MAKING ESTHETIC INLAY IN PRAXIS

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GROUPPING OF THE RESTORATION ACCORDING TO THE PLACE IN

- **DIRECT (Filling)** materials

- temporary
- pulp-dentin protective
- luting material
- **DEFINITIVE filling m.**
  - **a. amalgams**
  - **b. glass-ionomer**
  - **c. composits**
  - **d. compomers**

- **INDIRECT** (Inlay, Onlay, Overlay)

Materials

- metal
- esthetic
  - ceramik
  - composit
- metal-ceramik

Evaluation of the advantage and disadvantage

- Polymerisation shrinkage
- Physical properties
- Control of contactpoint, and contour
- Biocompatibility

- Number of appointment
- Cost, and time
- Technique sensitivity
- Brittleness of the material

Evaulation of indication and contraindication

- Esthetics
- Size of the defect
- Oral hygiene
- Root canal obturation

- Haevy occlusal forces
- Deep subgingival preparation
- Small tooth crown, big pulp-chamber

DECISION

Type of **CERAMIK** inlay

1. (Feldspatic porcelan) or Fired porcelan: Optec
   Inlay, fired on refractory die
2. Glass-ceramik (Castable Pressed ceramik) Dicor, Ceraperl
   Empress (leucit)
   „Lost-wax" casting process
3. CAD/CAM System: Computer Aided Designe/Computer Aided Manufacturing 1986 Cerec

Type of **COMPOSIT** inlay

First generation Laboratory Composit Resin: Isosit1986 Inhom.Microcomp. Low flexural strength(60-80 MPa), low resistance to wear, low %of inorganic filler

Second generation Laboratory Composit Resin: ArtGlass, Colombus, Belleglass Gradia: Epicord

f.s:120-160MPa, Filler:60-70% different in form,size

Hybridcomposit

THE STEPS OF MAKING INLAY /indirect method/

1. Shade selection Preparation,
2. Impression, Temporary filling
3. Tray-in (without pressure)
4. „Cementation” /Adhesive insertion /
5. Finishing, polishing

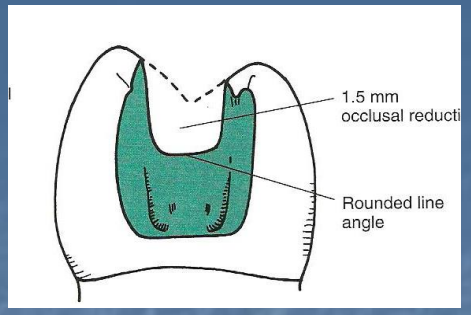
1. Preparation for estetics inlay

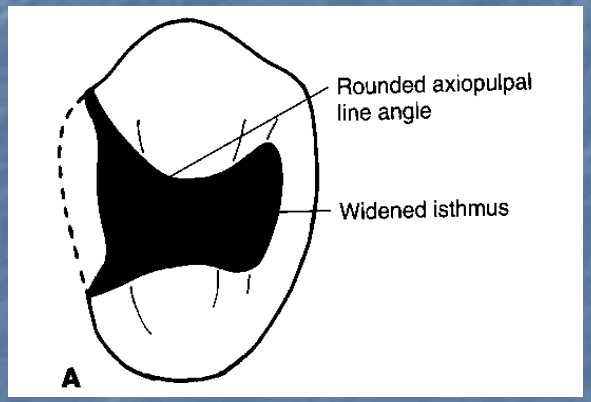
- Occlusal depth: 1,5-2 mm

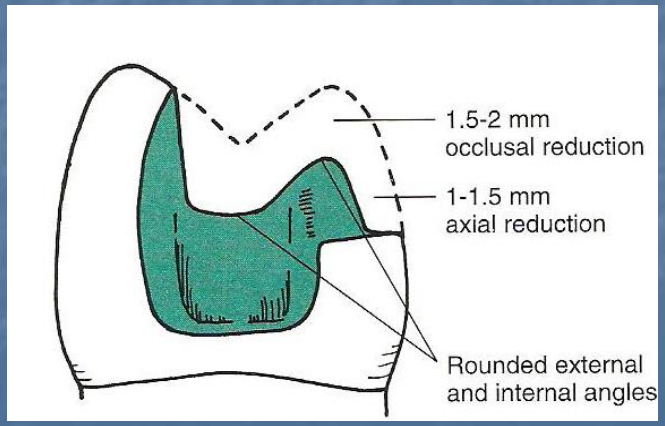
- Axial wall reduction: 1,5 mm

- Cavosurface margin must be 90°.

