



Esthetic single restorations

inlay, onlay, overlay, tabletop

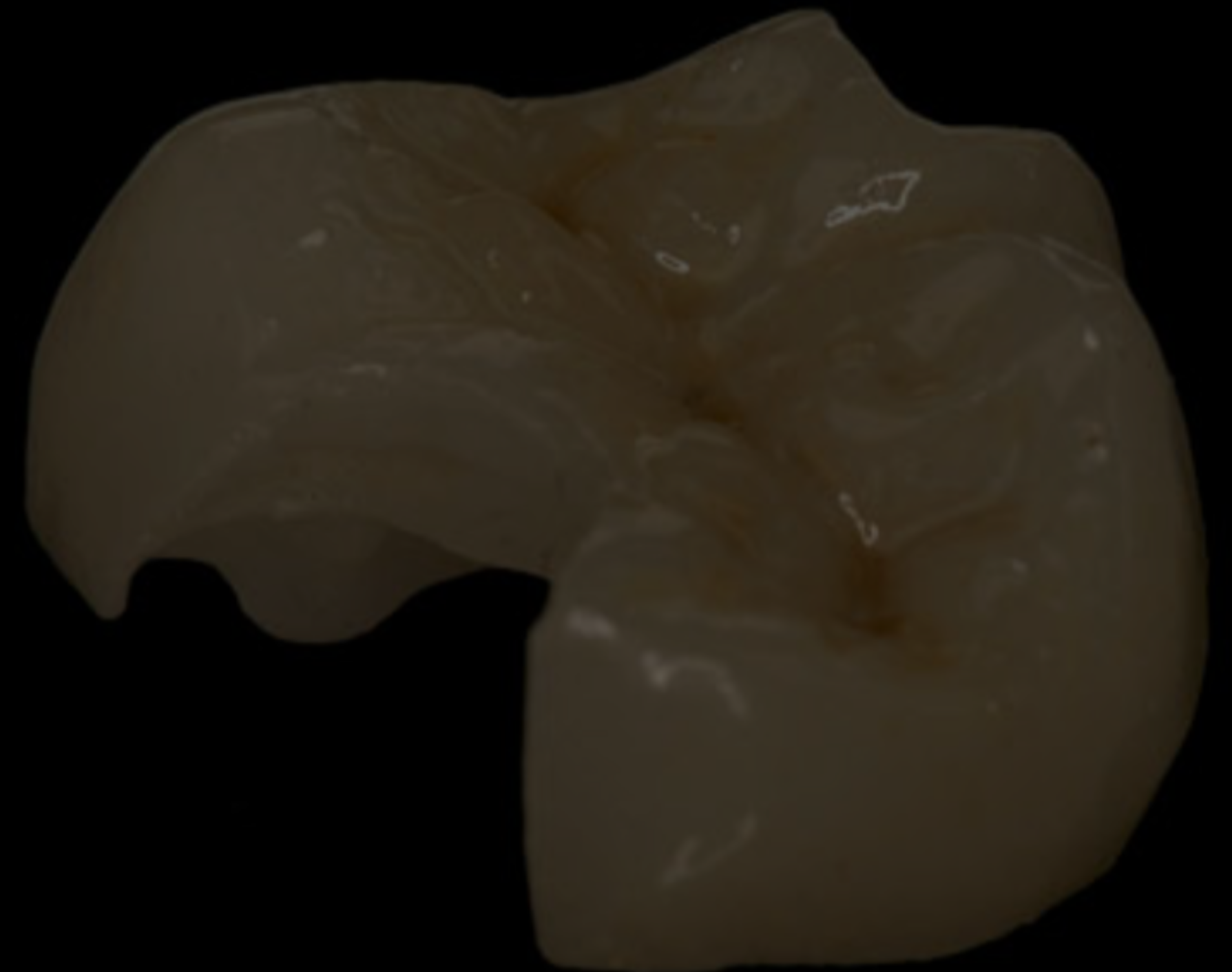
Zsolt Nagy DMD





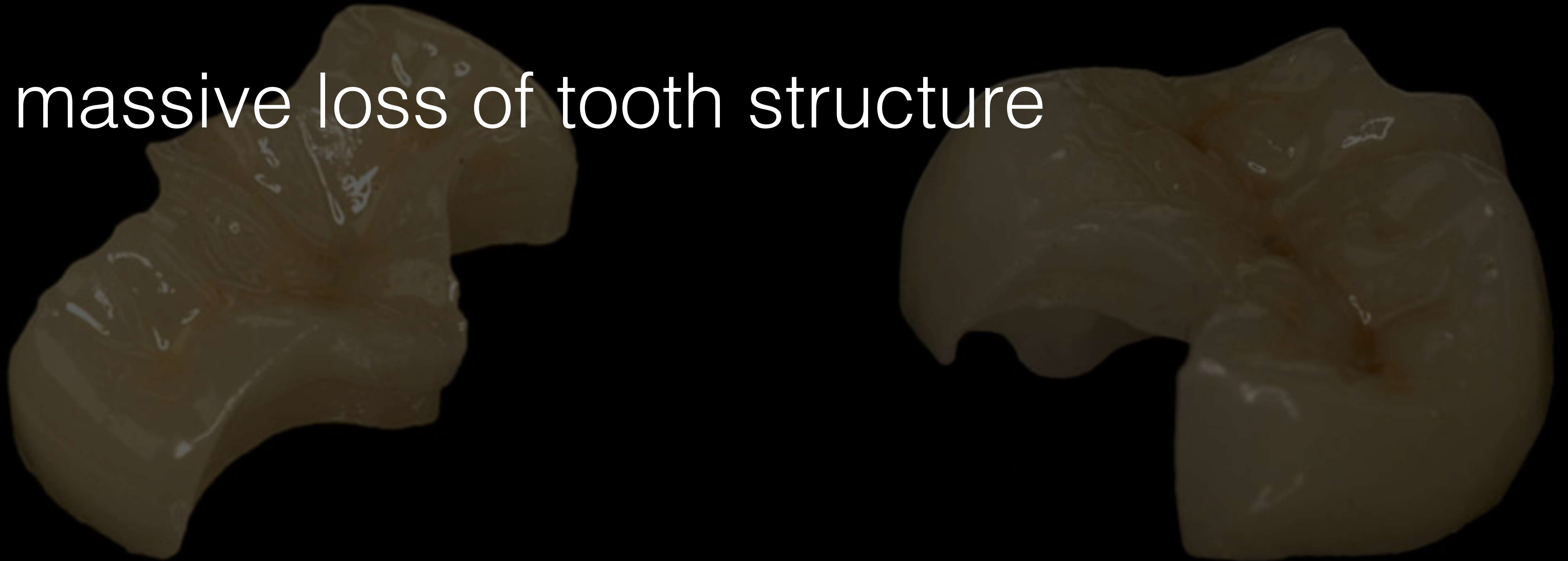
‘Extra orally fabricated filling into a prepared cavity for which is cemented in’

