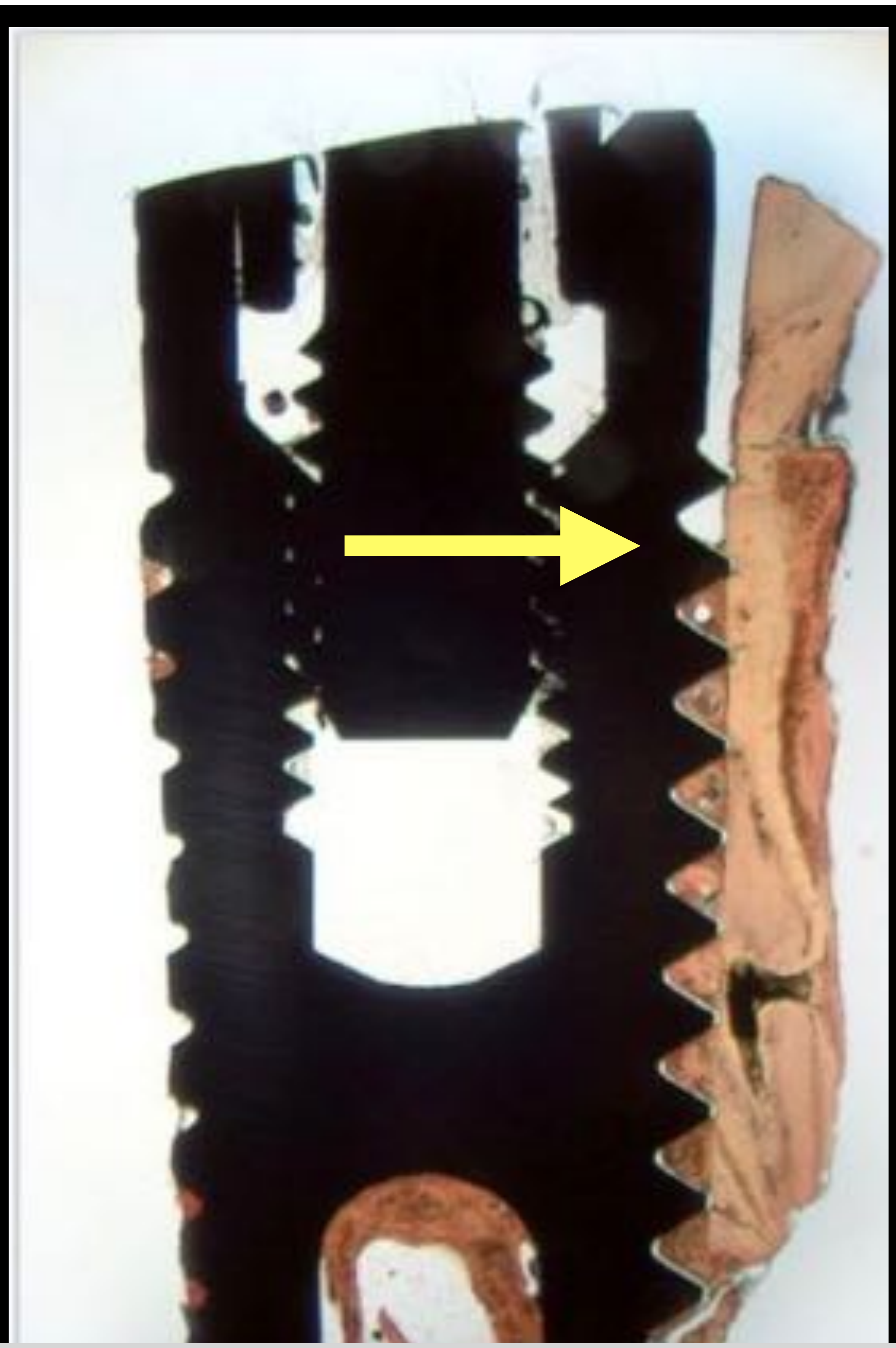
X100

X100

HUMAN HISTOLOGY

GAP



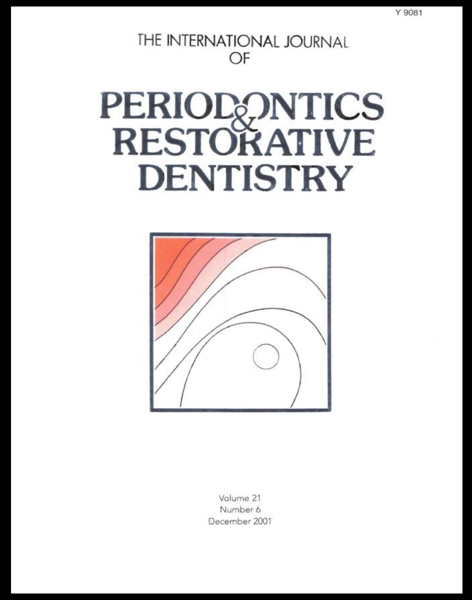


NO GAP

IMPLANT DEPTH? GAP DISTANCE?

MITSIAS

SCHWIMER



Indications - Contraindications

Indications

Patients with good general health and high level of oral hygiene.

Teeth with poor prognosis, big carious lesions,

Horizontal fractured teeth, up to bone level.

Chronic inflammatory teeth-OK

Contraindications

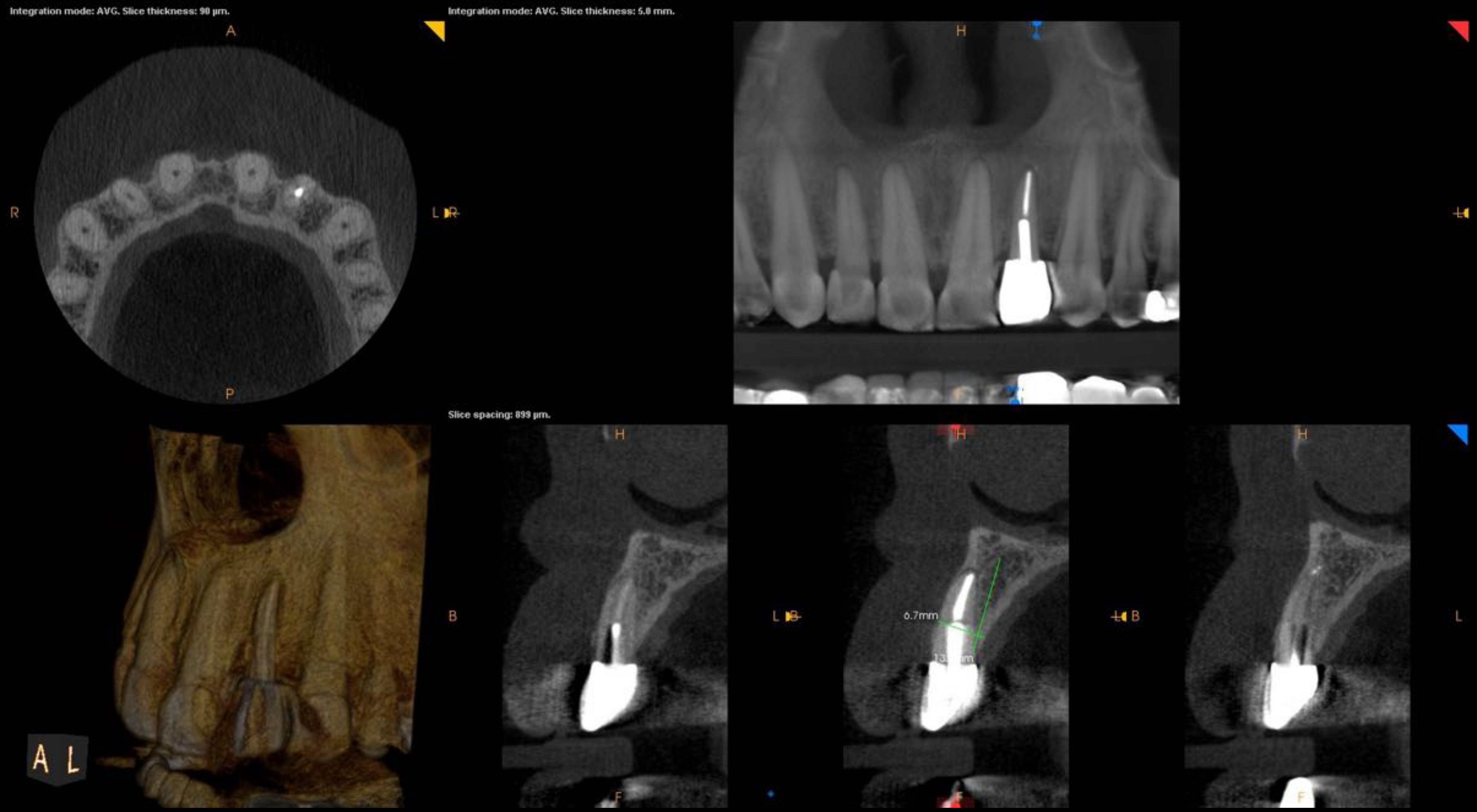
Cannot be applied on periodontal teeth.

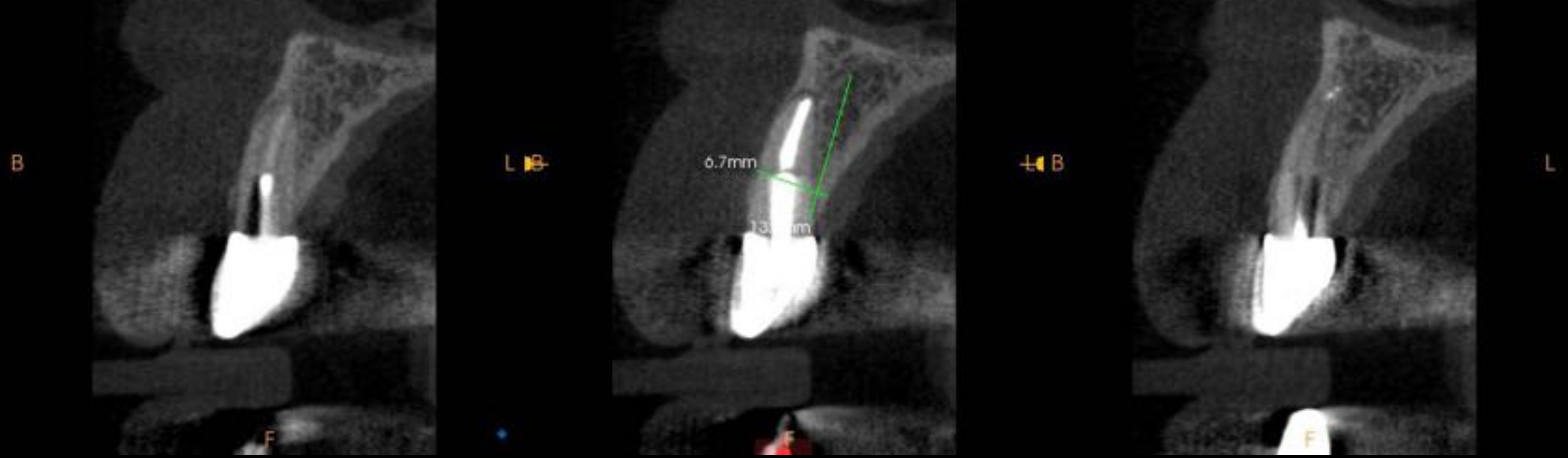
No sub-crestal vertically fractured teeth.

No periodontally compromised teeth.

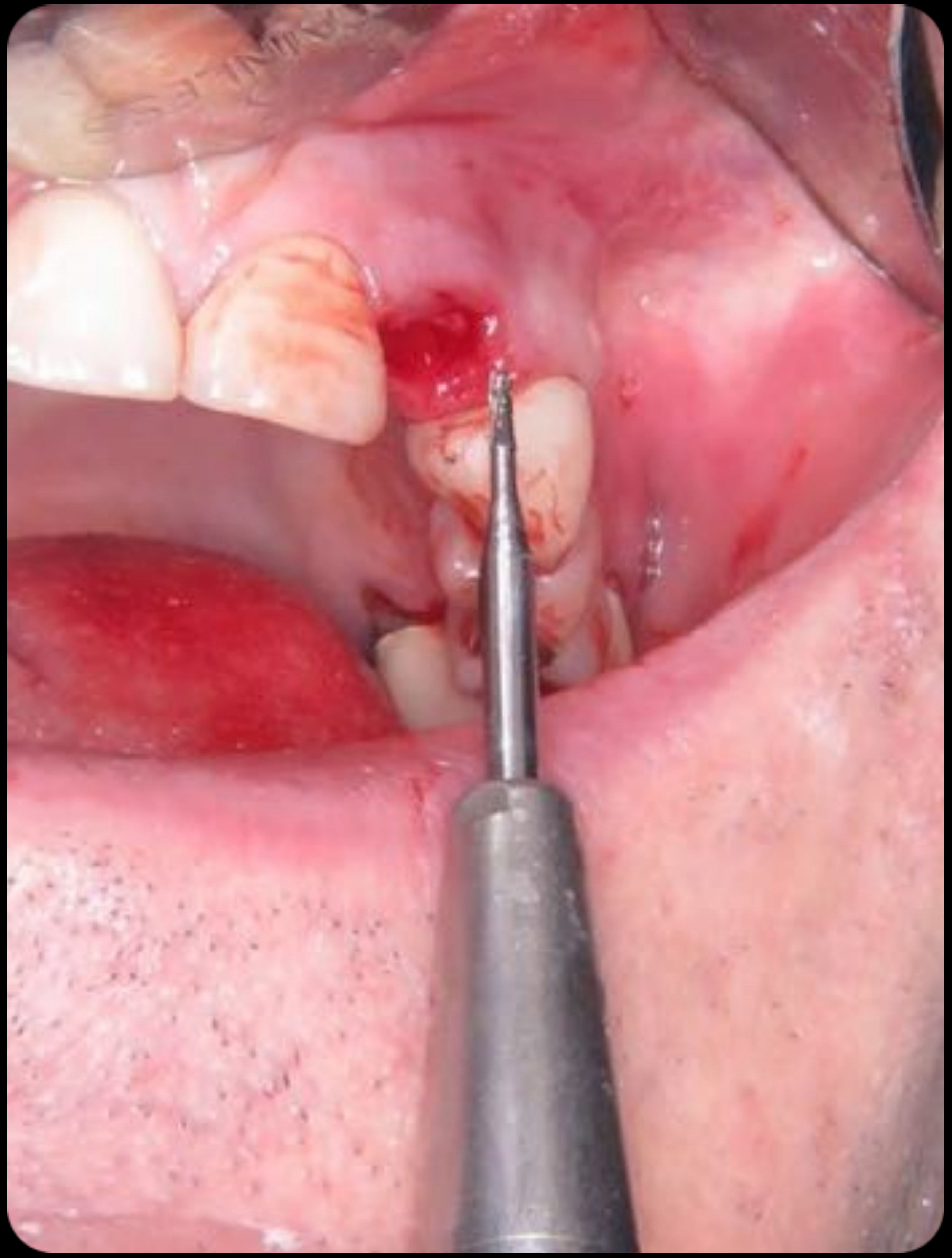
No teeth with acute inflammation.

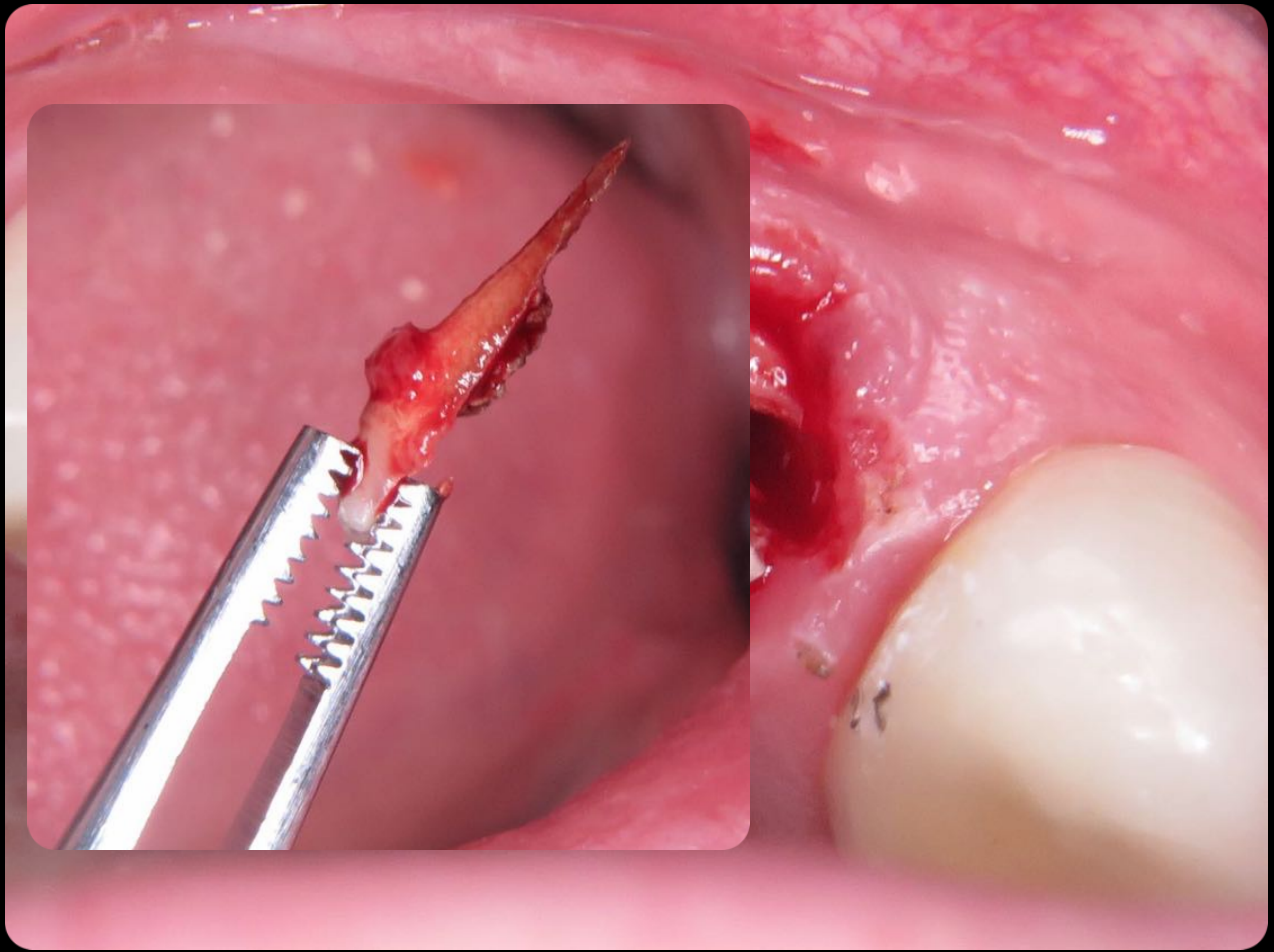
Cases


Integration mode: AVG. Slice thickness: 90 µm.
Integration mode: AVG. Slice thickness: 5.0 mm.
A
R
L
P
H
Slice spacing: 899 µm.
B
F
6.7mm
A L

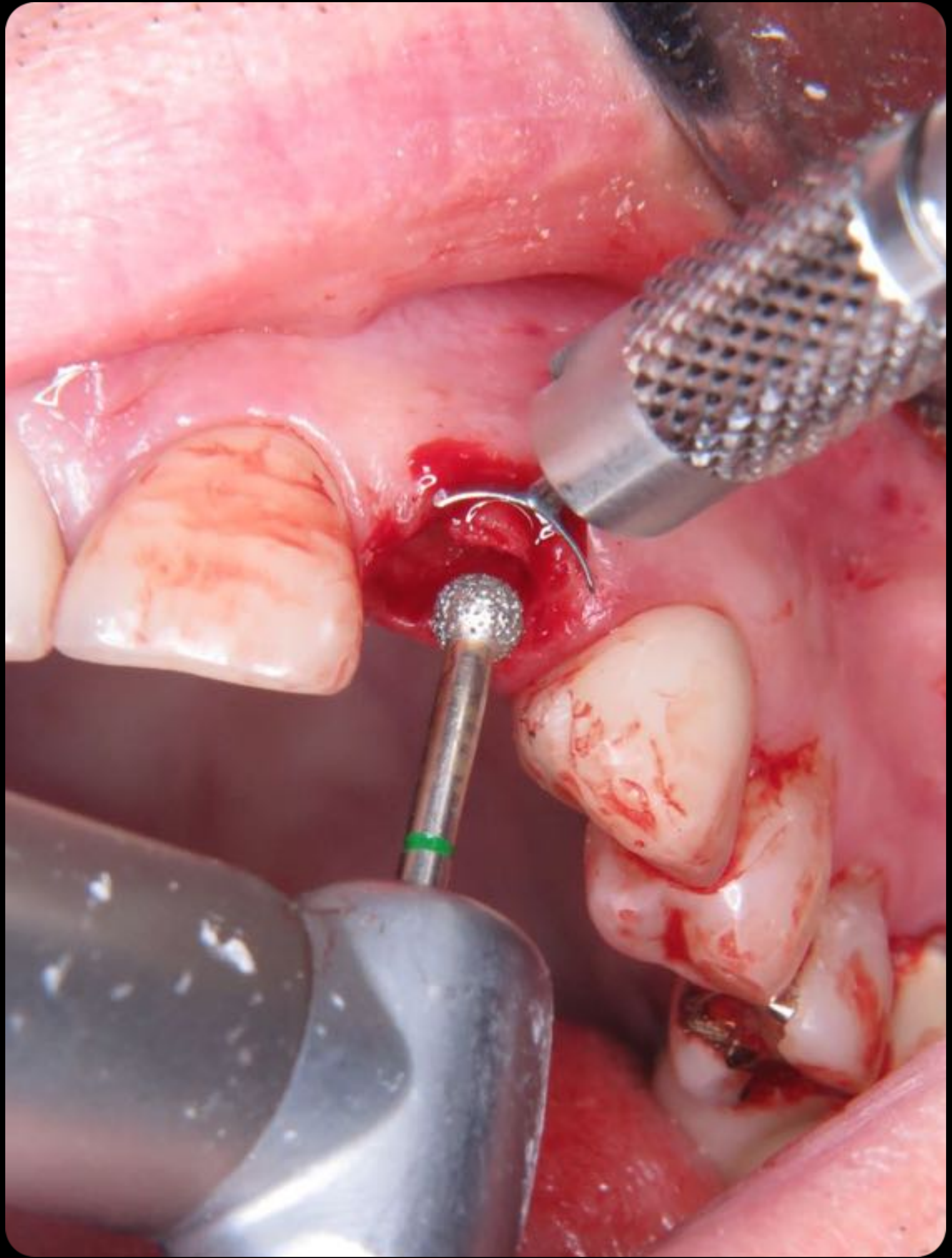

B
L
B
6.7mm
F
F
B
L
F


Drill through tooth - Vertical sectioning

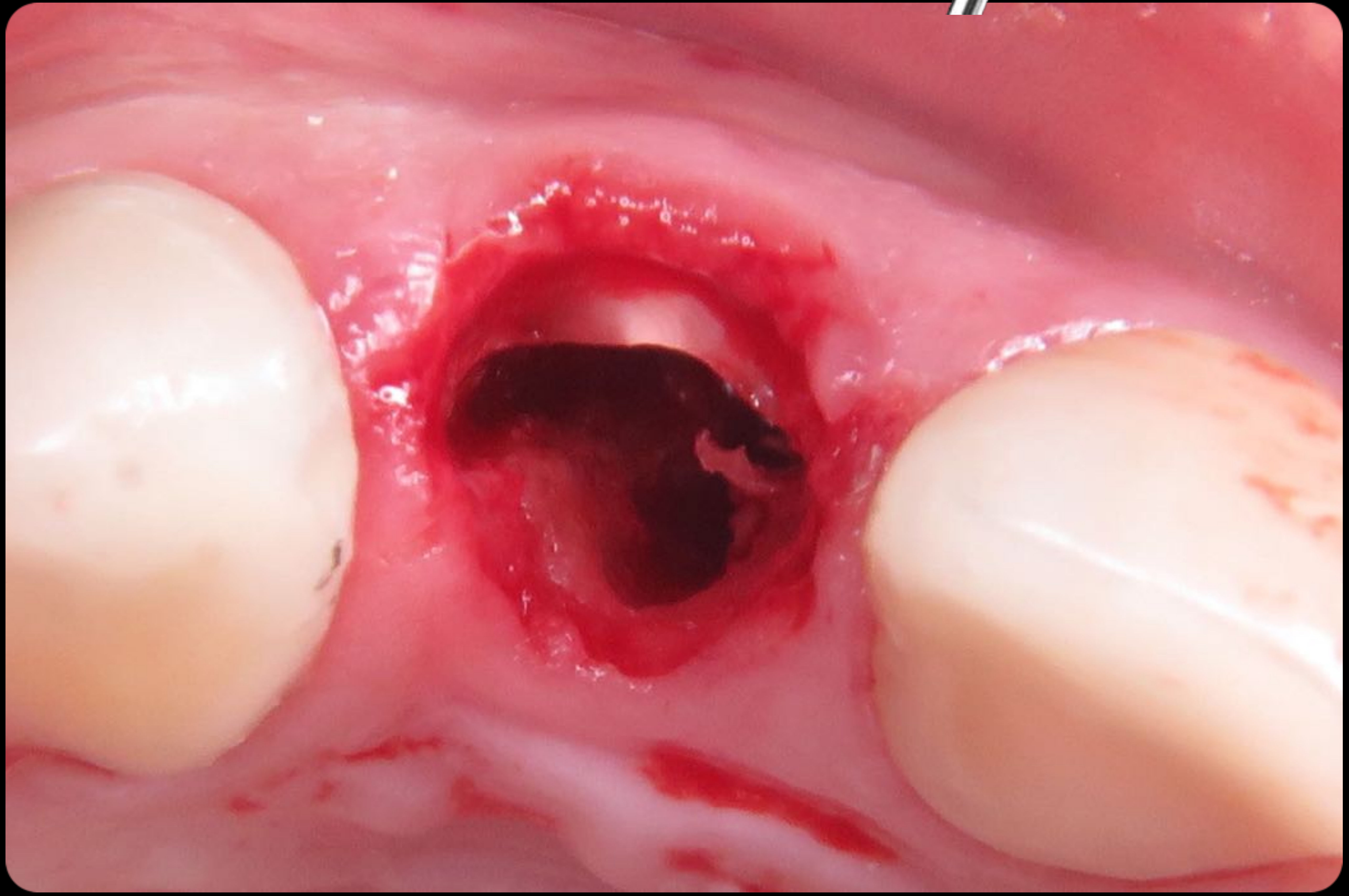




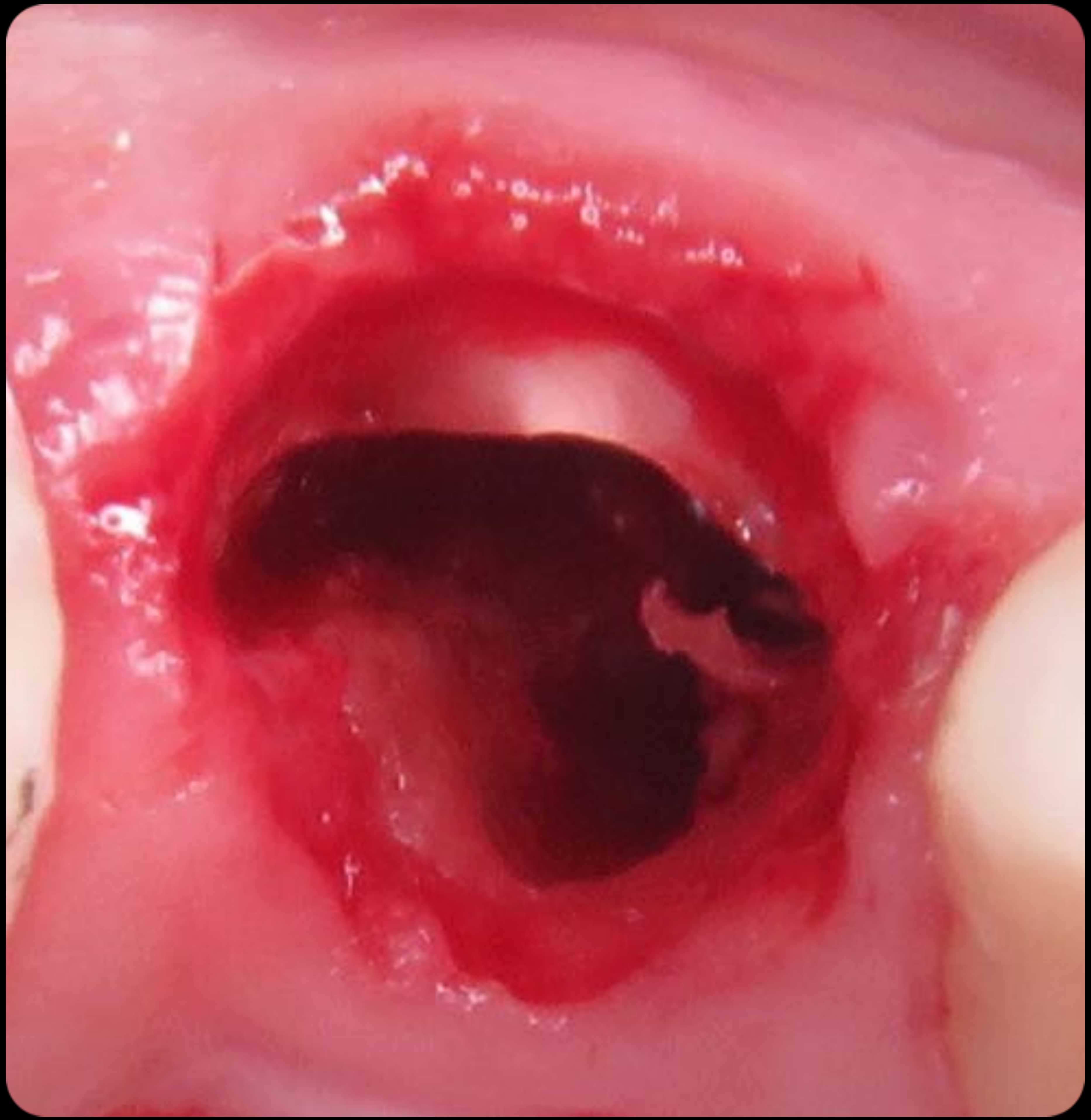
Palatal extraction

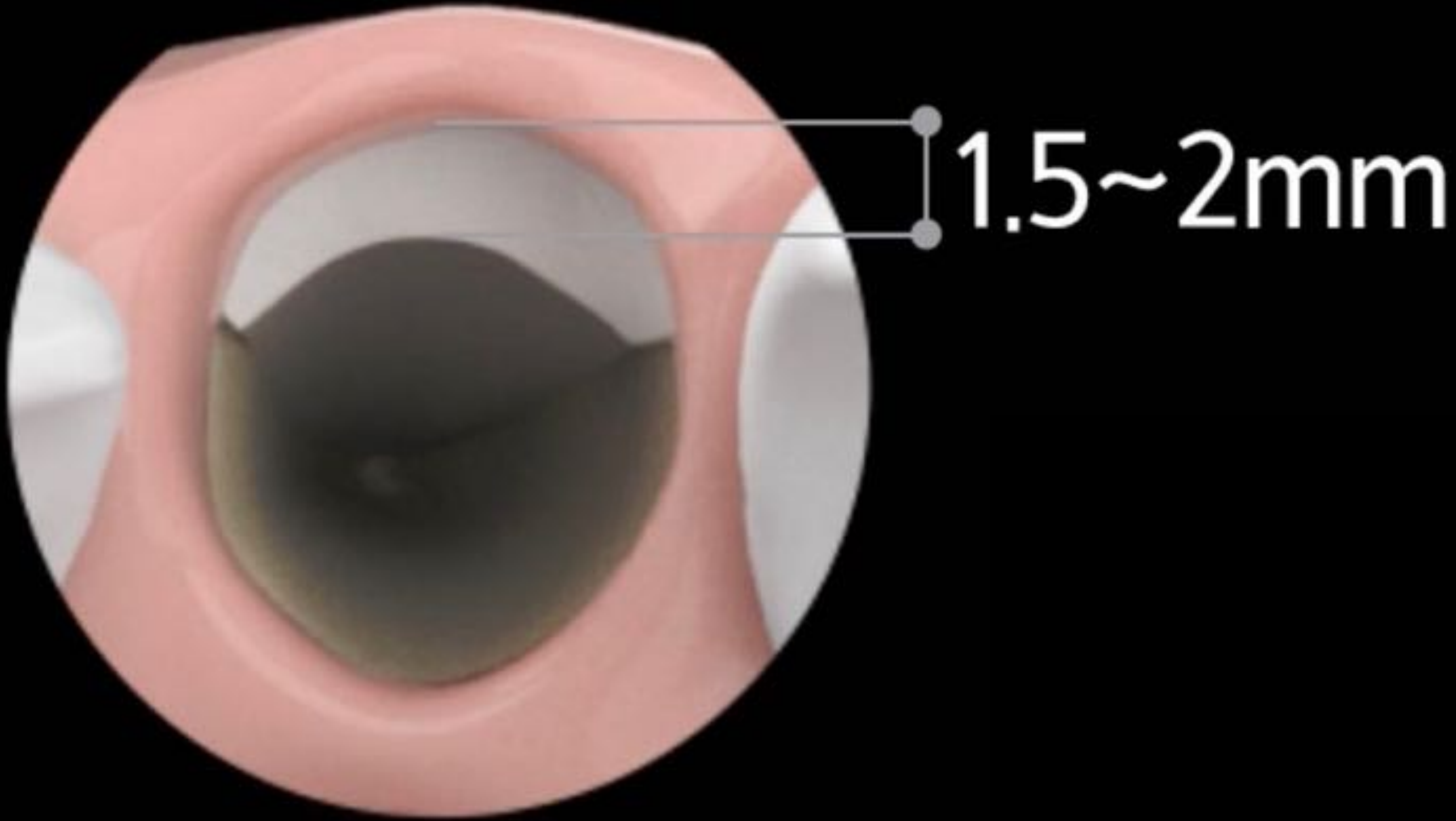


Round bur - Smooth Shield

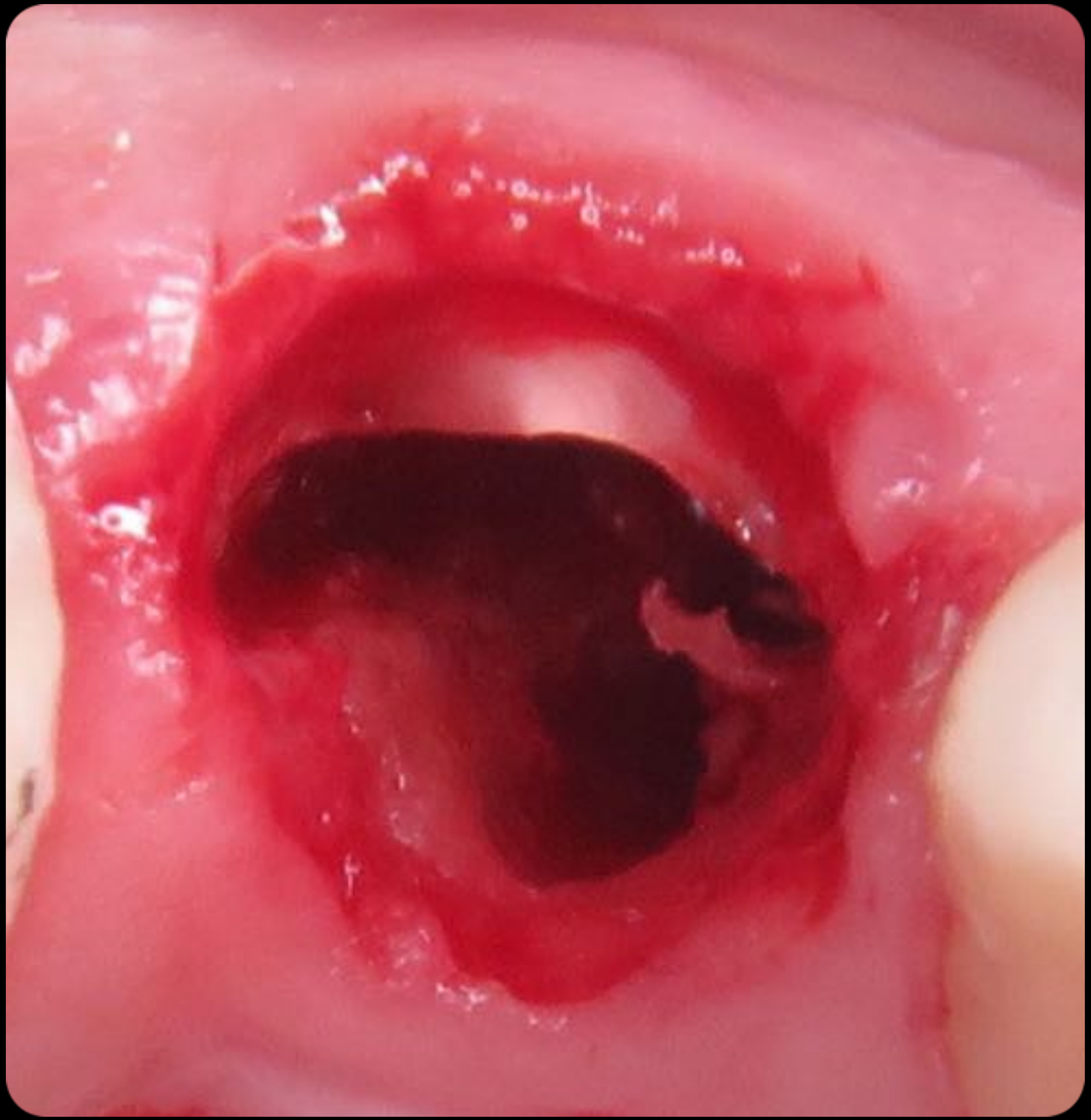


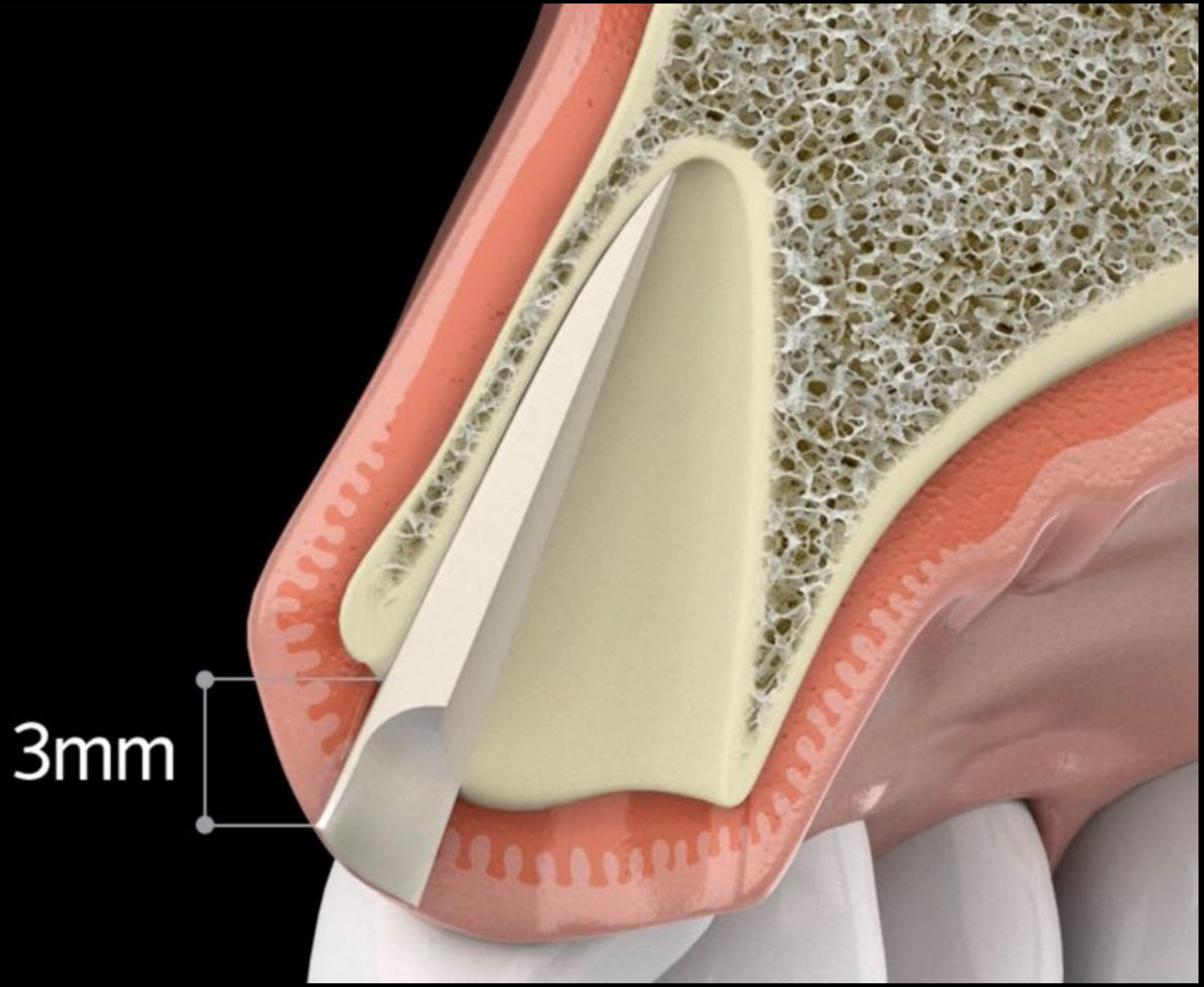
Recommended Width Of root fragment



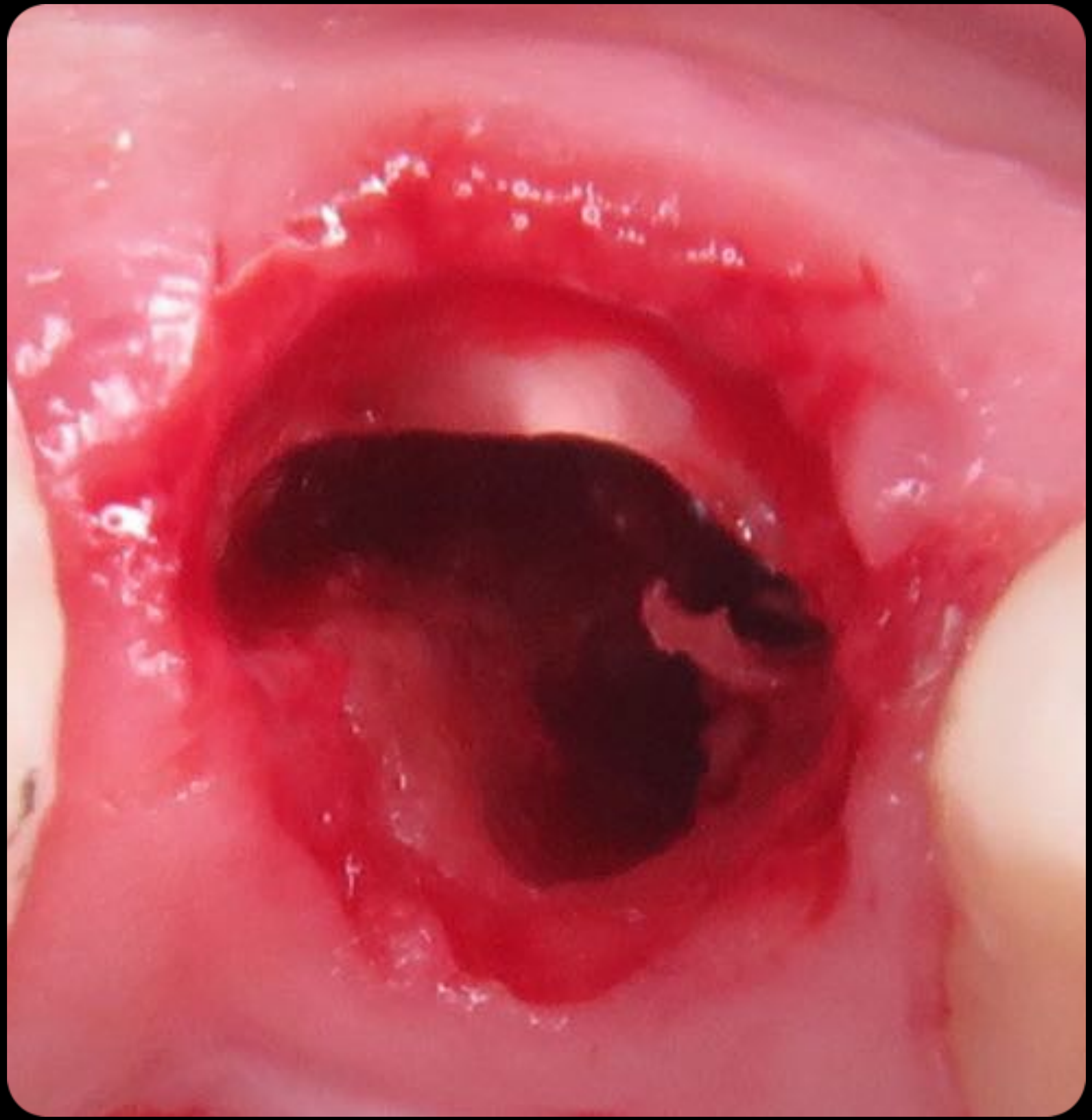


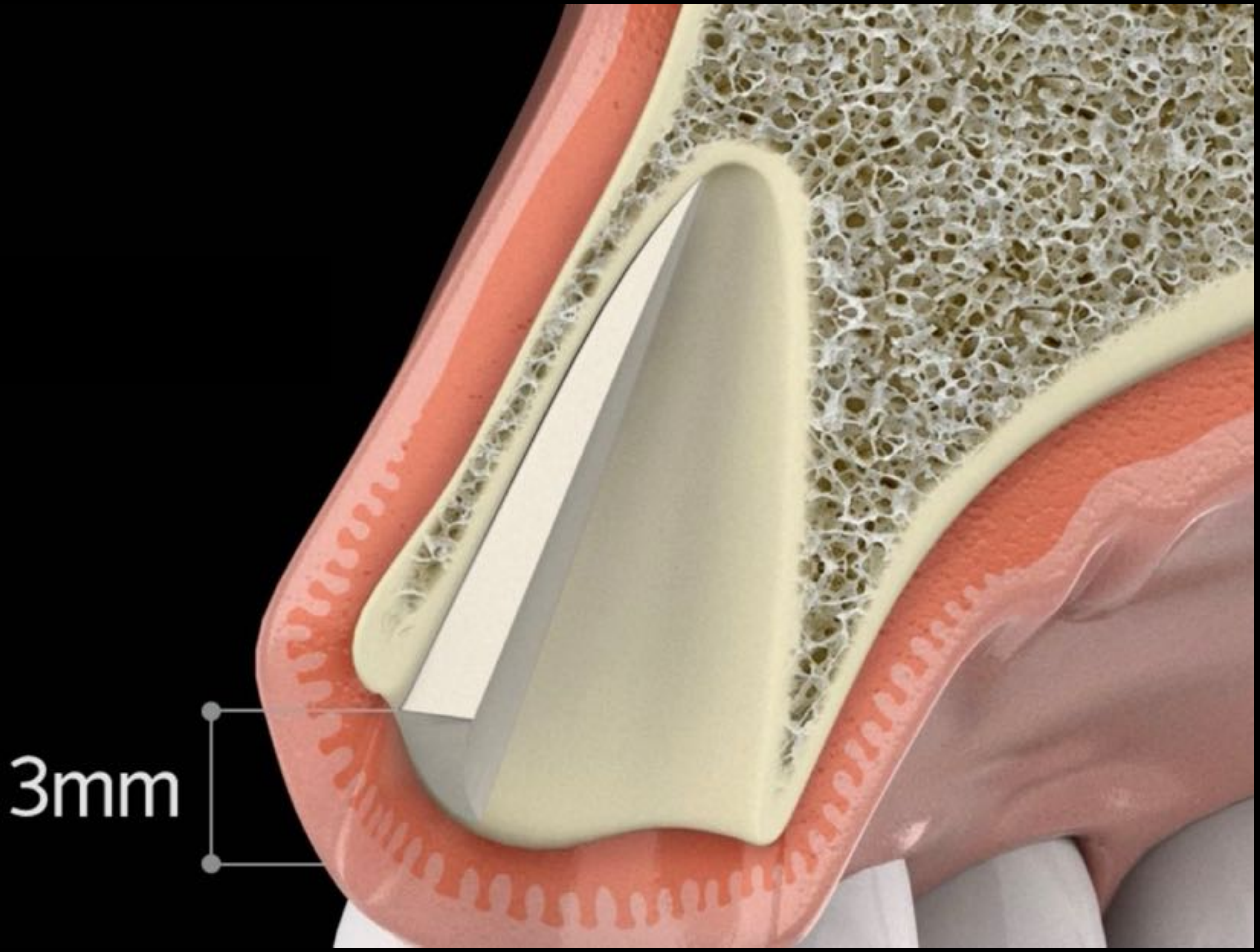
Recommended length Of root fragment



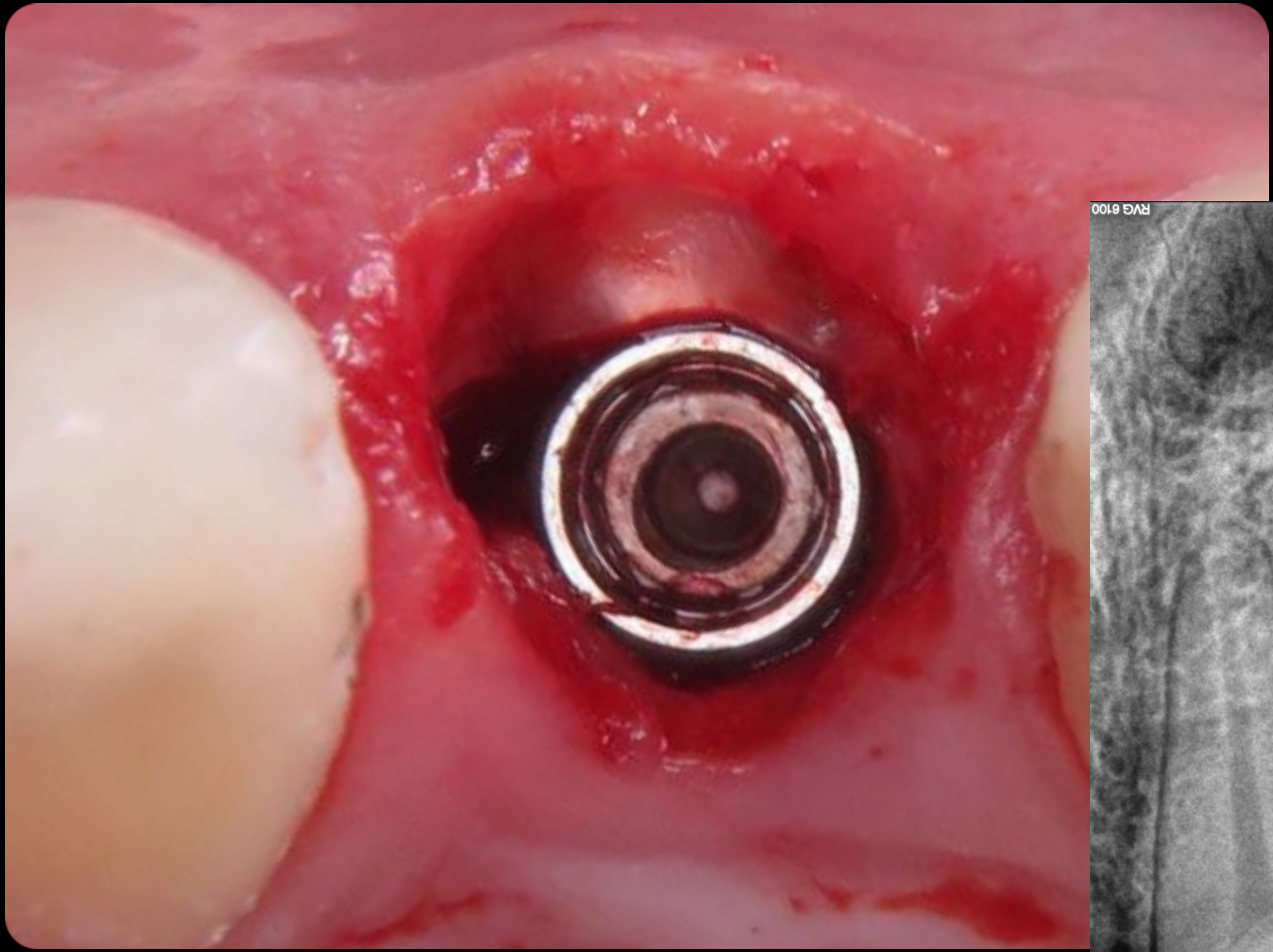


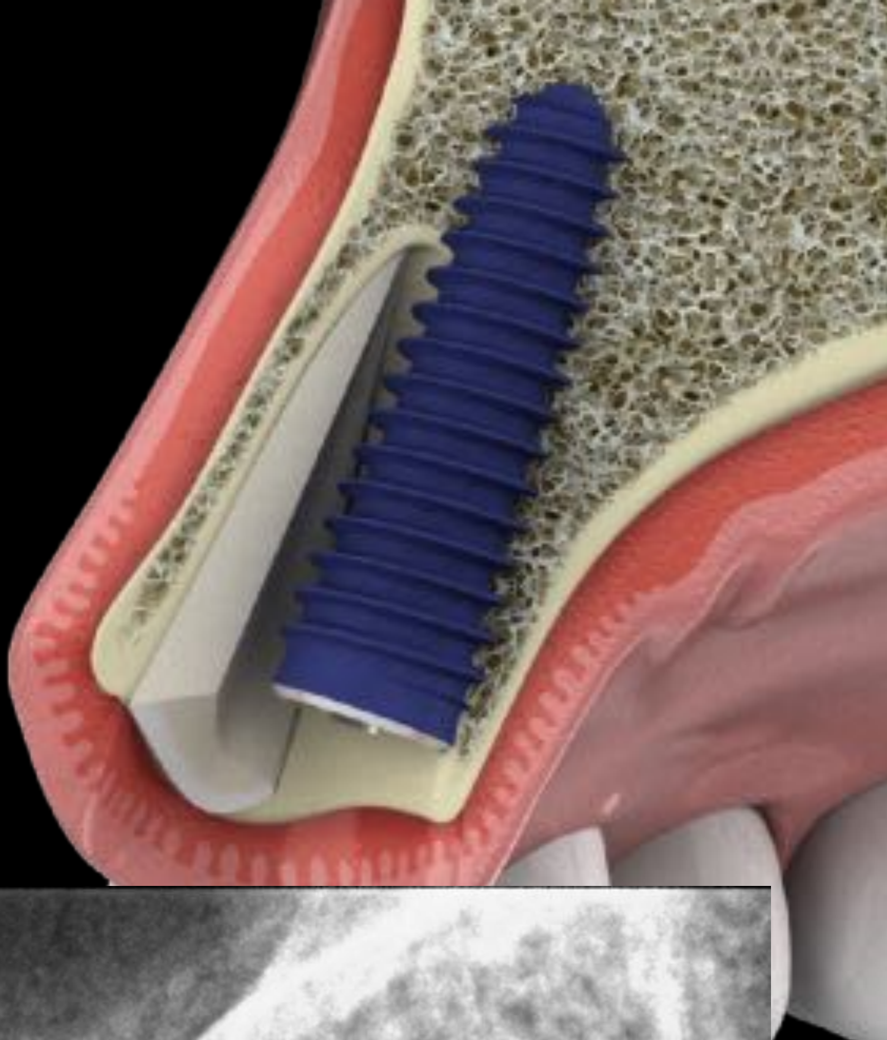
Recommended length Of root fragment

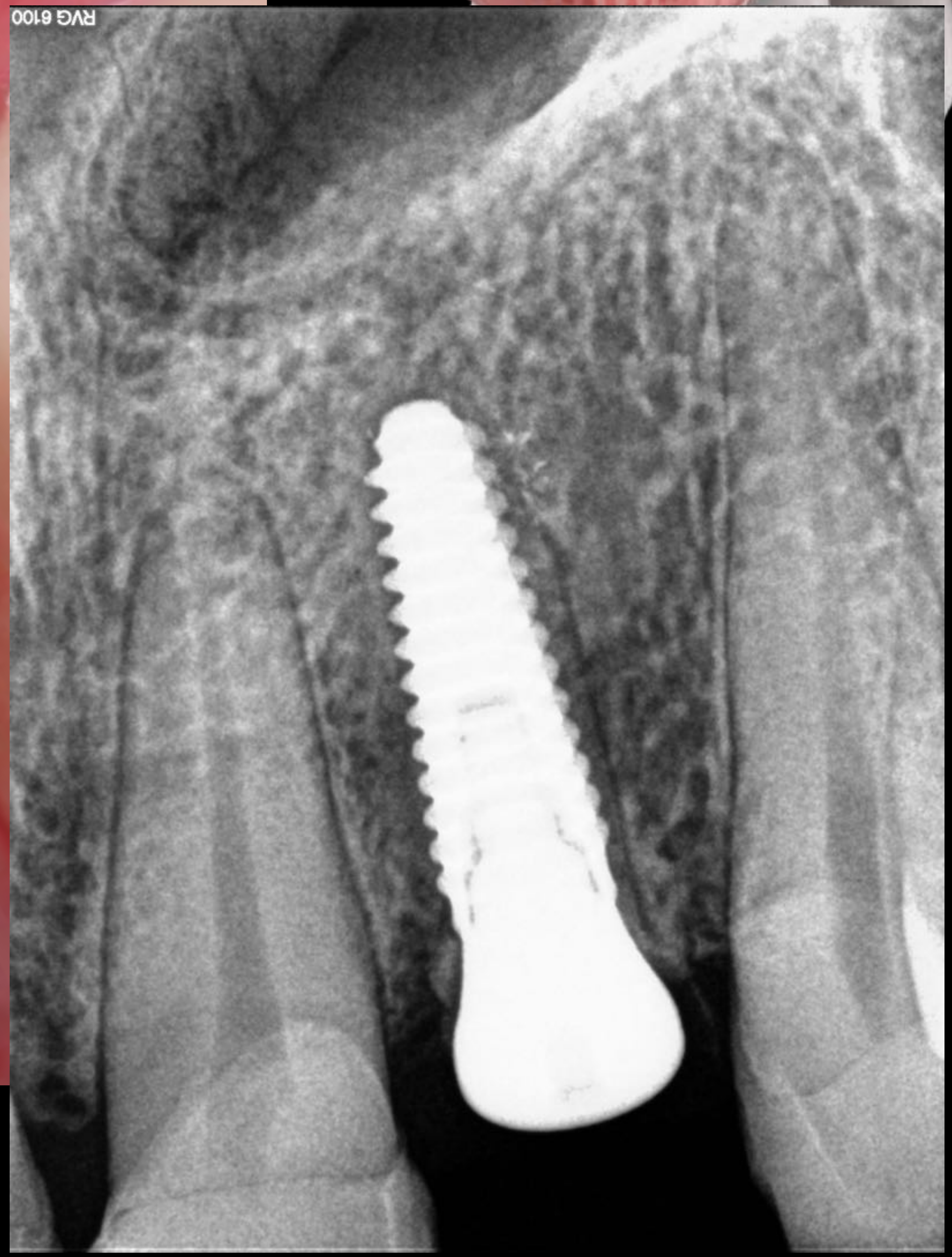





MEGA ISQ™
Original Osstell Technology
78







One Day Implant

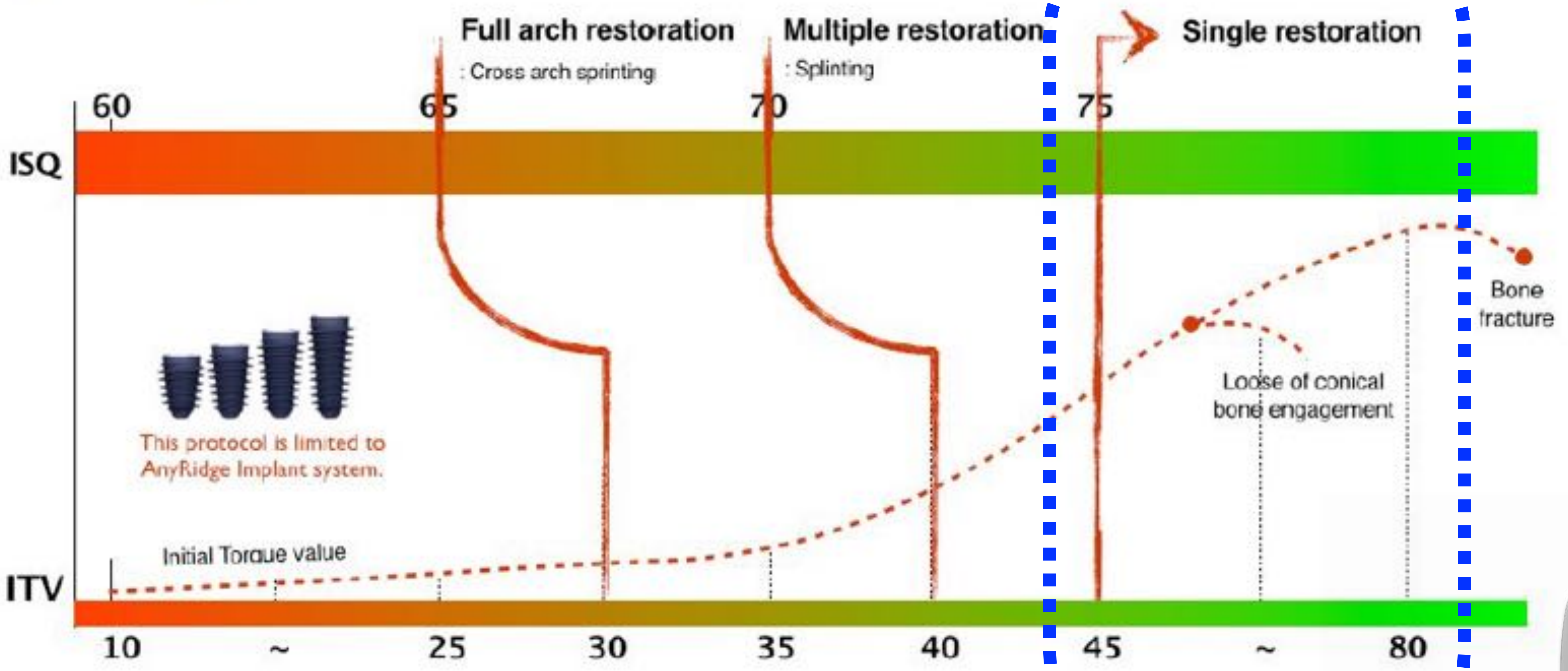
ANYRIDGE®

THE 21ST CENTURY PREMIUM IMPLANT SYSTEM

Immediate Loading Protocol

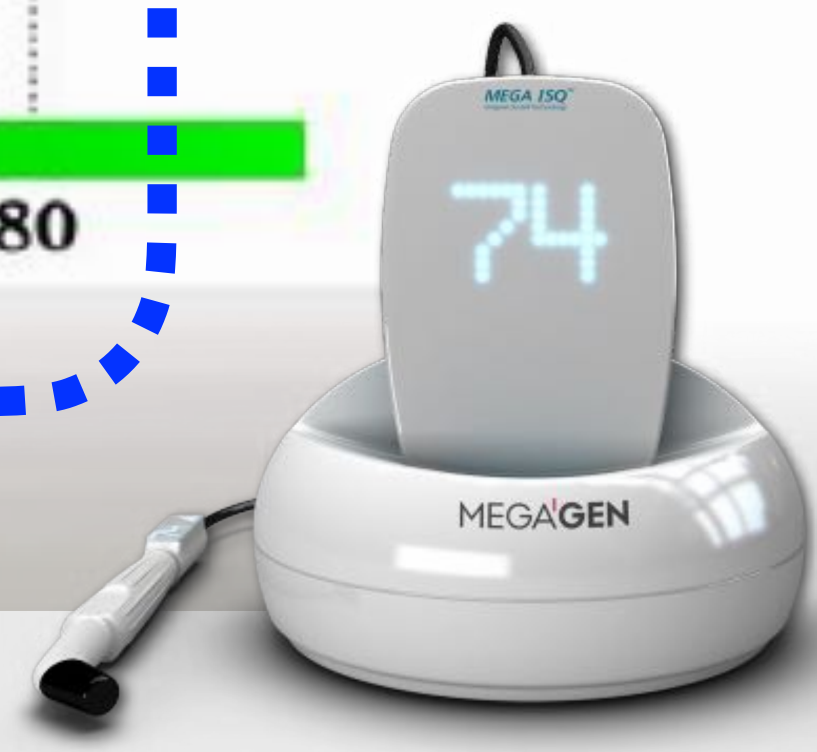
under the value of

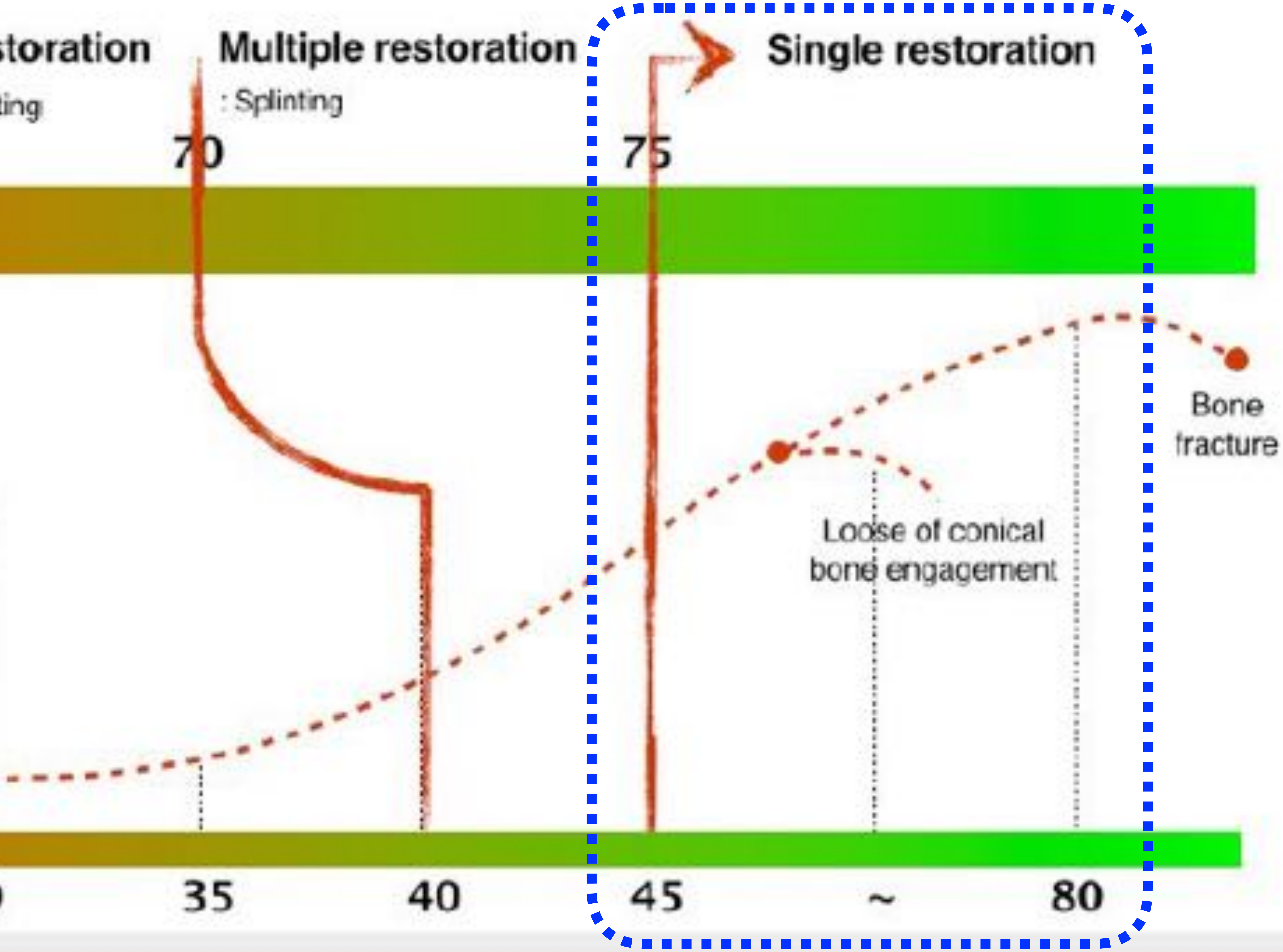
ISQ & ITV



European Scientific Meeting of MegaGEN
6th Jun. 2014, Zurich, Swiss

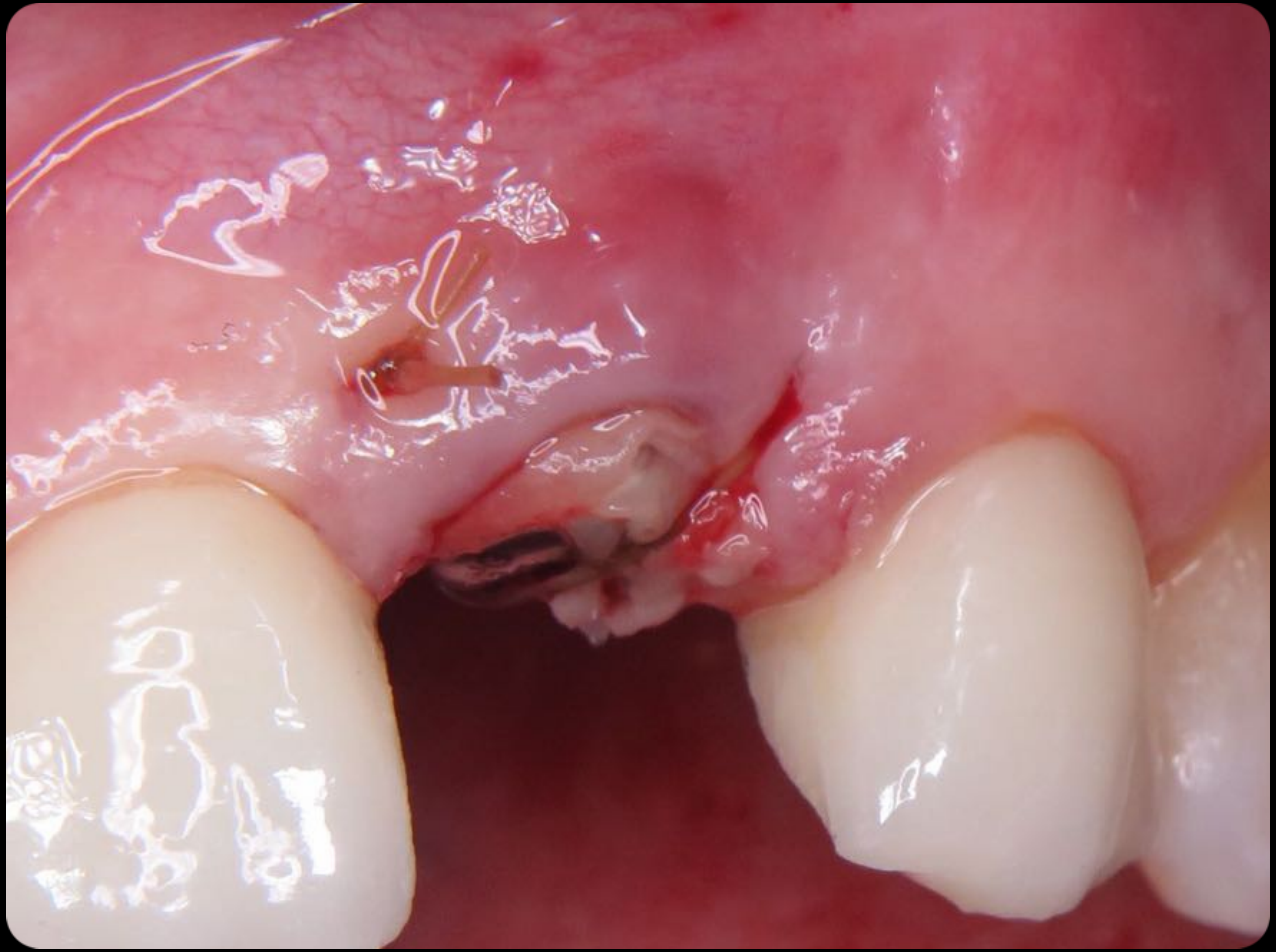
TEAM
EUREKA R2



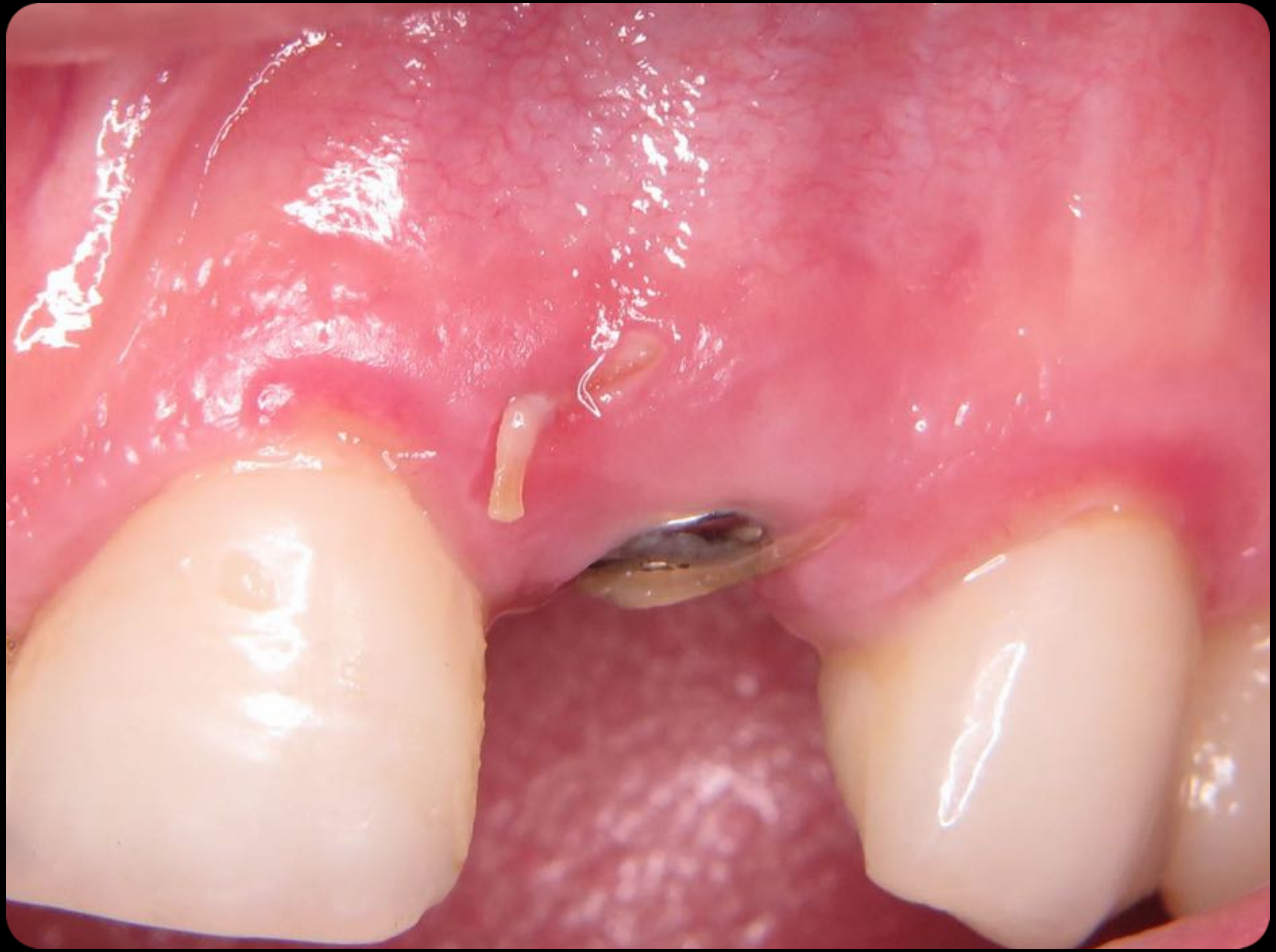

storation
ting
Multiple restoration
: Splinting
70
75
Single restoration
Bone
fracture
Loose of conical
bone engagement
35
40
45
~
80