- Cuspal preparation and reduction 1,5-2 mm







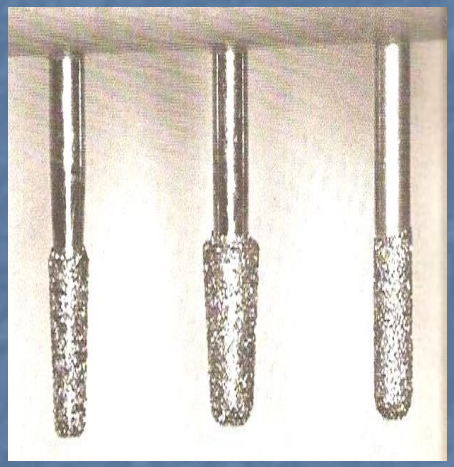
Preparation for estetics inlay

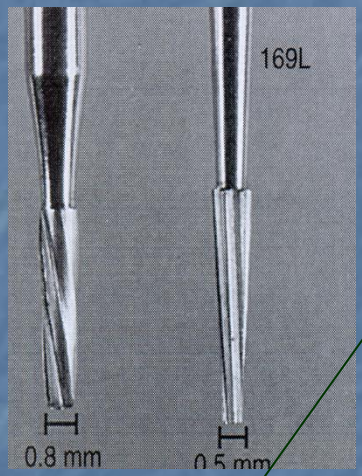
- Taper 6-8-10˚

-All line angles and point angles should be well rounded

Base?