Indications for esthetic inlays



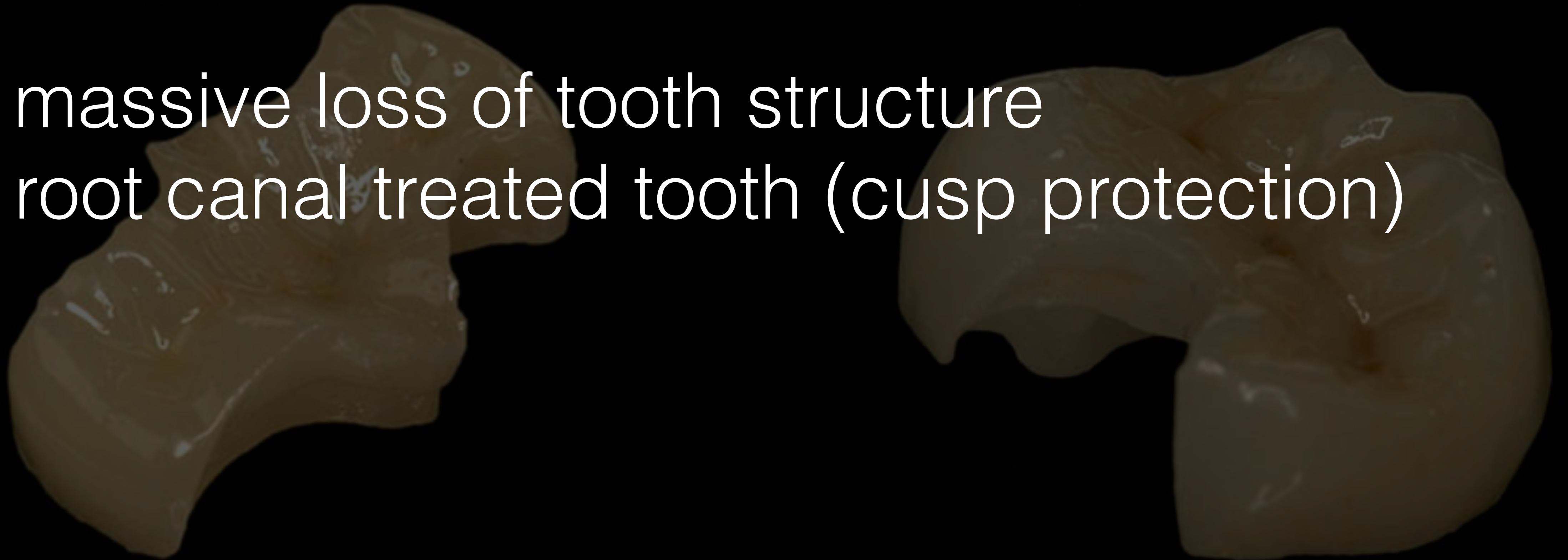
Indications for esthetic inlays

➔ massive loss of tooth structure



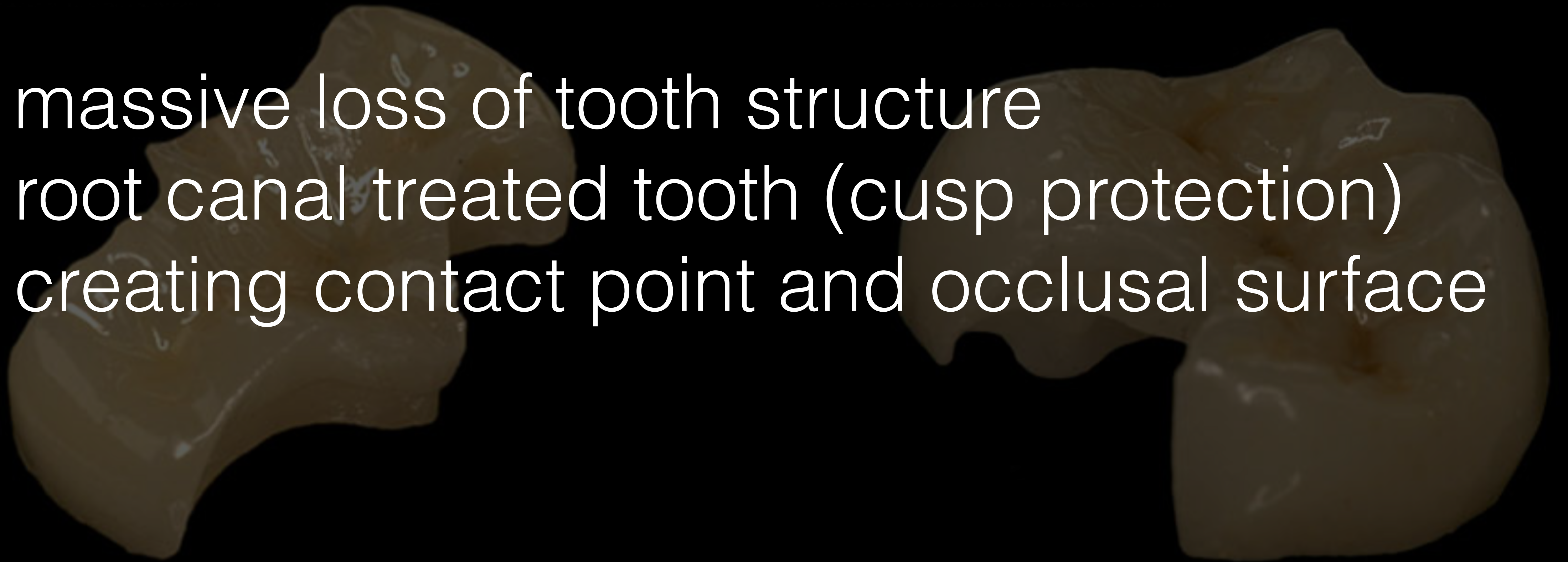
Indications for esthetic inlays

- ➔ massive loss of tooth structure
- ➔ root canal treated tooth (cusp protection)



Indications for esthetic inlays

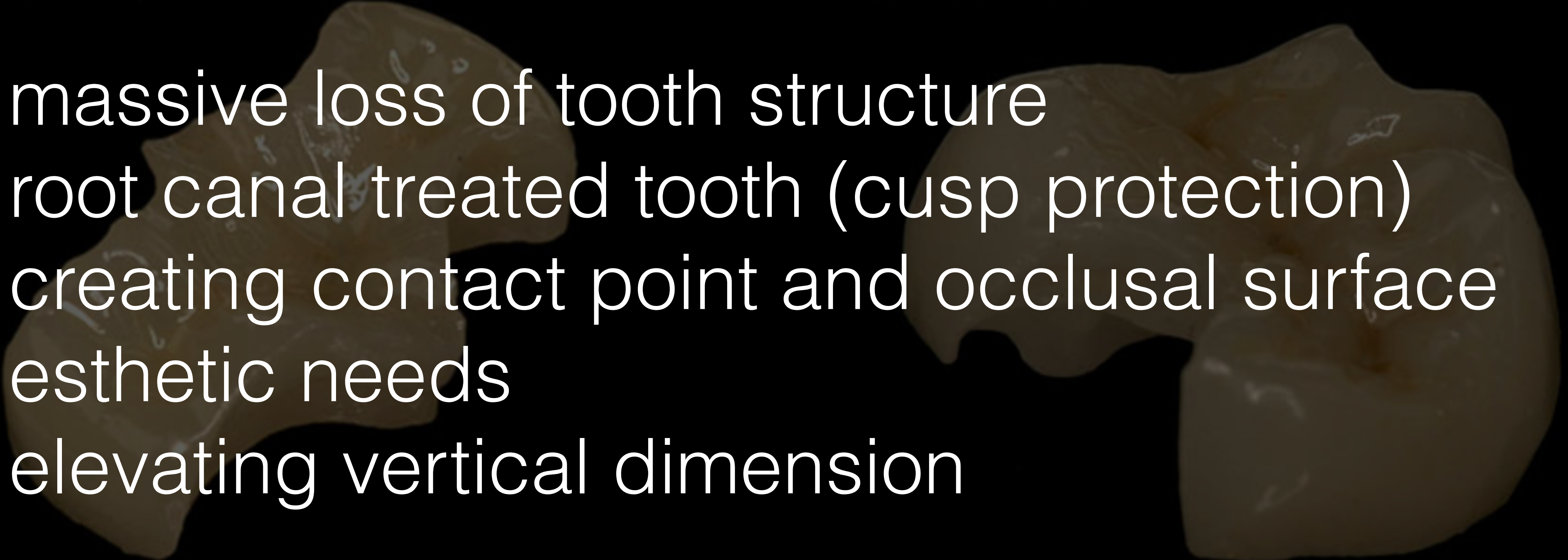
- ➔ massive loss of tooth structure
- ➔ root canal treated tooth (cusp protection)
- ➔ creating contact point and occlusal surface



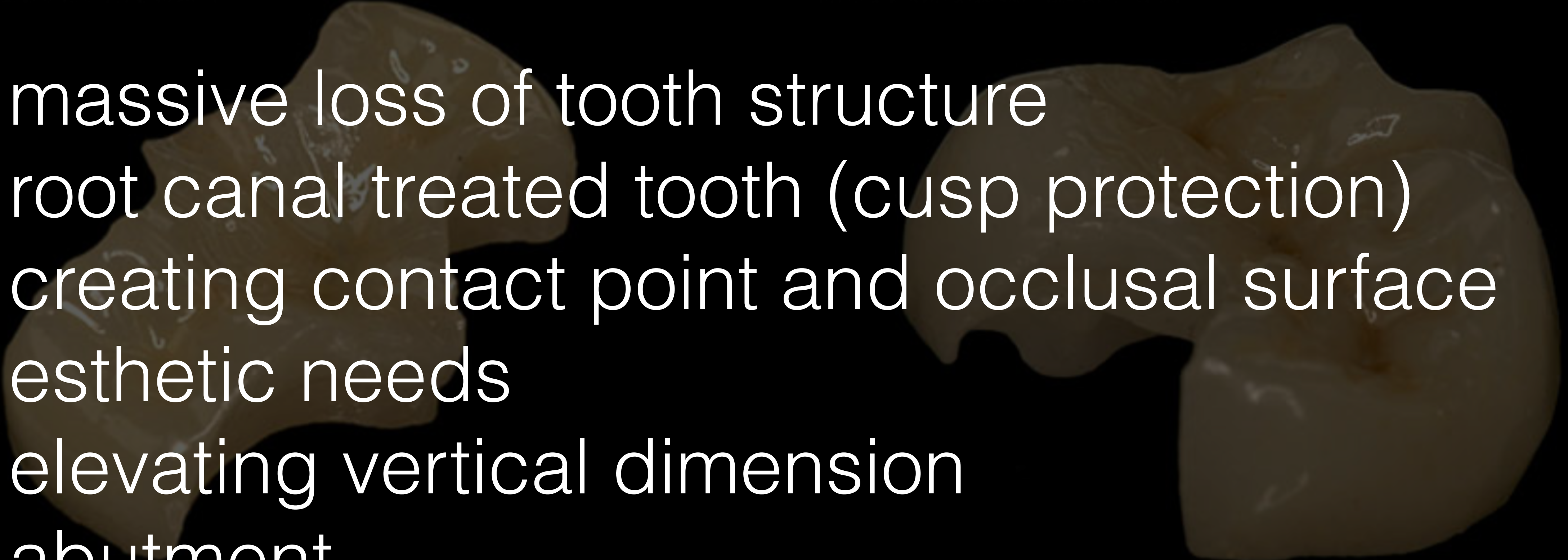
Indications for esthetic inlays

- ➔ massive loss of tooth structure
- ➔ root canal treated tooth (cusp protection)
- ➔ creating contact point and occlusal surface
- ➔ esthetic needs