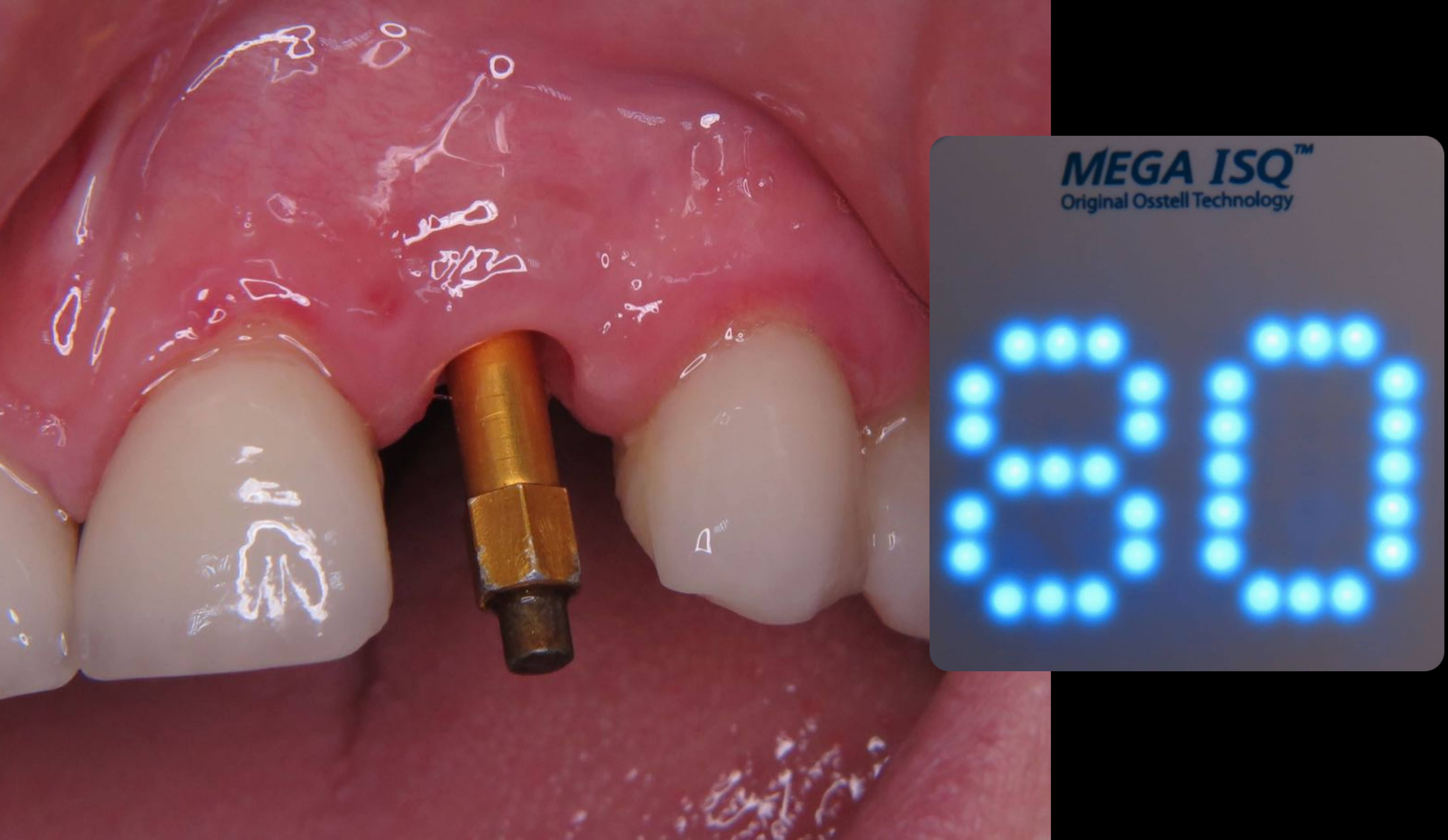

74
MEGAGEN

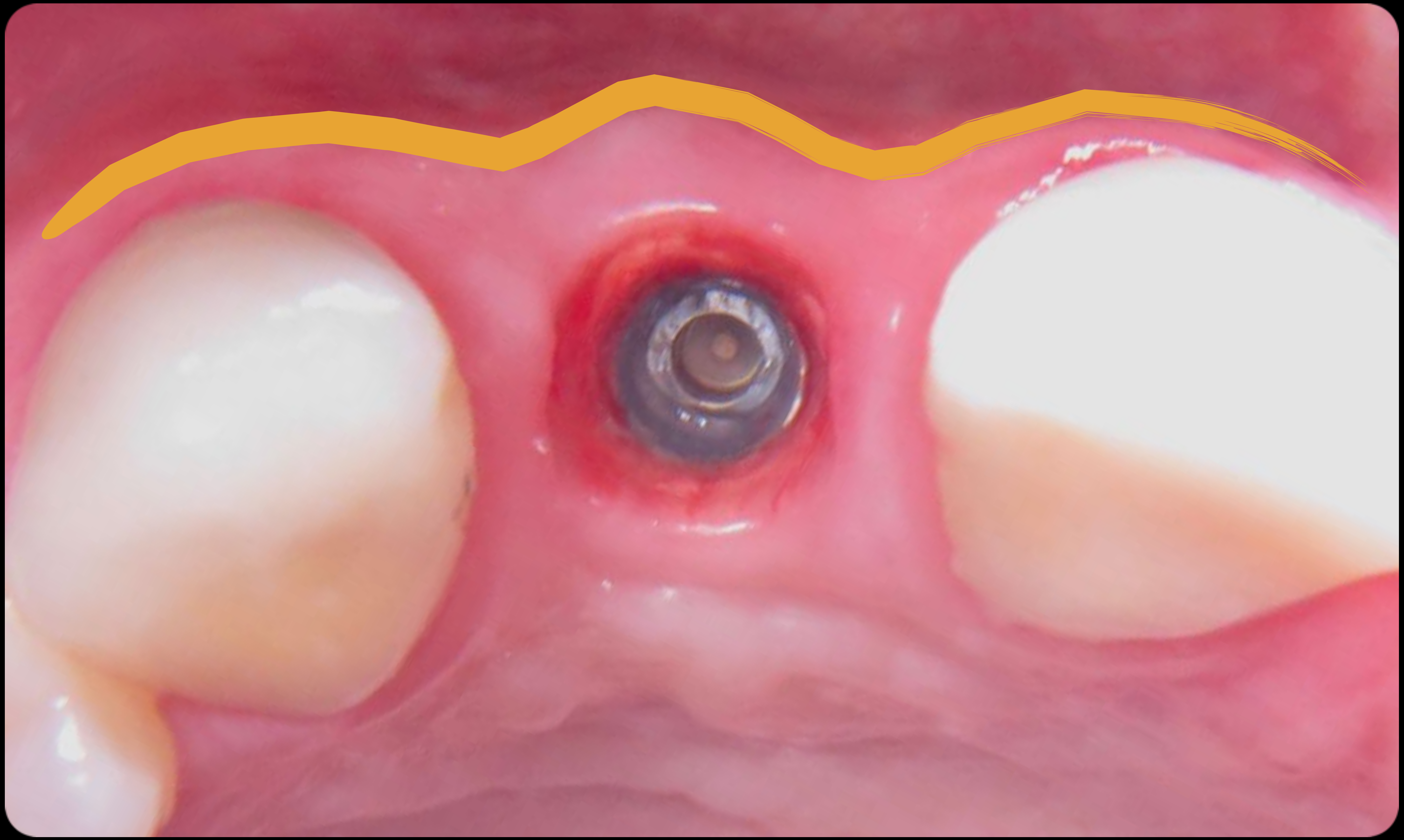
POST OP



2 WK POST OP




MEGA ISQ™
Original Osstell Technology
80

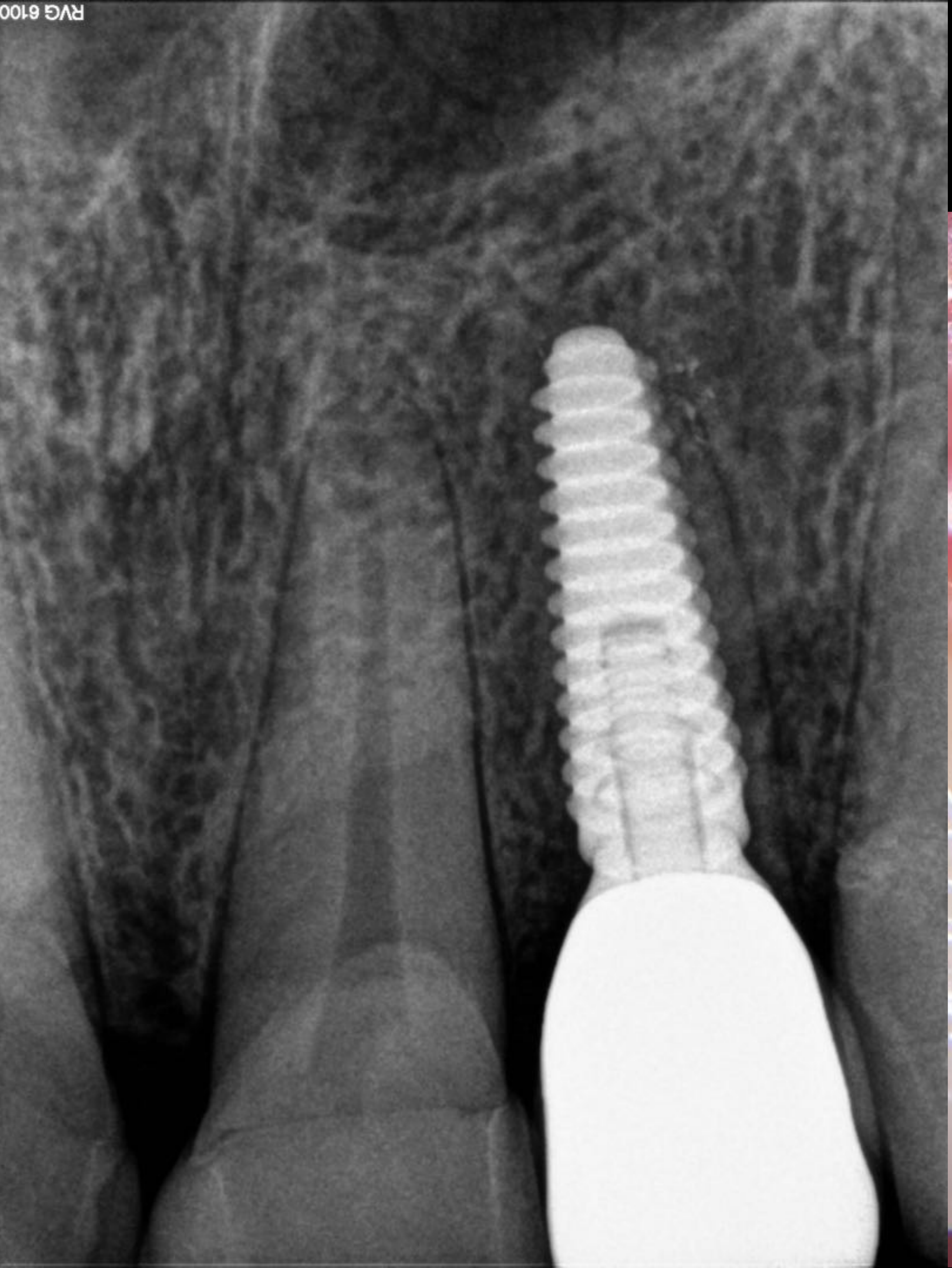


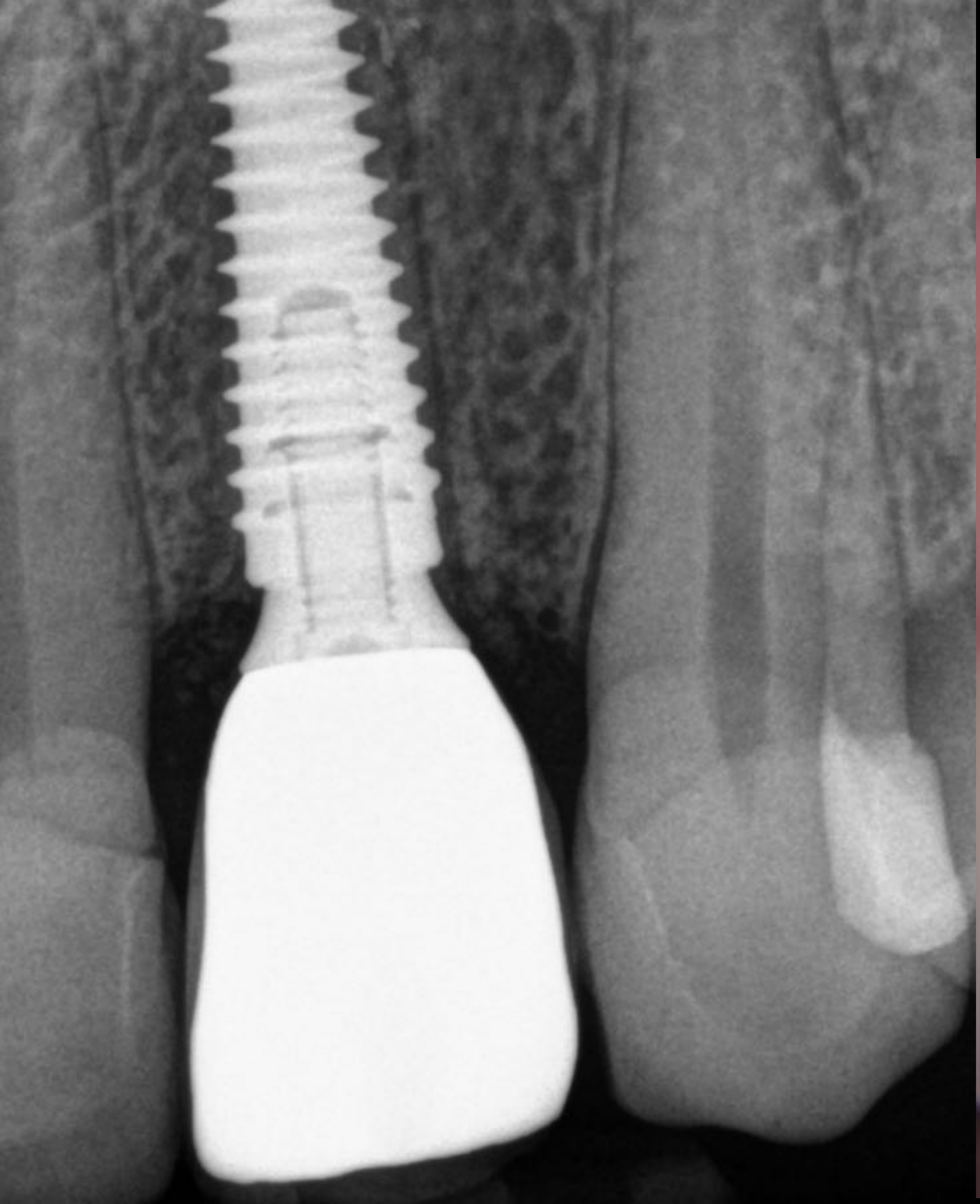
Contour -

Emergence Profile

Screw Retained

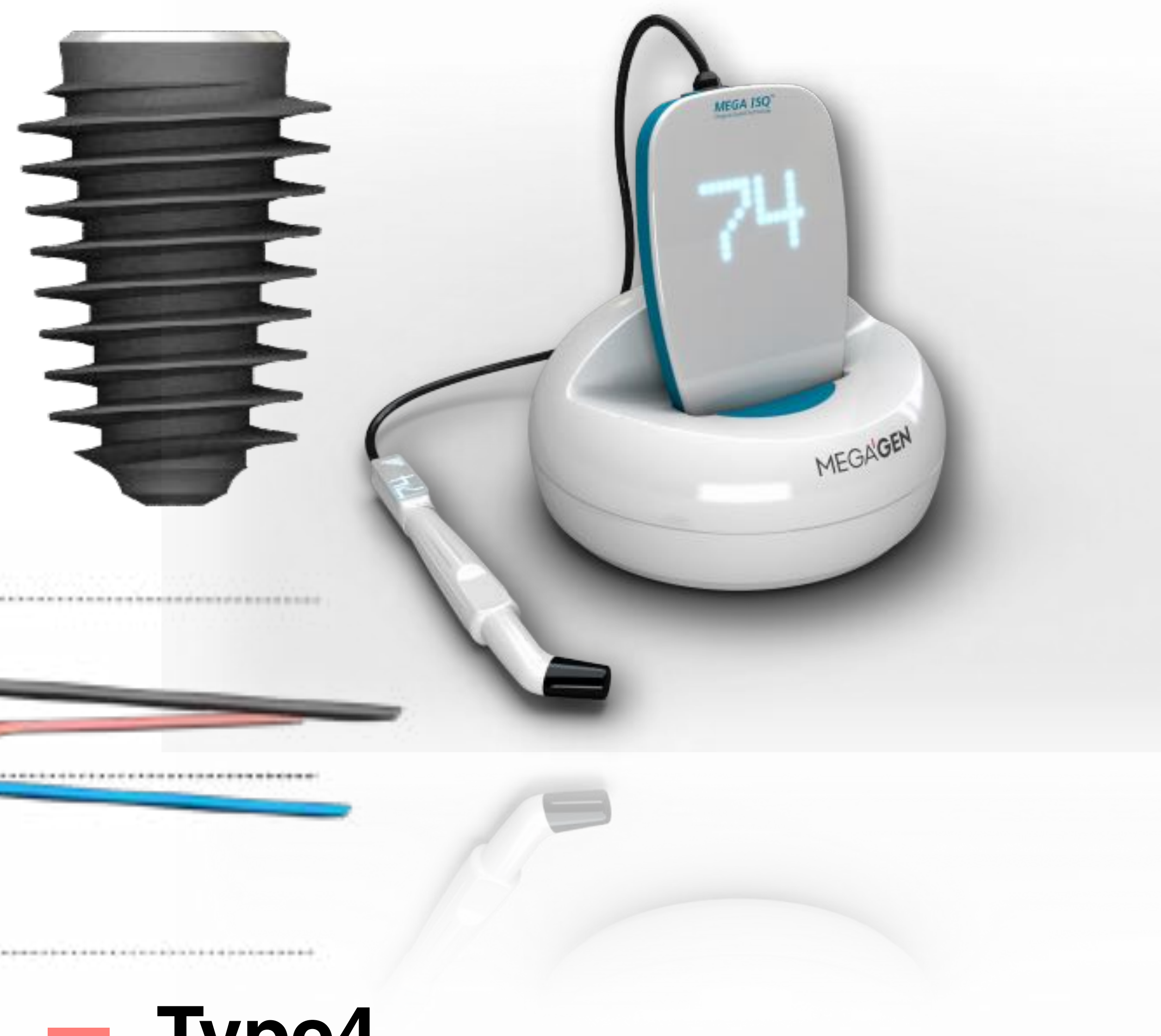
6 WK POST OP

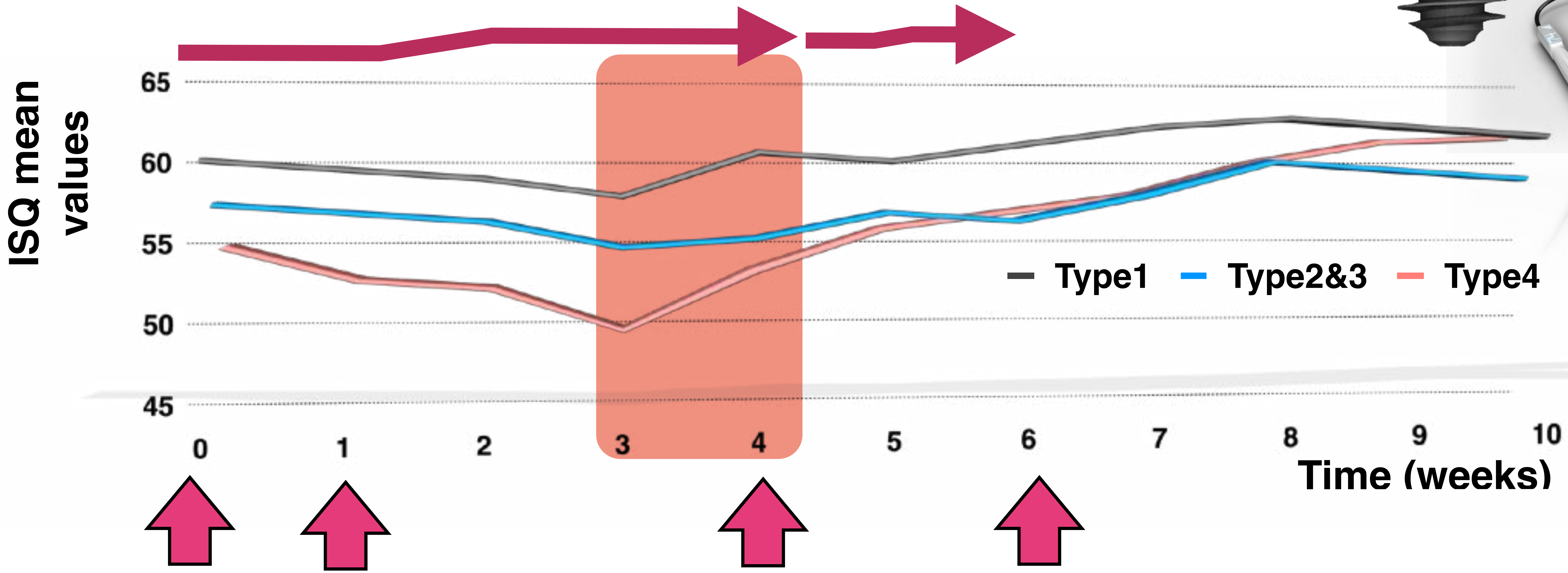




6 YR POST OP

Loading Time with AnyRidge Implant (predictable 6 week loading protocol)





Day 0 : Implant placement

1 wk : stitch out

4 wk : check up

6 wk : loading starts

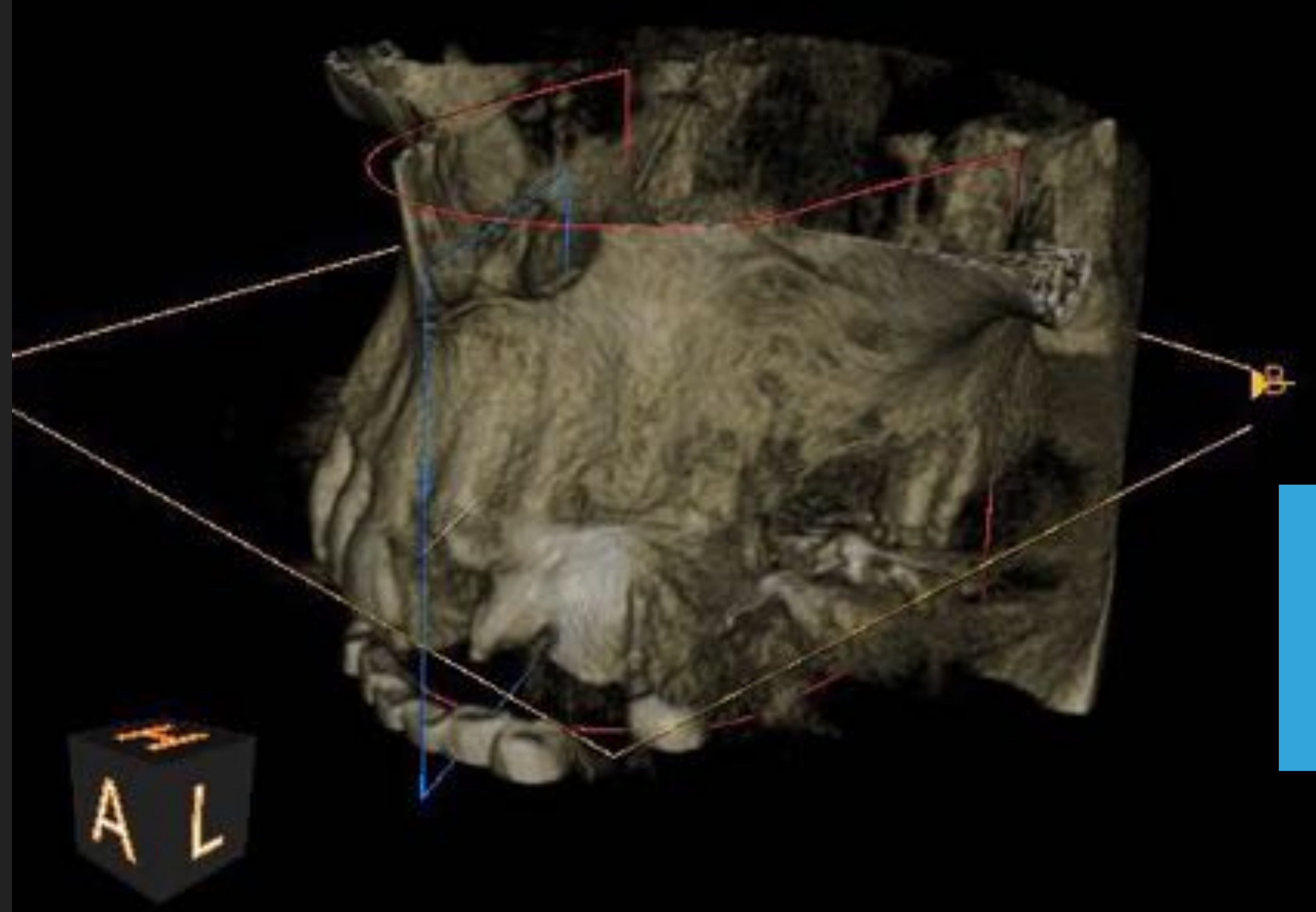
Measure ISQ again and deliver prosthesis if it has not decreased.

If the ISQ value is higher than 70 and making a plateau or increasing, take an impression!

HORIZONTAL FRACTURE

PET/RM/SS TECHNIQUE

Advanced Implant Educators

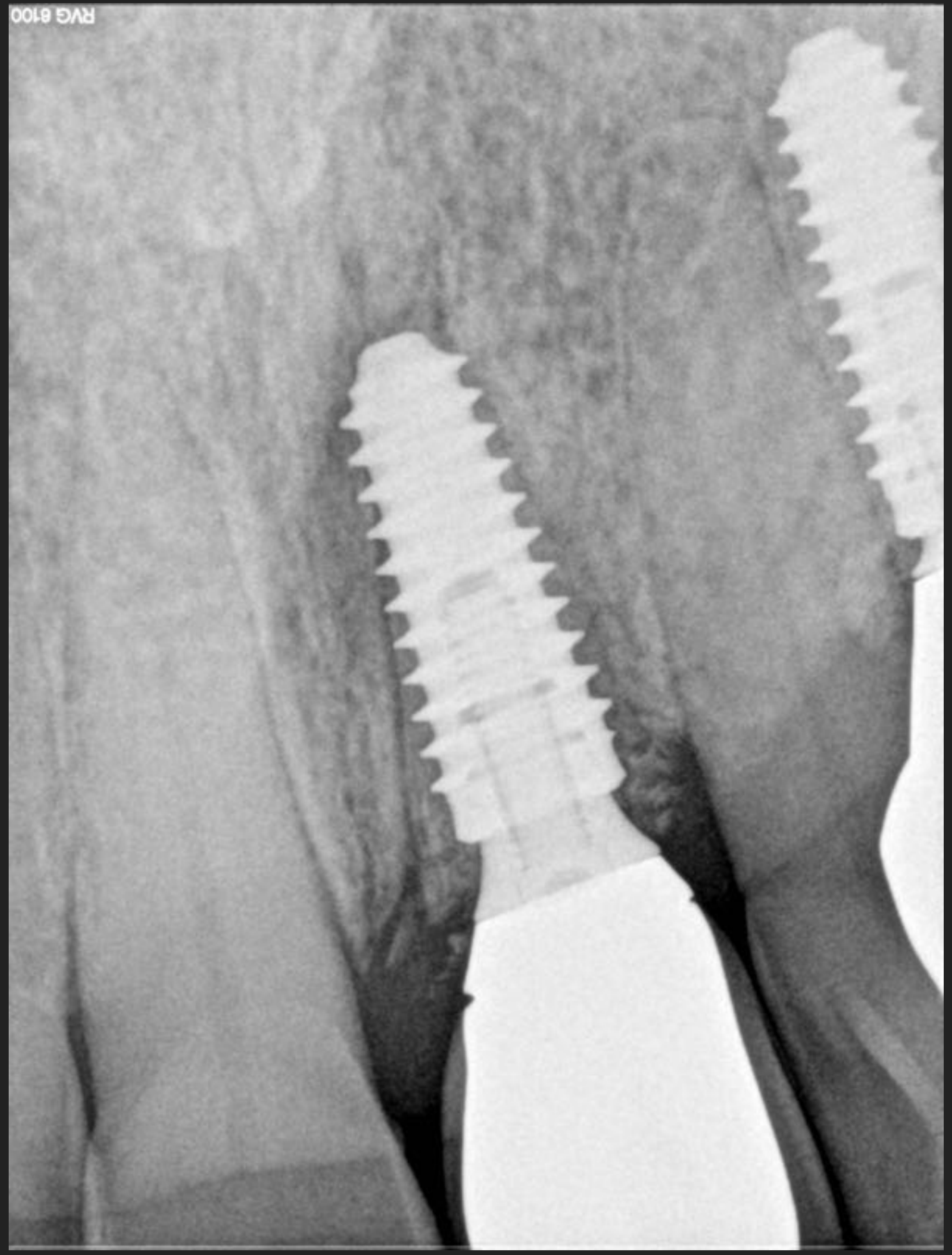


POST OP

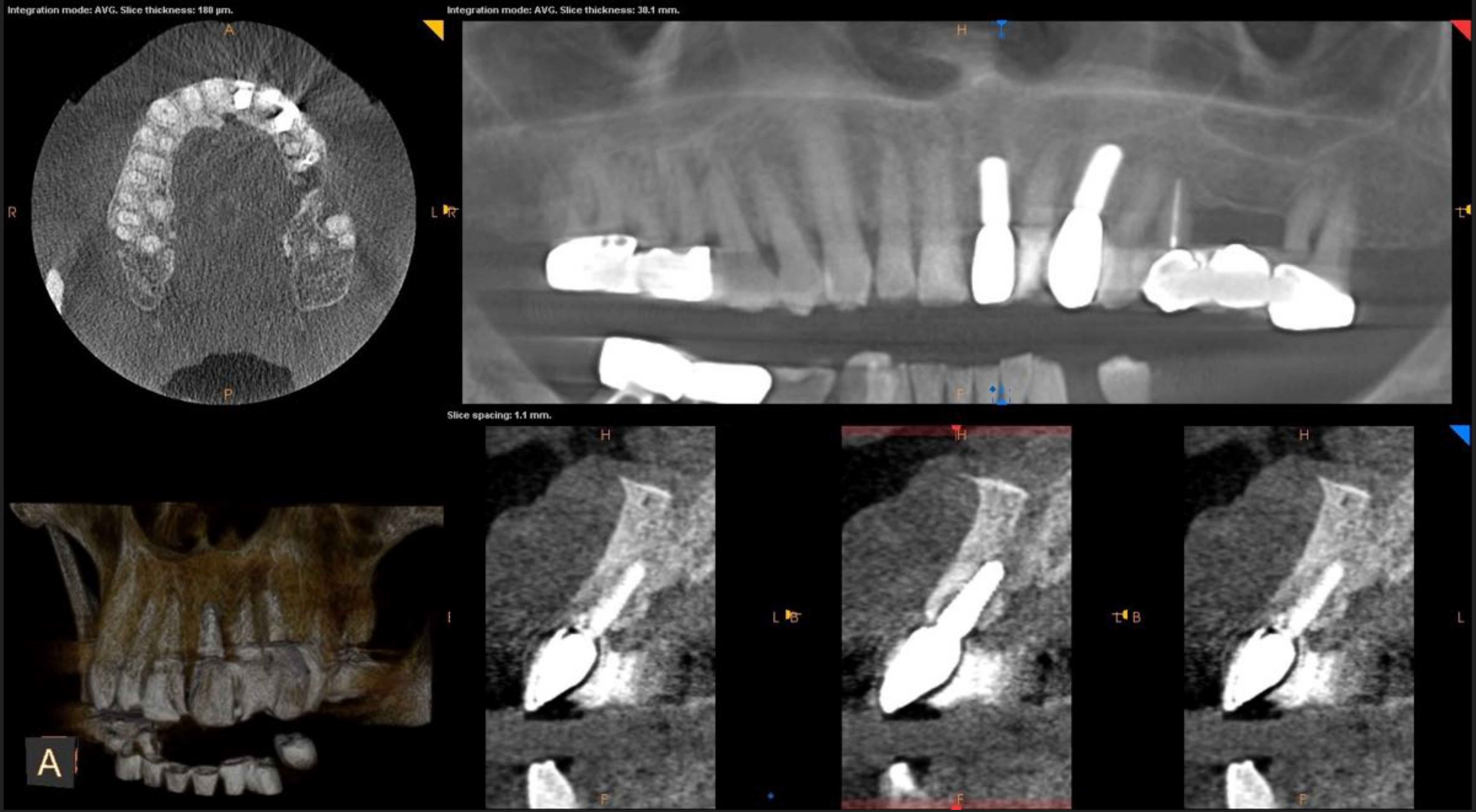

504
2 WEEK PO

6 WEEK PO


504



3 YR PO


Integration mode: AVG. Slice thickness: 180 µm.
Integration mode: AVG. Slice thickness: 30.1 mm.
Slice spacing: 1.1 mm.

3 YR PO

3 YR PO

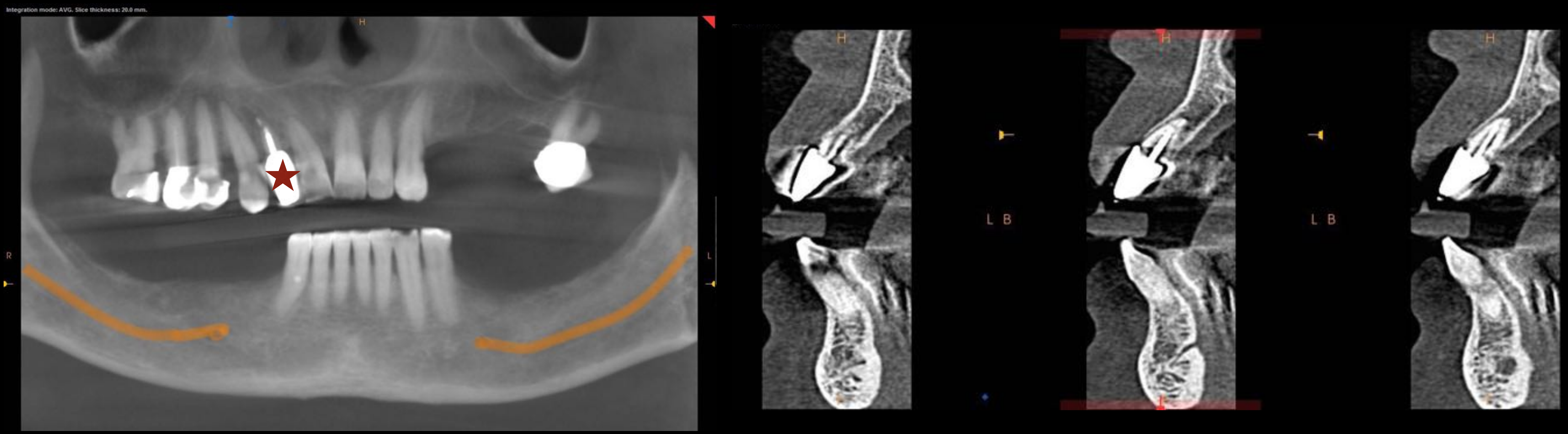
Marie

Bus Driver

Getting married in 8 months

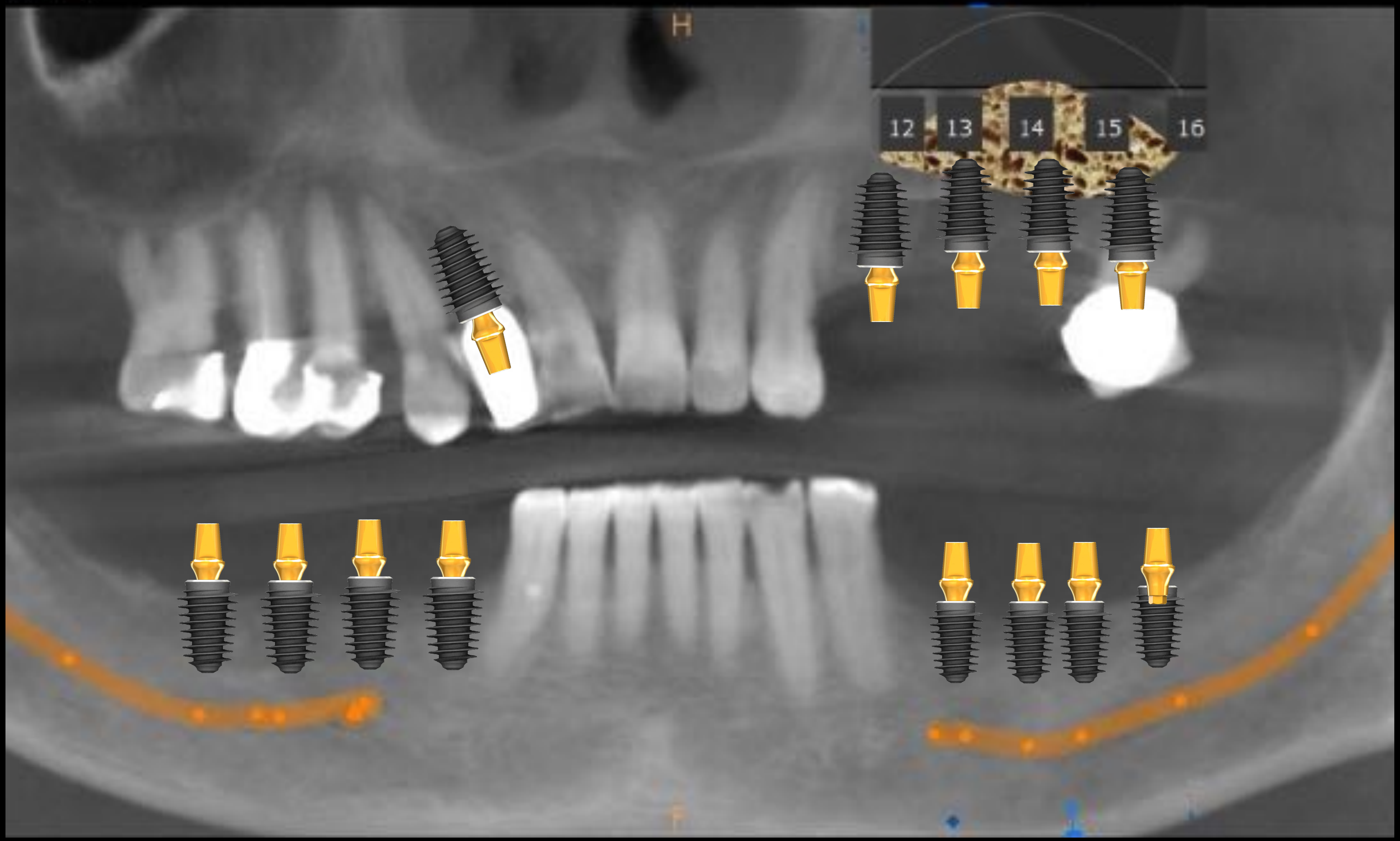
“I Dont want my fiance to see me with dentures”

Failing Lateral

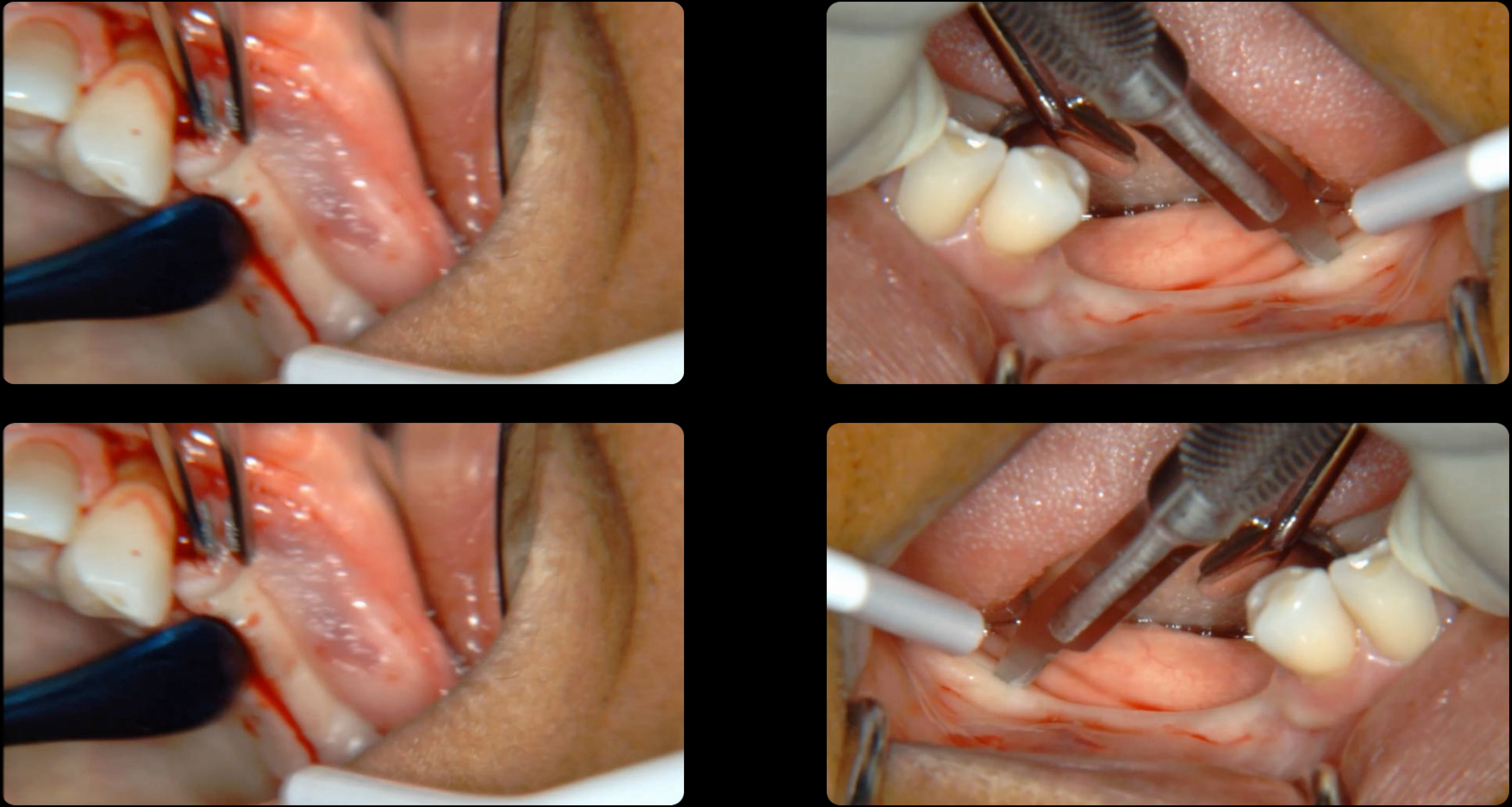


Advanced Implant Educators

Marie



Advanced Implant Educators



PET

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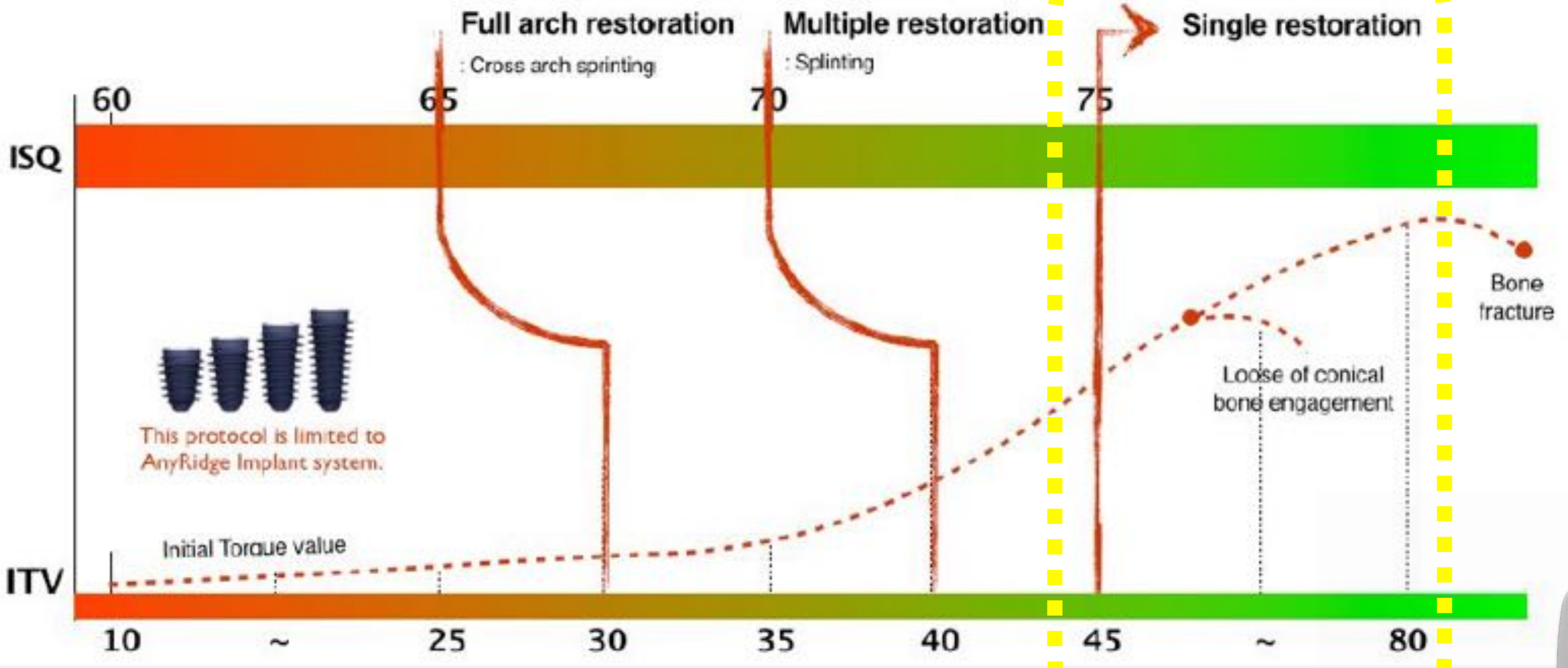
Immediate Loading Protocol

under the value of
ISQ & ITV



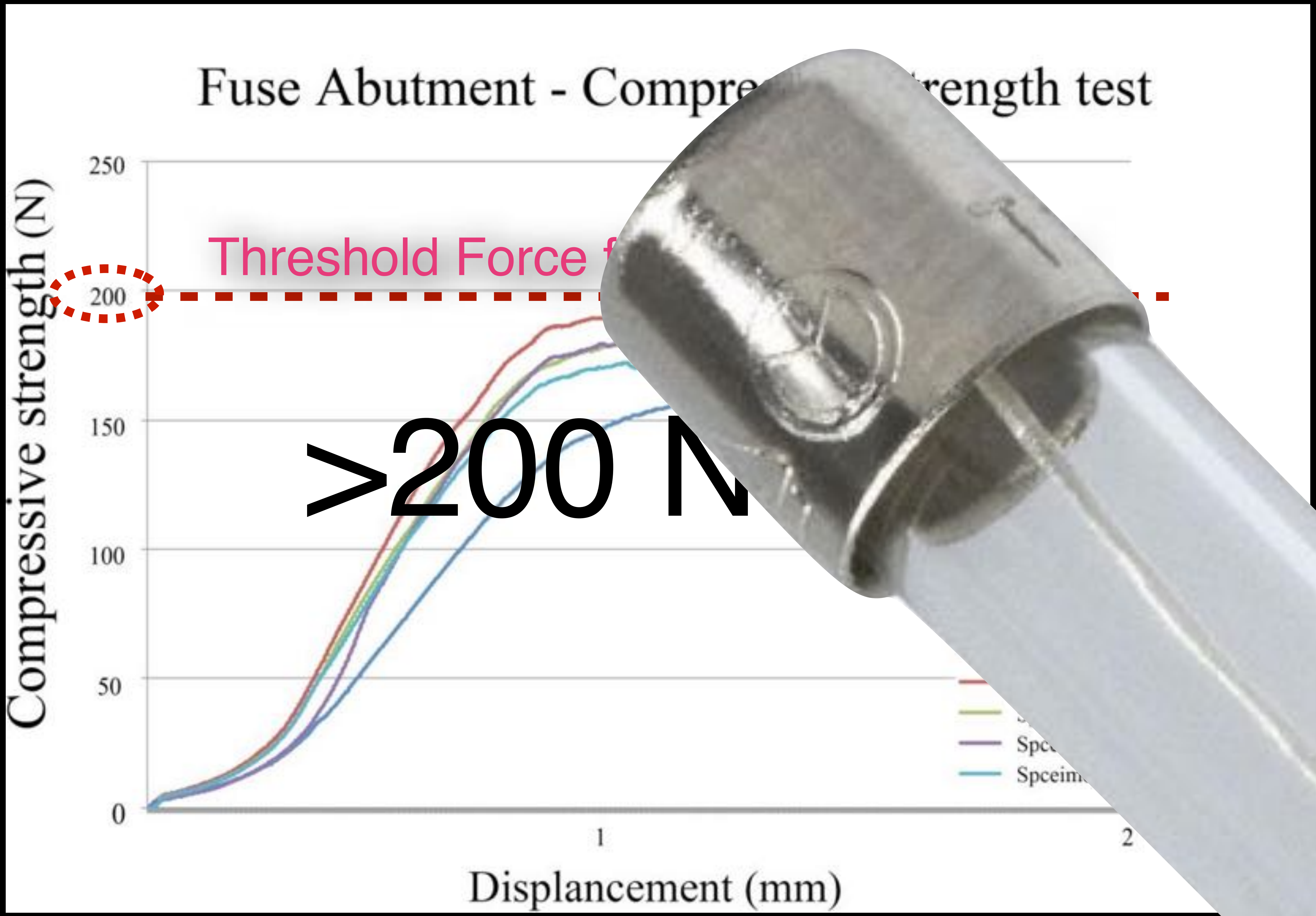
European Scientific Meeting of MegaGEN
6th Jun. 2014, Zurich, Swiss

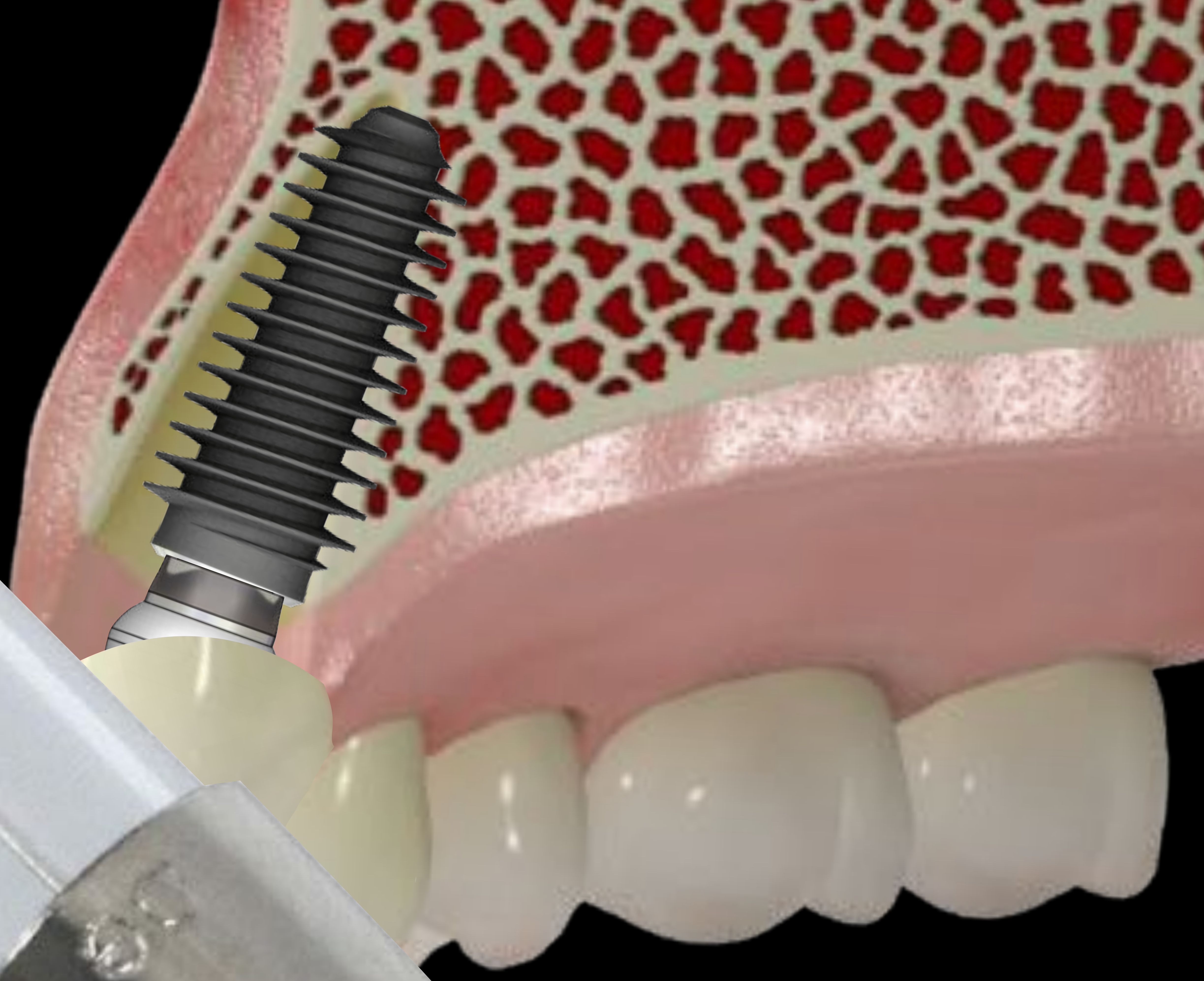
T E A M
EUREKA R2

Temp screw-retained

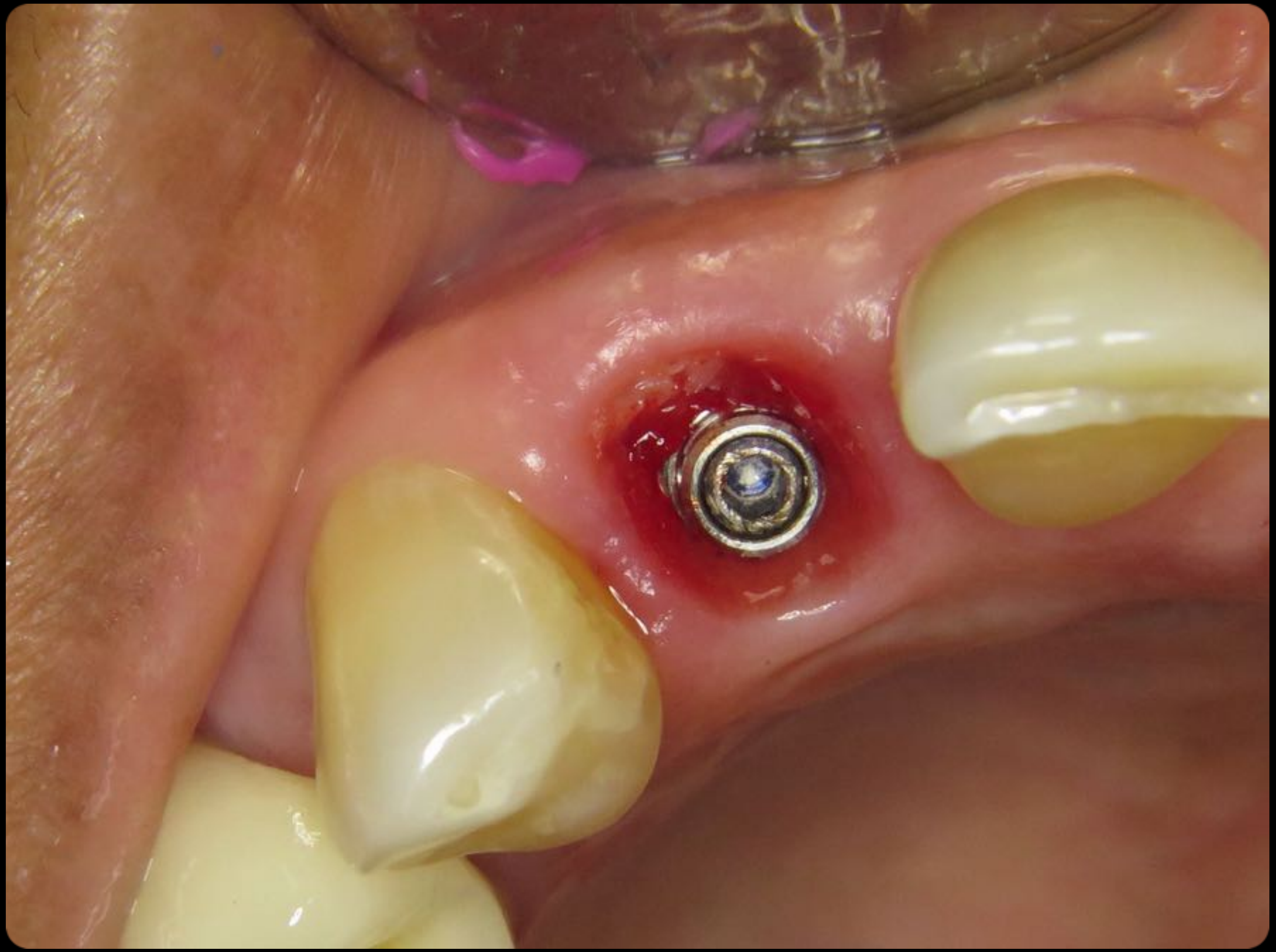
Fuse Abutment

Advanced Implant Educators





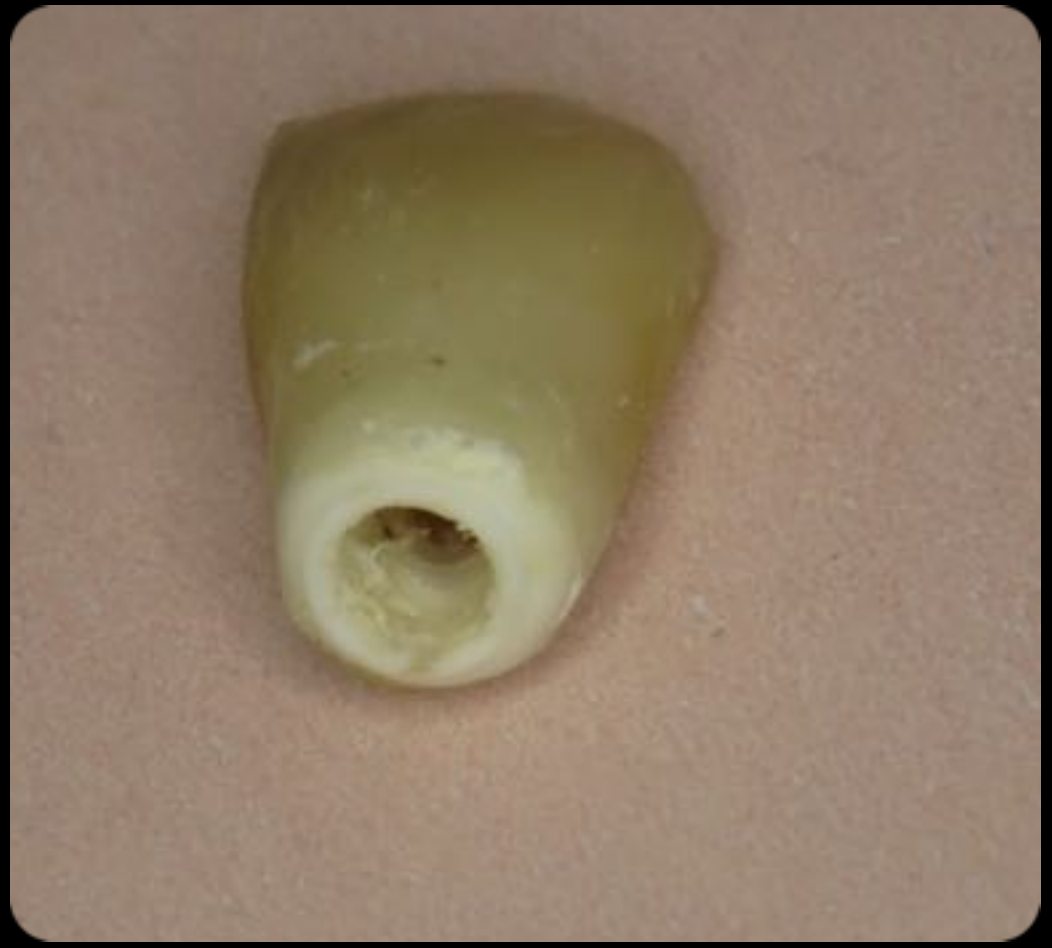
Brunski JB (1992) Biomechanical factors affecting the bone–dental implant interface. Clin Mater 10:153–201
--- 100 µm movements is critical for osseointegration.
--- It needs about 220N (22.4 kgf) force.

