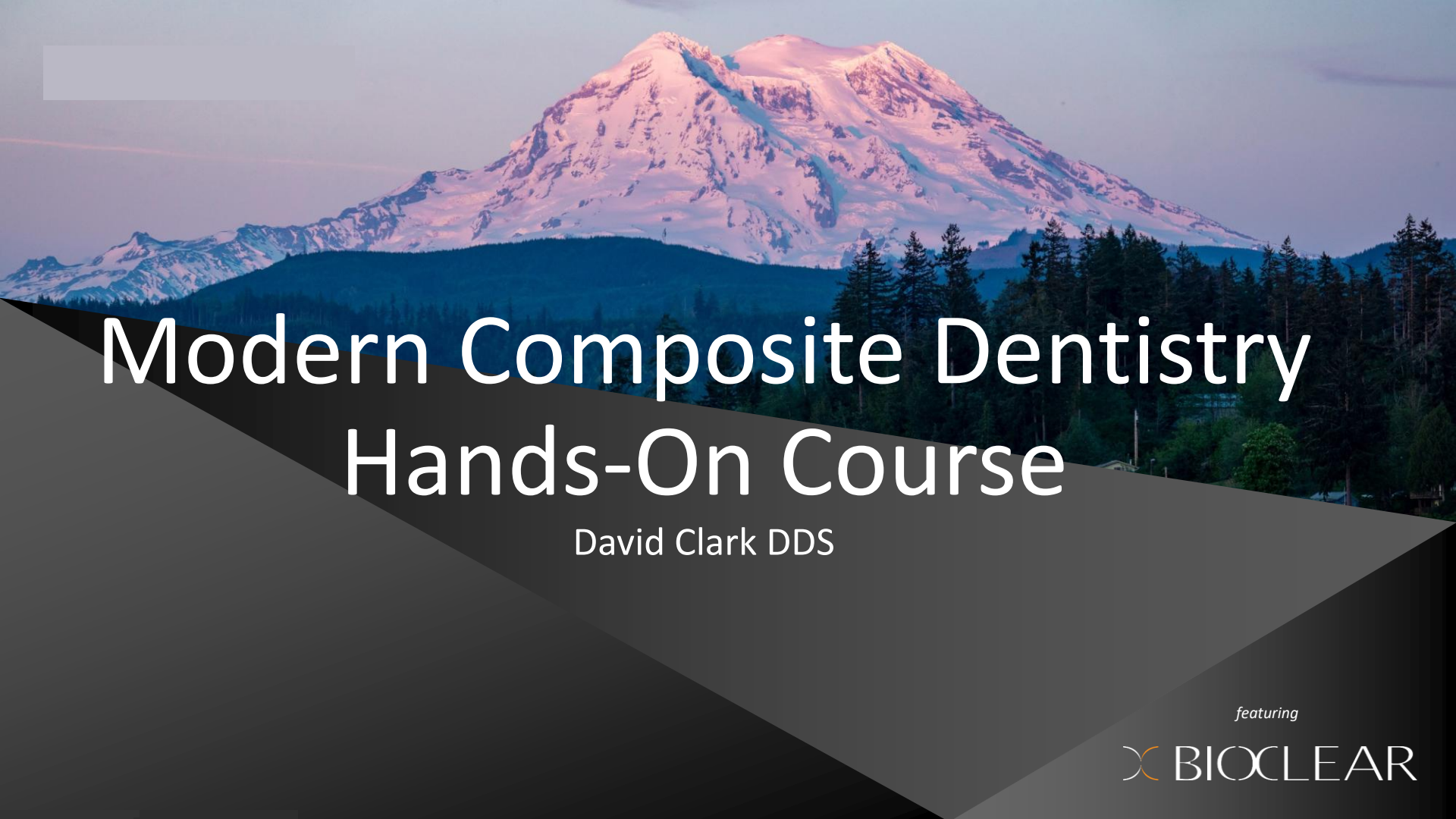




Modern Composite Dentistry Hands-On Course

David Clark DDS

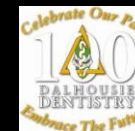
featuring

 BIOCLEAR



The **Bioclear Learning Center** provides a new pathway for dentists and their office to transition from traditional **GV Black dentistry**, to the extraordinary world of **modern direct dentistry**.





Bioclear Learning Center Faculty



Dr. Rafael Bustamante
Full Faculty



Dr. David Clark
Founder & Full Faculty



Dr. Charles Regalado
Full Faculty



Dr. Claire Burgess
Full Faculty



Dr. Dan Henricksen
Full Faculty



Dr. Marco Maiolino
Full Faculty



Dr. Joshua Solomon
Full Faculty



Dr. Abdelrahman Tawfik
Full Faculty



Dr. Johan Hagman
Full Faculty



Dr. Laurten Wilson
Full Faculty



Dr. Stephanie Couperus
Adjunct Faculty



Dr. David Carroll
Full Faculty

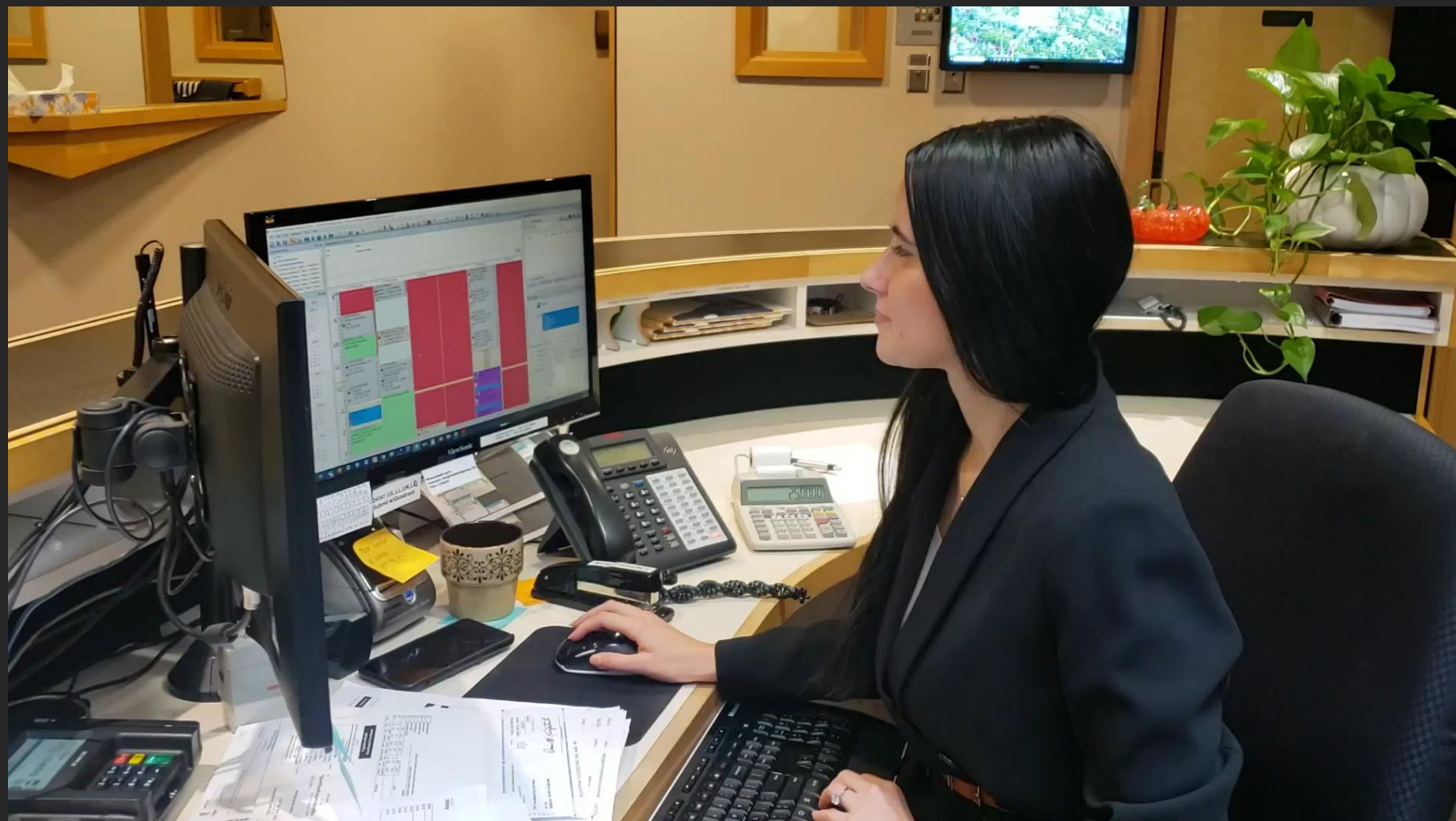


Lauren Wilson DMD
Full Faculty Bioclear Learning Center
laurenwilsondmd@bioclearmatrix.com





What is Liana's biggest fear?





What is Liana's biggest fear?



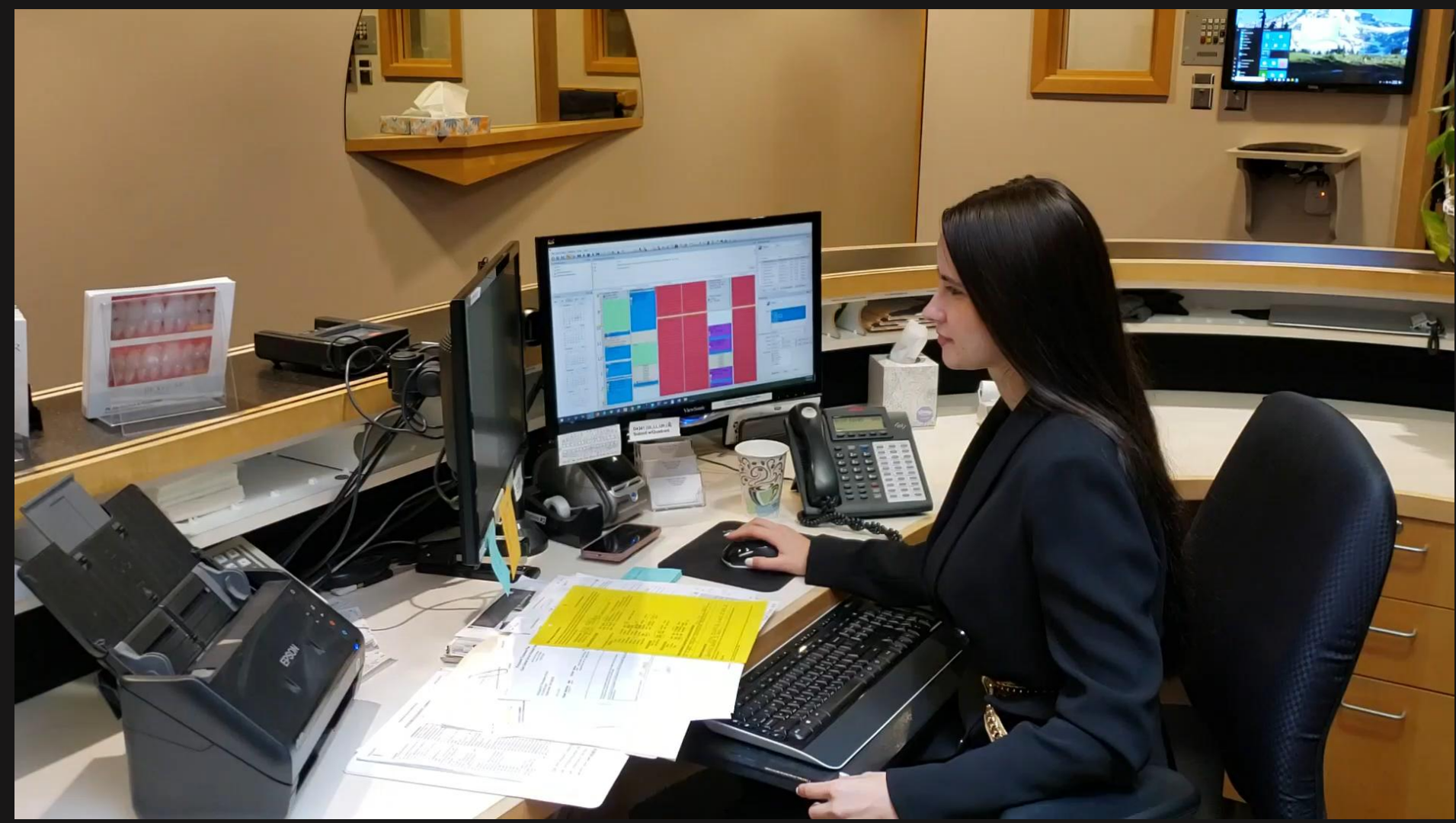








The Bioclear
Restoration
creates adequate
non-layered poly-
chromaticity with
Majesty ES **Body**
shade (Classic)



A Modern Method for Composite Restorations

Anatomic HD Clear Matrices

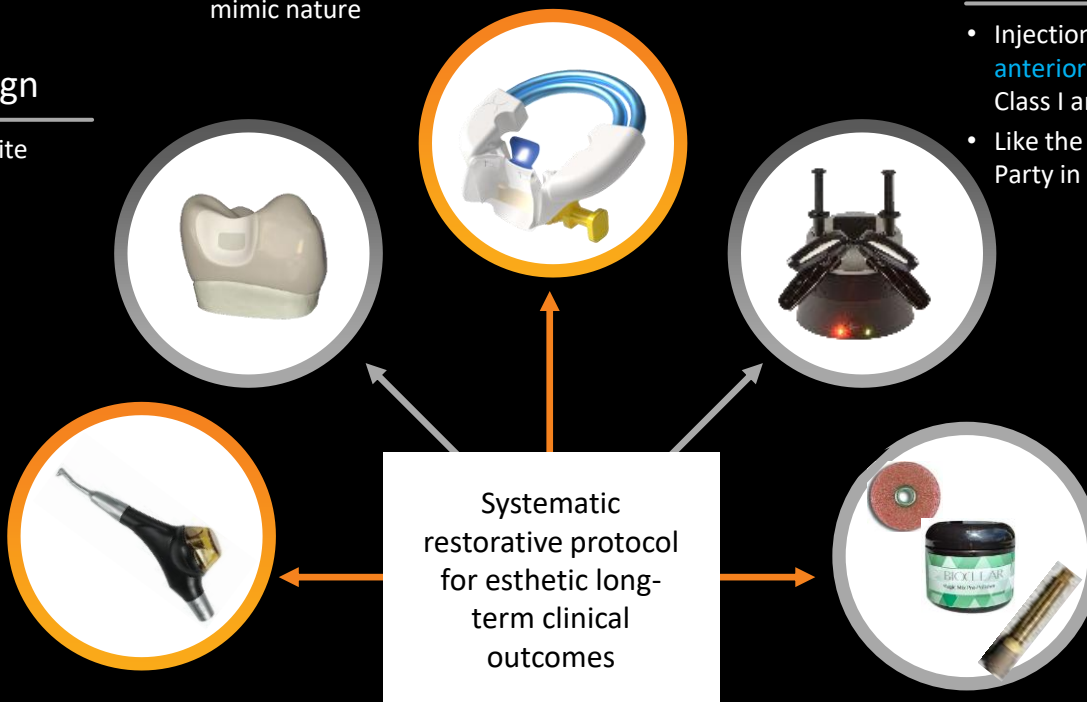
- Anterior & Posterior Matrices designed to mimic nature

Preparation Design

- Designed for composite
- Minimizes stress concentration
- Maximizes enamel involvement

Bioclear Blaster or Equivalent for Biofilm Removal

- Uses aluminum trihydroxide w/ water
- Allows bonding to uncut enamel
- Allows infinity edge margins



Injection Mold Composite

- Injection mold warmed [Kuraray Majesty anterior composites](#) and [3M bulk fill](#) in Class I and Class II restorations
- Like the inverse of my mullet haircut: Party in the front Business in the back

Rock Star Polish

- Coarse discs for reduction
- “Rock Star” polish with Bioclear Magic Mix and disposable cup
- Bioclear RS Diamond Polisher



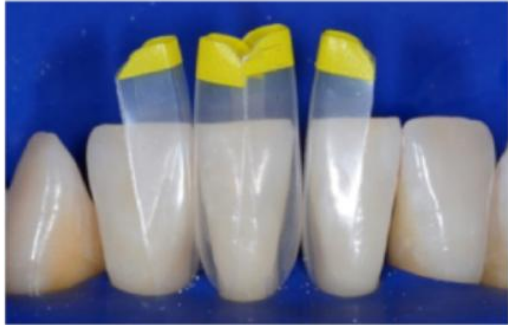
Does **composite resin** as an **amalgam** substitute protect the tooth from breaking in a Class I or Class II?

Nope!

Getting paid to be conservative

BIOCLEAR VS. CROWNS AND VENEERS

Bioclear is an alternative to traditional dental methods for enhancing a smile. Rather than grinding down a tooth to prepare for a crown or veneer, the Bioclear Method of enscoring the natural tooth structure retains the natural tooth enamel and tooth durability.



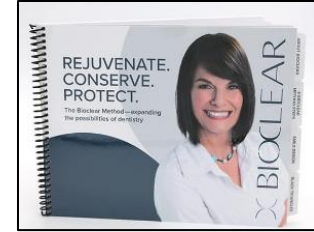
BIOCLEAR PREPARATION

Bioclear allows dentists to **conserve** healthy tooth structure



CROWN PREPARATION

Crowns require dentists to **remove an average of 76%** of the tooth structure prior to the procedure



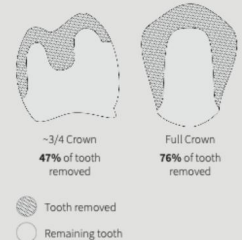
AN HONEST LOOK AT CROWN PREPARATIONS

As illustrated below, crowns, veneers, and onlays require the removal of a significant amount of healthy tooth structure. Bioclear dentists can leave most or all of the tooth structure. Bioclear is a very attractive option to patients.



VENEER PREPARATION

Veneers require dentists to **remove an average of 47%** of the tooth structure prior to the procedure



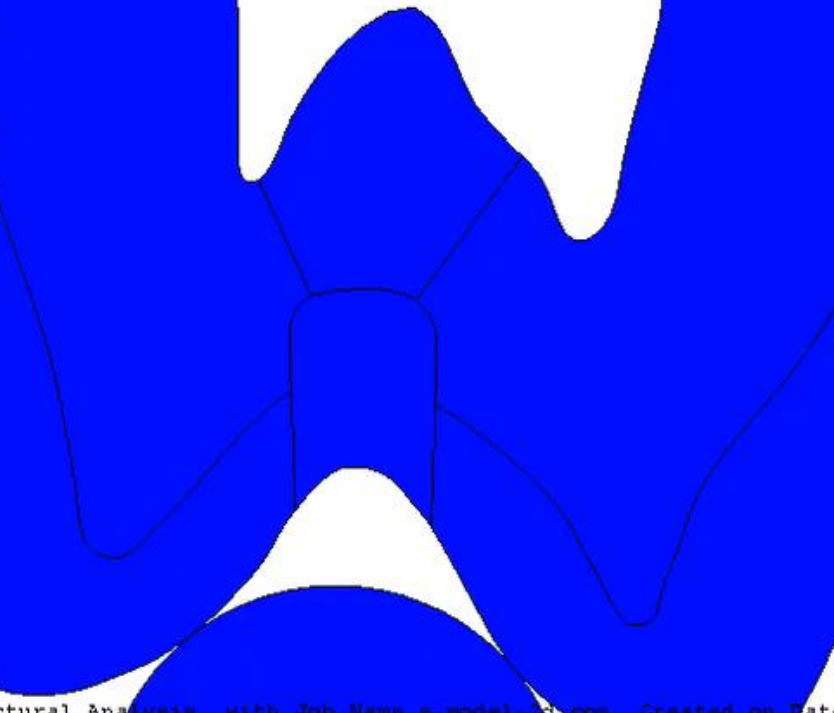
THE SCIENCE OF STRONG RESTORED TEETH



DR. DAVID CLARK



DR. ALEX FOK



ABAQUS Structural Analysis with Job Name = model-2d-geom Created on Date = 25-A
 : model-cdm-nl.odm ABAQUS/STANDARD Version 6.5-1 Wed May 03 13:28:29 GMT

Step: Step-1
 Increment: 10: Step Time = 0.000

Color bar legend for 'C' variable:

- 5.000e+01
- 4.667e+01
- 4.333e+01
- 4.000e+01
- 3.667e+01
- 3.333e+01
- 3.000e+01
- 2.667e+01
- 2.333e+01
- 2.000e+01
- 1.667e+01
- 1.333e+01
- 1.000e+01
- 6.667e+00
- 3.333e+00
- 0.000e+00

2
3

Step: Step-1
Increment 0: Stop Time = 0.000
Primary Var: S, Max. Principal
Deformed Var: U Deformation Scale Factor: +1.000e+01

Epidemic of Cracked Teeth



“Around” the tooth versus
“In” the tooth



Step by Step Guide for Injection Molded Class II

1st Pillar of Modern Composite

Disclosing of Biofilm, then
Blasting to remove Biofilm plus
remove Protein Pellicle

Part 1 | Biofilm Removal

If you were going to paint a wall that looked like this....



...you'd prepare the surface to receive the paint and have it stay long-term.

We need to do the same with teeth...



Clean teeth surfaces allow for

- Better adhesion
- Difference between “Flash” and an infinity edge at the Tooth Restoration Interface

Does 37% phosphoric acid
(gel etchant)
remove biofilm?

Composite
Heating: Trend
or the future of
placing the
material?

 **HEAT
SYNC**
by BIOCLEAR

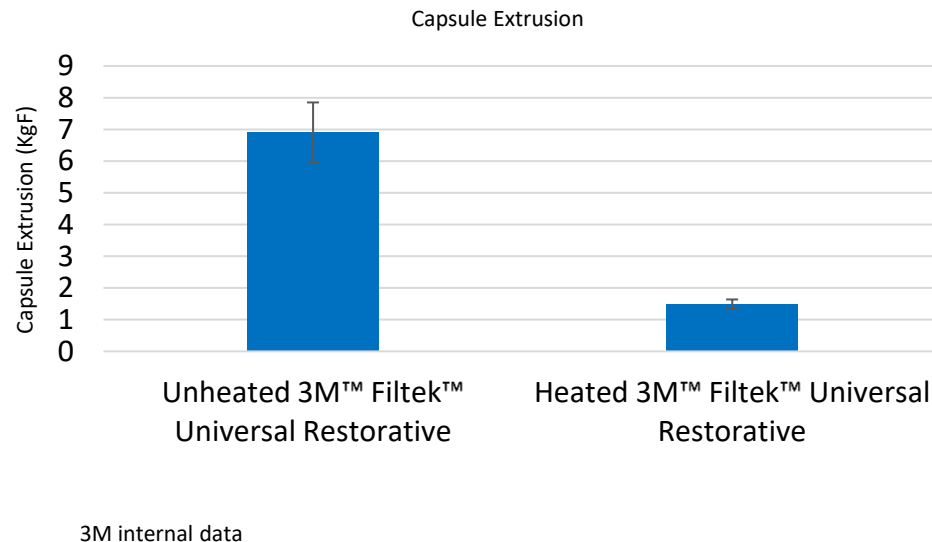


Bioclear HeatSync
Composite Warmer
pre-set to **155° F**

Composite warming

Why warm?

- Handling preference
- Lowers capsule extrusion force by 75-80%



14% of dentists survey stated they use some type of device to warm their composite prior to placement.

3M Market Research, January, 2018 N=304 Dentists (US, Russia, UK, Brazil, Germany)

Conclusions

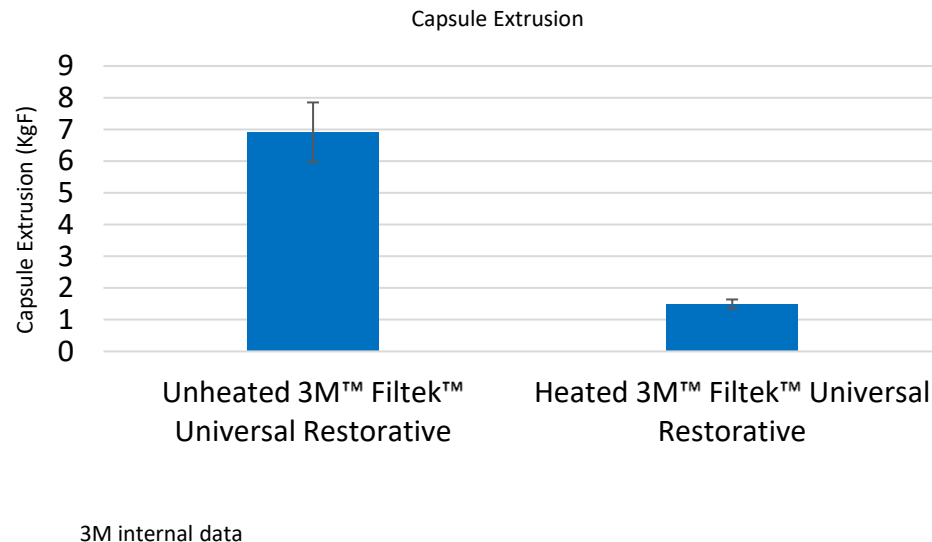
- Preheating a syringe of Filtek™ Bulk Fill Posterior to 60 °C for twenty 1 hour increments does
 - NOT harm mechanical properties such as
 - Diametral tensile strength
 - Flexural strength
 - NOT harm cure properties such as
 - Depth of cure
 - Cusp deflection (polymerization shrinkage stress)
 - NOT harm esthetic properties such as
 - Color and opacity
 - Polish retention

From: Does Preheating a Dental Composite Degrade its Post-Cure Properties?
T.D. Dunbar et al., *J Dent Res* 95 (Spec Iss A):952, 2016 (www.iadr.org).

Composite warming

Why warm?

- Handling preference
- Lowers capsule extrusion force by 75-80%



14% of dentists survey stated they use some type of device to warm their composite prior to placement.

3M Market Research, January, 2018 N=304 Dentists (US, Russia, UK, Brazil, Germany)

Let's go back to 2007...

“Dr. Clark, aren't we supposed to layer everything?”