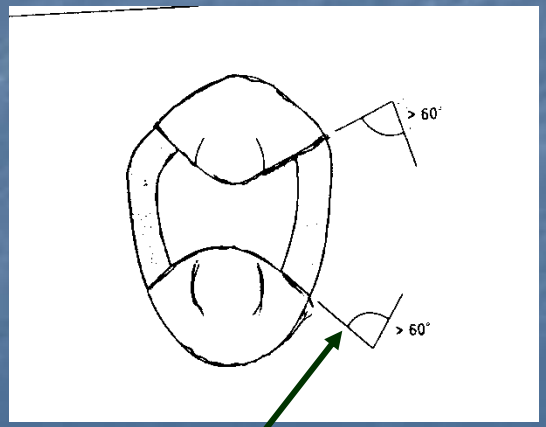
Block out the undercats

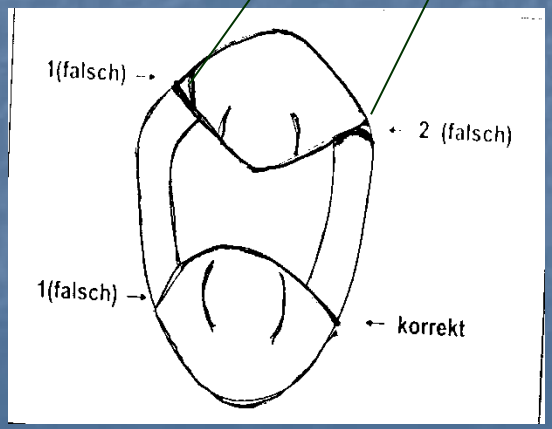




inlay

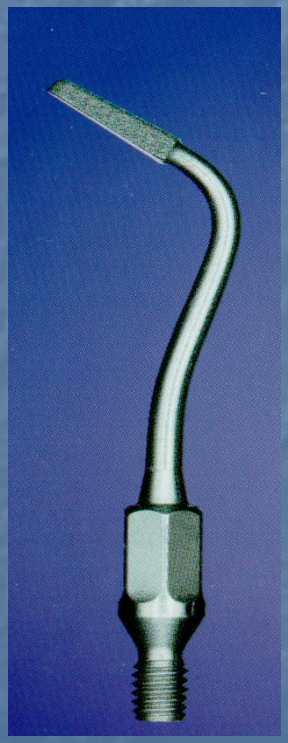
tooth

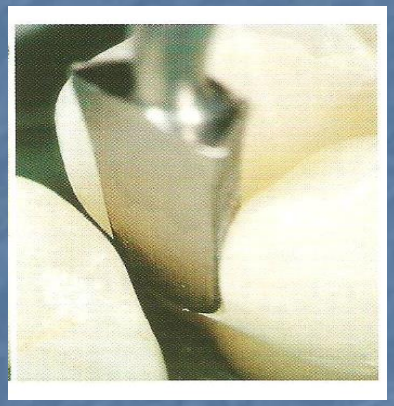


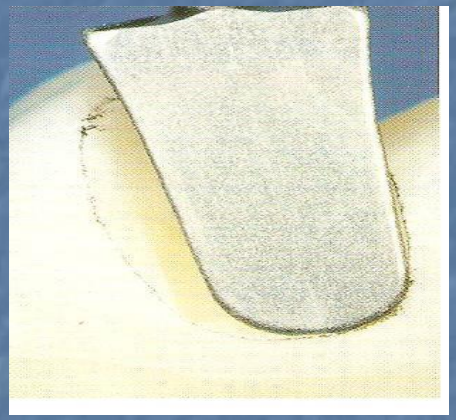


Proximal wall 60 °

Esthetic Inlay
SONICflex 60°
Oscillating instrument







The proximale Wall has to be prepered in 60°

The lateral and gingival Walls are rounded.

KaVo

2. IMPRESSION, TEMPORARY FILLING

What kind of impression?

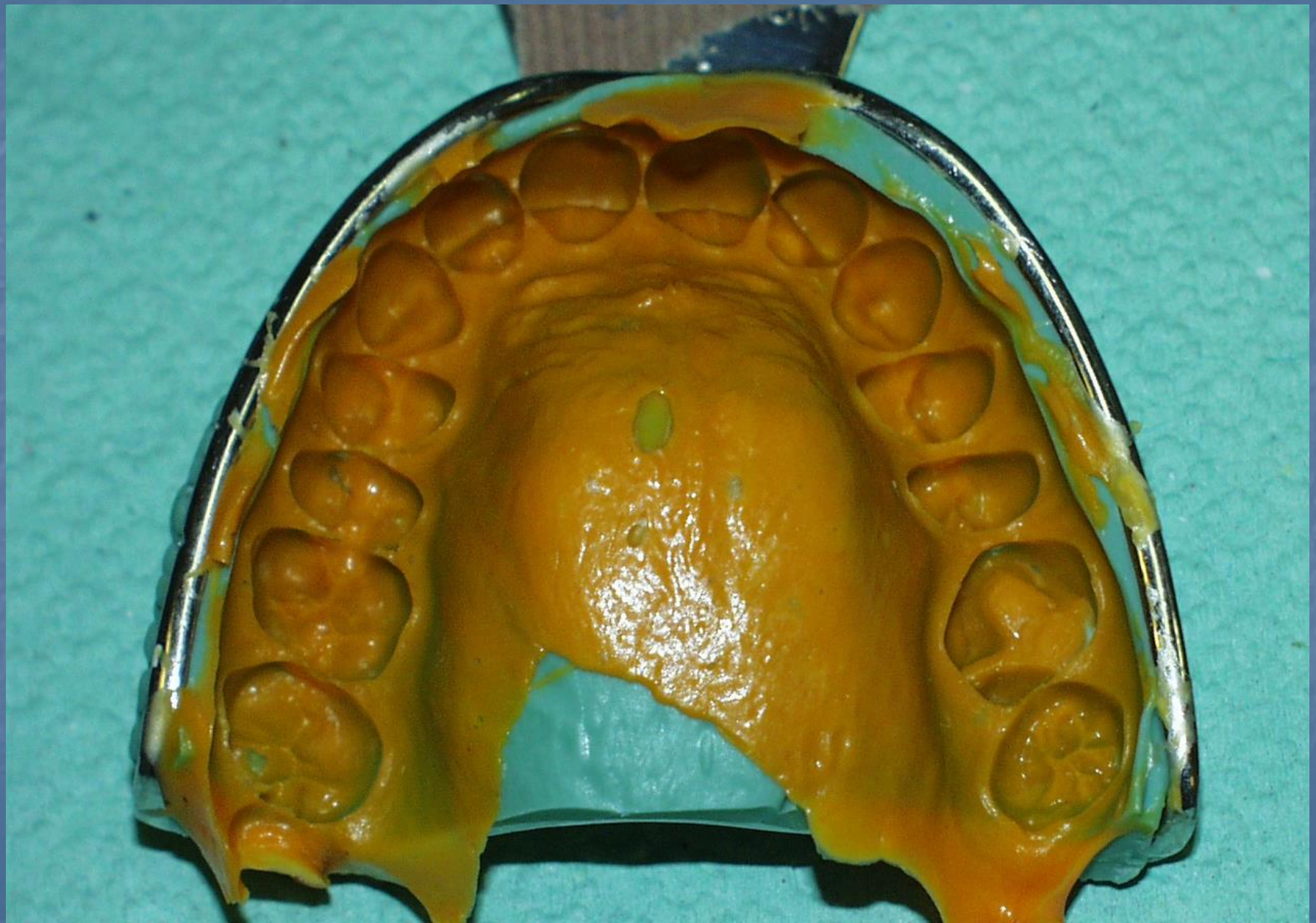
Retractin cord: Where?