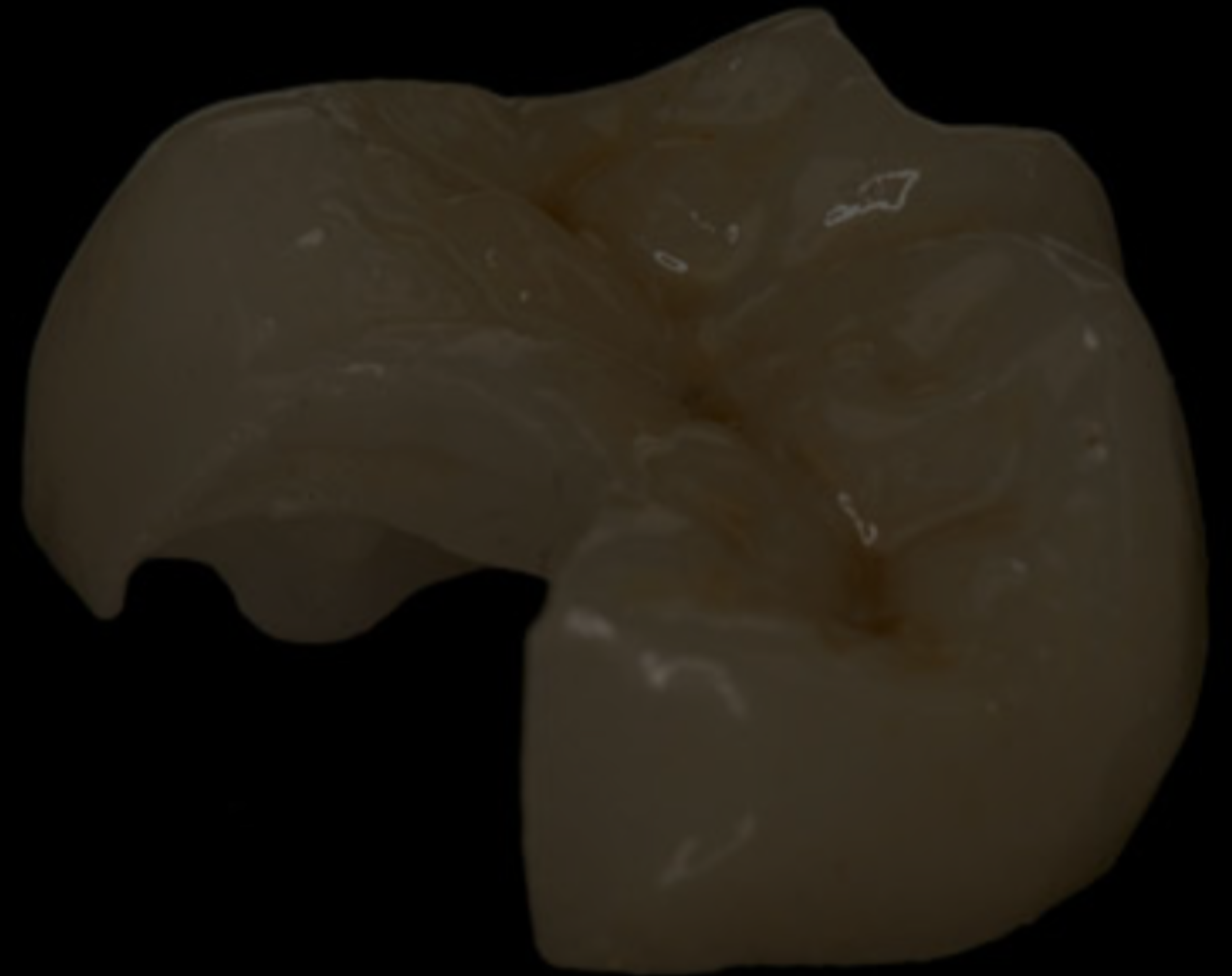
Indications for esthetic inlays

- 
- Two dental models of upper teeth are shown in the background. The left model shows a tooth with a large, irregular preparation on the buccal (cheek) side, suitable for an inlay. The right model shows a tooth with a similar preparation on the lingual (tongue) side. Both models are light-colored, possibly wax or plaster, and are set against a dark background.
- ➔ massive loss of tooth structure
 - ➔ root canal treated tooth (cusp protection)
 - ➔ creating contact point and occlusal surface
 - ➔ esthetic needs
 - ➔ elevating vertical dimension

Indications for esthetic inlays

- 
- massive loss of tooth structure
 - root canal treated tooth (cusp protection)
 - creating contact point and occlusal surface
 - esthetic needs
 - elevating vertical dimension
 - abutment