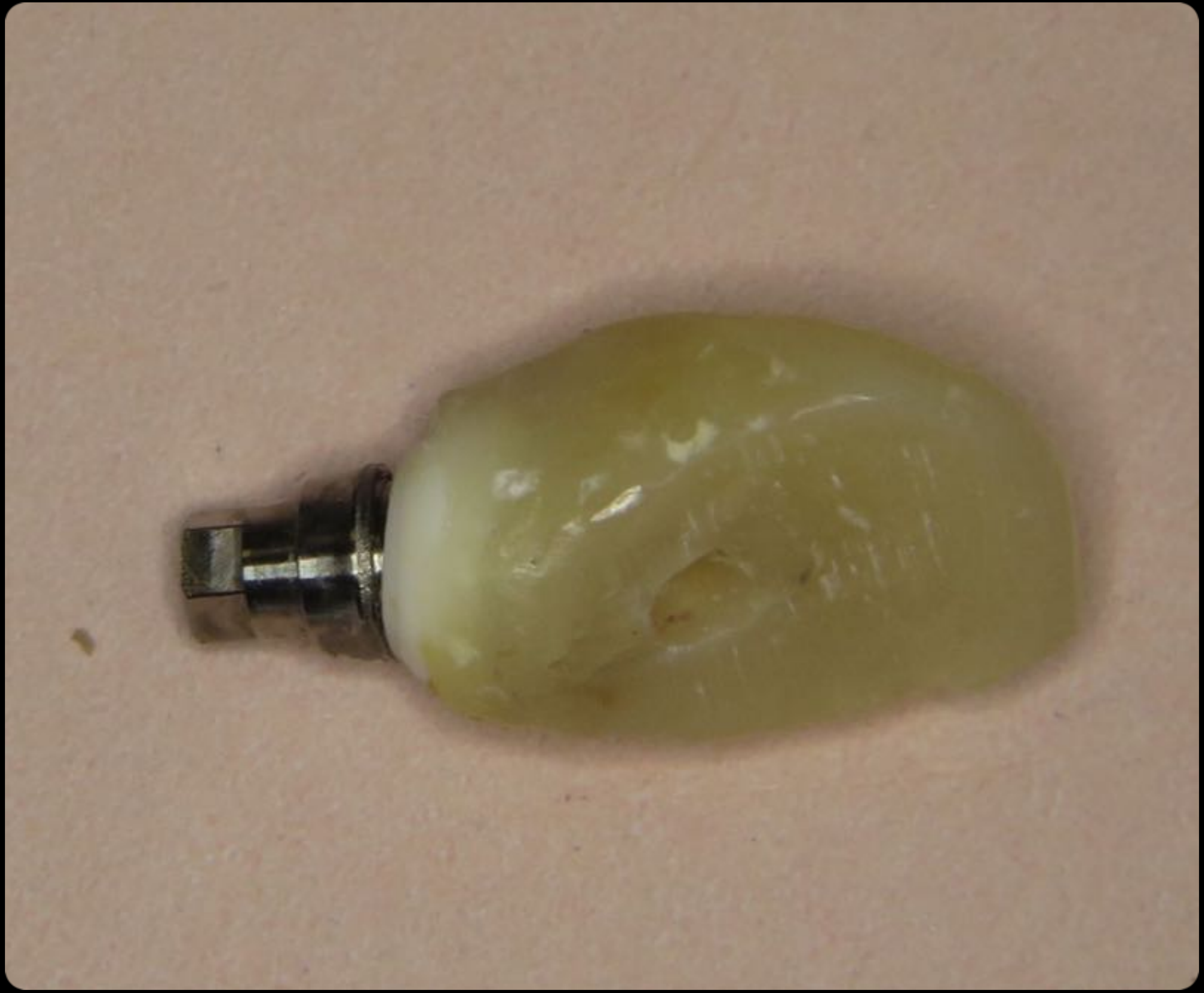




Italia PIZZA
HOMEMADE SOUPS - PASTA - SALADS - ROLLS - FOCACCIA -
ITALIA
PIZZA
NO DRINKS
FOOD
SMOKING
FRI.- SAT. 11-11
SUN. 12 - 10
TEE SHIRT REQUIRED
VISA / MC / AX
Accepted
WE PROUDLY SERVE
Aunt Butchie's
CAKES


HOMEMA
WE PROUDLY SERVE
Aunt Butchie's
CAKES

Snap back on





12 weeks

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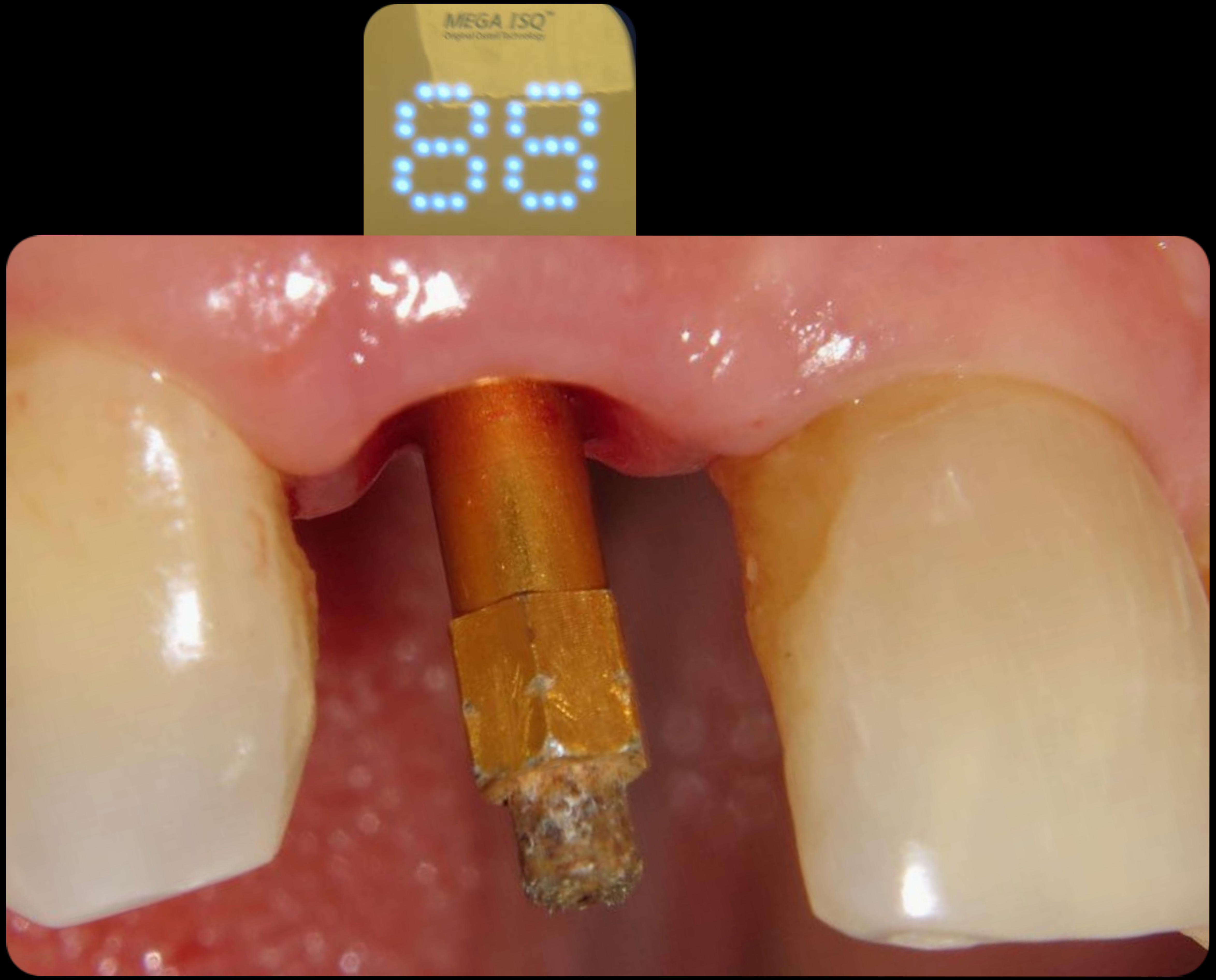
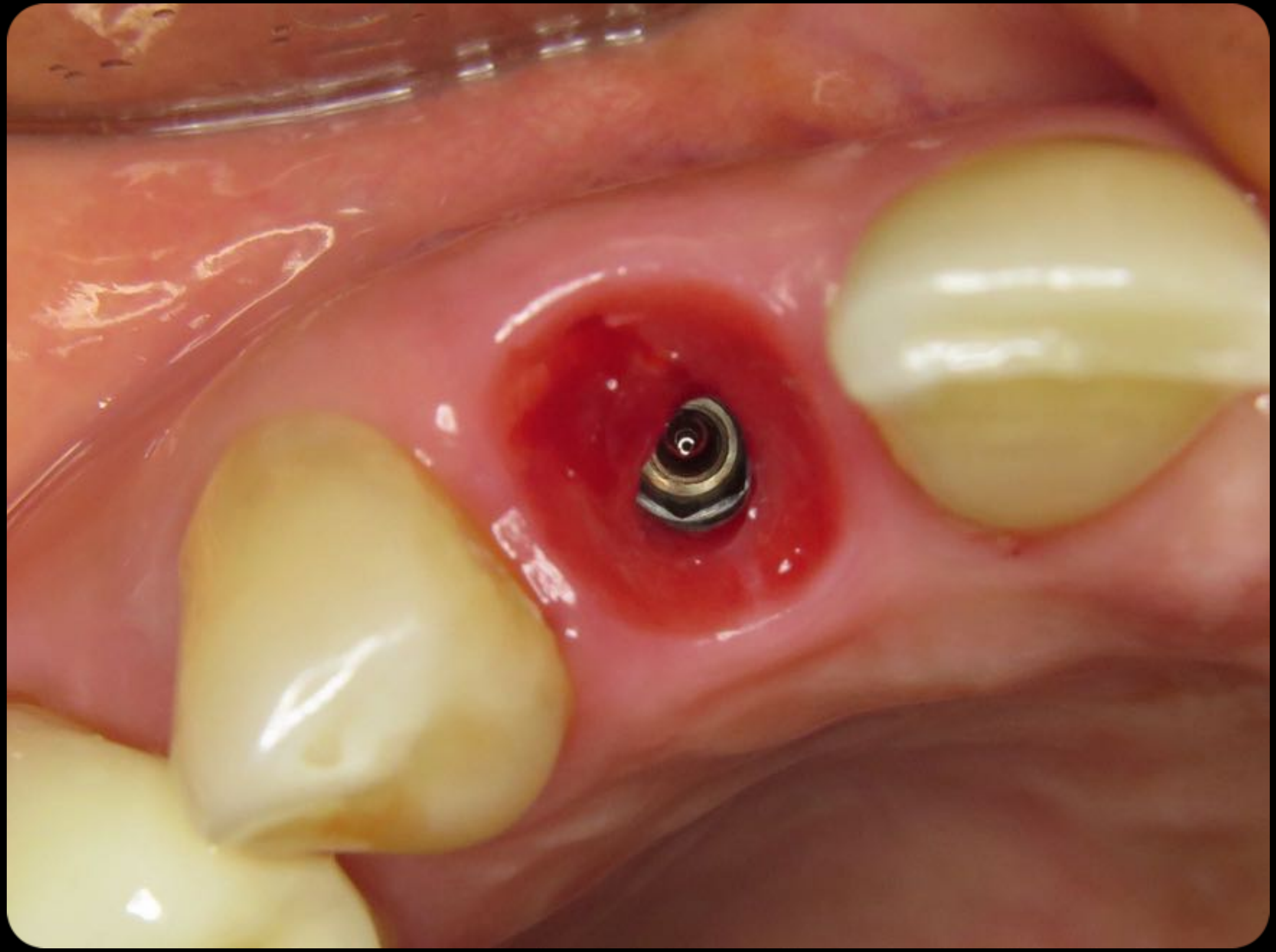
12 weeks





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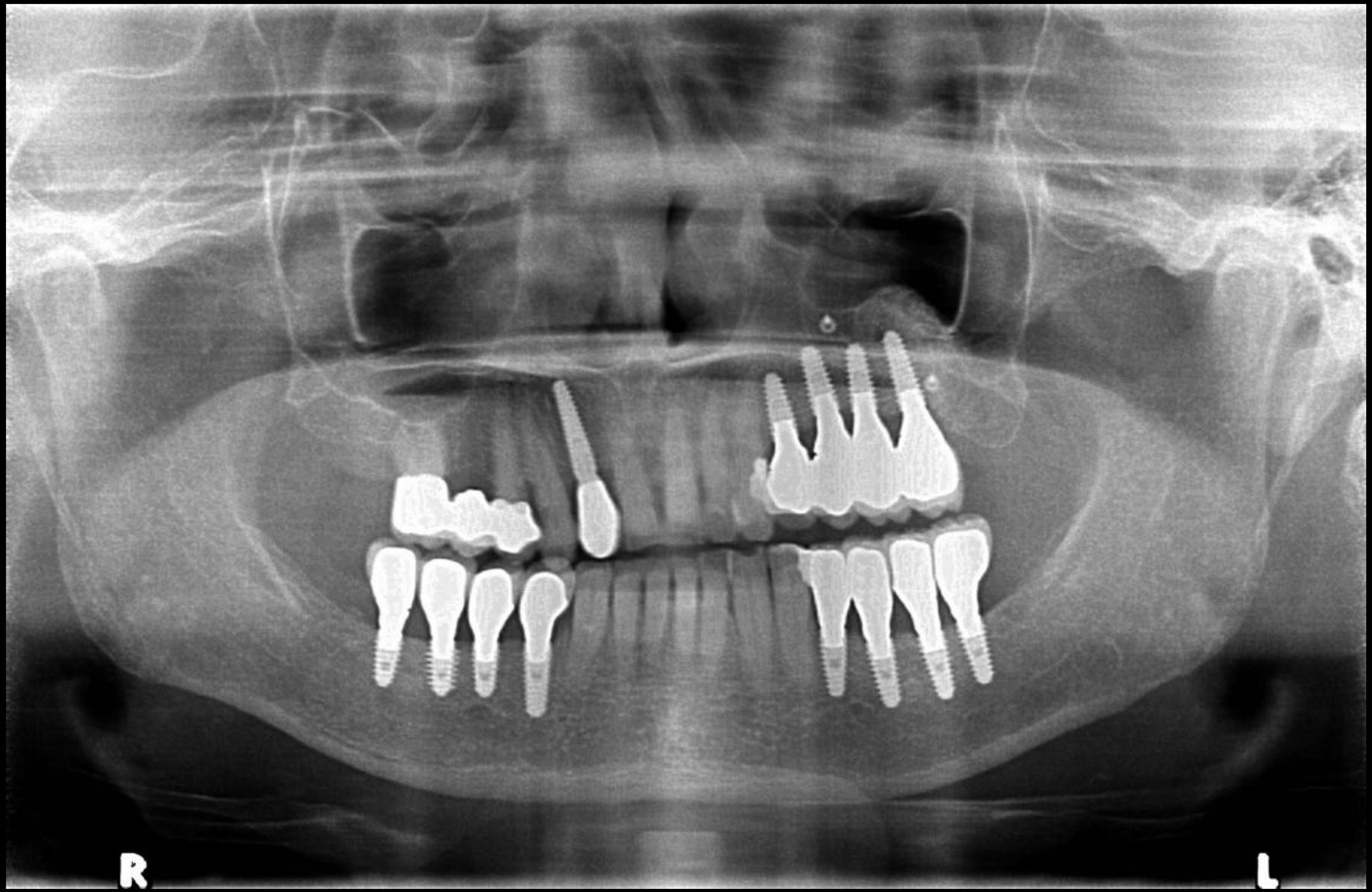
14 weeks

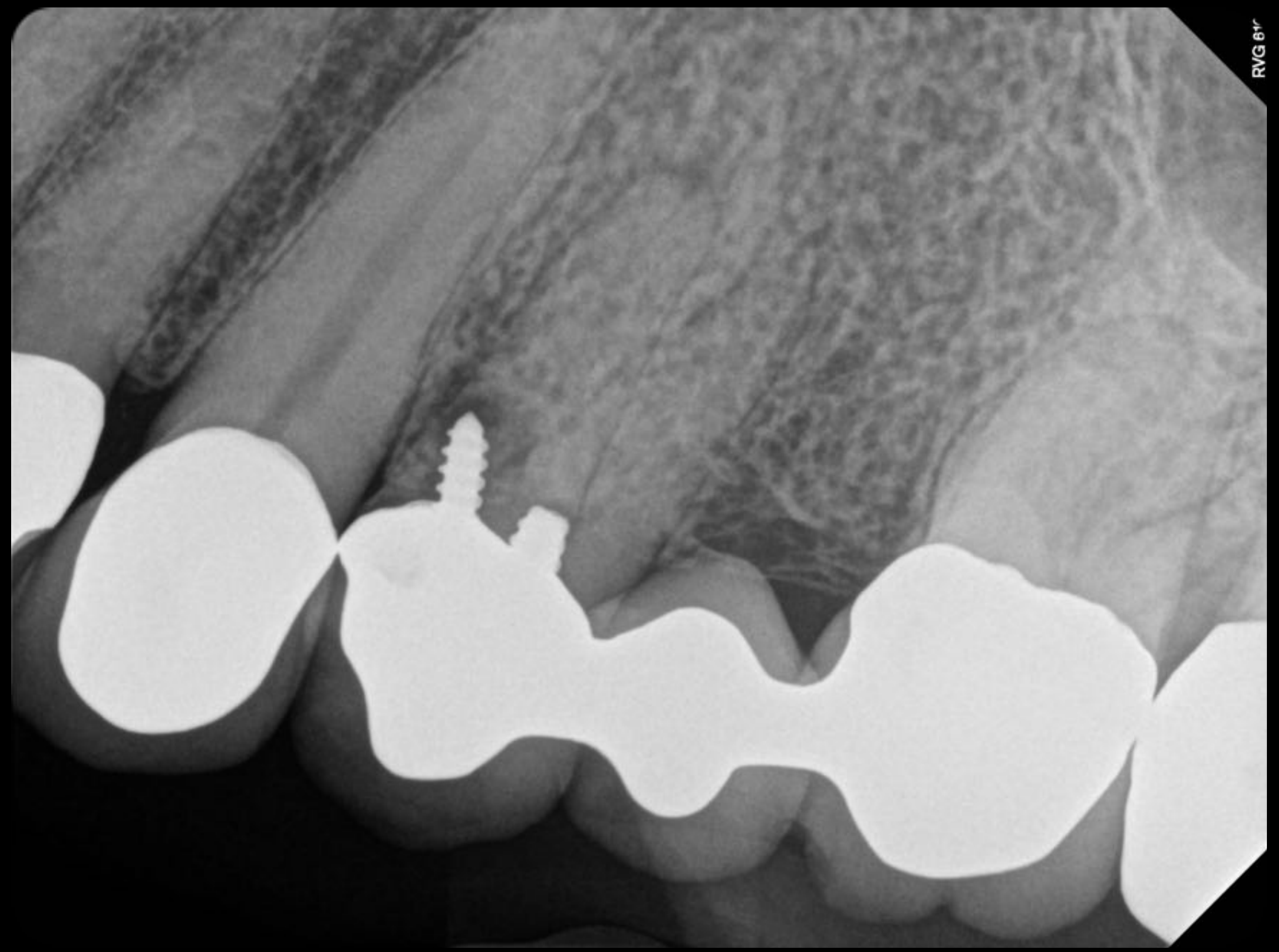
32 MONTHS FOLLOW UP

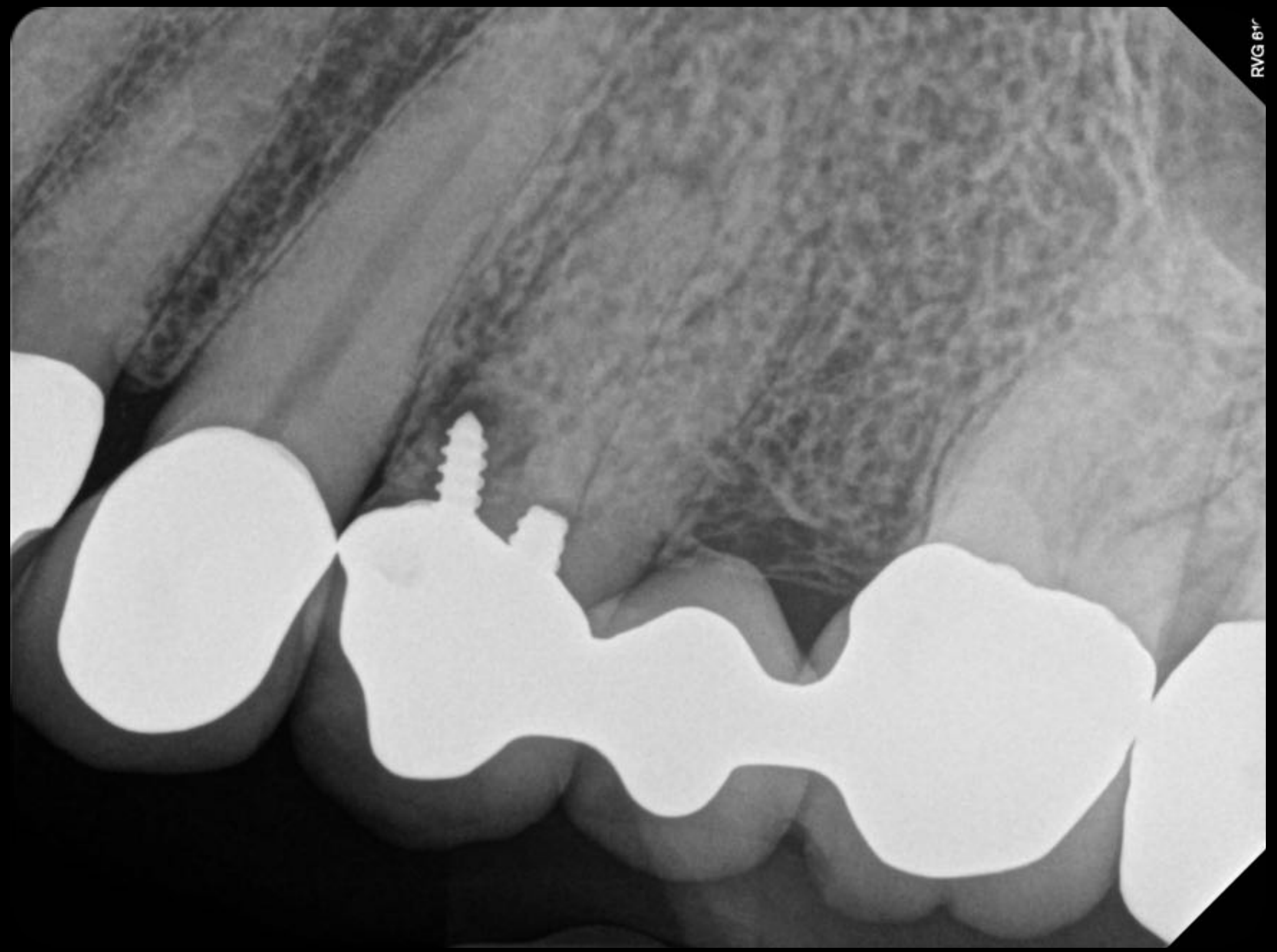


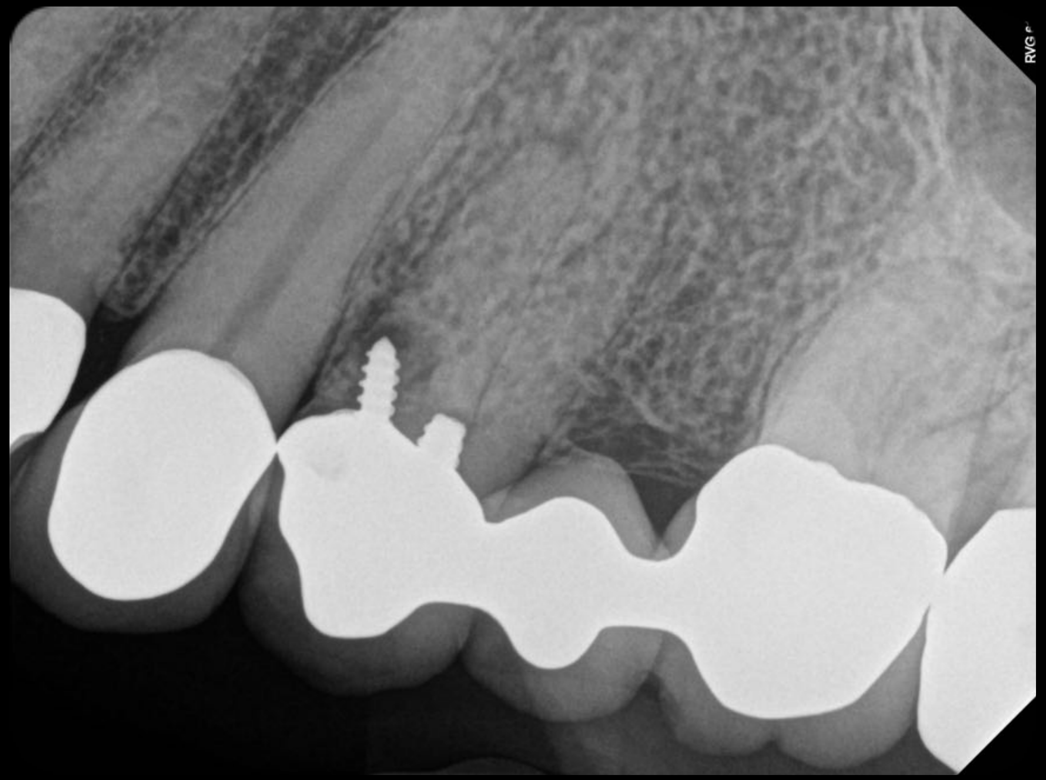
5 YEAR FOLLOW UP

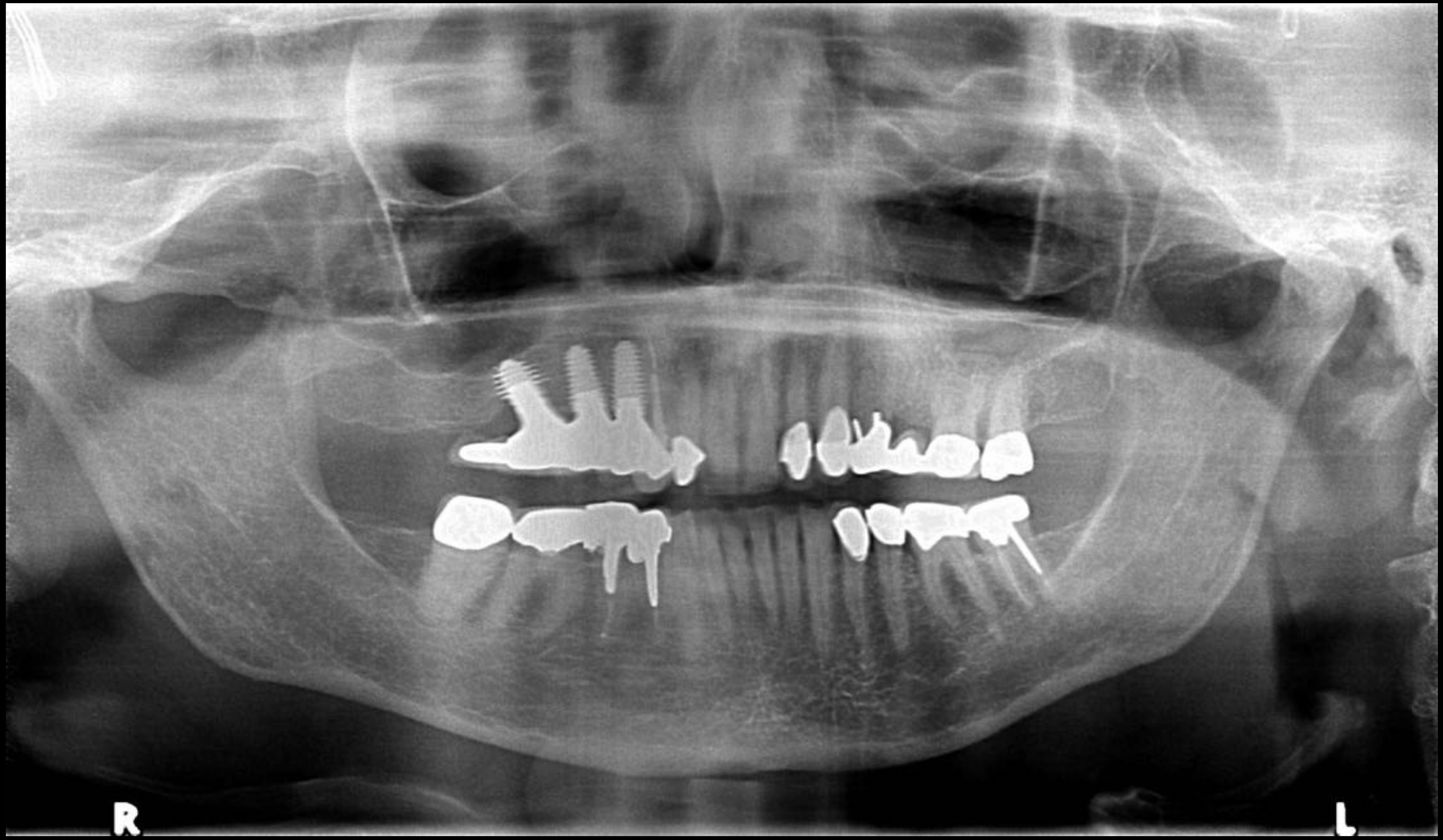
AIE
Advanced Implant Educators

Diane





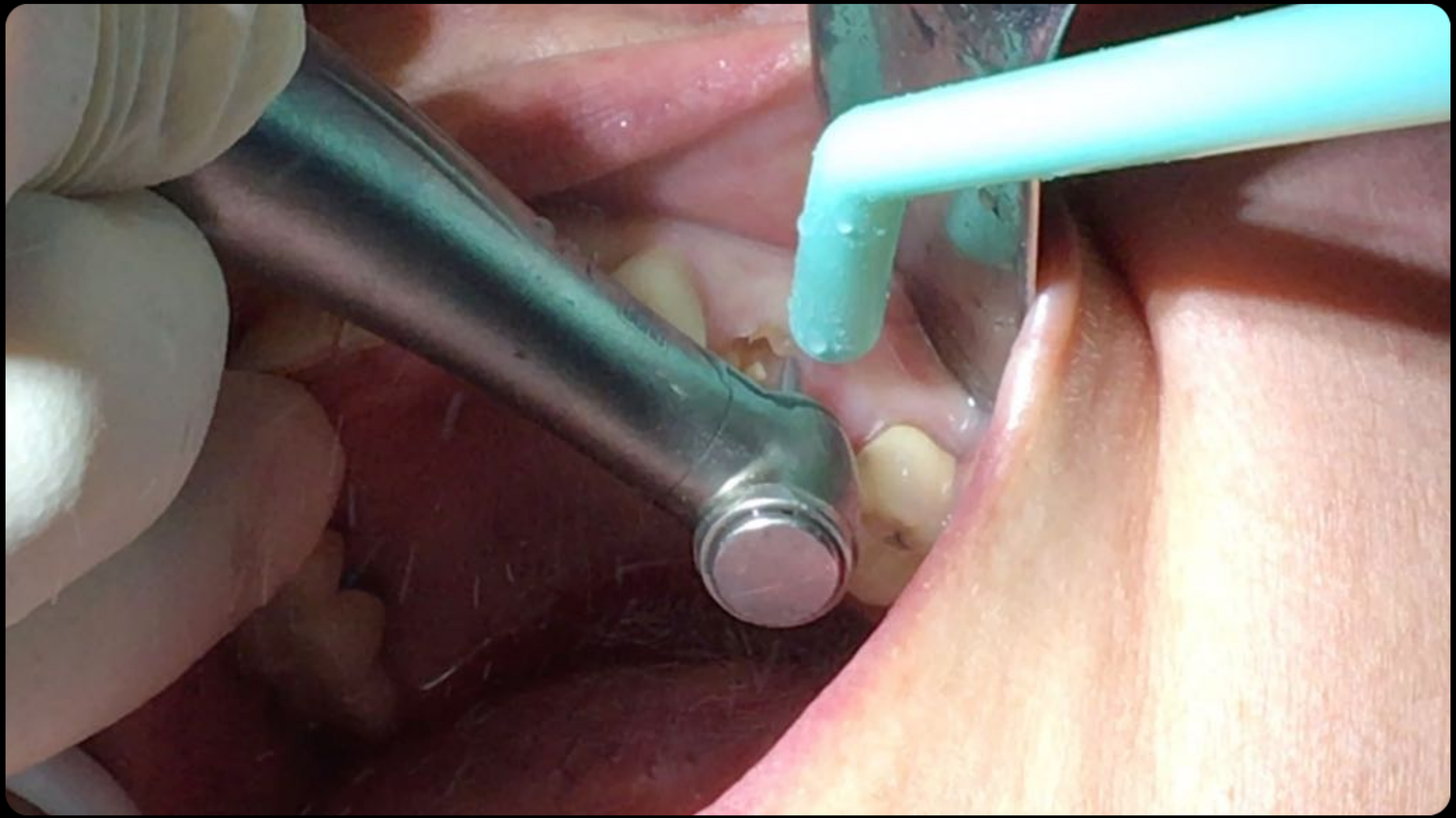


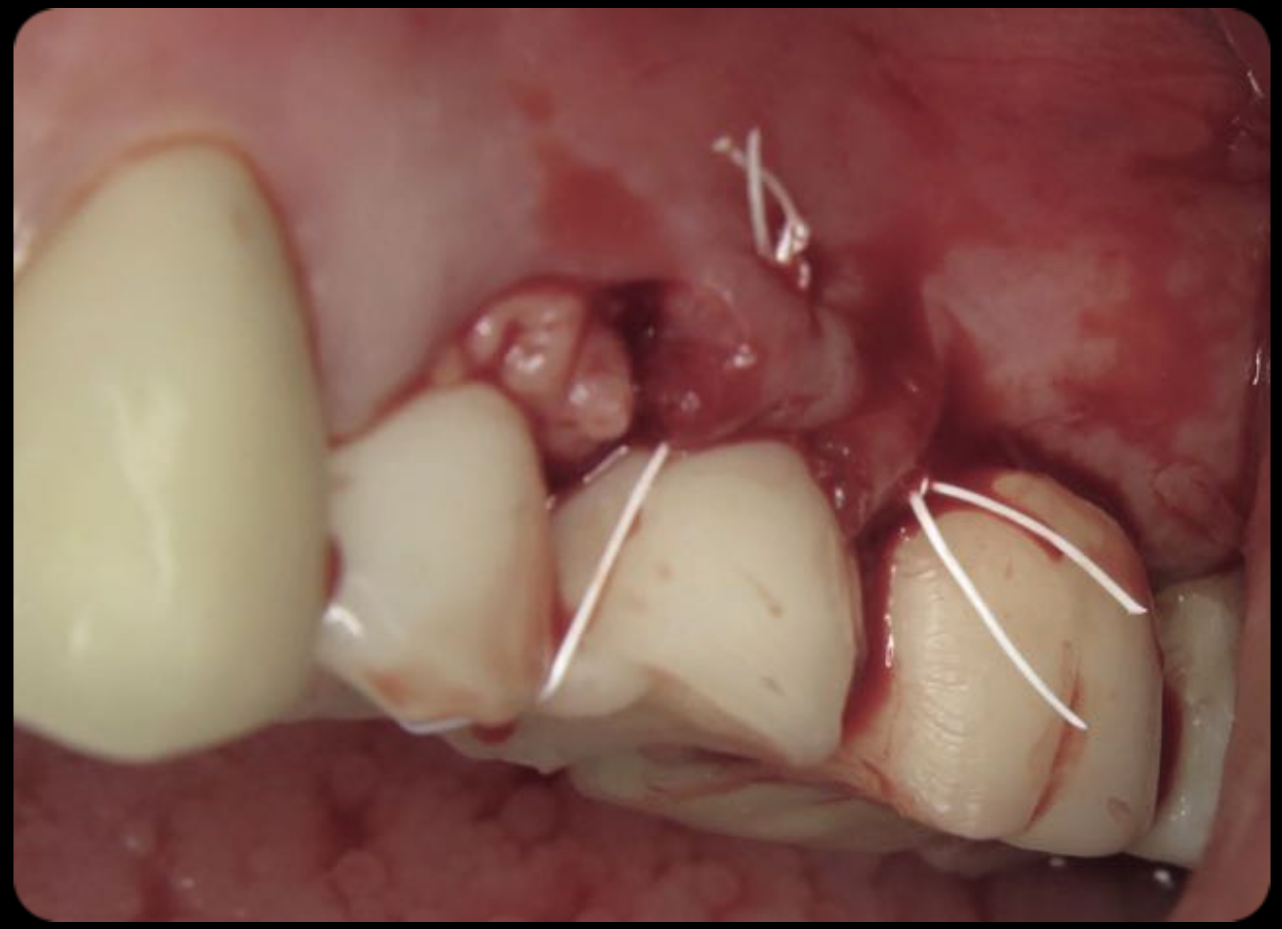

R
L


8.5mm
B
L
B
L
B
L
B
L

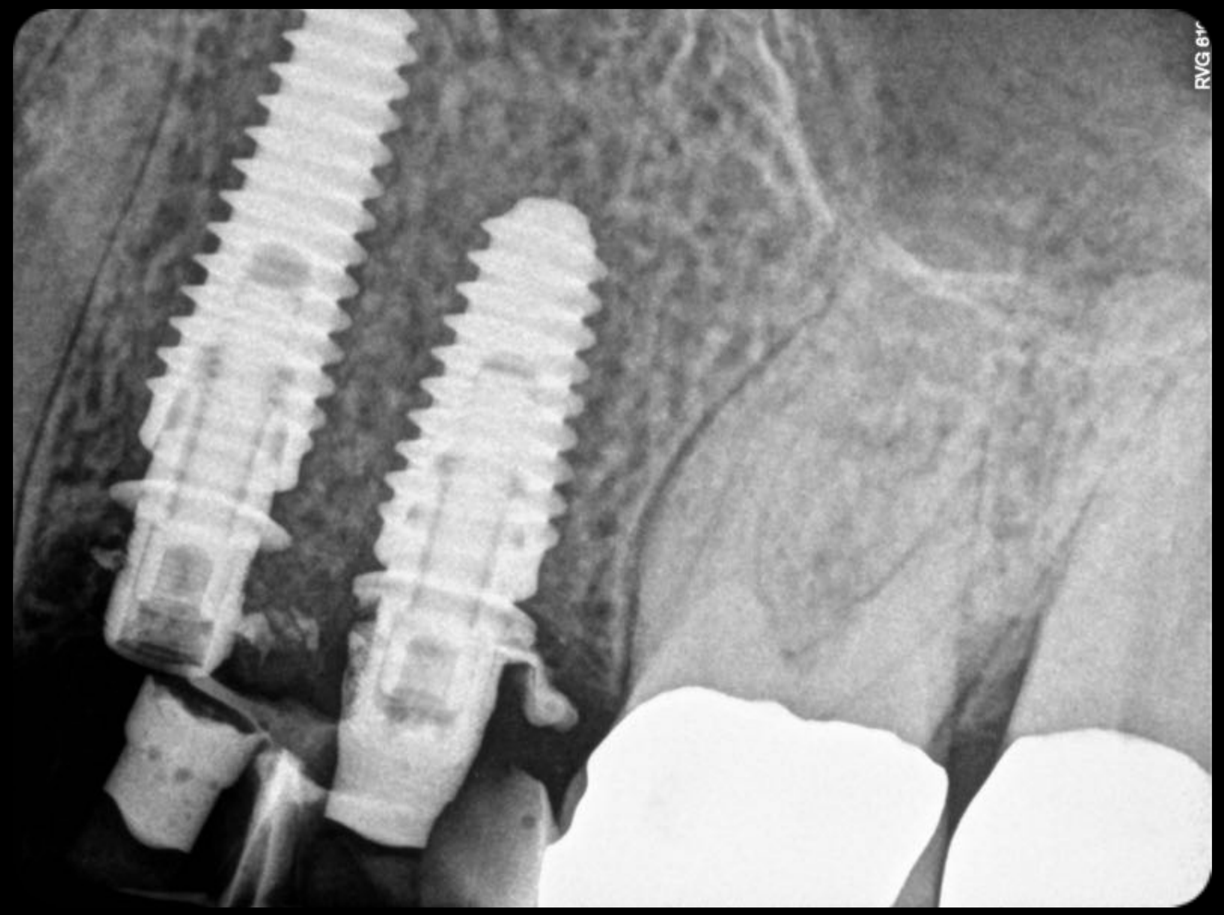

18.8mm
8.5mm
L
B
L
B
L
B
L
B


VT5
VT8
VS8
Densah™ Bur Kit

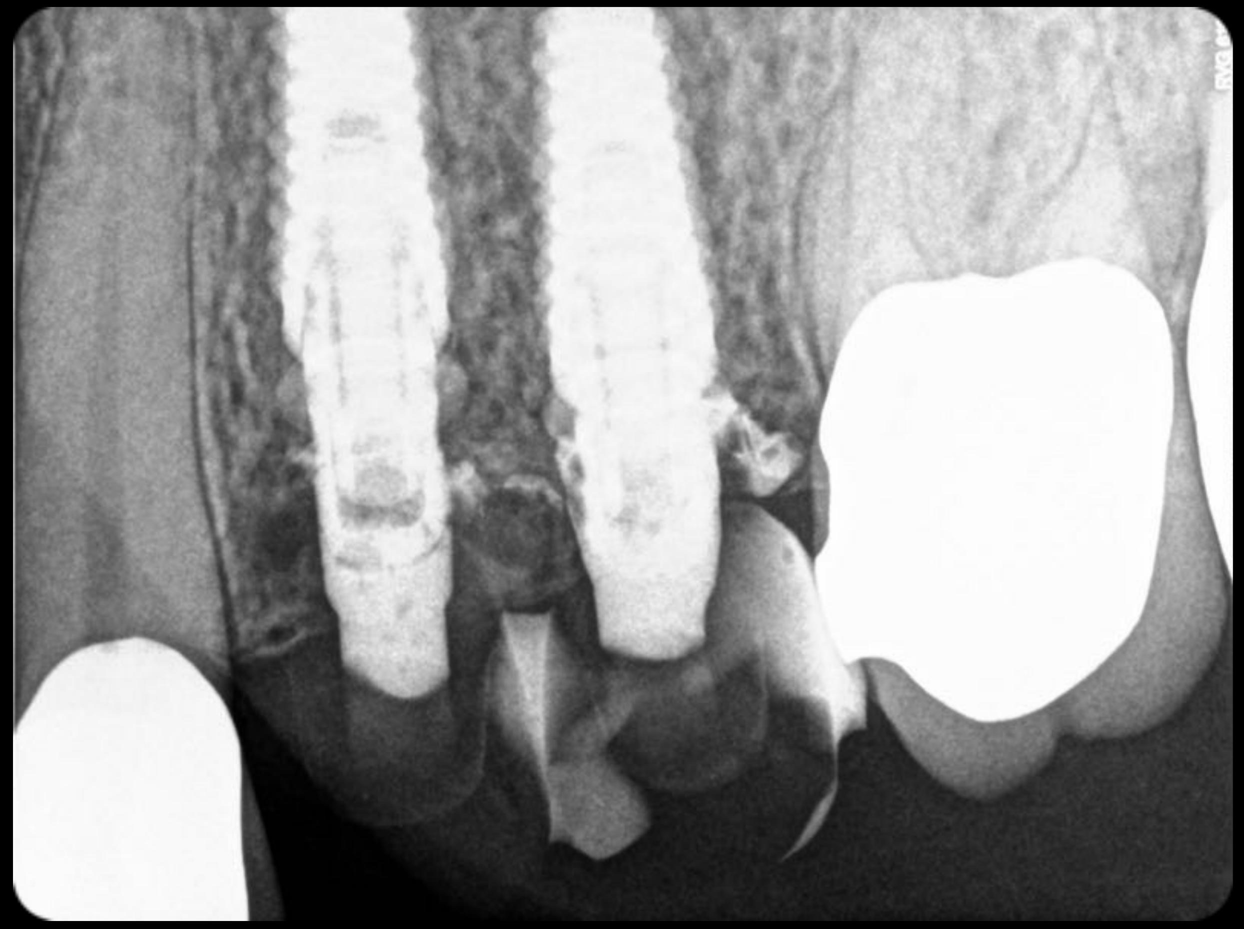




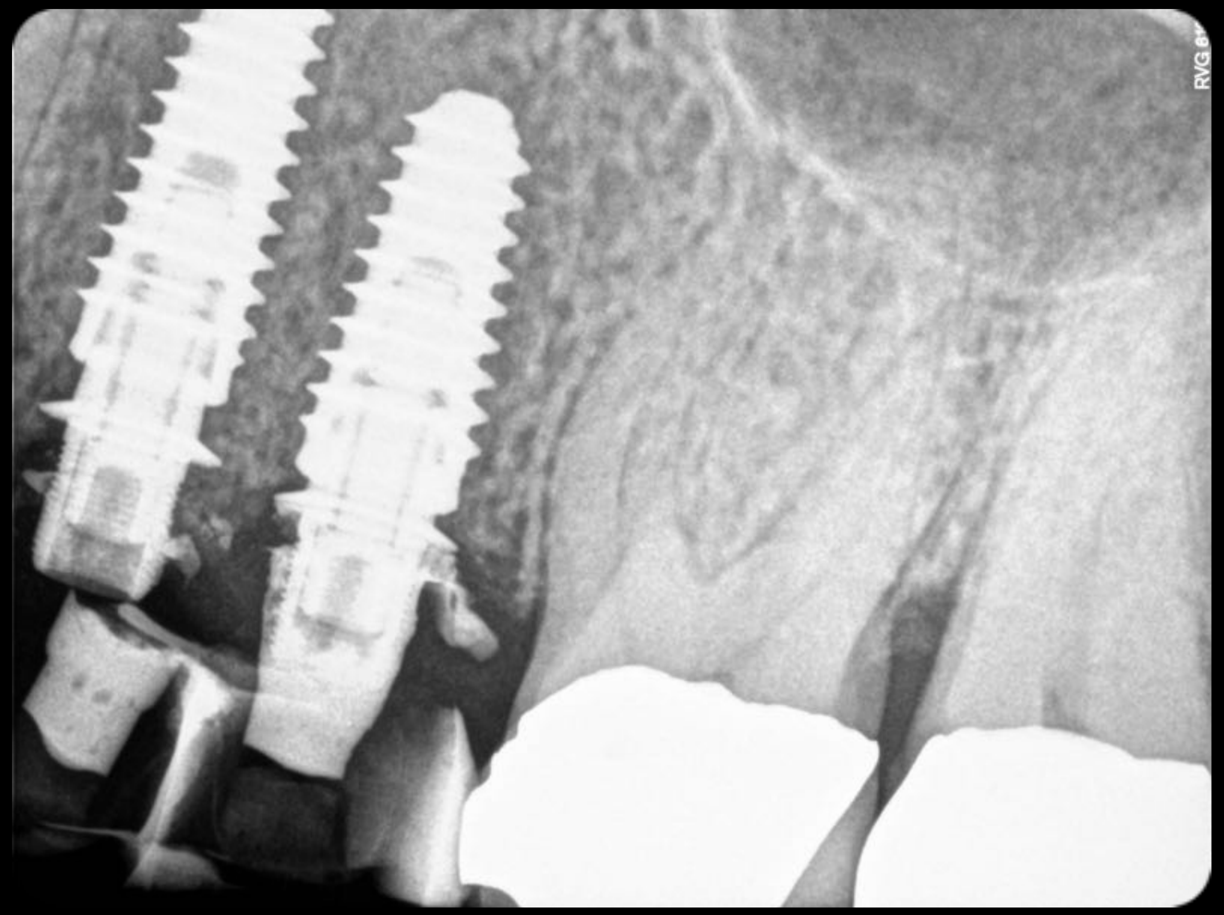
Post op



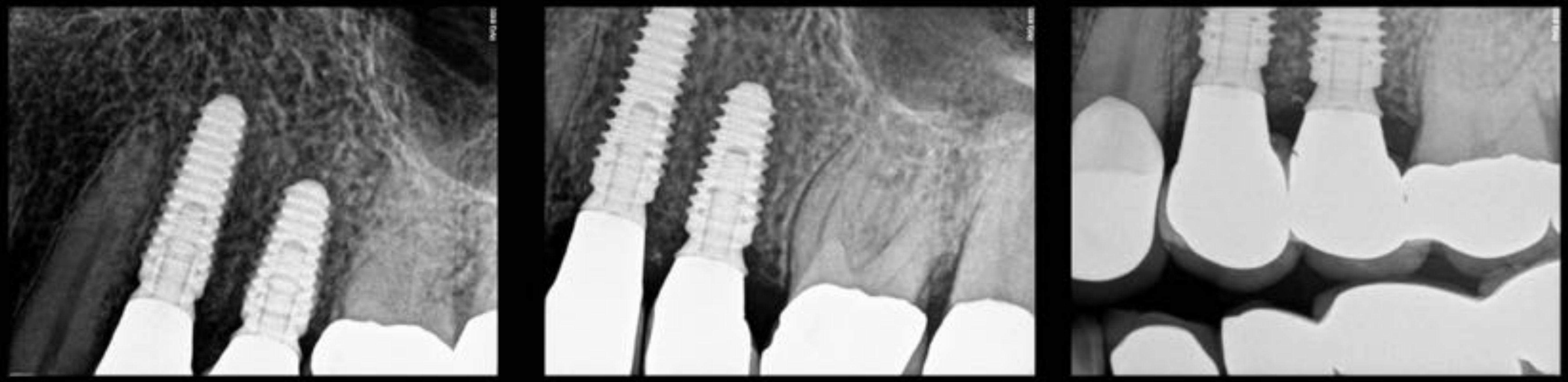
1 Month



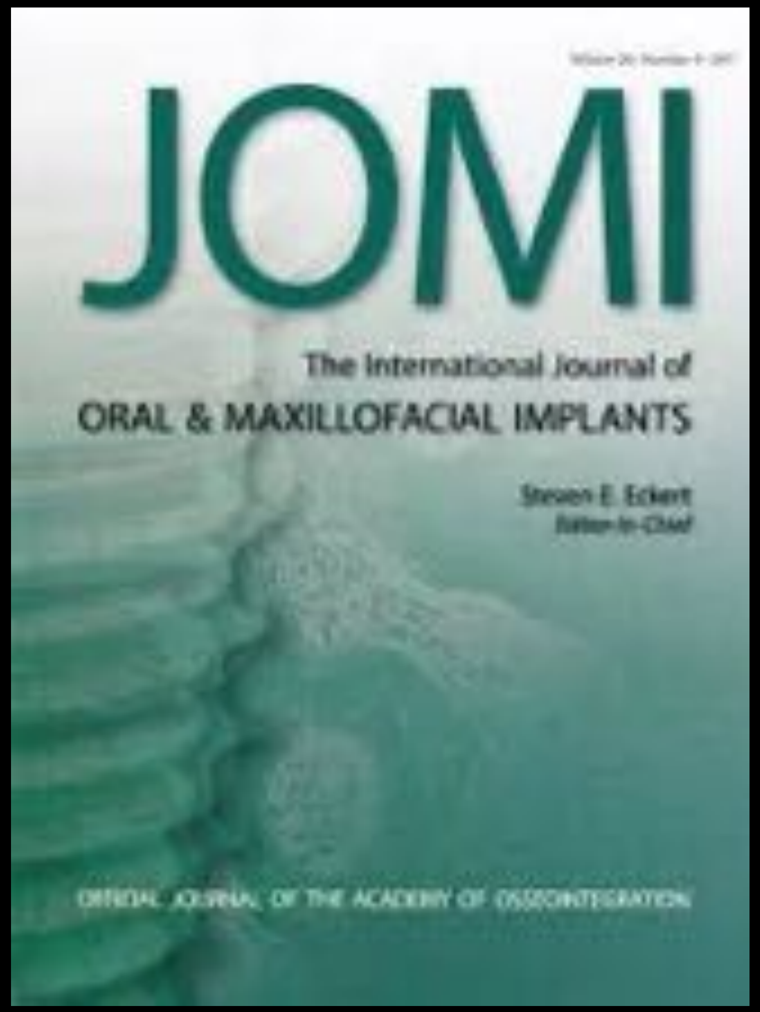
3 Months



19 month post op

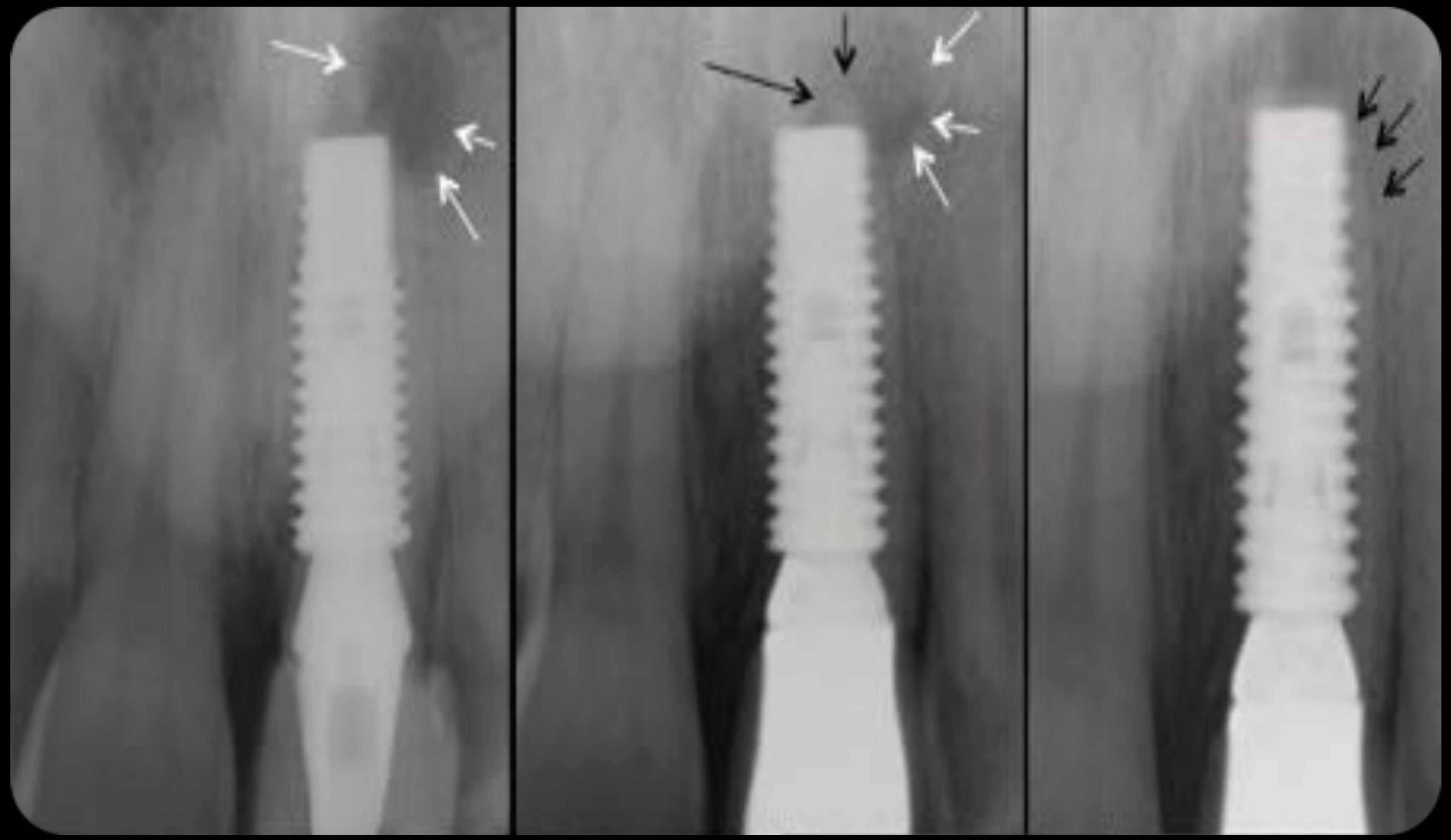


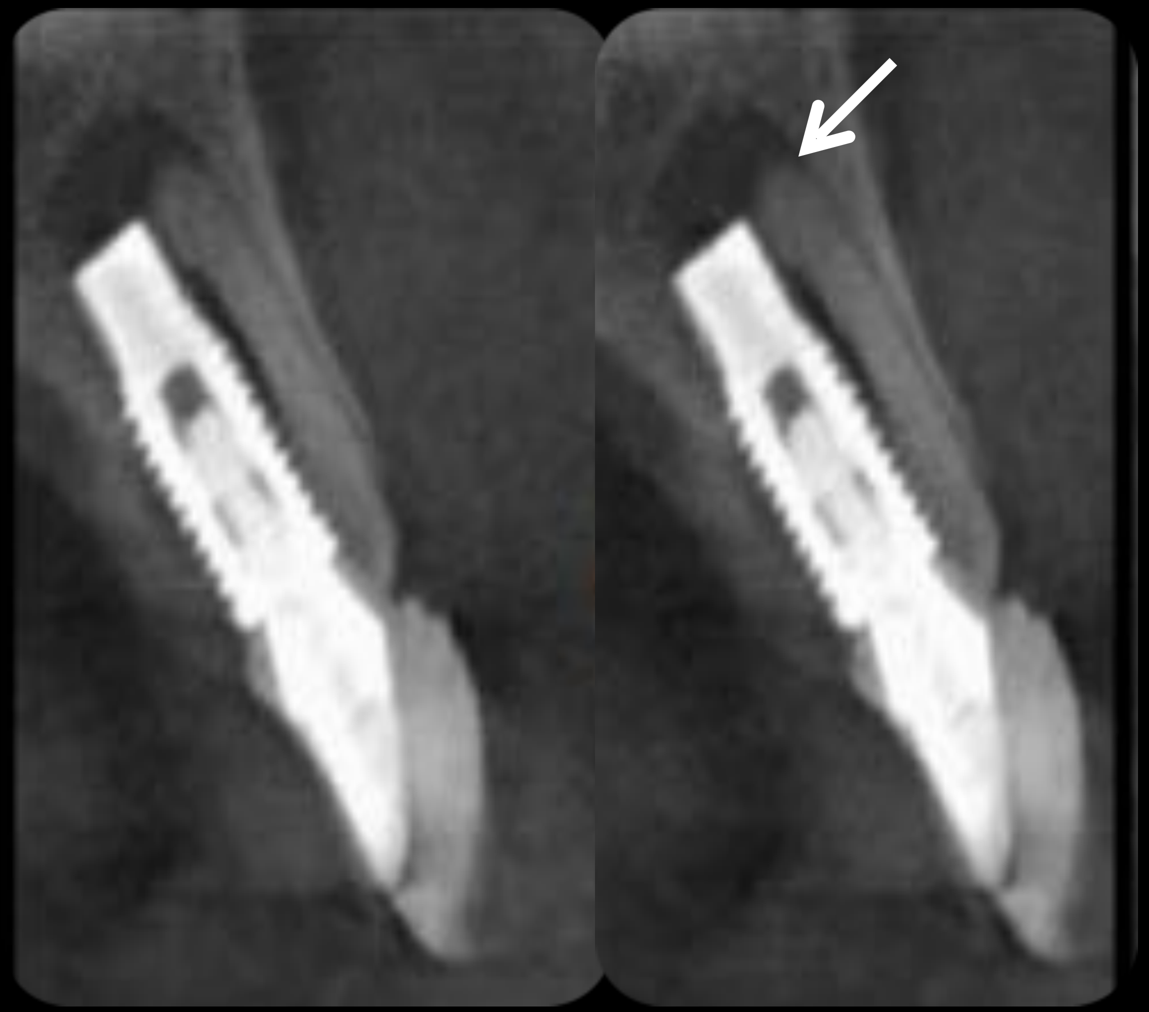
Root membrane in presence of periapical pathology



- One implant site per patient (n=46)
- Mean follow-up(±SD): 44.9±5.7 months
- All implants were immediately, non-functionally loaded and found to be clinically stable at subsequent evaluations
- Final loading was performed with fixed prostheses and all restorations functionally survived throughout the follow-ups
- Crestal bone loss was minimum:
  0.19±0.08 mm (Mesial) & 0.22±0.06 mm (Distal)

Siormpas KD, Mitsias ME, Kontsiotou-Siormpa E, Garber D, Kotsakis GA. Immediate implant placement in the esthetic zone utilizing the "root-membrane" technique: clinical results up to 5 years postloading. Int J Oral Maxillofac Implants. 2014 Nov-Dec;29(6):1397-405.

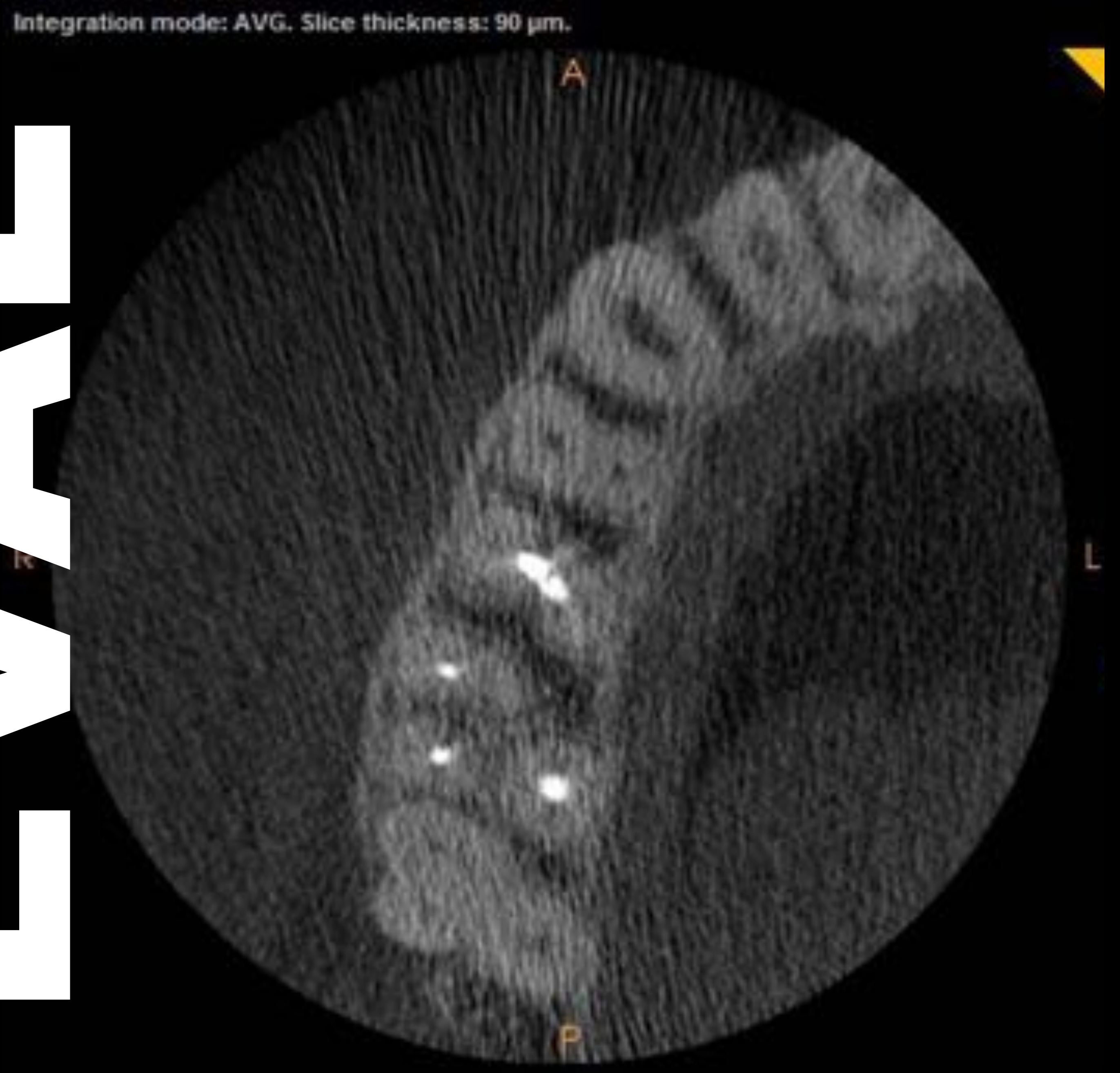


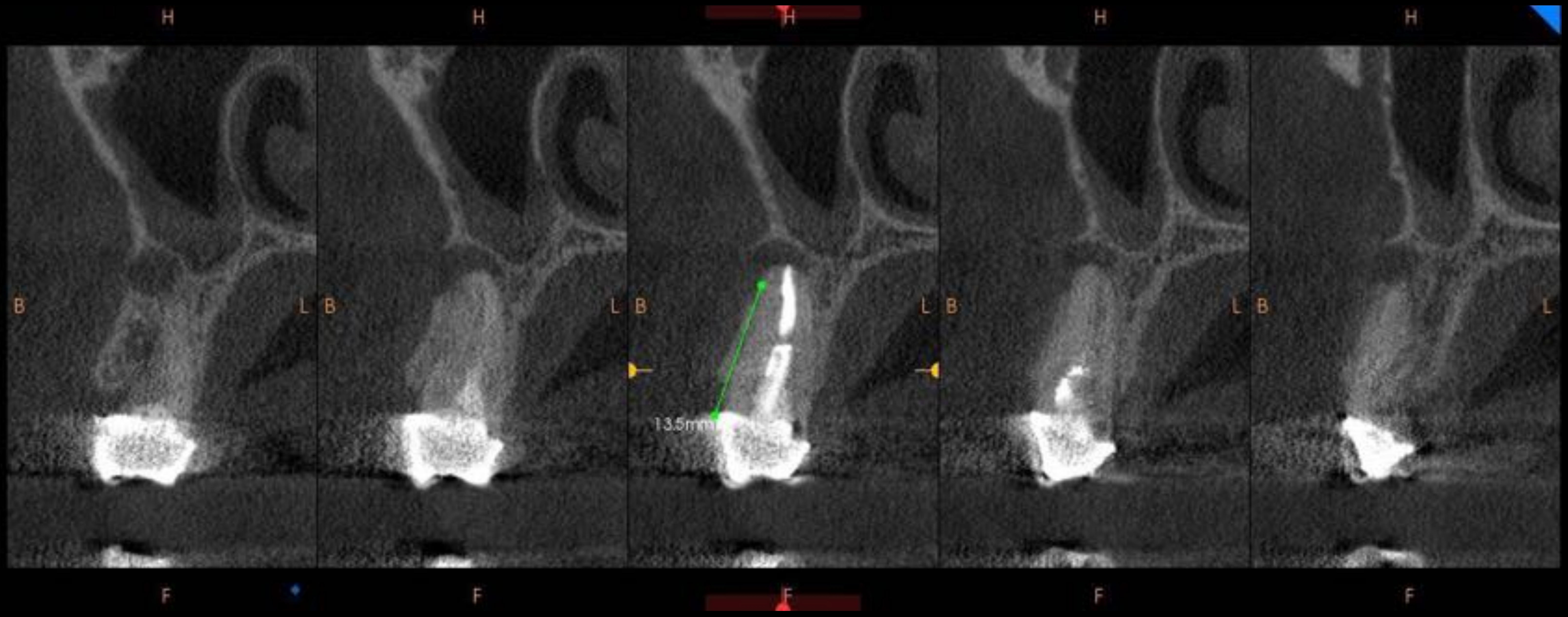


- Single incident of root resorption
- No subjective symptoms
- Uncompromised implant and restoration function
- Was considered "failure" under strict success criteria

Siormpas KD, Mitsias ME, Kontsiotou-Siormpa E, Garber D, Kotsakis GA. Immediate implant placement in the esthetic zone utilizing the "root-membrane" technique: clinical results up to 5 years postloading. Int J Oral Maxillofac Implants. 2014 Nov-Dec;29(6):1397-405.