- Two-phase silikon (Precision-situation) impression, antagonist, and bite registration

What kind of temporary filling?

- Removing: without bur
- Because of the adhesive insertion: eugenolfree material.

(Clip, Guttapercha)

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3. TRAY-IN

WITHOUT PRESSURE

-check the cavosurface margin and

-check the proximal contact

NO OCCLUSAL KONTROLLE !

-wax (weaker)

-adhesive (stronger)

4. FIXATION OF INLAY (CEMENTATION) /ADHESIVE INSERTION /

Mikromecanical retention!

-**Isolation:** rubber dam, plastic matrix strip, wedges, dental floss;

- **Preparation of inlay:**

depends on : ceramic or composit

-**Preparation of tooth:**

depends on the specific luting system

Resin cement or „Self-adhesive" resin cement

LUTING AGENT/ CEMENT

Nowdays: always RESIN cement

Resin cement or Self-adhesive resin cement

-Viscositi:

low-viscositi composit with conventionelle methode

high-viscositi composit with USI or SI vibration can change the viscositi (ultrasound or sound tecnic) without water

-Setting: dual curing!

Glycerin-gel: for covering the surface of luting komposit! Oxigen disturbs the polymerisation of the last layer of komposit

Preparation of the tooth:

depends on the specific luting system
Resin cement or self adhesive resin cement

1. Resin cement with „etch-and rinse” (RelyX ARC Eco-link)

2. Resin cement with „Self-etch” (Panavia F, Eco-link)

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3. „Self-adhesive” resin cements (self adhering cements used without application of any adhesive system) Acidic primer in cement. (Smart Cem, RelyX Unicem G-Cem)

Dent.Mat.2010.855-863

J.Prost.Dent. 2009. -312.

Preparation of tooth:

1.Resin cement

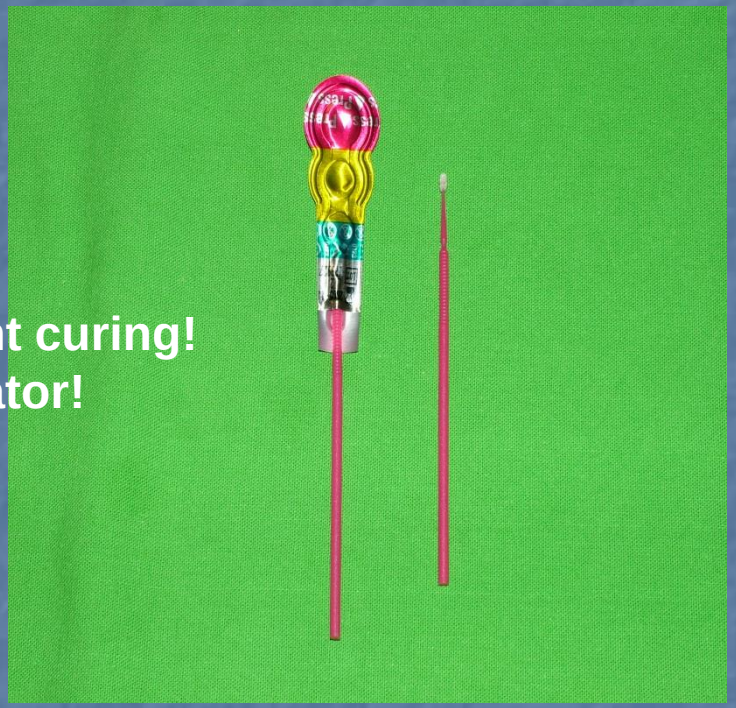
„etch-and rinse”

35-37 % Phosphoric acid, then washing
Primer and bond,
Setting dual curing! Without light!