Relative contraindications



Relative contraindications

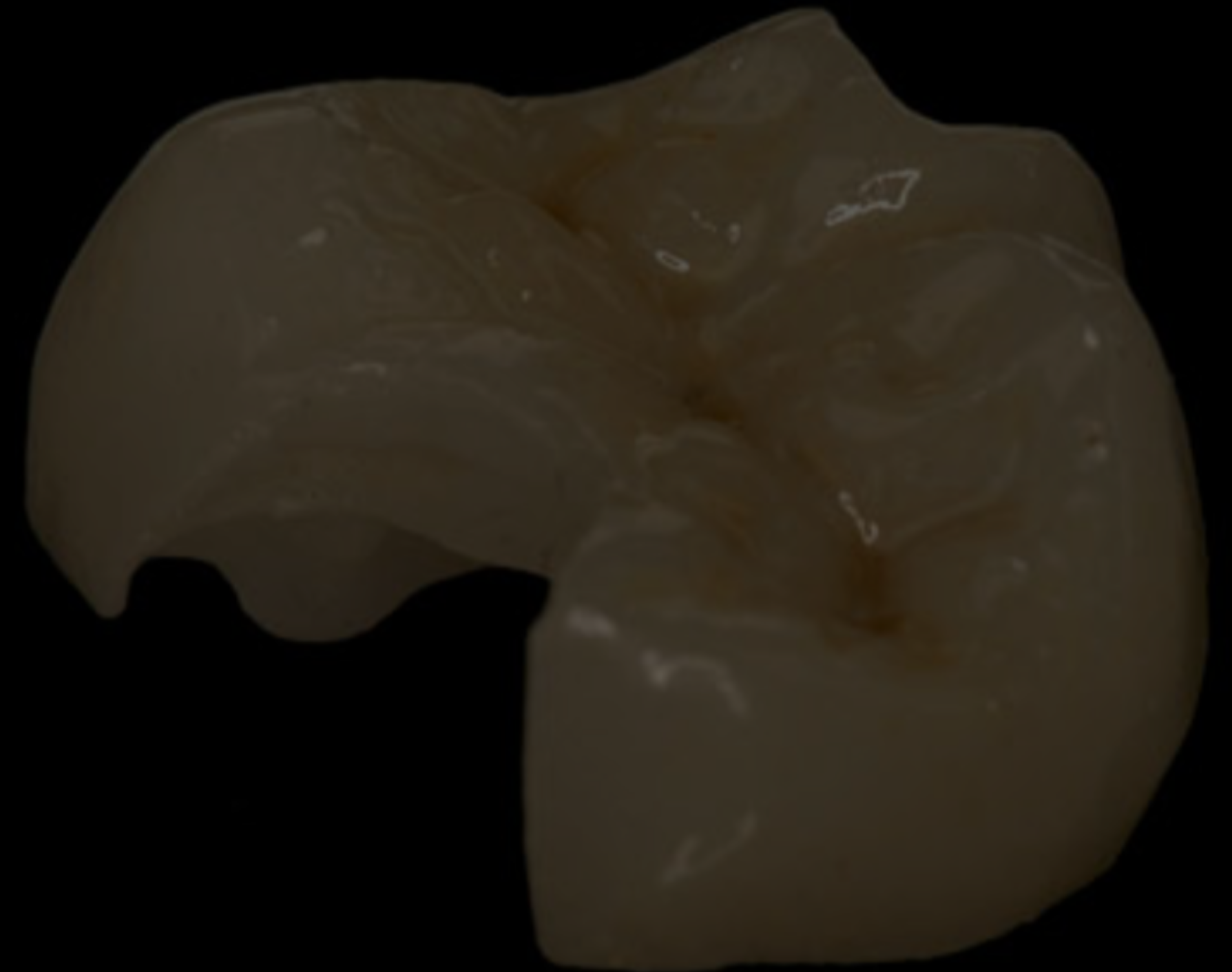
→ bruxism



Relative contraindications

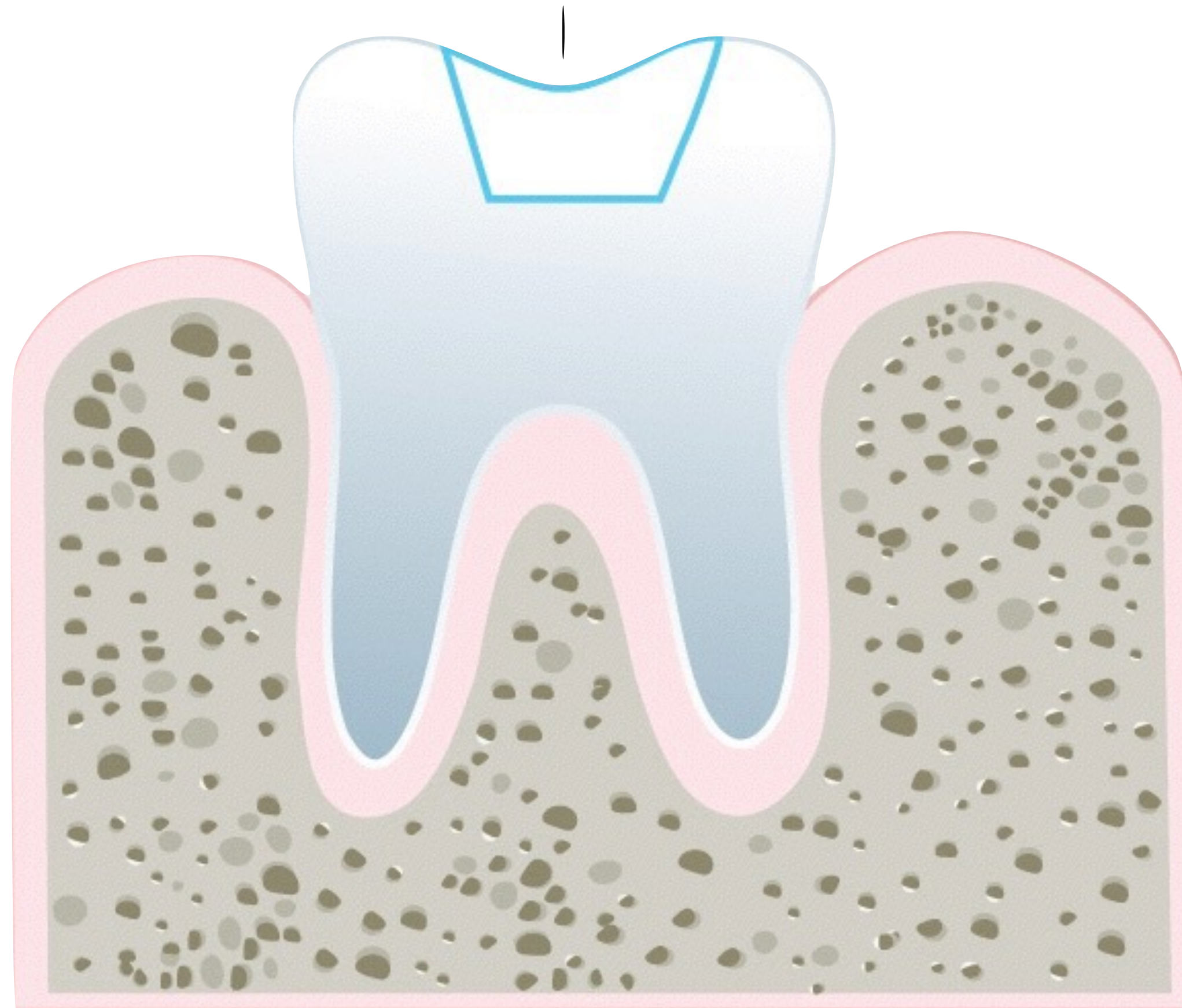
→ bruxism

→ small cavities

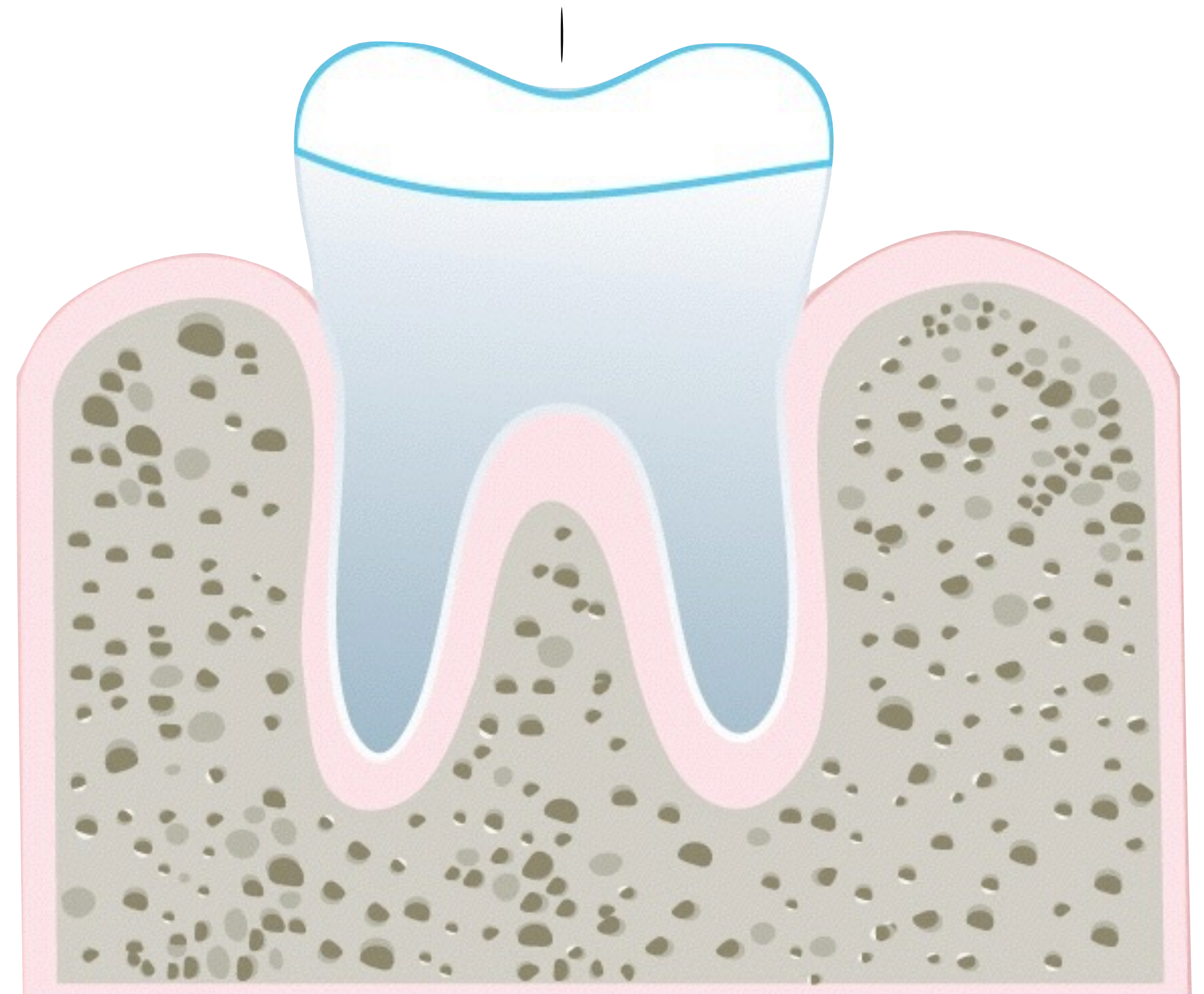


Restoration types

INLAY



ONLAY







Overlay

(~ onlay)







Tabletop



Tabletop



Esthetic inlay materials

- 
- composite
 - ceramics
 - hybrids (composite & ceramics)