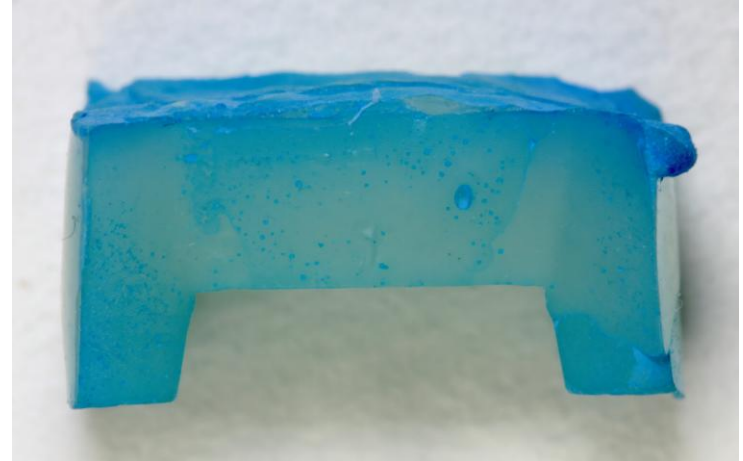
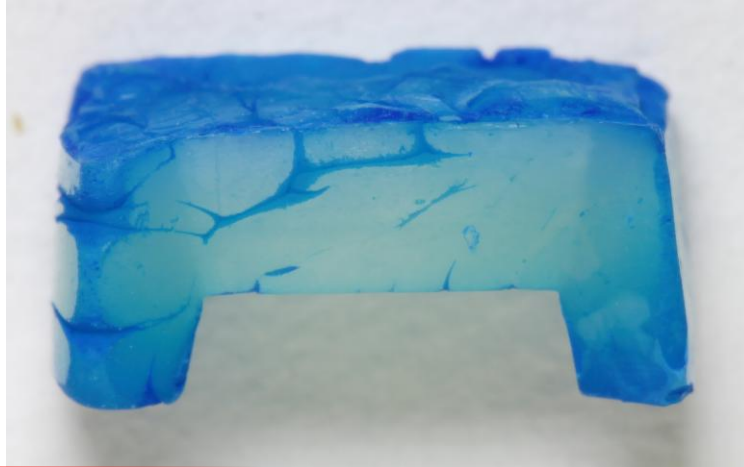
Studies do not support layering to mitigate polymerization stress

- ◆ Does Incremental Filling Technique Reduce Polymerization Shrinkage Stresses?
Versluis A, et.al., J Dent Res March 1996; 75(3): 871-878
- ◆ An In Vitro Study of the Effect of Restorative Technique on Marginal Leakage in Posterior Composites
Neiva IF, et.al.; Oper Dent 1998, 23:282-289
- ◆ Microleakage and adaptation of Class II packable resin-based composites using incremental or bulk filling techniques
Gallo JR, et.al., Am J Dent 2000; 13: 205-208
- ◆ The Effects of Adhesive Thickness on Polymerization Contraction Stress of Composite
Choi KK, et.al., J Dent Res 2000; 79(3): 812-817
- ◆ Microleakage of Posterior Packable Resin Composites with and without flowable liners
Leevailoj C, et.al., Oper Dent 2001; 26: 302-307
- ◆ Marginal adaptation of Class II resin composite restorations using incremental and bulk placement techniques: and ESEM study
Idriss S, et.al., J Oral Rehab 2003; 30: 1000-1007
- ◆ A reappraisal of the incremental packing technique for light cured composite resins
Rees JS, et.al., J Oral Rehab 2004; 31: 81-94
- ◆ Cuspal deflection and depth of cure in resin-based composite restorations filled by using bulk, incremental and transtooth-illumination techniques
Carlos E. Campodonic, DDS 2011, October 2011 JADA

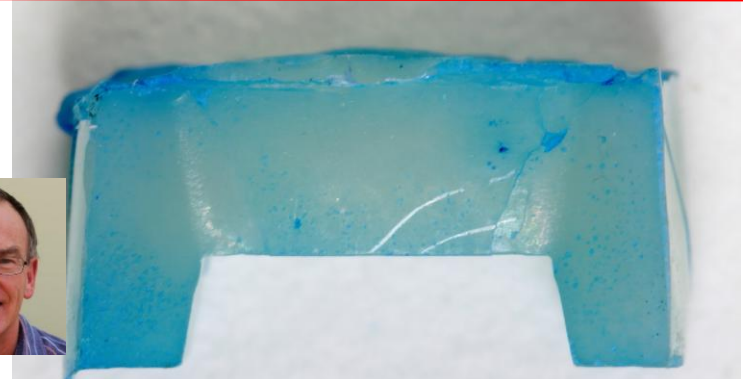
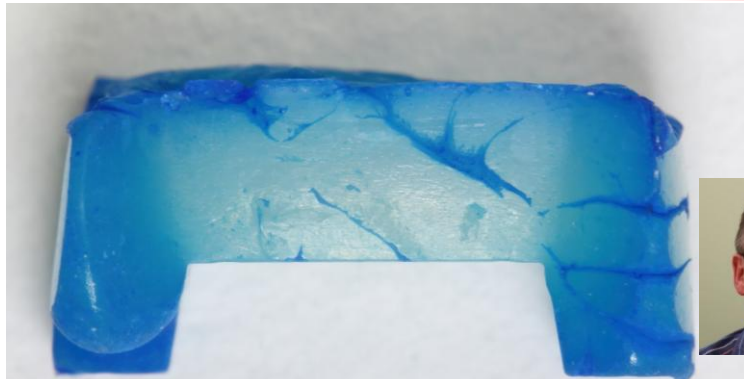
Hand-Packed and Layered

Monolithic and Injection-Molded

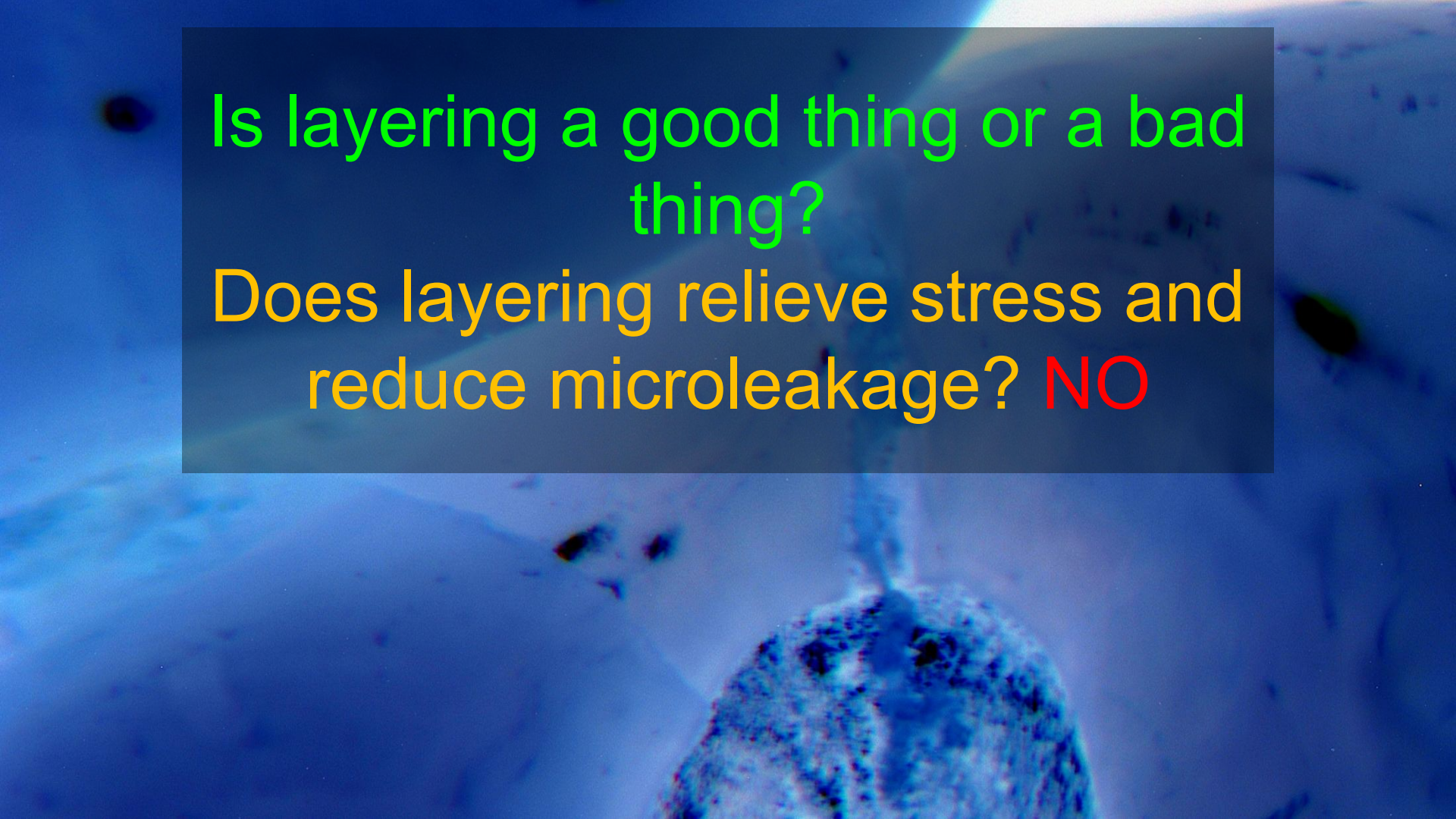
Dr. #1



Dr. #2



Courtesy Dr. Richard Price

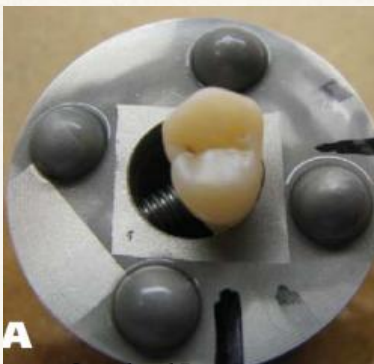


Is layering a good thing or a bad thing?

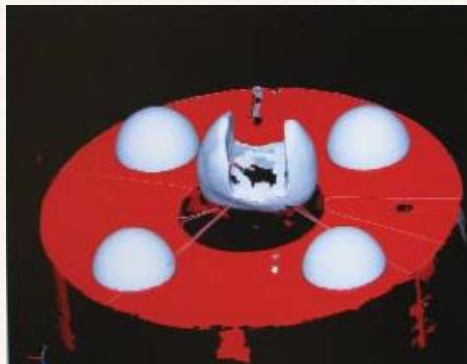
Does layering relieve stress and reduce microleakage? **NO**

October 2011 JADA

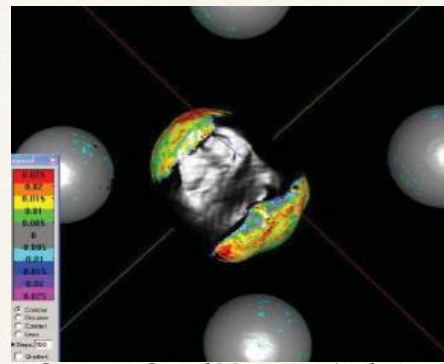
Cuspal deflection and depth of cure in resin-based composite restorations filled by using bulk, incremental and transtooth-illumination techniques



Completed Restoration



COS Scan



Computer Cuspal Movement Analysis

"Conclusions: Cuspal deflection was not affected by filling techniques."

"Filtek Supreme Plus had lower curing values below a depth of 2 mm."

"Clinical Implications. When using resin-based composite restorative materials, clinicians should be more concerned about the effect of filling techniques on curing depth than about how these techniques affect shrinkage stresses."

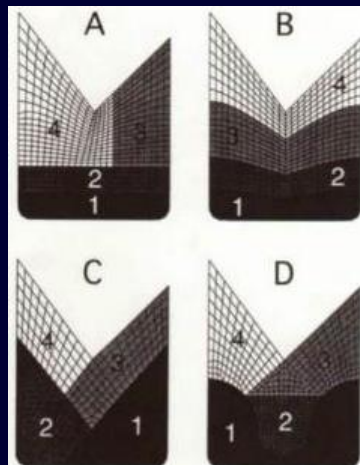
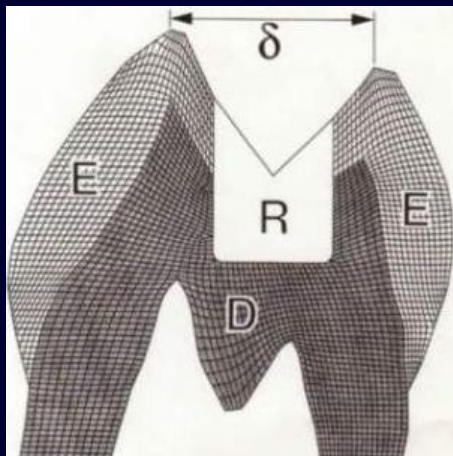
Does an incremental filling technique reduce polymerization shrinkage stresses?

Versluis A, Douglas WH, Cross M, Sakaguchi RL.

Minnesota Dental Research Center for Biomaterials and Biomechanics, University of Minnesota, Minneapolis 55455, USA.

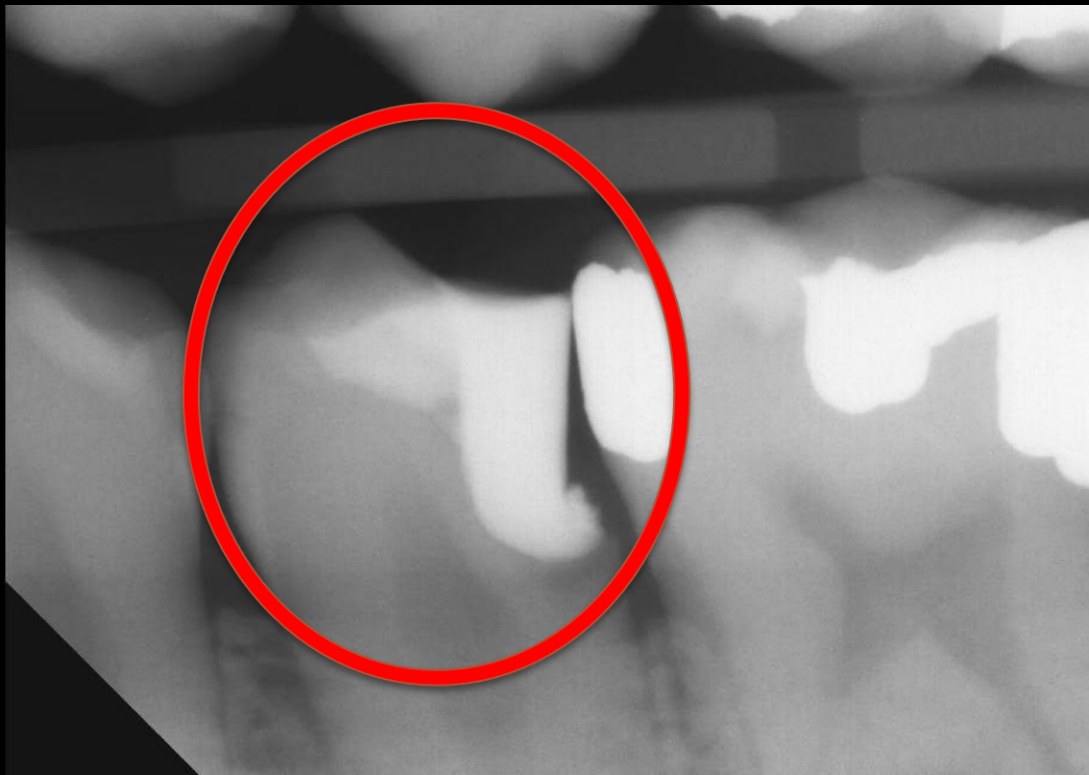
Abstract

It is widely accepted that volumetric contraction and solidification during the polymerization process of restorative composites in combination with bonding to the hard tissue result in stress transfer and inward deformation of the cavity walls of the restored tooth. Deformation of the walls decreases the size of the cavity during the filling process. This fact has a profound influence on the assumption—raised and discussed in this paper—that an incremental filling technique reduces the stress effect of composite shrinkage on the tooth. Developing stress fields for different incremental filling techniques are simulated in a numerical analysis. The analysis shows that, in a restoration with a well-established bond to the tooth—as is generally desired—incremental filling techniques increase the deformation of the restored tooth. The increase is caused by the incremental deformation of the preparation, which effectively decreases the total amount of composite needed to fill the cavity. This leads to a higher-stressed tooth-composite structure. The study also shows that the assessment of intercuspal distance measurements as well as simplifications based on generalization of the shrinkage stress state cannot be sufficient to characterize the effect of polymerization shrinkage in a tooth-restoration complex. Incremental filling methods may need to be retained for reasons such as densification, adaptation, thoroughness of cure, and bond formation. However, it is very difficult to prove that incrementalization needs to be retained because of the abatement of shrinkage effects.



Epidemic of Failing Composites





Let's compare old vs. new

∞ BIOCLEAR

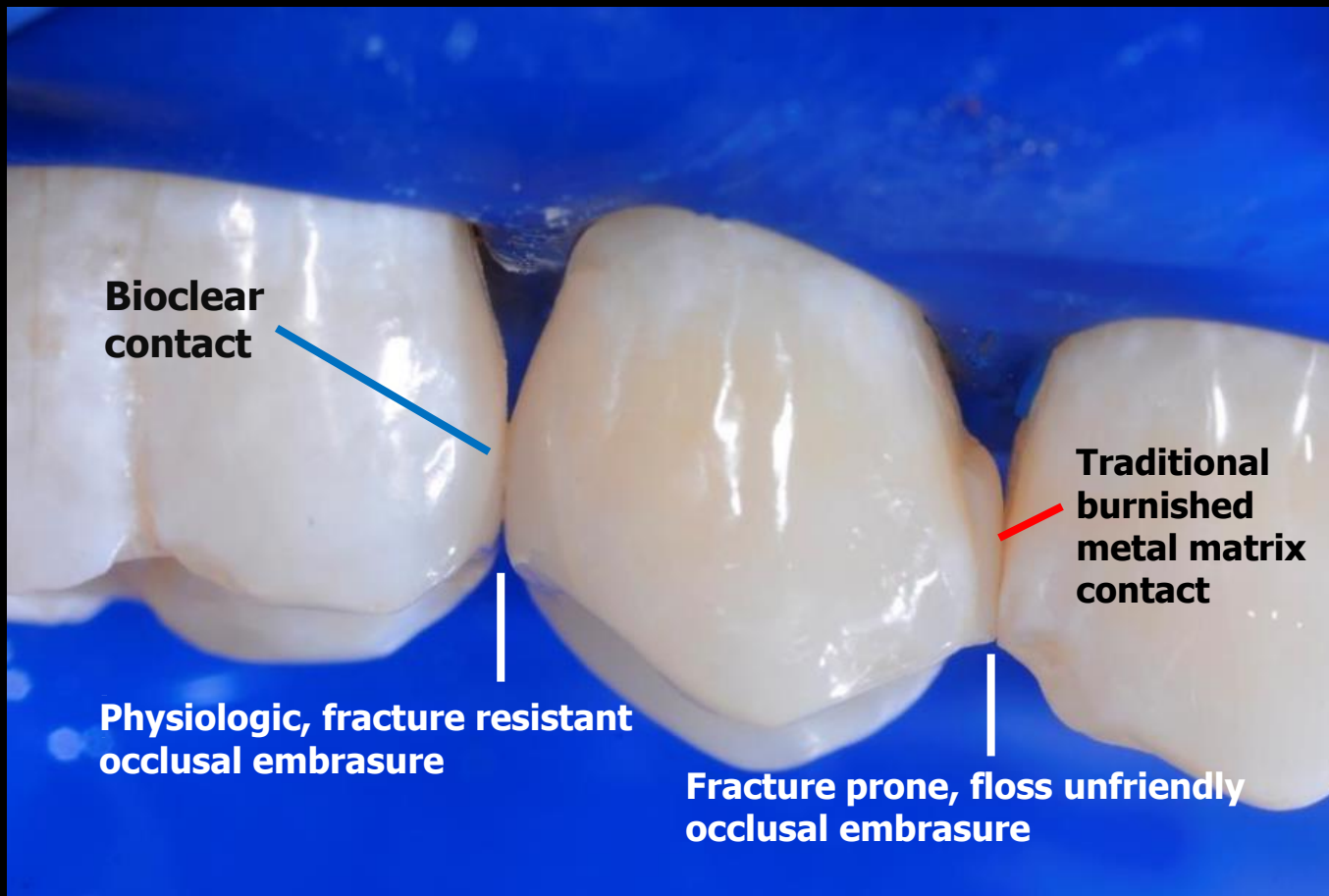
Traditional box
prep restoration
with staining
margins and
burnished
mediocre shape.



Bioclear
restoration with
Evolve Matrix,
Twin Ring
Universal, and
Diamond Wedge
combined with
an infinity edge.

Buccal View Post-Op

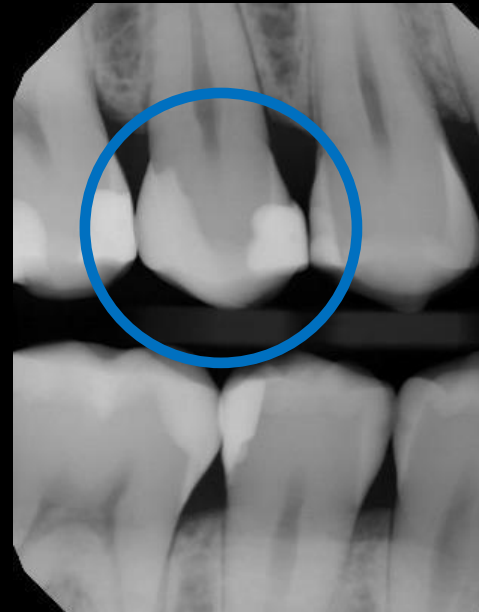
∞ BIOCLEAR

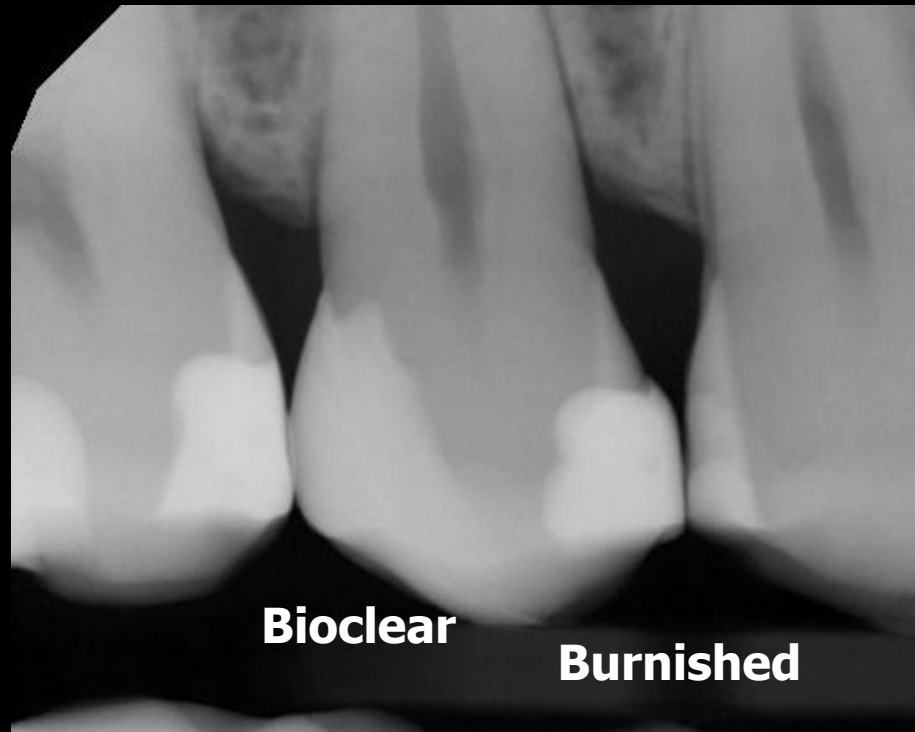
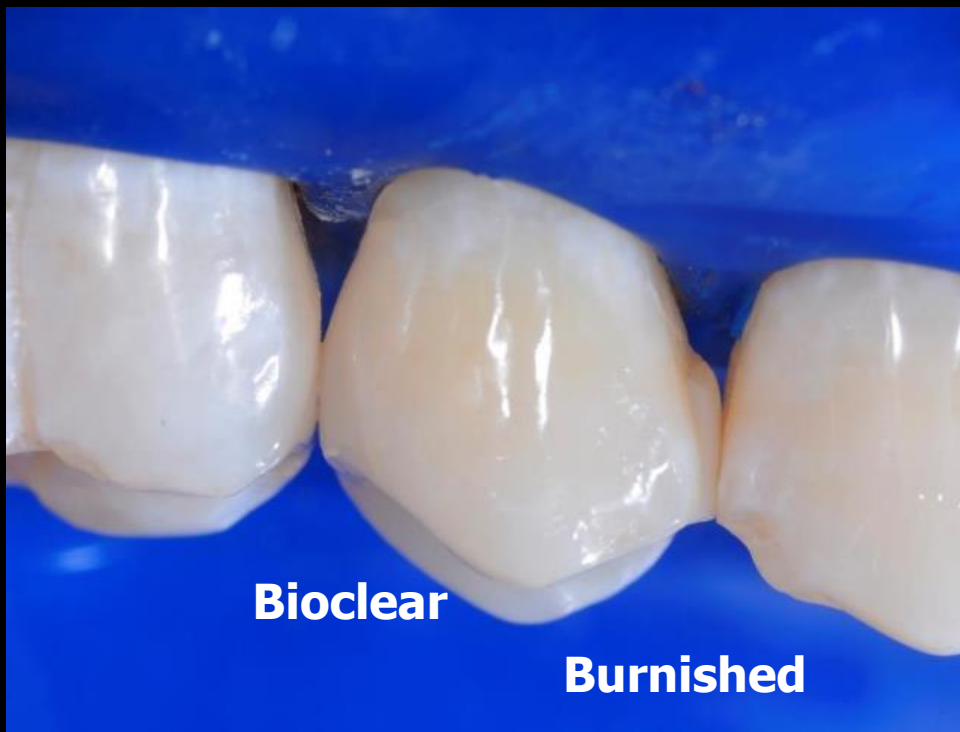


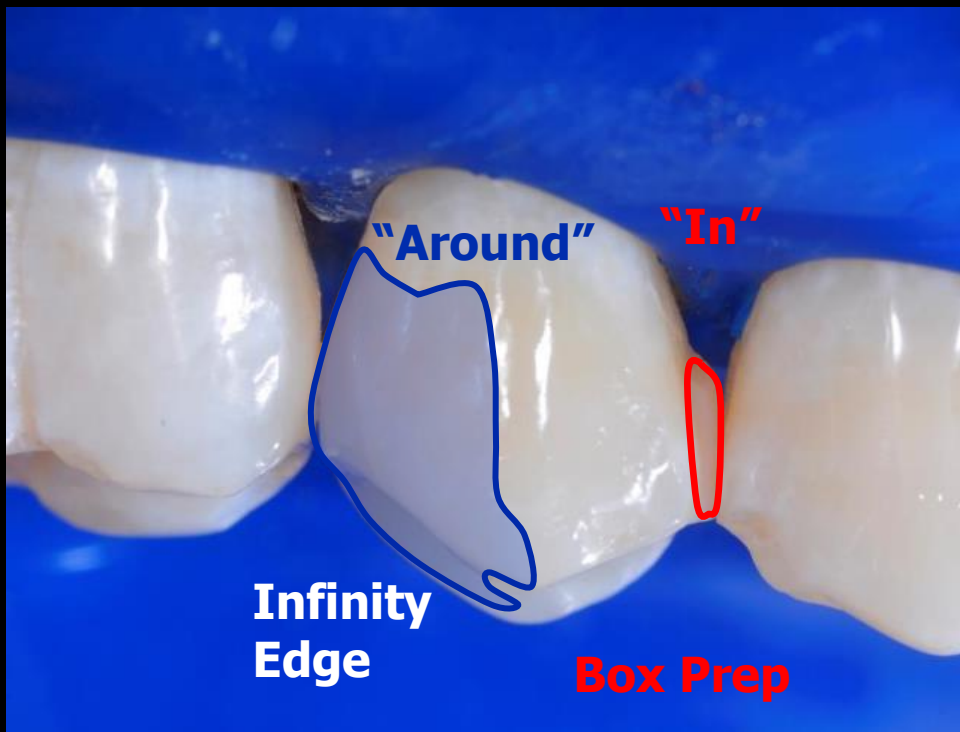
Pre-Operative Radiographs



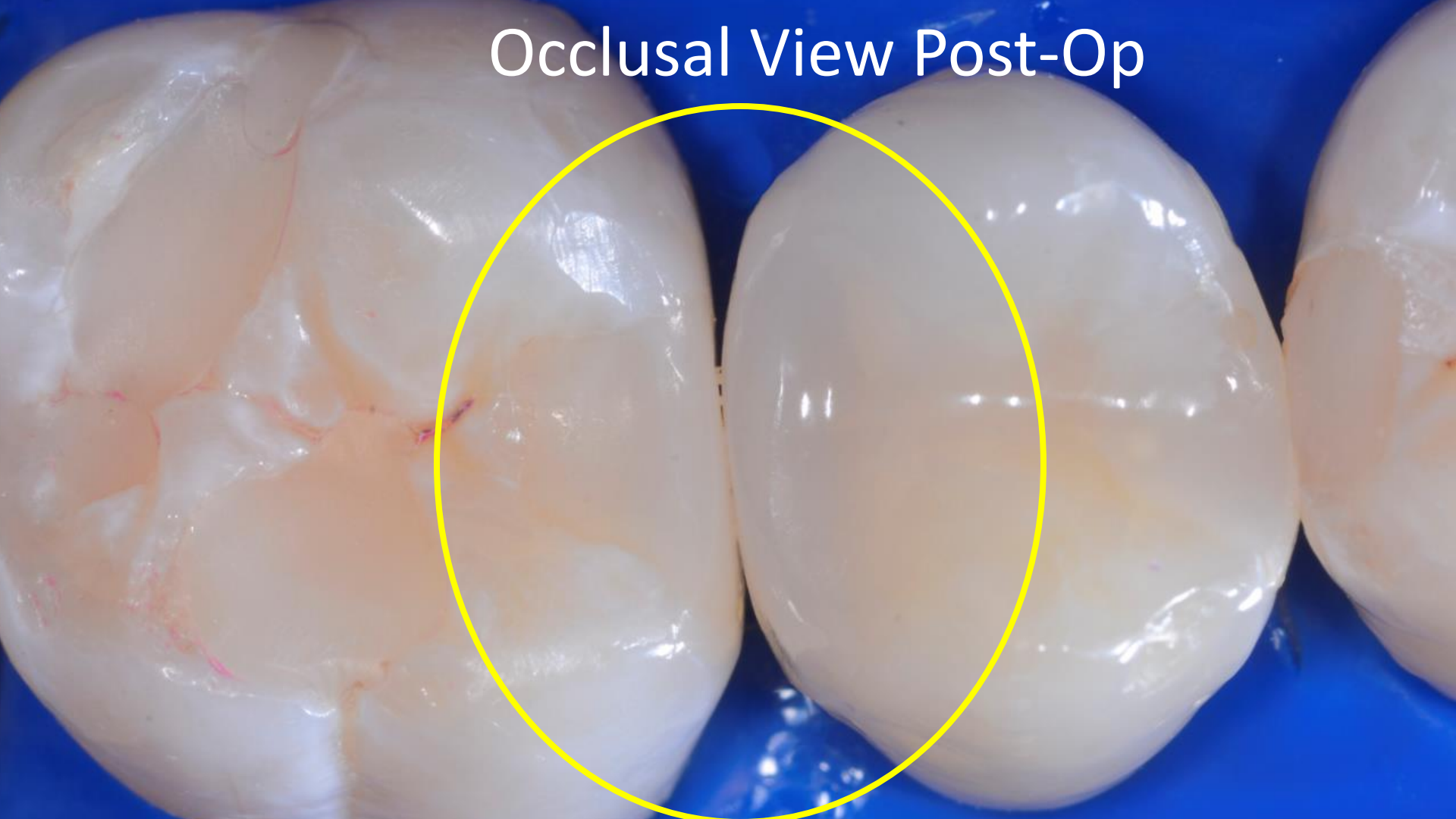
1 Year Post-Operative







Occlusal View Post-Op



CAVITATION VS APRISMATIC ENAMEL



WHY WOULD WE PUT A MARGIN IN THE ***DISEASE*** ZONE?