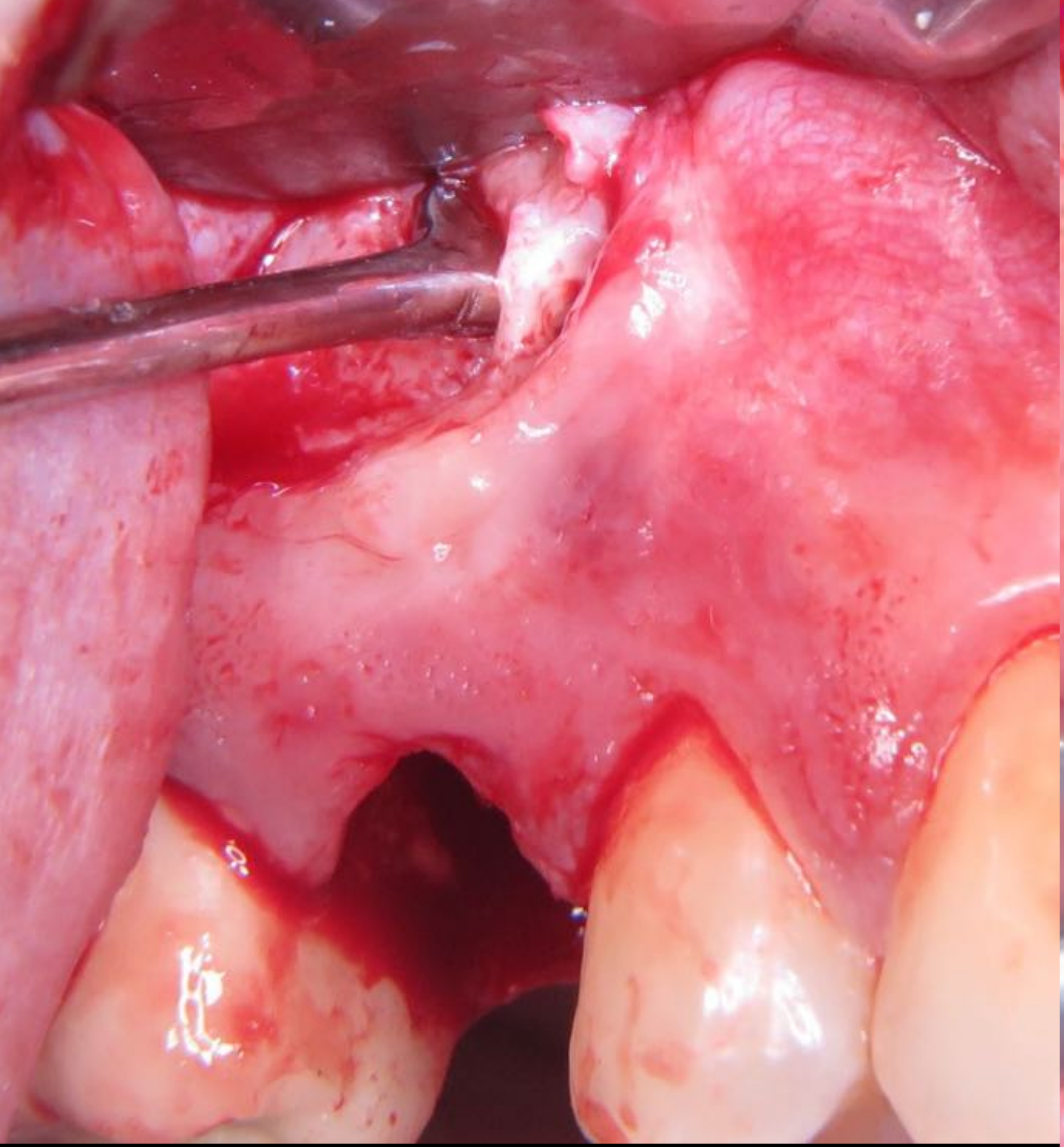
CBCT EVAL

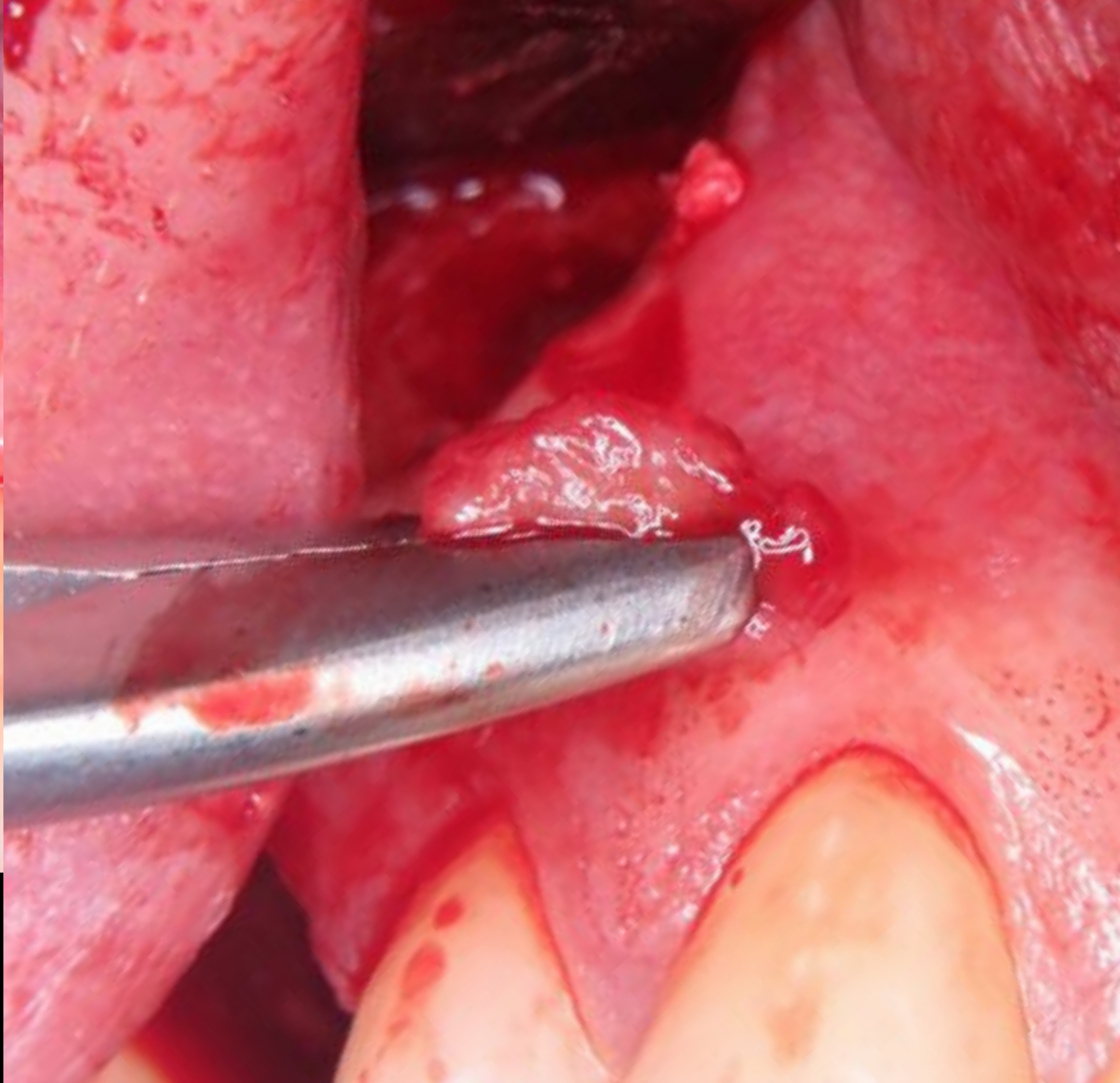




CBCT EVAL

CBCT EVAL



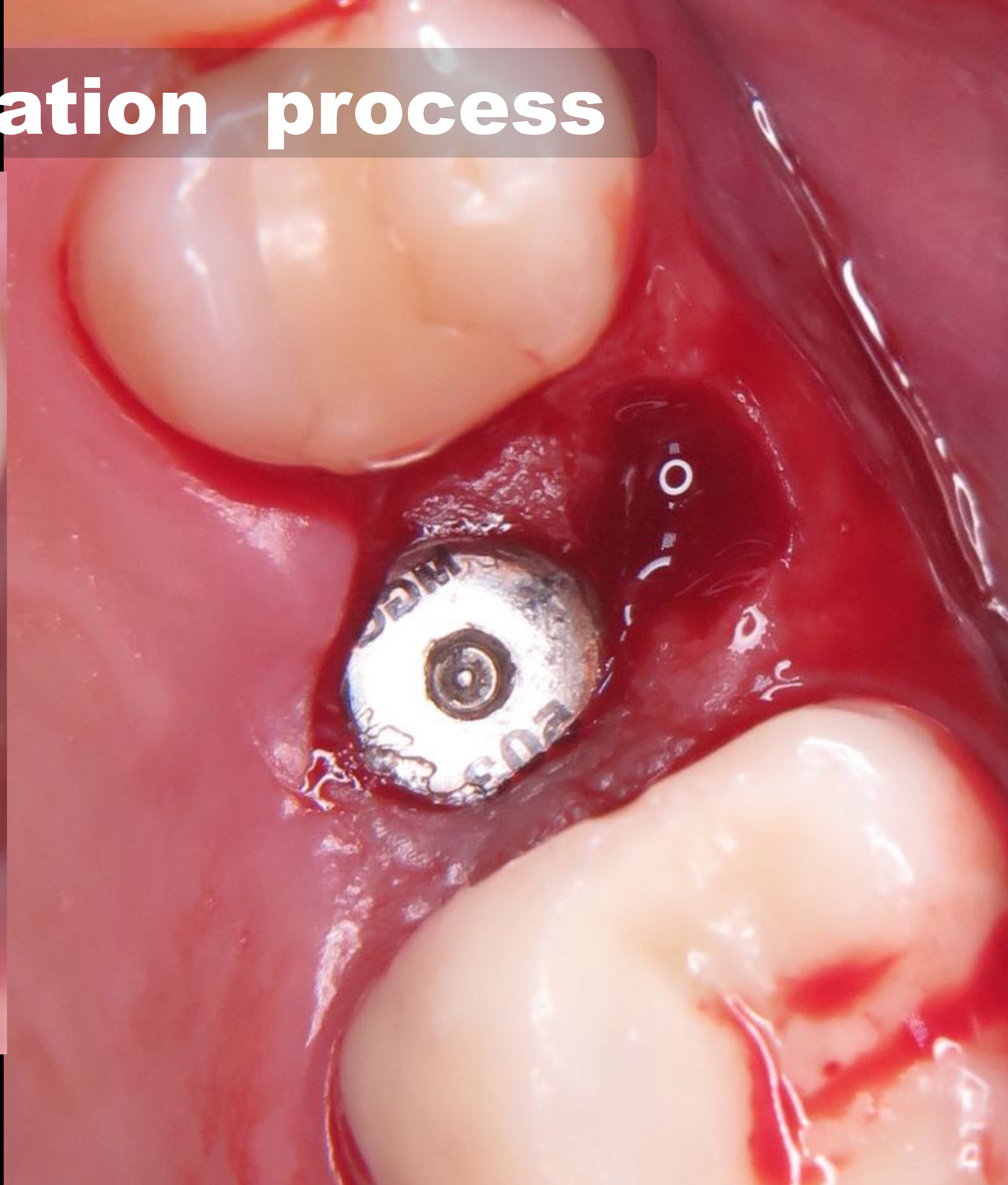

Probe
Drill
Implant


MEGA ISQ™
Original Osstell Technology
70

Graft
PRF
SUTURE


MEGA ISQ™
Original Osstell Technology
77
Shield exposure
Due to inadequate
Reduction

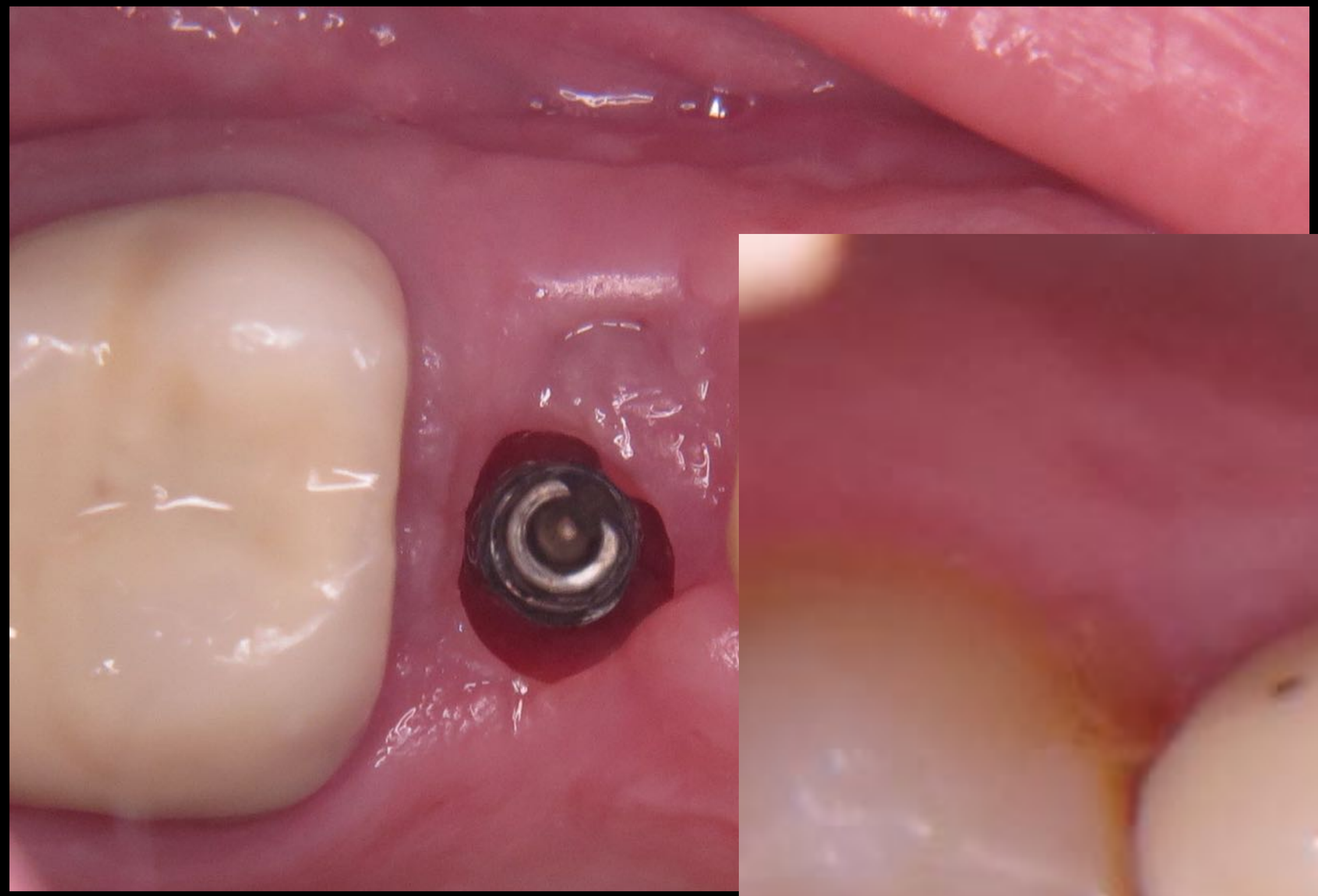
Restart coagulation process




Healing 2 weeks


Open tray impression


Healing 4 weeks




The effect of the distance from the contact point to the crest of bone on the presence or absence of the interproximal dental papilla.

J Periodontol. 1992 Dec;63(12):995-6.

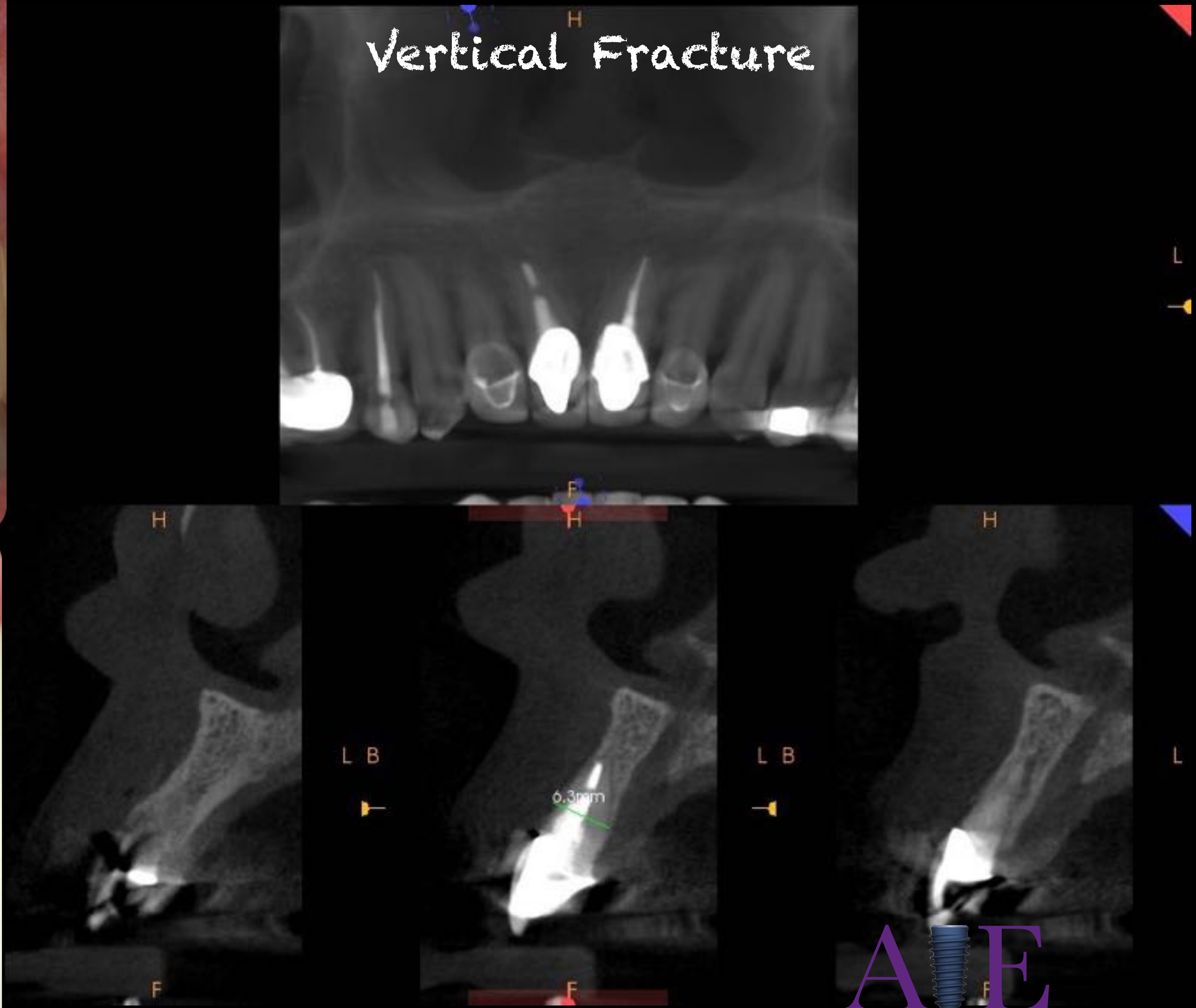
Tarnow DP, Magner AW, Fletcher P.

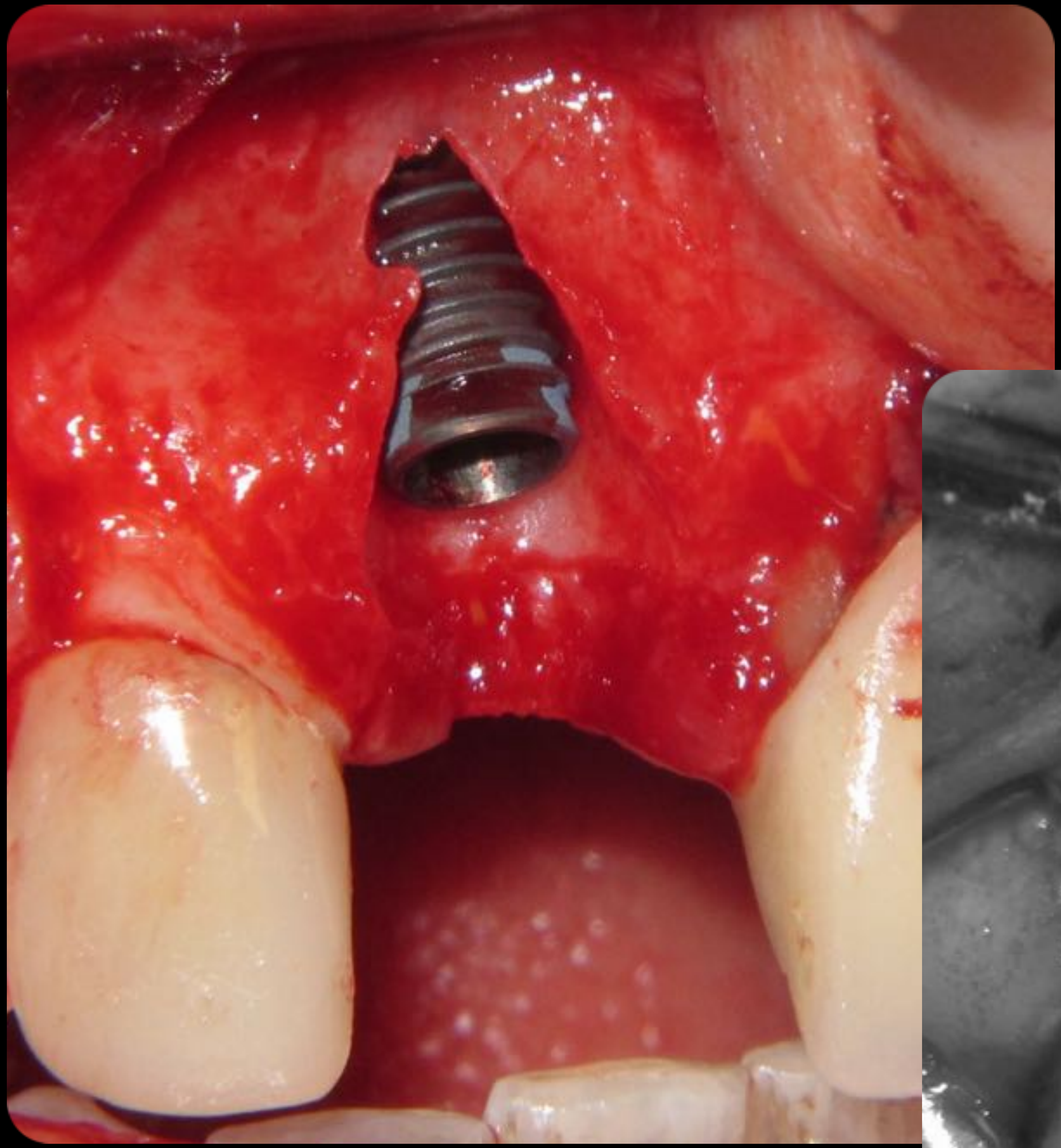
Abstract

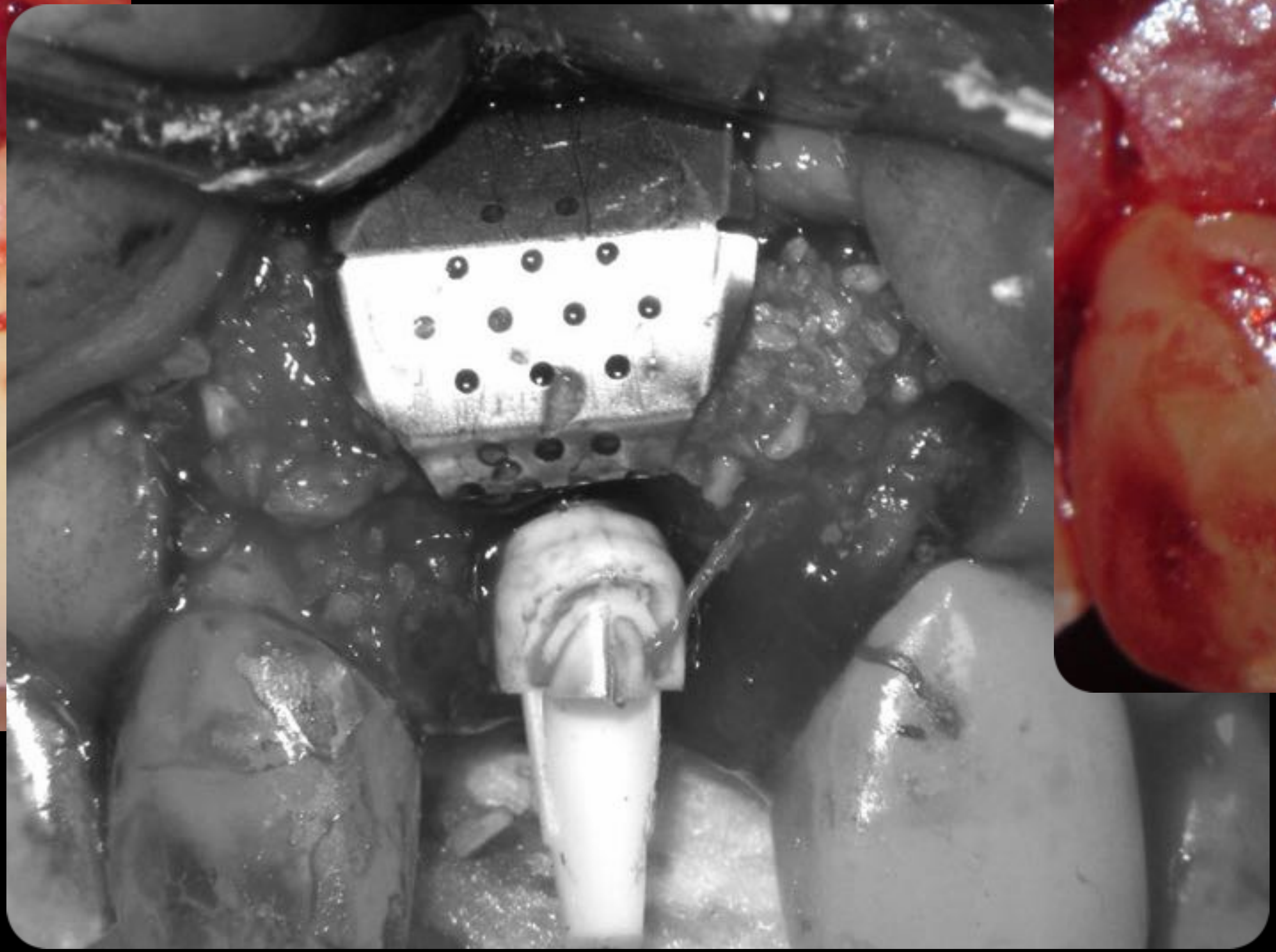
This study was designed to determine whether the distance from the base of the contact area to the crest of bone could be correlated with the presence or absence of the interproximal papilla in humans. A total of 288 sites in 30 patients were examined. If a space was visible apical to the contact point, then the papilla was deemed missing; if tissue filled the embrasure space, the papilla was considered to be present. The results showed that when the measurement from the contact point to the crest of bone was 5 mm or less, the papilla was present almost 100% of the time. When the distance was 6 mm, the papilla was present 56% of the time, and when the distance was 7 mm or more, the papilla was present 27% of the time or less.

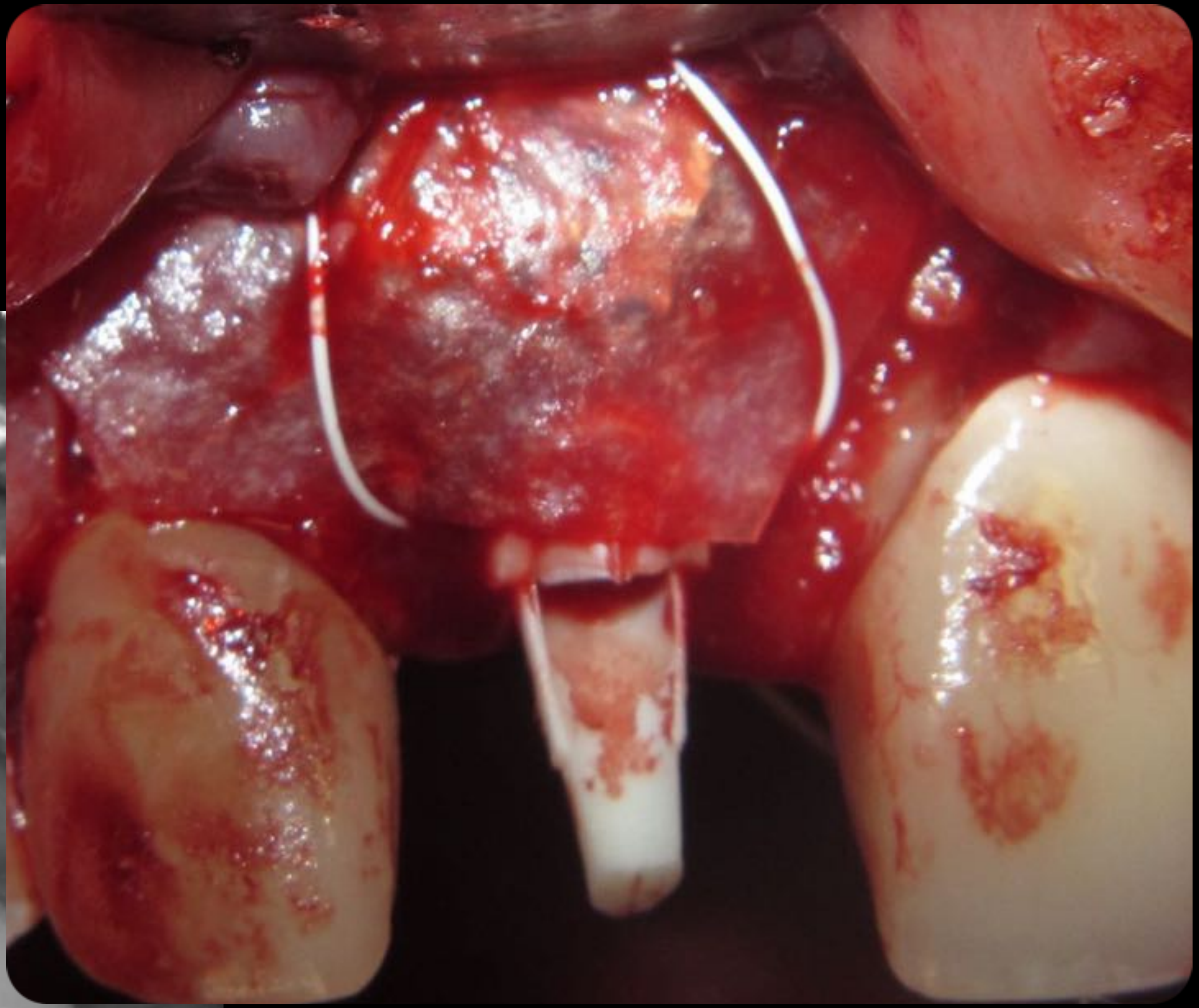

6 months post op

GBR/CTG VS Socket shield


Vertical Fracture
H
L
H
H
H
L B
6.3mm
L B
L
F
F







I-Gen membrane

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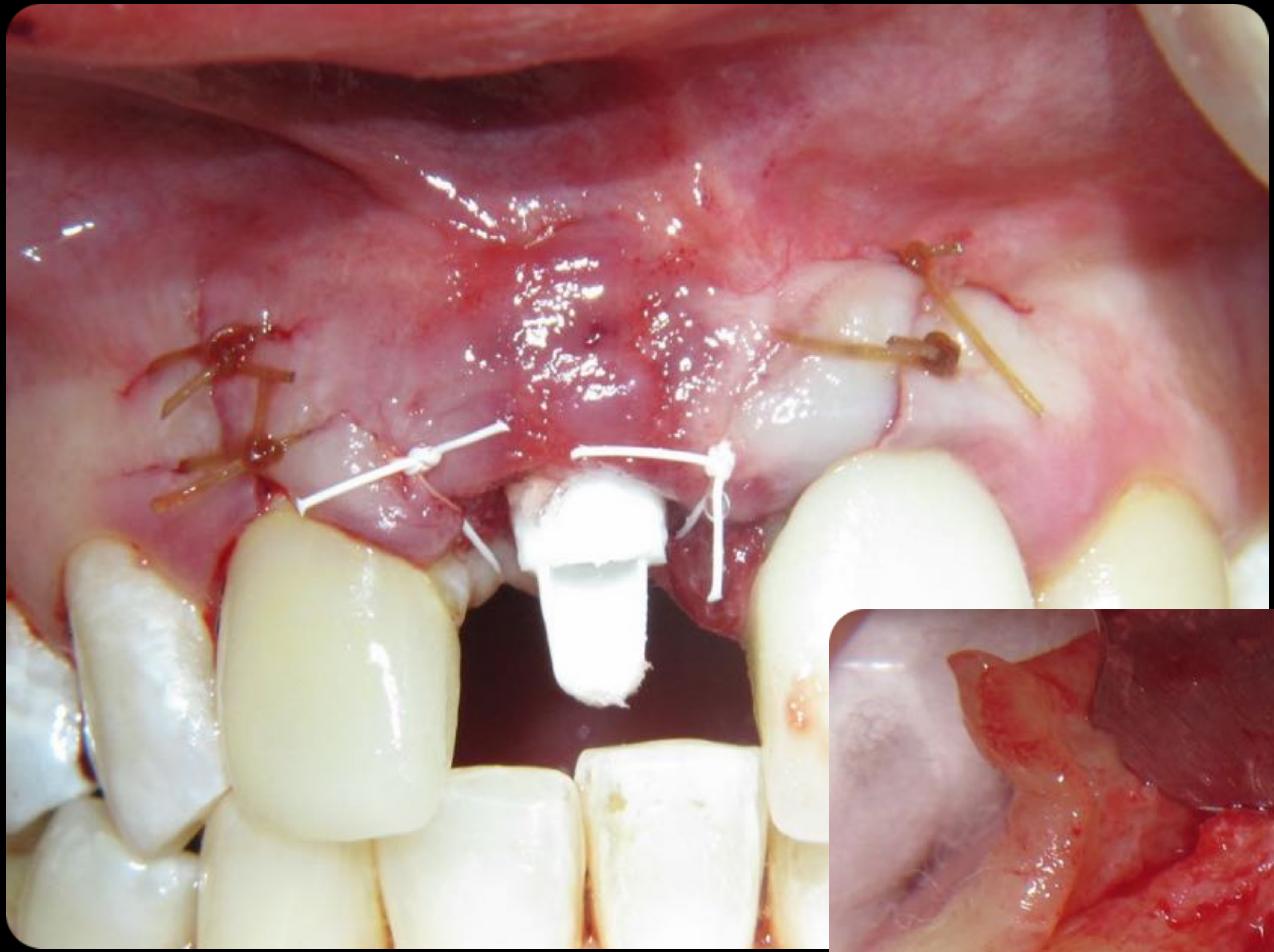
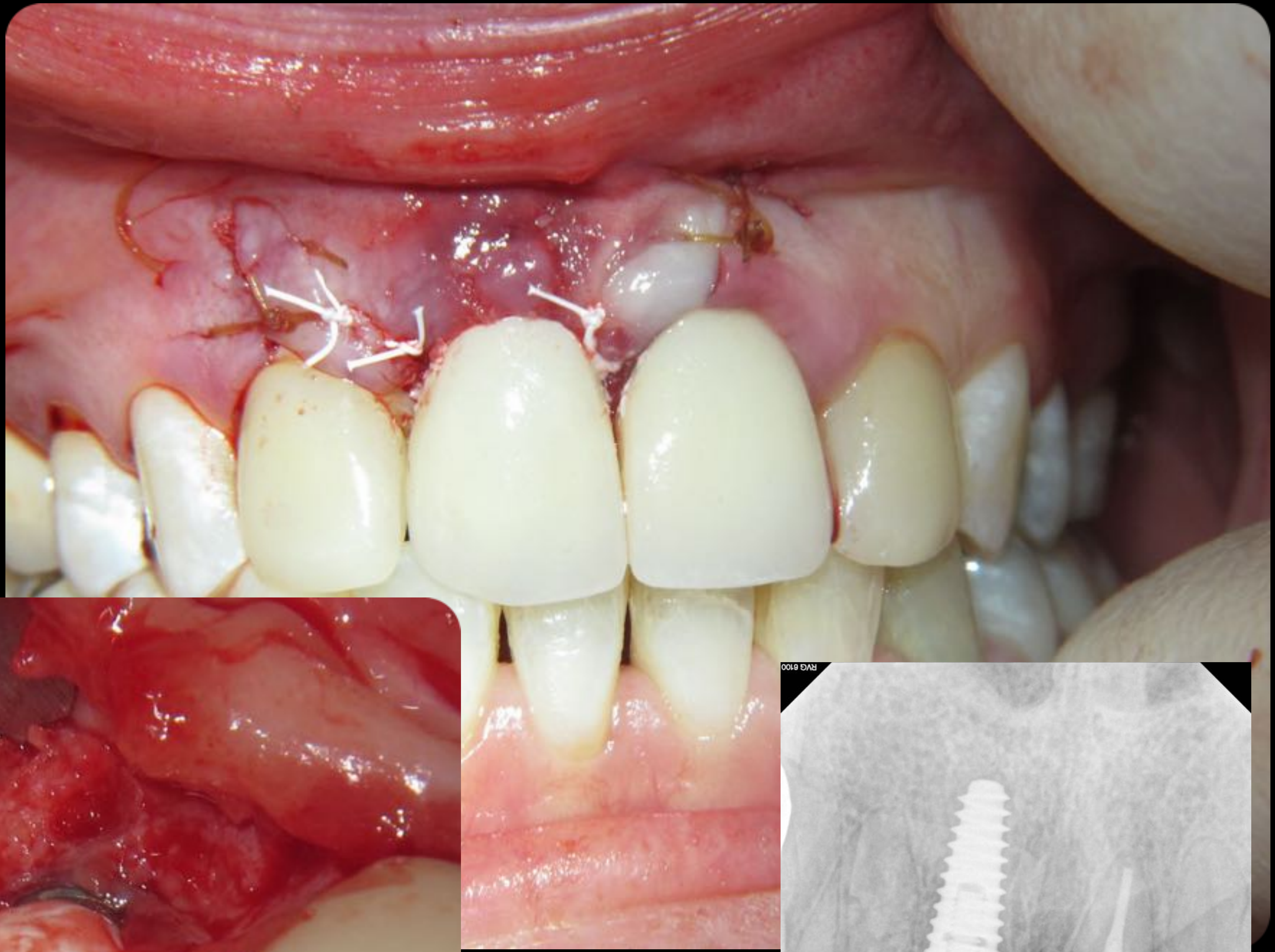
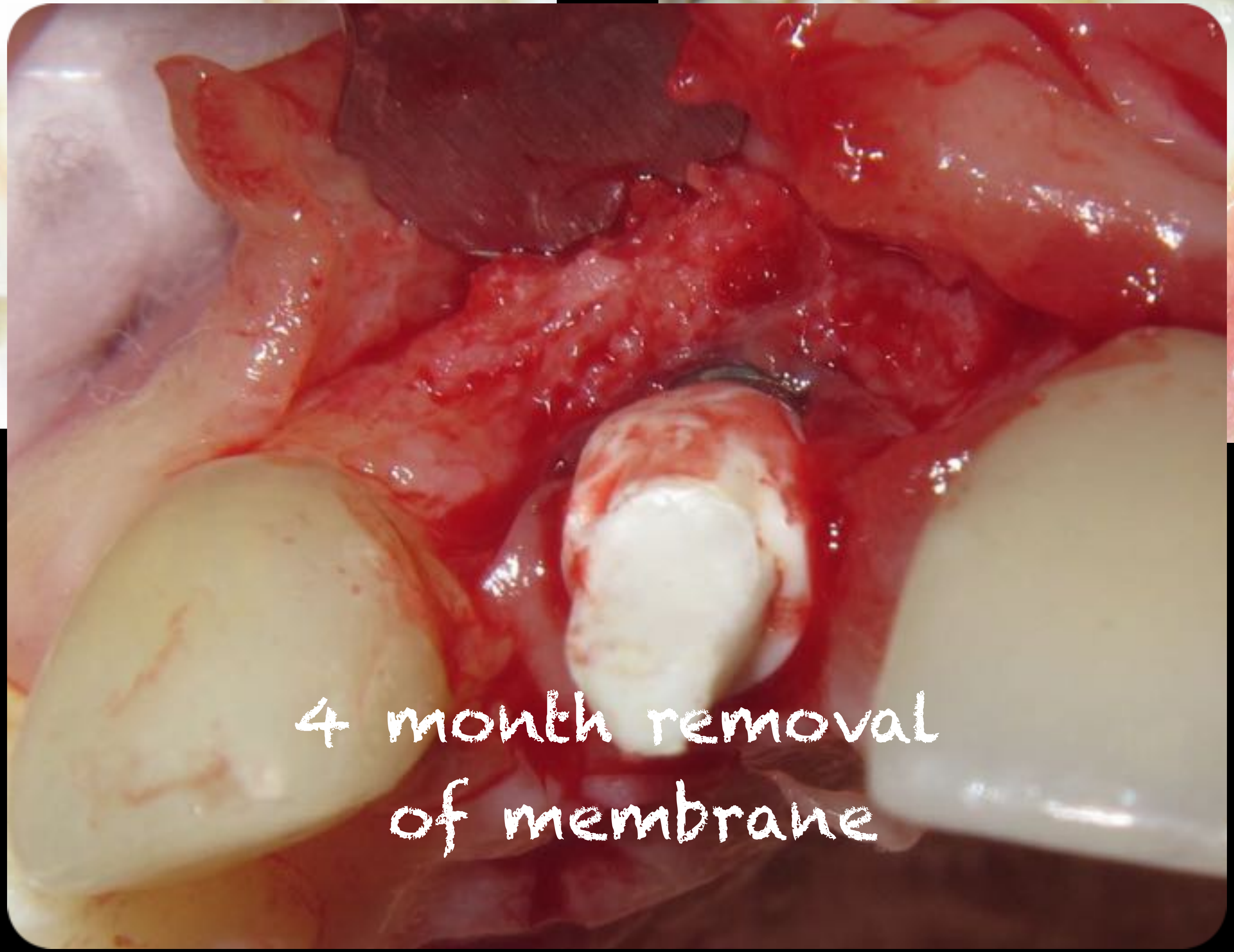
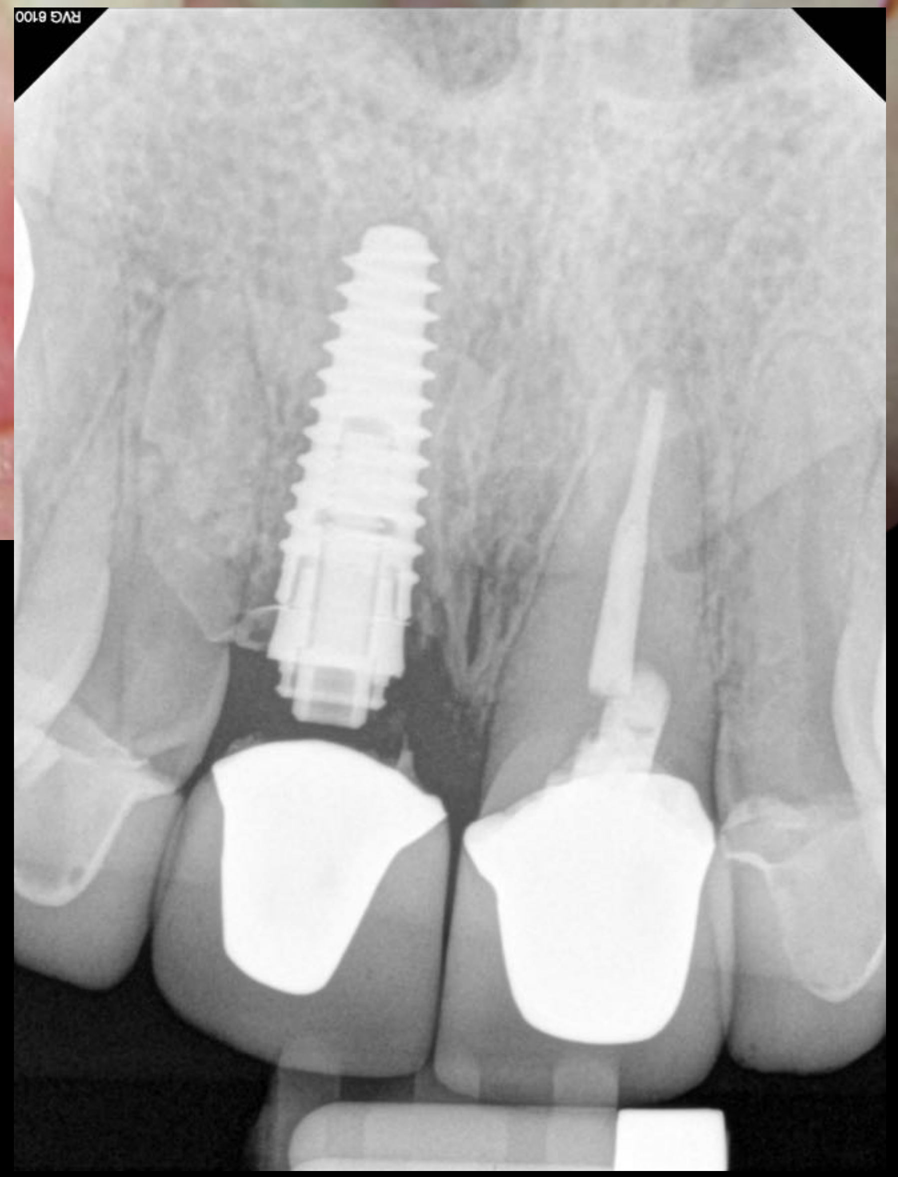
Fuse abutment



Temp







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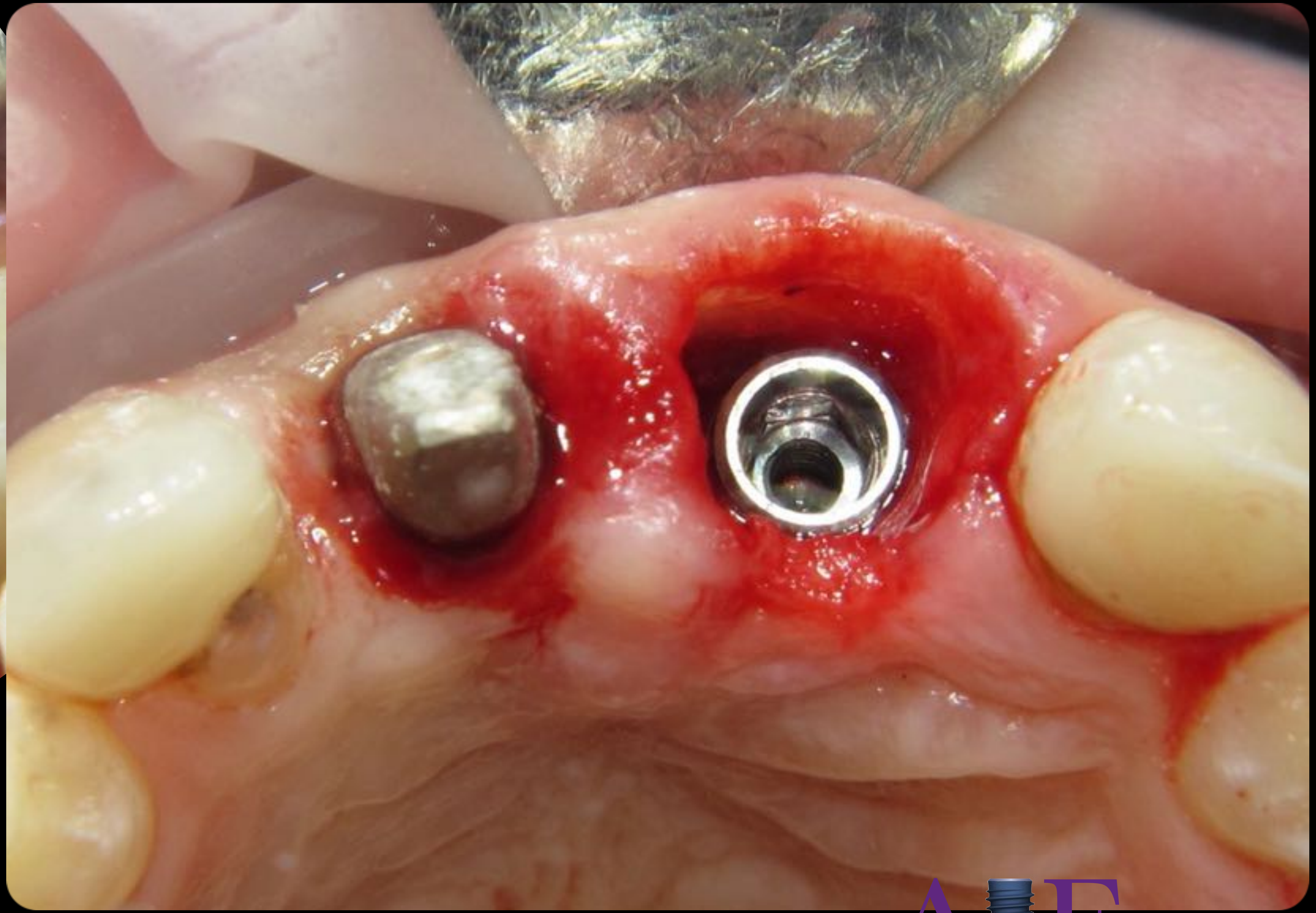
6 months later adjacent tooth fractures
PET employed



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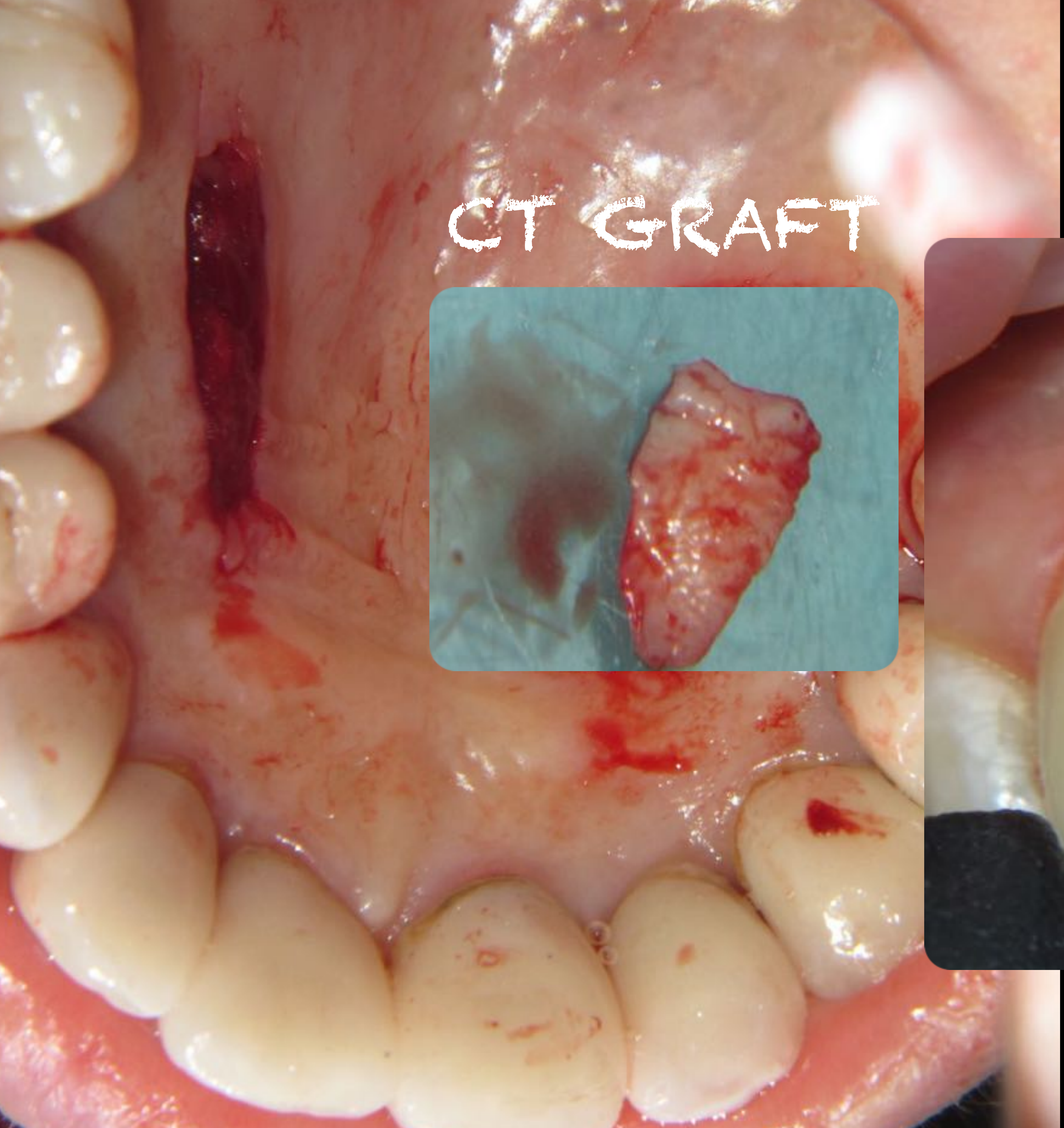

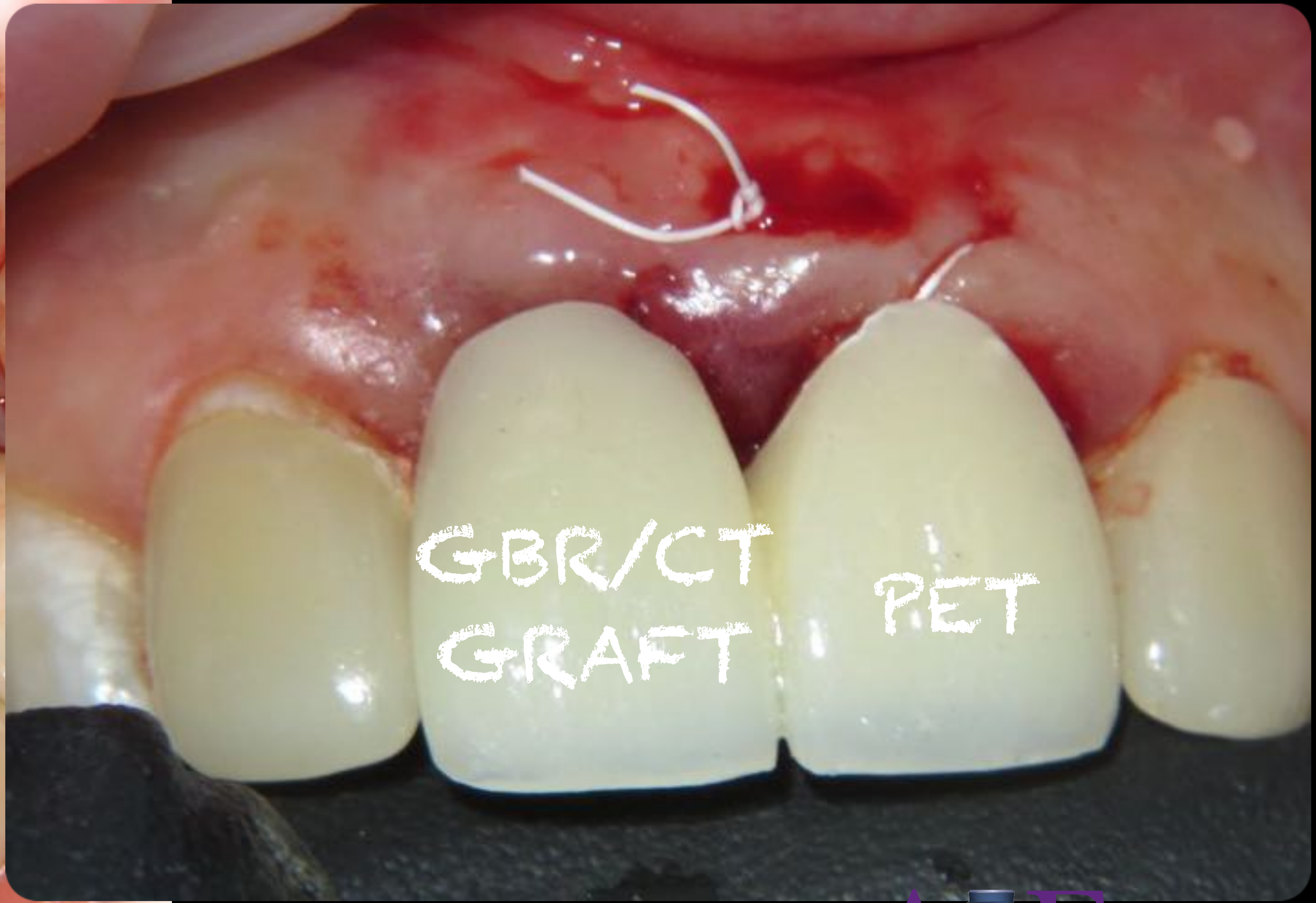

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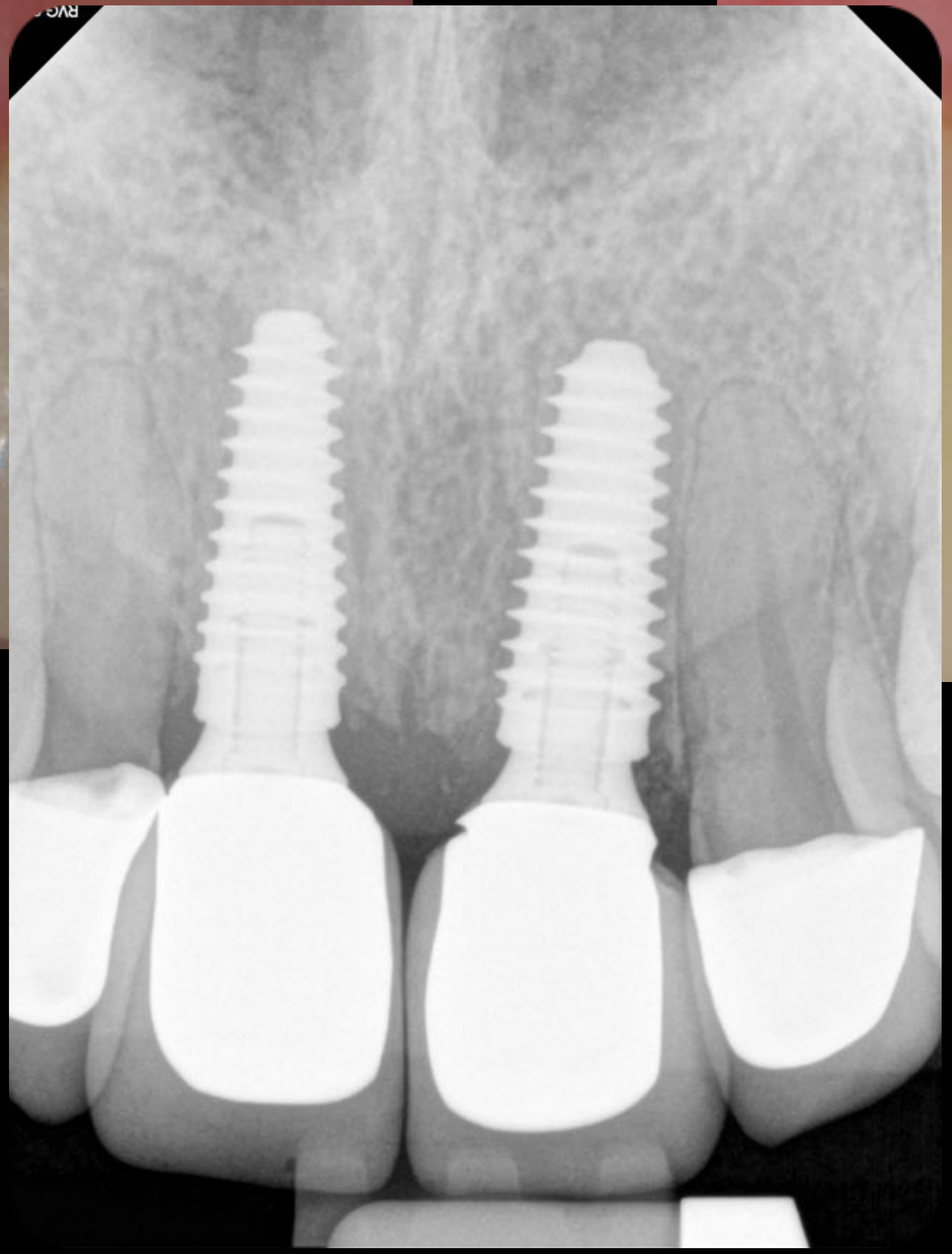
16 DAY post CT graft



4 year Post op

AIE

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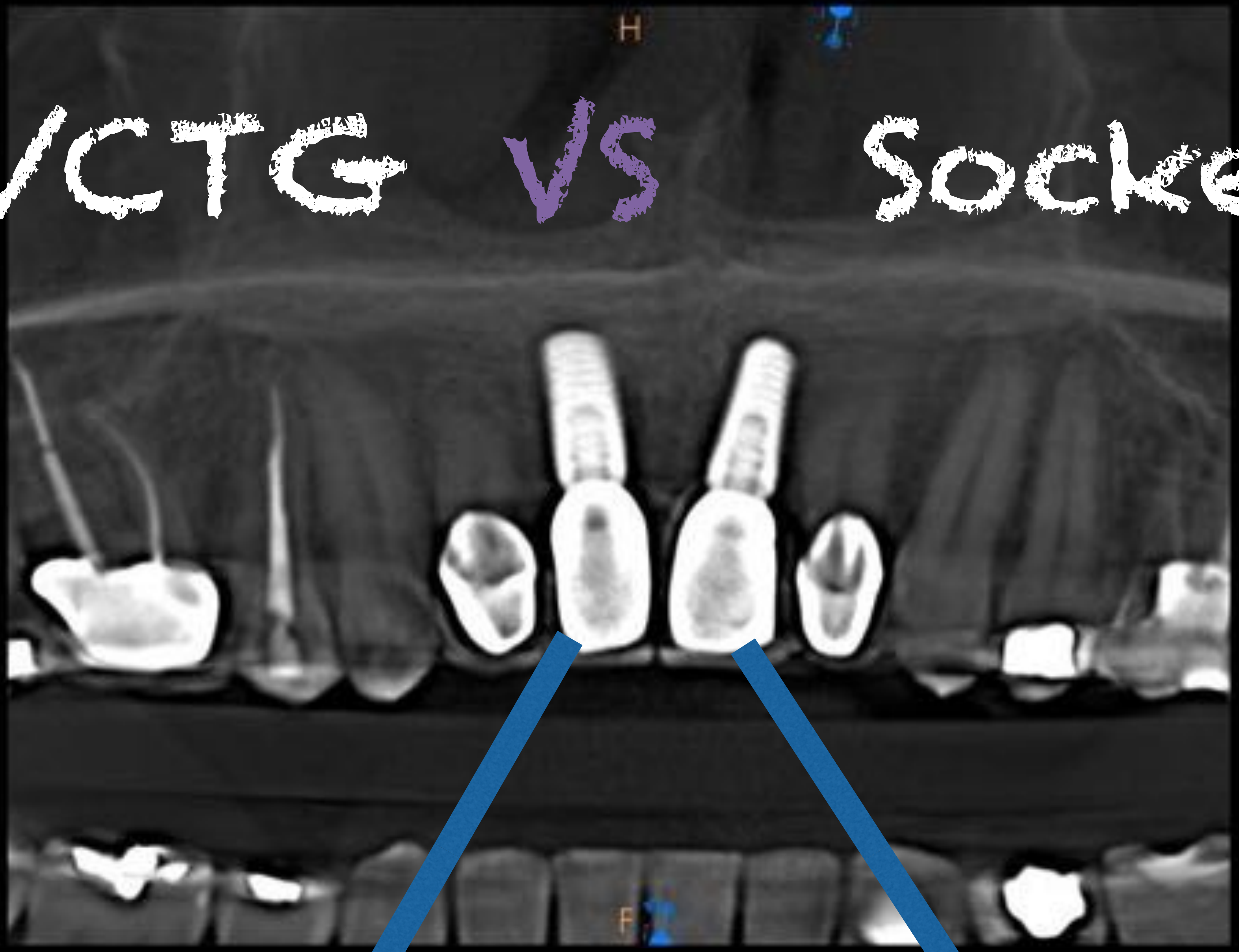
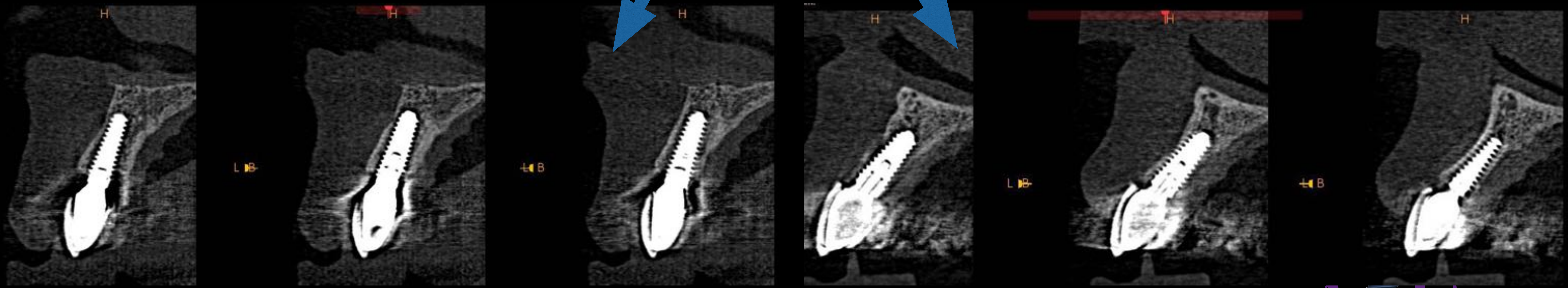
GBR/CTG VS Socket shield



EXTRACT
Implant
GBR Ti-Mesh
CTG

EXTRACT
Implant



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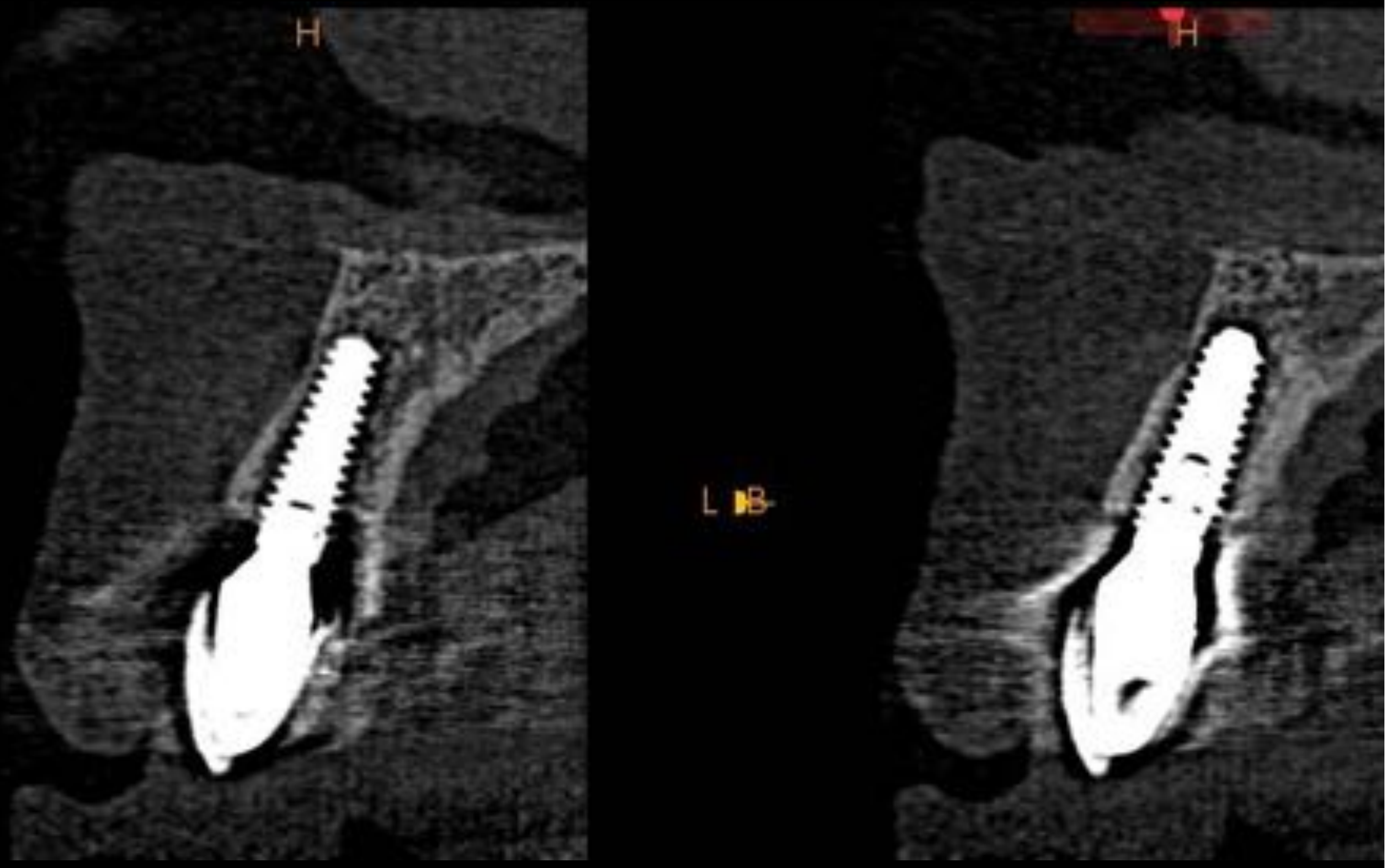


Partial Extraction Therapies (PET) Part 1: Maintaining Alveolar Ridge Contour at Pontic and Immediate Implant Sites

Howard Gluckman, BDS, MChD (OMP)[1]
Maurice Salama, DDS[2]
Jonathan Du Toit, BChD, Dipl Implantol, Dip Oral Surg, MSc Dent[3]

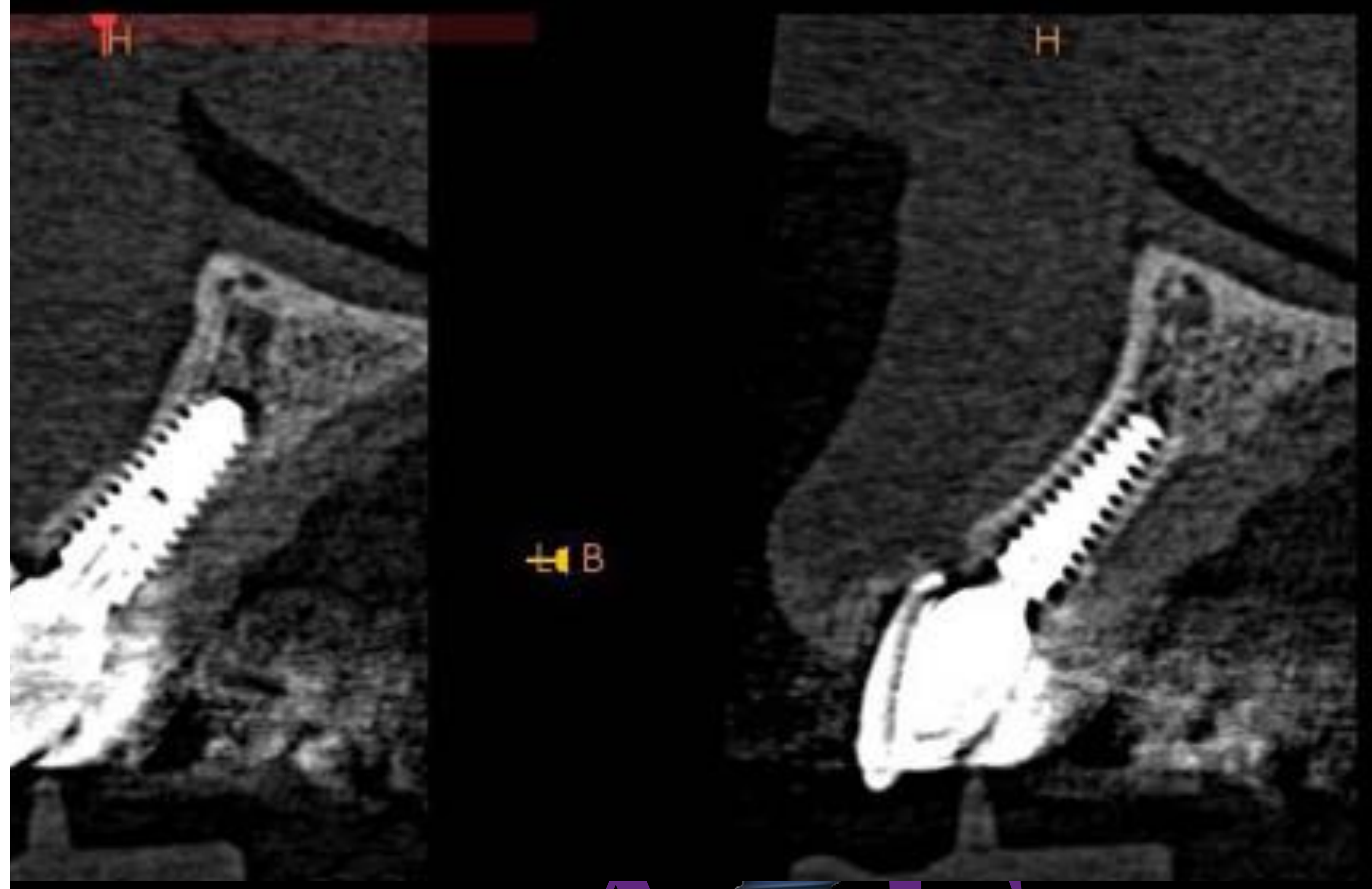
Buccopalatal collapse of the postextraction ridge is a significant challenge in restorative and implant dentistry. A variety of ridge preservation techniques using tissue and augmentative materials have been proposed in the literature. A slightly different approach is to use the tooth itself. Root submergence has been reported in the literature for more than 4 decades, and it has been demonstrated that the submerged tooth root retains the periodontal tissues and preserves the bone in pontic sites or below dentures to retain the ridge. The socket-shield technique entails preparing a tooth root section simultaneous to immediate implant placement and has demonstrated histologic and clinical results that are highly promising to esthetic implant treatment. The pontic shield technique preserves the alveolar ridge at sites intended for pontic development where the root submergence technique is not possible. The aforementioned techniques collectively may be termed partial extraction therapies (PET), a term newly introduced into the literature and clinical environment. This article is a review of these ridge preservation therapies, providing a classification and a guide to their application. Int J Periodontics Restorative Dent 2016;36:681–687. doi: 10.11607/prd.2783

[1]Specialist in Periodontics and Oral Medicine, Director of the Implant and Aesthetic Academy, Cape Town, South Africa.
[2]Clinical Assistant Professor of Periodontics, University of Pennsylvania, Philadelphia, Pennsylvania, USA; Medical College of Georgia, Augusta, Georgia, USA; Private Practice, Atlanta, Georgia, USA.
[3]Postgraduate, Department of Periodontics and Oral Medicine, School of Dentistry, Faculty of Health Sciences, University of Pretoria, South Africa.

Correspondence to: Dr Howard Gluckman, The Implant and Aesthetics Academy, 39 Kloof Street, Cape Town, South Africa. Fax: +2721 426 3053.
Email: docg@theimplantclinic.co.za

Ridge resorption as a result of tooth loss is well reported in the literature.[1] This loss of alveolar bone and change in ridge contour is the result of the bundle bone-periodontal ligament (BB-PDL) complex lost following the removal of a tooth.[2,3] To restore an edentulous or partially dentate patient in many instances requires management of these resorbed sites by careful surgical intervention. The literature is abundant with guidelines to limit tissue loss (ridge preservation techniques) or restore the ridge architecture (bone and soft tissue augmentation).[4,5] However, none of these circumvent the primary cause of resorption, ultimately resulting in partial or total ridge collapse.[3] Partial extraction therapies (PET) represent a subgroup of precollapse interventions that collectively use the tooth itself to offset the loss of alveolar tissue. By retaining the tooth root and its attachment to bone, the BB-PDL complex with its vascular supply may be maintained. Root submergence has been demonstrated with success in the preservation of the postextraction ridge and development of pontic sites.[6,7] However, the technique is limited by apical pathology and endodontic treatment requiring an alternative partial extraction therapy.