Composite inlays

manual layering



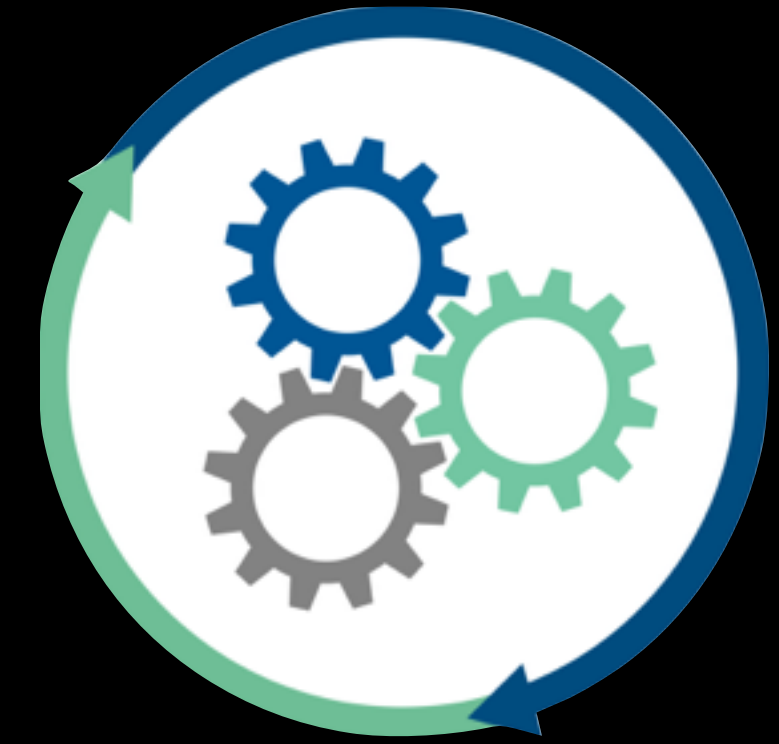
Composite inlays

CAD/CAM



Ceramic inlay classification

1. Process of material



2. Structure of material



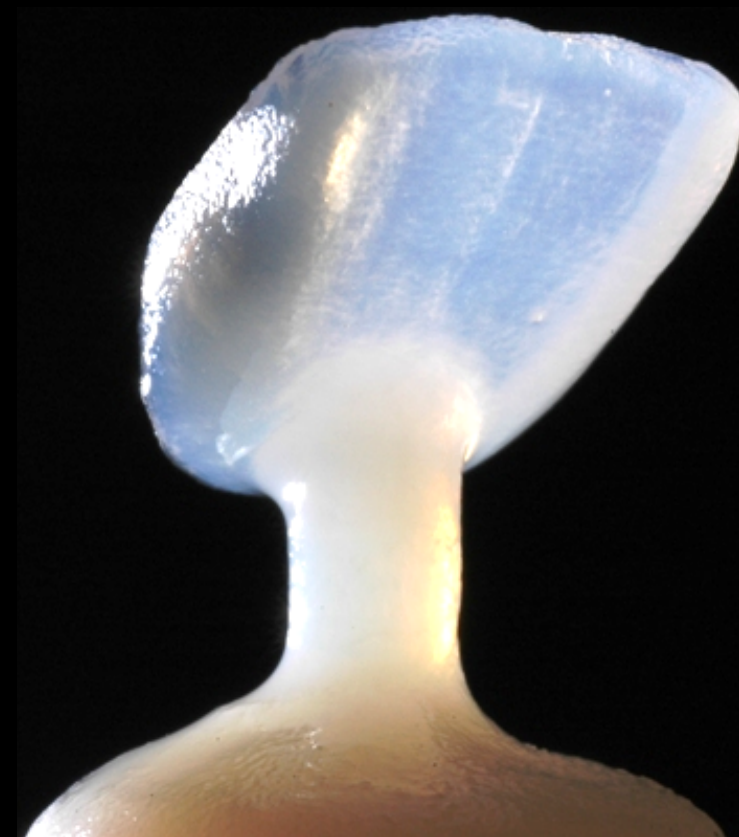
1. Process of material



- **Powder/liquid (layering)**



- **Pressing process**



- **CAD/CAM**



2. Structure of material



Feldolgozás technológiája

| Anyagszerkezet (hajlító-szilárdság) | példa | Mire használható? | Por/ folyadék | Préselés | Frézelés (CAD-CAM) |
|---|--------------------------------|-------------------------------------|------------------|----------|-----------------------|
| 1. Porcelán (60 MPa) | | Leplezés, héj, | X | | |
| 2.1. földpát Kerámia (80-160 MPa) | Cerec blocs, Vitablocs | Leplezés, szóló restaurációk | X | | X |
| 2.2. magas leucit tartalmú kerámia (160 Mpa) | IPS Empress | szóló restaurációk | | X | X |
| 2.3. lítium-diszilikát kerámia (360 Mpa) | IPS e.max | szóló és híd* restaurációk | | X | X |
| 3. Infiltrációs kerámiák(~500 MPa) | Vita In-Ceram | Vázak | X | | X |
| 4. polikristályos kerámiák (~1000 MPa) (ZrO ₂ , Al ₂ O ₃) | Sirona InCoris ZI | Vázak, „Monolit restaurációk” | | | X |
| 5. Hibridkerámiák (160-420 Mpa) | Vita Enamic, Vita Suprinity | Szóló restaurációk | | | X |

Clinical workflow

1. Shade selection

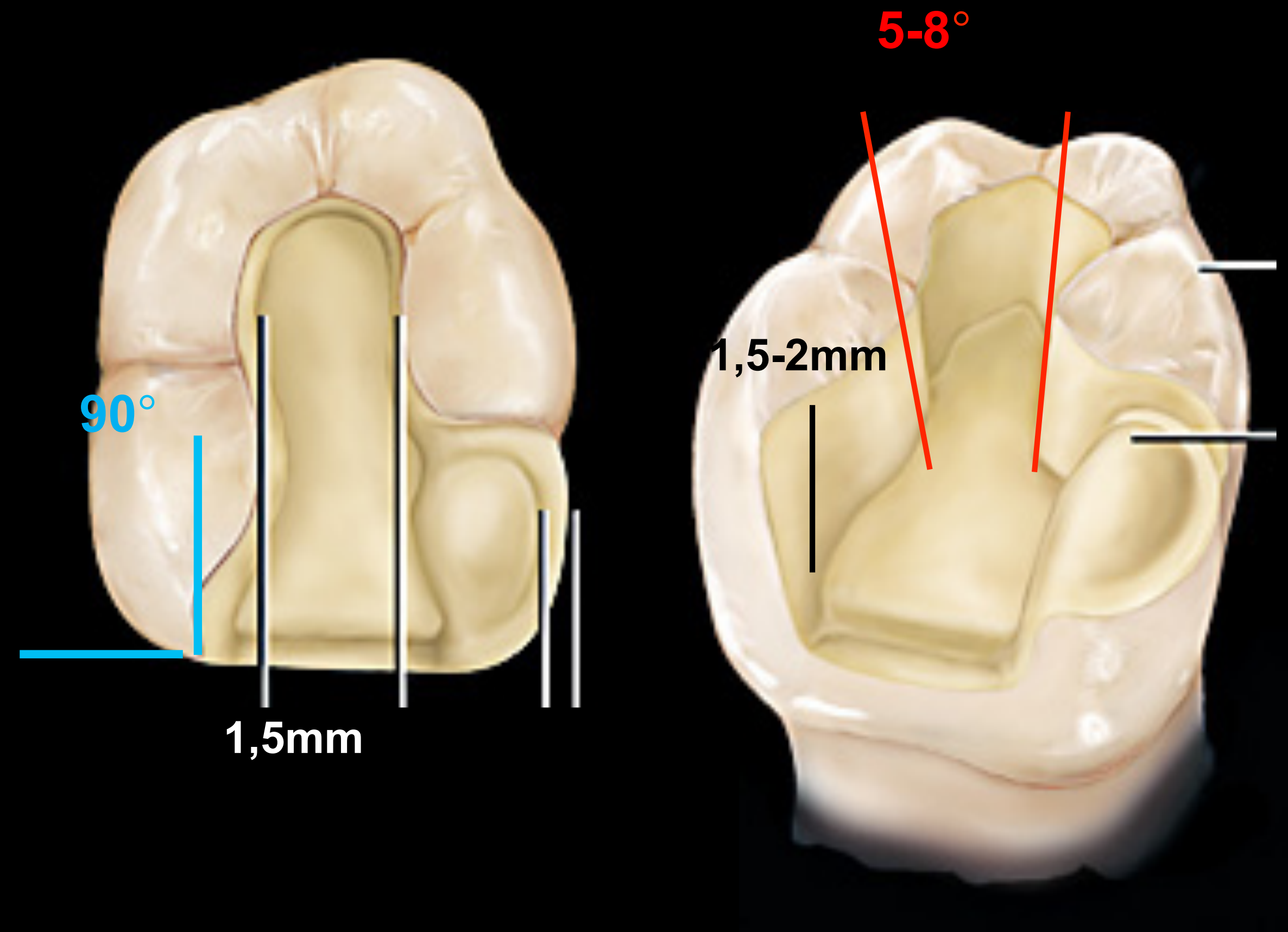


2. Checking occlusal contacts



3. Preparing cavity

- Occlusal reduction ~ 1.5 - 2mm
- Isthmus min 1.5 mm
- Occusal divergence 5 - 8°
- Smoothed sharp edges and angles
- Prepared and unprepared surfaces meet in 90°
- No bevelling of margins!