Preparation of the tooth:

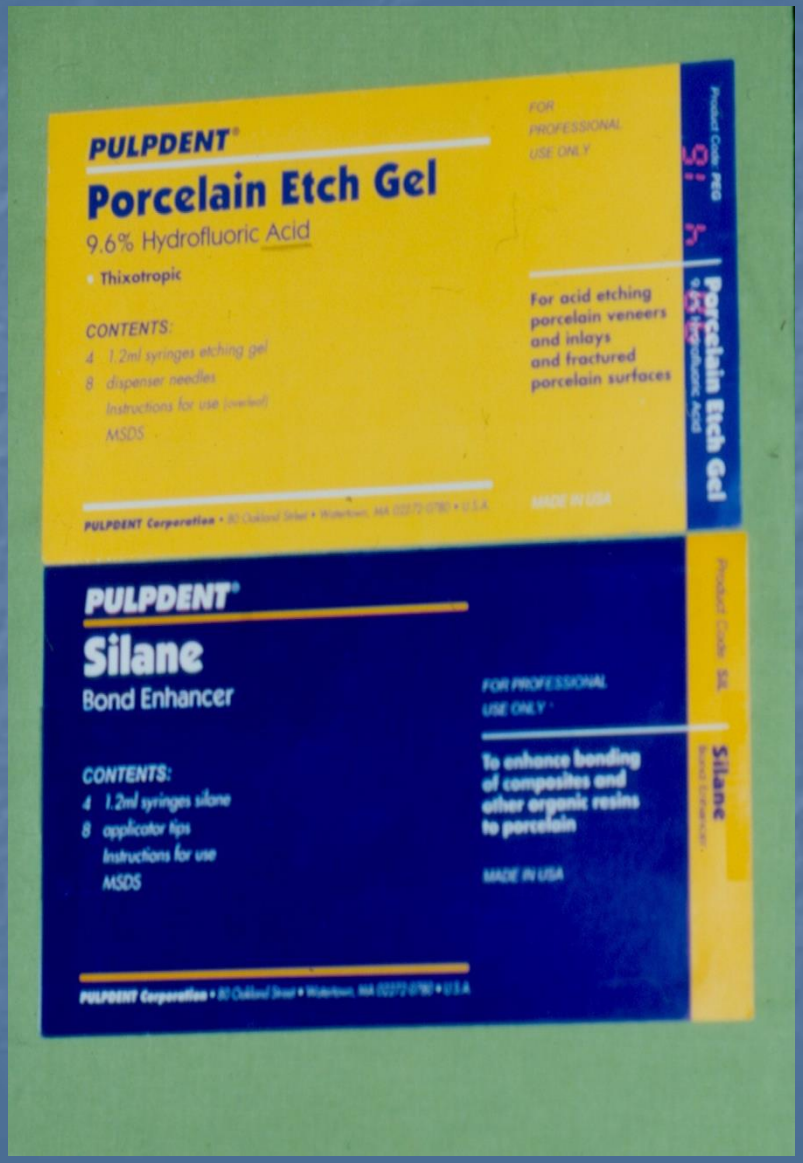
1.Resin cement
„Self-etch” bond

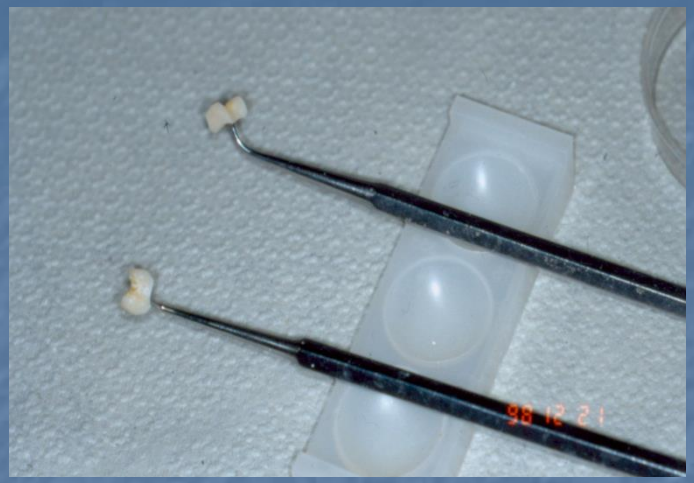
This is light curing!
+Activator!