The socket-shield technique introduced by Hürzeler et al uses the



GBR/CTG VS Socket shield


Partial Extraction Therapies (PET) Part 1: Maintaining Alveolar Ridge Contour at Pontic and Immediate Implant Sites

Table 1: Comparative tabulation of procedures to manage the effects of post-extraction resorption adjunct to implant therapy

Advantages	Disadvantages
GBR	
Tissues gains	Surgically invasive (autogenous)
Well supported in the literature	Technique sensitive
	Additional healing time
	Additional co-morbidity
	Additional expense (xeno / allograft)
	Additional risk of infection / complication
	Vertical gains are challenging
Sub-epithelial connective tissue graft	
Reliable, predictable	Surgically invasive (autogenous)
Well supported in the literature	Technique sensitive
No additional material cost	Additional healing time
	Additional co-morbidity
Socket-shield technique	
No additional material cost	Not yet reliable or predictable
No co-morbidity	No long-term data yet
Single surgery	Technique sensitive
Applicable in sites with endodontic apical pathology	

*Gluckman and Salama
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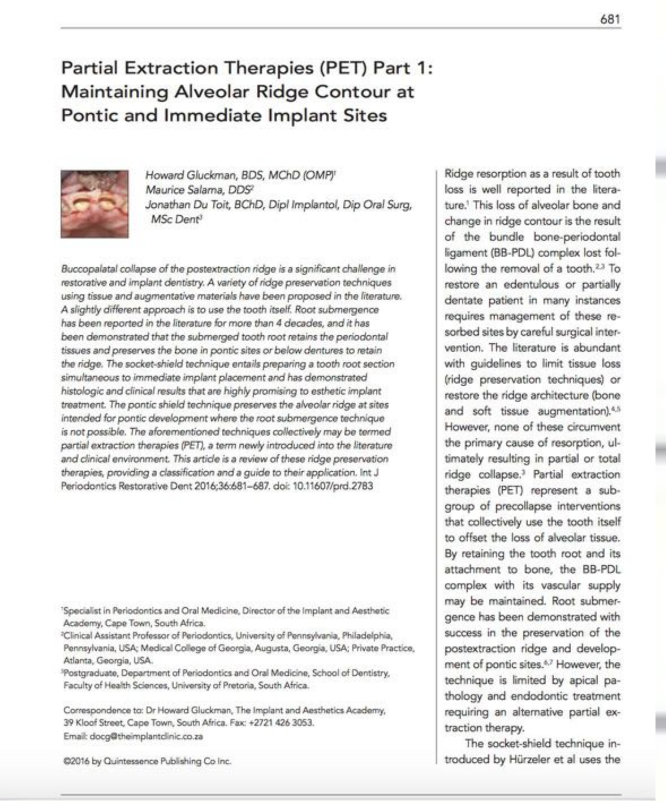

681

Partial Extraction Therapies (PET) Part 1: Maintaining Alveolar Ridge Contour at Pontic and Immediate Implant Sites

Howard Gluckman, BDS, MChD (OMP)[1]
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The socket-shield technique introduced by Hürzeler et al uses the

Surgically invasive (autogenous)

Technique sensitive

Additional healing time

Additional co-morbidity

Socket-shield technique

~~Not yet reliable or predictable~~

~~No long-term data yet~~

~~Technique sensitive~~

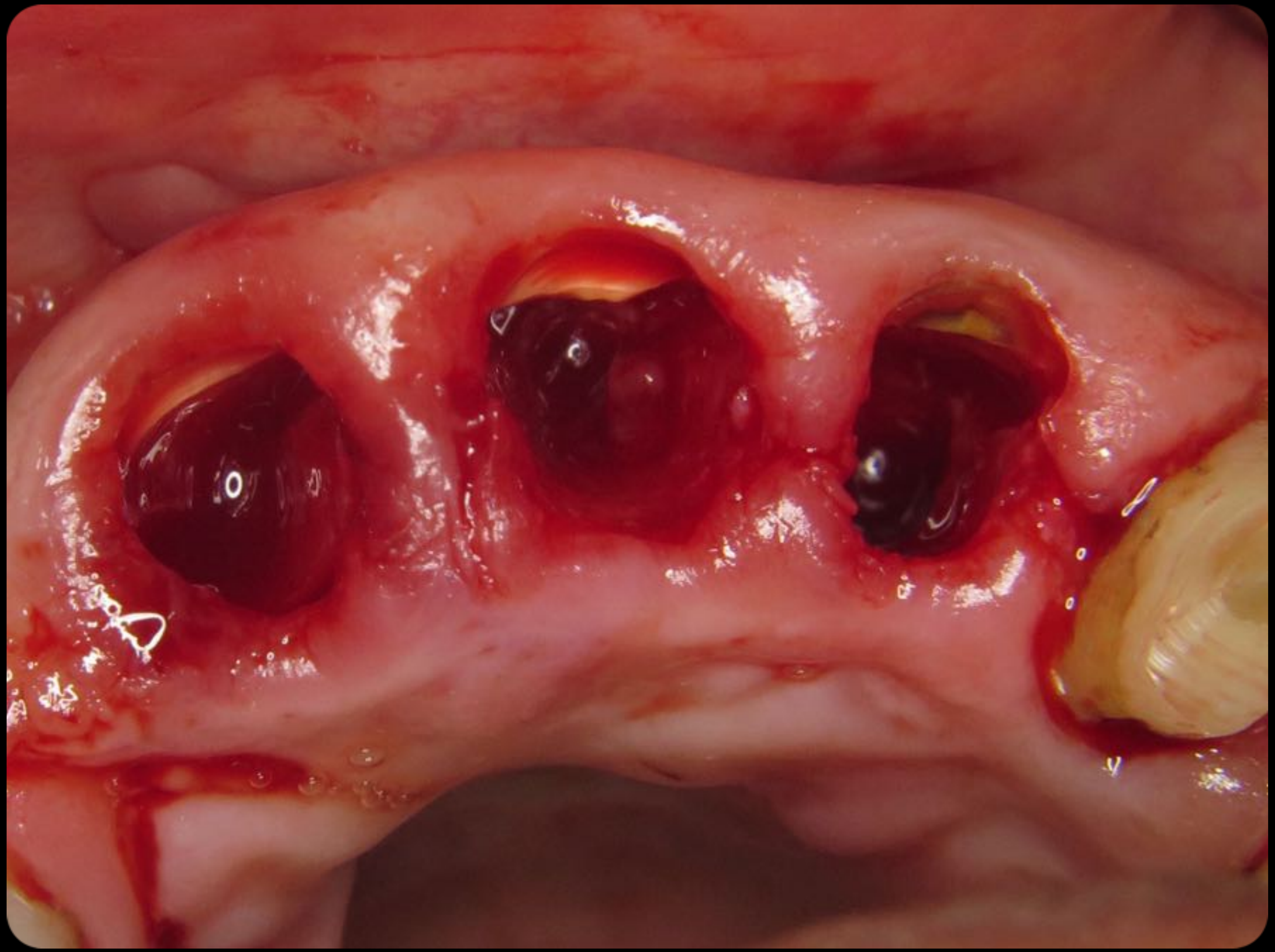
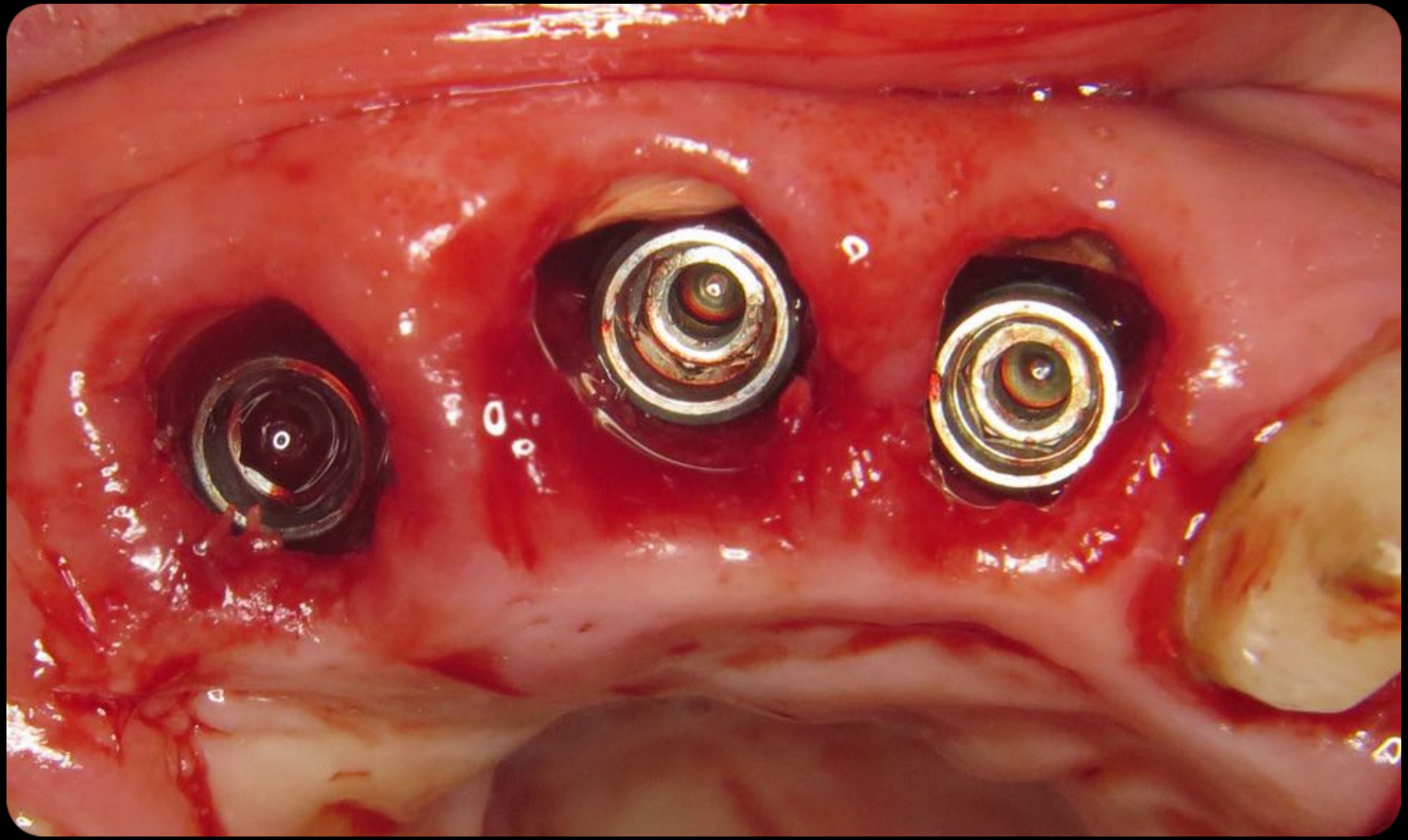
*Gluckman and Salama

The All Autogenous Tooth (AAT)


Integration mode: AVG. Slice thickness: 180 μm.
Integration mode: AVG. Slice thickness: 20.0 mm.
Slice spacing: 1.8 mm.
7.3mm
10.6mm
A

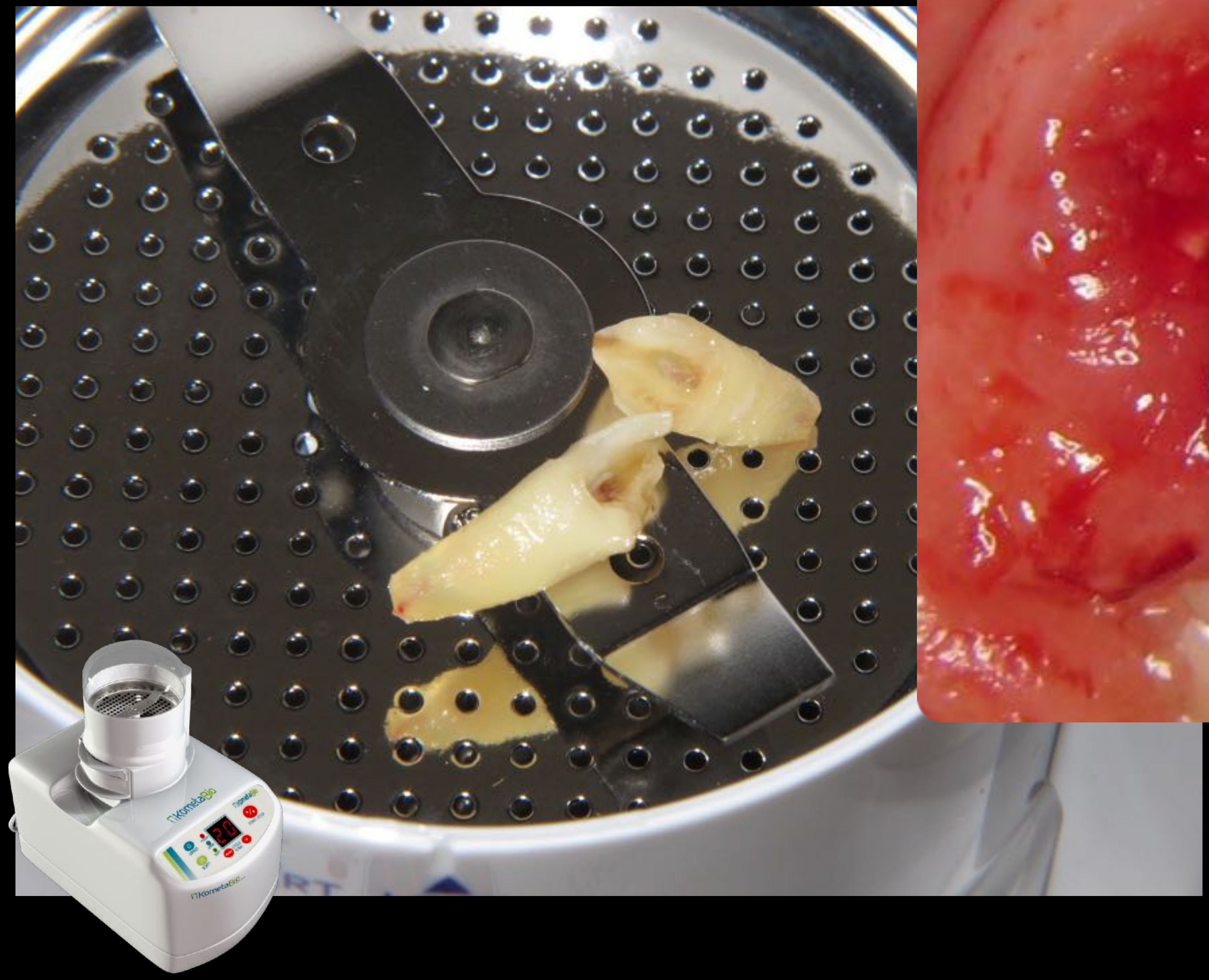
Slice spacing: 1.8 mm.
H
B
L
7.3mm
10.6mm
F

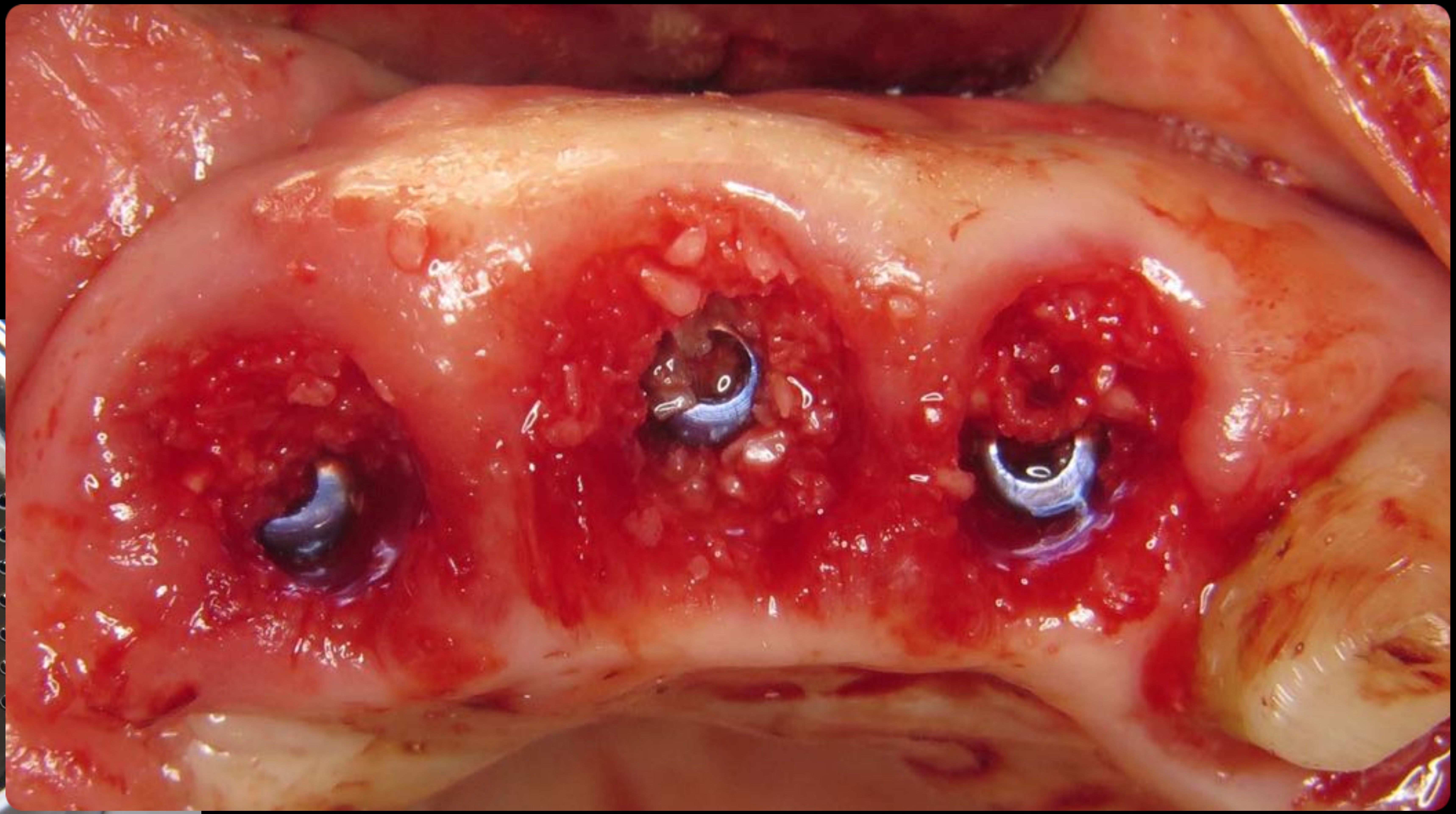
Multiple Teeth
Socket Shield

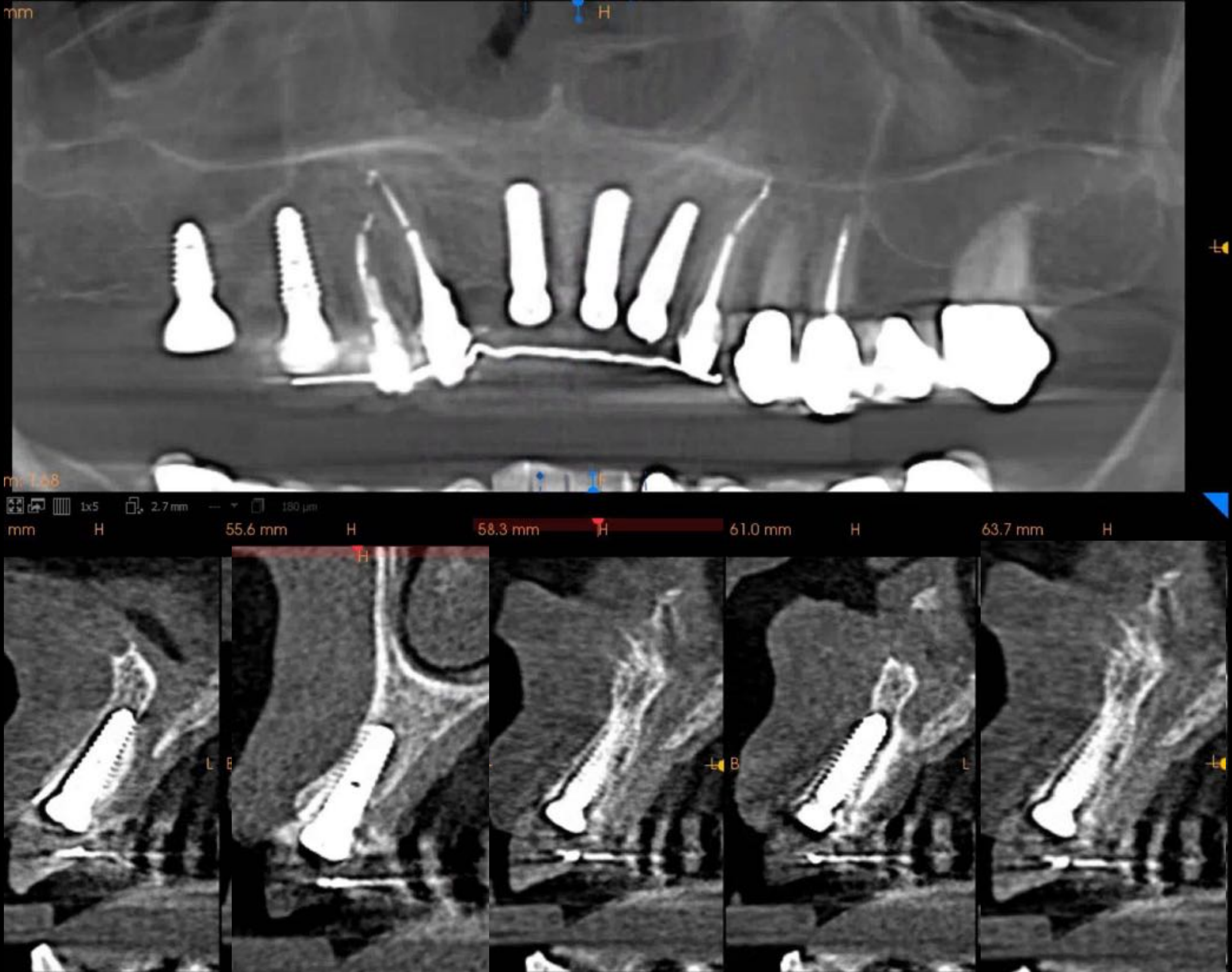




INSERT

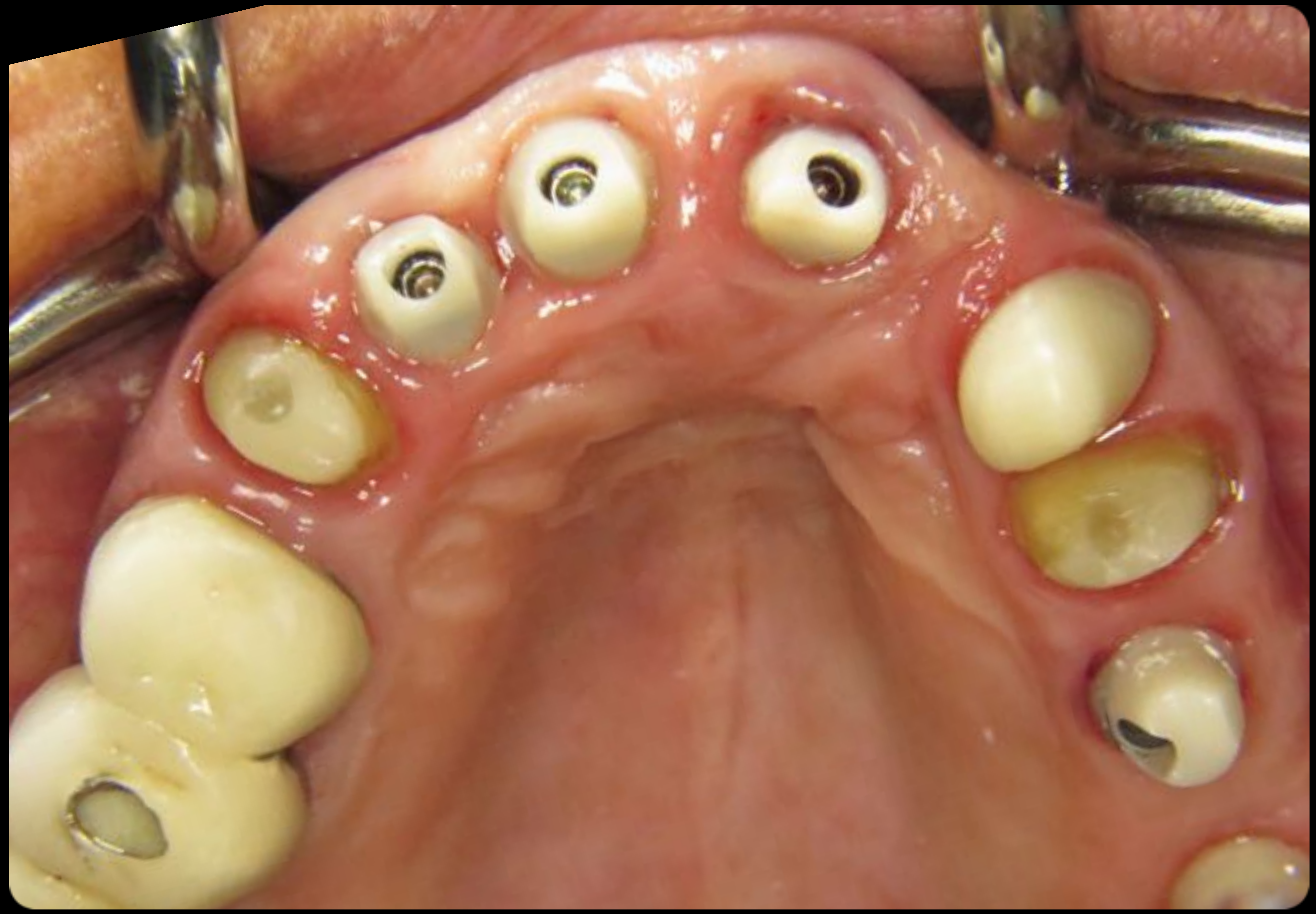

KometaBio
SMART DENTIN GRINDER
KometaBio
GRIND
SORT
00
START / STOP
KometaBio



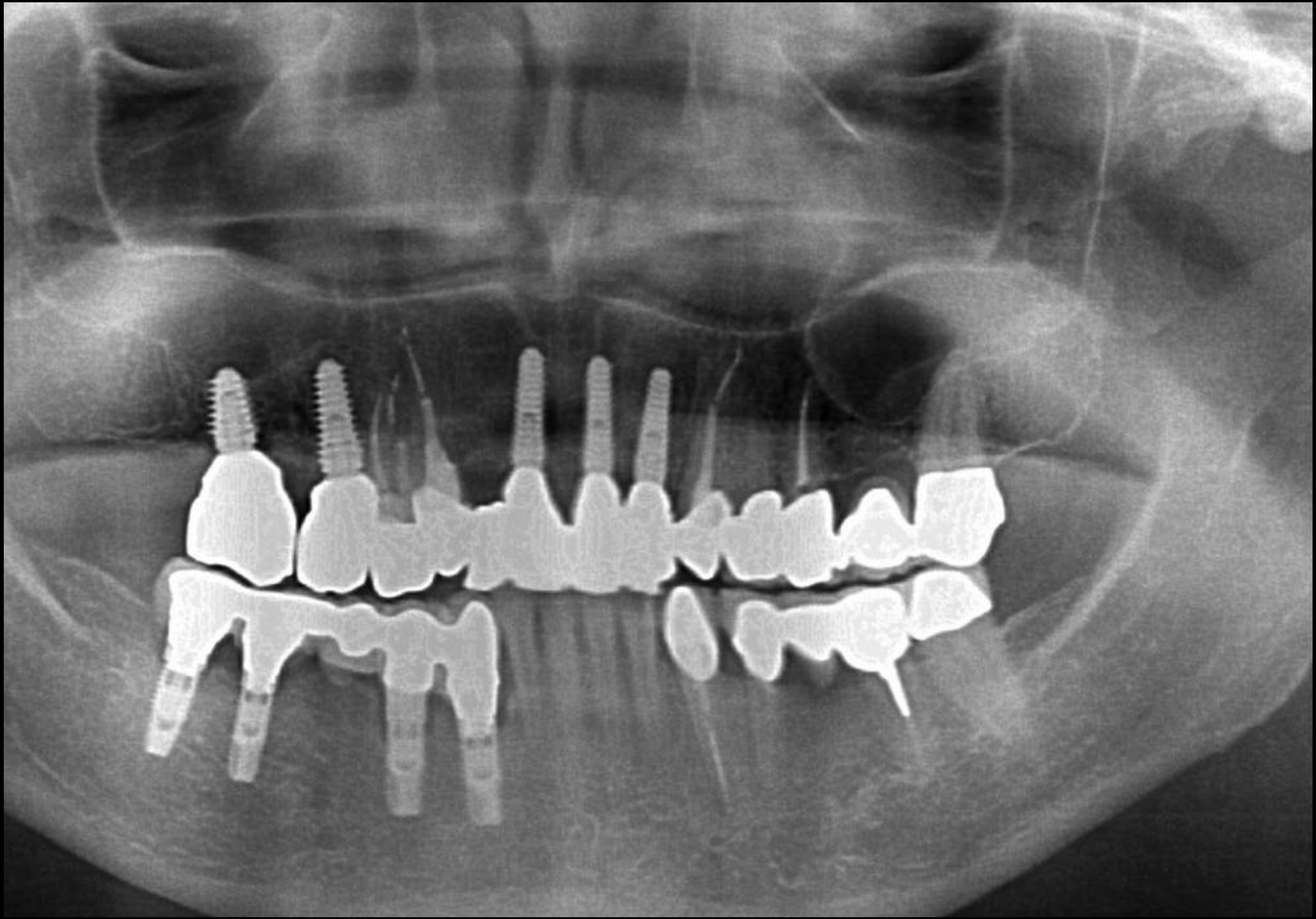


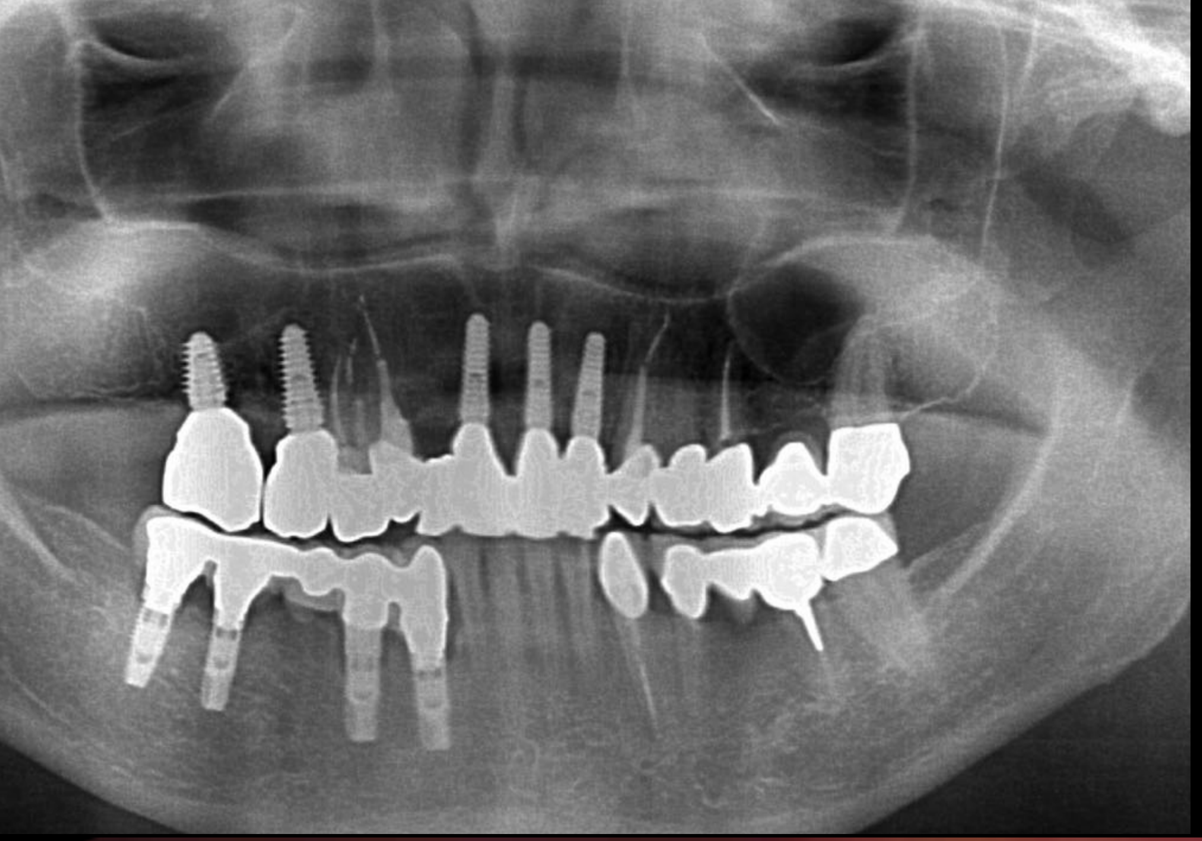


mm
H
1x5
2.7 mm
180 µm
mm
55.6 mm
58.3 mm
61.0 mm
63.7 mm



ZR Abutments and Temps



15 month follow up

Case By:
Miltiadis E. Mitsias,
DDS, MSc, PhD

4 ADJACENT IMPLANTS

4 ADJACENT IMPLANTS

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Post-op CBCT

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1 year follow up

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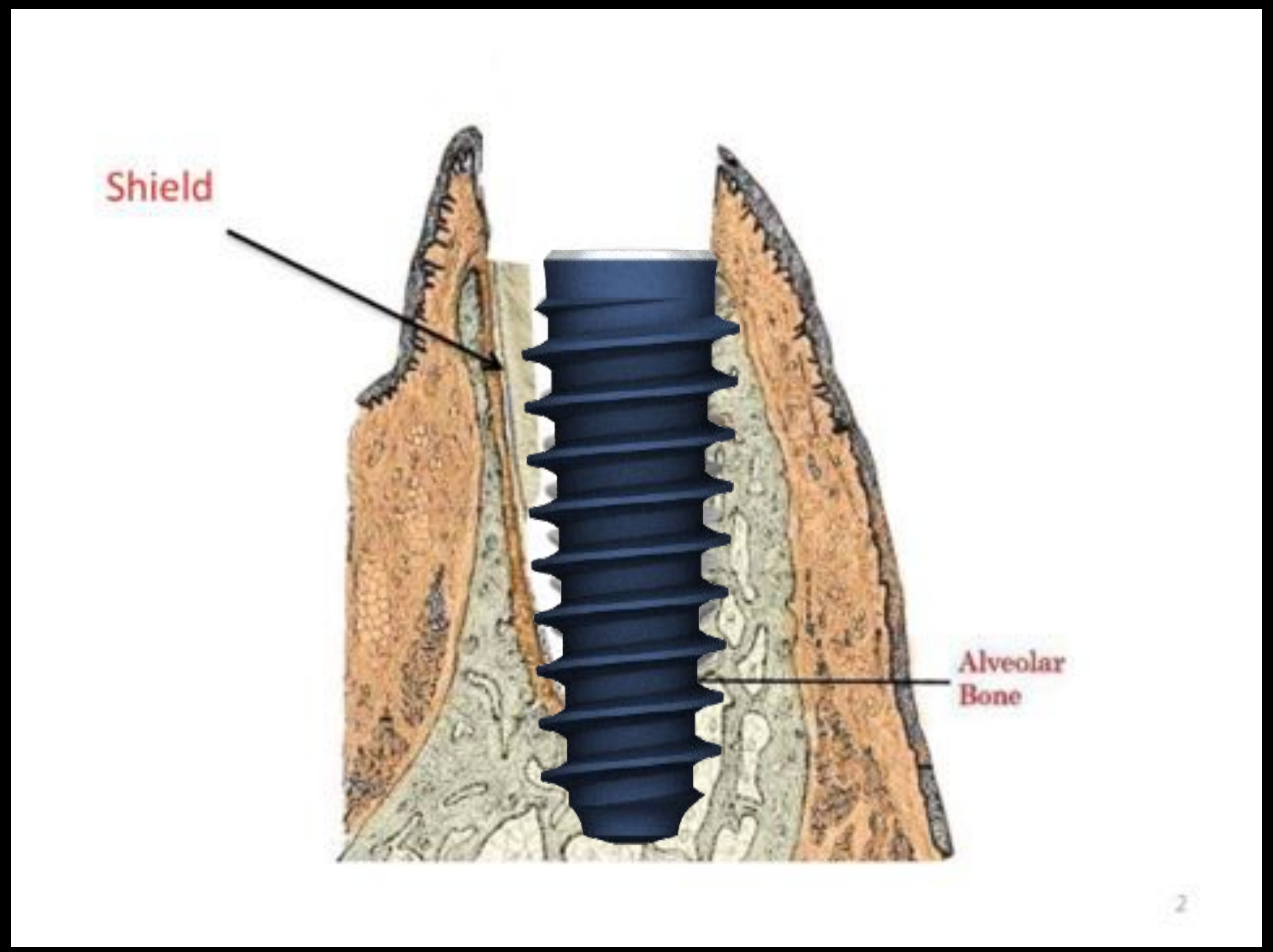
Post-op

Root Membrane
Partial Extraction
Therapy
Socket Shield
Pontic Shield



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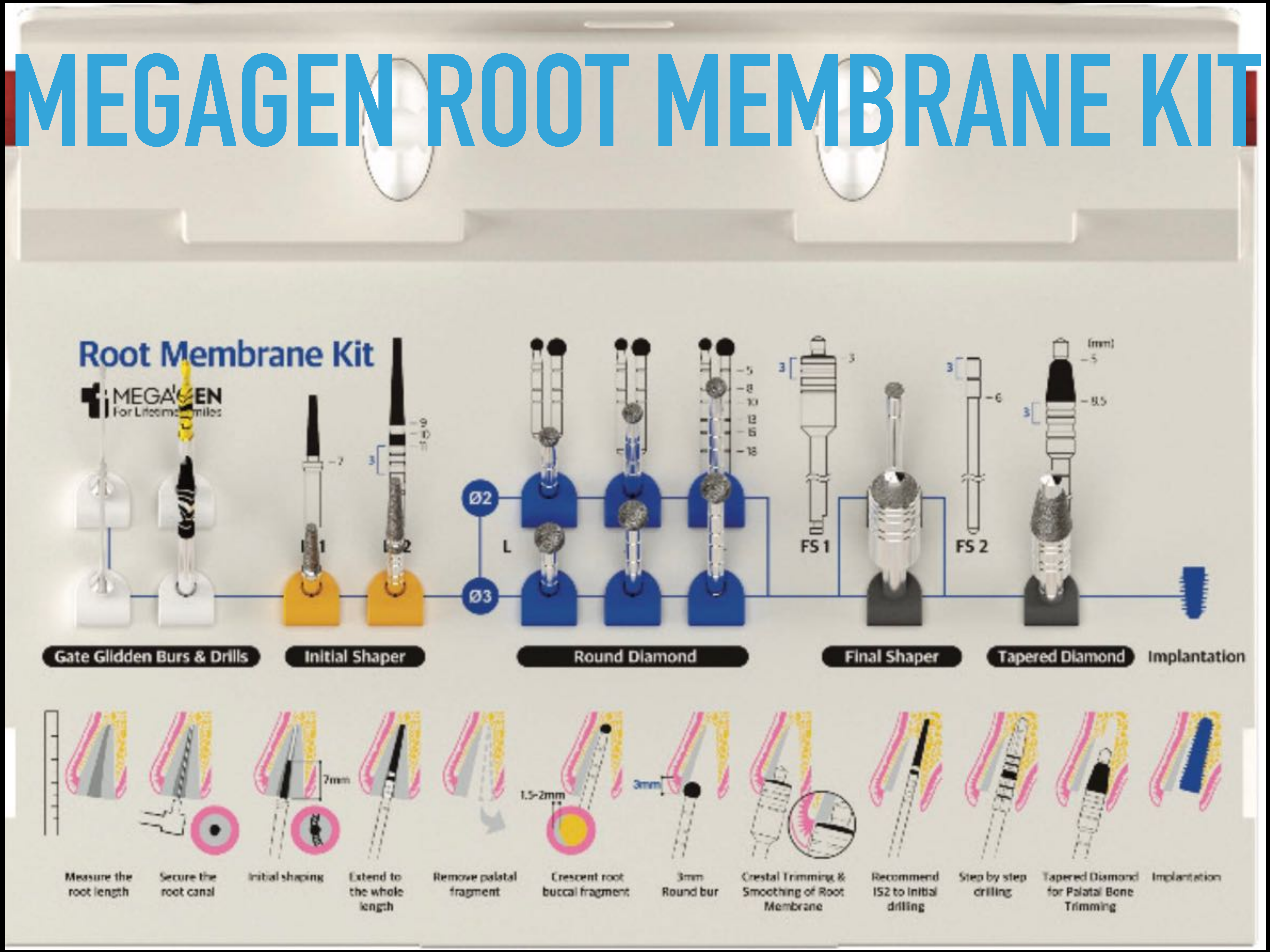
MEGAGEN ROOT MEMBRANE KIT



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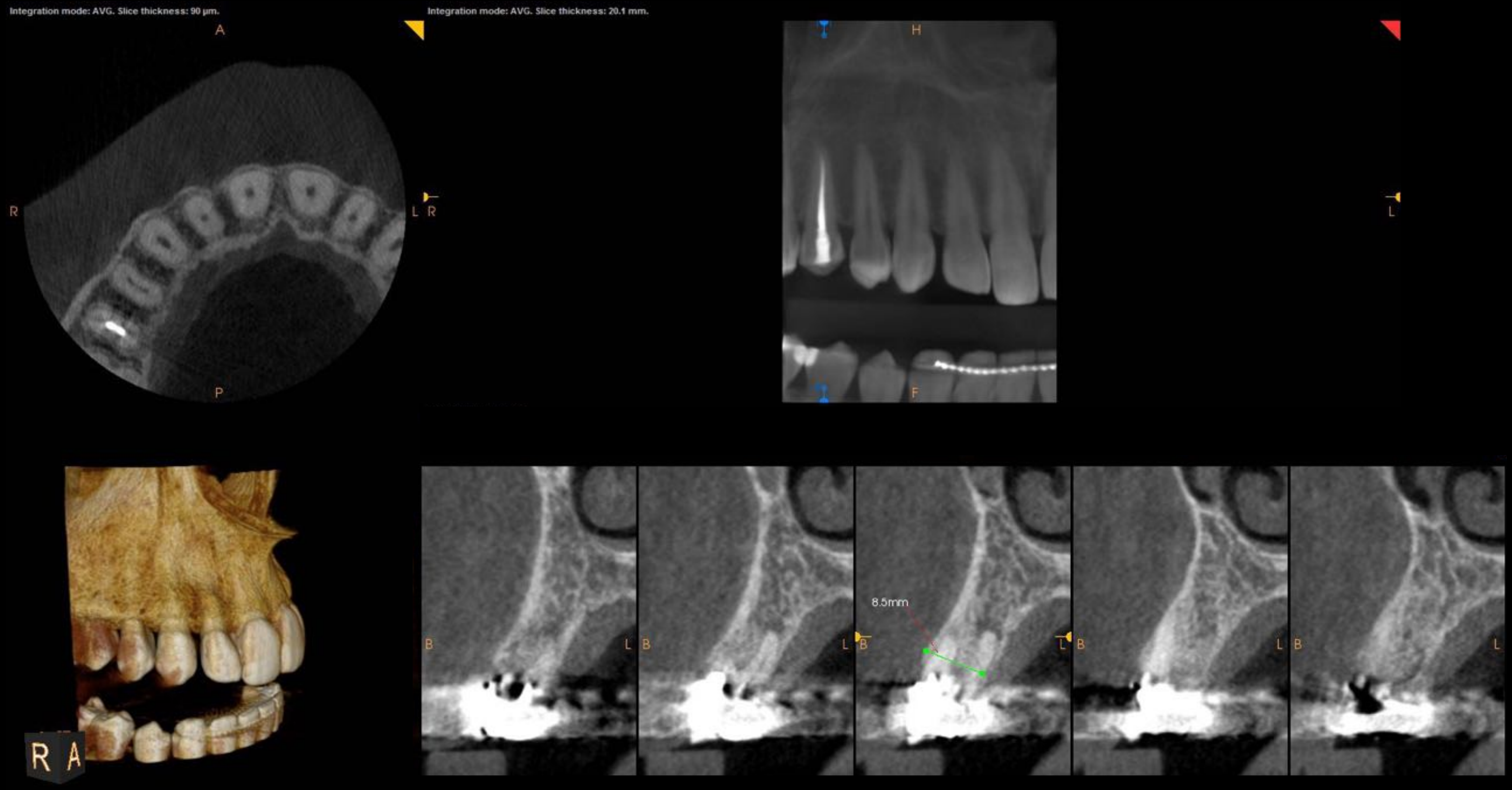
The KIT !!!


RVG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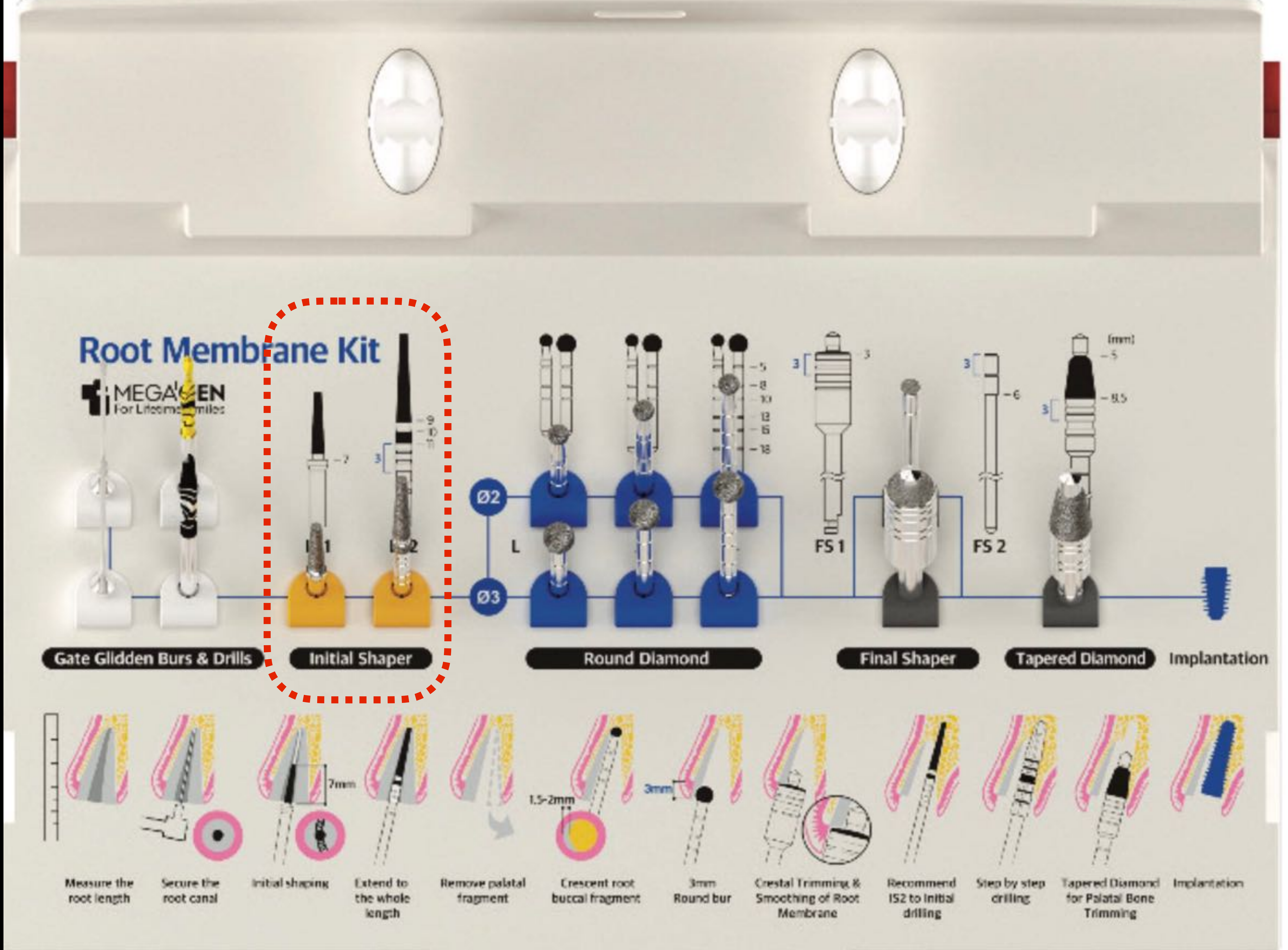
Integration mode: AVG. Slice thickness: 20.1 mm.
A
R
L
P
R
H
F
L
B
L
8.5mm
R A

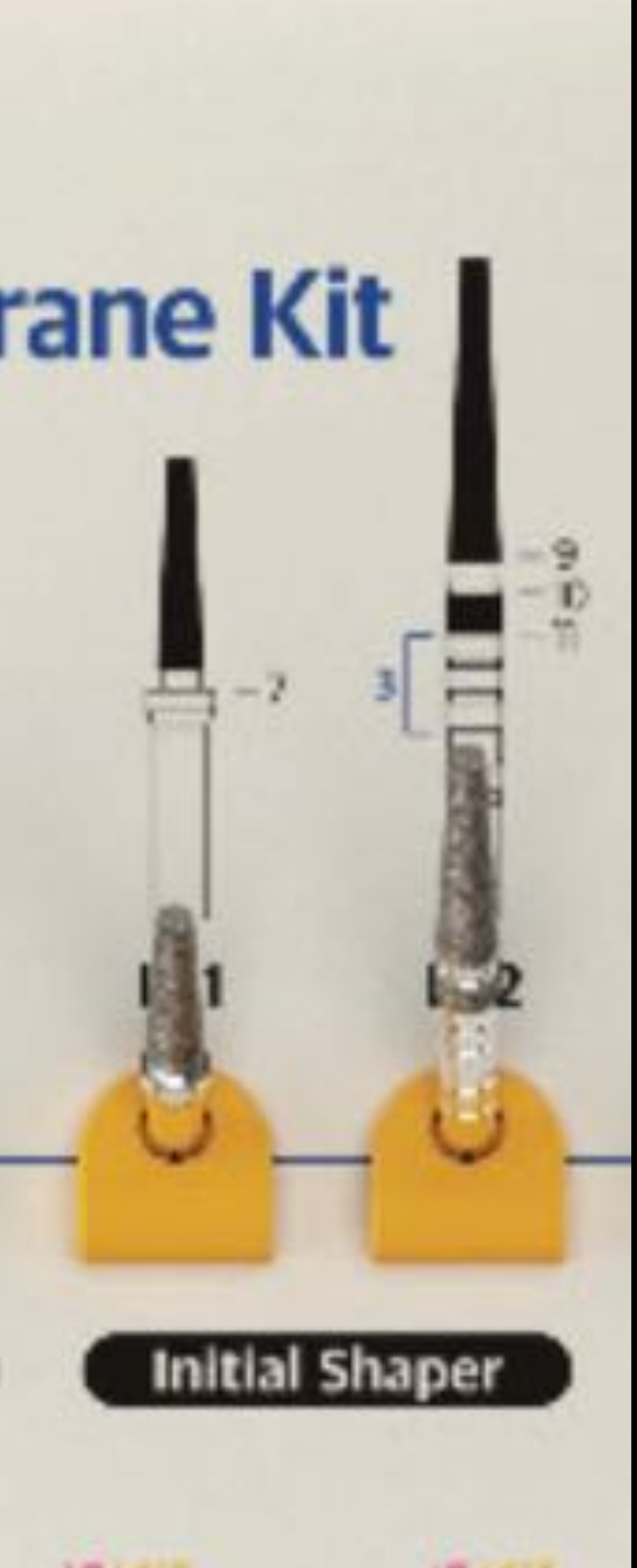

Integration mode: AVG. Slice thickness: 90 µm.
Integration mode: AVG. Slice thickness: 20.1 mm.
A
H
8.5mm
L
B
L
B
L
B
L
B
R
A

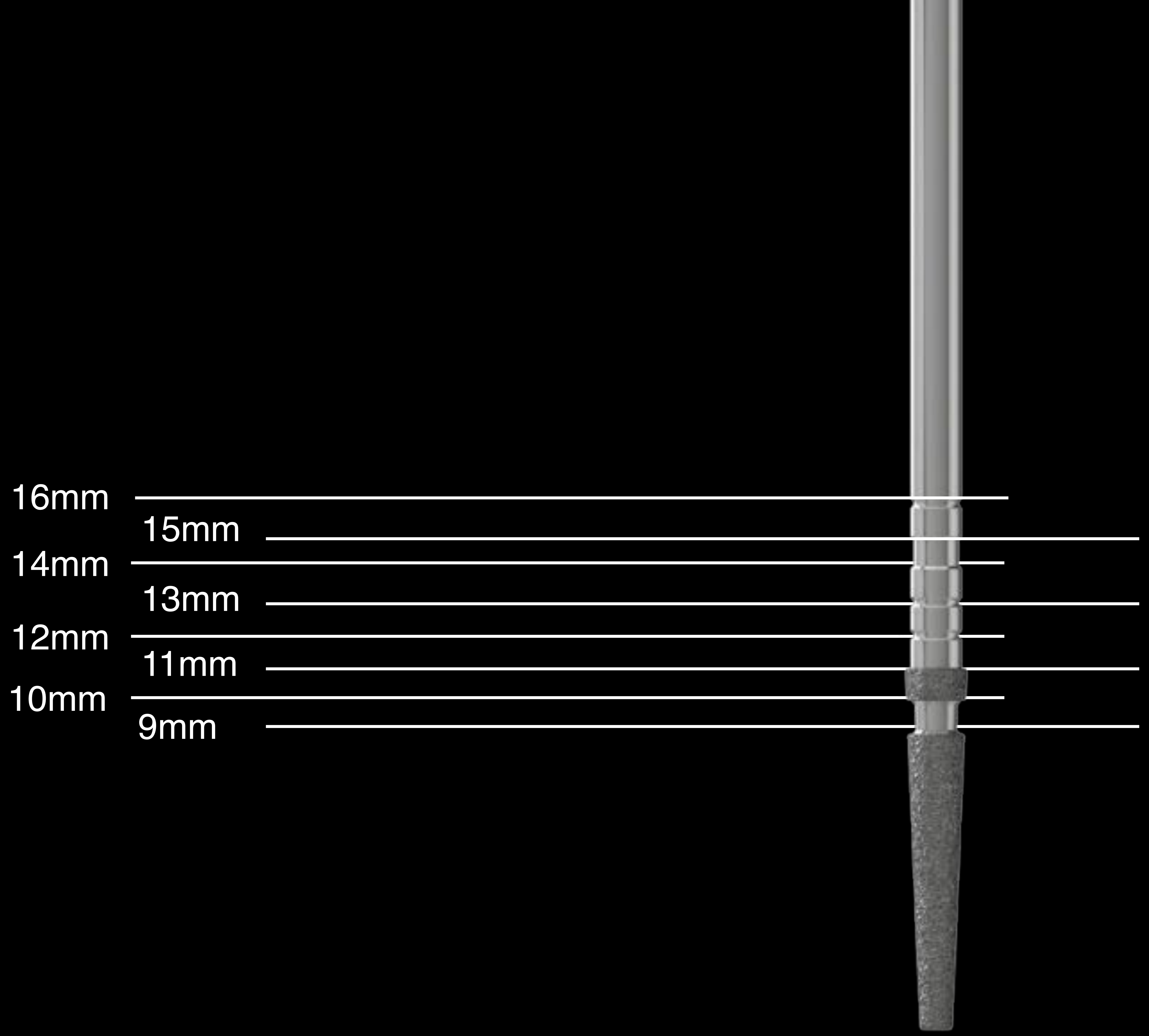

Advanced Implant Educators

Membrane Kit
Ø2
Ø3
FS 1
FS 2
Initial Shaper
Round Diamond
Final Shaper
Tapered Diamond
Implantation
7mm
1.5-2mm
3mm
Measure the root length
Secure the root canal
Initial shaping
Crescent root buccal fragment
3mm Round bur
IS1
Advanced Implant Educators


IS2
AIE
Advanced Implant Educators

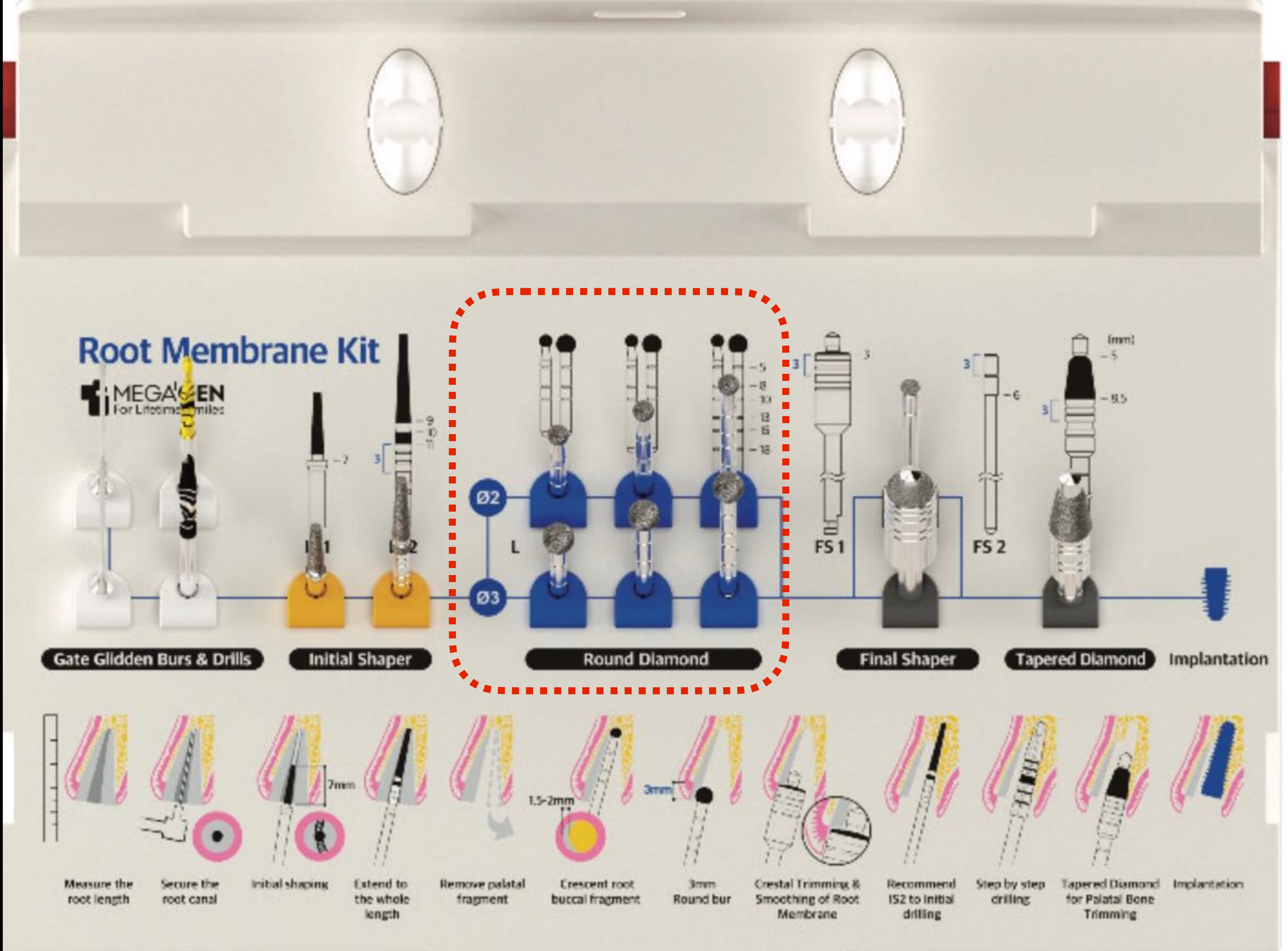

Root Membrane Kit
Ø2
Ø3
L
FS 1
FS 2
Gate Glidden Burs & Drills
Initial Shaper
Round Diamond
Final Shaper
Tapered Diamond
Implantation
7mm
1.5-2mm
3mm
Measure the root length
Secure the root canal
Initial shaping
Extend to the whole length
Remove palatal fragment
Crescent root buccal fragment
3mm Round bur
Crestal Trimming & Smoothing of Root Membrane
Recommend IS2 to Initial drilling
Step by step drilling
Tapered Diamond for Palatal Bone Trimming
Implantation


rane Kit
Initial Shaper


16mm
15mm
14mm
13mm
12mm
11mm
10mm
9mm


AIE
Advanced Implant Educators


PREPARATION. O T S
AIE
Advanced Implant Educators


Root Membrane Kit
MEGAGEN
Gate Glidden Burs & Drills
Initial Shaper
Round Diamond
Final Shaper
Tapered Diamond
Implantation
Ø2
Ø3
L
FS 1
FS 2
Measure the root length
Secure the root canal
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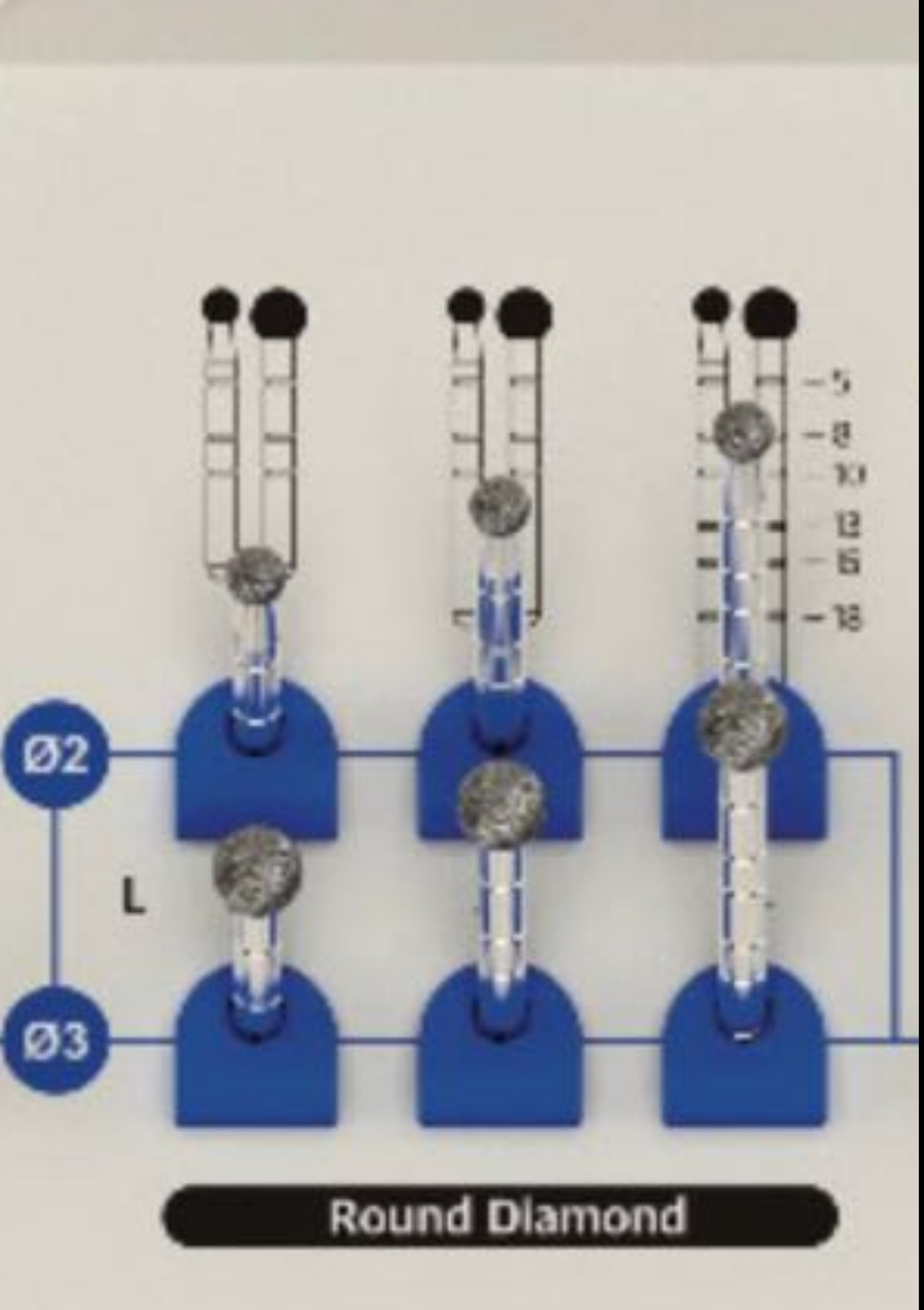
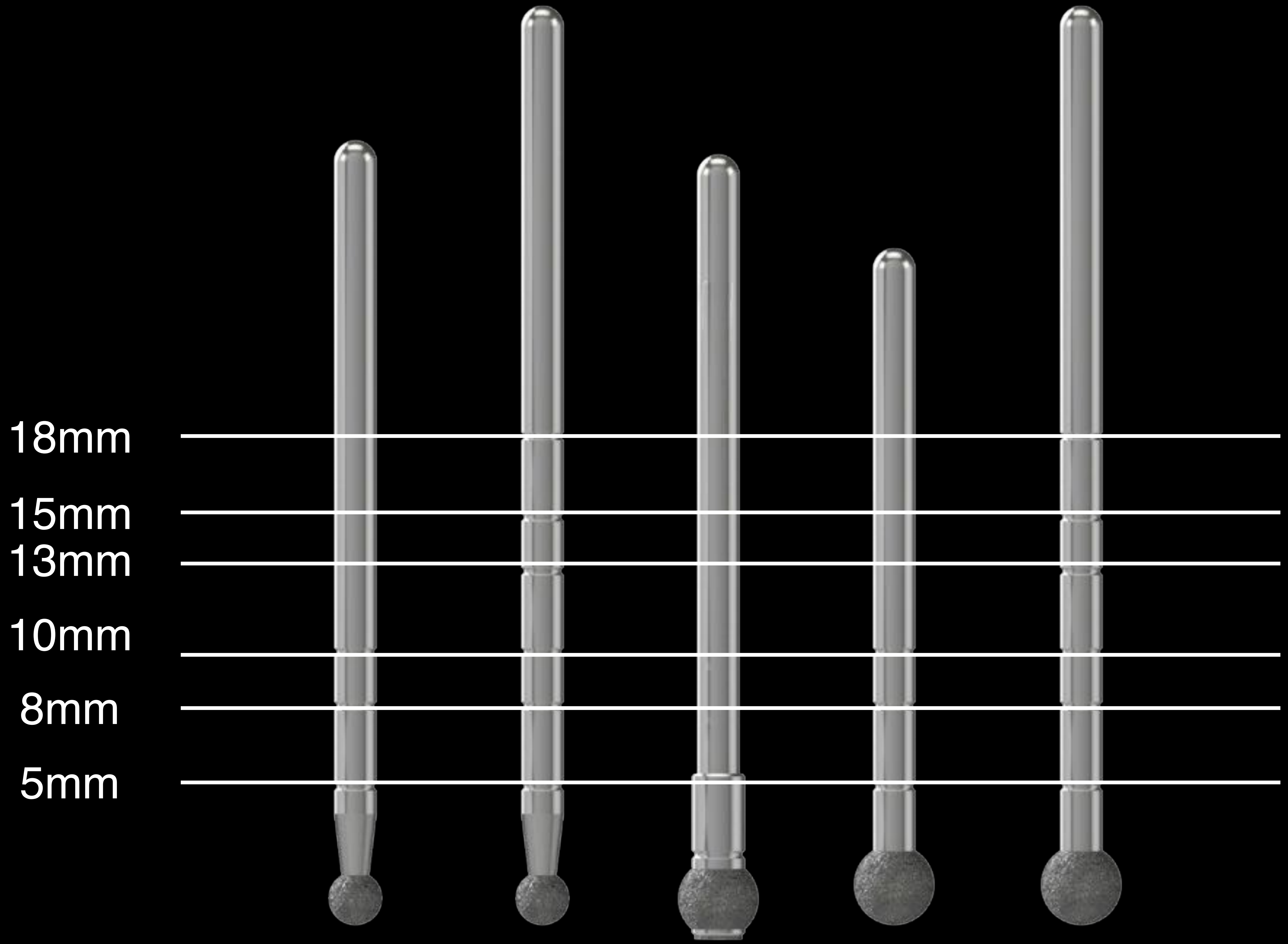
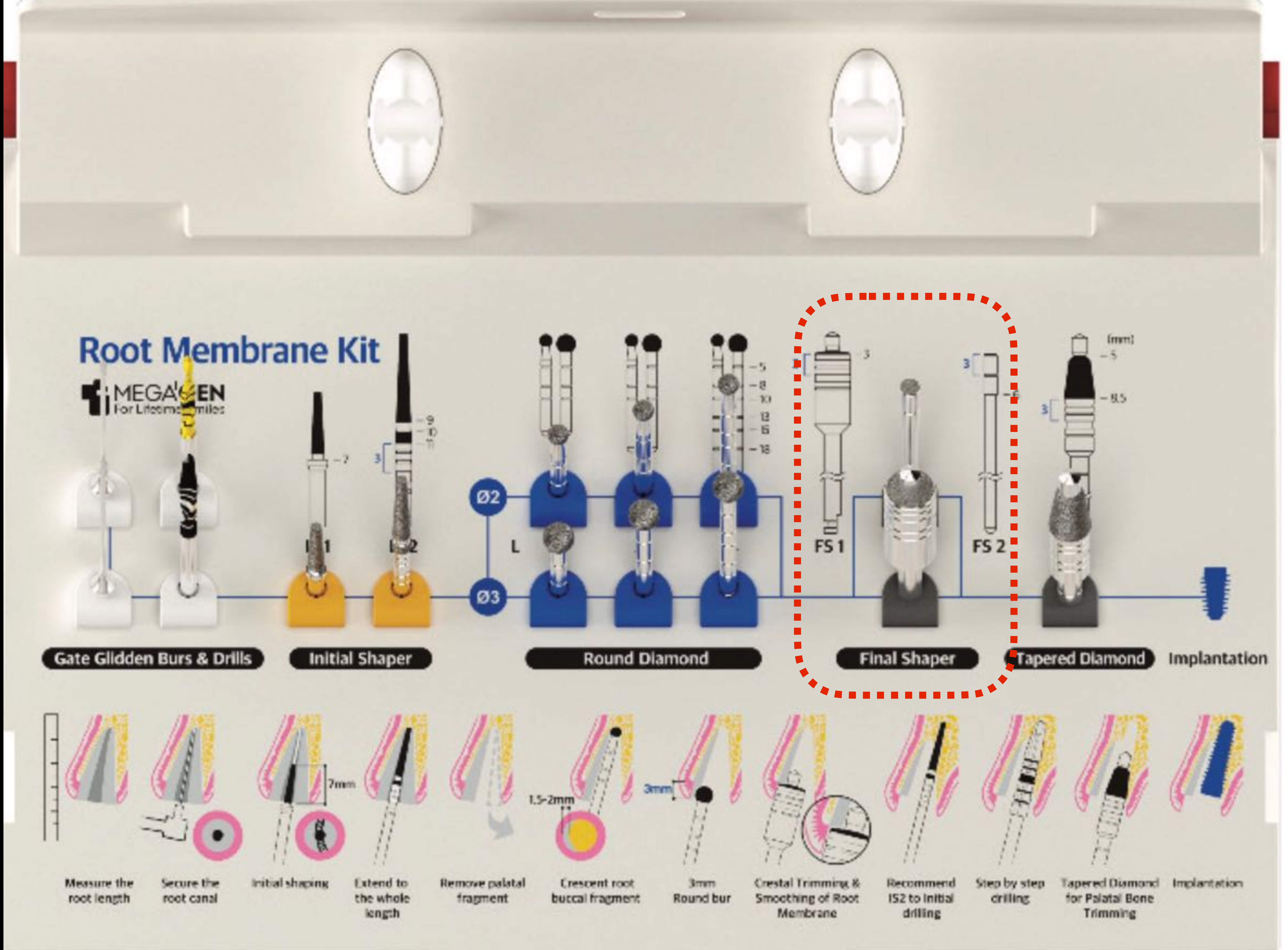
Implantation