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4. Immediate Dentin Sealing - IDS

- Less postoperative sensitivity
- Stronger adhesion (open dentin tubuli)



5. Impression



- Precisional-situational
- Antagonistic
- Recordind VD
- (Shade)



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- Precisional-situational
- Antagonistic
- Recordind VD
- (Shade)



Lab

6. Temporary filling

- light curing temporary composite



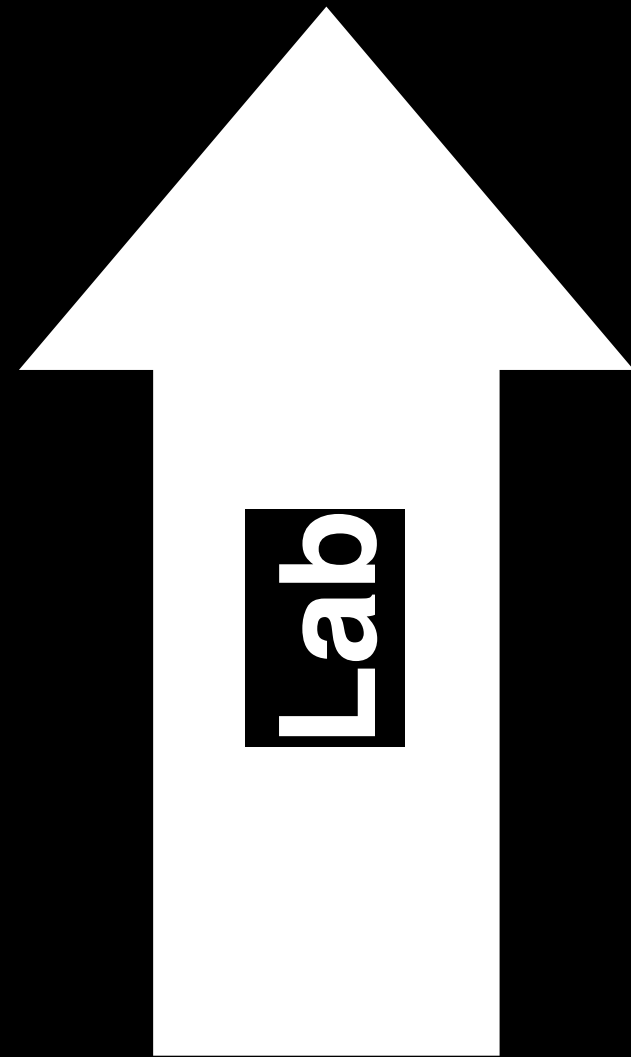
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- light curing temporary composite

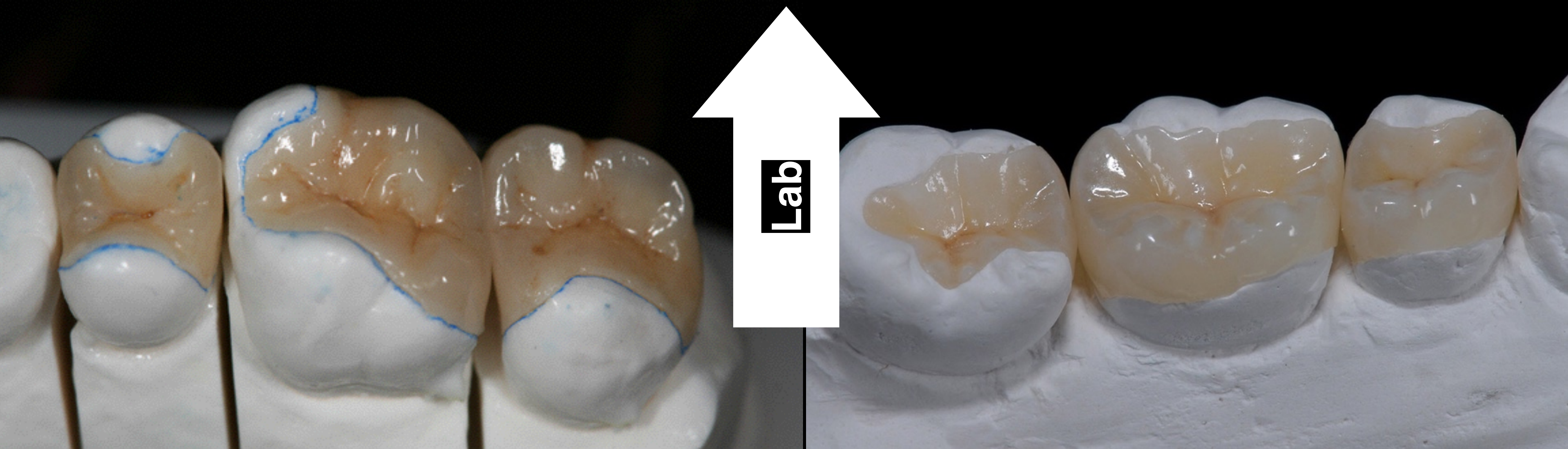


7. Checking on cast

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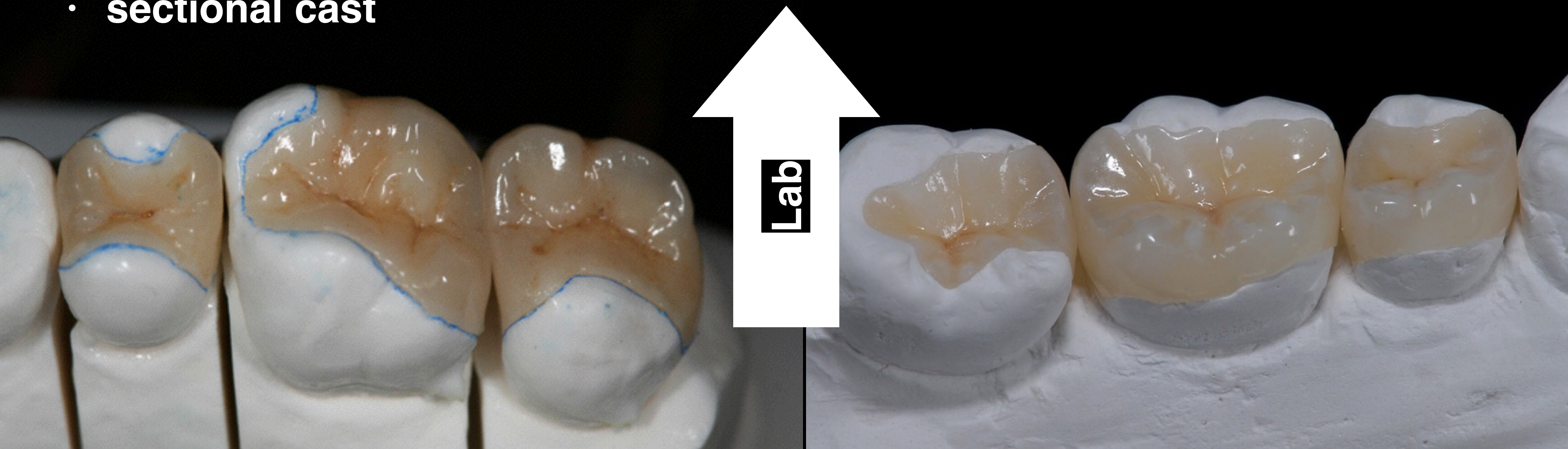


7. Checking on cast



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- sectional cast



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• sectional cast

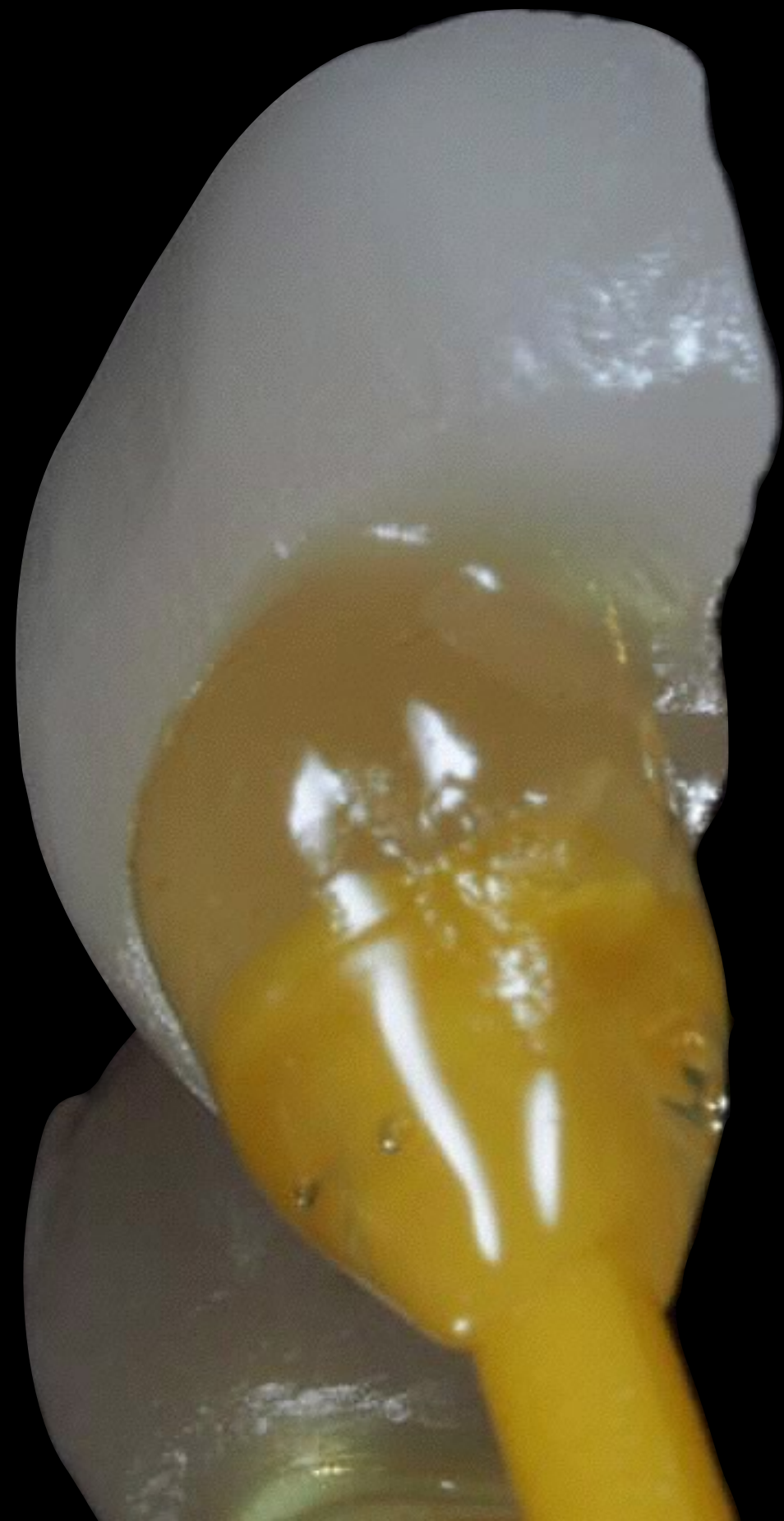


• control cast



Lab

8. Intraoral try in



- marginal seal
- contact points
- shade
- occlusion?