Acidic primer and bond, in one or two bottle
Curing? Problem
Dual curing! Without light!

Preparation of inlay:





-**HF acid** 2 minute at the inner surface, then wash /Concentration: 4-10 %/ or

-**Ammoniumbifluorid** 10% (Dicor) Empress

-**Silan** at the inner surface promotes contact between resin and ceramic(hydrophyl

LUTING MATERIAL

5. FINISHING, POLISHING

Checking the occlusion now!

When, and how to remove the excess luting material?

Finishing:

-fine grit diamant instrument (yellow, white)

-16-30-40 fluted carbide burs

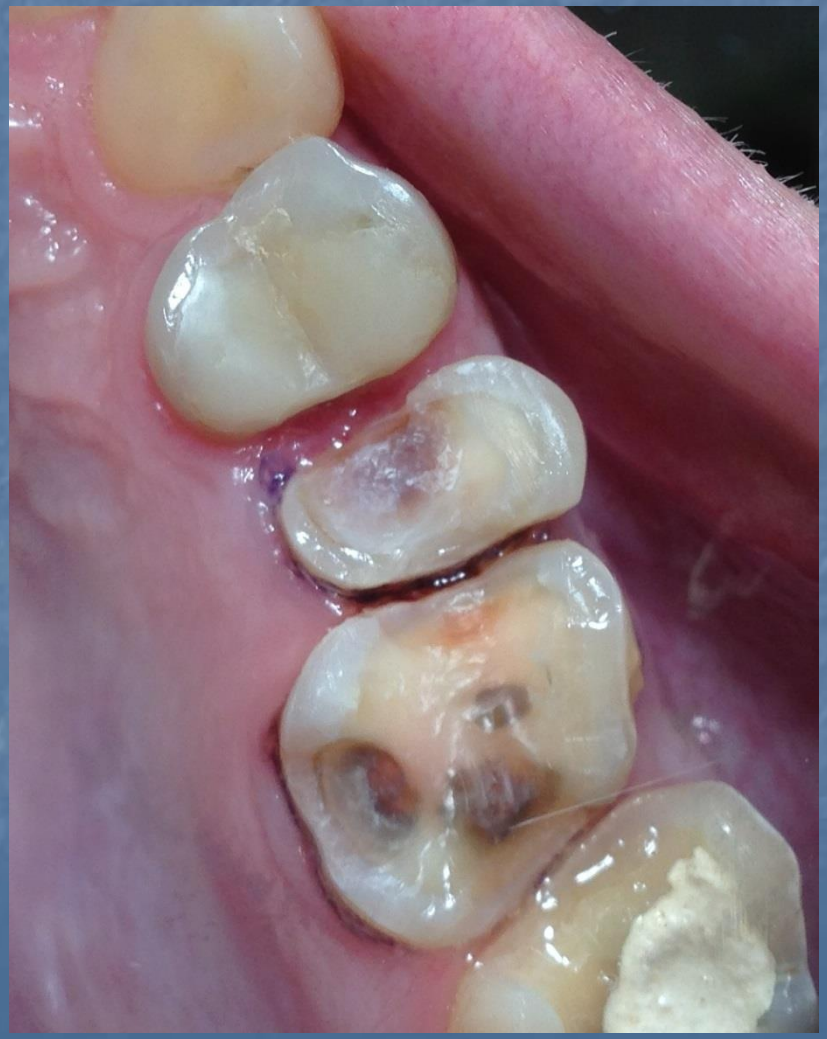
Polishing:

-rubber

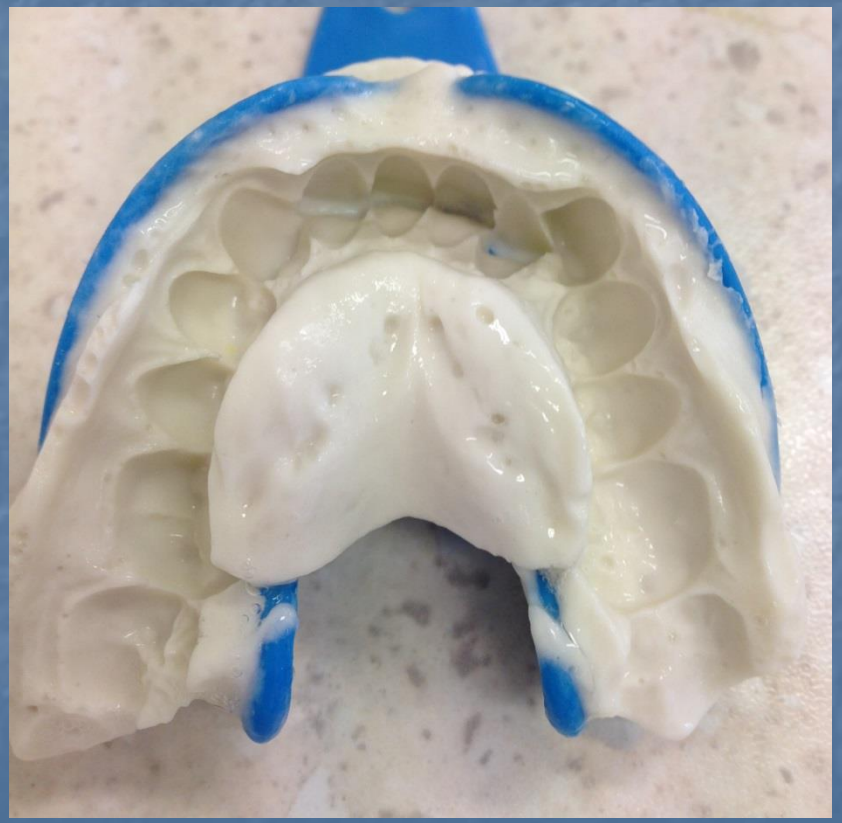
-polishing paste

Upper, compsit onlay-s

Preparation for the onlay
Retraction cord placement



Precisional situational impression with C-silicone.
Stock tray, 2 phase, 2 step technique and antagonist impression with stock tray and alginate