Ø2
Ø3
L
Round Diamond


18mm
15mm
13mm
10mm
8mm
5mm


AIE
Advanced Implant Educators



Root Membrane Kit
Ø2
Ø3
L
FS 1
FS 2
Gate Glidden Burs & Drills
Initial Shaper
Round Diamond
Final Shaper
Tapered Diamond
Implantation
Measure the root length
Secure the root canal
Initial shaping
Extend to the whole length
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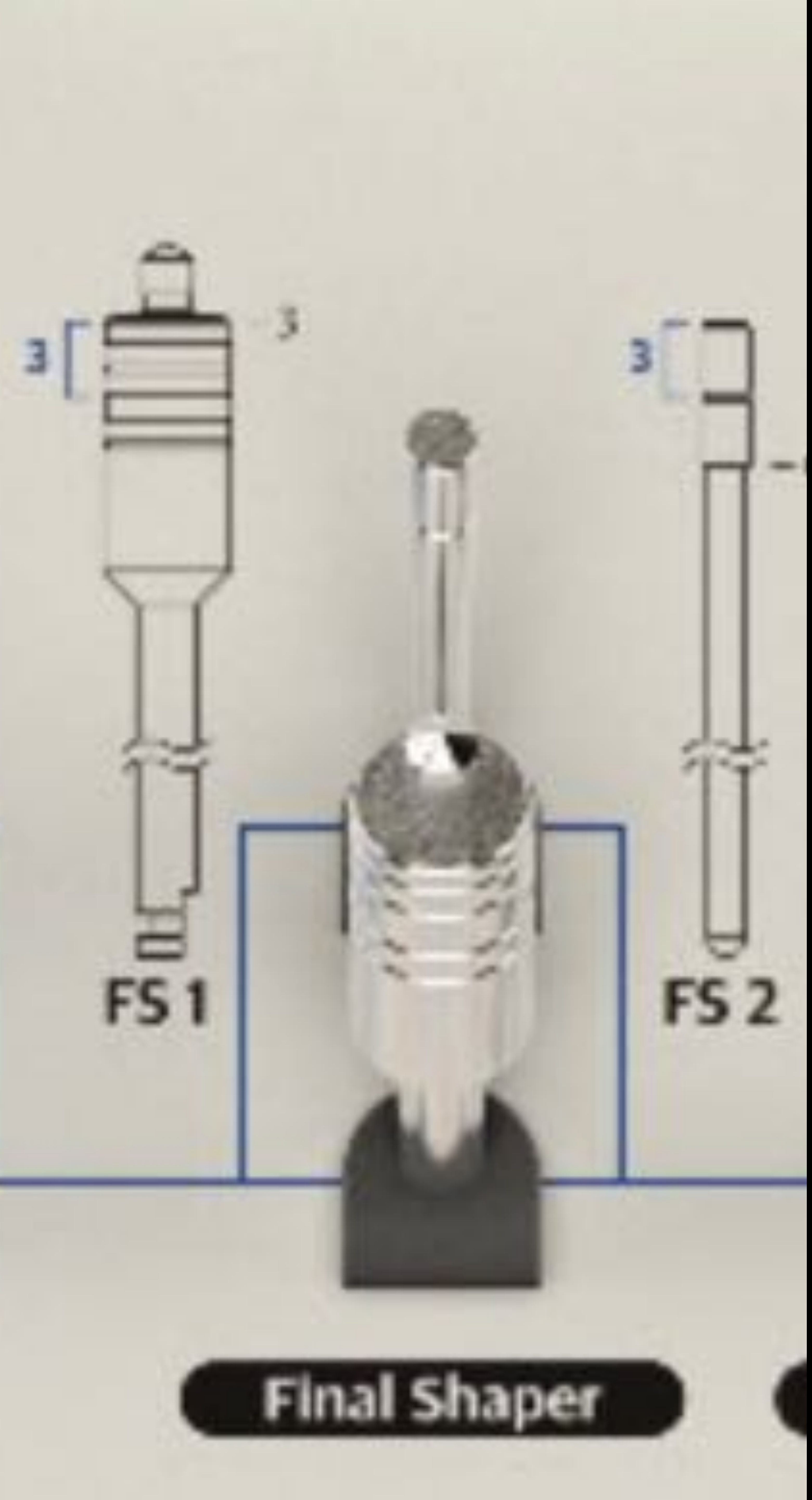
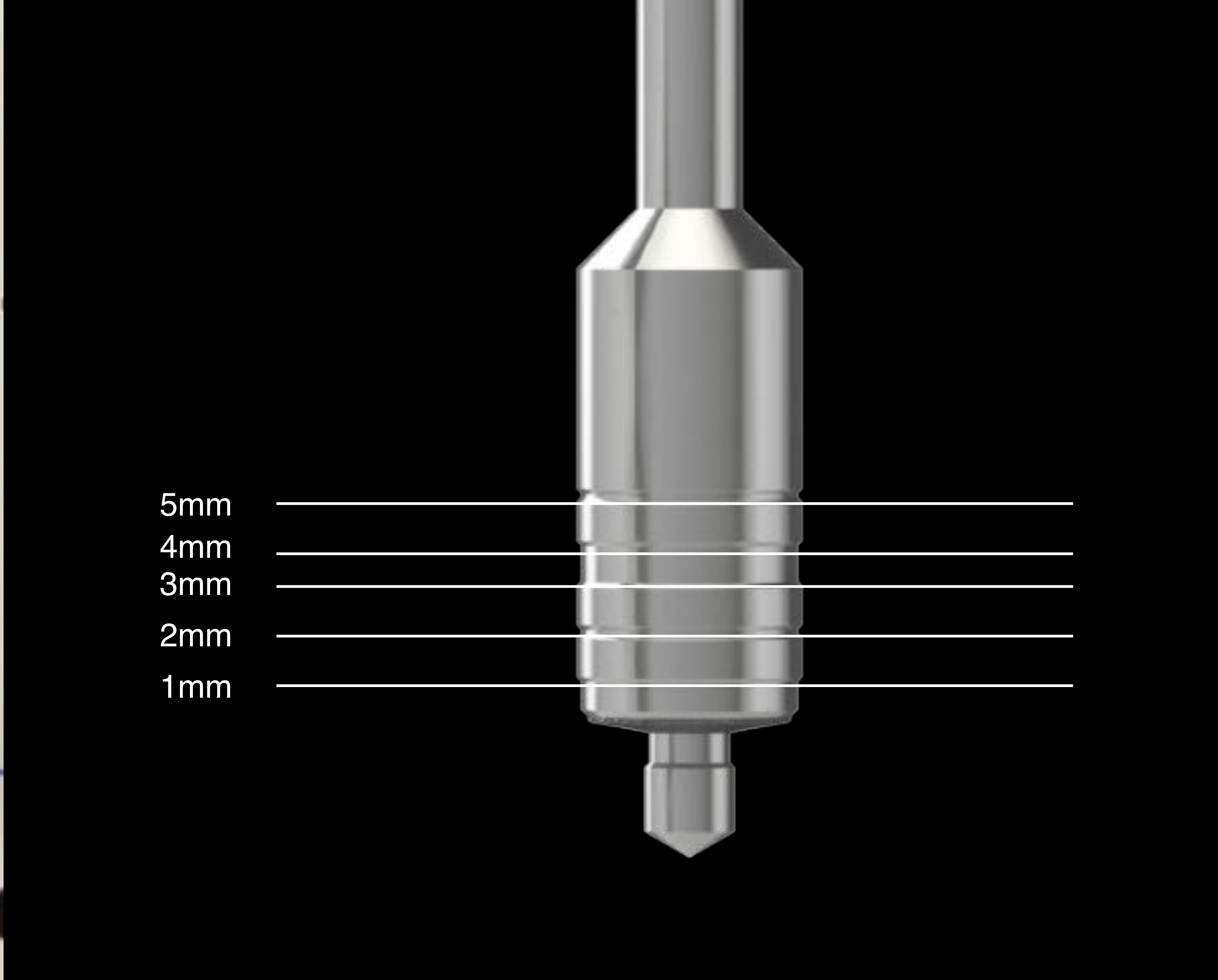
Tapered Diamond for Palatal Bone Trimming
Implantation



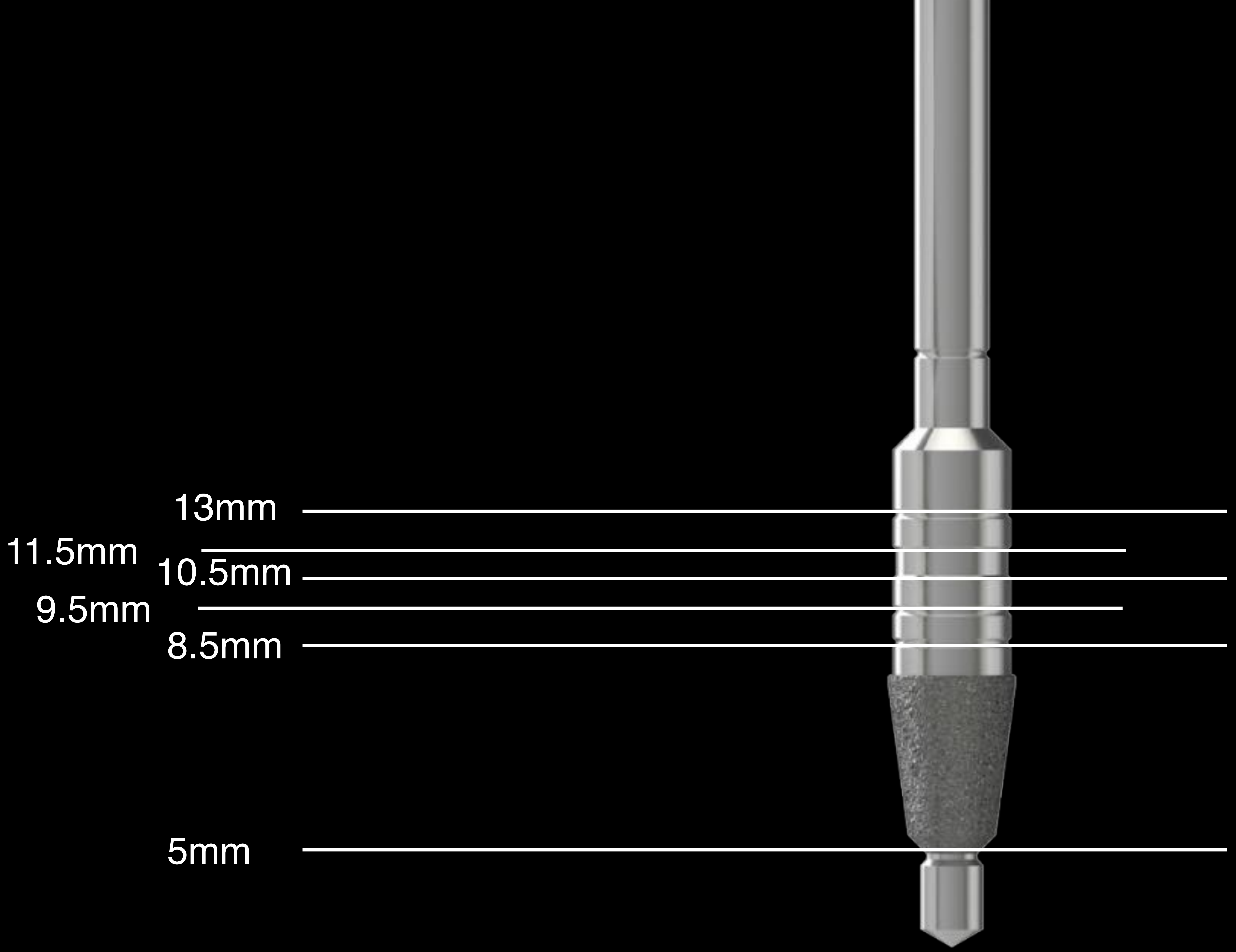
3
3
3
FS 1
FS 2
Final Shaper



5mm
4mm
3mm
2mm
1mm


AIE
Advanced Implant Educators

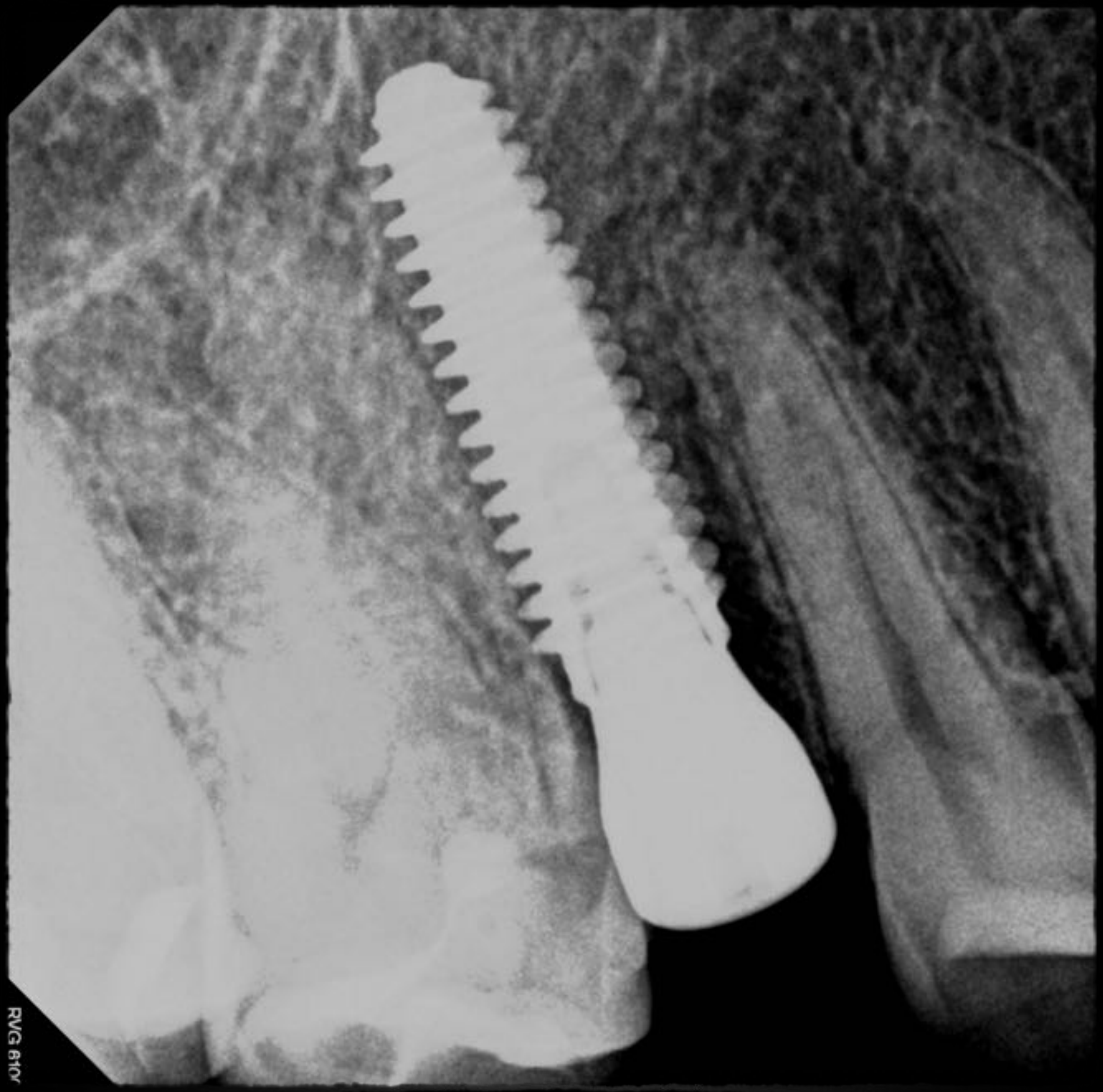

[mm]
5
6
8.5
3
Tapered Diamond

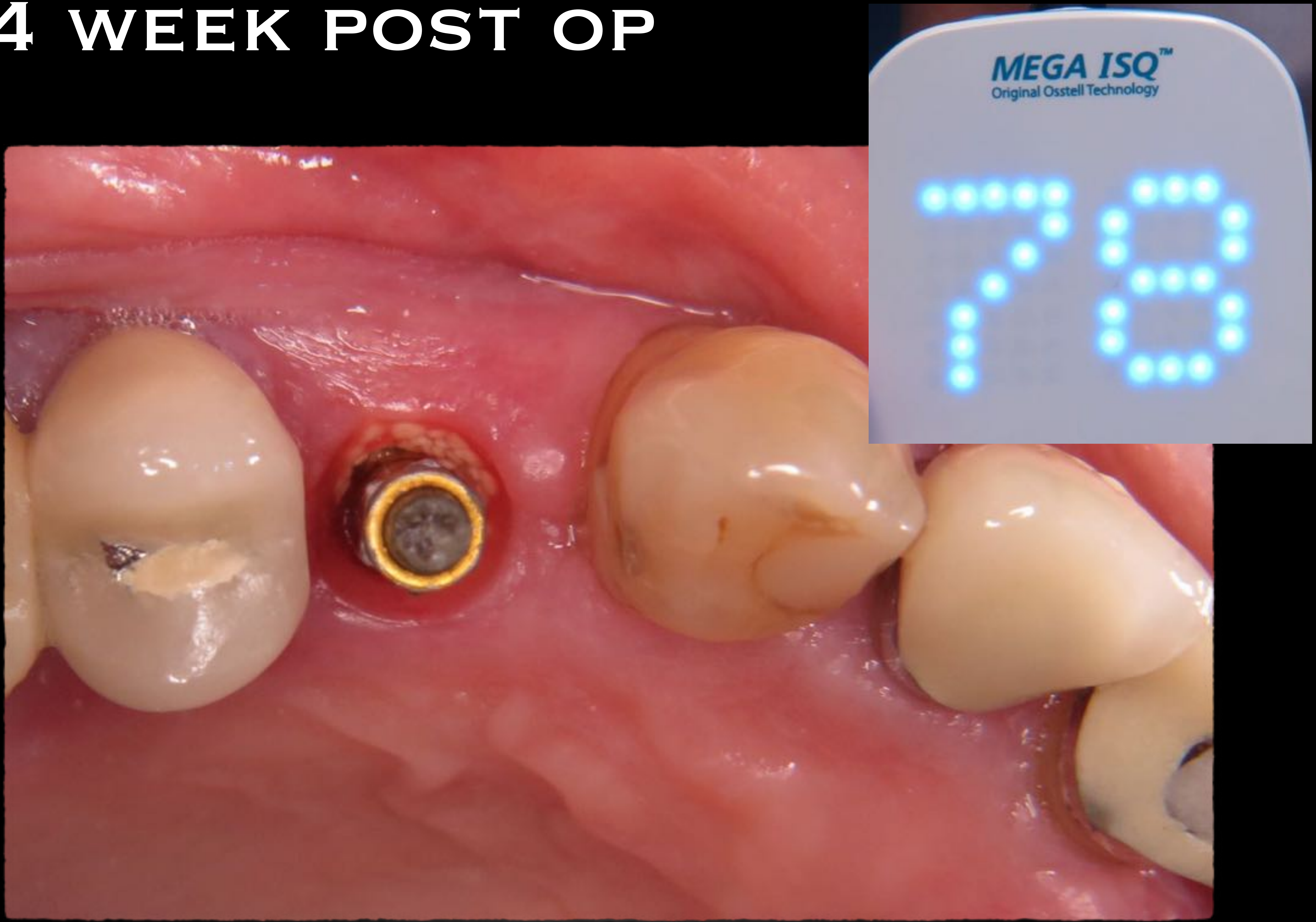

13mm
11.5mm
10.5mm
9.5mm
8.5mm
5mm

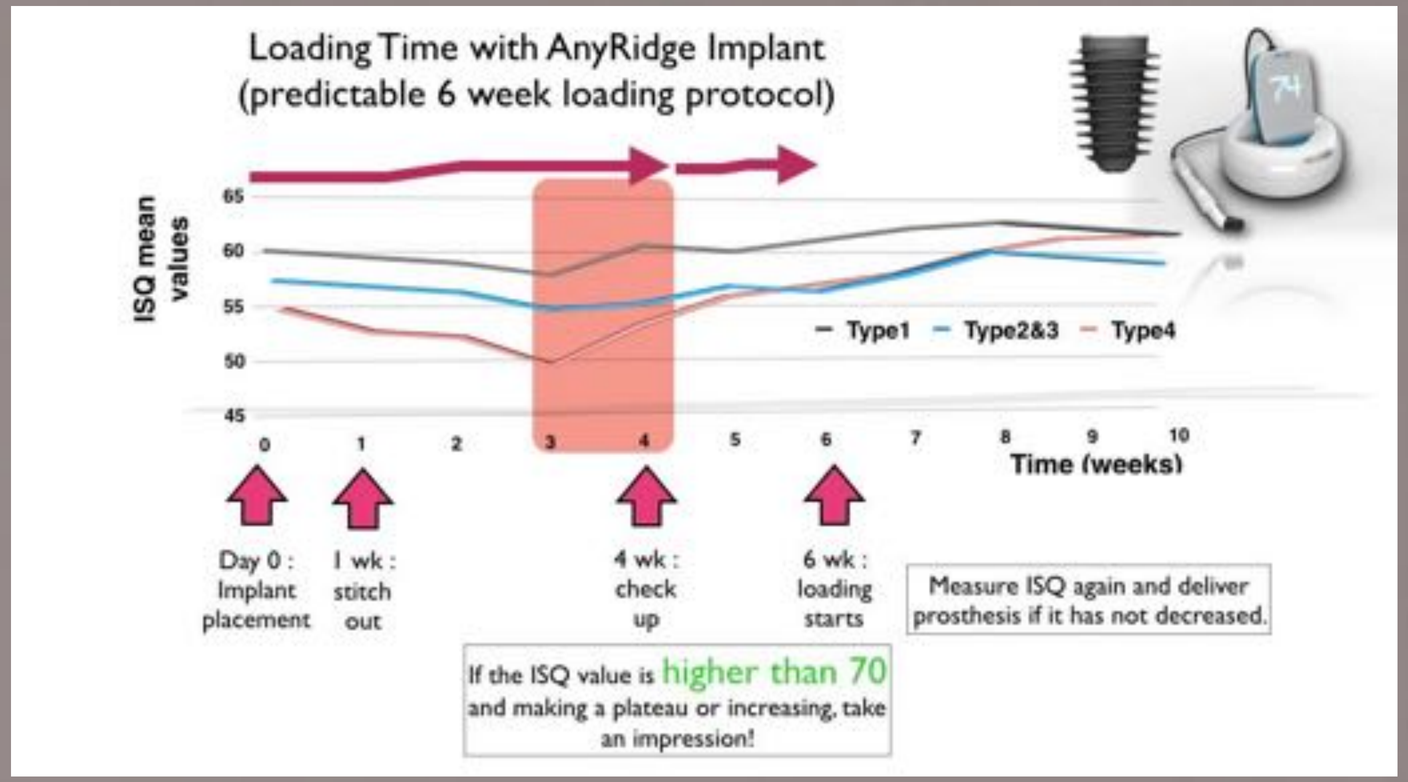

AIE
Advanced Implant Educators


AIE
Advanced Implant Educators

4 WEEK POST OP







6 WEEK LOADING

6 month Post OP

Dentistry Today Oct 2017

CONTINUING EDUCATION

dentalcetoday.com

The Root Membrane Concept:
In the Zone With the "Triangle of Bone"

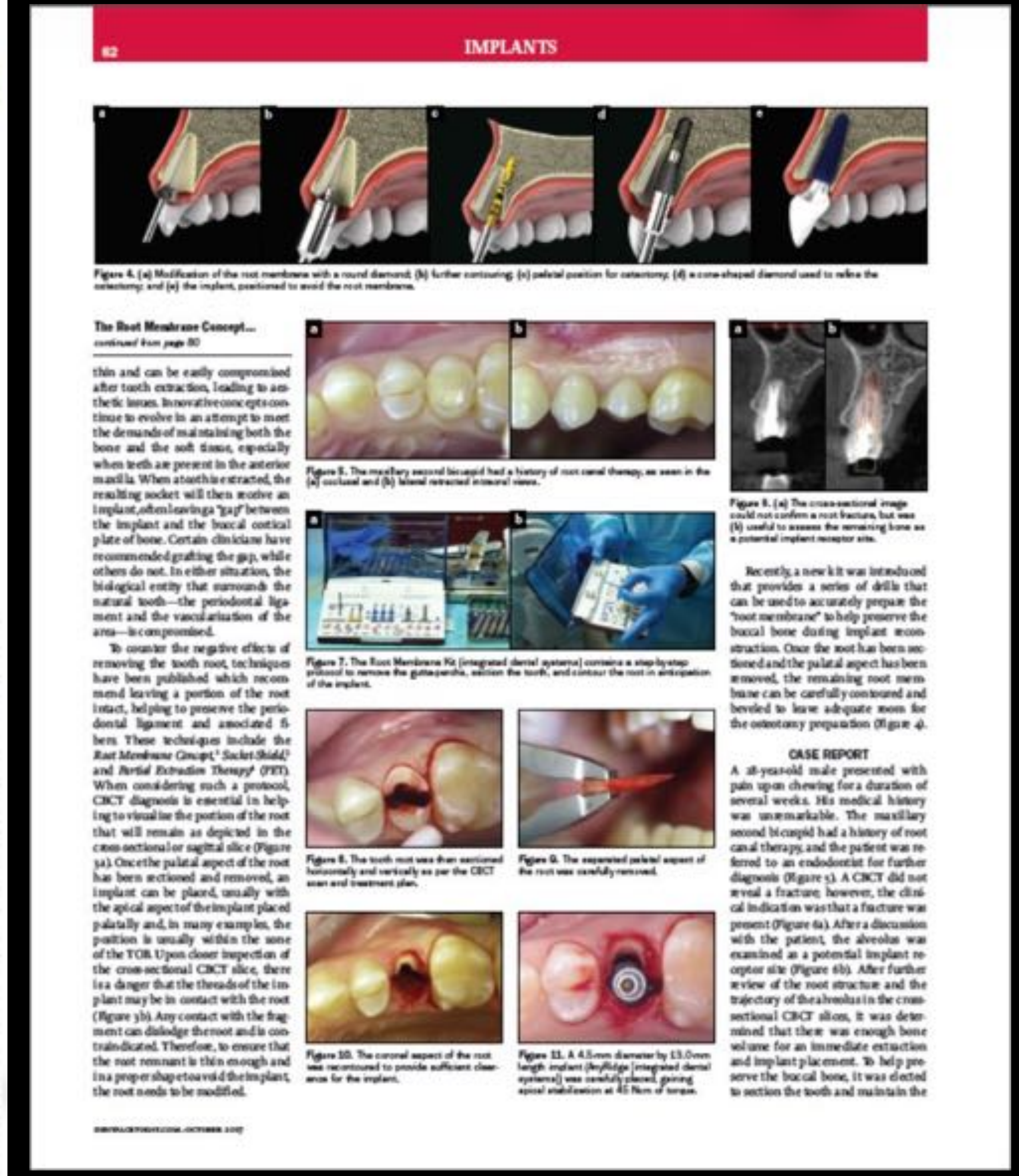
Effective Date: 10/01/17 Expiration Date: 10/01/20

About the Author

Dr. Ganz graduated from the University of Medicine and Dentistry of New Jersey (UMDNJ) Dental School and then completed a 3-year specialty program in maxillofacial prosthetics at MD Anderson Cancer Center in Houston. He is a member of the board of directors of the International Congress of Oral Implantologists (ICOI), a Fellow of the Academy of Osseointegration (AO), on staff at Hackensack University Medical Center, and on faculty at Rutgers School of Dental Medicine. He was a founding member of the Simplant Academy, headquartered in Leuven, Belgium, and past president of both the Computer Aided Implantology Academy, and the NJ section of the American College of Prosthodontists. He has served as a consultant for numerous dental companies for the past 27 years. He is on the editorial staff of several publications, published more than 100 articles in scientific journals, and has contributed to 14 textbooks to date. He also authored *An Illustrated Guide to Understanding Dental Implants* and co-authored *Computer Guided Applications for Dental Implants, Bone Grafting, and Reconstructive Surgery* (Else...

INTRODUCTION

Implant dentistry has continued to evolve with refined techniques for immediate or delayed loading, immediate extraction placement, bone grafting, guided surgery applications, and restorative options. However, the importance of the diagnostic process of dental implant reconstruction cannot be underestimated to achieve both functional and aesthetic outcomes. The advent of 3-D imaging modalities and interactive treatment planning software has provided clinicians with an enhanced set of tools for accurate assessment of each individual patient presentation, especially when implant reconstruction may be considered. When evaluating potential implant receptor sites, it is important to appreciate the volume of bone, the thickness of the cortical plates, bone density, bony topography, and the position of existing tooth roots within the alveolus. The diffi...



IMPLANTS

CASE REPORT

IMPLANTS

The TOB concept identifies a zone within the available bone as seen in the cross-sectional CT and CBCT images.

IN SUMMARY

IMPLANTS

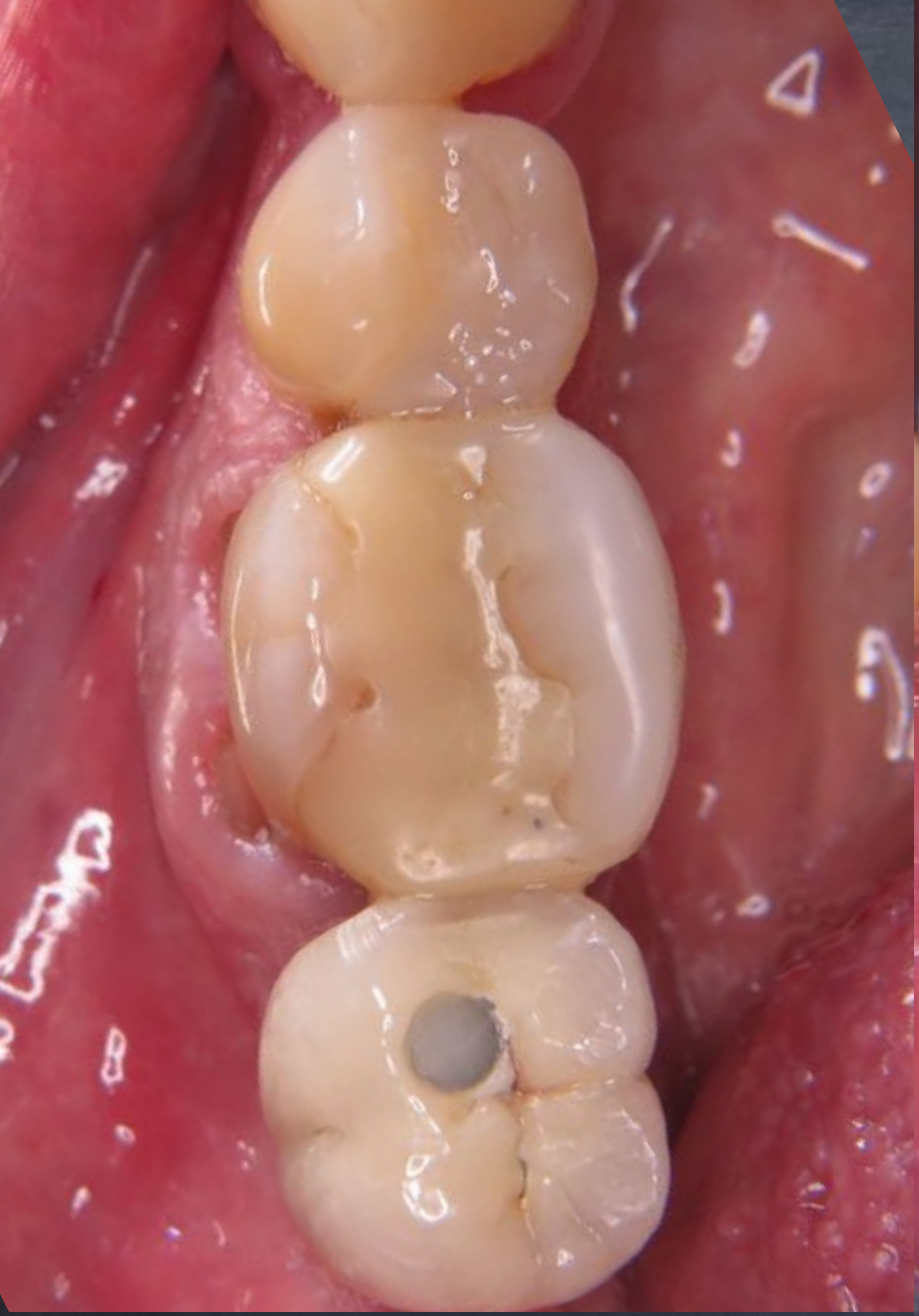
...[CBCT] continues to define the standard for a true diagnostic understanding of the patient's individual anatomy.

Can We Prevent Posterior Food Traps with PET Molars?

Orthogonal Slicing
Curved Slicing
Custom Slicing
Oblique Slicing
Review
Transparent Bone*
Tools
Measurement
8.3mm
12.0mm
Export
Gallery
22.5 mm
zoom: 0.72
0.0 mm
zoom: 1.24
31.3 mm
32.4 mm
33.5 mm
zoom: 1.40
R A

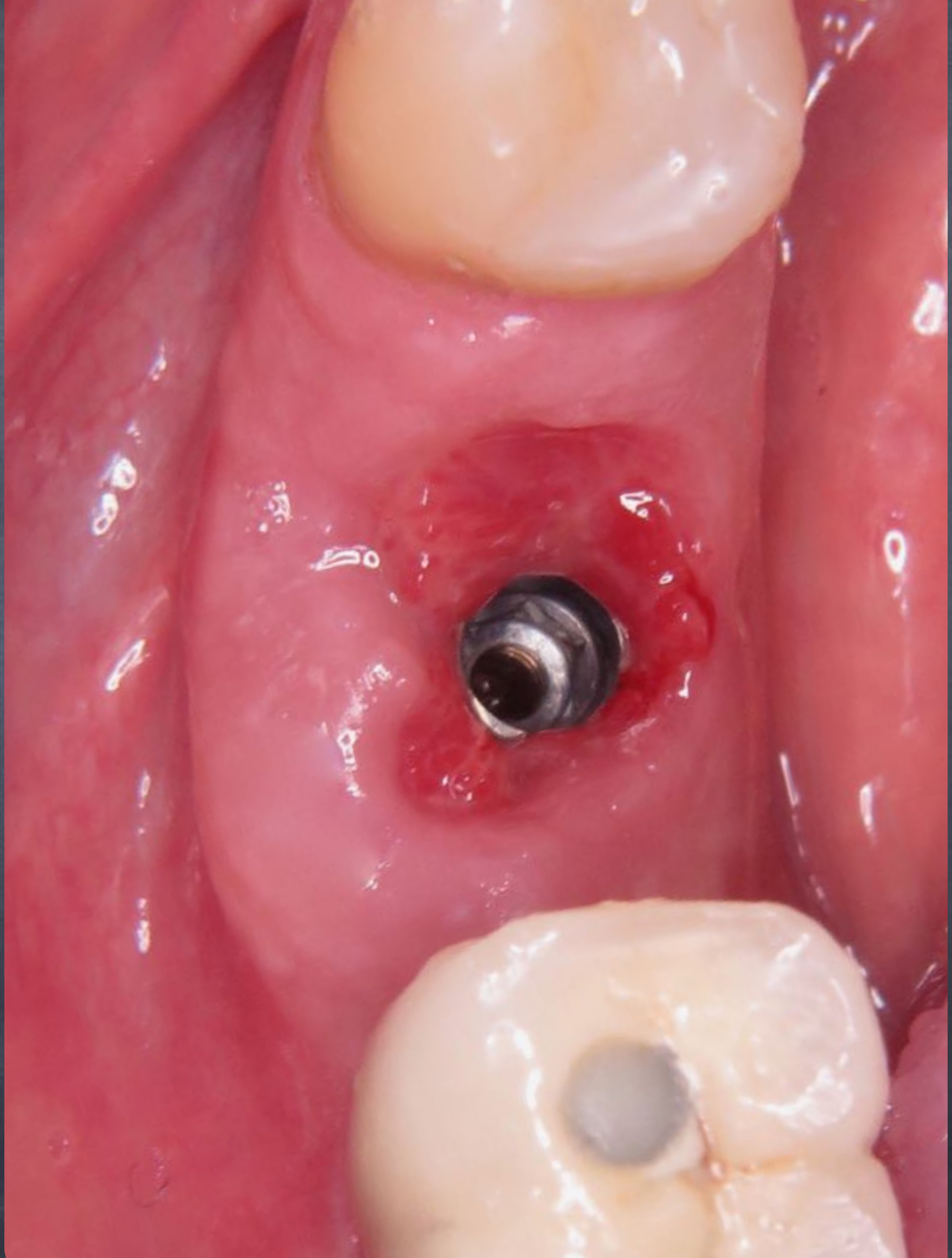

n: 1.24
F
1x3
1.1 mm
180 µm
mm
28.6 mm
29.7 mm
9.7mm
16.8mm
L B
L B
L
zoom: 1.40
F
F
F

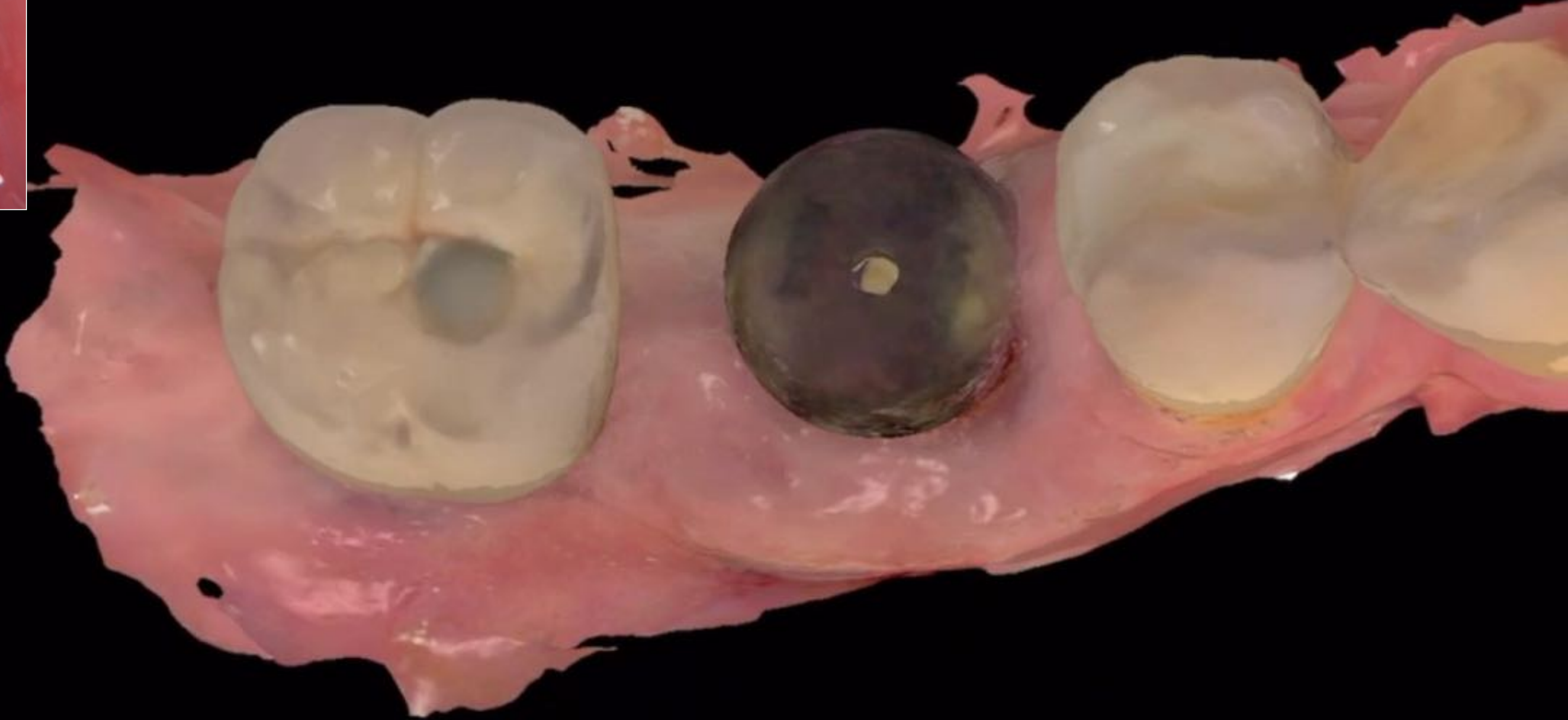
n: 1.24
F
1x3
1.1 mm
180 µm
9.7mm
16.8mm
F
28.6 mm
L B
zoom: 1.40
F
29.7 mm
L B
F
L

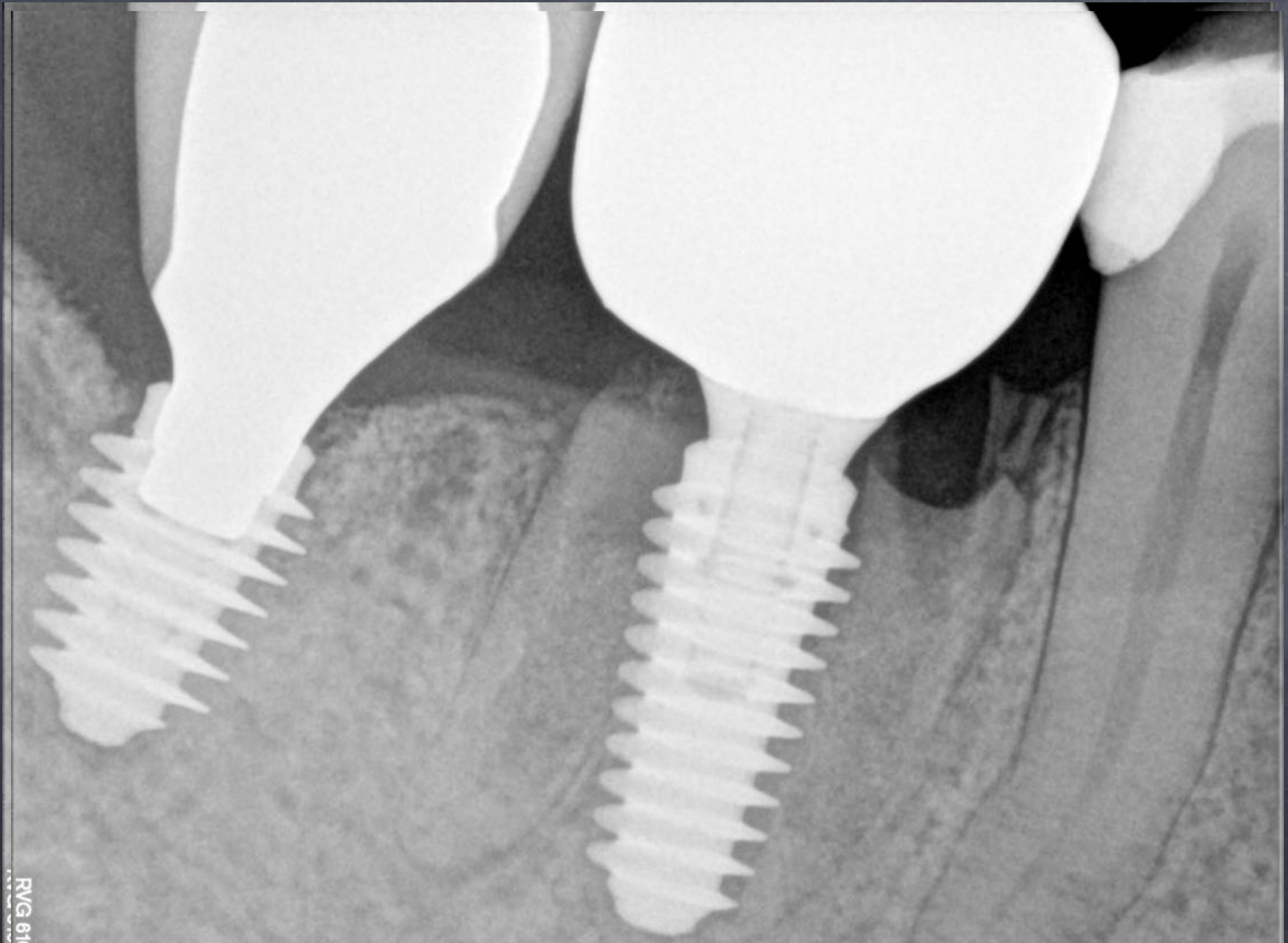


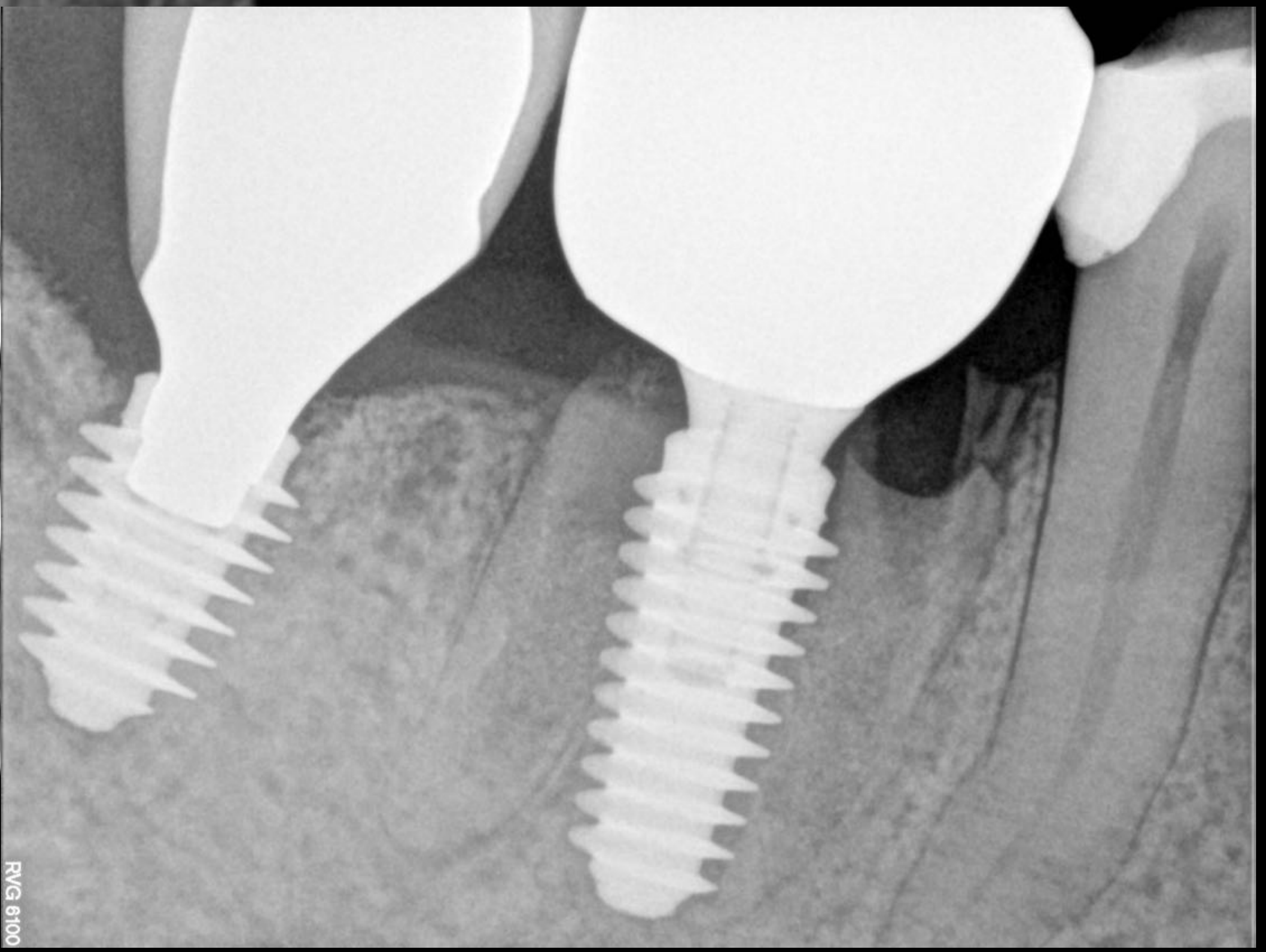


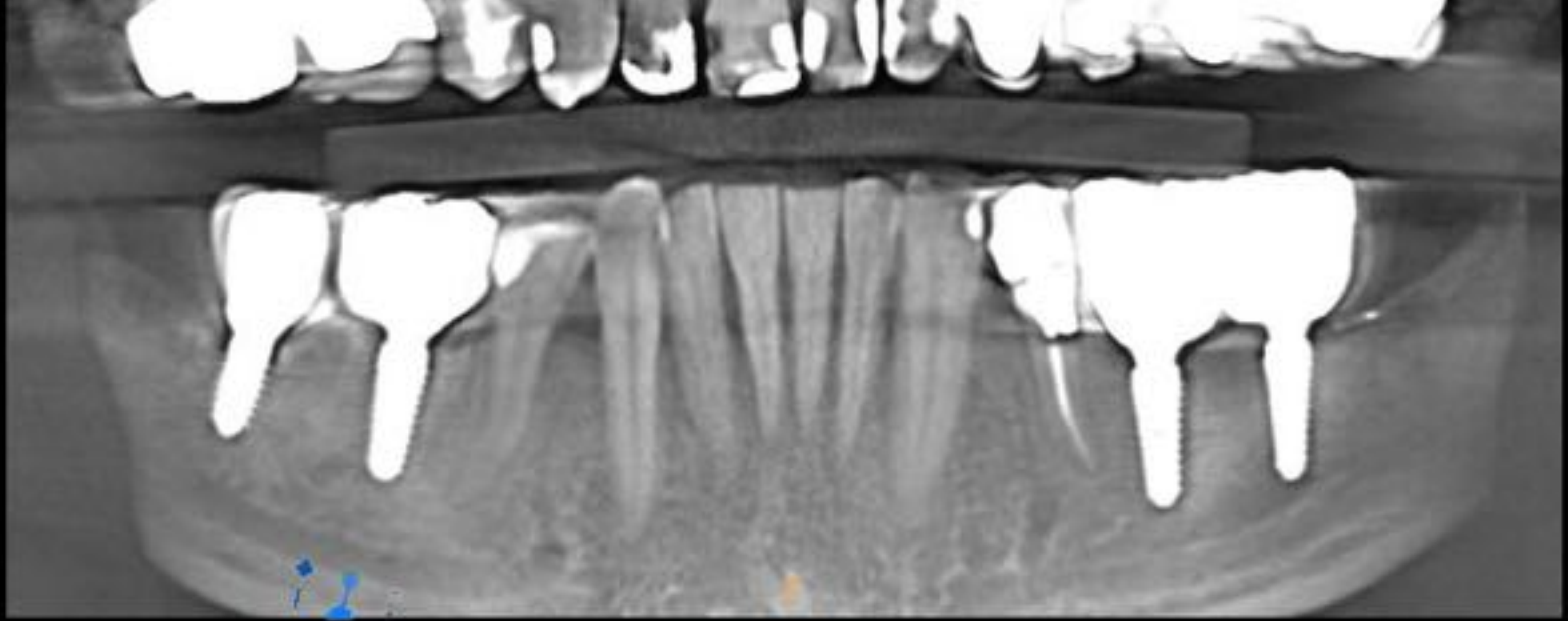
RVG 6100

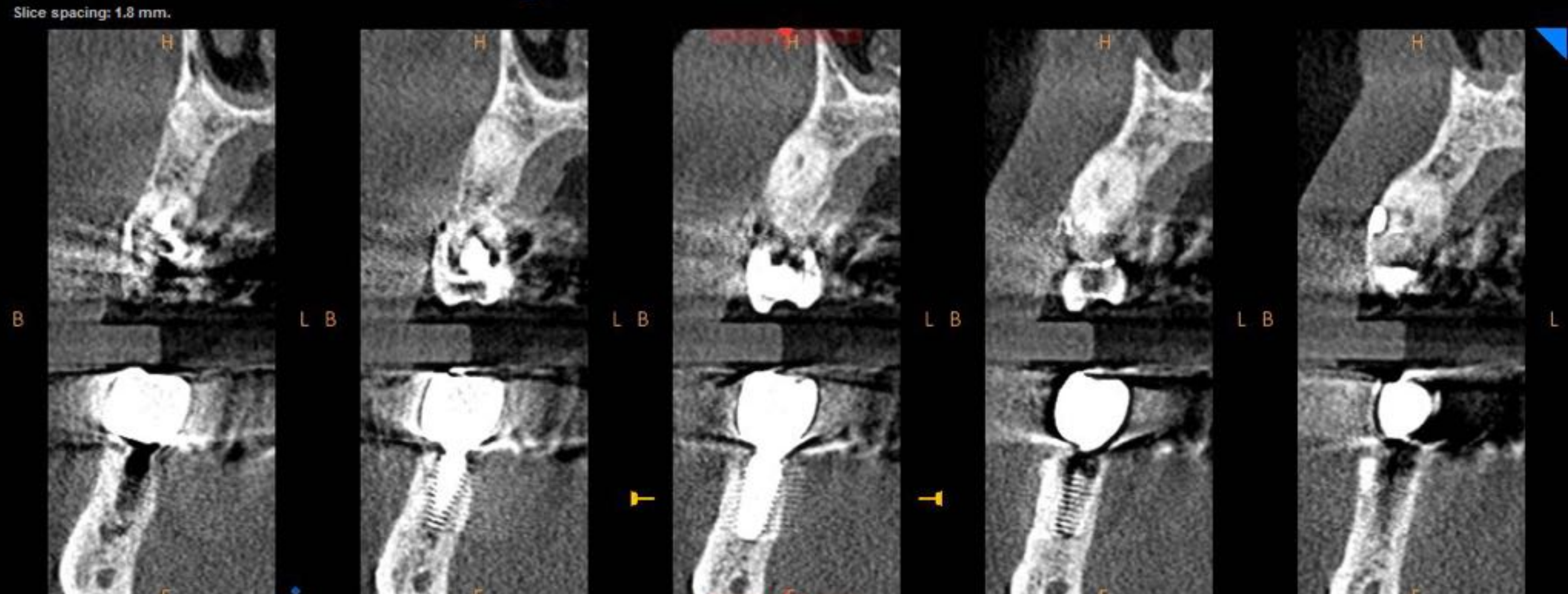








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L B
L B
L B
F
F
F


Immediate
Placement
Root
Membrane

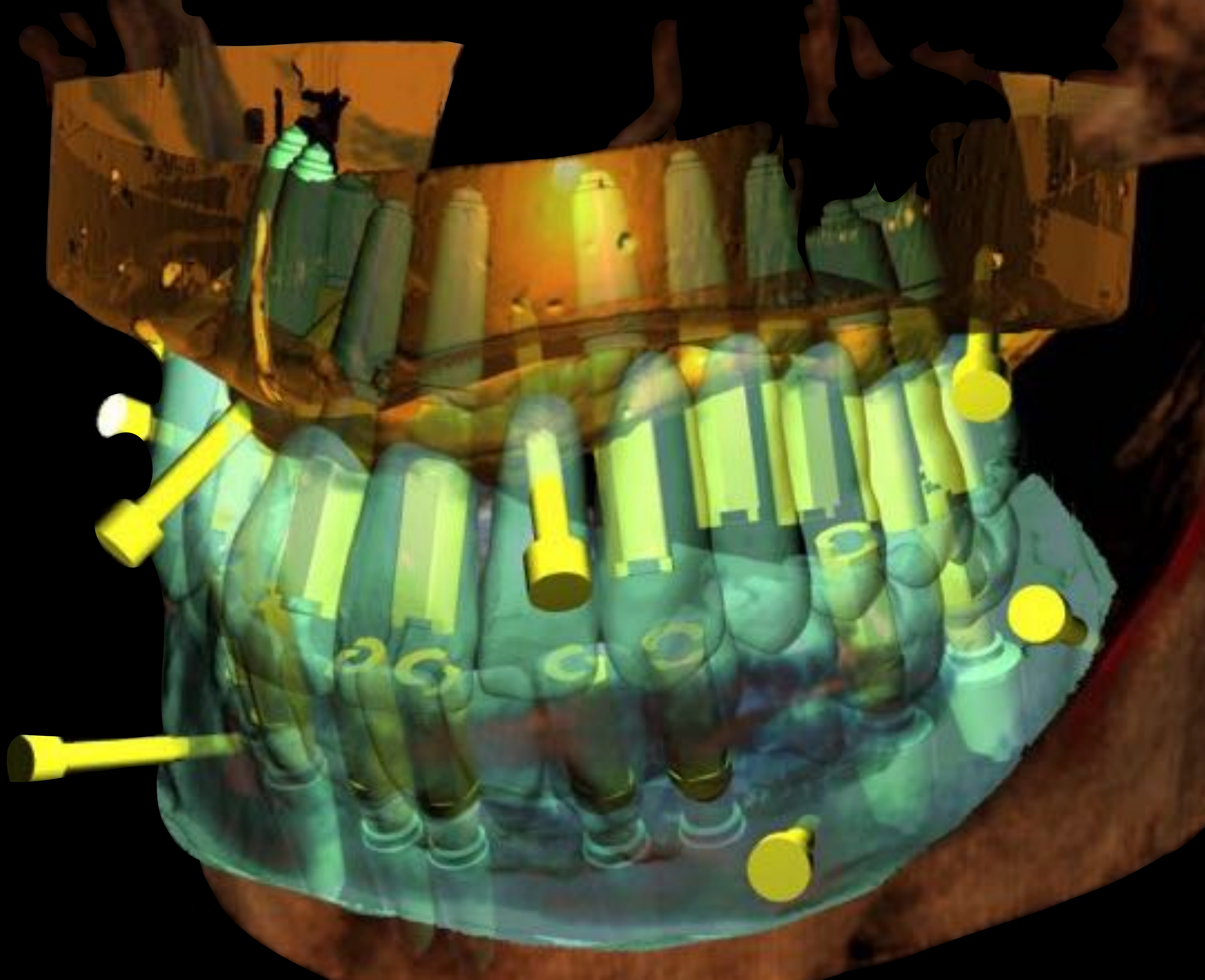

??????????????
Immediate
Placement
Root
Membrane


Fully Guided

- Diagnostic - Freehand

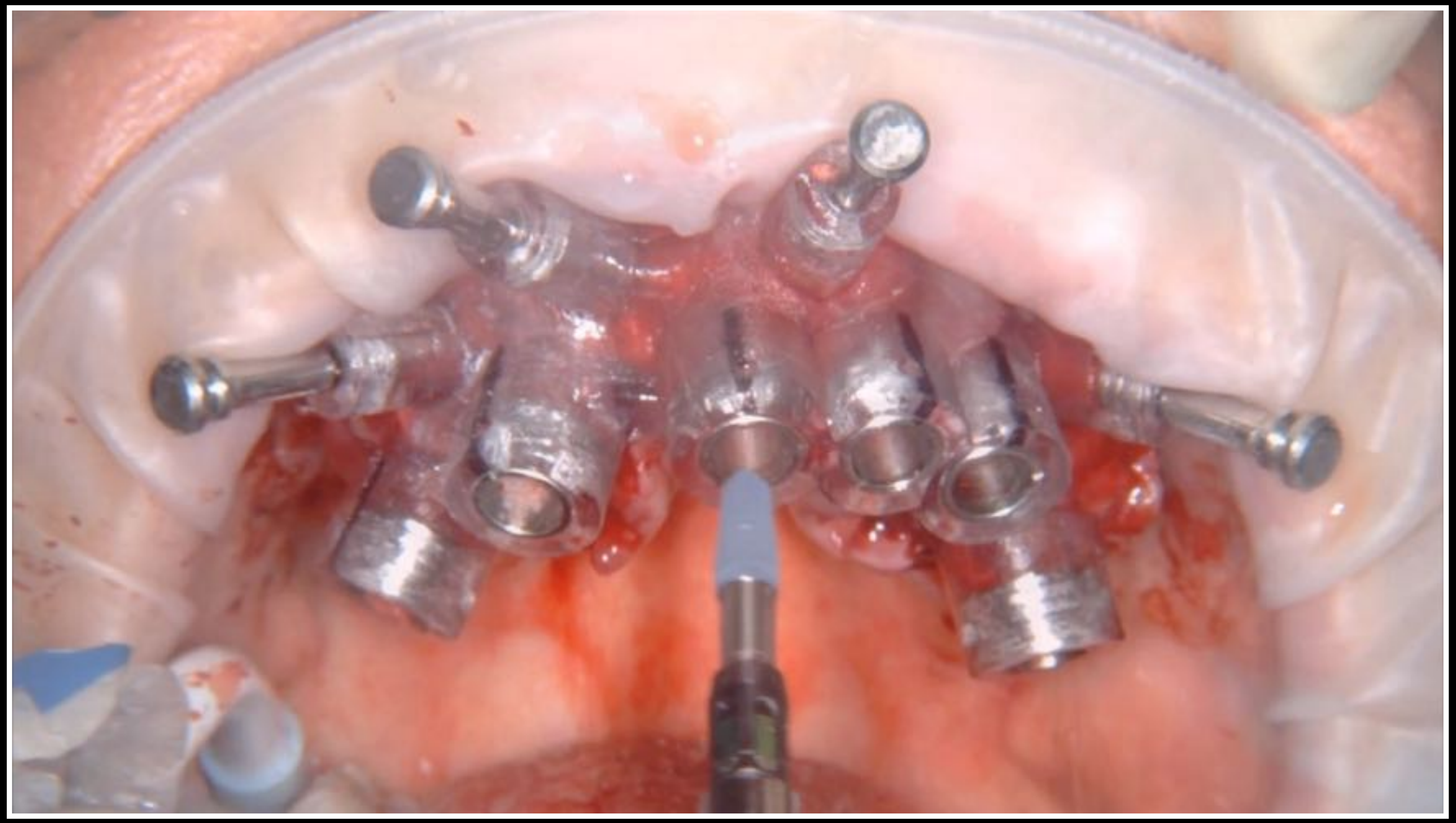
- Template-Assisted

- **Full template-Guidance**



• Full template-Guidance

Static template



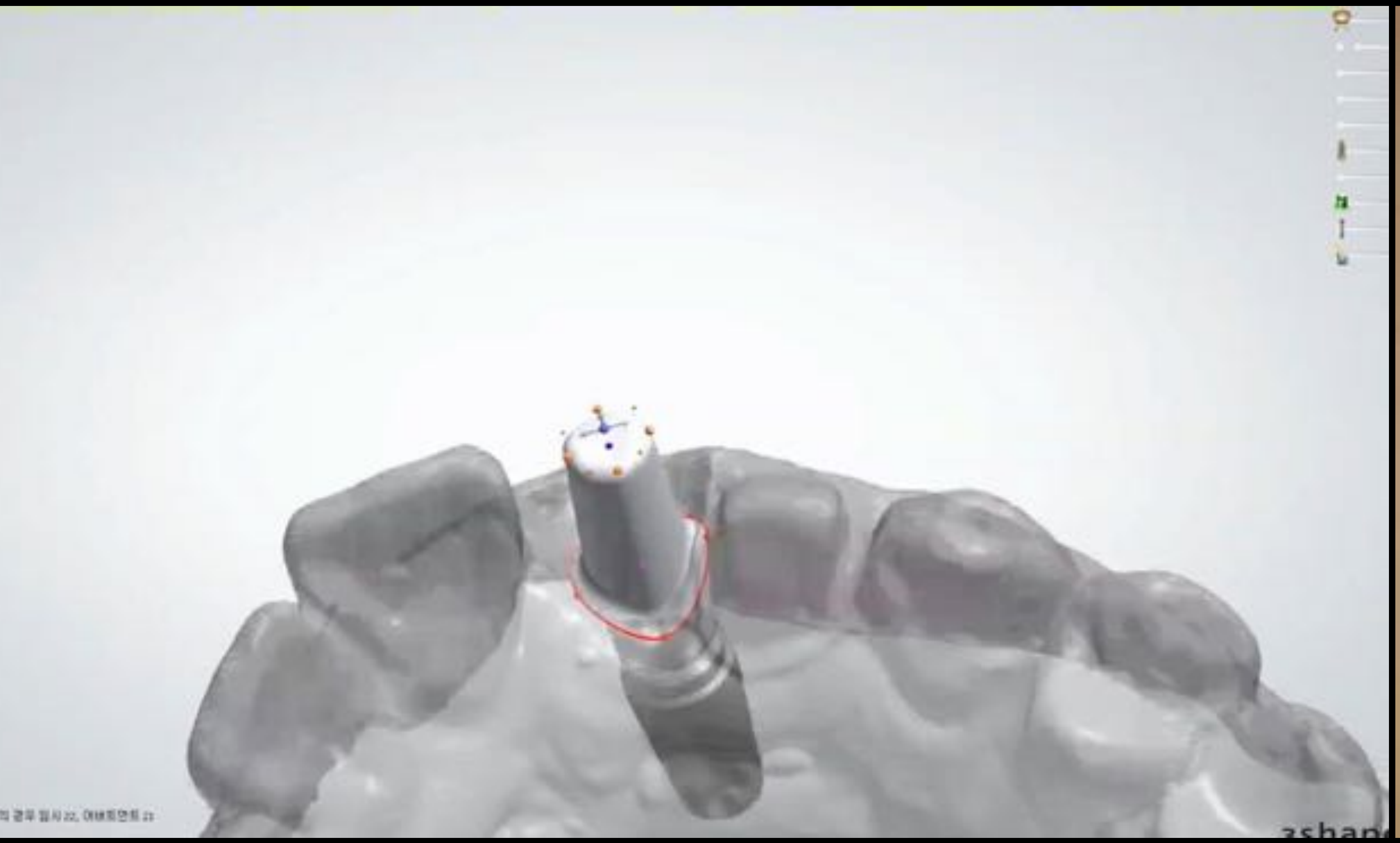
Dynamic Virtual Template

Courtesy of Navident

Digital Workflow

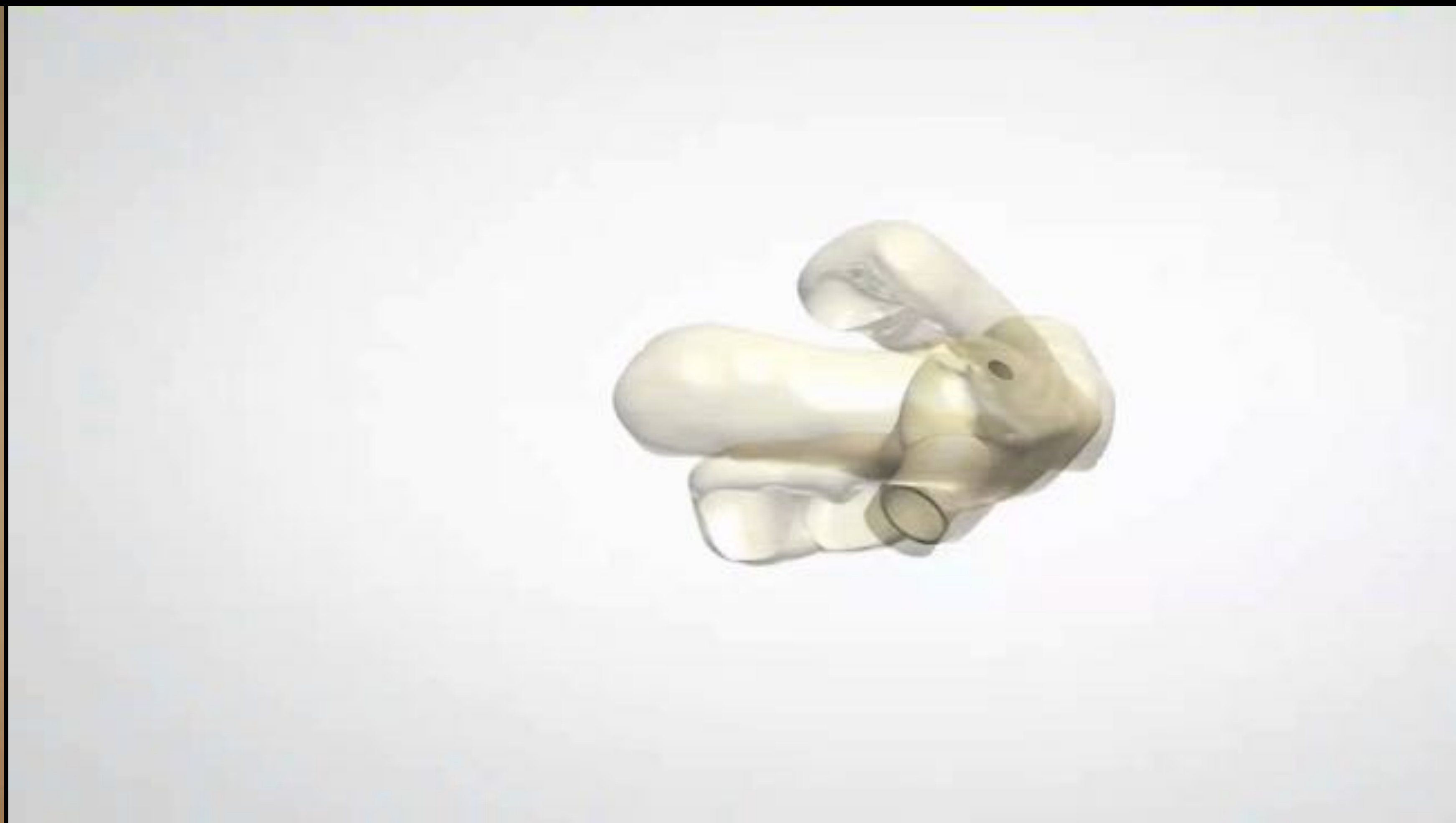
CAD/CAM TECHNOLOGY

Design

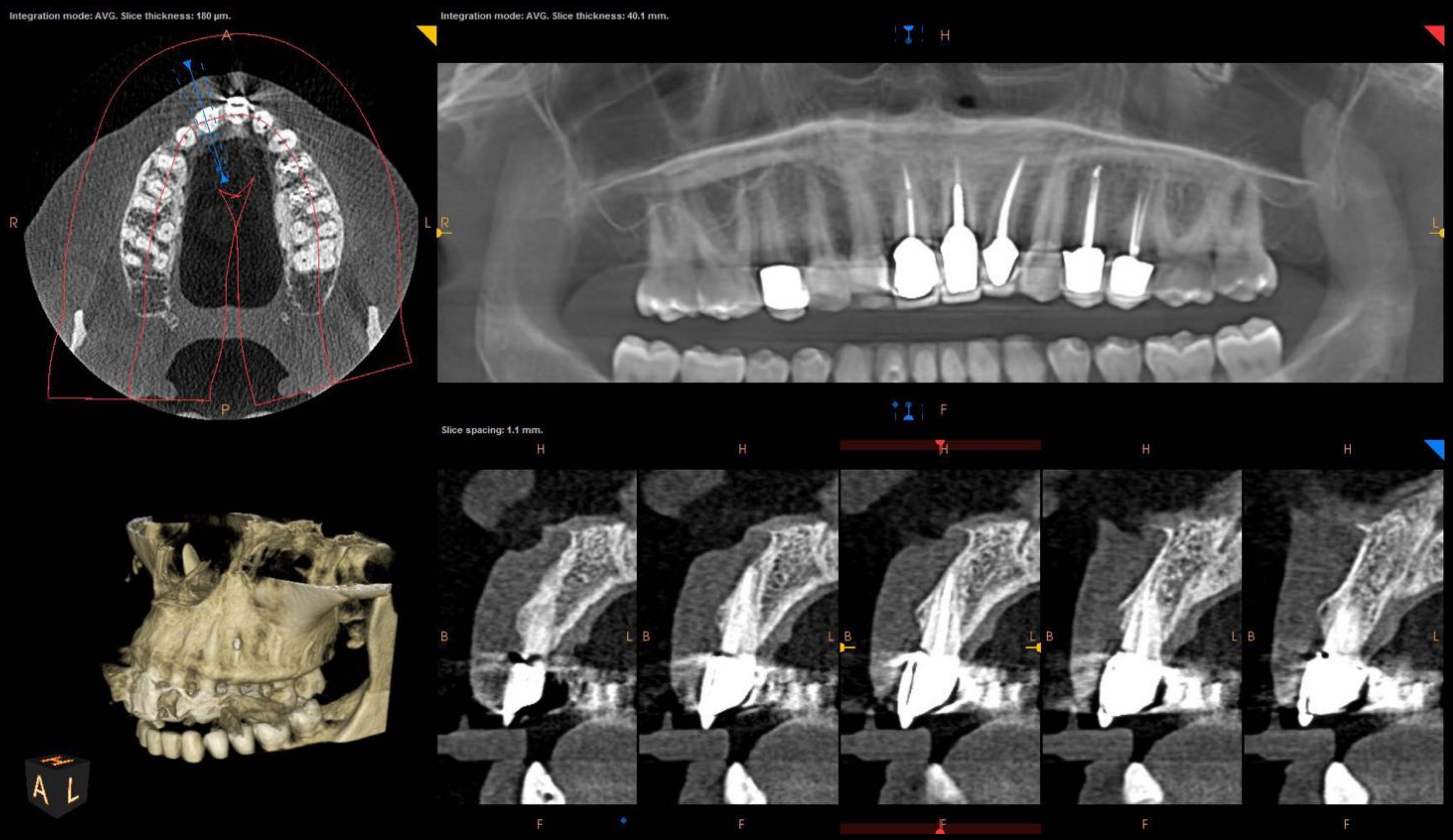


Print

Mill




ckness: 40.1 mm.
H
F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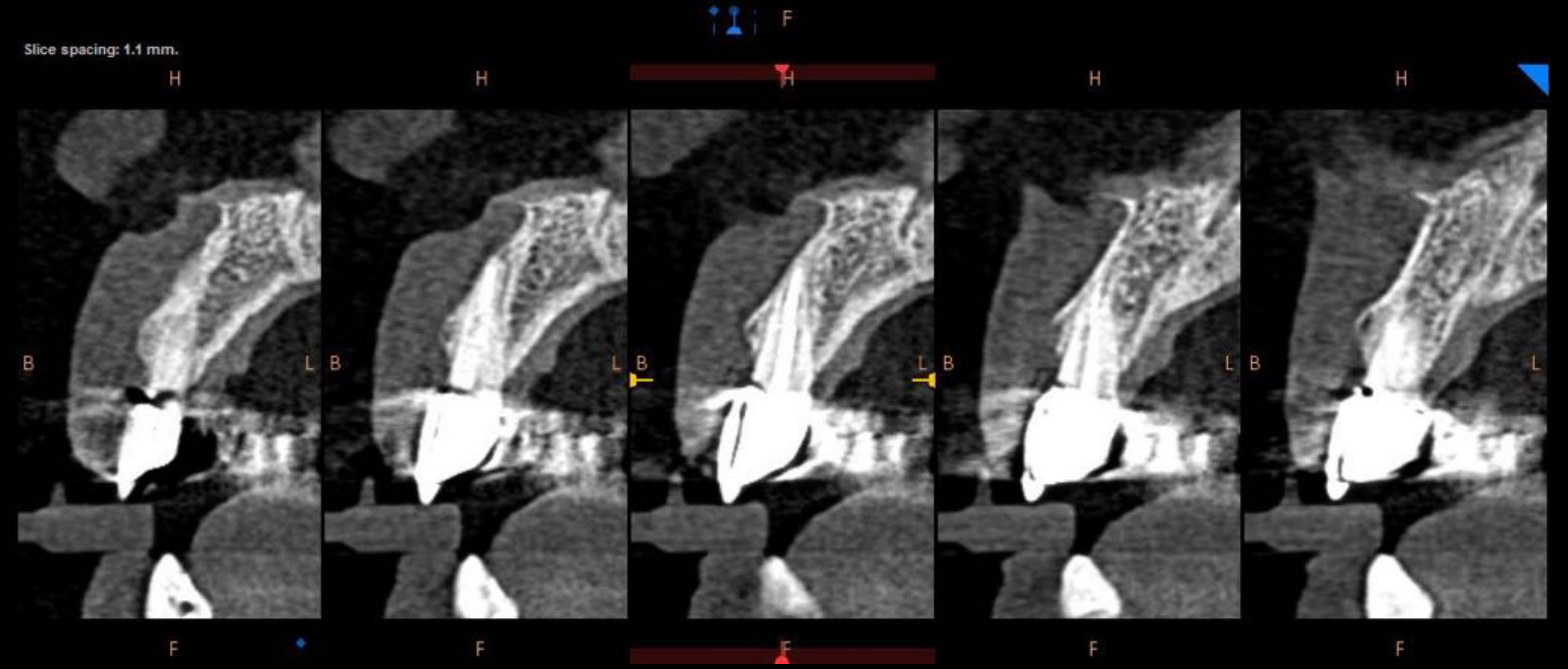
Integration mode: AVG. Slice thickness: 40.1 mm.
Slice spacing: 1.1 mm.