9. Isolation

- Teflon band
- (Matrix and wedge)

- Rubberdam!



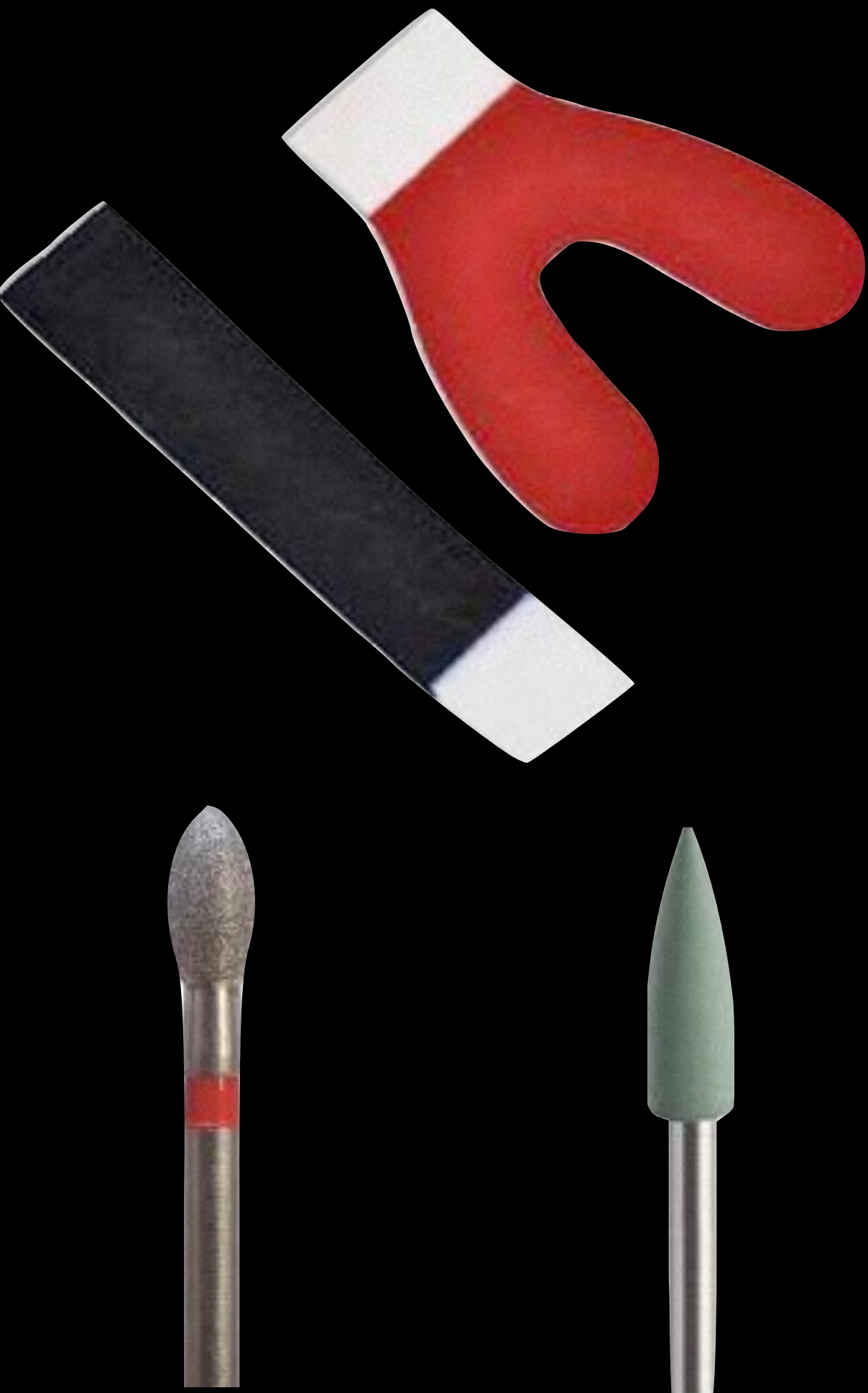
10. Adhesive cementation



10. Adhesive cementation



11. Checking occlusion, finishing, polishing



12. Control and care



Adhesive cementation protocols



Adhesive cementation protocols

→ **WHAT ARE WE CEMENTING?**



Adhesive cementation protocols

→ **WHAT ARE WE CEMENTING?**

→ **WHAT ARE WE CEMENTING WITH?**

Adhesive cementation protocols

→ **WHAT ARE WE CEMENTING?**

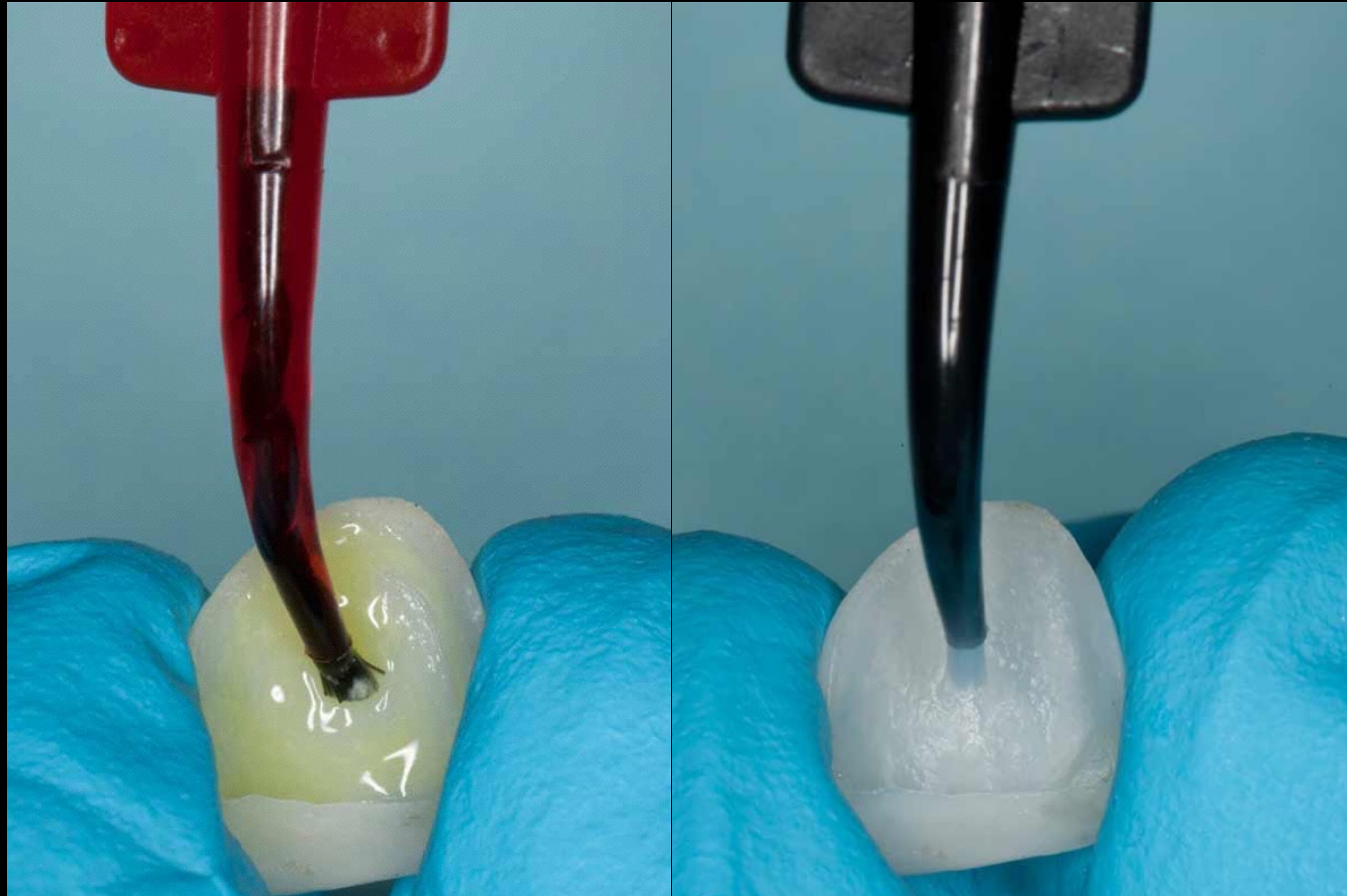


Conditioning restorations

Conditioning restorations

HFA ~ 60s

Silane



Conditioning restorations



Sandblasting

Conditioning restorations

Orthophosphoric acid



Conditioning restorations

| | Composite | Ceramic | Hybrid |
|----------------------|-----------|---------|--------|
| No conditioning | ✓ | X | ? |
| HFA/silane | X | ✓ | ✓ |
| Sandblasting | ✓ | ✓ | ✓ |
| Orthophosphoric acid | ✓ | X | ? |

Adhesive cementation protocols

→ **WHAT ARE WE CEMENTING?**

→ **WHAT ARE WE CEMENTING WITH?**

Adhesive cementation protocols

→ **WHAT ARE WE CEMENTING WITH?**

The background of the slide is a photograph of several dental crowns and a dental chair. The crowns are arranged in a row, showing different shades of white and yellow. The dental chair is visible in the background, with its headrest and armrests. The overall image is dimmed to make the text stand out.