FOUR WAYS TO CUT A TRAGIC SLOT PREP



LET'S PUT IT ALL TOGETHER WITH EVOLVE

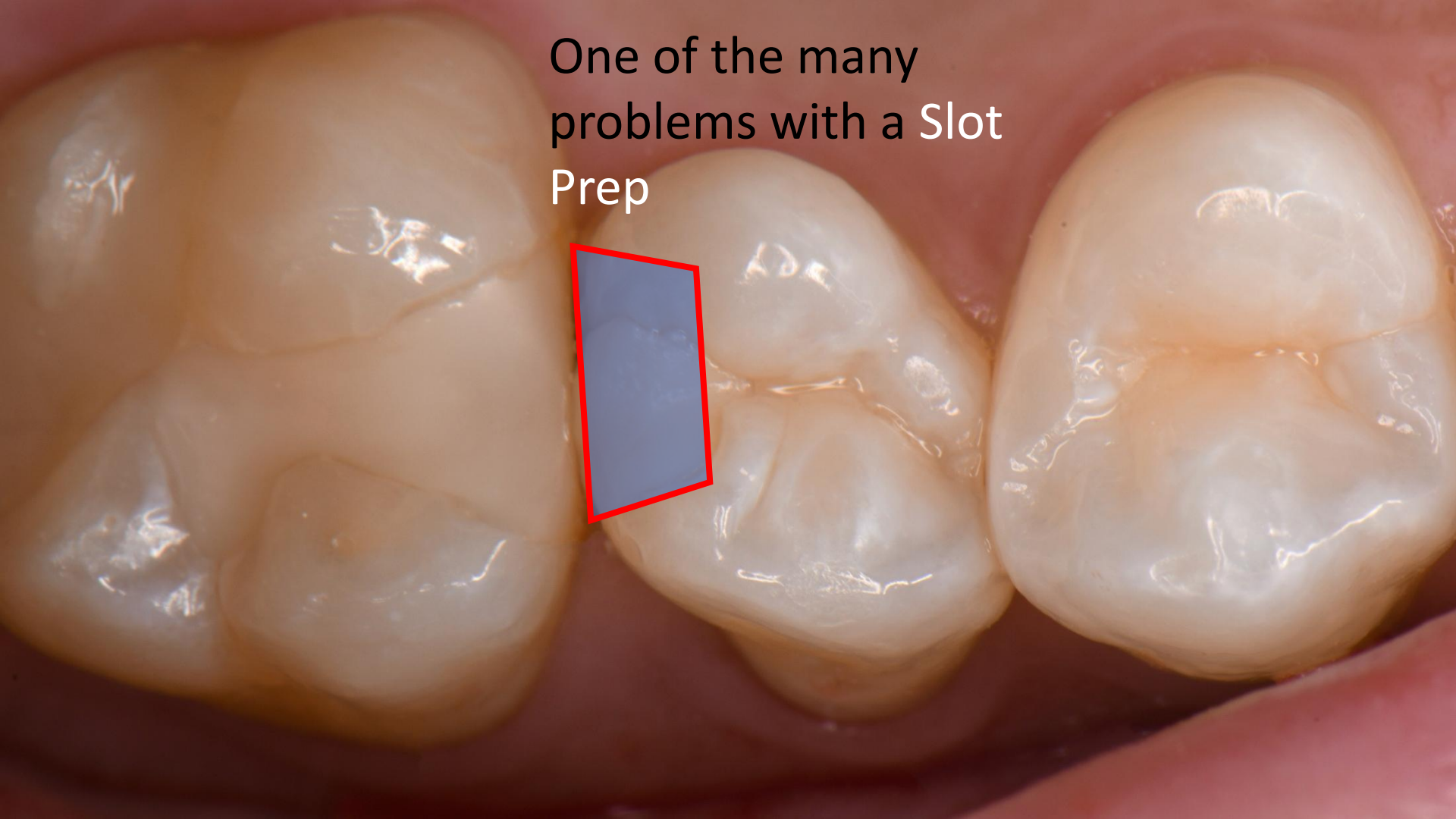


The Bioclear Evolve All In One Kit





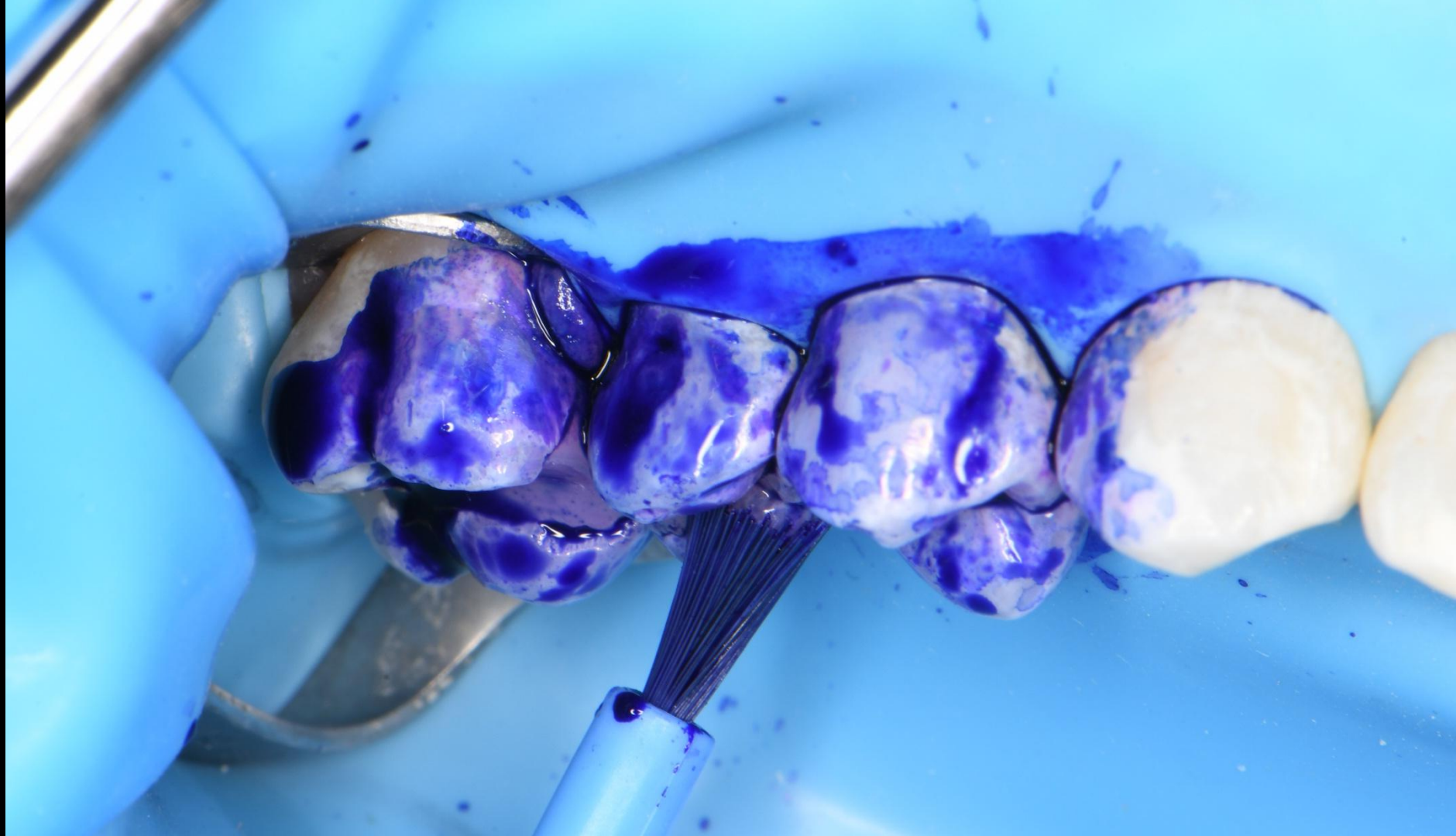
One of the many
problems with a Slot
Prep



One of the many
problems with a Slot
Prep



















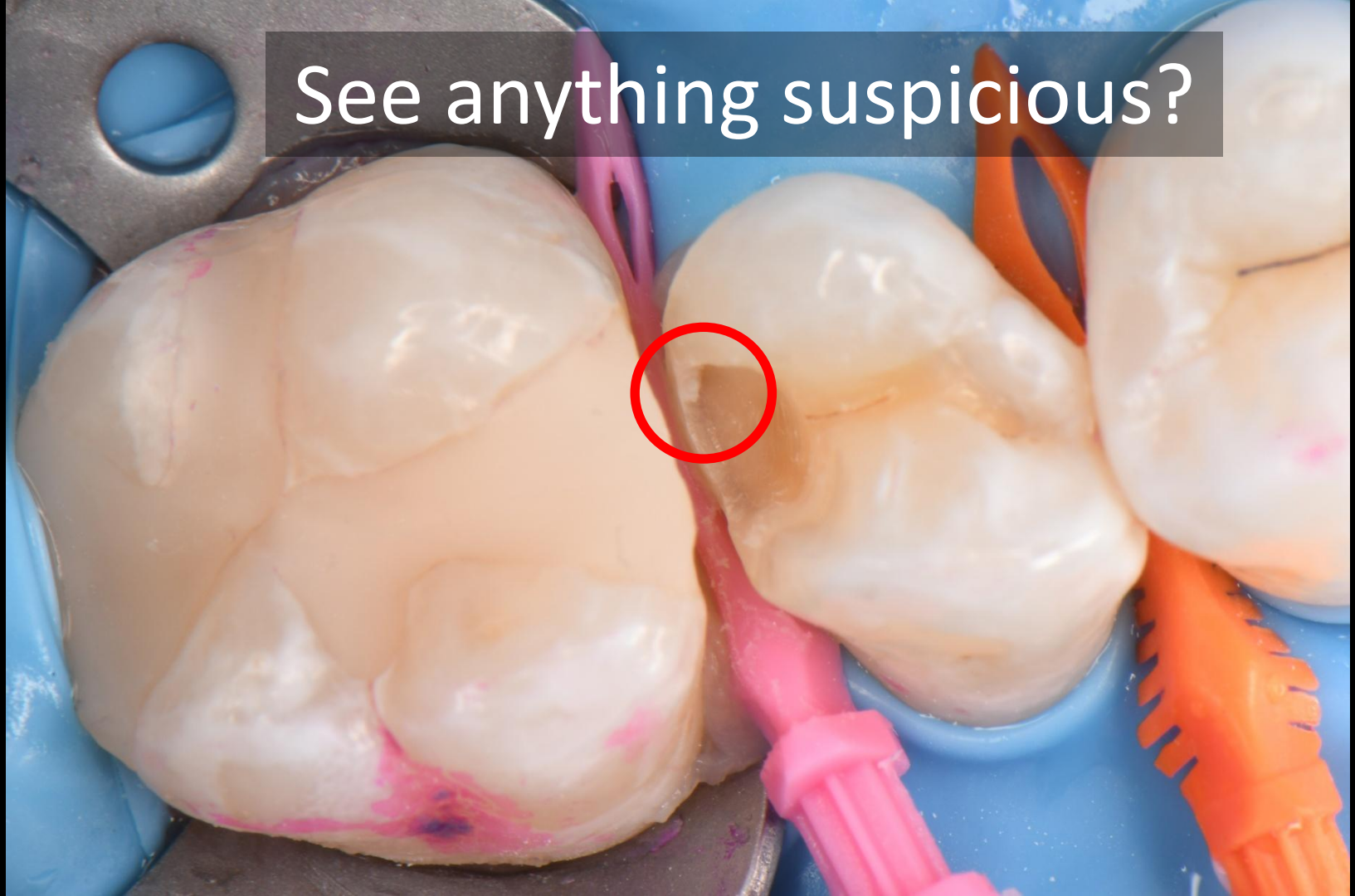








See anything suspicious?











Completed Clark Class II





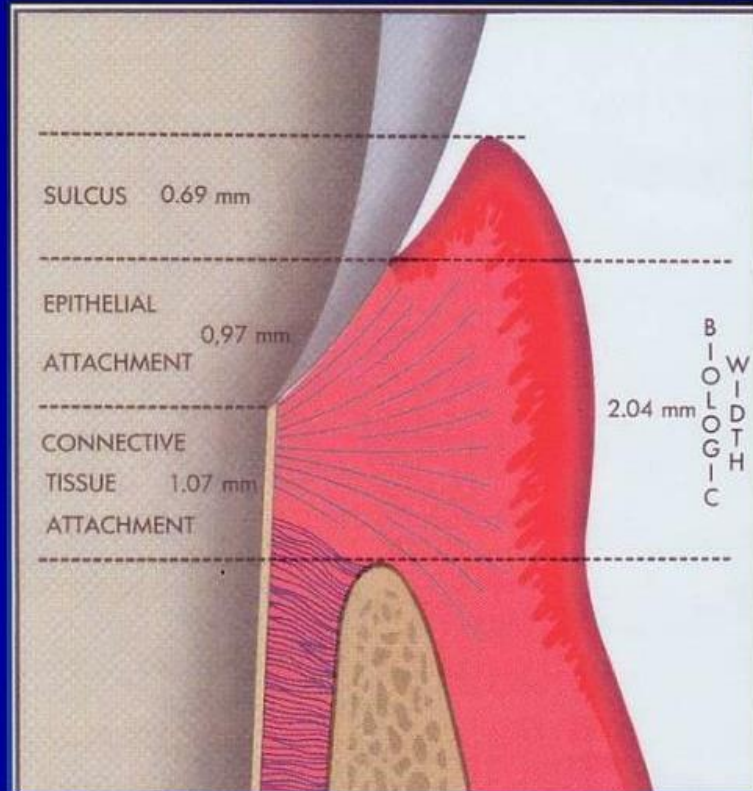
What's my
reference?

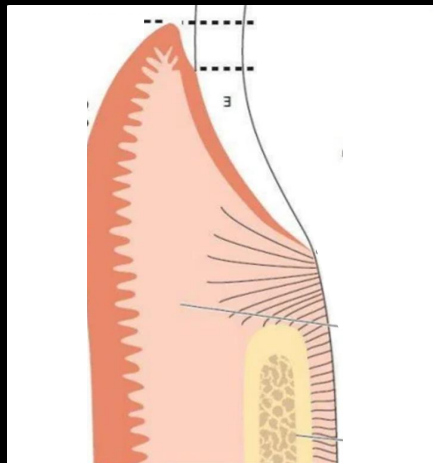


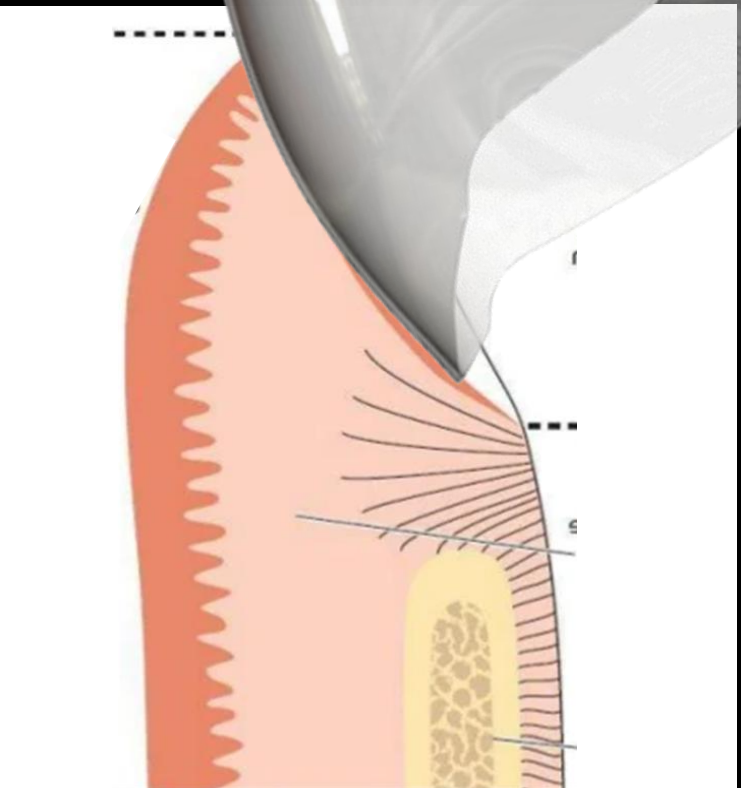
What's my
reference?

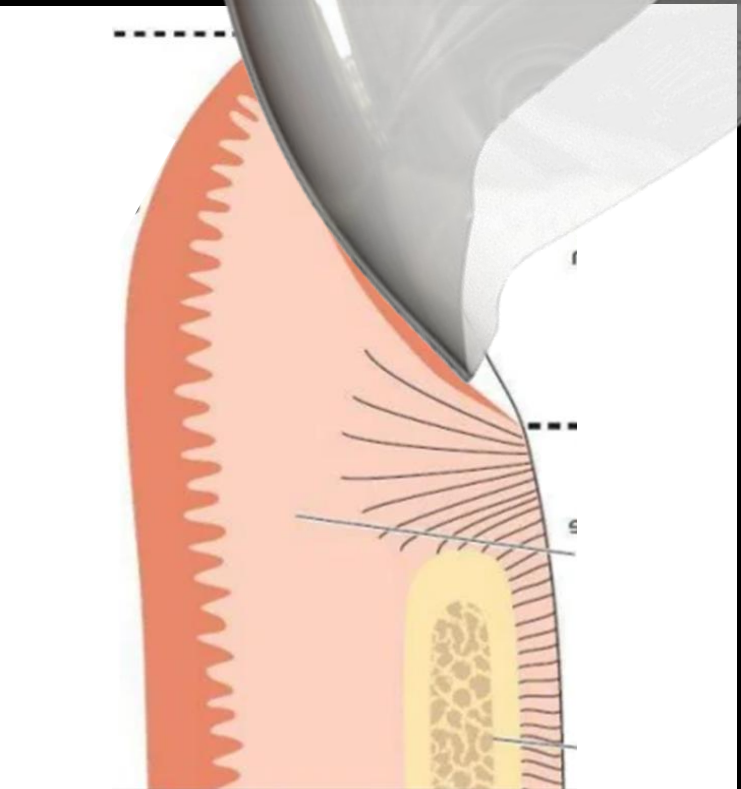














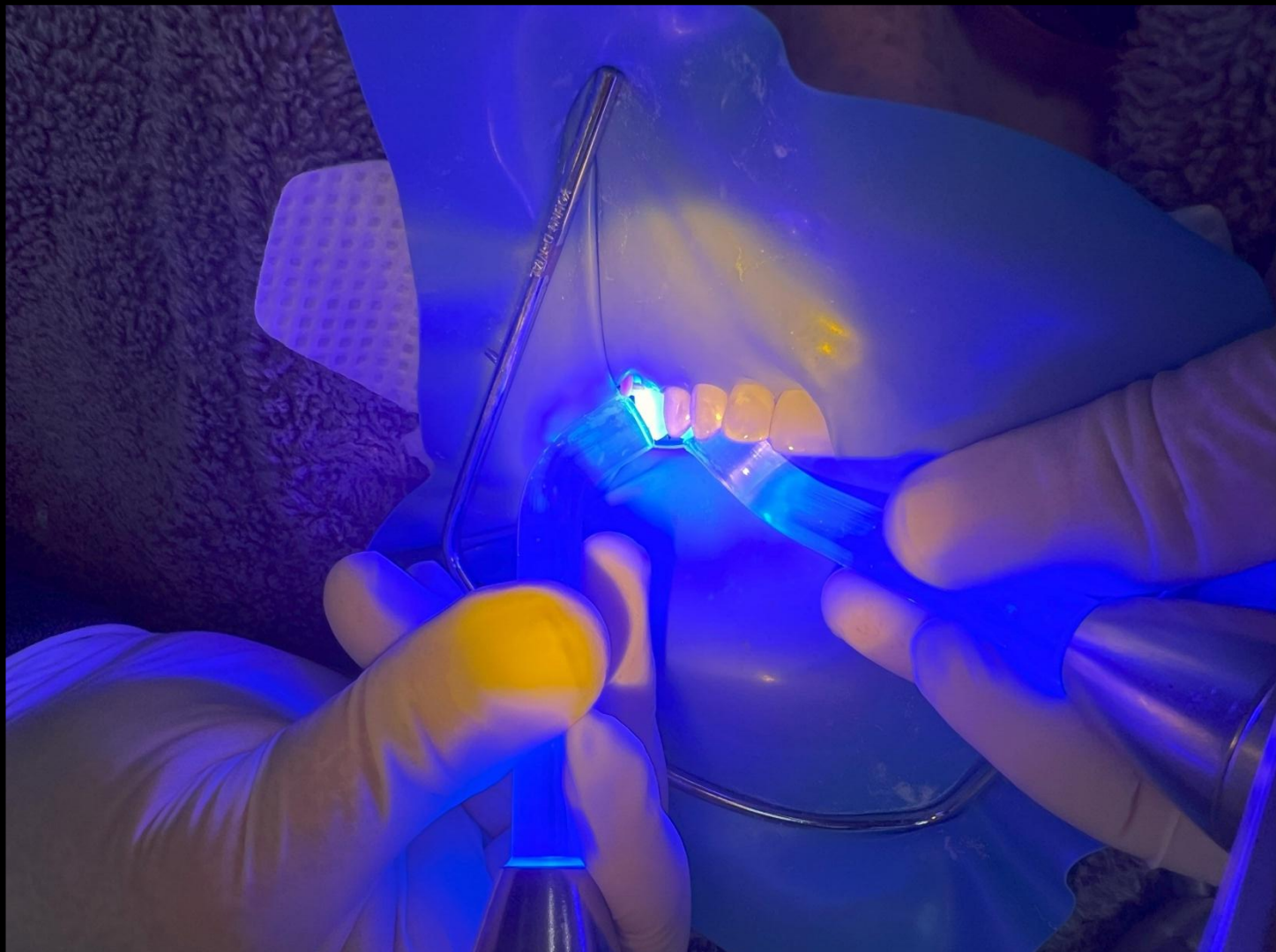






















Similar Case: Pre-op, post op, and 3 year follow up



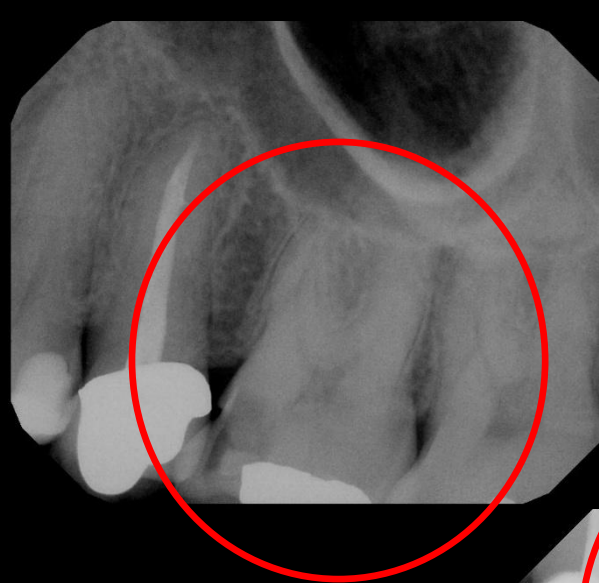


Step by Step Guide for Injection Molded Class II

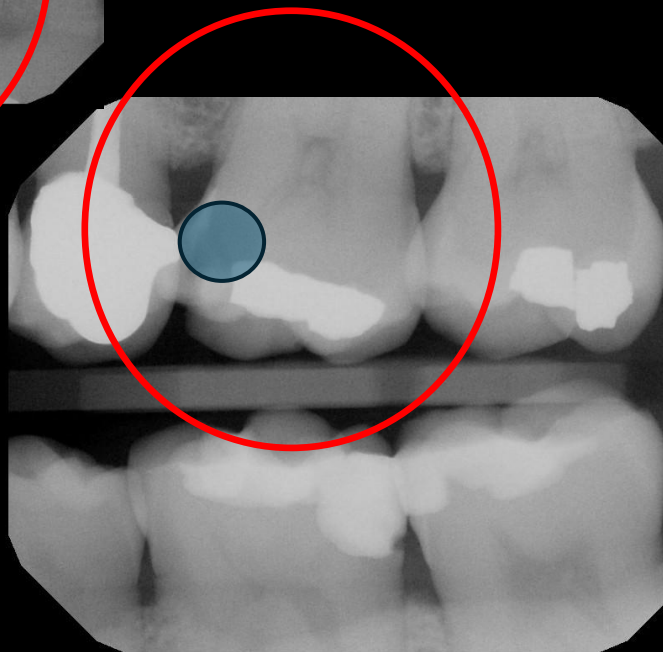
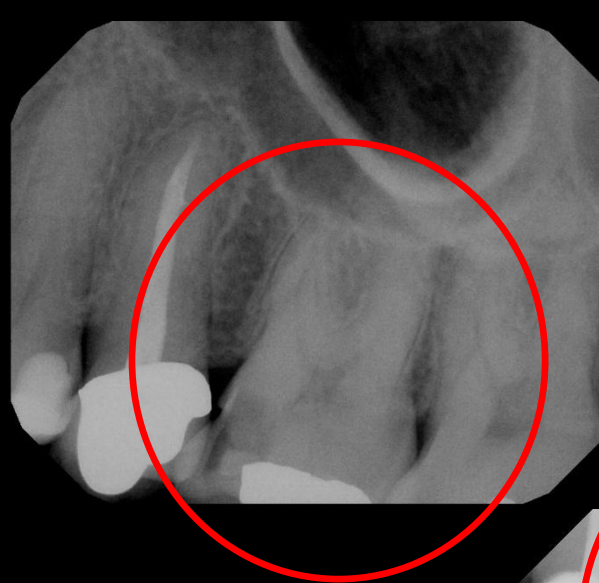


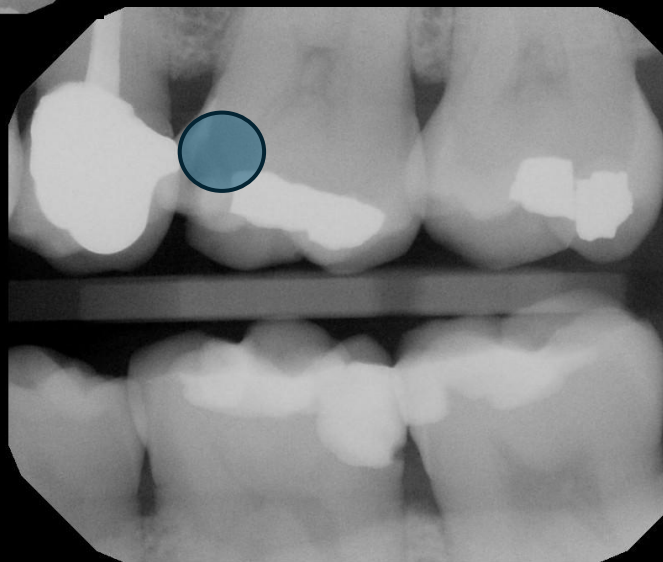
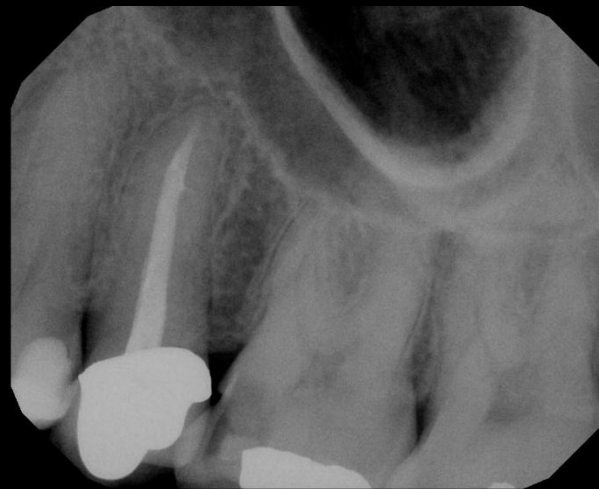
I have a
small
problem