F
Slice spacing: 1.1 mm.
H
H
H
H
H
B
L
B
L
B
L
B
L
B
L
F
F
F
F
F

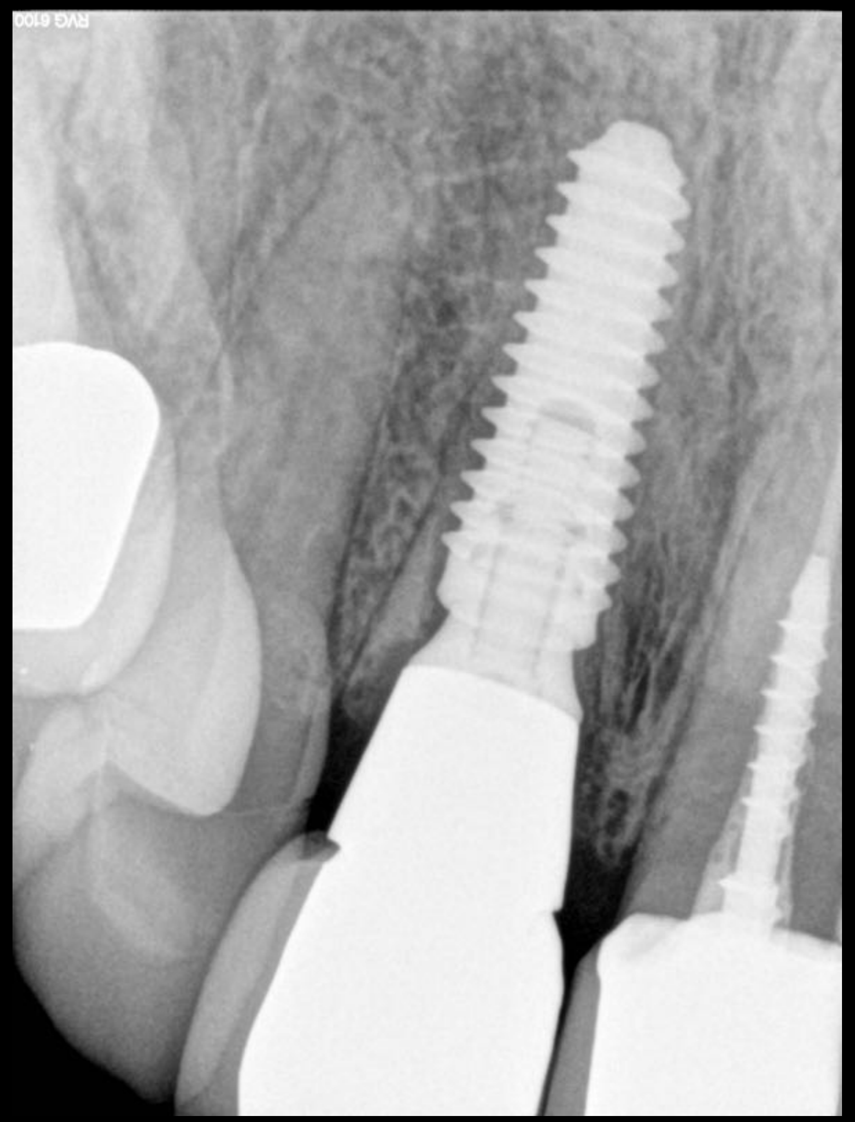

2813


20:1


MEGA ISQ

Immediate Post op






6 months Post op

DSS

DDS

• Full template-Guidance

Digital Static Shield

Dynamic Dynamic Shield

Digital Static Shield

Digital Static Shield

Apex Stack

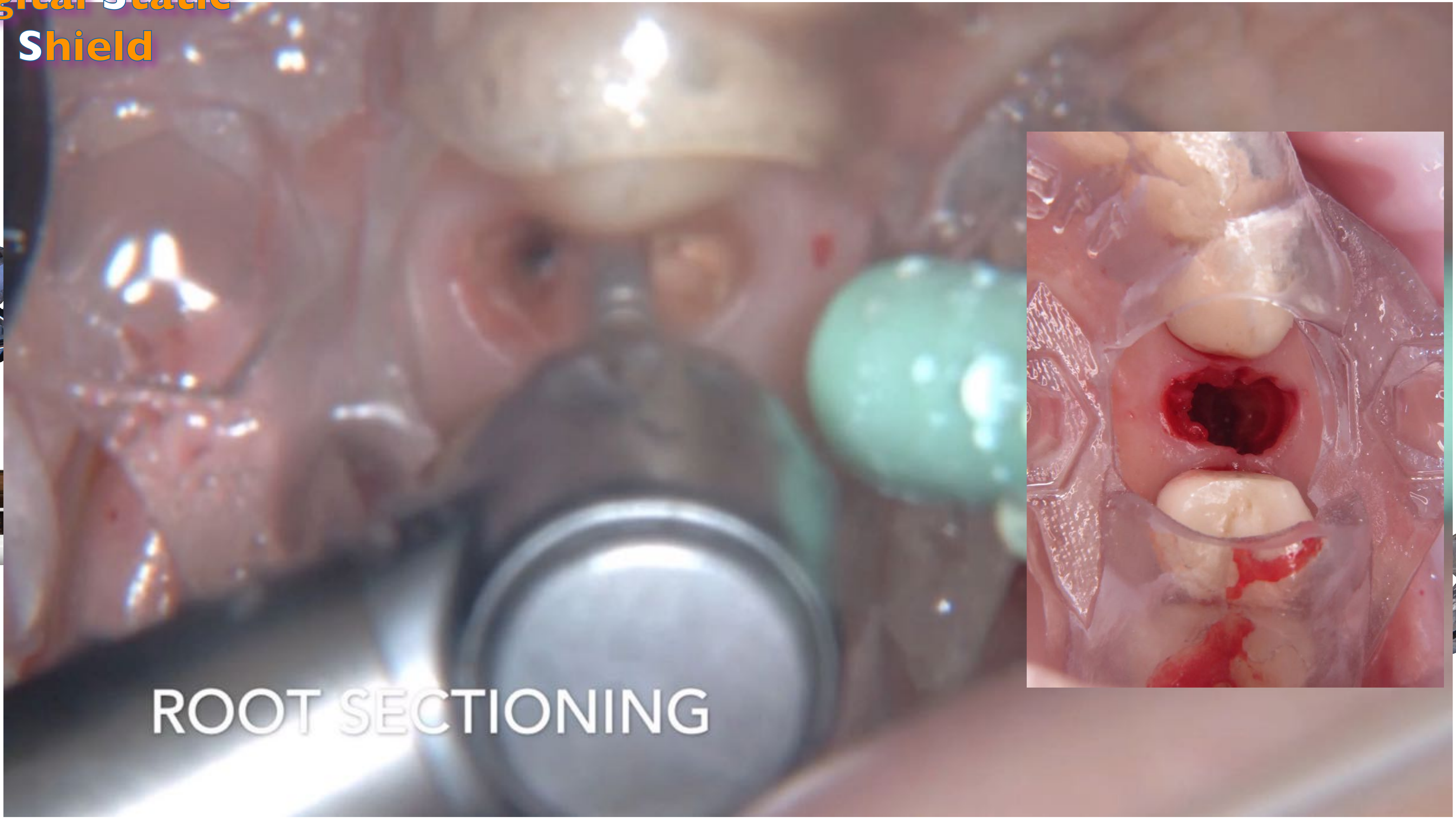
Surgical Guide Stack

Full Template Surgical Guidance

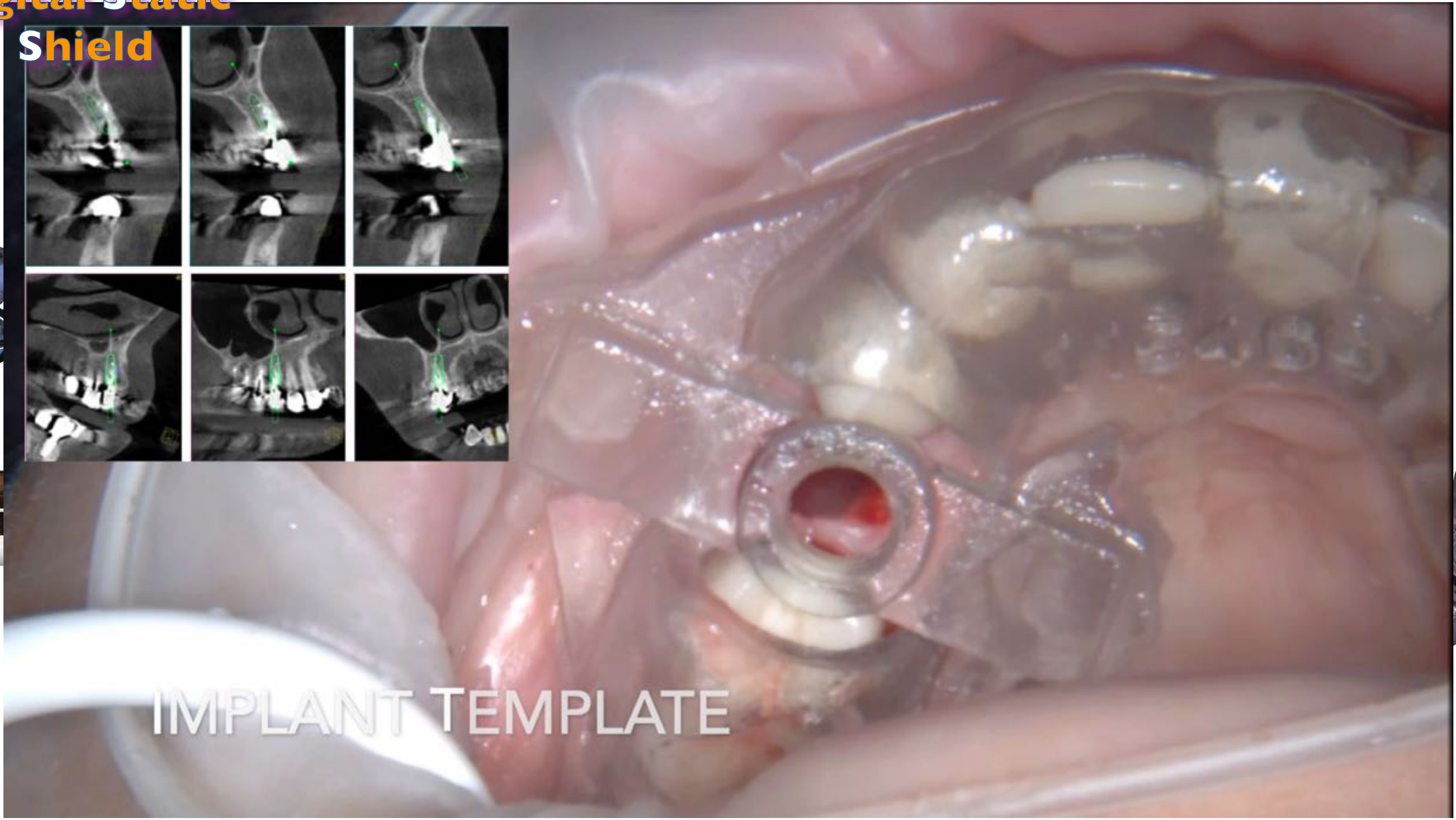
Prefabricated Final abutment & Provisional

Digital Static Shield

Digital Static Shield



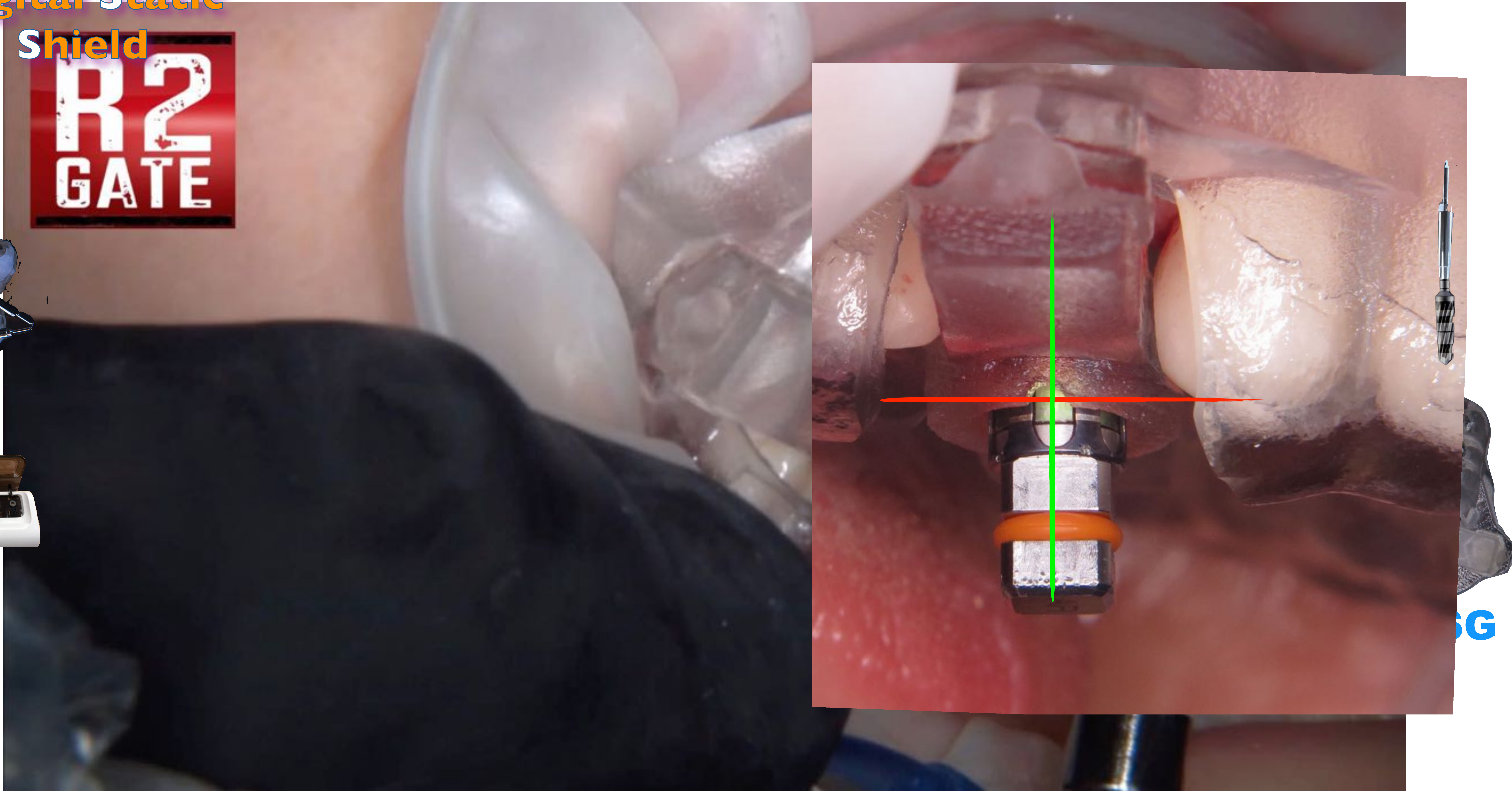
Digital Static Shield



SG

Digital Static Shield

R2 GATE



Digital Static Shield

SG

Digital Static Shield

2 month
Post op

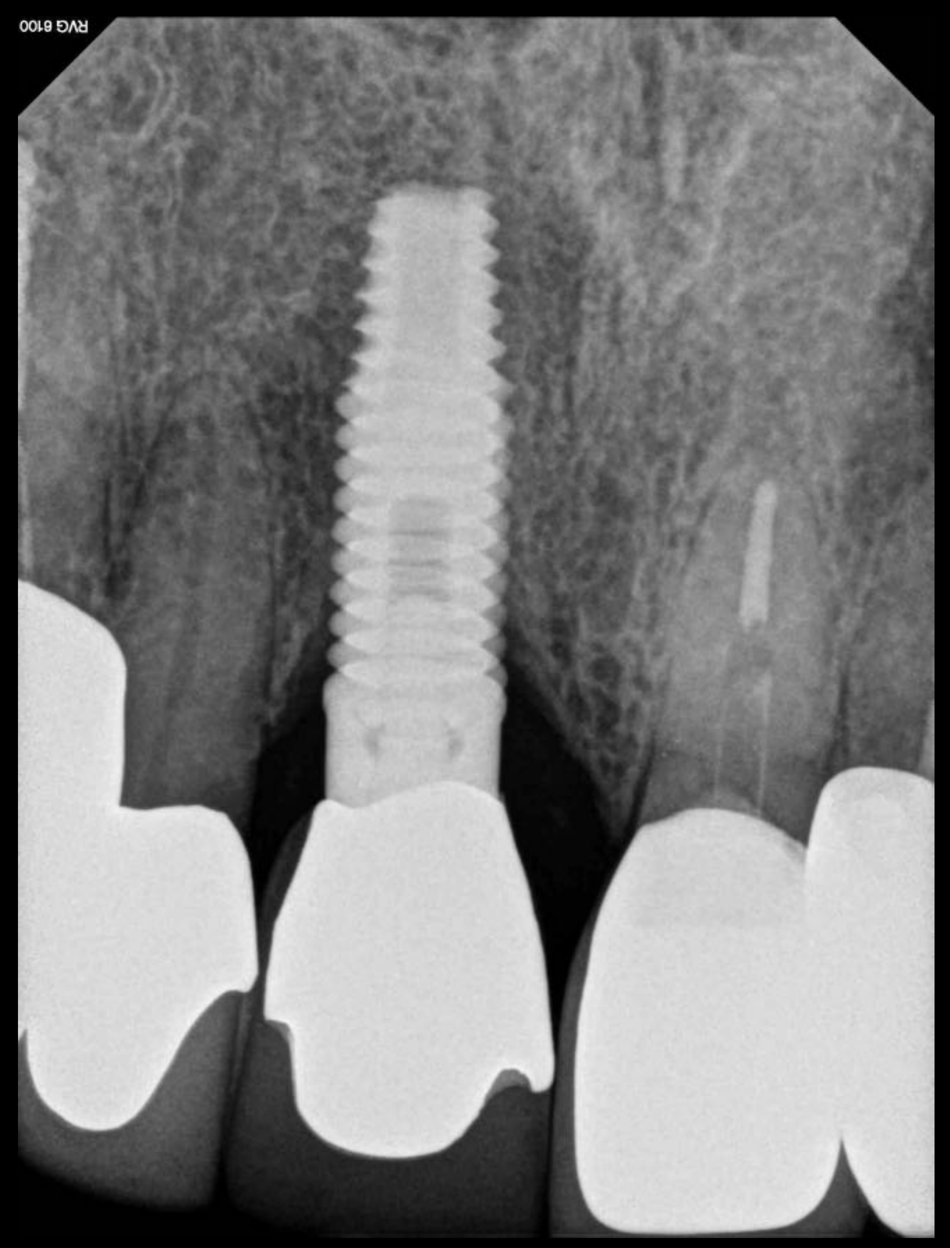
2 month
Post op

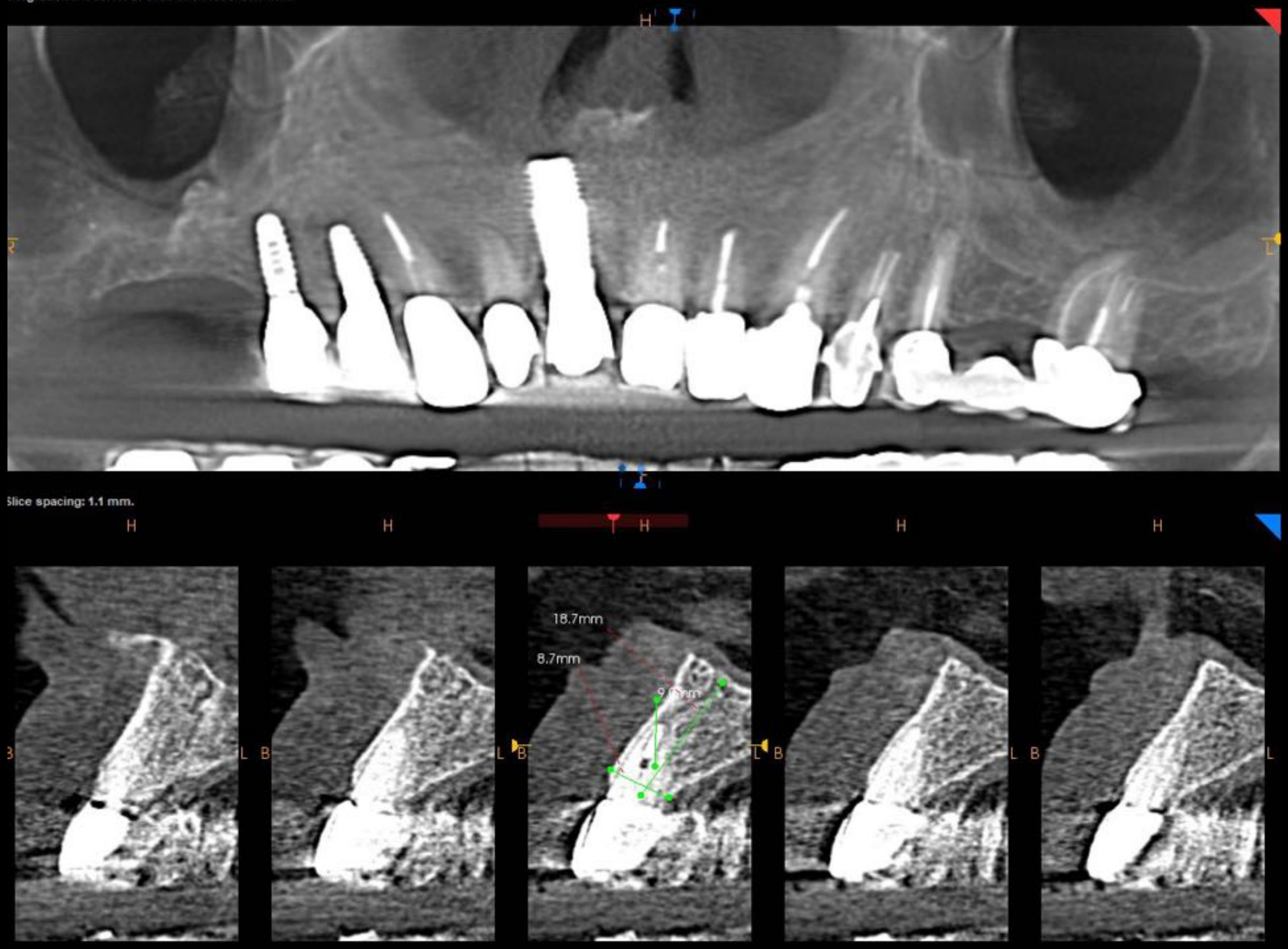
Final Crown


Digital Static
Shield


Digital Static
Shield

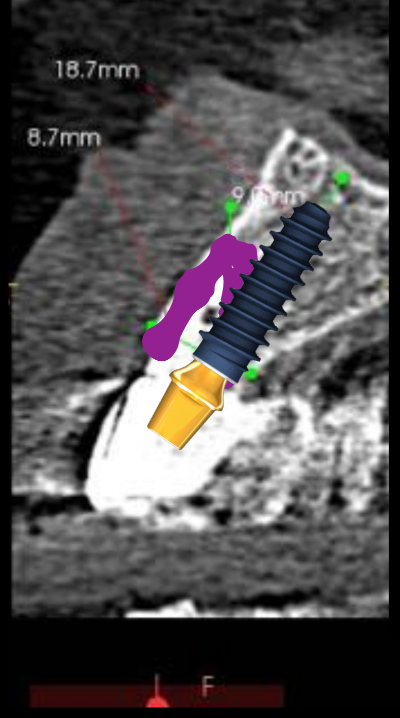
Digital Static Shield





Digital Static Shield

AIE
Advanced Implant Education

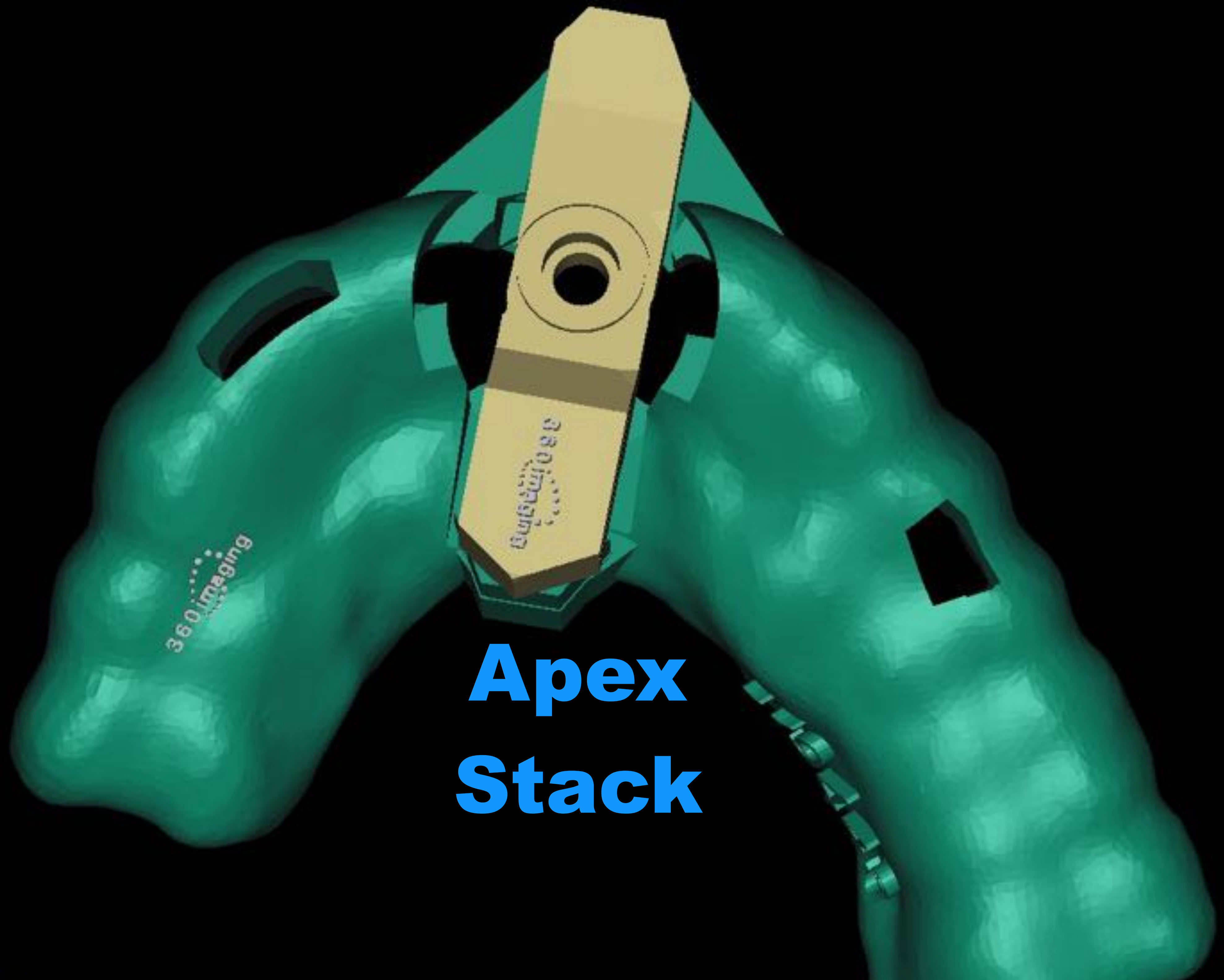


Isaac Tawil DDS MS
Scott Ganz DMD


Full Template
Surgical Guidance


PET Shaper
Stack


Surgical Guide
Stack


Apex
Stack


Digital Static
Shield
Full Template
Surgical Guidance
PET Shaper
Stack
Surgical Guide
Stack
Apex
Stack

Digital Static Shield

Digital Static Shield

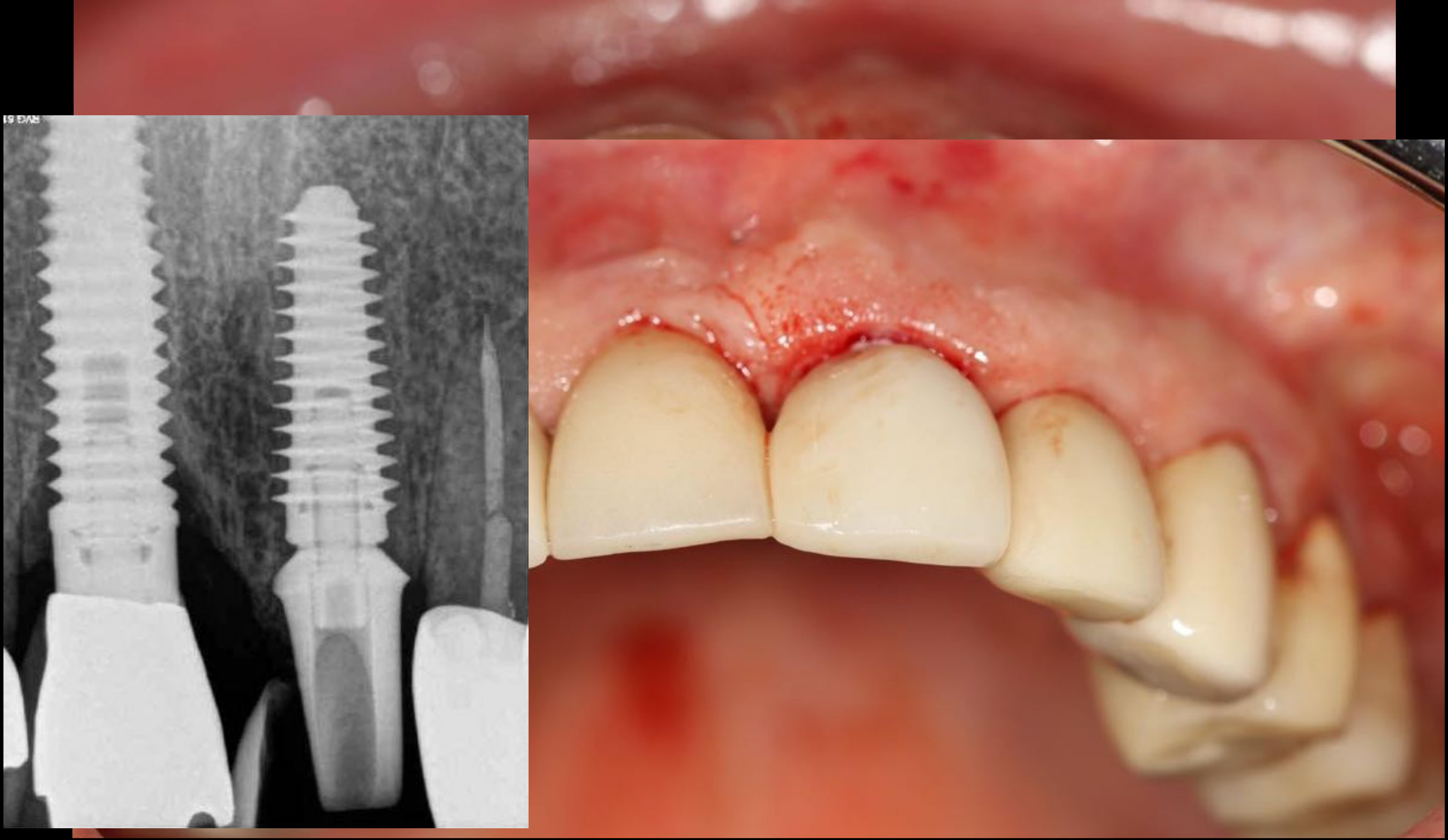

Digital Static
Shield


Digital Static
Shield


Digital Static
Shield


Digital Static
Shield
R2
GATE


Digital Static
Shield



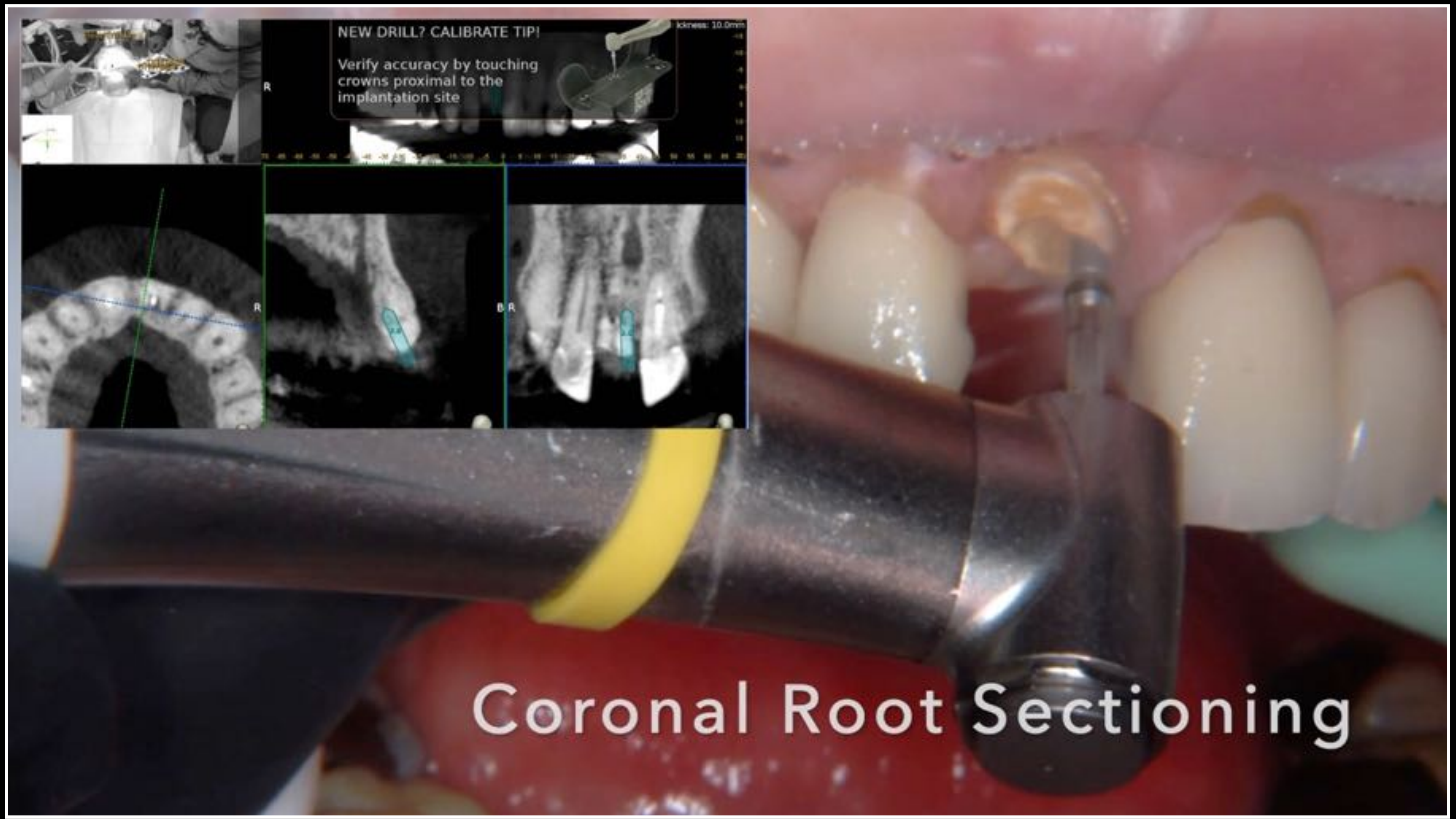
DSS

• Full template-Guidance

DDS

Digital Static Shield

Dynamic Dynamic Shield



Dynamic Dynamic Shield

• Full template-Guidance

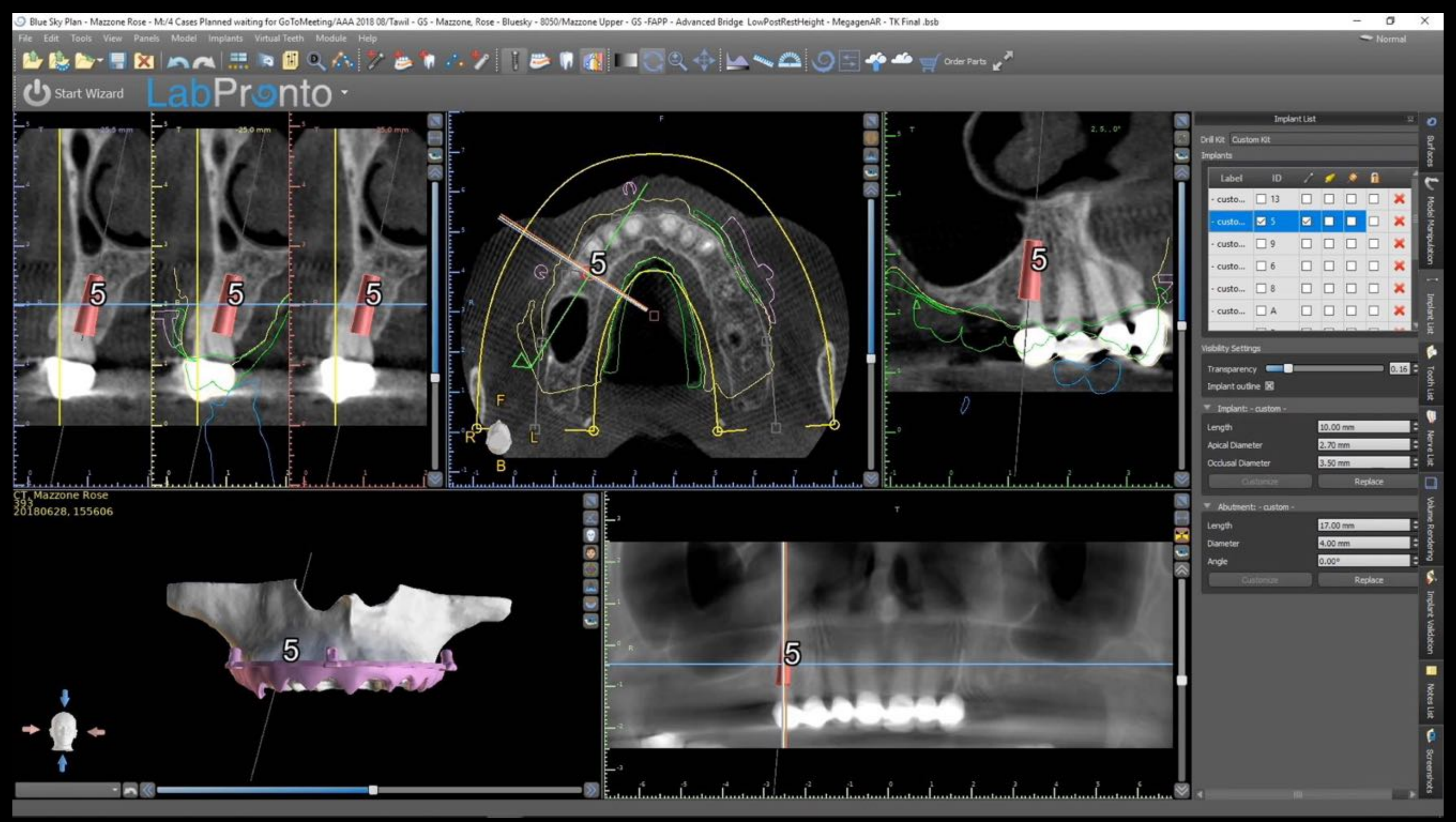
DDS

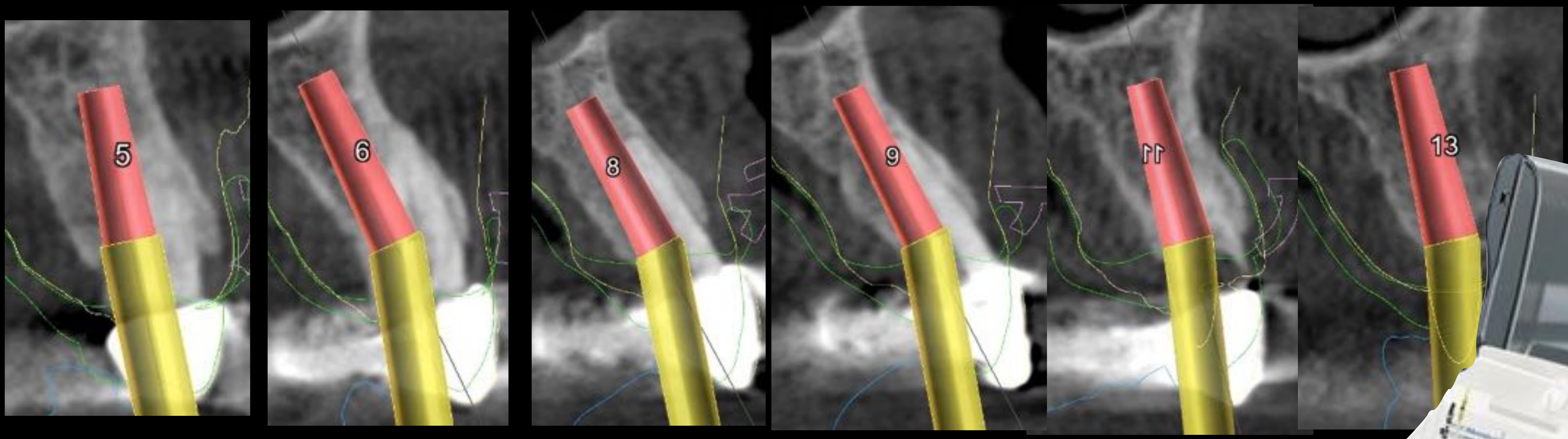

Dynamic Dynamic
Shield


BETA
The Scalloped Guide

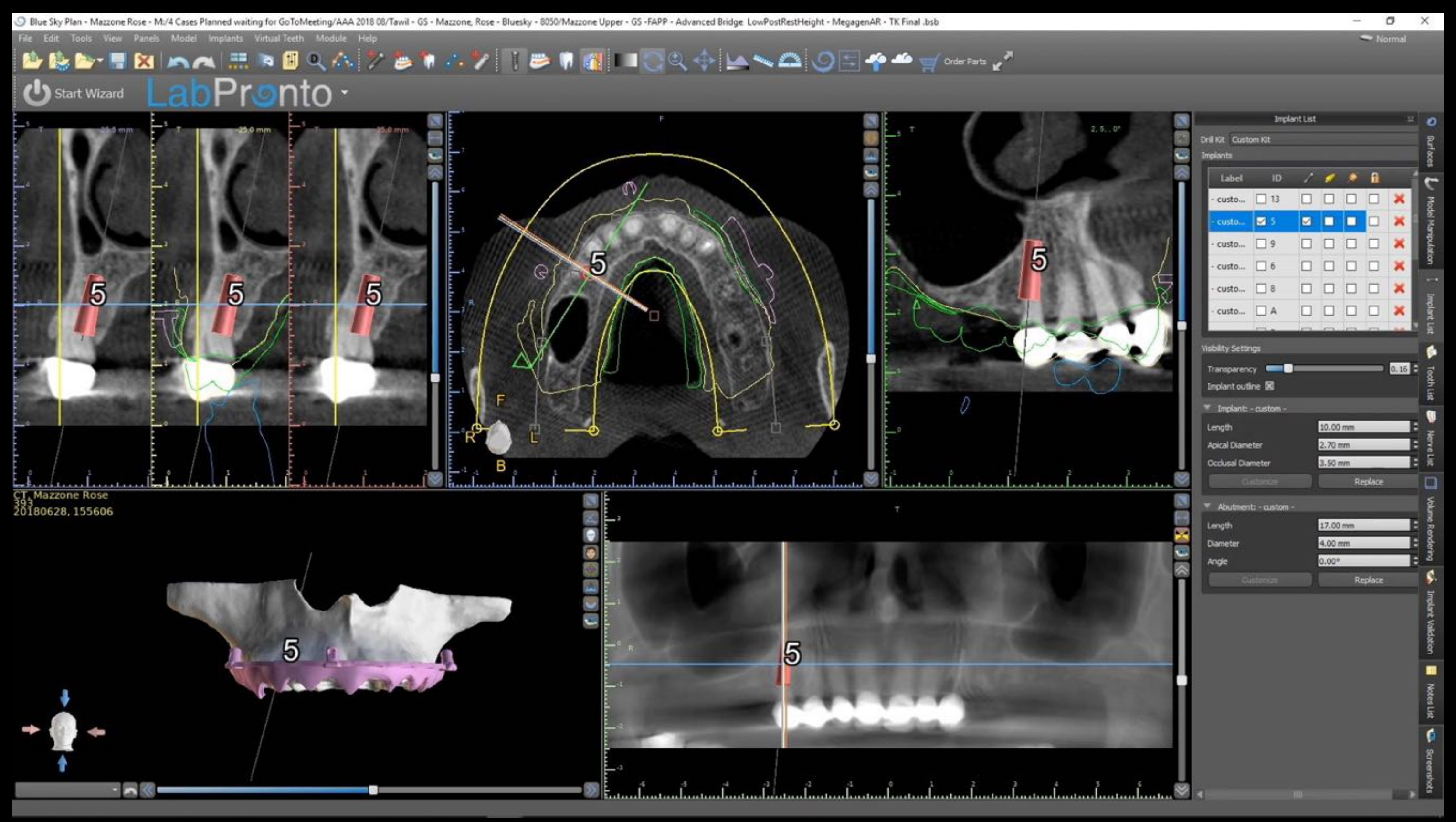
Blue Sky Plan
File
Edit
Panels
Model
Implants
Virtual Teeth
Module
Help
Order Parts
Normal
LabPronto
Surfaces
STL Surfaces
Name
Visible
Hint
8050-lower new-m...
8050-upper new-m...
Bridge Design
flat wafer
flat wafer13mm
Bone Model
Duplicate
CT Surfaces
Name
Visible
Hint
Color
Original
Add
Duplicate
Reset to Defaults
Create Model
Material
Transparency
0.00
Surface Culling
Cut
Cut All
Density Level: -1000
The Scalloped Guide
BETA

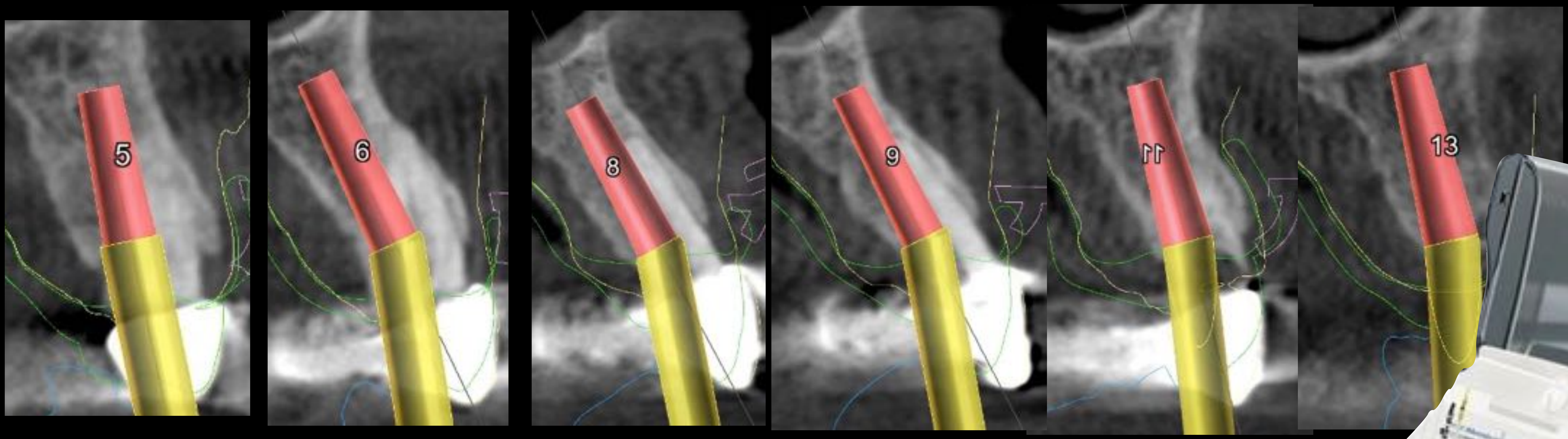

Blue Sky Plan - Mazzone Rose - M:/4 Cases Planned waiting for GoToMeeting/AAA 2018 08/Tawil - GS - Mazzone, Rose - Bluesky - 8050/Mazzone Upper - GS -FAPP - Advanced Bridge LowPostRestHeight - MegagenAR - TK Final .bsb
File
Edit
Panels
Model
Implants
Virtual Teeth
Module
Help
Order Parts
Normal
LabPronto
Implant List
Drill Kit
Custom Kit
Implants
Label
ID
custo... 13
custo... 5
custo... 9
custo... 6
custo... 8
custo... A
Visibility Settings
Transparency
0.16
Implant outline
Implant: - custom -
Length
10.00 mm
Apical Diameter
2.70 mm
Occlusal Diameter
3.50 mm
Customize
Replace
Abutment: - custom -
Length
17.00 mm
Diameter
4.00 mm
Angle
0.00°
Customize
Replace
CT, Mazzone Rose
20180628, 155606
Surfaces
Model Manipulation
Implant List
Tooth List
Nerve List
Volume Rendering
Implant Validation
Notes List
Screenshots
The Scalloped Guide
BETA





PET-Root membrane





PET-Root membrane

SCALLOPED ARCHITECHTURE


PSI
FP1
Partial extraction therapy
Scalloped Guide
Immediate Implant
Salama, Tawil, Tadros 2018
Partial Extraction Therapy


ROE
BETA
TEETH TODAY
FP1


FP1


FP1

FP1


JIG
The scanner is now ready.
JIG

Finals

FP1

Finals

FP1


Finals
FP1
R
L

DSS

- **Full template-Guidance**

DDS

Digital Static Shield

Dynamic Dynamic Shield

Dynamic Dynamic Shield

• Full template-Guidance

DDS

Dynamic Virtual Template

• Full template-Guidance

Accuracy of a Dynamic Dental Implant Navigation System

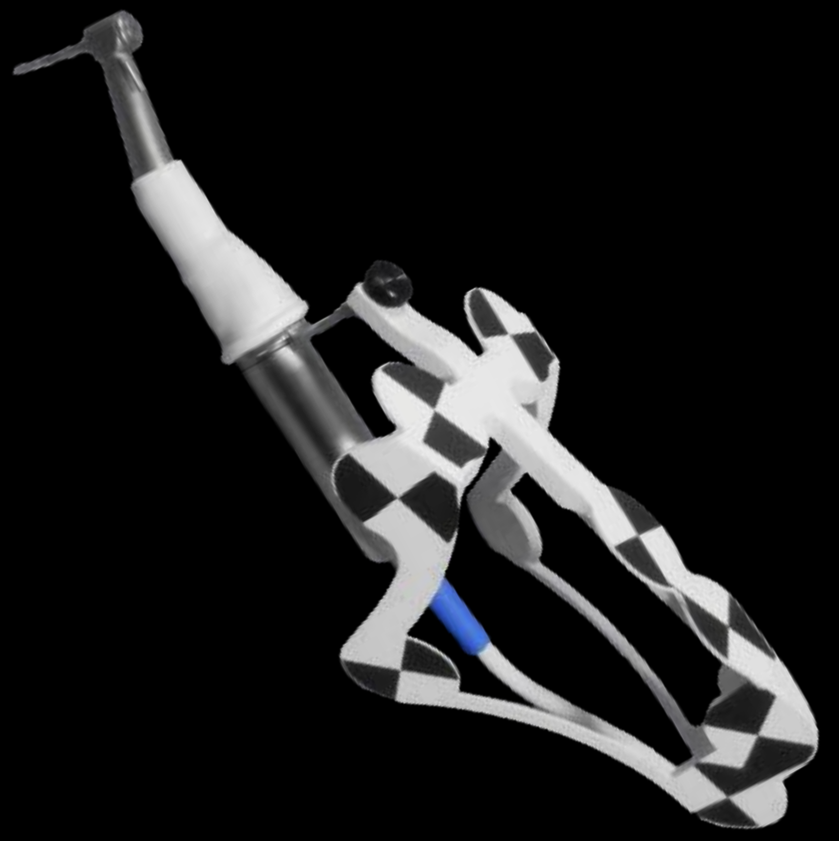
CONCLUSION: Dynamic navigation can achieve accuracy of implant placement similar to static guides and is an improvement over freehand implant placement. In addition, there was a learning curve to achieve proficiency.

Table 2 Key Deviation Statistics of All

Estimated 95% placement confidence margin in dentate jaws - dynamically guided vs. unguided

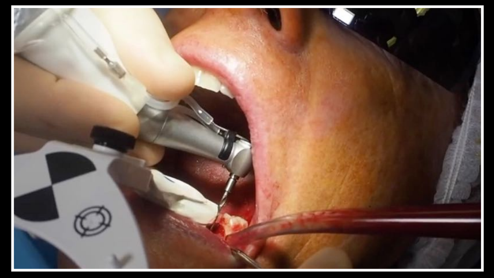
Conclusions

Dynamic computer assisted surgery systems allow more accurate implant placement in comparison with the conventional freehand method, regardless of the surgeon's experience. However, this system seems to offer more advantages to novice professionals, since it allows them to reduce their deviations significantly and achieve similar results to those of experienced clinicians.



Dynamic Virtual Template

• Full template-Guidance



Calibrate any Handpiece
Any Drill

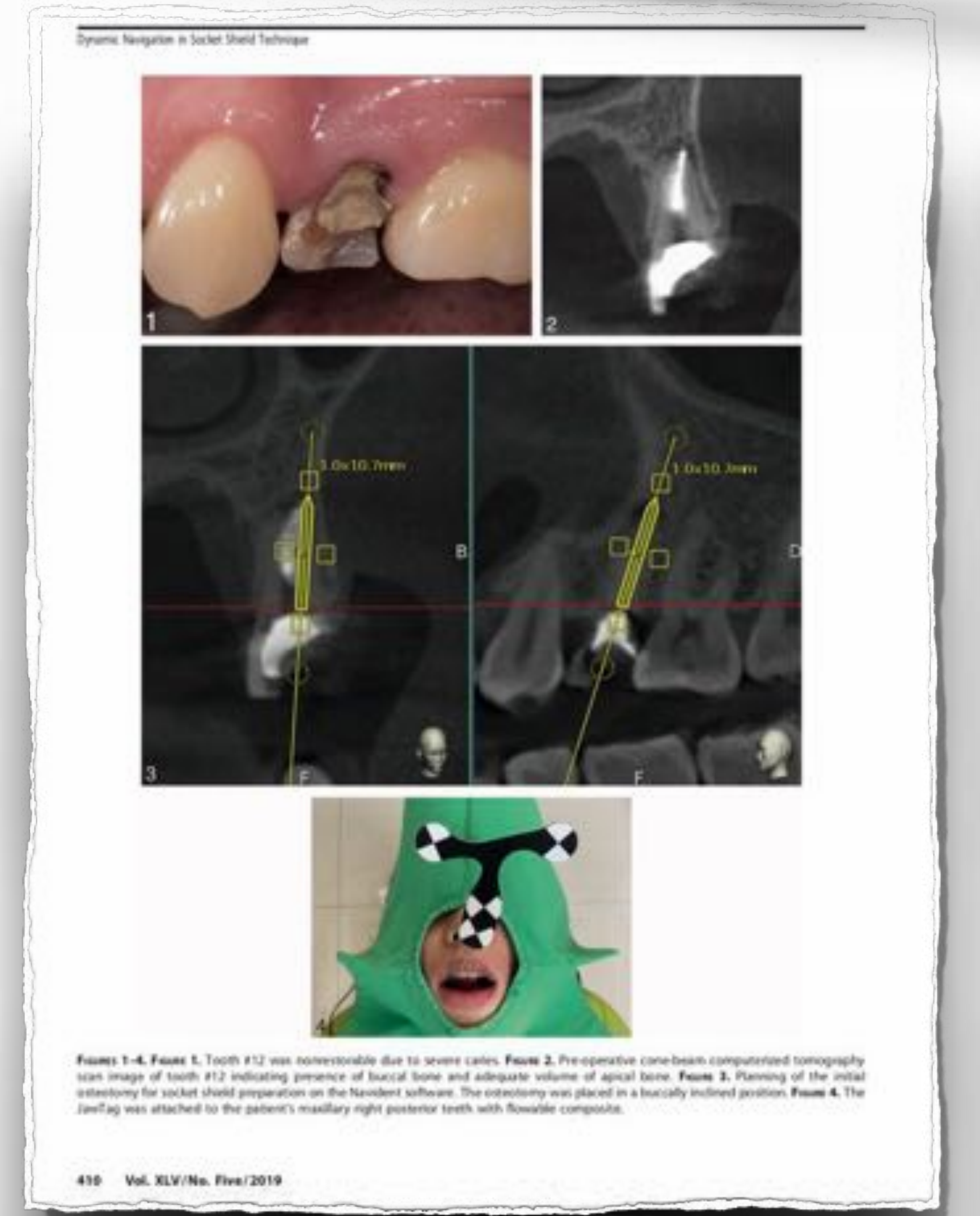
Navigation System in Socket Shield Technique


Case Letter

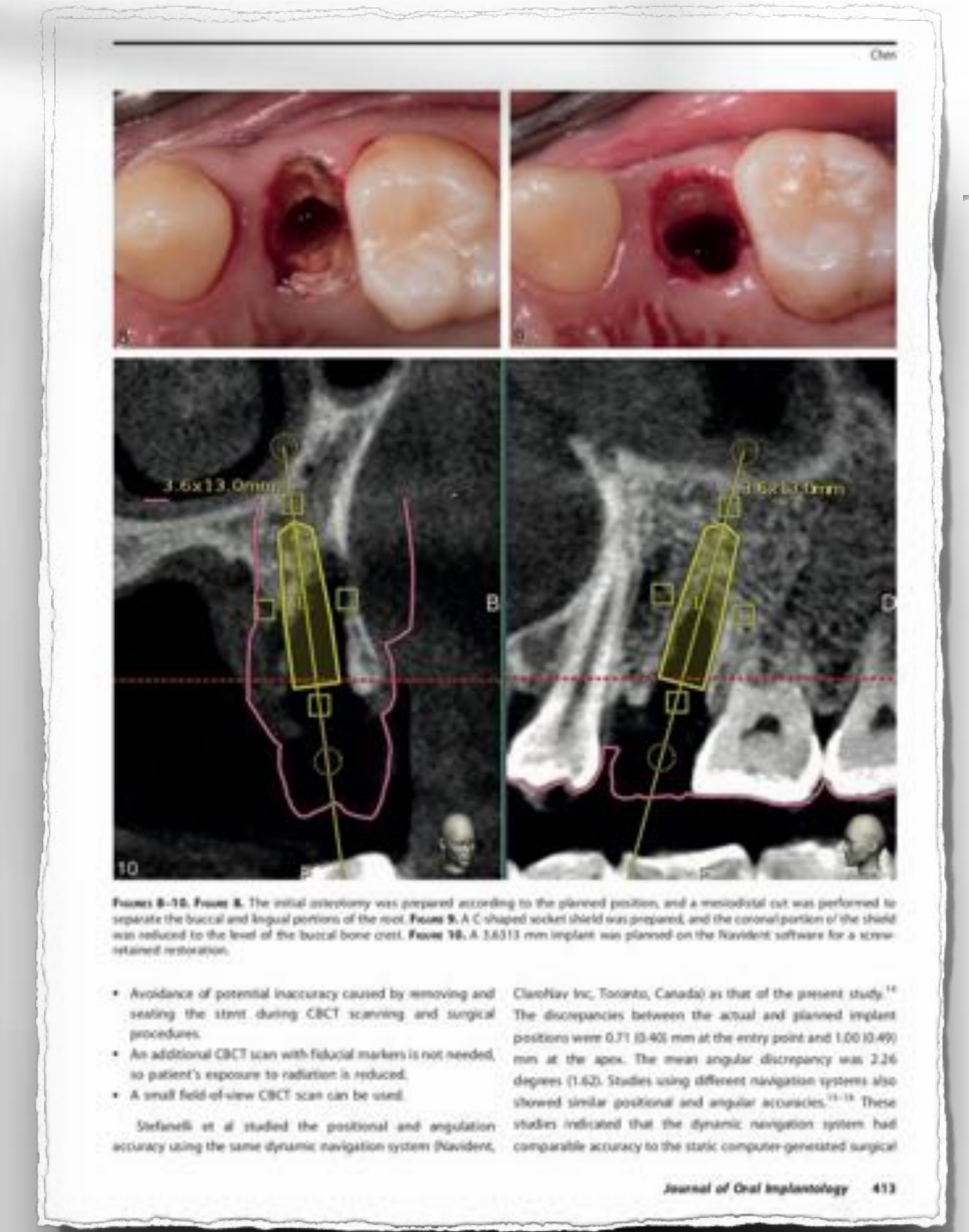
A Novel Application of Dynamic Navigation System in Socket Shield Technique