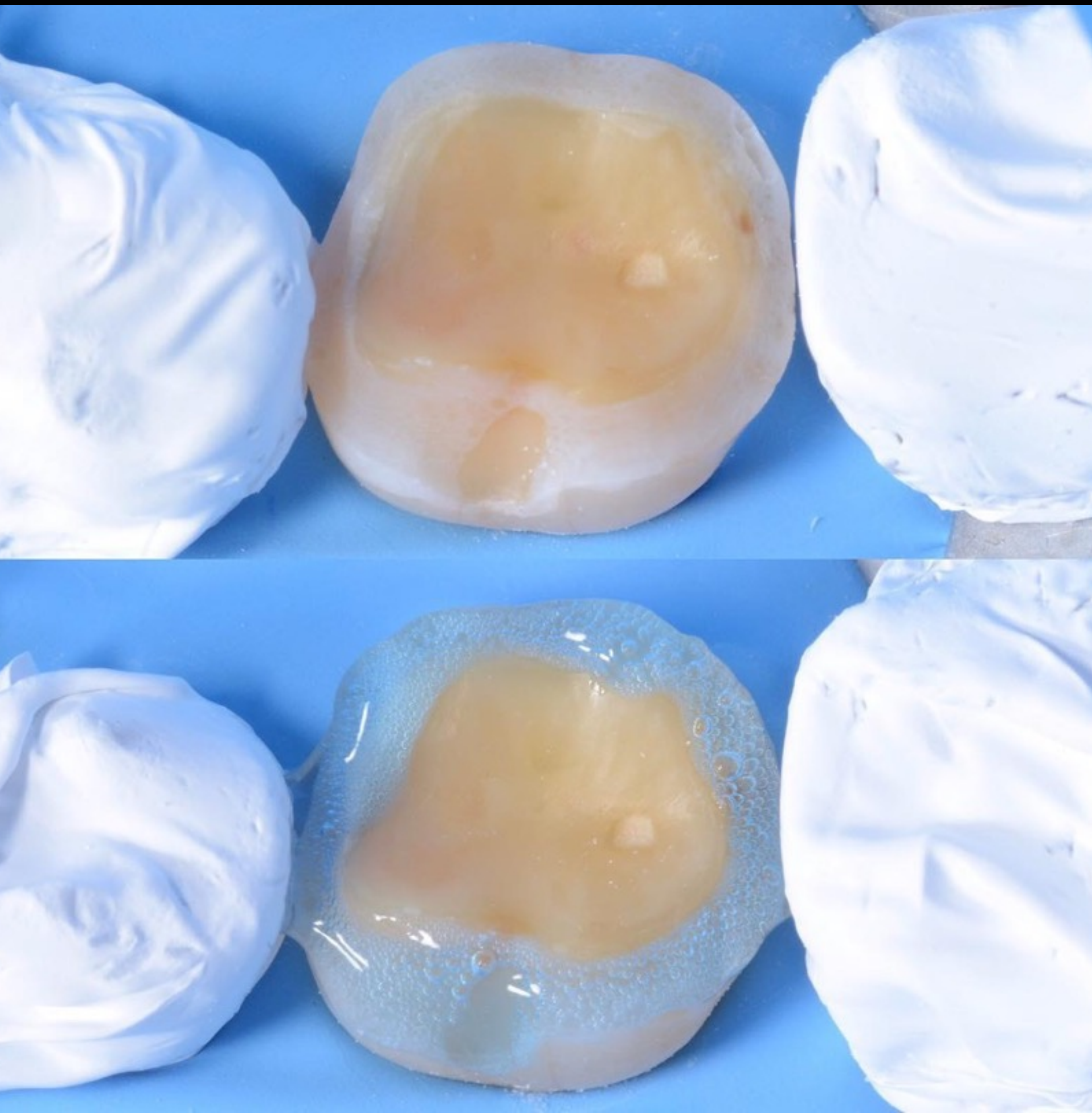
Dual curing resin cements

Non self-adhesive



Self-adhesive

Conditioning the cavity



Etch&Rinse technic

Self-etch technic

Selective-etch technic

Conditioning the cavity



Etch&Rinse technic

Self-etch



Selective-etch technic

Conditioning the cavity



Selective-etching

Conditioning the cavity



Selective-etching

Applying resin cement

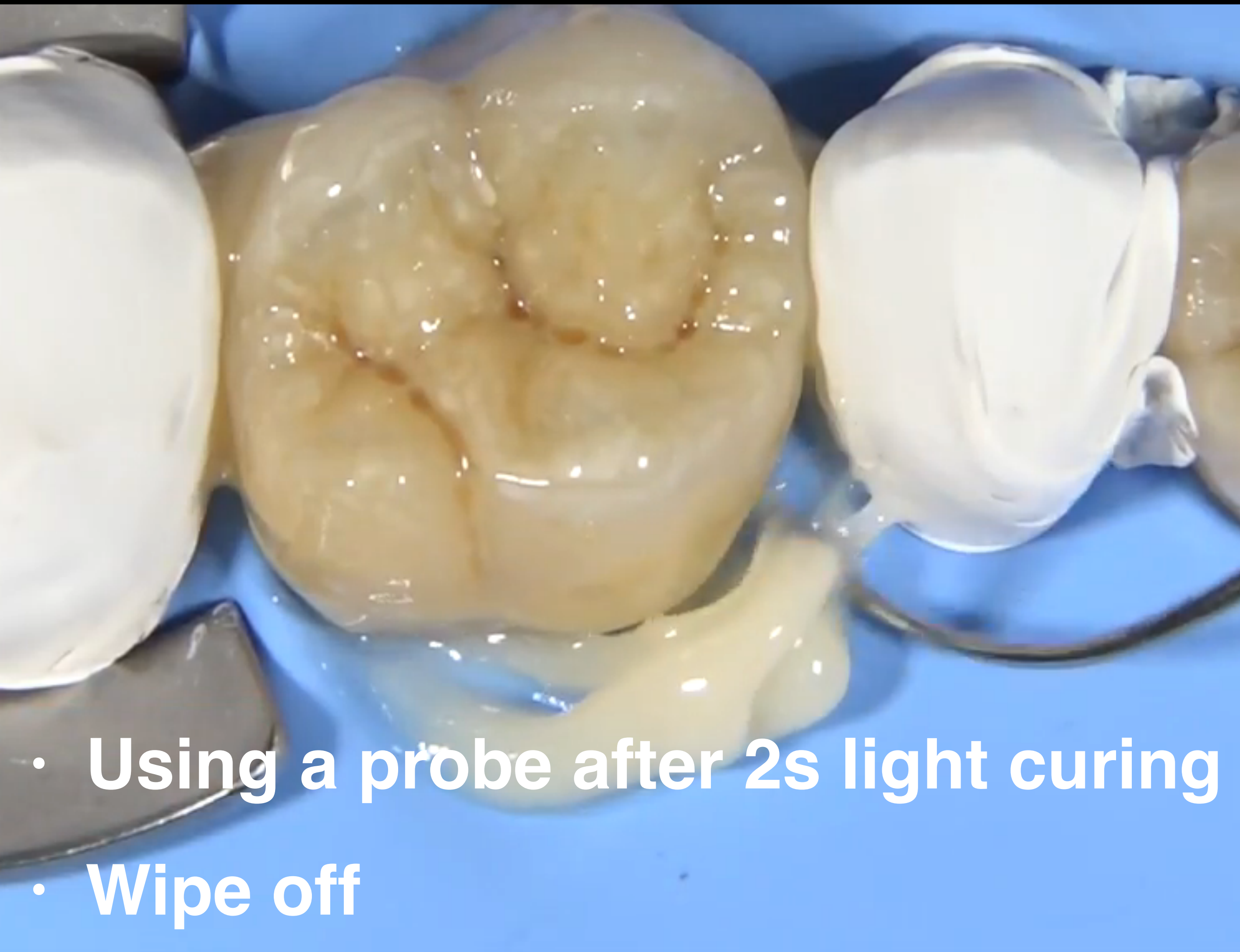
- **Onto restoration surface**
- **Cavity surface**



Placing restoration



Removal of excess cement



Polymerization

- **Light curing ~
40s**
- **Finishing, polishing**





THANK YOU FOR YOUR ATTENTION!