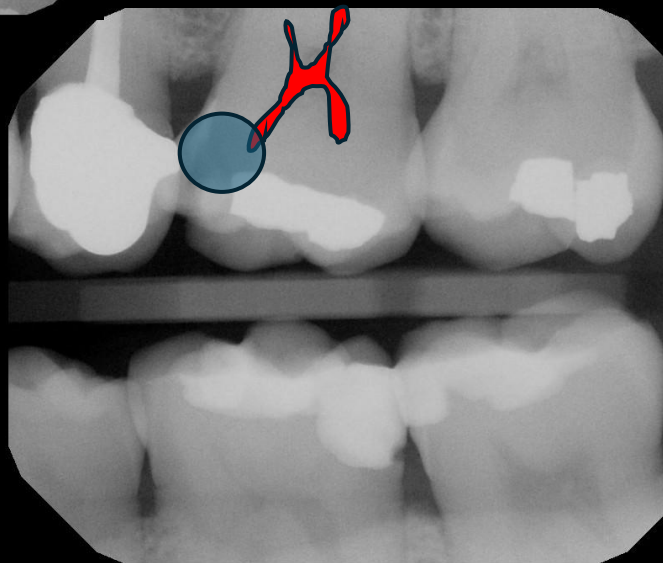
Dr. Rafael Bustamante
Full Faculty at the Bioclear Learning Center



↑
Bitewing taken
a year ago







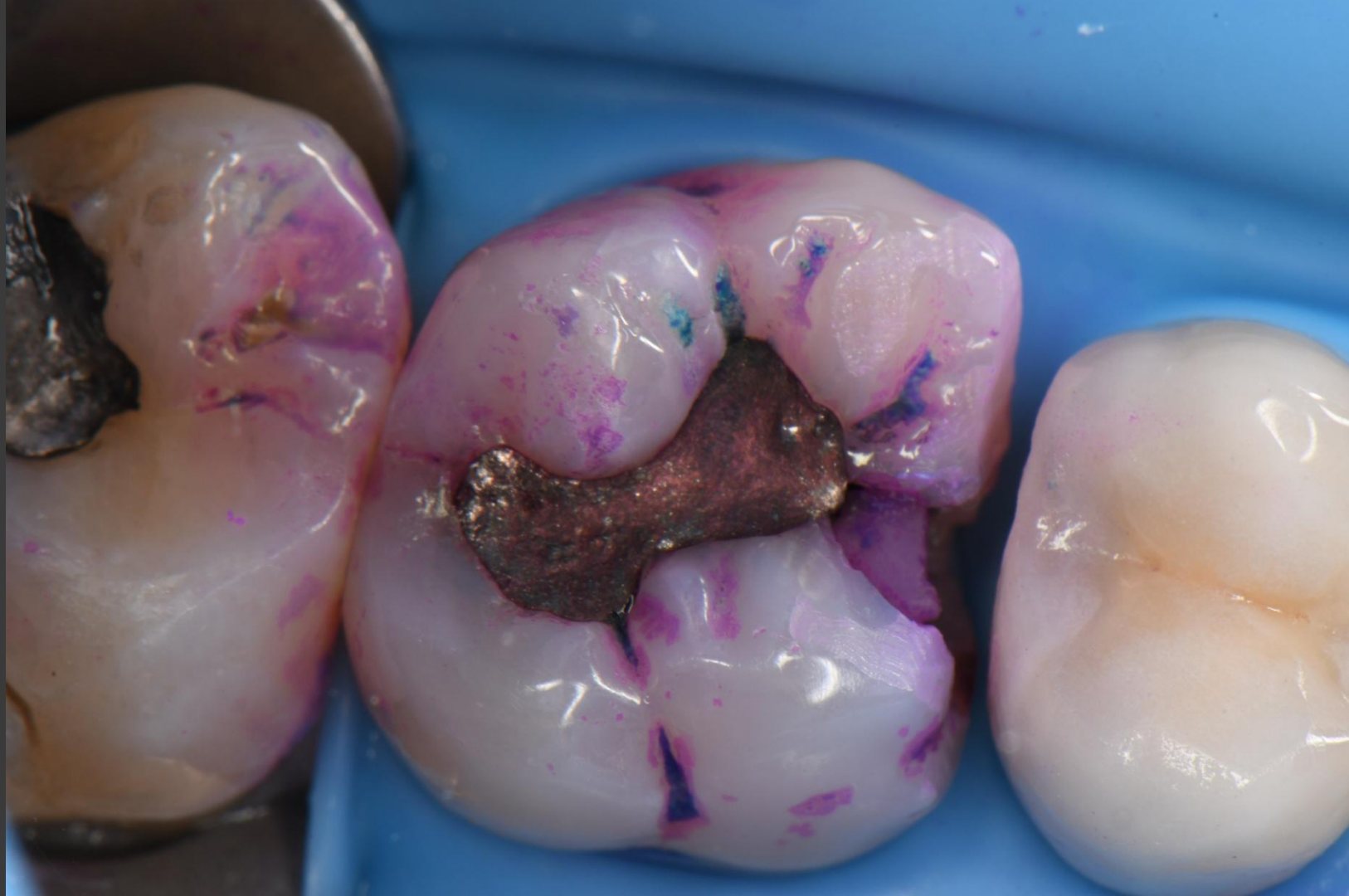
This is *Dr.*
Bustamante's finger
BTW

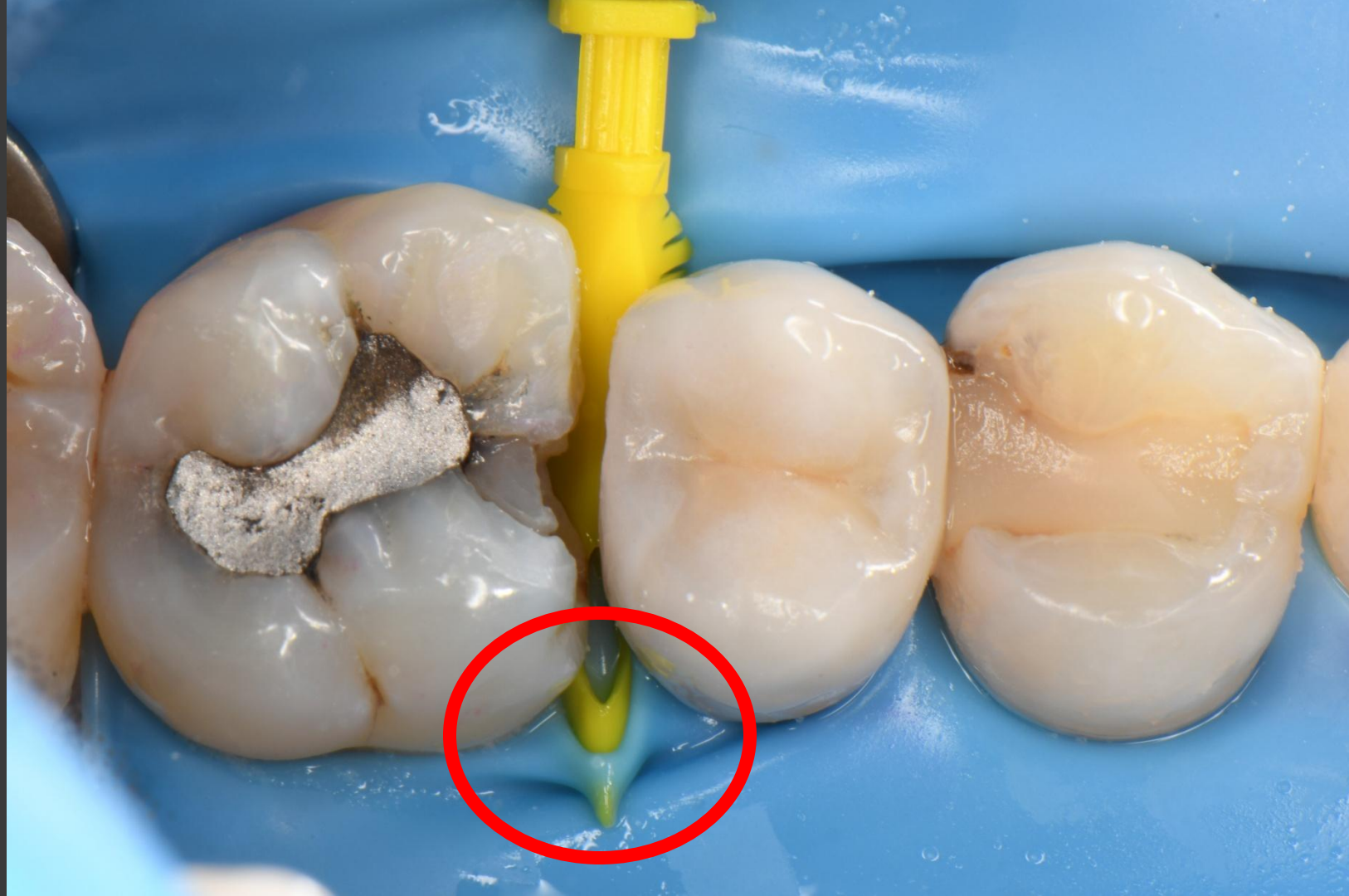






What changed between these two photos?







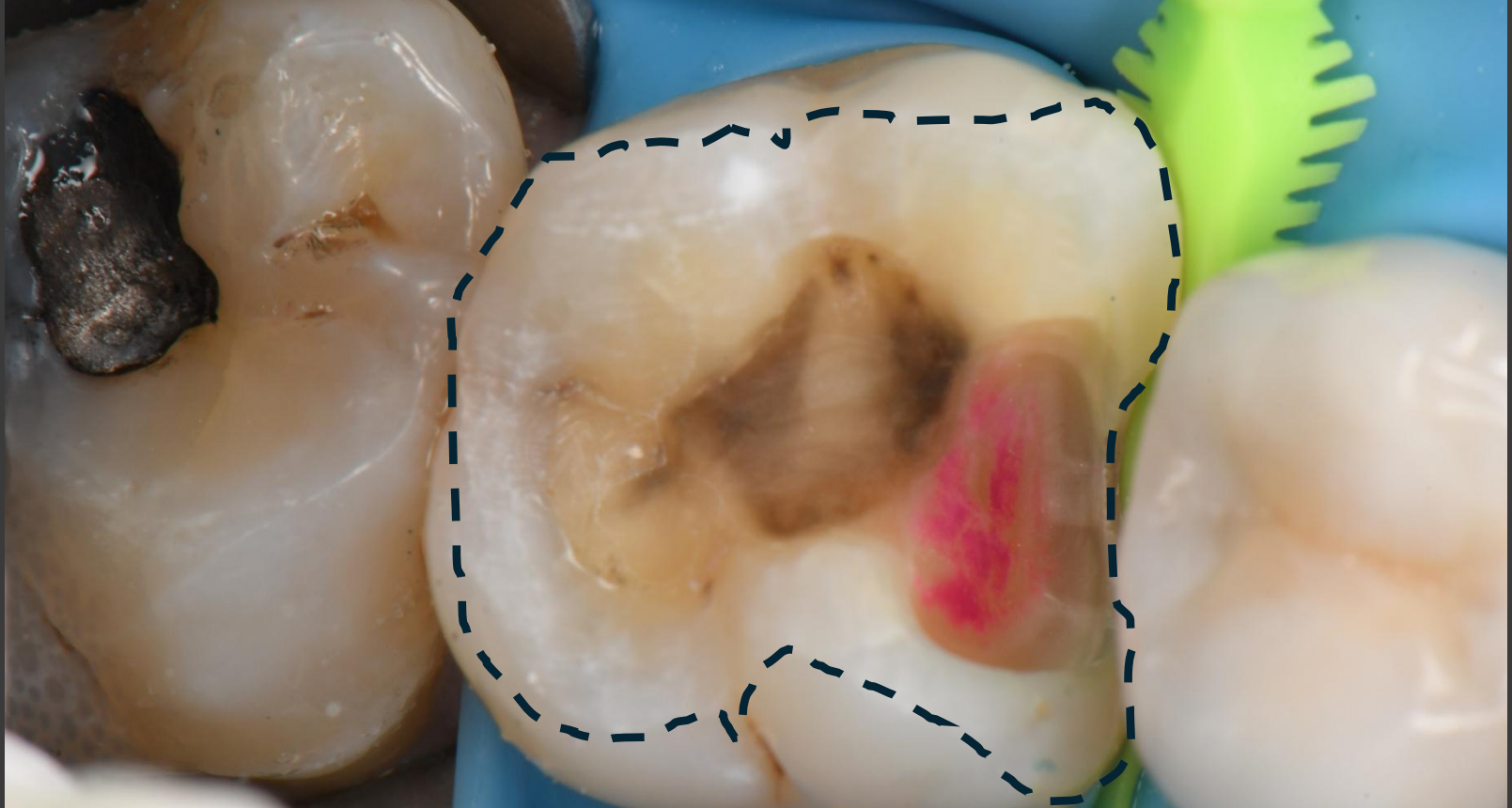












Radius Bevel For Compression

Before Blasting

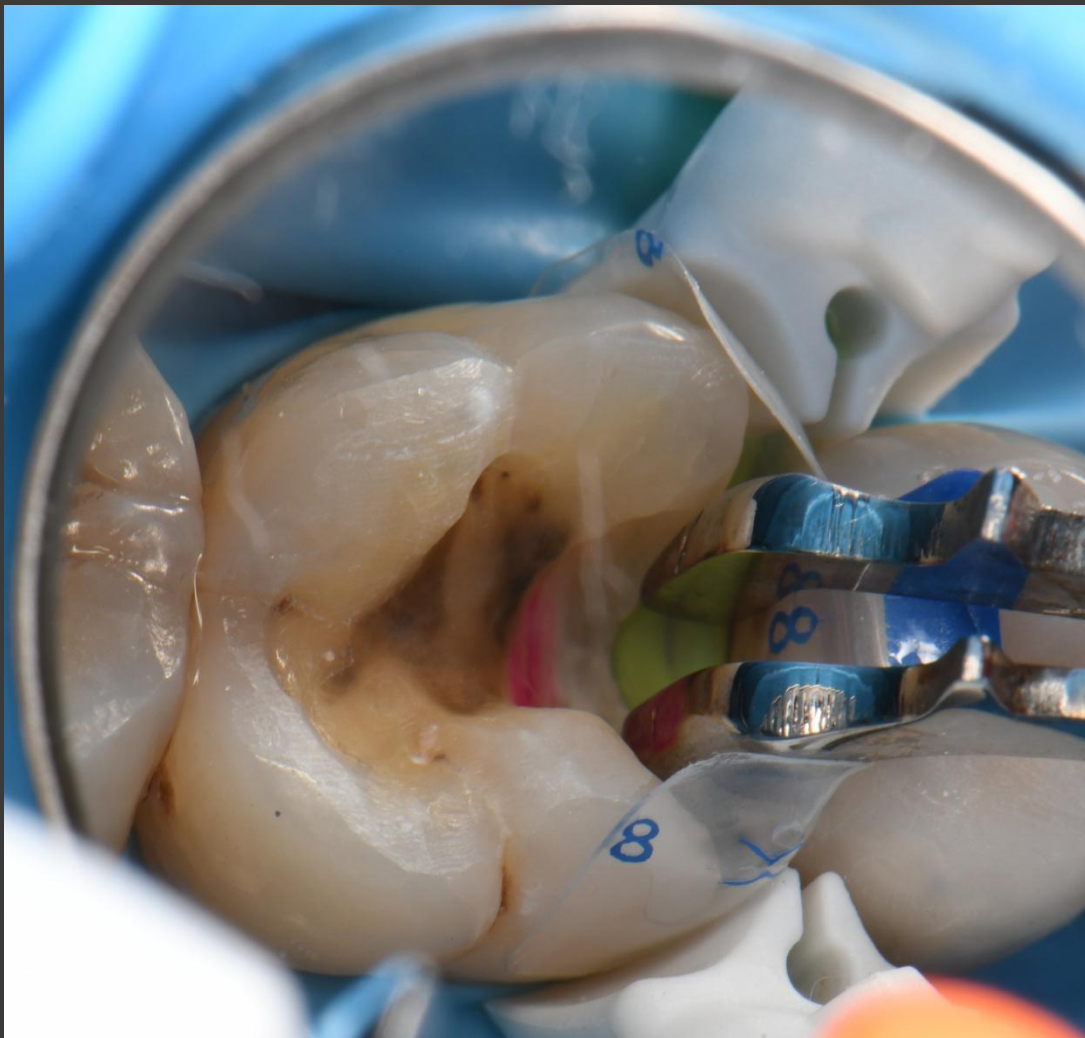


After Blasting and Final
Radius Beveling













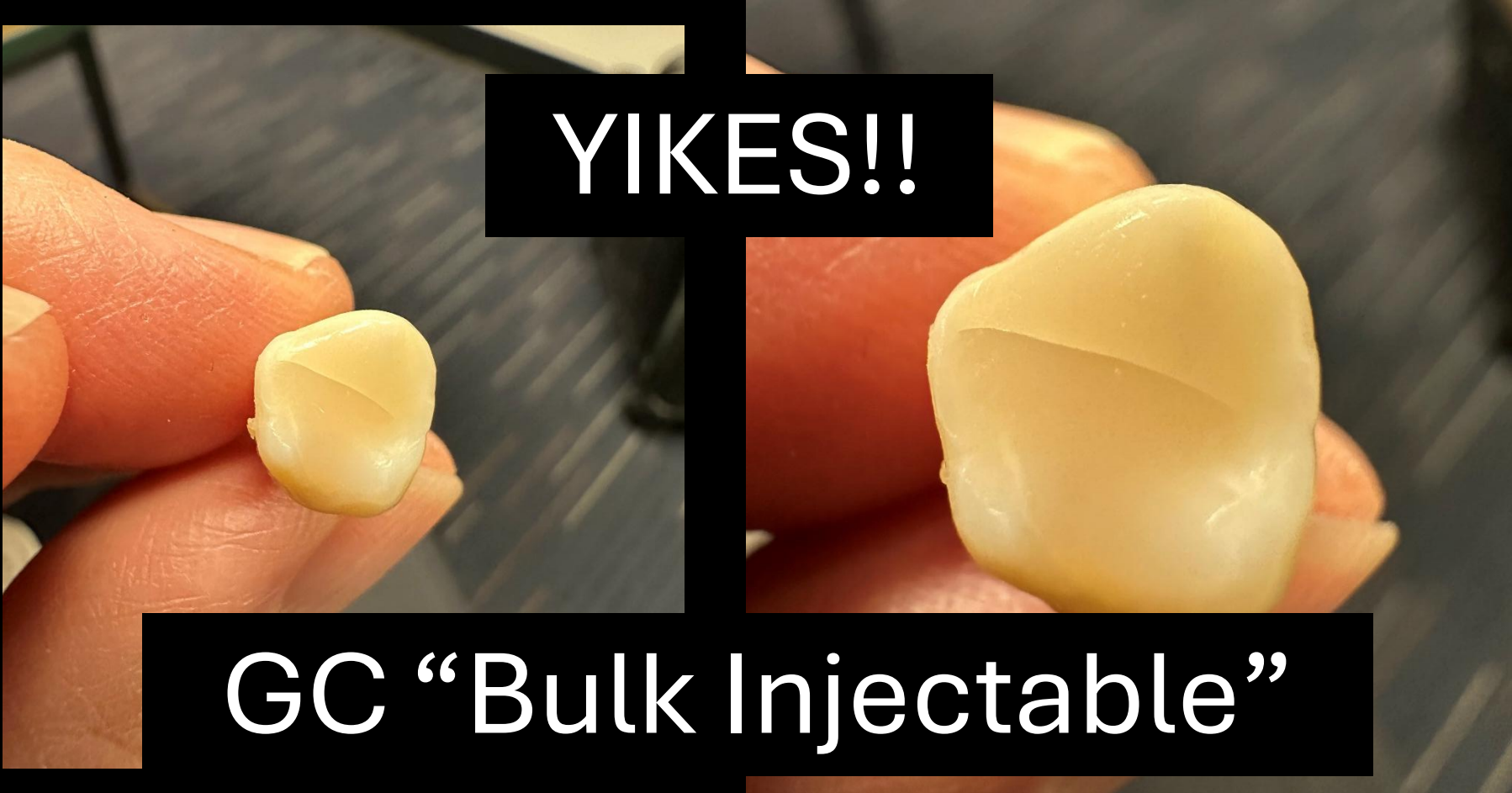






Miles ahead of everybody else for Bulk Fills



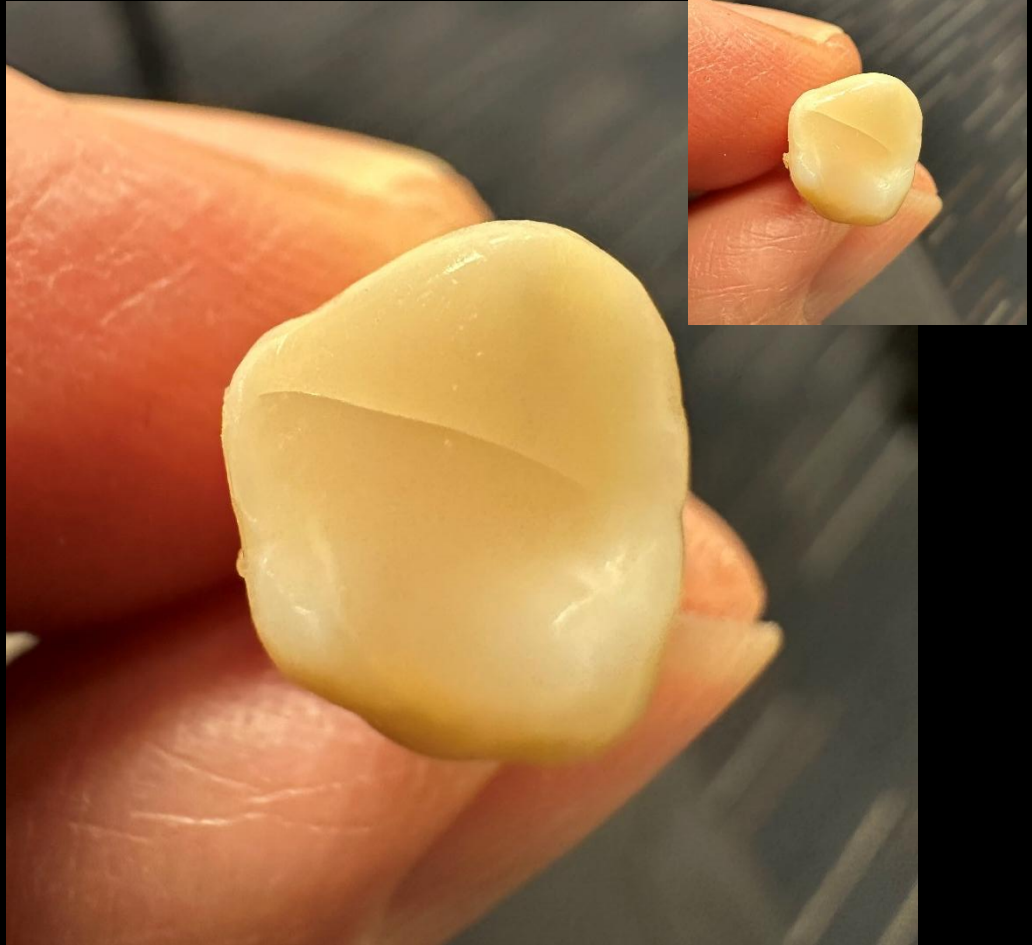


YIKES!!

GC “Bulk Injectable”

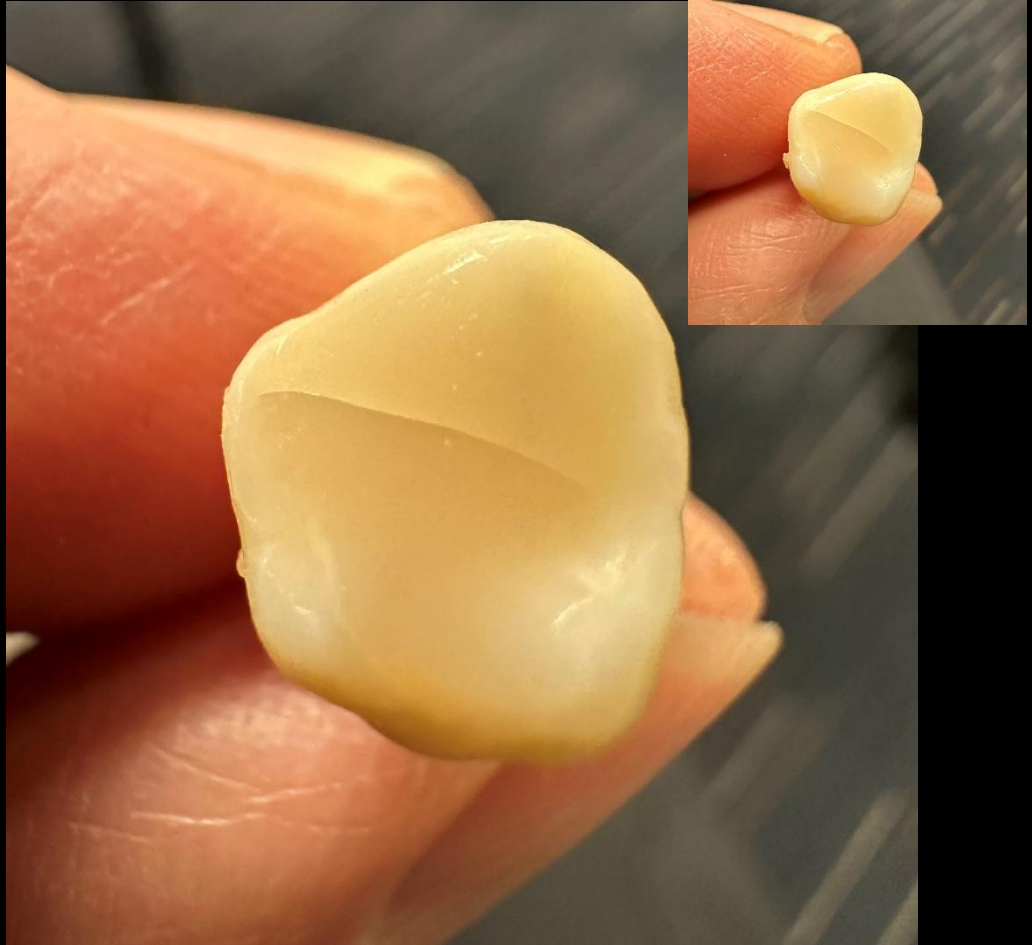
Discussion:

Polymerization
shrinkage stress and
cuspal deflection is
very real but
challenging to
explain



Discussion:

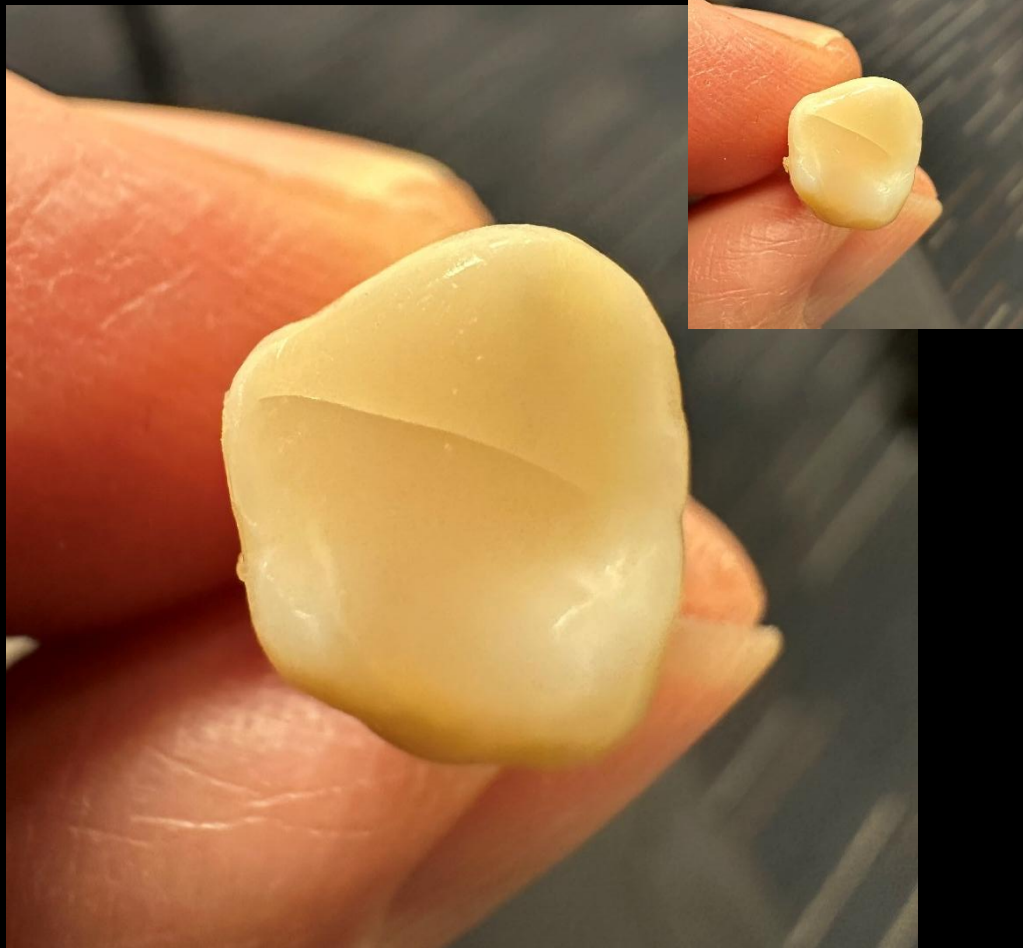
The volume of composite, and residual strength of the tooth are key players. If half of tooth is missing, ie there is a good sized hole in the occlusal or interproximal, we are recommending Filtek One (bulk fill paste) plus Filtek bulk flow.