Joey T. Chen, DDS

Journal of Oral Implantology 409

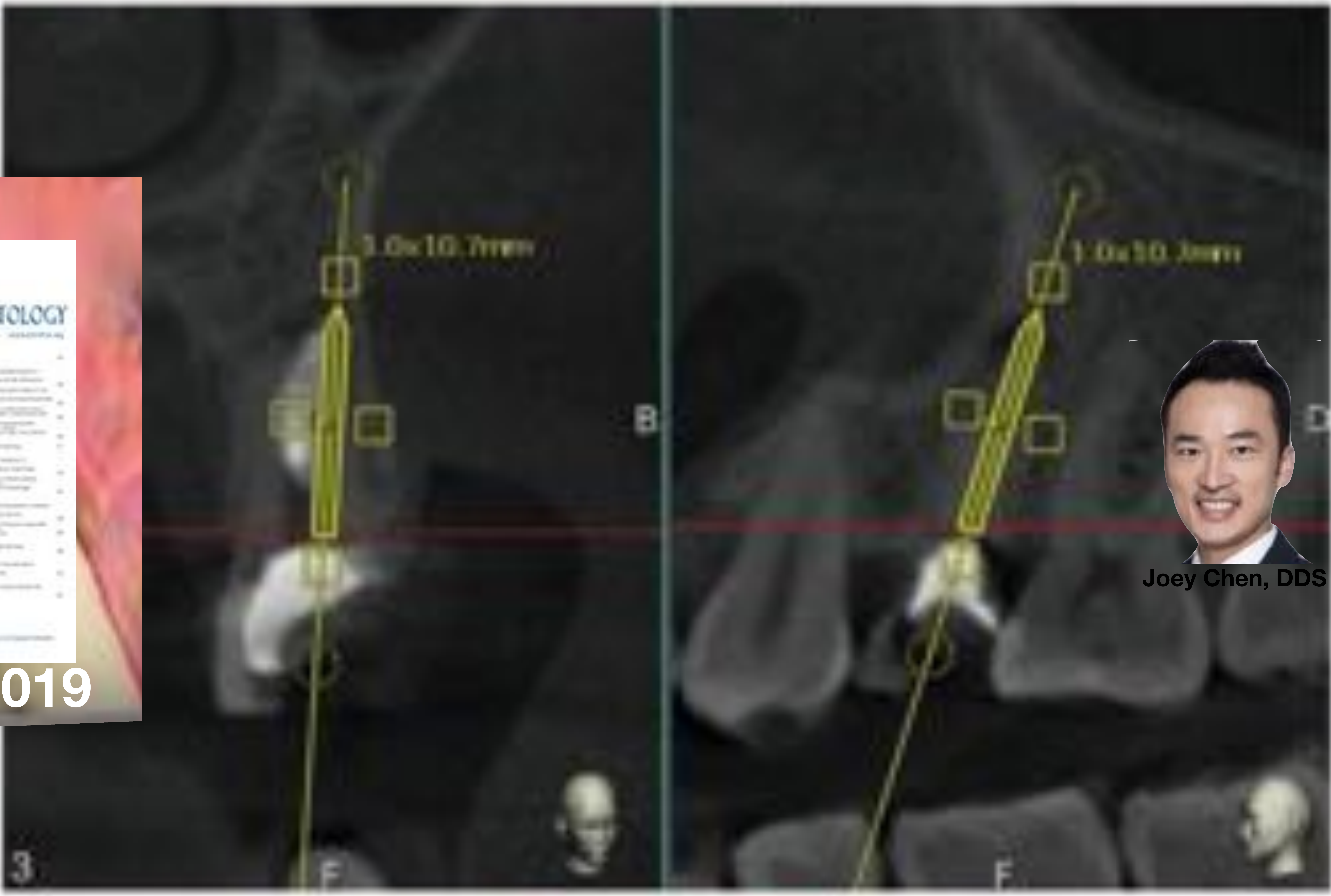

Dynamic Navigation in Socket Shield Technique

410 Vol. XLV/No. Five/2019


Journal of Oral Implantology 413

Joey Chen, DDS

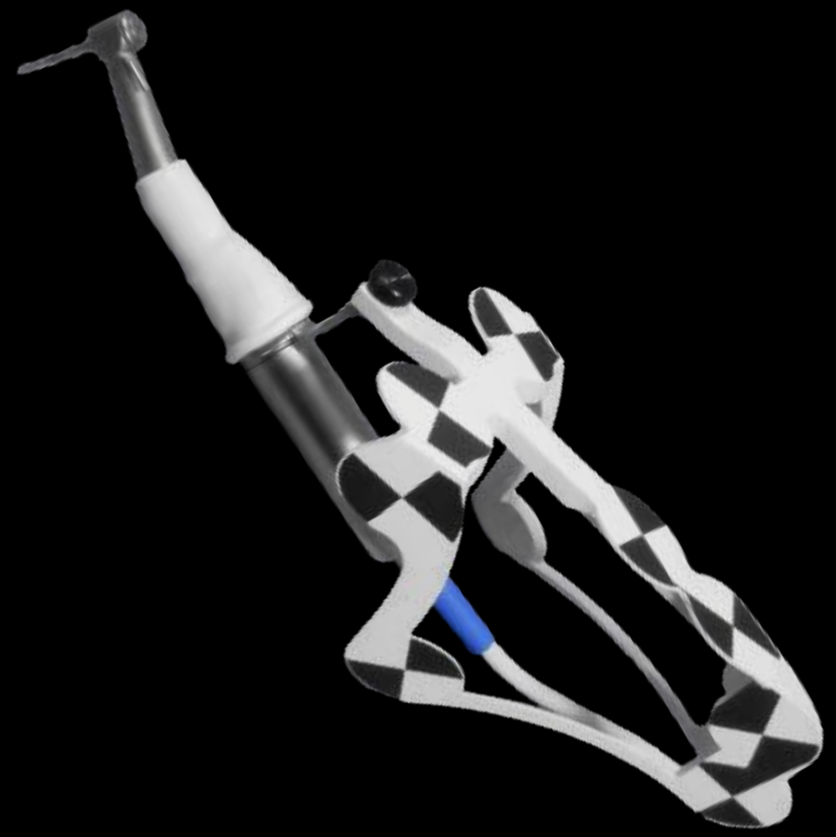
October 2019



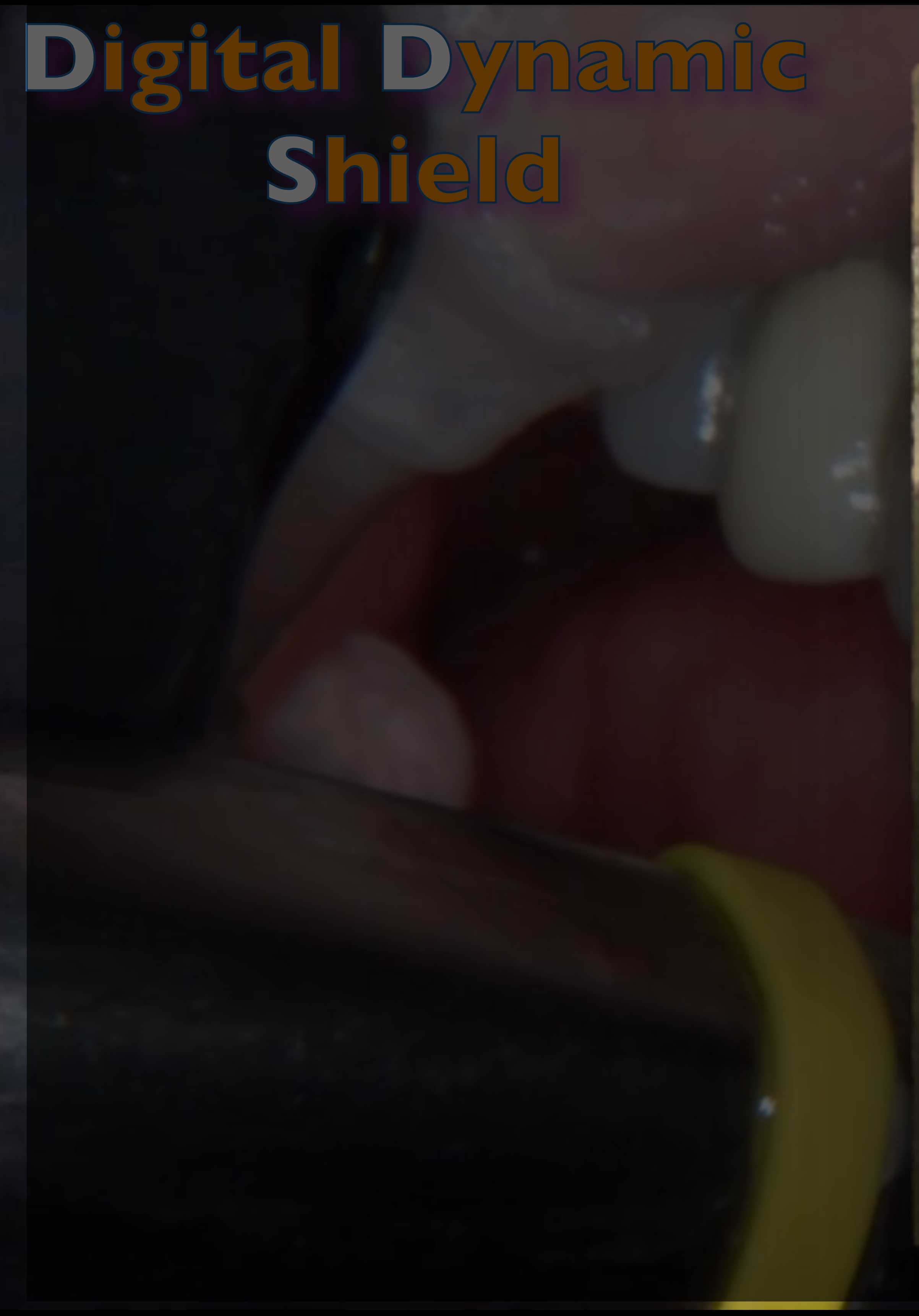
Joey Chen, DDS

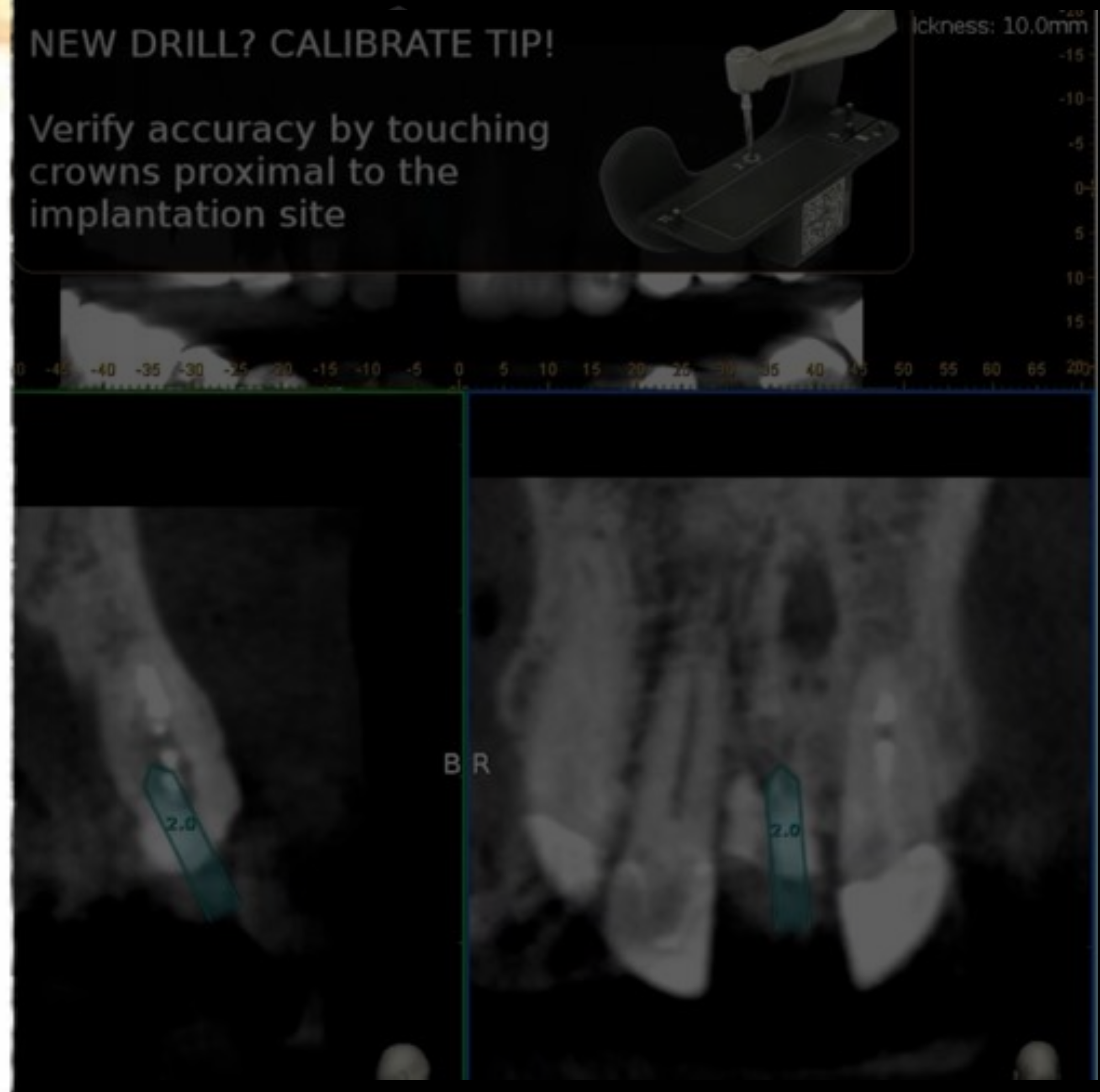
Dynamic Virtual Template

- **Full template-Guidance**

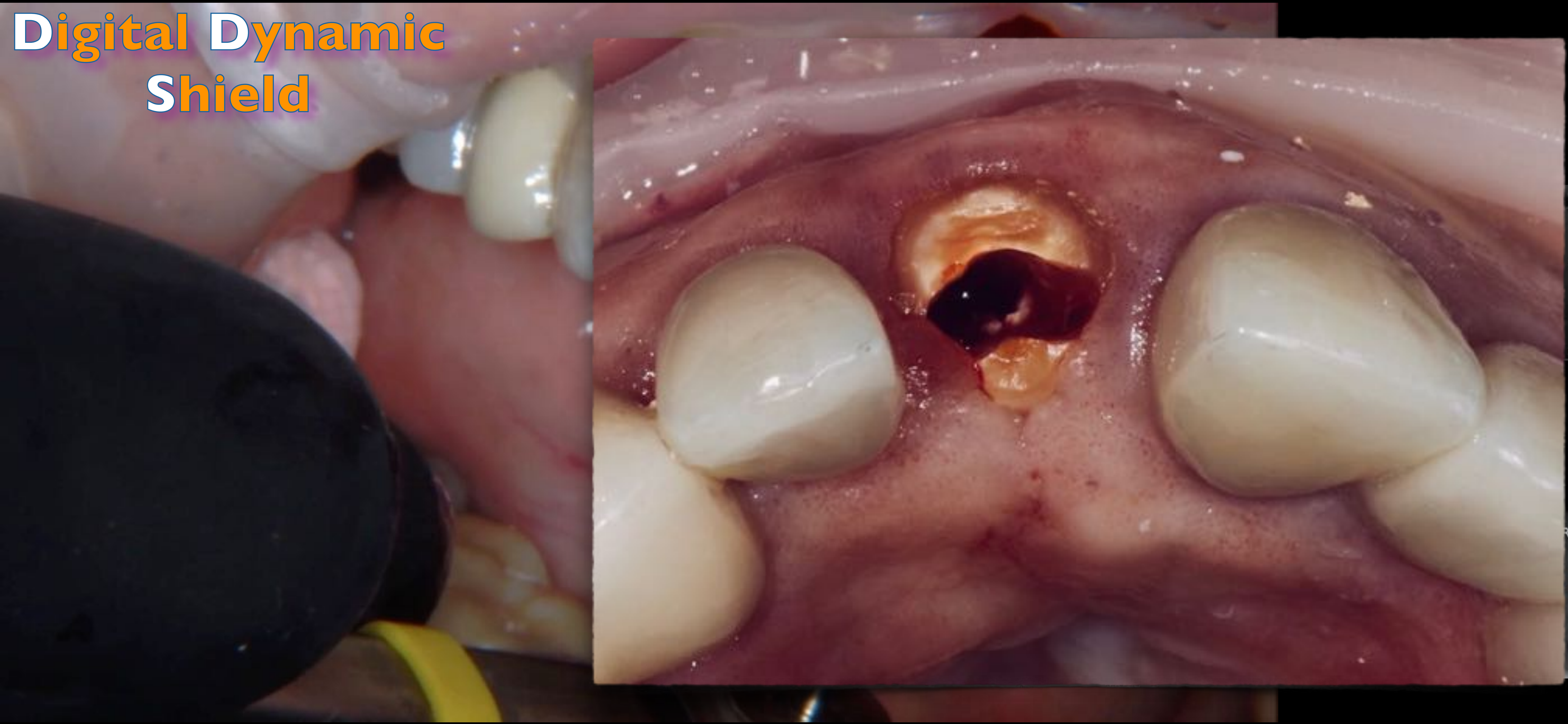


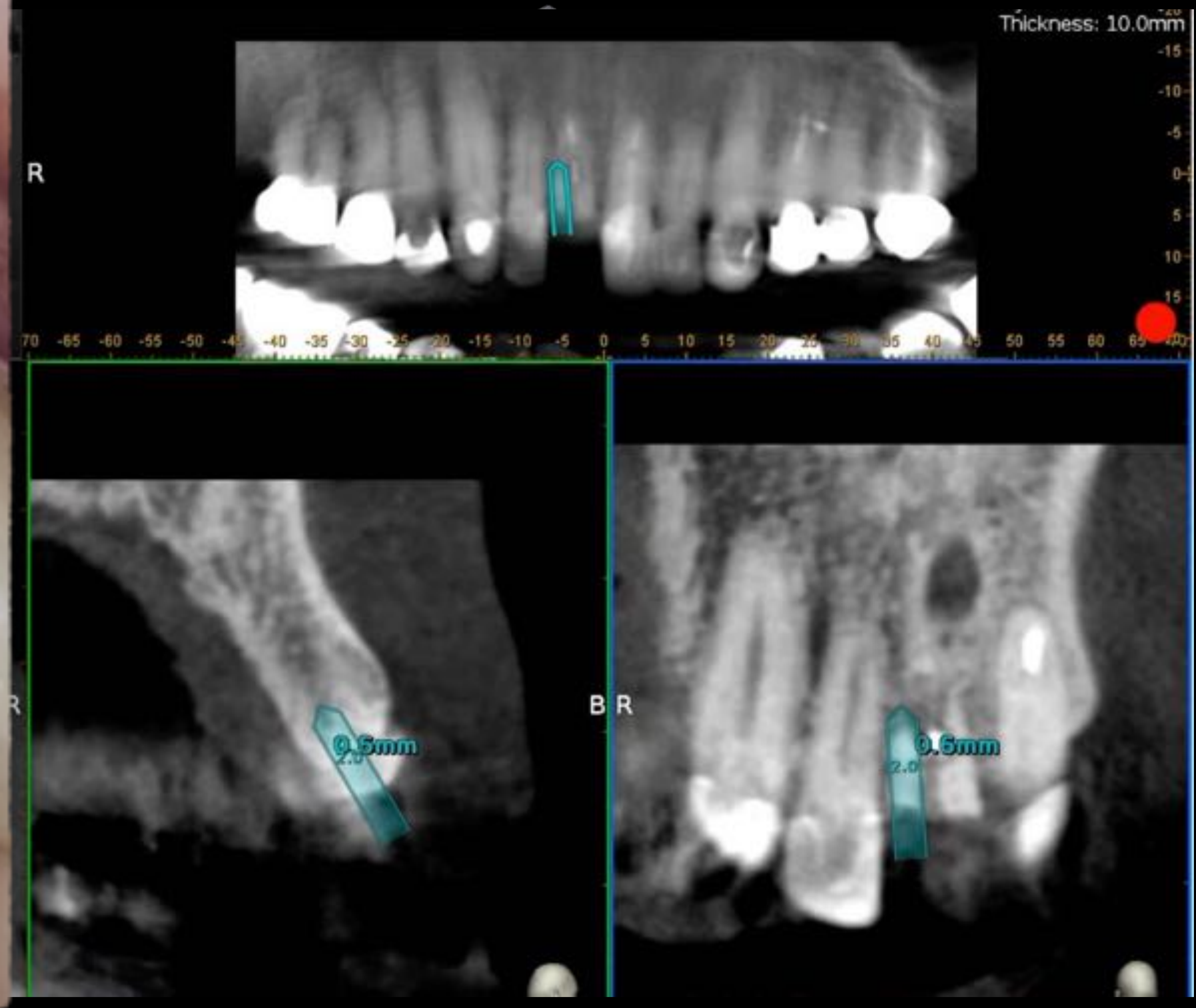
Partial Extraction Therapy





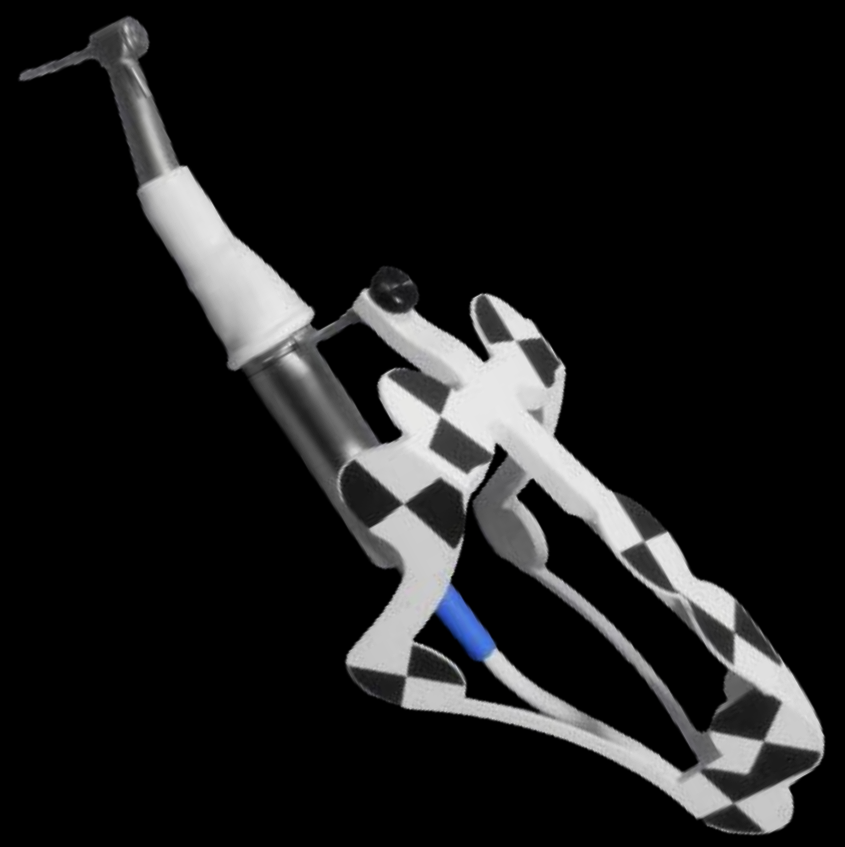
Partial Extraction Therapy





Partial Extraction Therapy

Digital Dynamic Shield



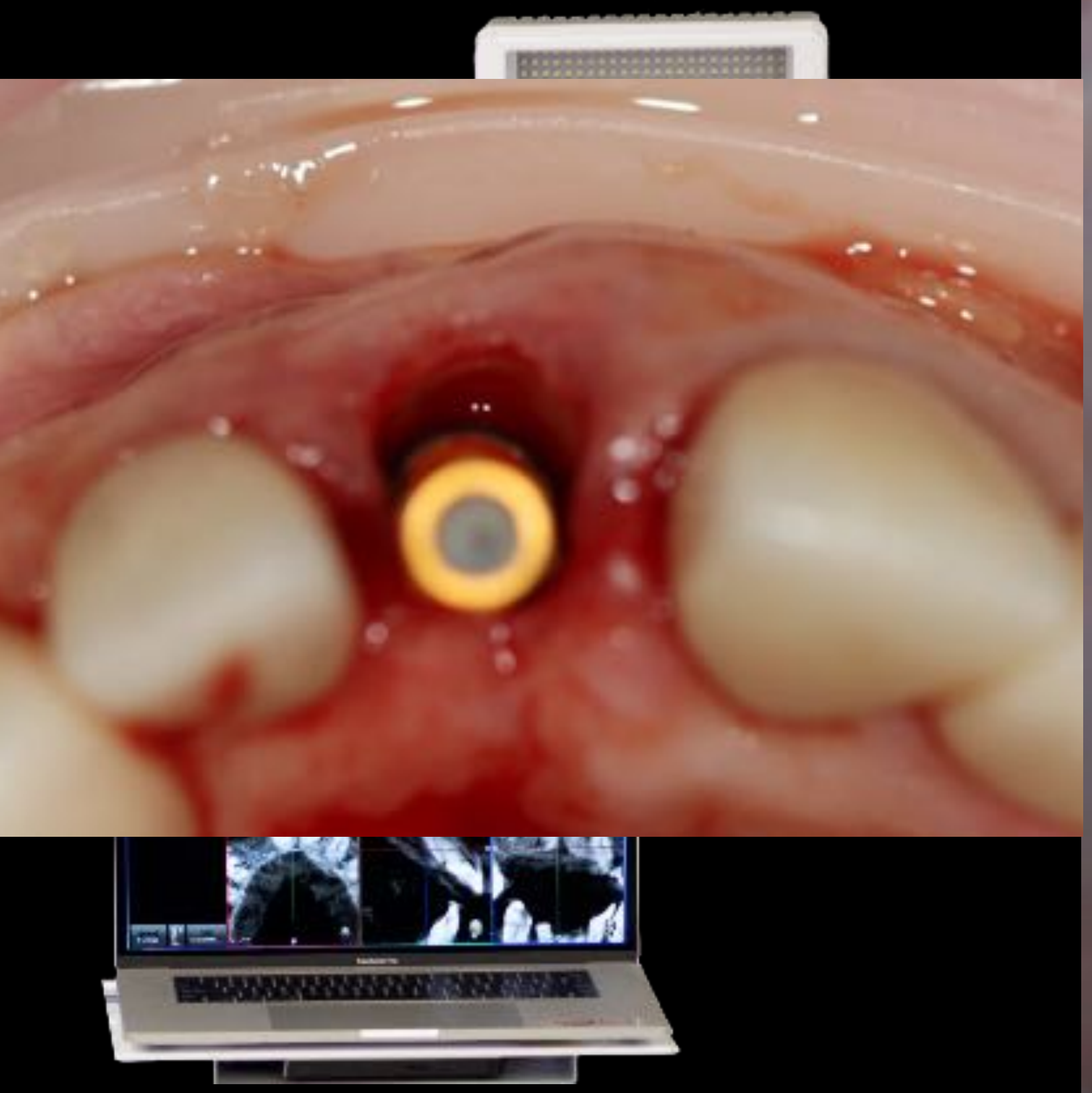
Partial Extraction Therapy

Digital Dynamic Shield

Partial Extraction Therapy

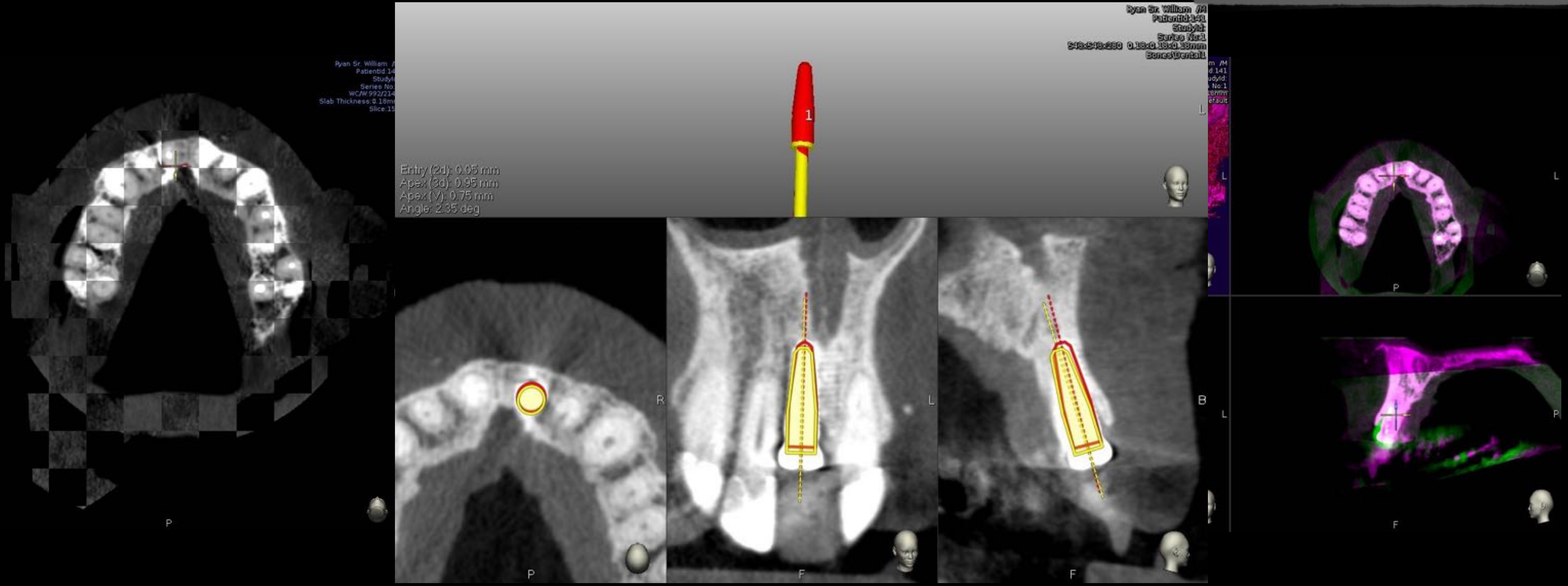
Partial Extraction Therapy

Digital Dynamic
Shield



EvaluNav

Entry: .05mm
Apex: 0.75mm
Angle: 2.35 deg



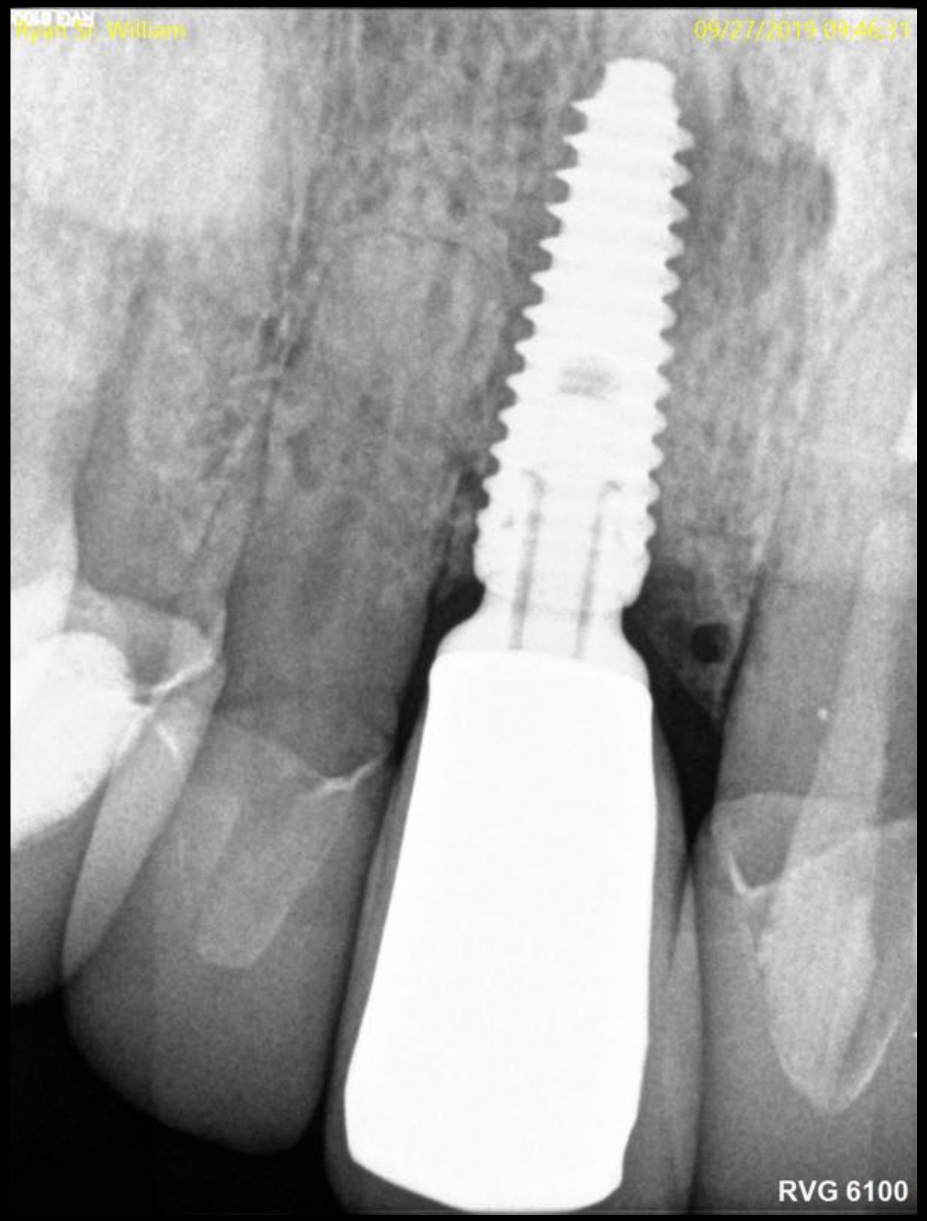
Partial Extraction Therapy

Digital Dynamic Shield


Root Membrane Technique
Digital Dynamic
Shield

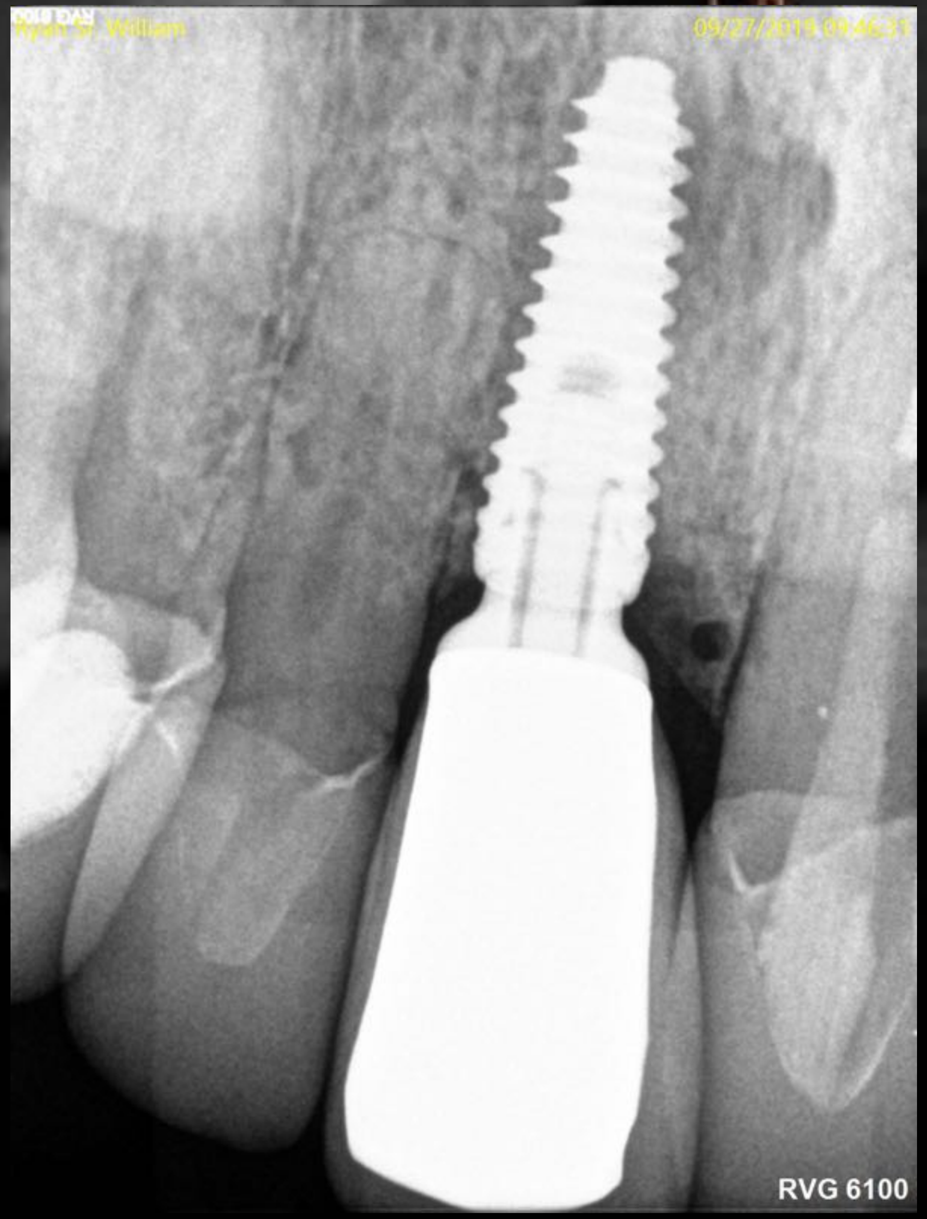
Partial Extraction Therapy

Digital Dynamic Shield



Partial Extraction Therapy

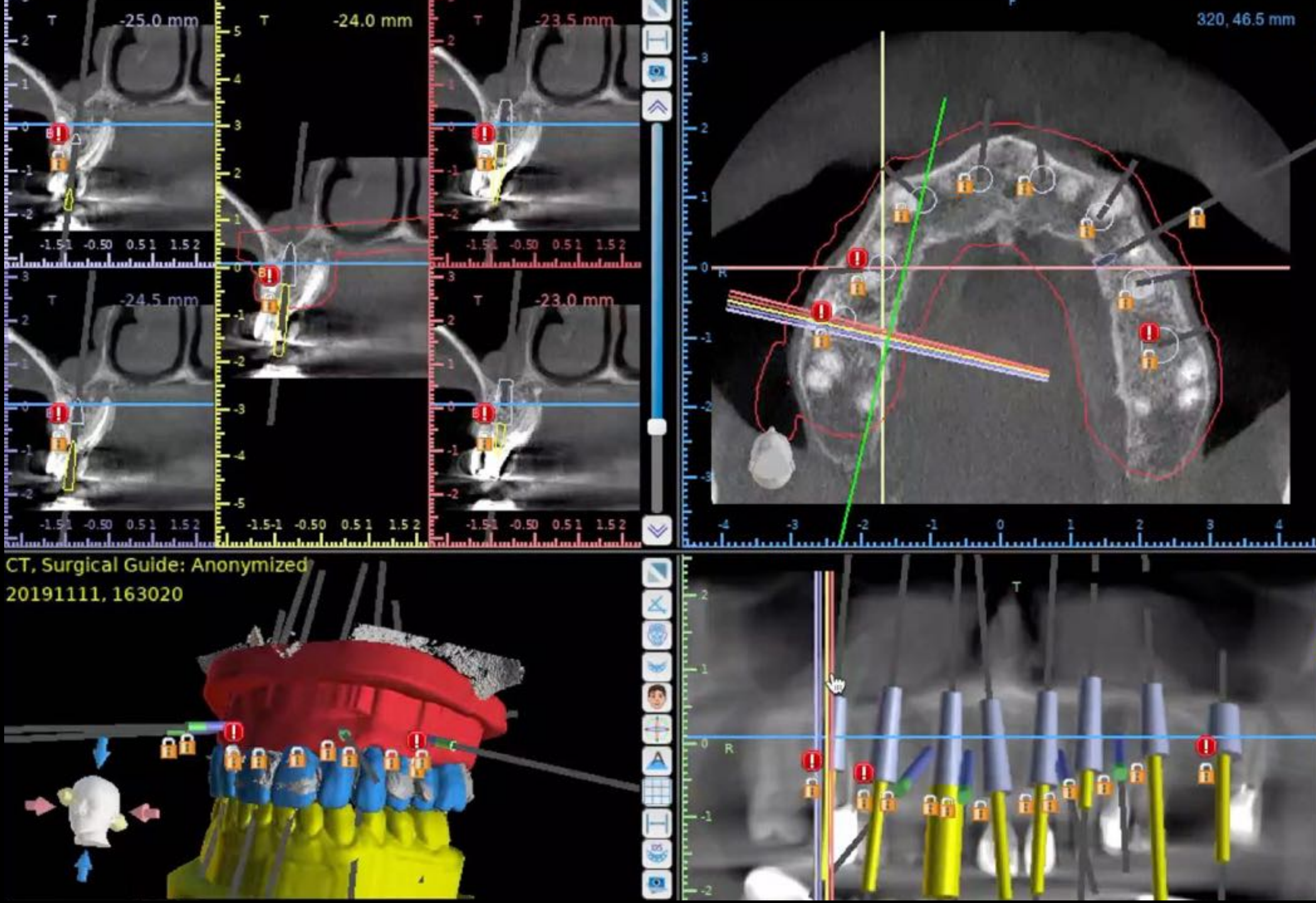
Digital Dynamic Shield



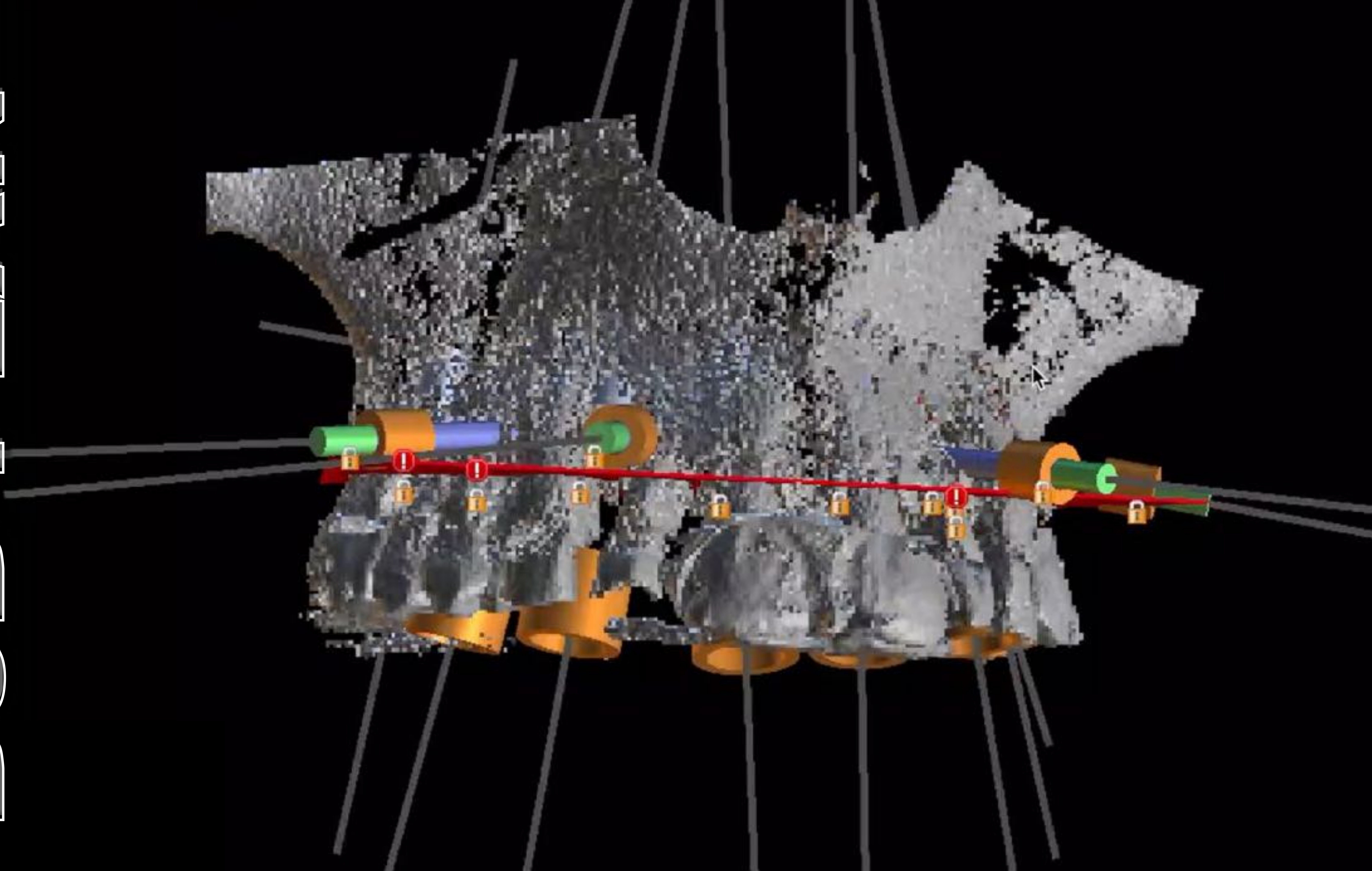
DIGITAL IMPLANTOLOGY

FULL ARCH

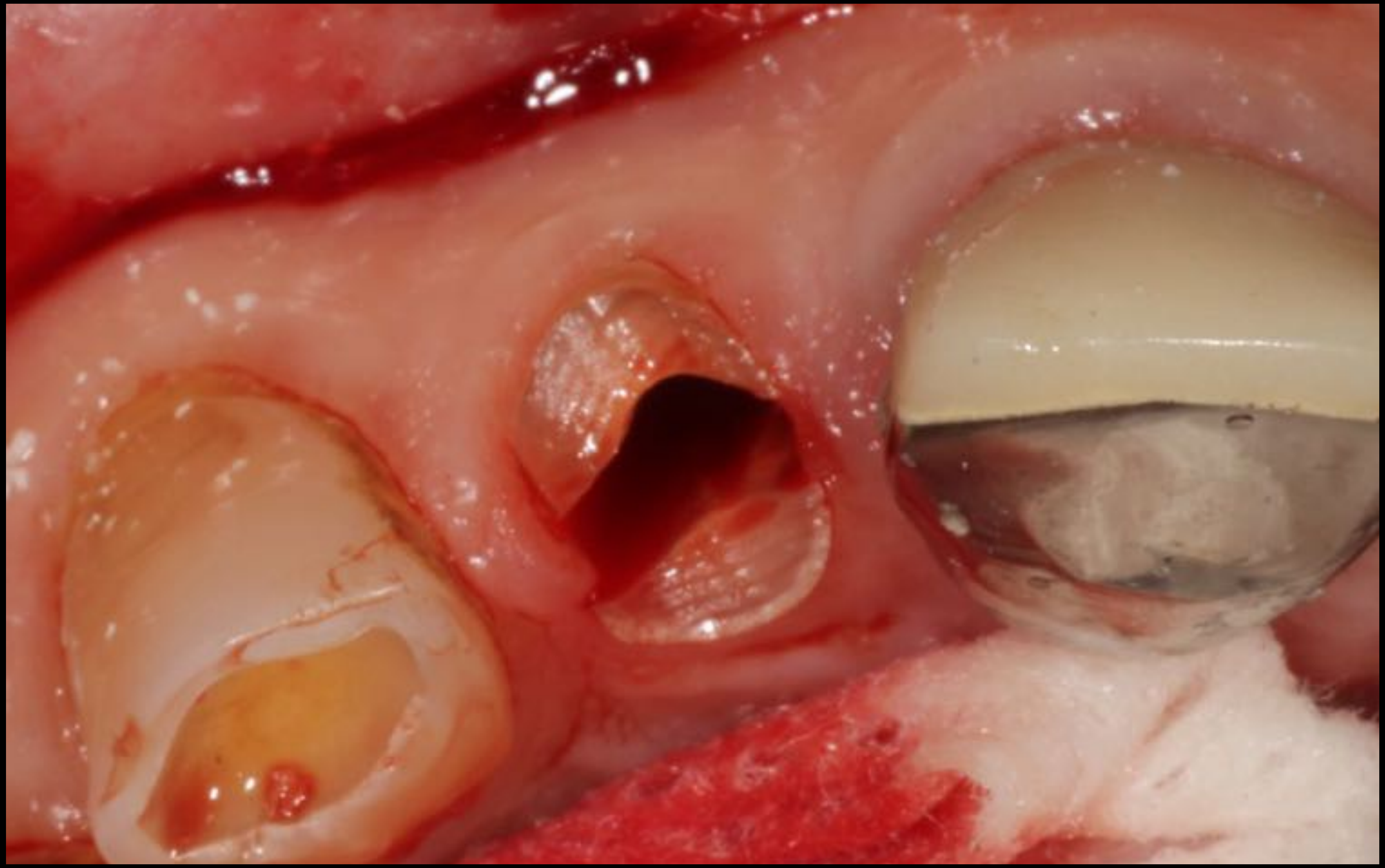
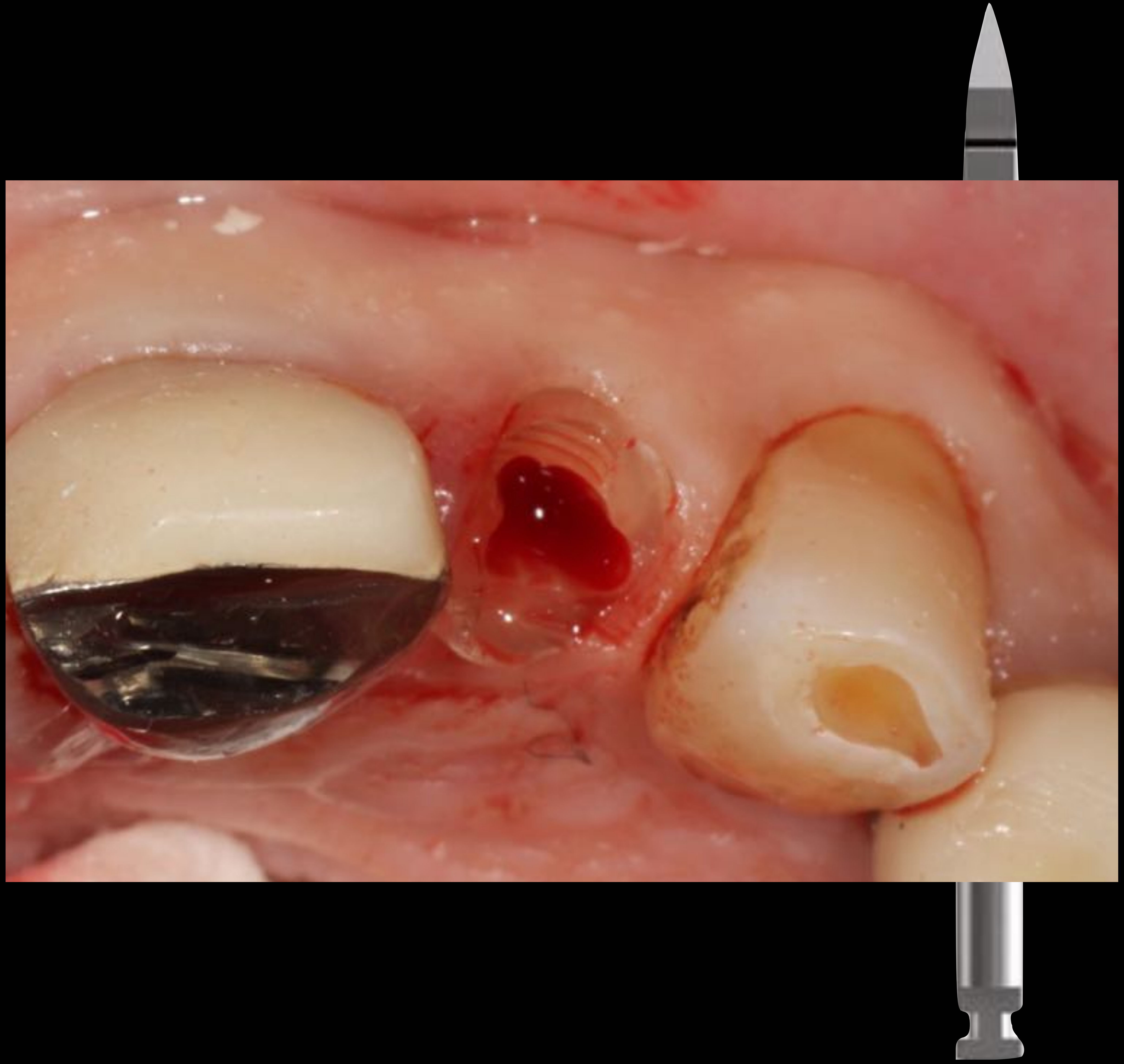
BSB PLAN


-25.0 mm
-24.0 mm
-23.5 mm
-24.5 mm
-23.0 mm
320, 46.5 mm
CT, Surgical Guide: Anonymized
20191111, 163020

BSB PLAN



Surgical Guidance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Surgical Guidance

Surgical Guidance


Immediate Loading
MEGA ISQ
74
ISQ


Immediate Loading


12 WEEKS

iJIG

iJIG


MEDIT Scan for Clinics
test hybrid's Case
02 : 02
mming
ols
rm Information
Live View
Calibrate
HD

Full-Arch Implant Surgical and Restorative Considerations:

Innovations in the Digital Workflow with iJIG

Scott D. Ganz, DMD

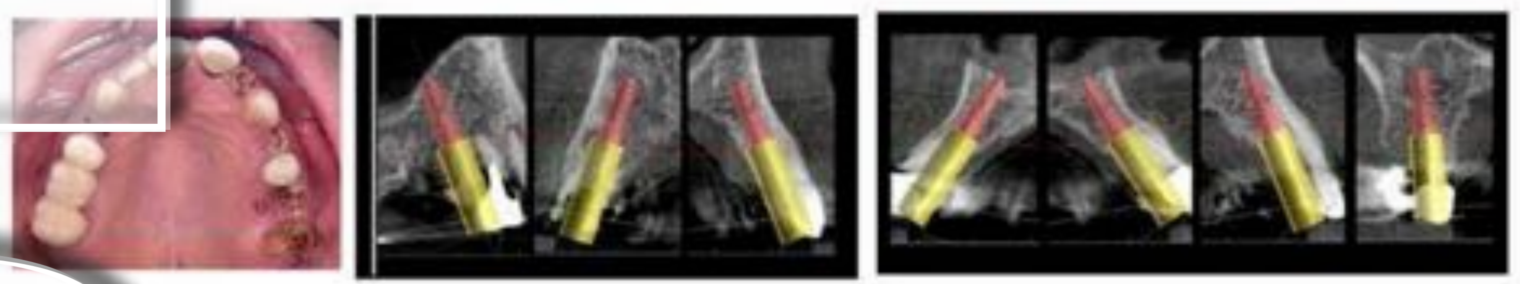
Isaac Tawil, DDS

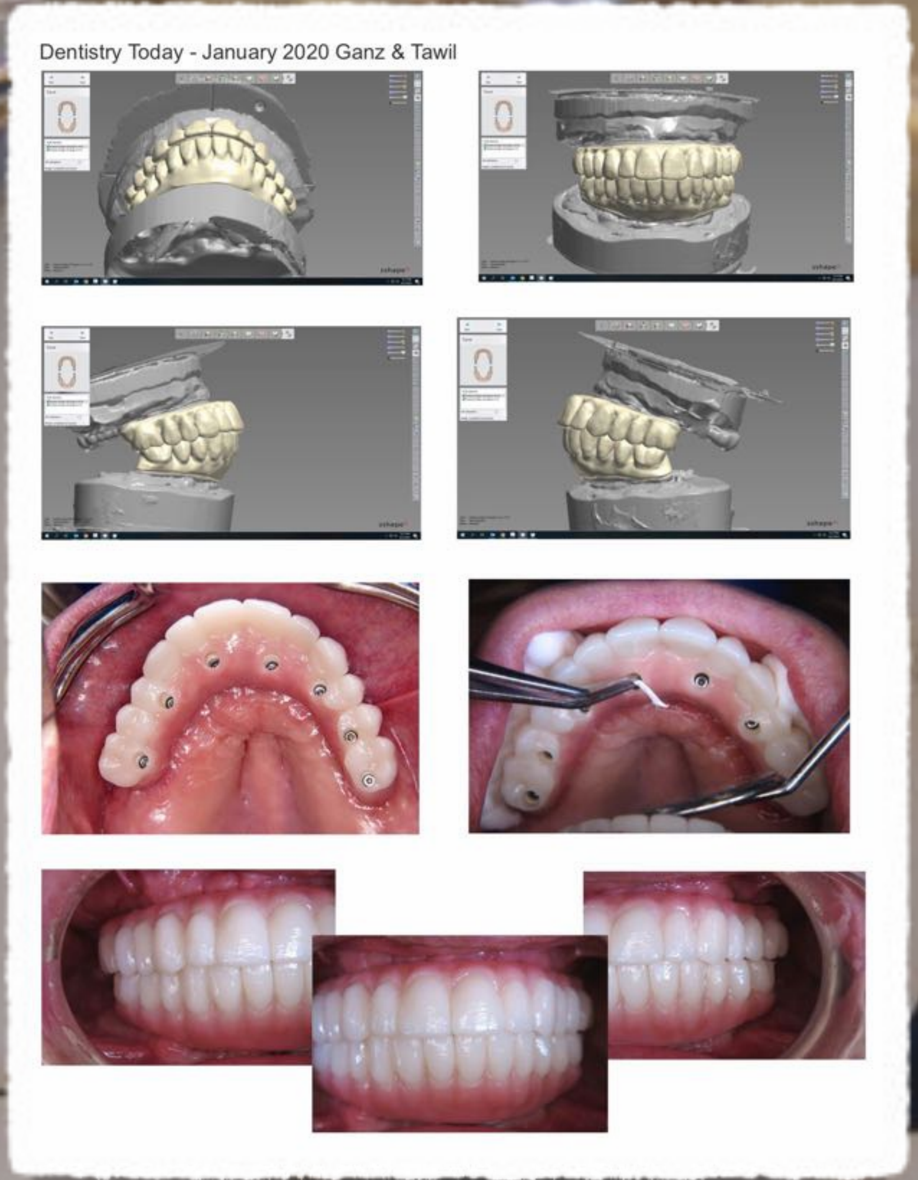
Introduction:

When a patient presents with a failing dentition there are several different treatment options available when a fixed-prosthetic result supported by dental implants is contemplated. This could include extraction and bone grafting allowing the ridge to heal before implants are placed, or extractions and immediate placement of implants with concurrent bone grafting to fill any voids in the remaining bony architecture. These two examples would usually leave the patient with a removable complete denture during the healing phase prior to loading of the implants for either a fixed or removable restoration. A treatment alternative was presented in the September 2019 (Ganz-Tawil) issue of Dentistry Today which described the necessary steps to achieve restoratively-driven surgical planning for full arch implant reconstruction where implants were loaded the day of surgery with a pre-fabricated fixed provisional restoration.

Immediate loading of dental implants offers many advantages over delayed treatment alternatives including: (1) the surgical phase is generally completed in one visit; (2) the pre-established occlusion can be planned in advance to achieve an immediate functional and esthetic result; (3) reduced overall treatment time to definitive restoration; and (4) a reduction in the number of patient visits. As technology continues to evolve, so do the variations in protocols that have been developed to enhance the process of delivering both pre-operative and post-operative treatment. This current article presents innovations that can improve the workflow essential to improve efficiencies and achieve success with single and dual full-arch implant reconstruction.

A 58 year old male presented with a failing dentition. The pre-operative intra-oral retracted view illustrates missing, broken, fractured, and decayed teeth, plaque and calculus accumulation, with severe soft tissue inflammation [Figs





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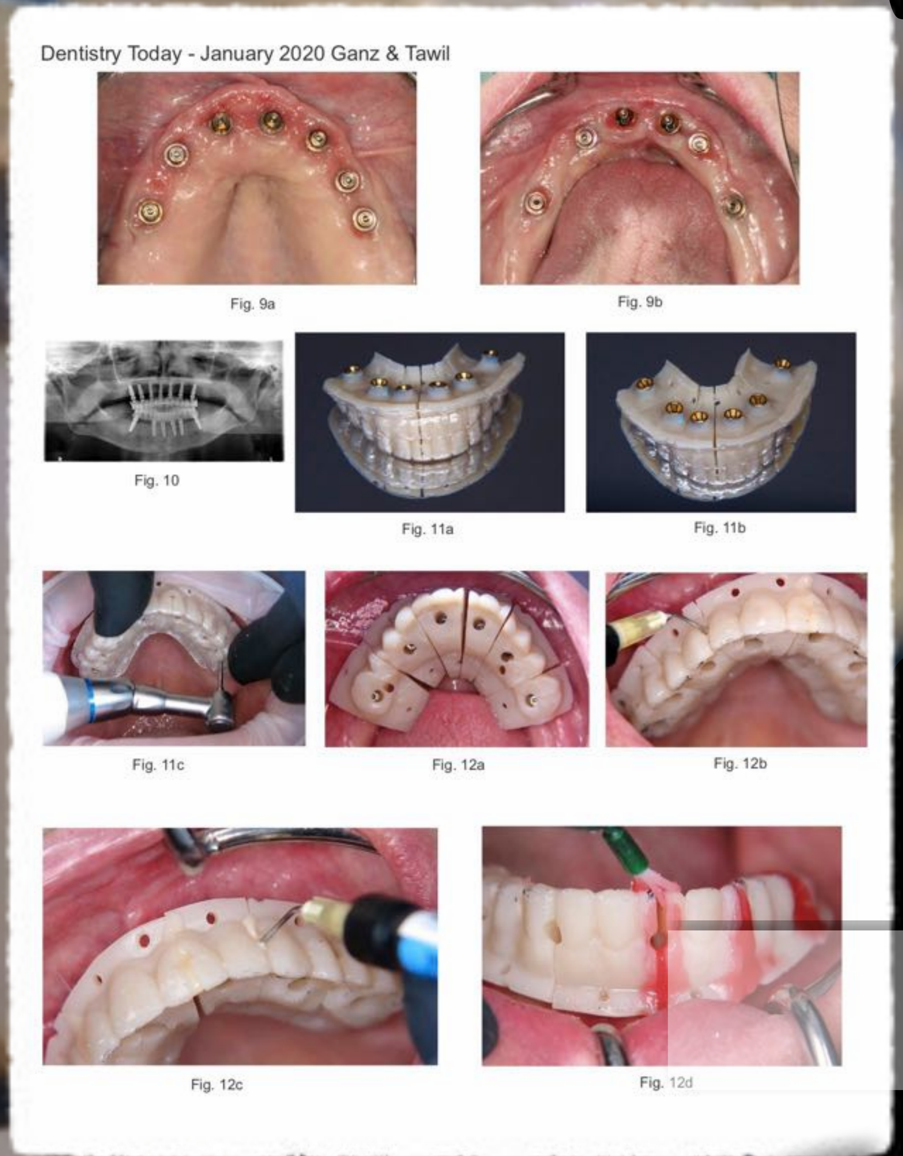

Dentistry Today - January 2020 Ganz & Tawil

Fig. 9a Fig. 9b Fig. 10 Fig. 11a Fig. 11b Fig. 11c Fig. 12a Fig. 12b Fig. 12c Fig. 12d

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Fig. 13a Fig. 13b Fig. 14 Fig. 15a Fig. 15b Fig. 16a Fig. 16b

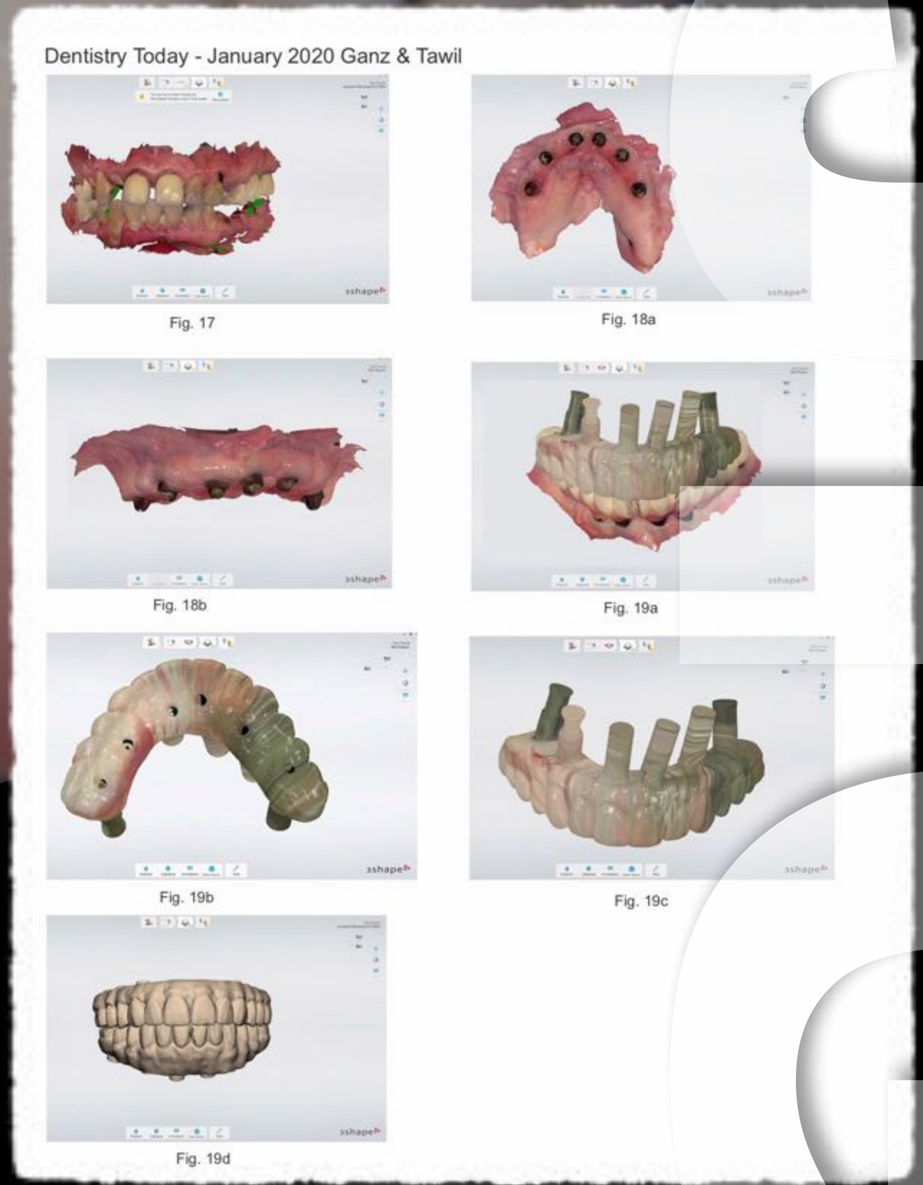

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Fig. 17 Fig. 18a Fig. 18b Fig. 19a Fig. 19b Fig. 19c Fig. 19d


Photogrammetry
iCam


Bodies
Photogrammetry


MEDIT Scan for Clinics
Live View
iOS

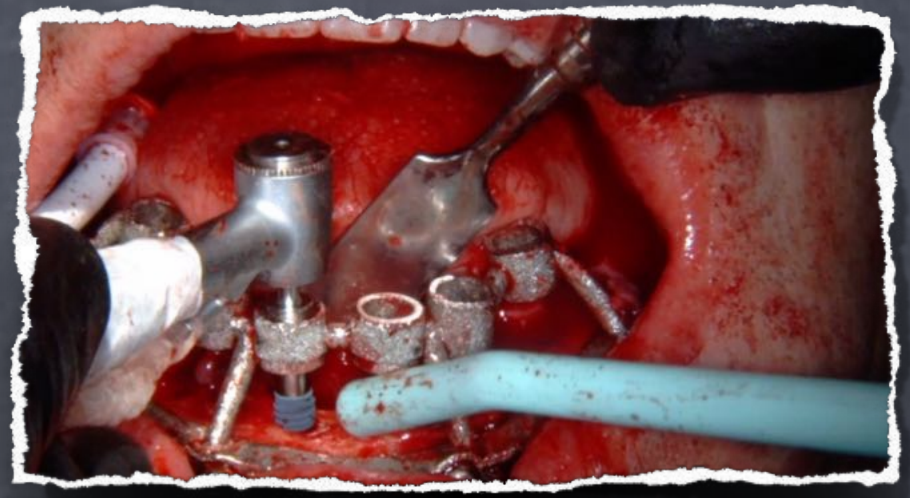

Cad-Cam
Design
MILL


Deliver
R
CS 9600


ging lives one smile at a time

• Full template-Guidance

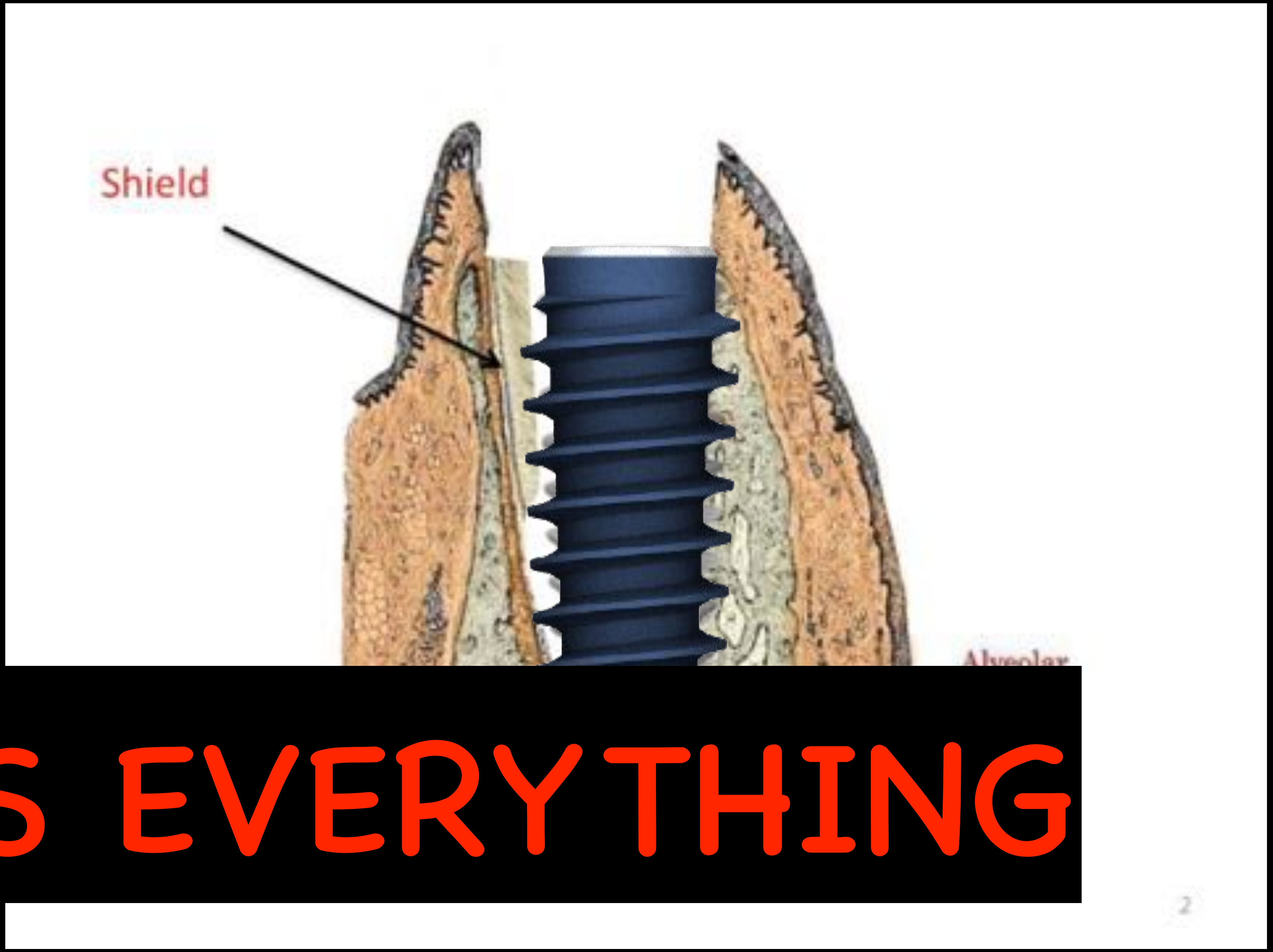
BENEFITS



- Diagnosis CBCT/iOS
- Restorativley Driven Treatment Planning
- Communication (Universal language w/ Lab and/or Patient)
- Improved Surgical/Restorative Accuracy
- Predictability (Guide is subset of CBCT Planning)
- Avoiding complications (sinus, nerve, malposition)
- Cost? (how much does it cost to repair errors?
- Teeth Today when applicable (Bone density, ISQ)

Partial Extraction Therapy

Root Membrane
Socket Shield
Pontic Shield



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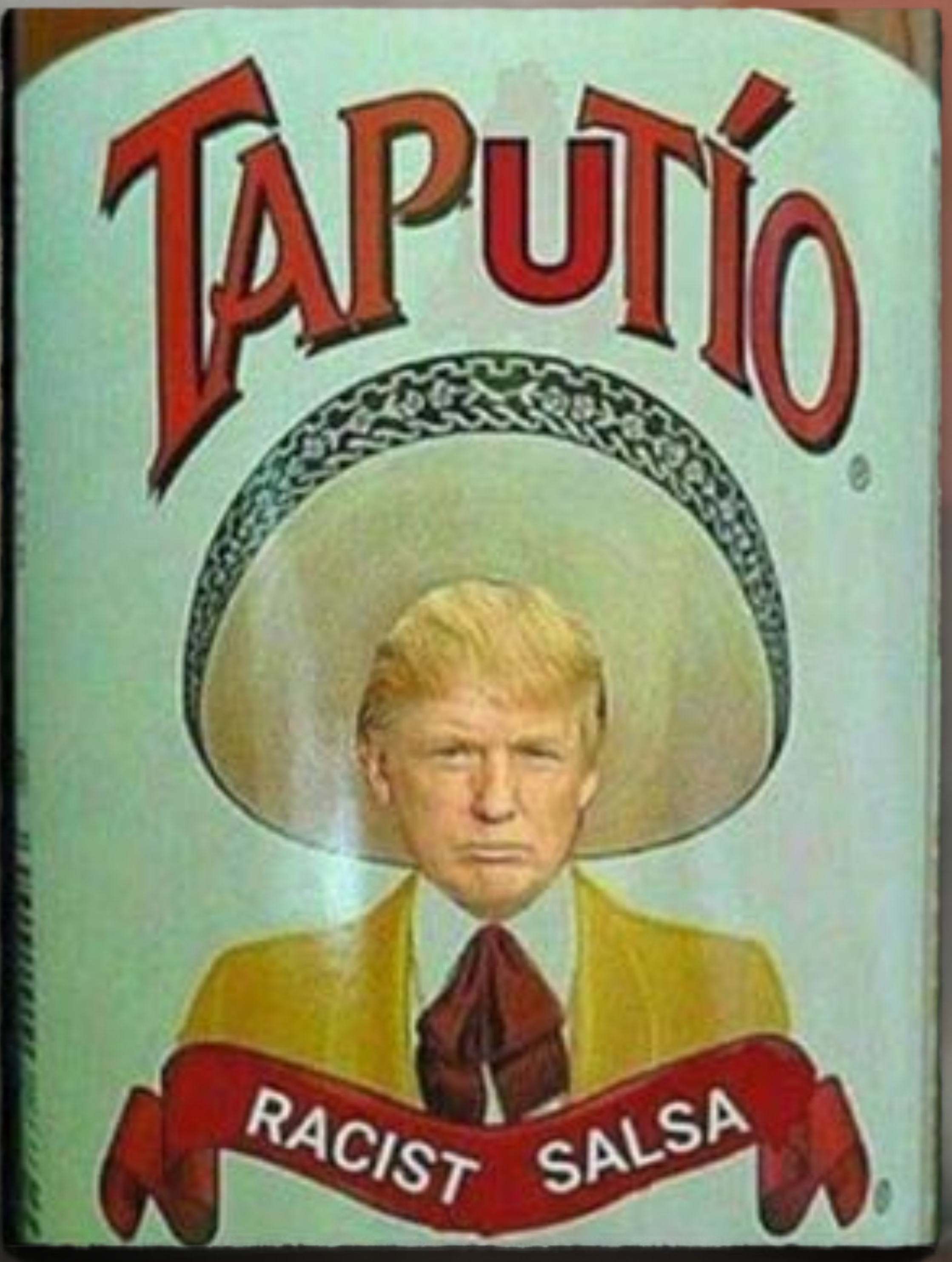

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