Discussion:

Unless it's a tiny Class II
You need the Rock Stars:

**Filtek One Paste and
Bulk Flow together**



Are all
Separators
Equal?

NO!



Stretched to 20mm ONCE!!!





And now most of
the power is
permanently lost

Once the yield of the metal/shape is reached, the
metal undergoes plastic deformation

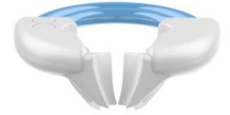
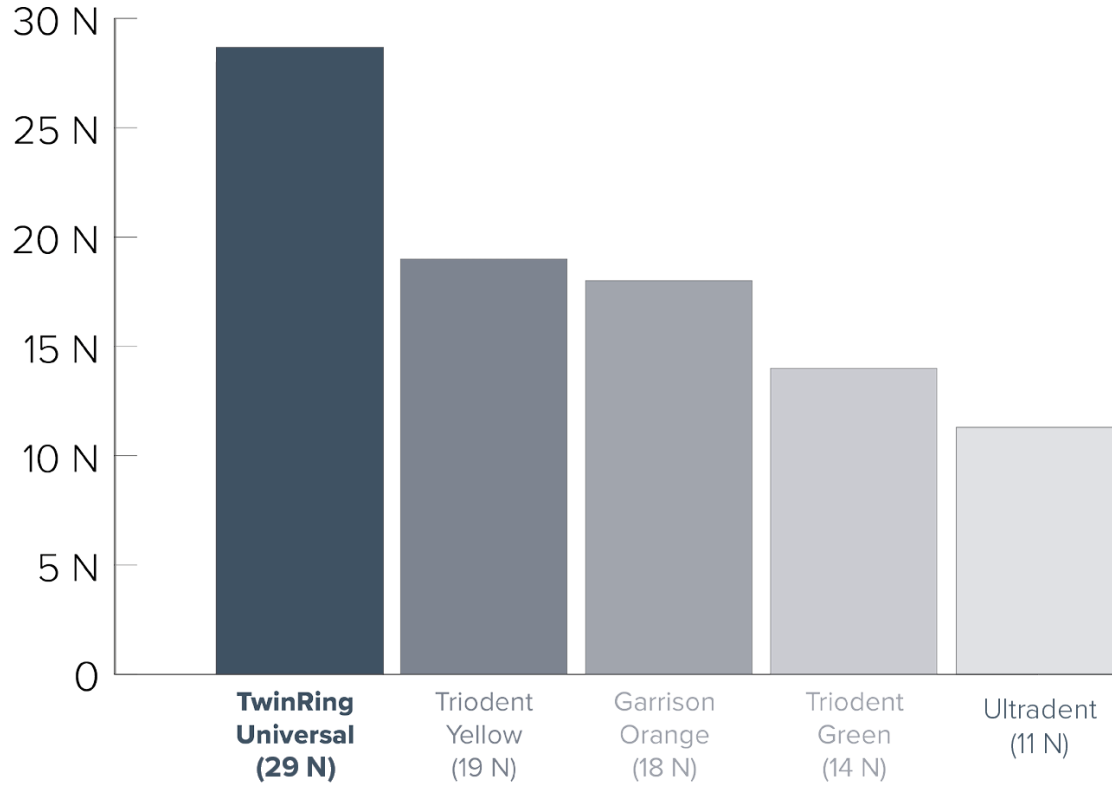
Stretched to 20mm Twenty Times



Stretched to 20mm Twenty Times



TwinRing Universal Instron Comparison



Note: Rings tested are not new and some rings stretch out quickly and lose up to half of their power after multiple uses. 1N = 1kg (m/s/s)

∞ BIOCLEAR

Bioclear Matrices - Posterior





EVOLVE MATRIX

Premolar



Molar



EVOLVE
MATRIX

Premolar Evolve: Width & Profile

- Evolve premolar matrices come in one width and profile – Black – to fit a variety of premolar tooth shapes

BLACK EVOLVE

Designed with an aggressively rounded emergence profile. Shaped specifically for premolar teeth, these matrices can be used anywhere you would typically use a Biofit matrix or BT matrices on premolars.

Tip: Rotate the matrix into place.



Premolar Normal
Width

Black Premolar Evolve

✕ BIOCLEAR



5 Sizes

5mm

6mm

7mm

8mm

10mm

- Curved profile
- Normal width for a premolar



5 Sizes

5mm

6mm

7mm

8mm

9mm

- Curved profile
- Normal width

Molar Evolve: Width & Profile

- Evolve matrices come in three widths and profiles – Blue, Orange, and Pink – to fit a variety of posterior tooth shapes

BLUE EVOLVE

Designed with an aggressively rounded emergence profile and an average width. Blue Evolve is suitable for the majority of posterior cases.

Tip: Rotate the matrix into place.



Normal width

ORANGE EVOLVE

Features a flatter emergence profile than the Blue Evolve. Orange Evolve is perfect for patients with average-sized molars where the tooth is too flat for the Blue Evolve.

Tip: Use the Orange Evolve if the Blue Evolve inverts



Wide Molar



3 Sizes

6mm

7mm

9mm

- Curved/straight profile
- Wider width

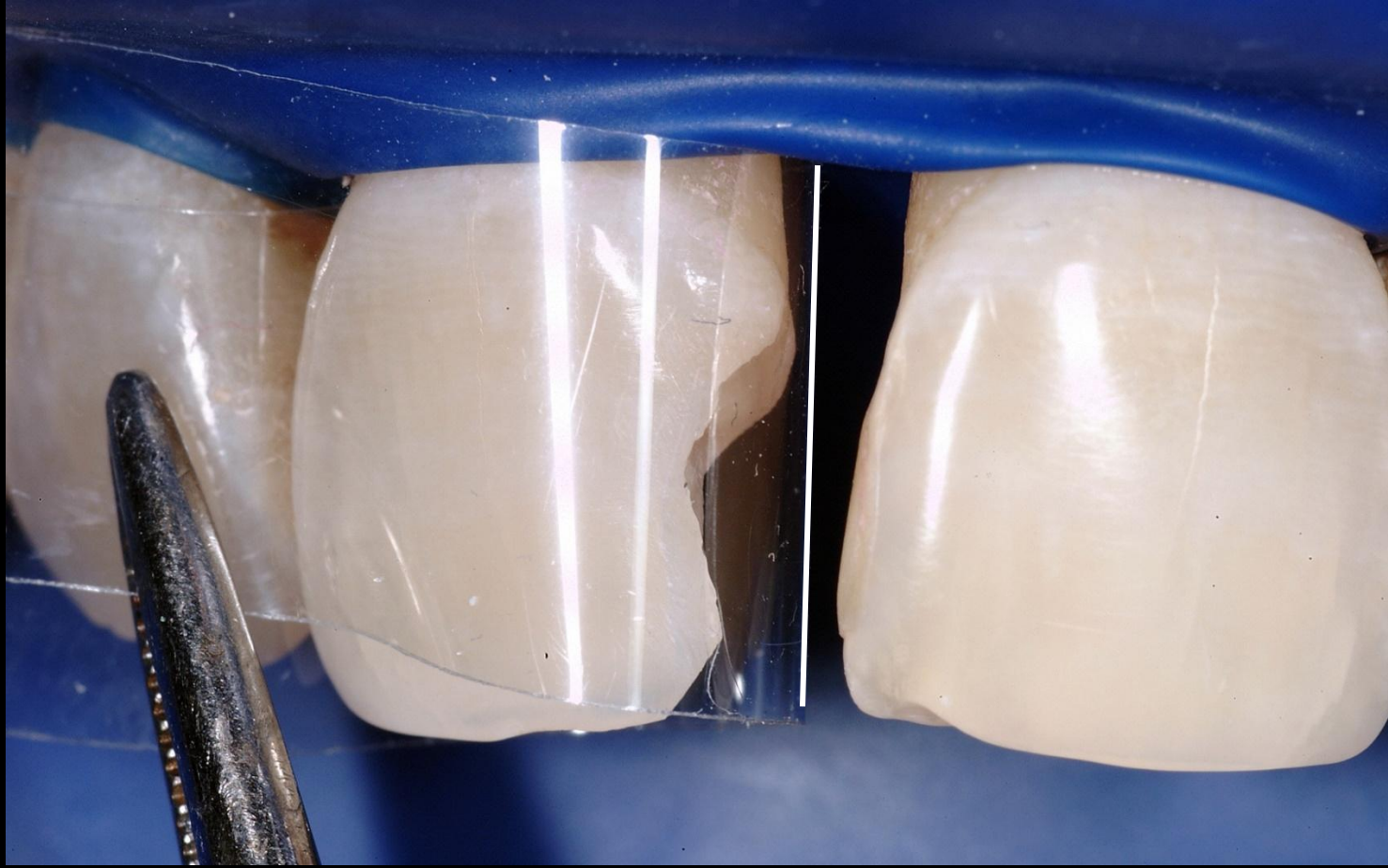
Natural Contacts



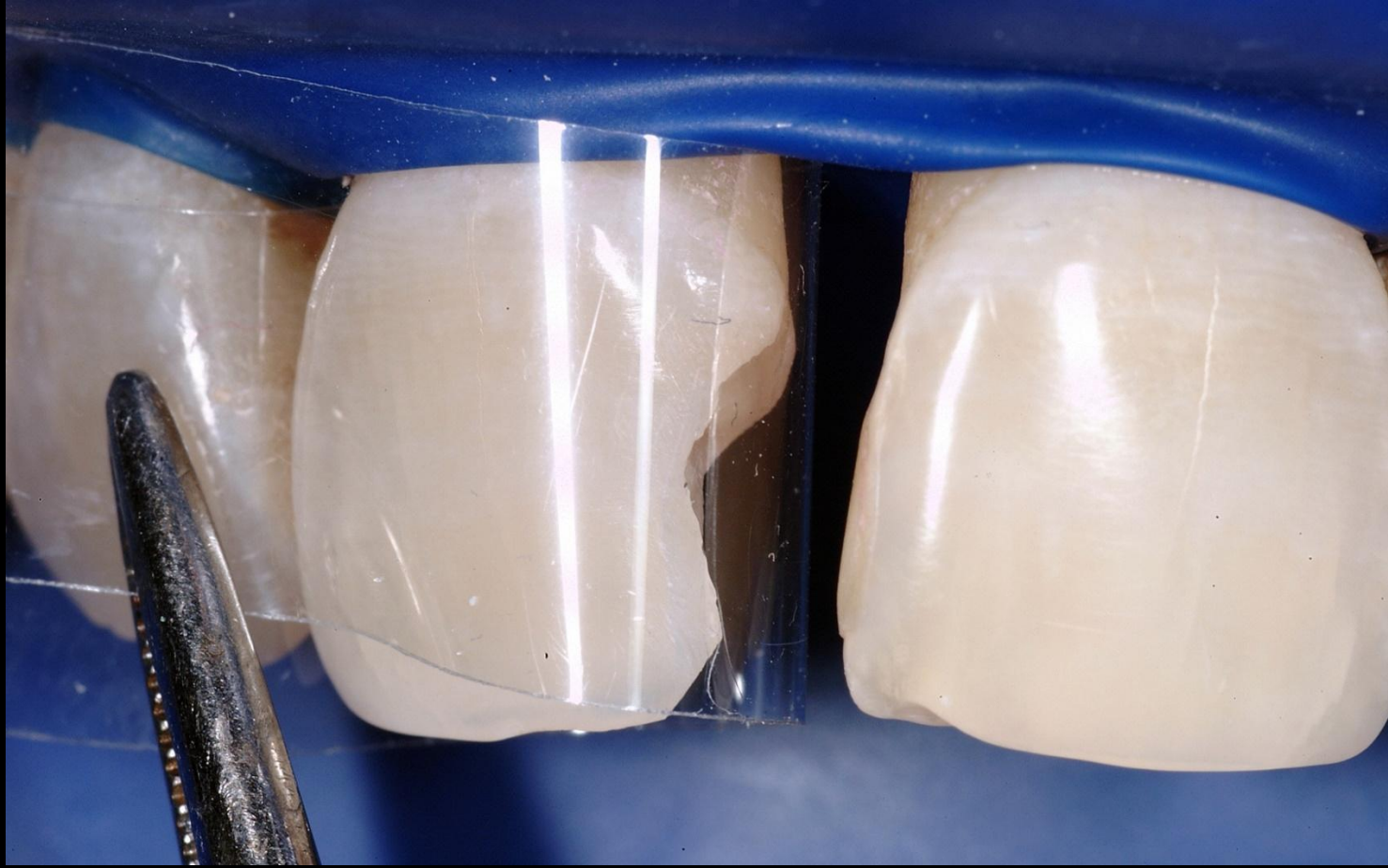
Traditional Composite Contacts



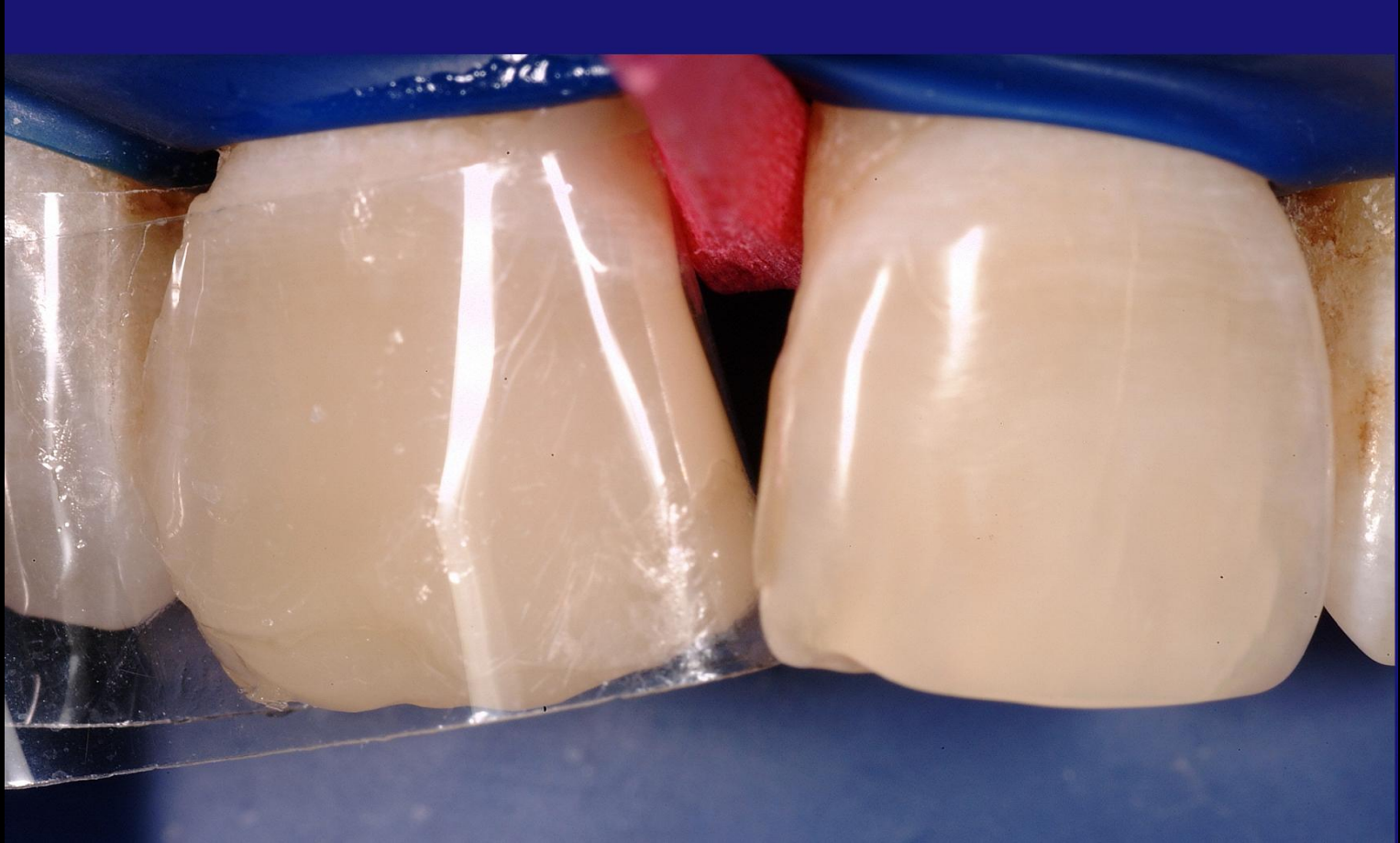
Traditional composite technique



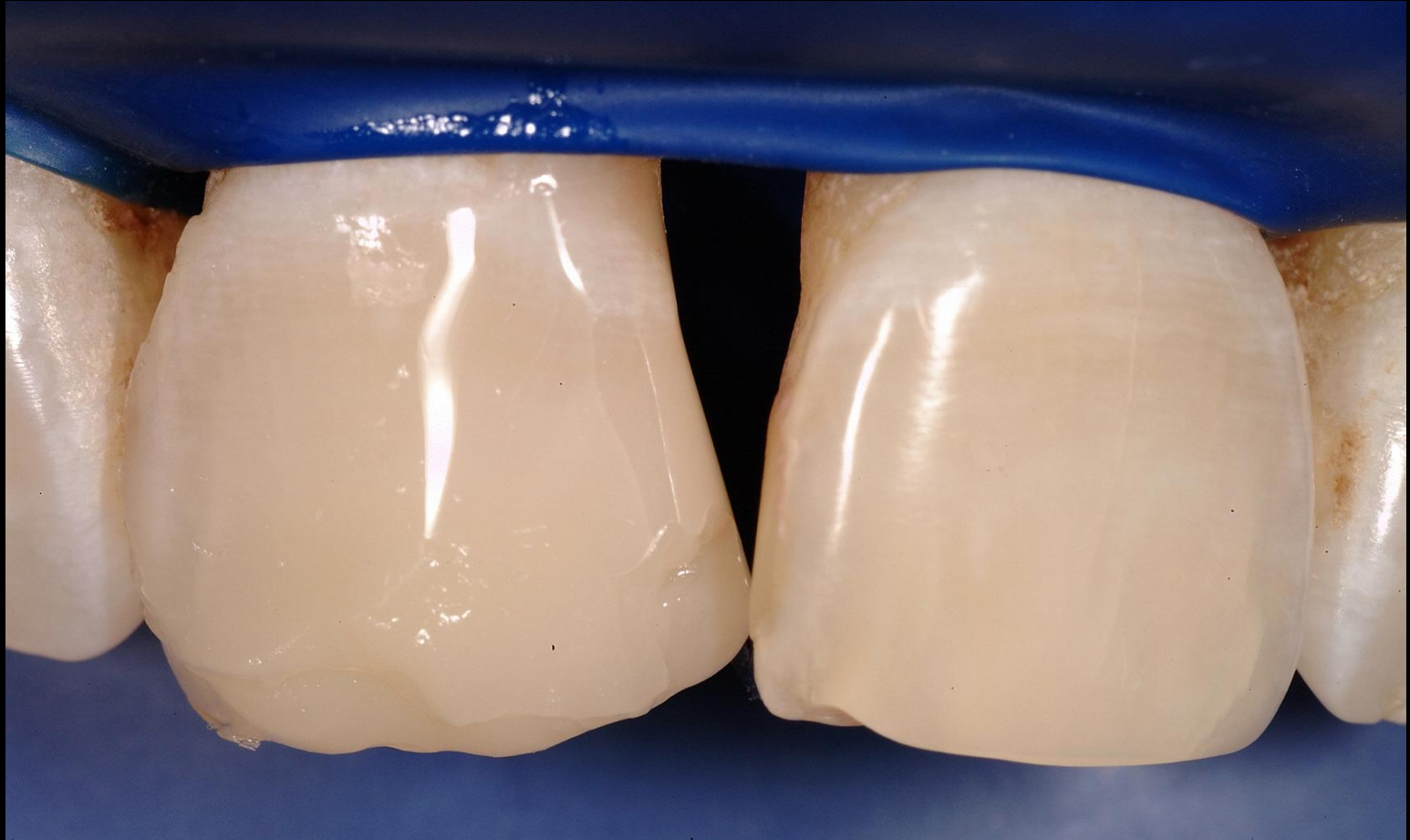
Traditional composite technique



Traditional composite technique



Traditional composite technique



Traditional composite technique



flat matrix + flat wedge = flat tooth

It's 2026. Why are we
still using flat Mylar and
flat wedges?



Recommended Bioclear Matrices by Indication

For more information contact us
Bioclear Matrix Systems
1-855-712-5327



360 Veneer

Class V and to significantly increase
overjet or correct anterior open bite.





**TOOTH & SURFACE SPECIFIC
MATRIX SYSTEM**
BY **BIOCLEAR**



140 Anterior Matrices

#6 through #11 in Mesial & Distal
Small & Medium Lower Incisor

75 Wedges

25 Small Wedges
50 Medium Wedges

**The next generation
of anterior matrices:**

We're taking the
guesswork out of to
matrix selection

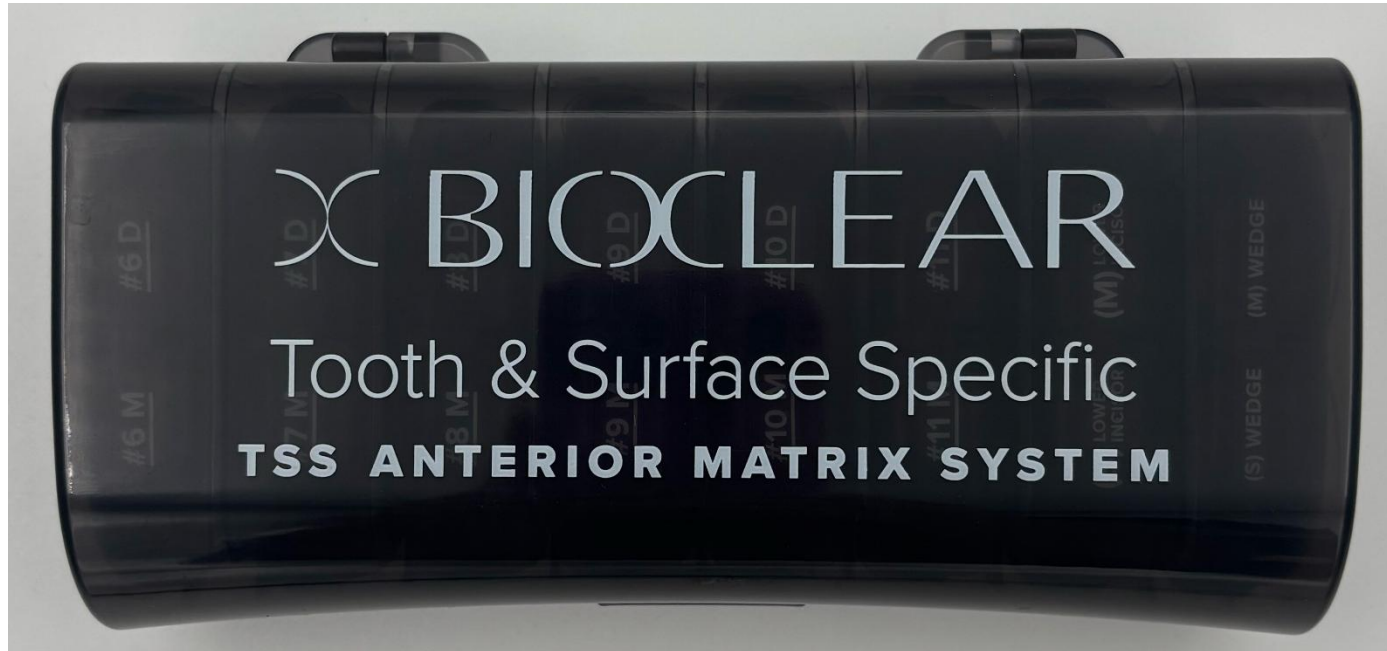


Contact your Bioclear Sales Rep to Pre-Order

WWW.BIOCLEARMATRIX.COM

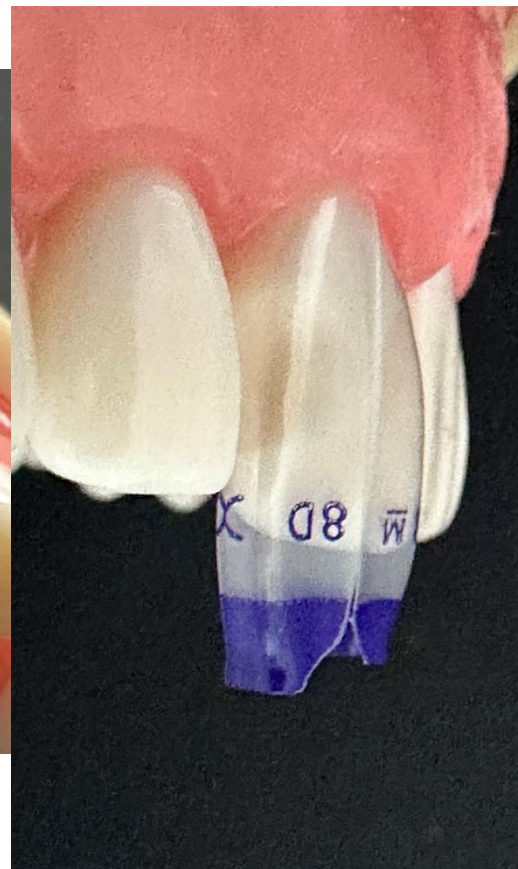
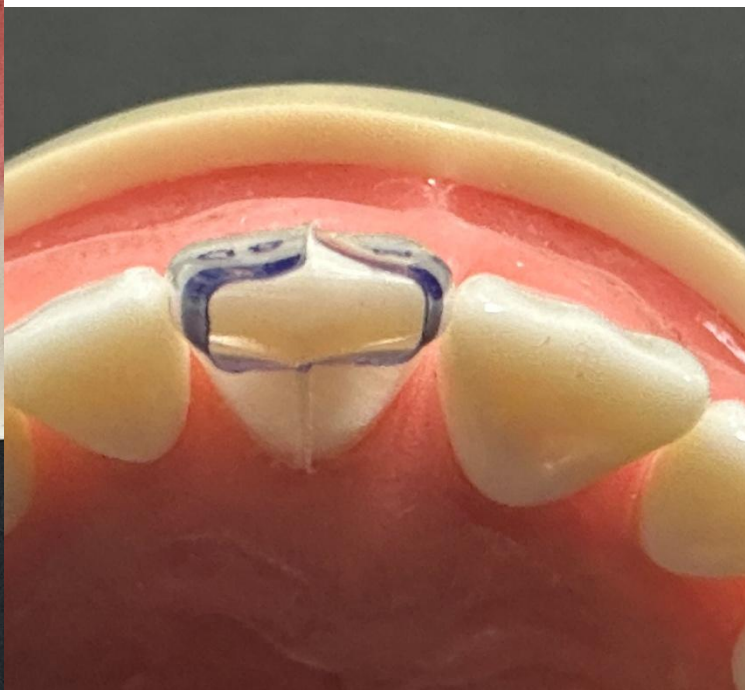
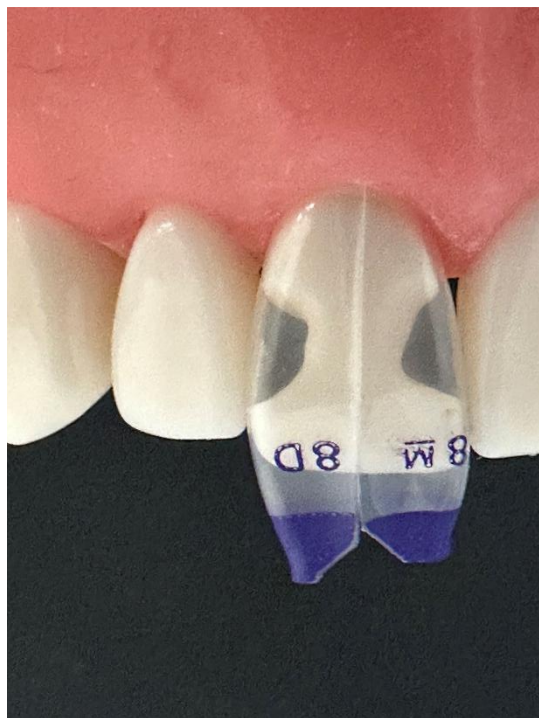
1.855.712.5327

The TSS system is for small and large anterior restorations, broken teeth and anterior esthetic veneering when you DO NOT have a black triangle or diastema















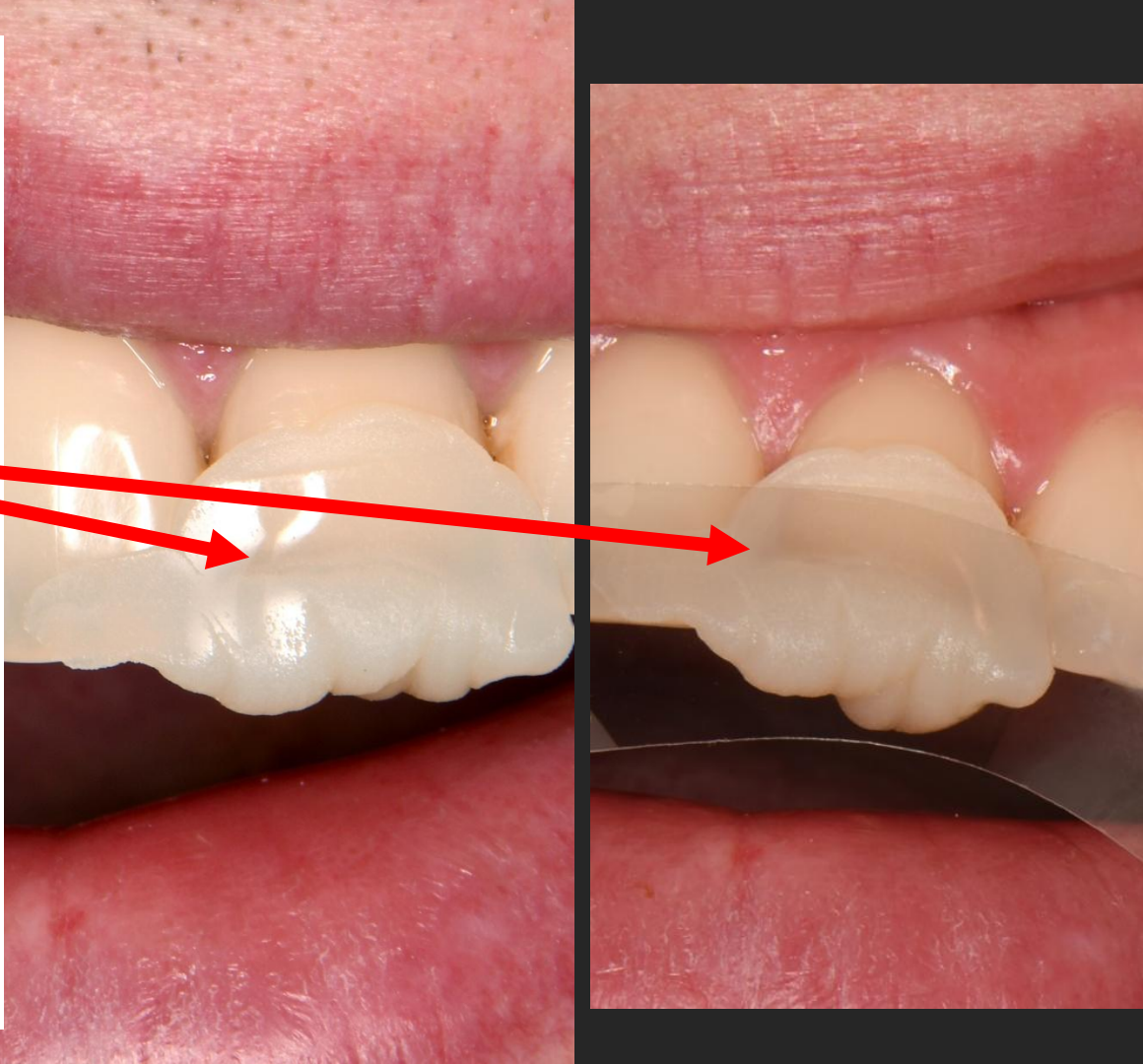
1. **Color Match or Color Upgrade Exercise** (right now, before anesthetic, before teeth dehydrate)
2. **Disclose**
3. **Blast**
4. **Trucontact to sand the contacts** (don't *open* the contacts, just gently *sand* them)







- Flat Mylar Press (against the teeth) shows true value wherever the Mylar touched the composite.
- This patient wants a color upgrade, either bleaching or Bioclearing the other teeth later.
- Notice harsh color (value) transition That won't look good at all unless we follow the Bioclear Recipe!
- Appropriate Radius Bevels and additive dentistry will solve this challenge and result in a beautiful outcome... **without layering** and allow a color upgrade





Radius bevel: $A=B$

A is the missing tooth structure,
B is the width of the radius bevel



Composite ALWAYS goes past the bevel onto clean, blasted, etched enamel as far as you like, it is case dependent, but at least 2 mm

















So which composites turn yellow over time, and which composites maintain their color better?

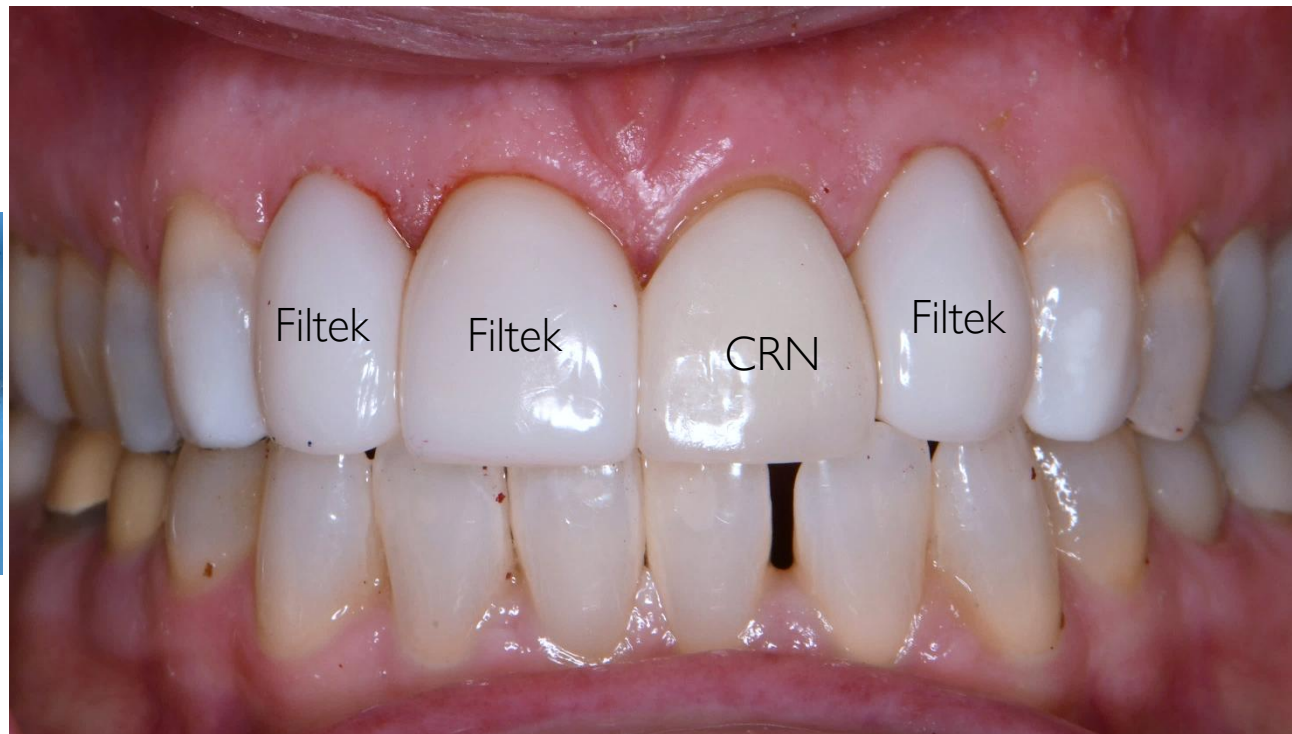
If you use A-1, B-1, W, or XW it matters... a lot

If you are using A-2 or darker, you don't see the change

Immediate post-op with Filtek B-1



Pre-polish



2-year post-op, there is noticeable yellowing



Filtek 9-year post-op, there is catastrophic yellowing



Filtek™ B1
Body 2016

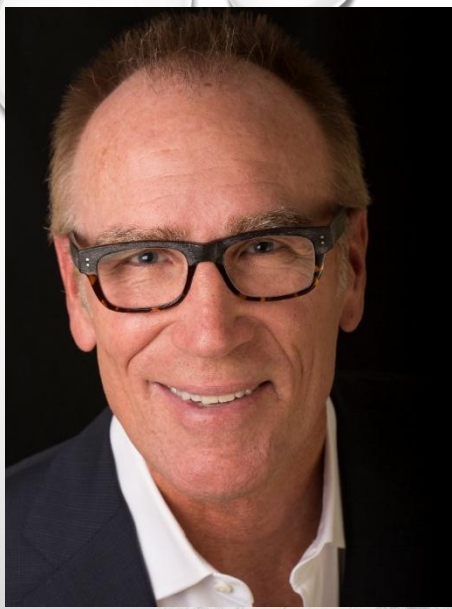


Filtek™ B-1
Body 2018



Filtek™ B-1
Body 2025





Dr. Richard
Young

Bioclear Cases 4 Year
Post-ops
Untouched-NO refresh
on either case
Majesty ES Classic and Flow



@dr.young.esthetics



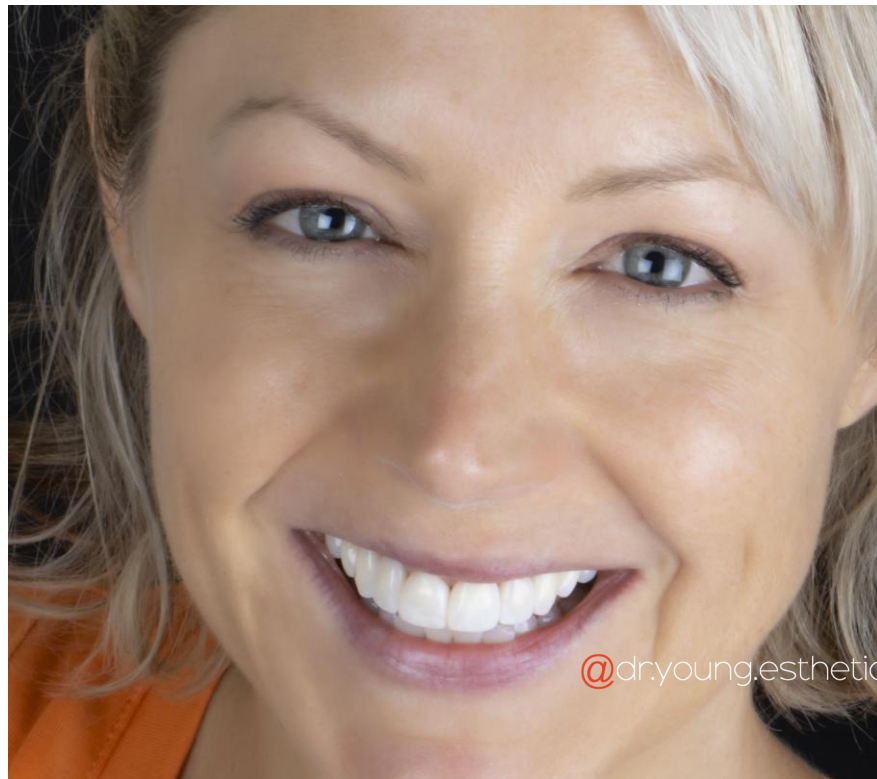
@dr.young.esthetics













4 Years Post-Op

@dr.young.esthetics

Kuraray Majesty ES Classic (Paste) and Flow

CLEARFILTM

Injection Molded Composites



DENTAL BONDING AGENTS

CLEARFIL Universal Bond Quick 2



DENTAL LIGHT-CURED RESTORATIVE COMPOSITE

CLEARFIL MAJESTYTM ES Flow



DENTAL LIGHT-CURED RESTORATIVE COMPOSITE

CLEARFIL MAJESTYTM ES-2

Classic
(Body Shades)

Color Stability Results for Flowables:

ΔE ab (Value & Chroma Changes)

Hori-Ishikawa et al.

Asian Pac J Dent 2020; 20: 9-15

Original article

Discoloration of flowable and universal resin composites immersed in black tea for 30 days

Ayaka Hori-Ishikawa, Yuka Ogawa, Ayako Okada, Nana Sakaeda, Daichi Aizawa, Masao Hanabusa, Kaoru Ohmori, Takatsugu Yamamoto

Department of Operative Dentistry, Tsurumi University School of Dental Medicine, Yokohama, Japan

Abstract

Purpose: This study evaluated the discoloration of current flowable and universal resin composites by immersing in black tea over 30 days.

Materials and Methods: Three flowable resin composites and three universal resin composites were evaluated. The composites were inserted into a disk-shaped stainless steel mold and properly cured. The surfaces of the composite disks were wet-ground and ultrasonically cleaned. Colors (L^* , a^* , and b^*) were measured at the center of disks on a gray background using a spectrophotometer. The disks were immersed in black tea at 37°C for 30 days, and the colors were repeatedly measured at 1, 3, 5, and 30 days of immersion. Color differences (ΔE^*ab) were calculated from the L^* , a^* , and b^* values. Water sorption and solubility of the composites were also measured as per ISO 4049. The results were statistically analyzed, and regression analyses were done between (ΔE^*ab and ΔL^* , Δa^* , Δb^* or sorption/solubility).

Results: All the composites showed observable increases of ΔE^*ab within the first 5 days of immersion. Values of ΔE^*ab ranged from 0.64 to 4.97, and three composites exhibited values above the clinically acceptable value, 3.3. ΔL^* and Δb^* revealed strong correlations with ΔE^*ab . Both water sorption and solubility had positive correlations with ΔE^*ab at 30 days.

Conclusion: Tea immersion induced discoloration of the current resin composites. This discoloration was affected most by the change in brightness and difference in its blue-yellow chromaticity, and the level of discoloration was material dependent.

(Asian Pac J Dent 2020; 20: 9-15.)

Key Words: discoloration, flowable composite, solubility, tea, universal composite, water sorption

Introduction

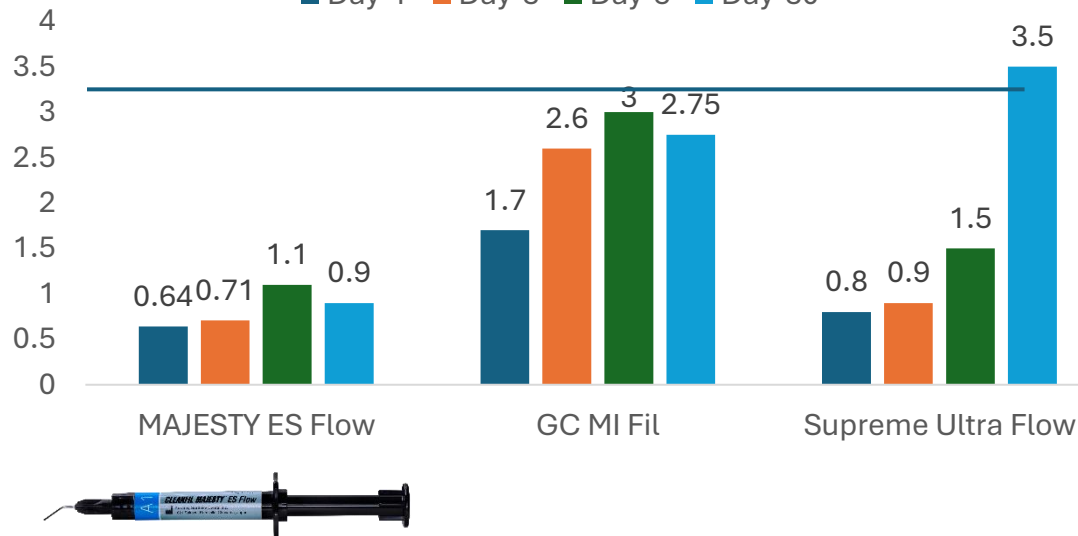
Adhesive restoration is a conventional technique for the reconstruction of tooth structure lost to dental caries/fracture. Among the adhesive restorative materials, resin composites have wide ranges of clinical applications including direct restorations, core build-ups, and luting of indirect restoratives. Light-cured resin composites, in particular, are essential for direct restorations for their adhesiveness, mechanical and esthetic properties [1]. Resin composites first began to be supplied in the form of pastes (hereinafter referred to as universal resin composite). Subsequent compositional alterations have produced less viscous resin composites, known as flowable resin composites since 1996 [2]. Flowable composites are dispensed by a syringe through a needle tip, achieving easy handling for filling relatively small cavities or cavities with large undercuts [3,4].

Initially, flowable composites contained hybrid-type fillers that were considerably larger than the current fillers [2]. The filler content was low with approximately 25 wt% to attain sufficient flowability of the composites, making their mechanical properties inferior to those of universal resin composites. Hence, flowable composites were mainly used for small cavities or as cavity liners [2,5]. Subsequent developments in filler technology, i.e., surface treatments and the dispersion techniques produced much smaller fillers [6], which improved the mechanical properties of composites. In addition, viscosity of composites became controllable due to filler/nanofiller technology. The flowable composites became applicable in occlusal load bearing areas and allowed for contouring the anatomical forms under the direct syringe application. With such improvements, clinical usage of flowable composites have increased in present day [7].

As described earlier, low viscosity is an advantage of the flowable composites. Flowability is controlled by the compounding base resins. The major monomer is bisphenol A-glycidyl methacrylate (Bis-GMA) for current composites due to its mechanical strengths. However, as Bis-GMA is too viscous to use alone in composite in terms of manipulation, other monomers such as urethane dimethacrylate (UDMA) and methylene glycol dimethacrylate (EGDMA), and certain α -olefins are compounded to adjust the viscosity [8,9]. Different base resins are frequently utilized in flowable and universal resin composites. Recent studies have investigated discoloration of resin composites [7,9-13].

3.3 & Below Acceptable

■ Day-1 ■ Day-3 ■ Day-5 ■ Day-30



Re: Discoloration: “**CLEARFIL MAJESTY ES Flow** showed the lowest means at every interval of measurement”

Color Stability Results for Packable Universal Shades:

Hori-Ishikawa et al.

Asian Pac J Dent 2020; 20: 9-15

Original article

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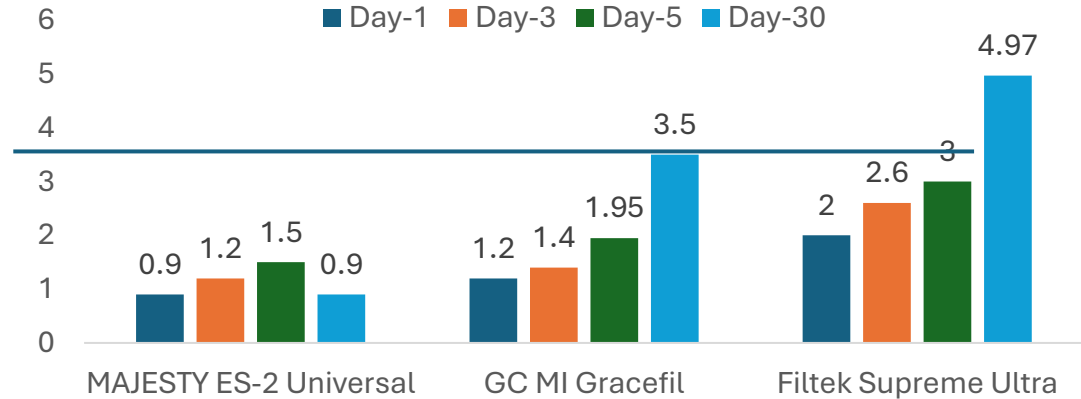
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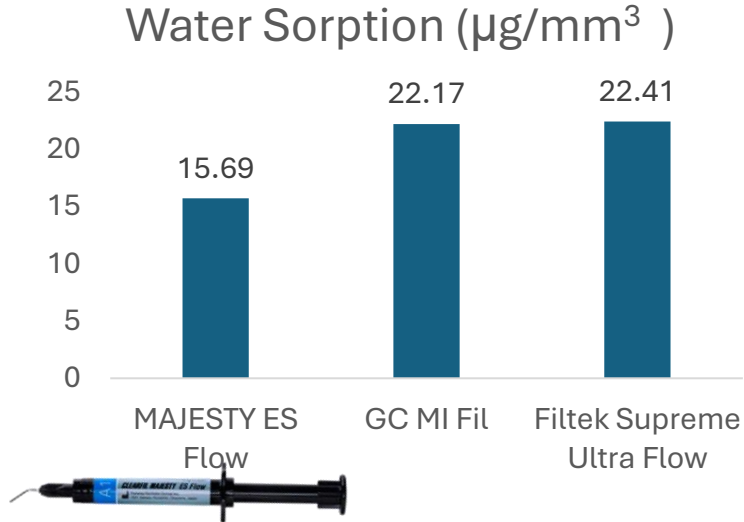
ΔE ab (Value & Chroma Changes)

3.3 & Below Acceptable

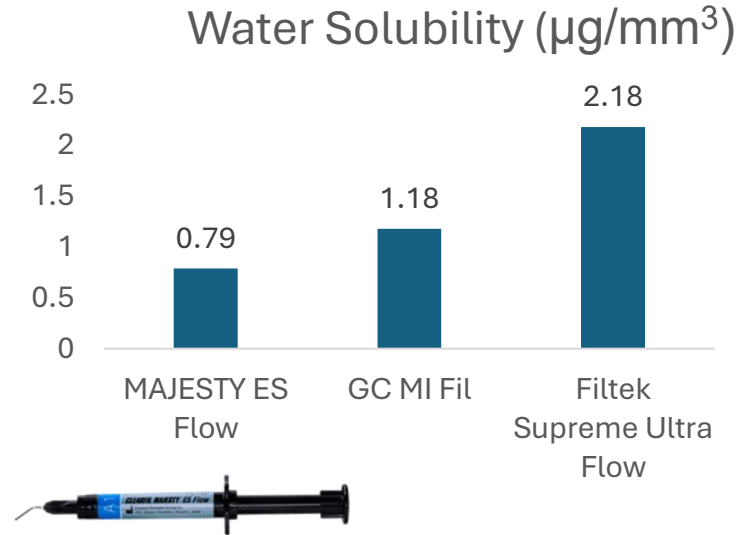


Water Sorption & Solubility:

Water Sorption W_{sp} (Flowables)



Water Solubility W_{sl} (Flowables)



As I see it: The race is on!

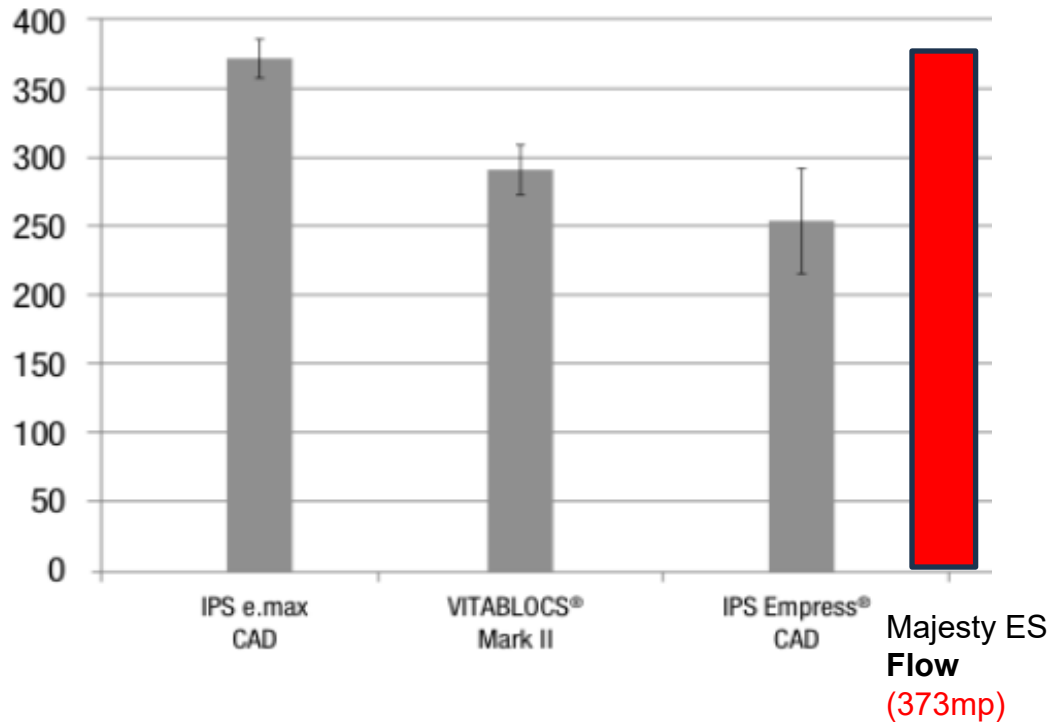
We will see porcelain performance
from composite (color and polish
retention)

As I see it: The race is on!

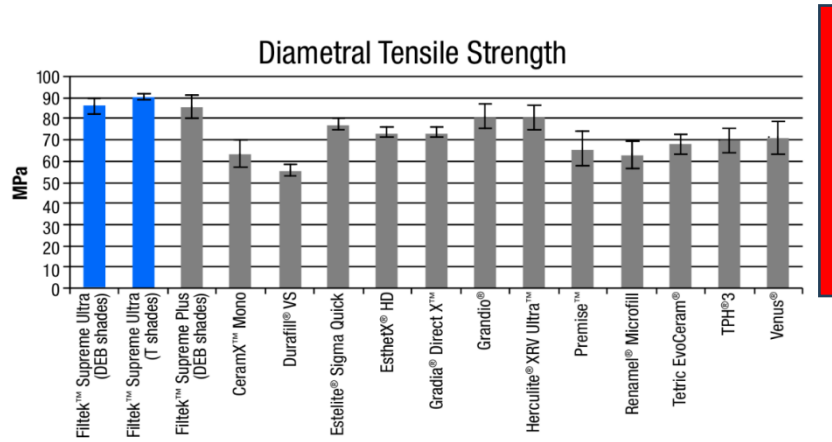
We are moving away from hand
manipulated paste composite and
toward injectable “Super flowables”
(Kuraray)



High Compressive Strength (MPa)

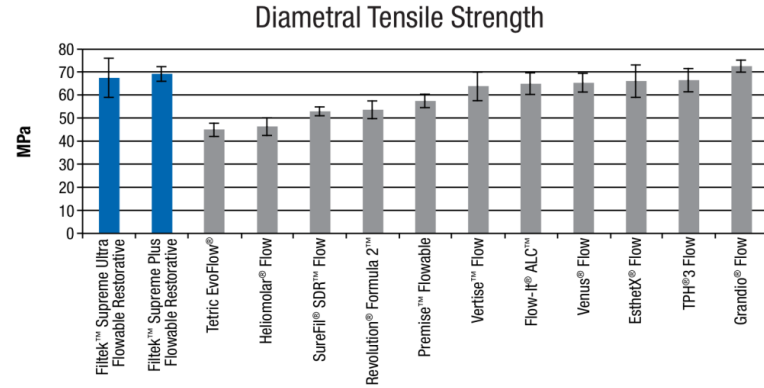


Composites



Majesty
ES Flow
(148mp)

Flowables



Is monolithic injection molded composite a viable alternative to full ceramic crowns in some cases?

You be the judge of that



The patient is a 35- year-old male. His original chief complaint was a discolored filling on the distal of tooth #8. The patient was given two treatment plans, one to simply replace a few defective restorations and remove caries with traditional fillings or in patient terms we said, “We can patch the holes, or I can rejuvenate your smile. The patchwork plan will be healthy but will not make a significant esthetic change. In addition, the severe wear and acid erosion present on the palatal surfaces could eventually lead to catastrophic problems later i.e. root canals, infection, and tooth loss.” The patient opted for Bioclear rejuvenation versus simple fillings because he wanted a beautiful smile. He chose Bioclear in lieu of crowns because he understood that Bioclear is a more conservative and healthier approach to achieving his goals than traditional crowns.

Phase one of the treatment plan was to restore the anterior six teeth, simultaneously opening the vertical dimension to reduce the need for aggressive tooth reduction for material thickness. In addition, because the patient needed to have the teeth lengthened by 2 mm, opening the vertical dimension by 2 mm allowed the overbite to be more ideal. Because the patient could only commit to the cost of the six Bioclear restorations (\$11,600) we placed transitional occlusal flowable composites (thick sealants) on the four maxillary premolar teeth, and we will allow the molars to settle into occlusion utilizing the well-researched Dahl Technique.

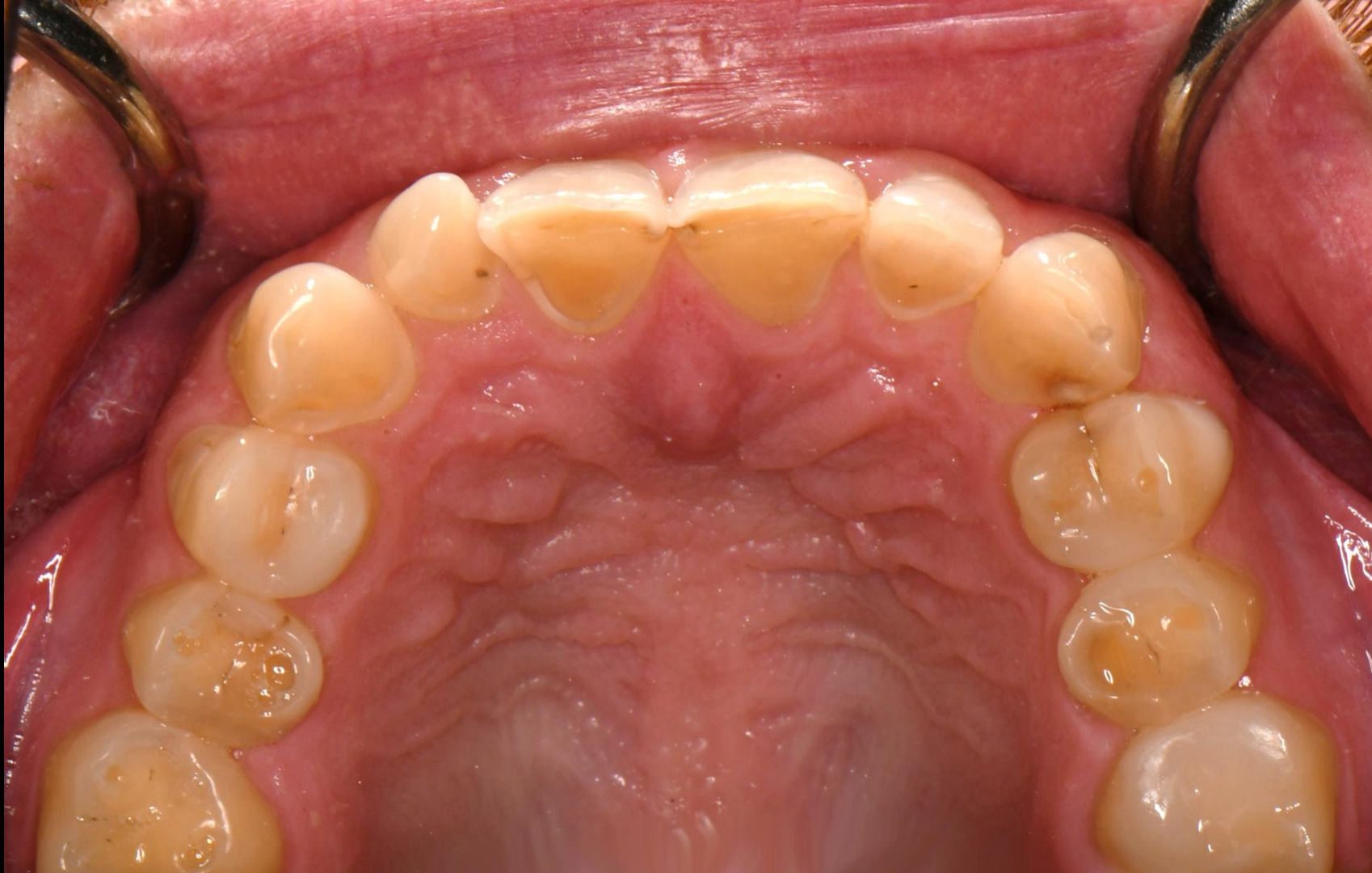
Phase two will be to restore the remaining teeth with Bioclear when the patient has his finances ready.

Treatment Summary Short Version:

Treatment was finished in a single 4-hour session. (Less experienced clinicians should plan to give one hour per tooth). Bioclear TSS Matrices were utilized on all the teeth except tooth #10. #10 required the Bioclear BT matrix system to create “instant ortho” and because a diastema was present there. Bioclear Diamond wedges were used as needed in areas where the contact was lost during caries removal or removal of old composites. Bioclear RSP X-course discs (Black) were used to shape the incisal edges and smooth the small seams present where the matrices meet on the facial and palatal. Final polish was achieved with Bioclear Magic Mix and then Rock Star Polish cups and cones.

One-week postoperative visit revealed healthy teeth and gingiva. The patient was ecstatic about his new smile, had zero post-operative pain or sensitivity, and expressed that his new bite with the increase in VDO felt more comfortable than before.





What percentage of the tooth is removed for a conservative crown prep?



Source: Google Images

What percentage of the tooth is removed for a conservative crown prep?



Source: Google Images



Wouldn't it be nice to preserve nearly all the healthy tooth structure
and at the same time completely rejuvenate this guy's smile?



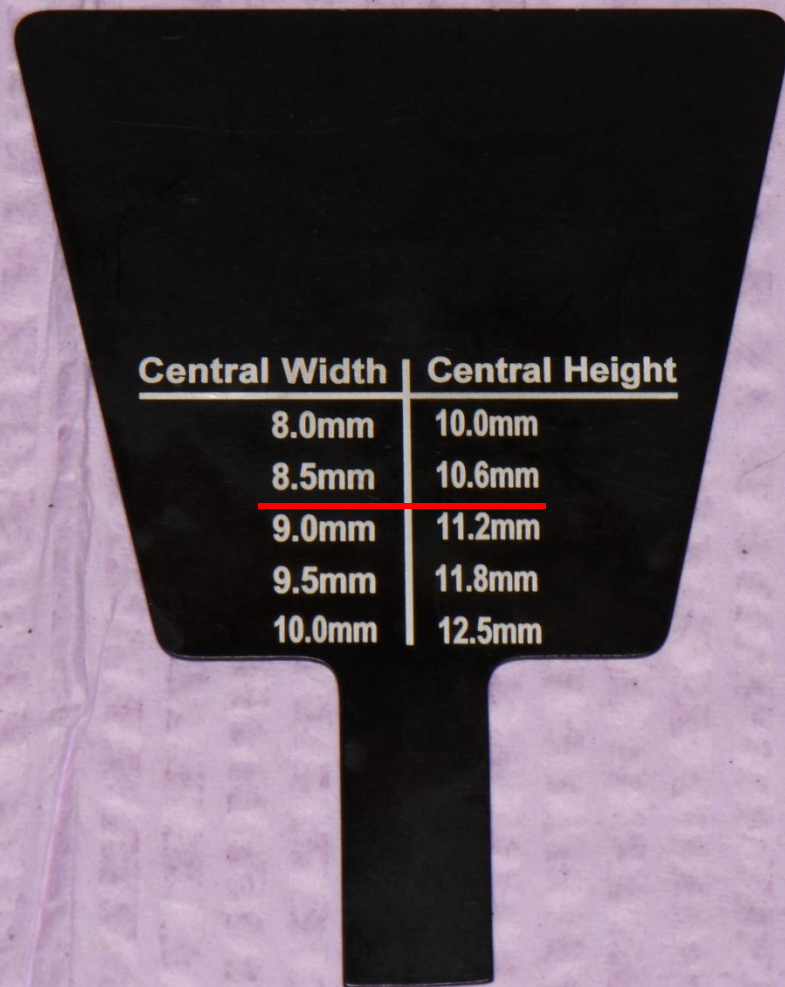
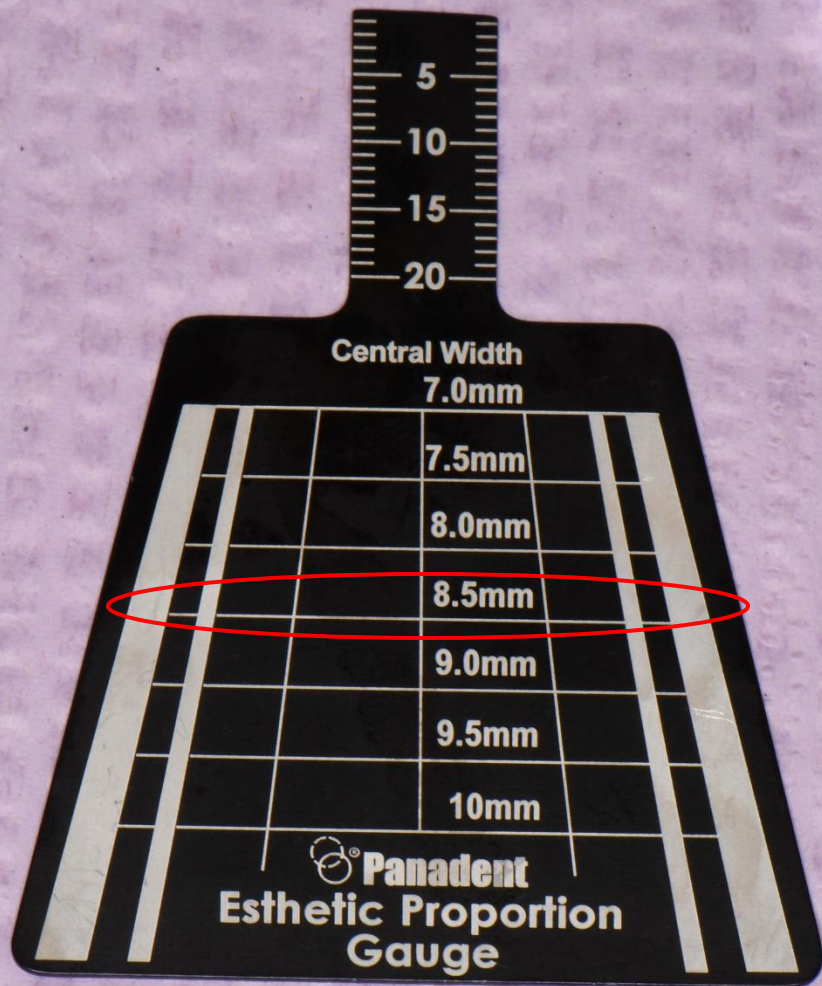
Simplified Smile Design!

How long are his
centrals currently? 8.5 mm



How wide are his centrals? 8.5 mm

















TSS

TOOTH & SURFACE SPECIFIC
MATRIX SYSTEM
BY BIOCLEAR



140 Anterior Matrices
20 Standard Anterior & 20 Small & Medium Lower Incisor

75 Wafers
20 Small Anterior & 55 Medium Wafers

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TSS
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MATRIX SYSTEM
BY 3D BOLLAR



140 Anterior Matrices
100 Standard 4" x 10" Bands & 100
Bands & 100 Standard 100 Bands

20 Matrices
20 Standard 4" x 10" Bands & 20
Bands & 20 Standard 100 Bands

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of anterior matrices:**
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matrix selection.

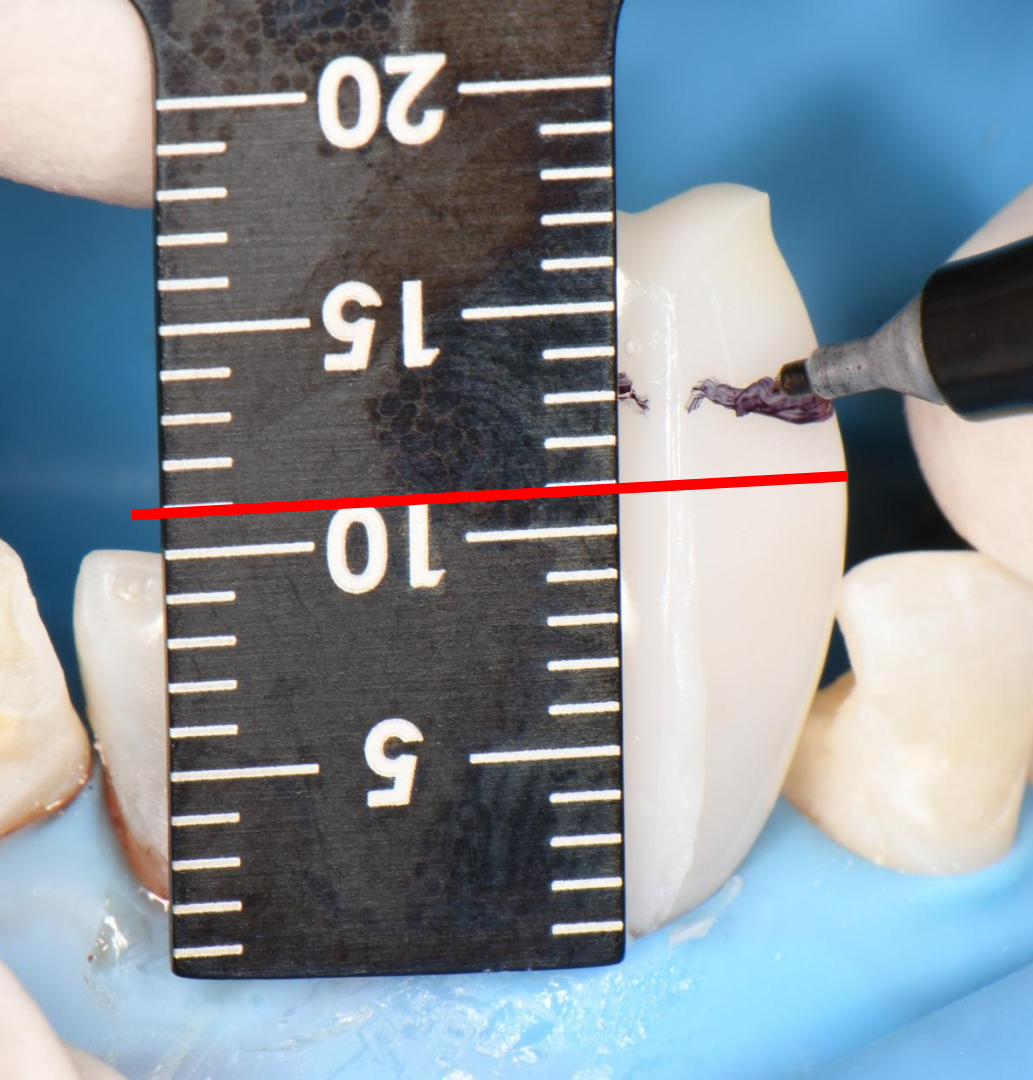


100 Anterior Matrices
100 unique sizes for anterior & premolar & maxillary & mandibular lower anterior

10 Designs
10 unique designs
for anterior matrices

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Pre-operative



Immediate Post-Operative

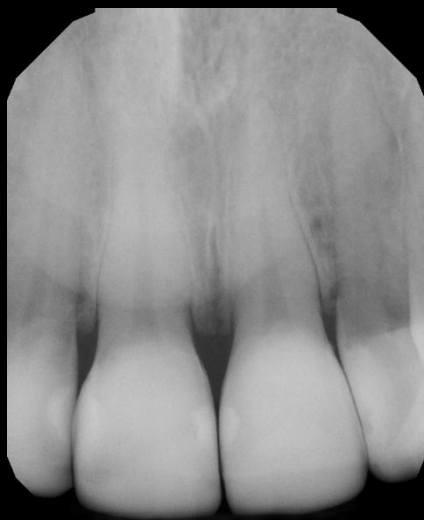


One Week Post-Operative

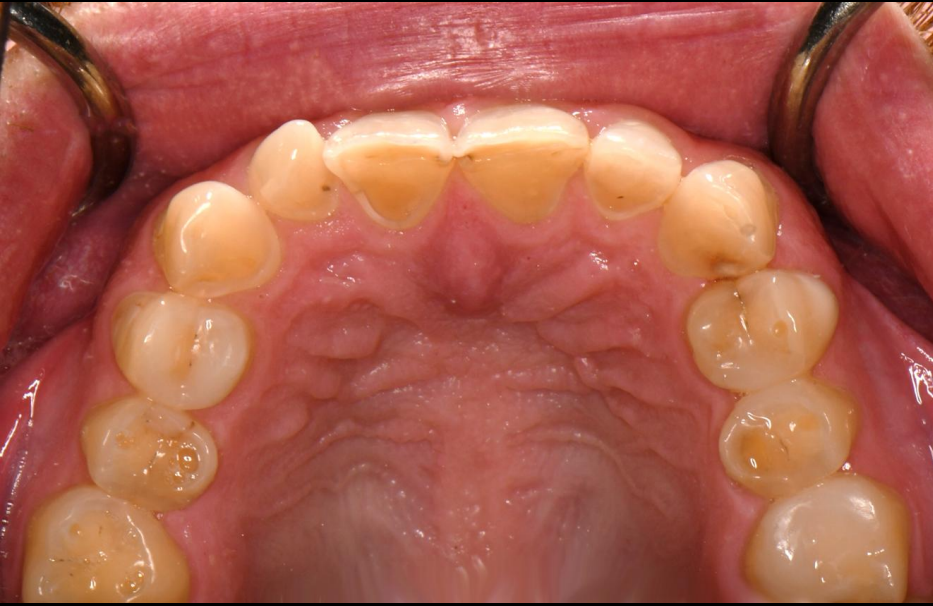
















“The Dahl Light Technique”

Day of treatment:
About 4 hours

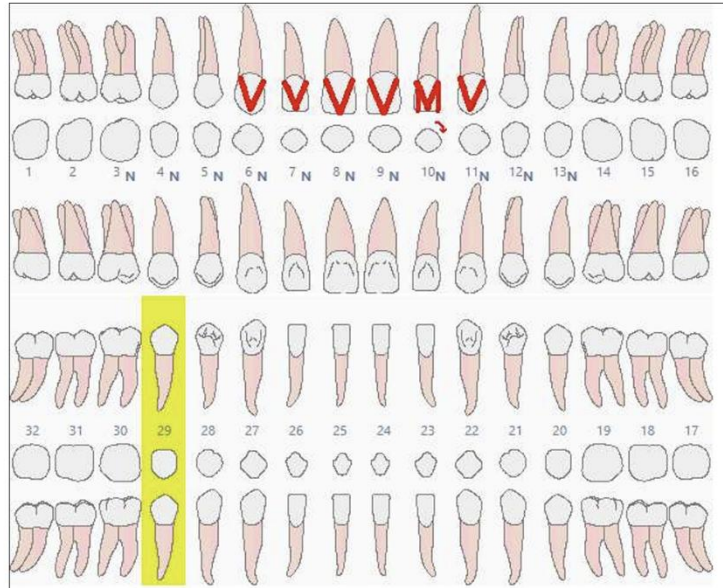


1-week
post-op

Patient Chart

Patient Name

Patient ID



Date	Description	Provider	Tth	Surf	Status	Fee
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	6		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	7		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	8		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	9		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	10		Proposed	\$1,840.00
1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	11		Proposed	\$1,840.00
1/15/2026	199.2 - BIOCLEAR ORTHO CORRECTION PER TOOTH	David J. Clark, D.D.S.	10		Proposed	\$306.00
1/15/2026	299.5 - BIOCLEAR DIASTEMA CLOSURE	David J. Clark, D.D.S.	10	MD	Proposed	\$285.00



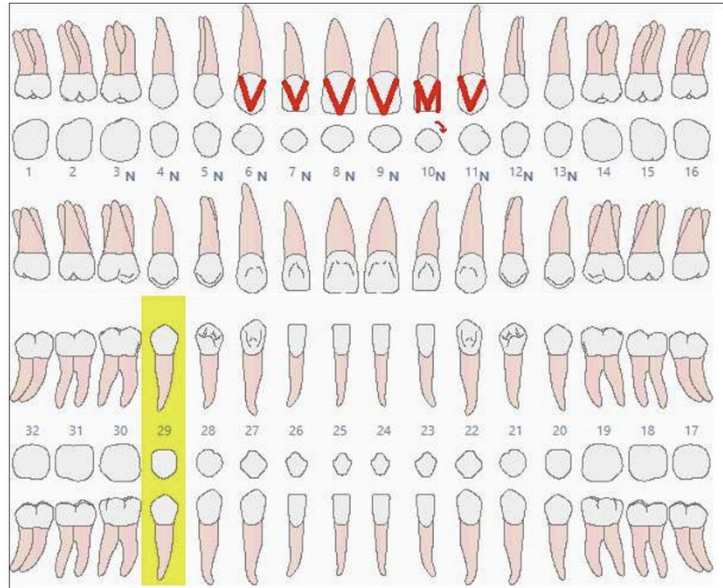
Total Bioclear Case Fee?

\$11,631

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1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	9		Proposed	\$1,840.00
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1/15/2026	2993A - BIOCLEAR 360 REJUVENATION COMPLEX	David J. Clark, D.D.S.	11		Proposed	\$1,840.00
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1/15/2026	299.5 - BIOCLEAR DIASTEMA CLOSURE	David J. Clark, D.D.S.	10	MD	Proposed	\$285.00



Total Bioclear Case Fee?

\$11,631

Dahl Technique



The Dahl appliance was described nearly 30 years ago. This removable metal bite platform was used to create inter-occlusal space, in a localised part of the mouth, to facilitate the placement of restorations on worn anterior teeth. The Dahl concept is traditionally associated with the management of worn teeth. However, the same principles can be successfully and safely applied to a variety of clinical situations. This has simplified the management of historically complex problems. The advantages are the preservation of tooth tissue and the long-term benefits that brings. This paper reviews the literature related to the Dahl concept and how the concept has developed. There is a discussion regarding possible future applications and research.



The Dahl concept can be successfully applied to a variety of clinical situations other than the management of tooth surface loss.

Direct composite resin is an ideal material to use as an intermediate Dahl appliance as it is inexpensive, bondable, robust and can be modified with ease.

The success of the Dahl Concept

The literature reports that the objectives of the Dahl concept are achieved in the majority of cases (94%-100%), and that this space creation occurs irrespective of age and sex. These objectives are to either create sufficient inter-occlusal space for the placement of restorations or the re-establishment of occlusal contacts following the placement of restorations that have intentionally been placed in supra-occlusion.

The main reason for the failure of space creation is poor patient compliance associated with removable appliances.

The success of the Dahl Concept

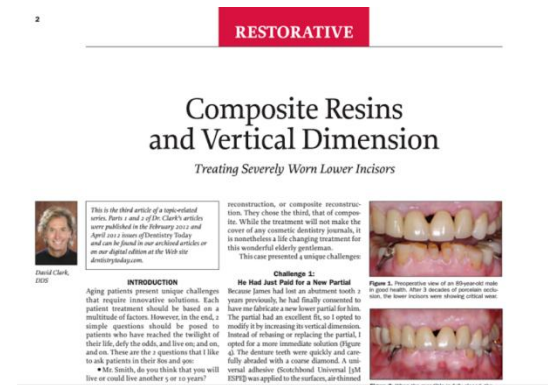
It is our opinion that a conservative technique using adhesive principles will ensure that sufficient tooth structure with favourable pulpal health will remain for subsequent restorations and therefore more options should be available on failure. The modern emphasis should be of 'tooth damage limitation' as patients embark on the 'restorative failure cycle'.

The success of the Dahl Concept

How long does it take?

The occlusion tends to re-establish after about six months on average but it can take up to a period of **18-24 months**

Dahl and Krogstad's further publications of an implant-cephalometric study, using fixed tantalum implants placed in the basal bone of the maxilla and mandible, concluded that the inter-occlusal space was created by axial movement of the teeth rather than a change in their inclination. There was some relapse in the vertical dimension of occlusion during the first six months but this remained static after this period. The inter-occlusal **space was obtained by a combination of intrusion of the anterior teeth in contact with the cobalt-chromium appliance and eruption of the separated posterior teeth.**



Let's quickly review several types of anterior cases
and best matrix system for the case:

TSS (Tooth and Surface Specific) *or* **BT** (Black Triangle/Diastema Closure)



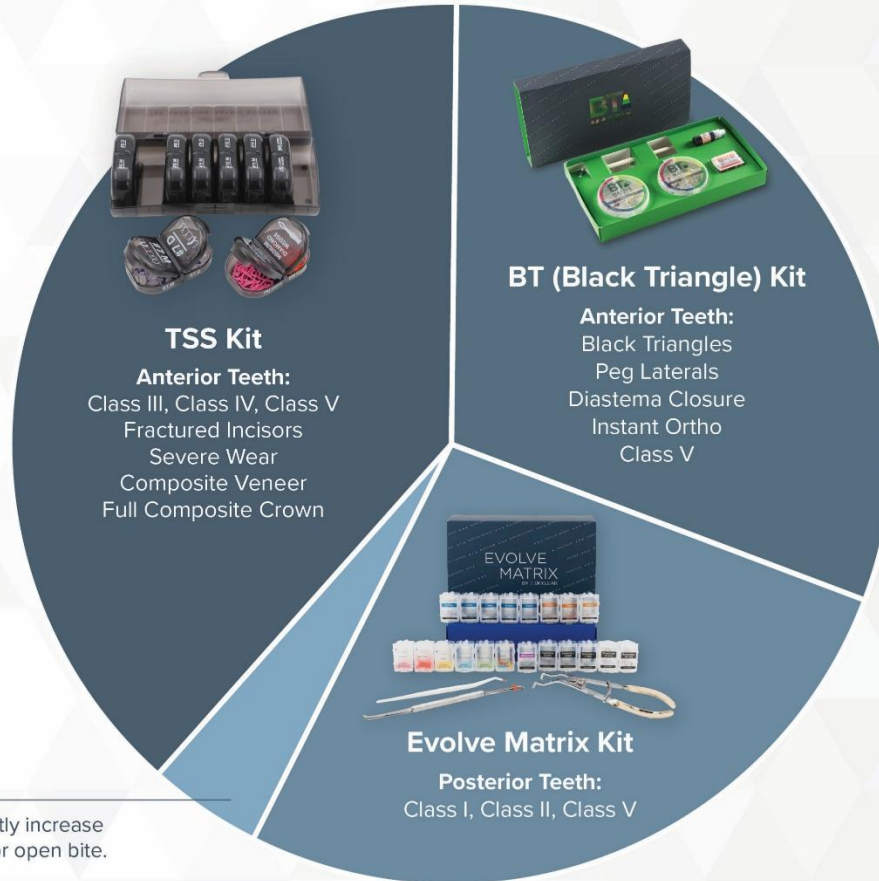
Recommended Bioclear Matrices by Indication

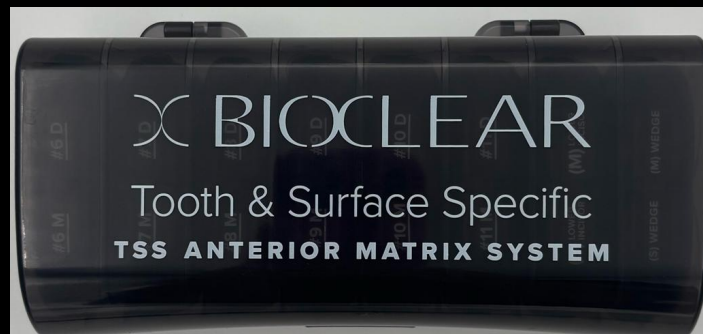
For more information contact us
Bioclear Matrix Systems
1-855-712-5327



360 Veneer

Class V and to significantly increase
overjet or correct anterior open bite.









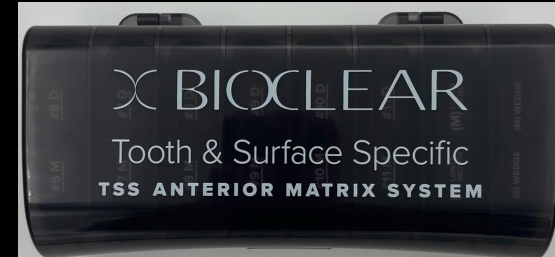
The monolithic restoration can create adequate non-layered polychromaticity with **Body** shade



17 year old male. Had emotional Issues and had ortho brackets on for many years without returning to complete orthodontic care. Left with rampant decay. Injection molded A2 **BODY** composite

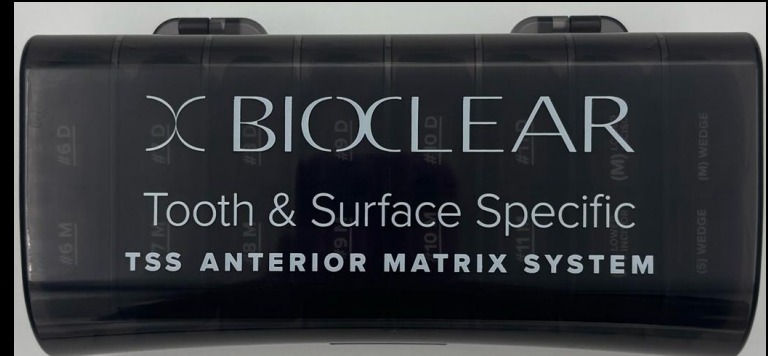


Which Matrix Type?





Which Bioclear kit?





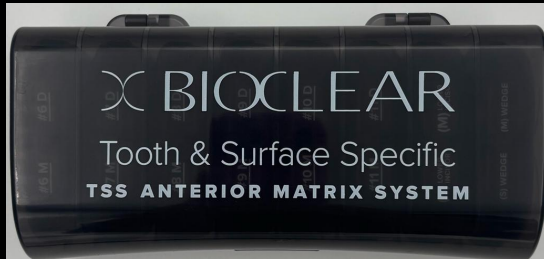
- If you think you will lose your contacts, you need to prep and then take each to 80% shape before you move to the next tooth.
- Bioclear method benefits from leverage and landmarks
- Creation of 3 facial planes is key
- Monolithic composite in the body shade is generally beautiful to the patient. Why?



Case by recent
attendee of
Learning Center 4-
day Certification
Course



Which Bioclear Kit?



Which Bioclear Kit?

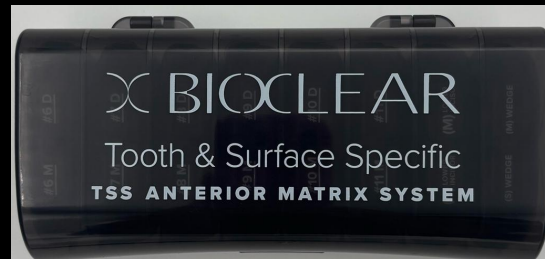




Courtesy Dr.
Les Miller

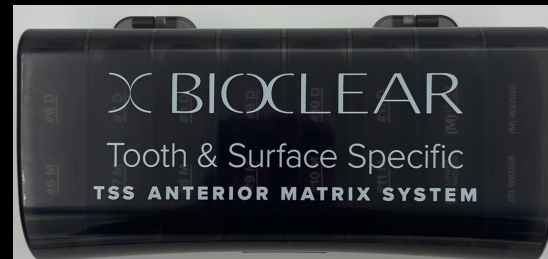


Which Bioclear
kit or kits?





Both





Recommended Bioclear Matrices by Indication

For more information contact us
Bioclear Matrix Systems
1-855-712-5327



360 Veneer

Class V and to significantly increase
overjet or correct anterior open bite.



TSS Kit

Anterior Teeth:

Class III, Class IV, Class V
Fractured Incisors
Severe Wear
Composite Veneer
Full Composite Crown



BT (Black Triangle) Kit

Anterior Teeth:

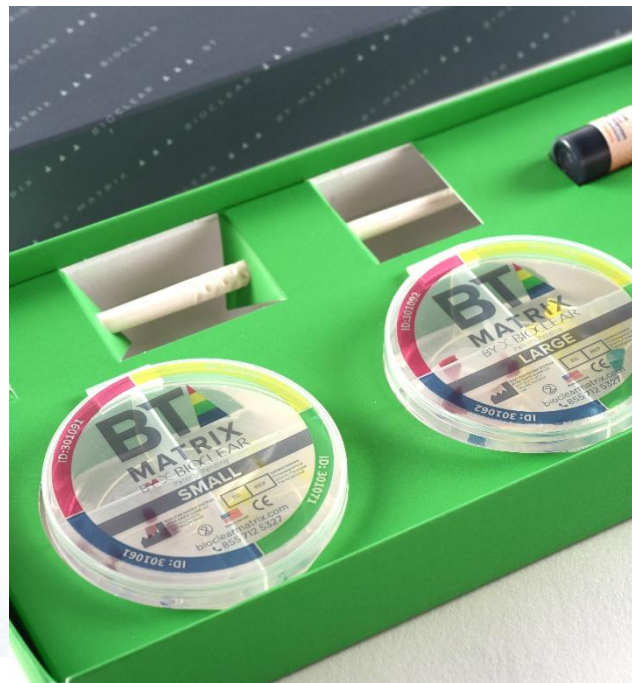
Black Triangles
Peg Laterals
Diastema Closure
Instant Ortho
Class V



Evolve Matrix Kit

Posterior Teeth:

Class I, Class II, Class V





∞ BIOCLEAR

Bioclear Black Triangle Restoration

with Kuraray Majesty ES-2 Flowable

Meet Erica: 35-year-old female
finishing her 2nd round of orthodontics



Erica just finished her ortho and she's **not** happy



What are Erica's chief complaints?



What were the options given when she complained to her orthodontist?



What was the TX Plan when she got back to her
General Dentist?



What were the TX Plans when she consulted with the periodontist?



➤ Bioclear can fix almost everything if you follow the method



- Take photos from a lateral view. The patient doesn't see this (but everyone else in the room does)





- Gauge the triangle space **before** the rubber dam









➤ “Aquarium” matrices and “Shield” matrices











Pre-Operative



1-Year Post-Operative



Pre-Operative



1-Year Post-Operative



Pre-Operative



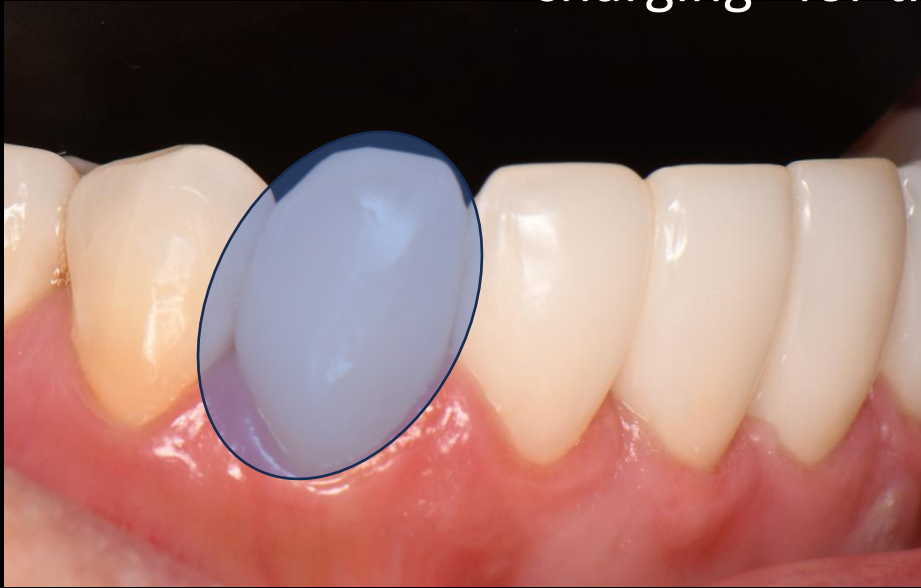
1-Year Post-Operative



If you are doing more than one BT, consider overmolding the entire tooth, even when we are not “charging” for that triangle area



If you are doing more than one BT, consider
overmolding the entire tooth, even when we are not
“charging” for that triangle area

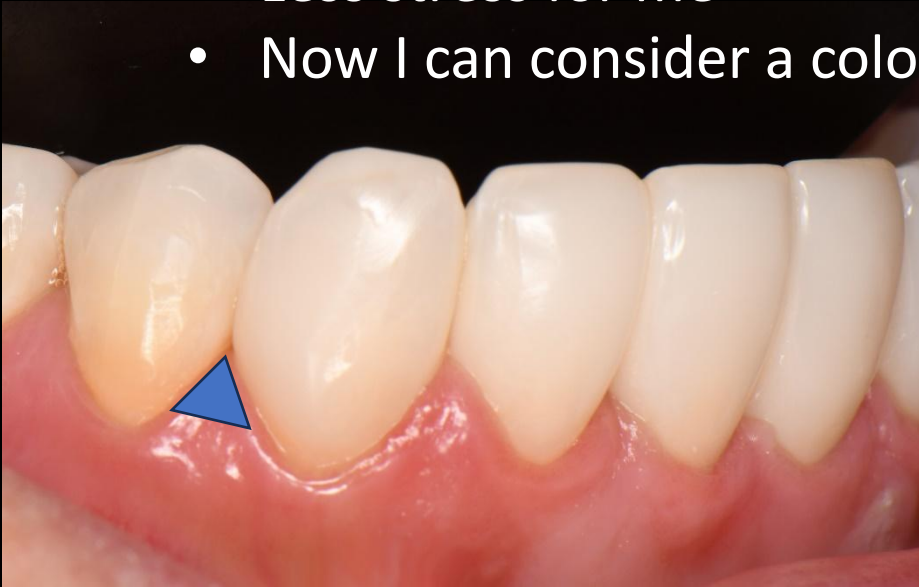


If you are doing more than one BT, consider overmolding the entire tooth, even when we are not “charging” for that triangle area



Why cover the WST (Whole Stinking Tooth)

- Easier than marginating
- Less stress for me
- Now I can consider a color upgrade

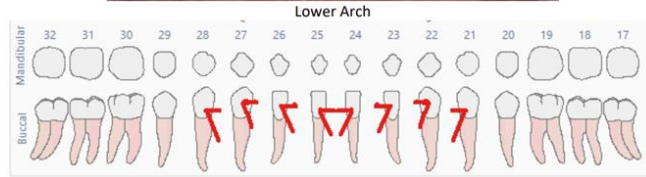




3402 South 38th Street, Tacoma, WA 98409
O: 253-474-7635 E: Patient@BioclearClinic.com

Date: 03-08-2021

Patient Name: Erica
Consultation Date: 03-08-2021
Treating Doctor: David Clark



Appointment time required to complete treatment One Day: 7am to 4pm with 10 day follow appointment.

- Lunch and Breaks:** We provide a protein liquid drink for lunch. Be sure to eat breakfast prior to appointment. You will receive breaks to rest your jaw and use restroom.
- Night Guard:** To protect your Bioclear restorations. Requirement for 5 yr. warranty of restoration. REFERRED: Night guard to be fabricated by your local dental provider.
- Whitening Tray Options:** 1 Kit: (Kit include: custom upper and lower trays and bleach) Following Bioclear restoration placement for take home maintenance. Cost: **\$250**

Tooth #	Description	Fee
Comprehensive Evaluation: complete oral evaluation, color, size determination, photos.		
• Bioclear Comprehensive Evaluation		\$289

Bioclear Black Triangle:  To close negative space between teeth and rejuvenate tooth to youthful appearance.
Tooth # 21/22, 22/23, 23/24, 24/25, 25/26, 26/27 Bioclear Black Triangle Closure Multiple \$1,200 per Bioclear Black Triangle Closure.

Erica, you have the option to complete 5 or 7 Black Triangle Closures.

5 Black Triangles \$6,000
7 Black Triangles \$8,400

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7 Black Triangles \$8,400

Key Takeaways from Erica's case:

- Use a shield matrix or shield matrices when possible
- What's a shield matrix?
- What are aquarium matrices?
- Doing the whole tooth is easier than half a tooth
- The "flowable clamp" for anterior rubber dams
- Use very small hole punch on your rubber dam



Pre-Operative



1-Year Post-Operative



Treating a Single Black Triangle























2-year follow up



2-year follow up

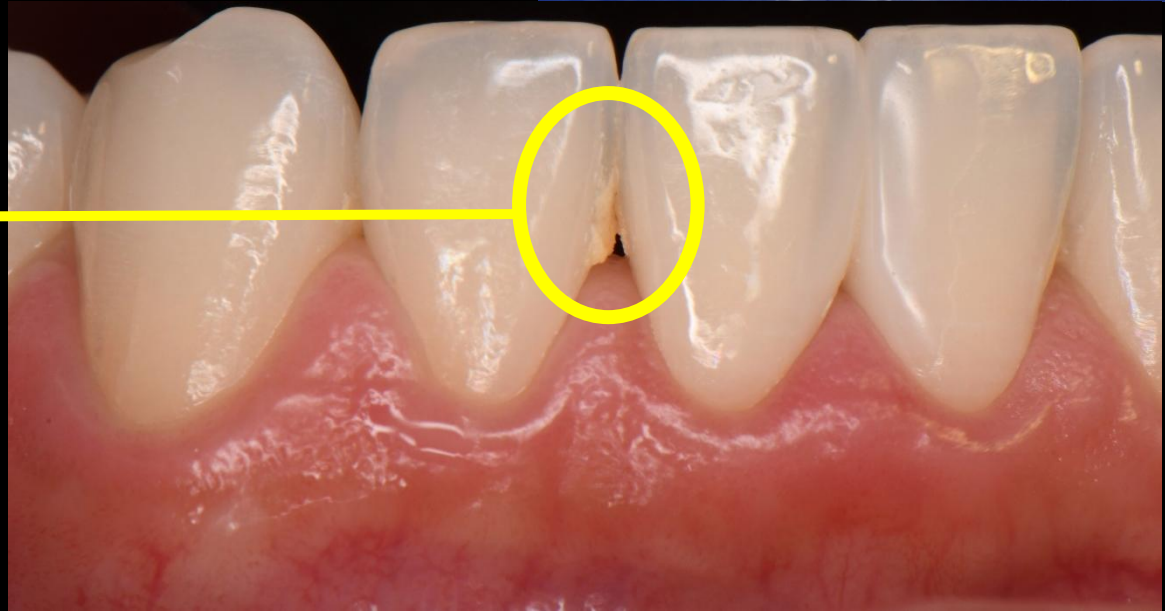


2-year follow up

- The new Bioclear BT matrices have a specific shape i.e. shoulder blades that deflect bacterial accumulation



unrestored



- The new Bioclear BT matrices have a specific shape i.e. shoulder blades that deflect bacterial accumulation



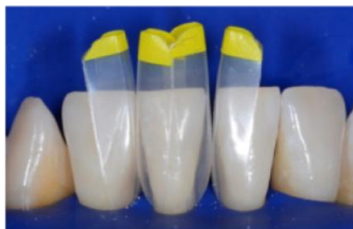
Injection over -
molded



Getting paid to be conservative

BIOCLEAR VS. CROWNS AND VENEERS

Bioclear is an alternative to traditional methods for enhancing a smile. Rather than preparing for a crown or veneer, the Bioclear Method—expanding the possibilities of dentistry—conserves the natural tooth structure, enamel and tooth durability.



BIOCLEAR PREPARATION
Bioclear allows dentists to **conserve** healthy tooth structure



CROWN PREPARATION
Crowns require dentists to **remove an average of 76%** of the tooth structure prior to the procedure



VENEER PREPARATION
Veneers require dentists to **remove an average of 47%** of the tooth structure prior to the procedure

AN HONEST LOOK AT CROWN PREPARATIONS

As illustrated below, crowns, veneers, and onlays require the removal of a significant amount of healthy tooth structure. Bioclear dentists can leave most or all of the tooth structure. Bioclear is a very attractive option to patients.



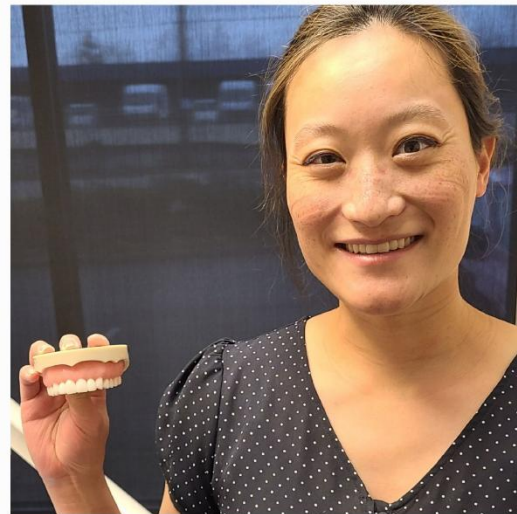
 BIOCLEAR
LEARNING CENTER

Tacoma WA USA









Last week's attendees at the certification course





2027 Certification Courses



- Core Anterior + Core Posterior • Complex Cases & Problem Solving
- Smile Design & Comprehensive Anterior Rejuvenation

JANUARY

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FEBRUARY

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JUNE

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NOVEMBER

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AUGUST

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DECEMBER

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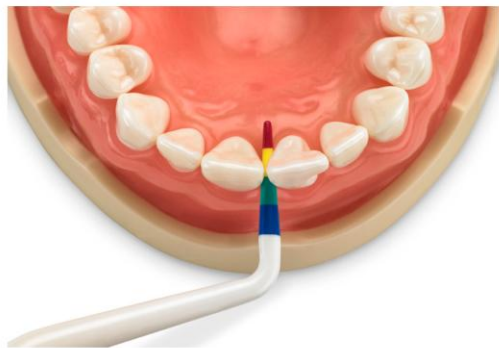
Treat yourself to a weekend with ∞ BIOCLEAR

BLACK TRIANGLE

CERTIFICATION COURSE

18 CE CREDITS

This three-part live hands-on certification course will teach you how to treat black triangles, gingival recession, root abrasions, and perform confident restorations. In becoming a certified Bioclear black triangle doctor, you'll increase your overall skill and knowledge of Bioclear and learn to market your new skills to patients.



Upcoming Dates:

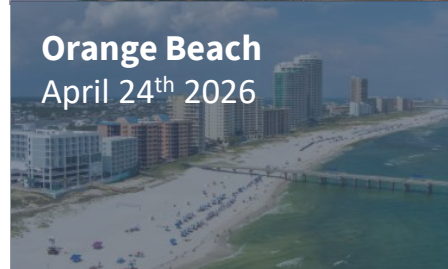
Washington DC

May 8th 2026



Orange Beach

April 24th 2026



Denver

October 9th
2026



**Scan to learn more
& sign up for your
local BT Course!**



www.bioclearmatrix.com/live-courses/



BEFORE



AFTER



BEFORE



AFTER



The Bioclear Direct Contact Strut

Creating Contacts for Diastemas, Peg Laterals, and Bioclear 360° Veneers

- Abbreviated Version -

Dr Jose Moura 5/2025 Taubate Brazil







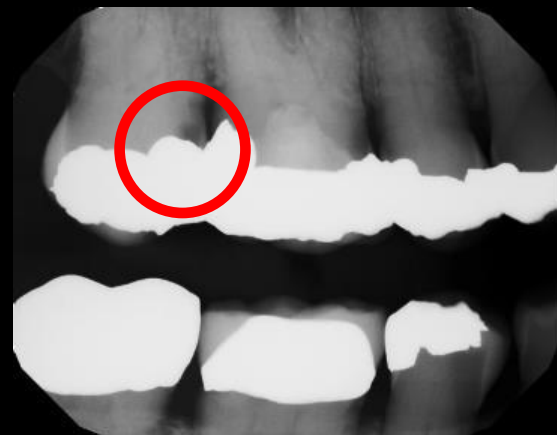












Deep Margin Acquisition (DMA)



Inside the prep to our reference = 6mm

- What Evolve matrix color should you choose and what height?
- What's my reference?











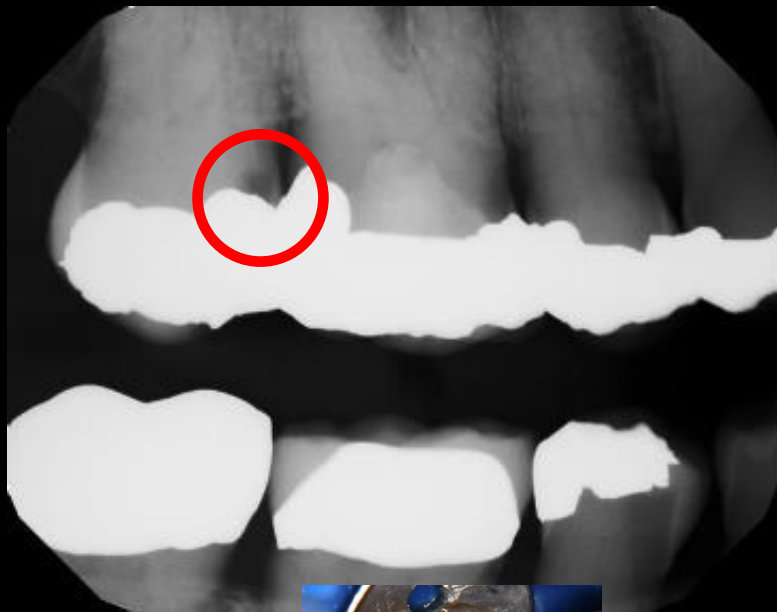




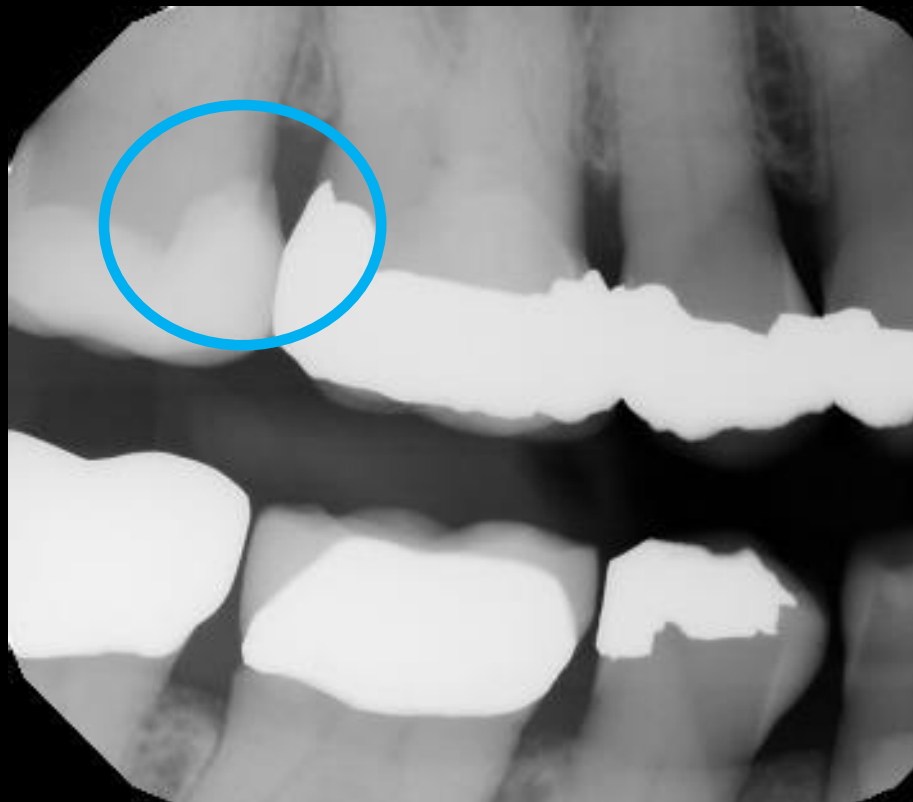




Pre-op



Post-op



Before



After



Dr. John Yun
Toronto, ON



Dr. David Carroll,
Prosthodontist,
Aventura FL





Dr. Scott Kollen
Vancouver, BC





Dr. Antonio
Mendoza,
Barcelona
Spain





Bioclear Matrix System

8 HOURS AGO



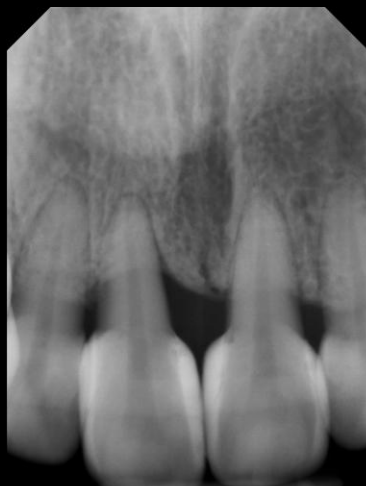
Courtesy Dr. Charles Regalado

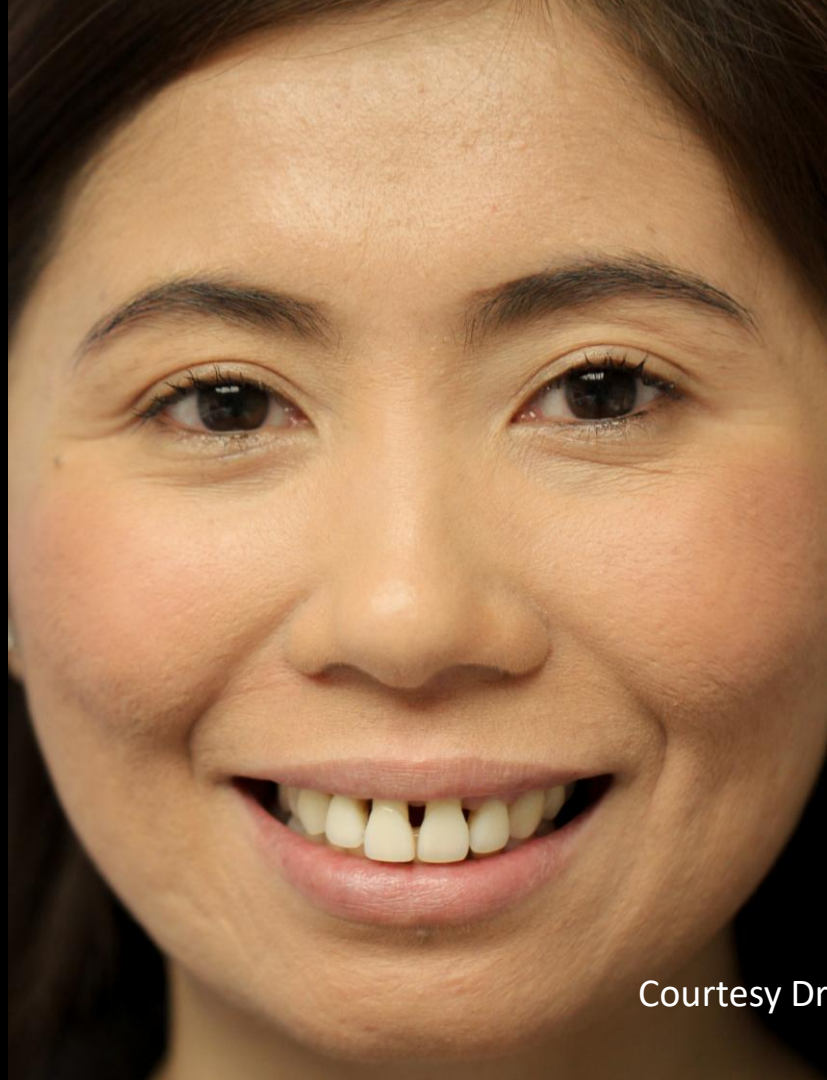


Courtesy Dr. Charles Regalado

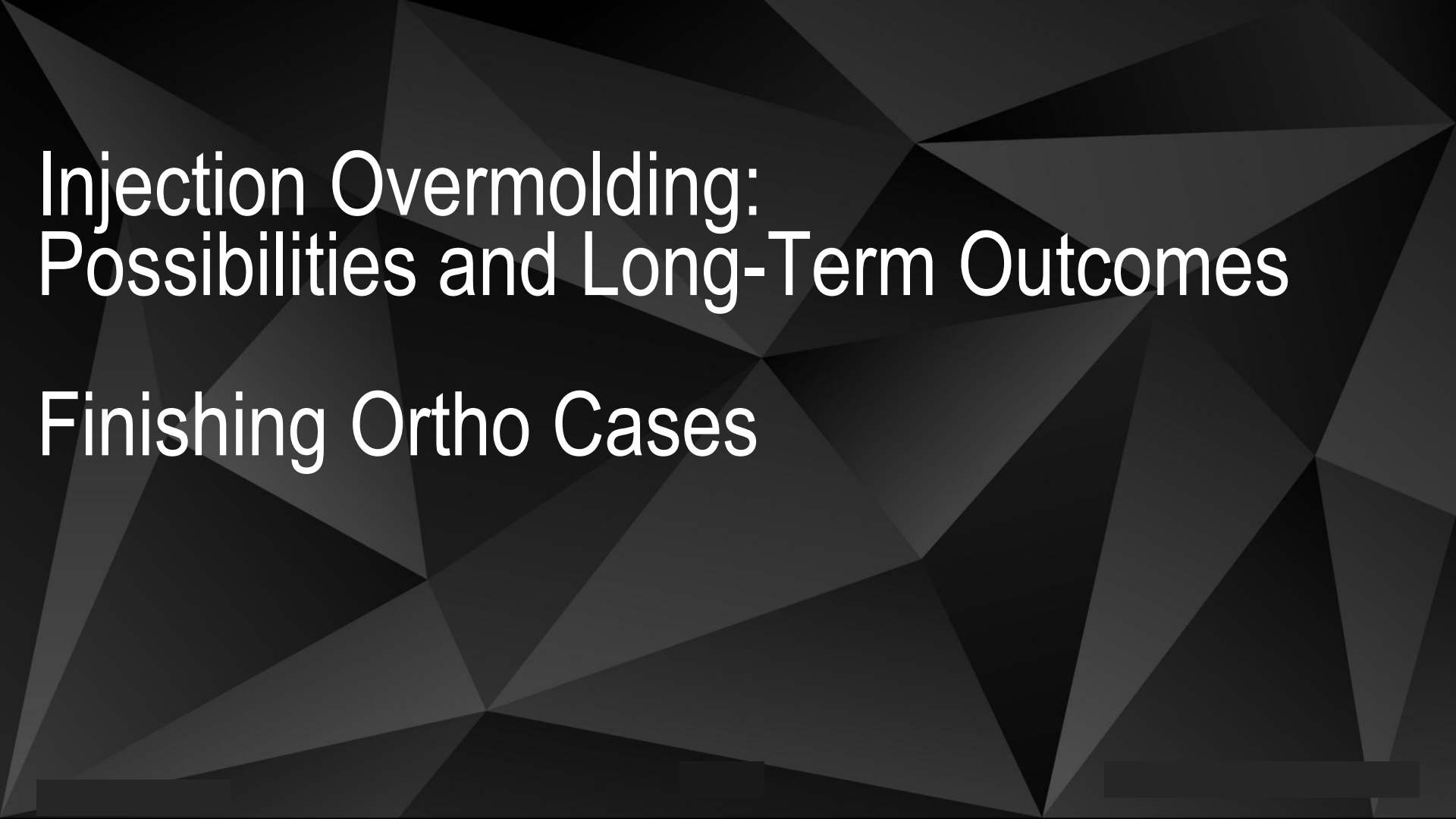








Courtesy Dr. Charles Regalado



Injection Overmolding: Possibilities and Long-Term Outcomes

Finishing Ortho Cases

A young orthodontist with beautiful teeth...



She HATED Her Black Triangles



Immediate post-operative



6 months post-operative



6 years post-operative





Pre-op



Post-Op



6 Years Post-Op



Pre-op



6 Years Post-Op