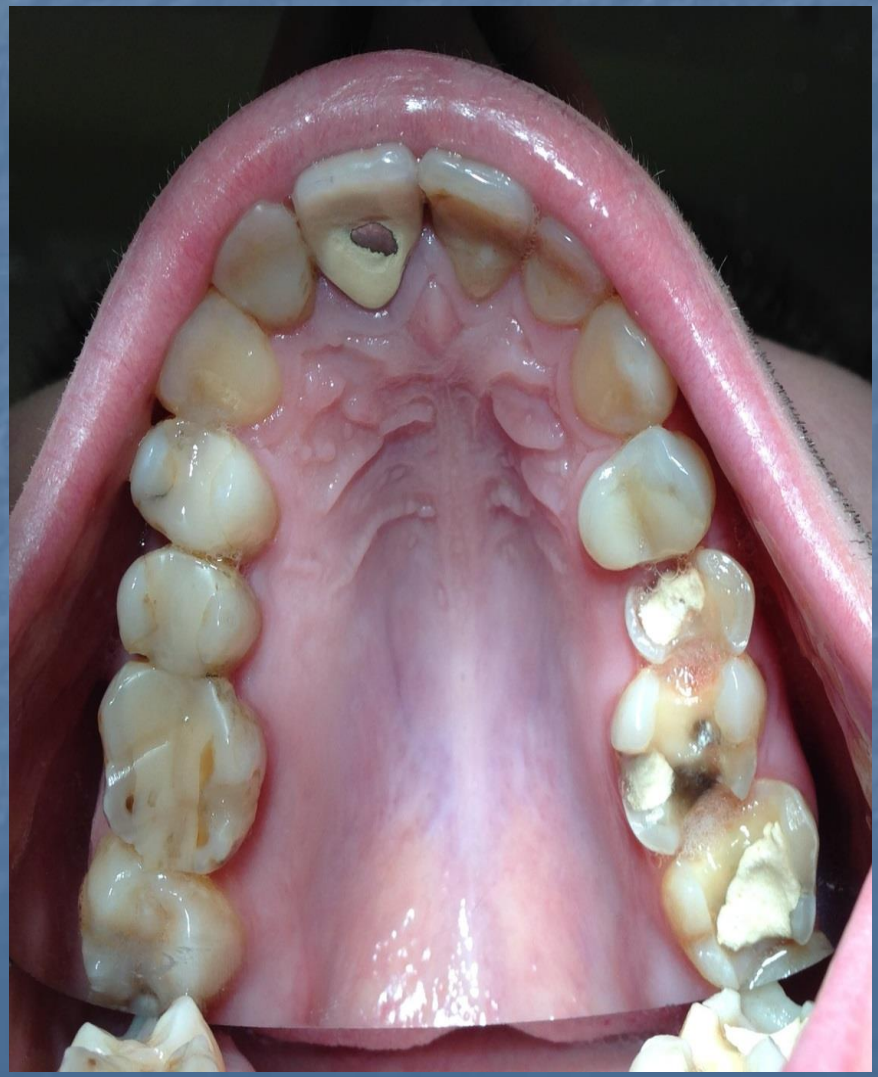
Wax bite and clip temporary fillings

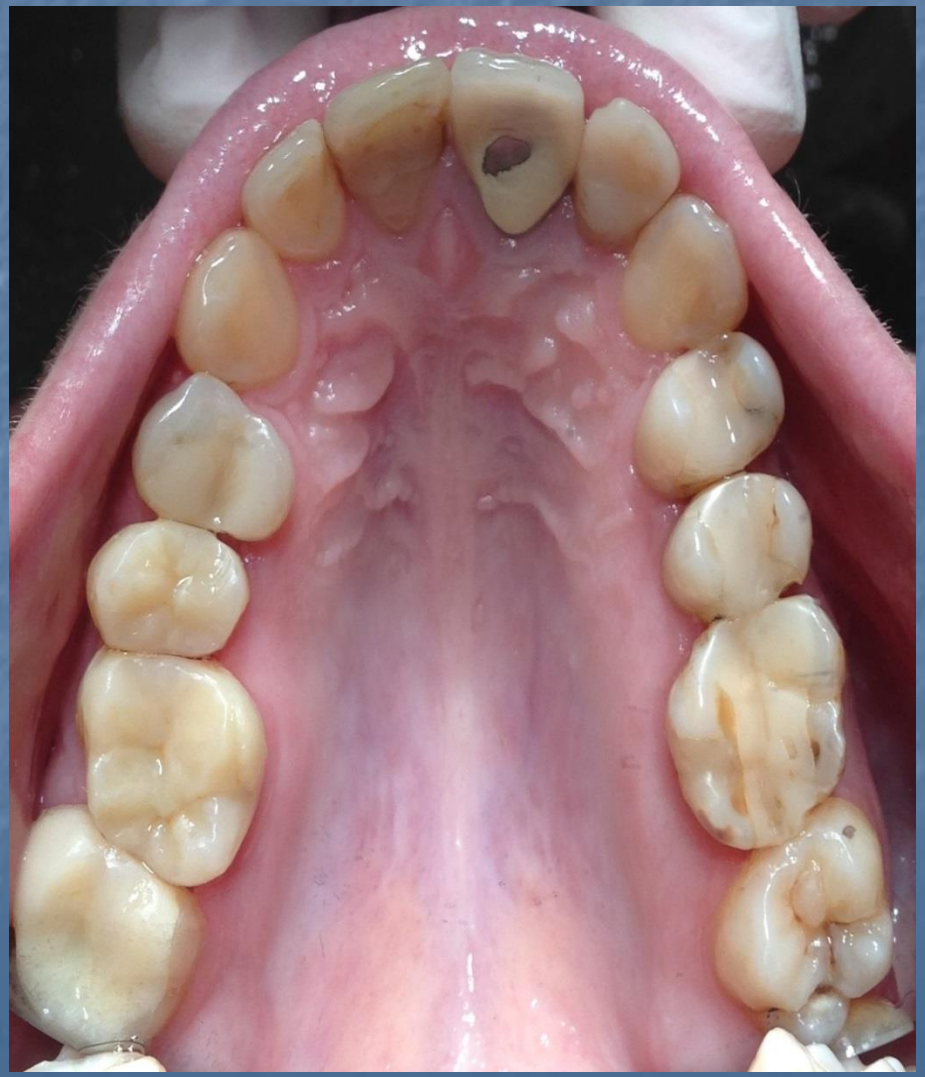
Clip: Light-curing, temporary resincomposit

Ready composite onlays on sectional casts

Try in and cementation

Ready onlays before and after cementation





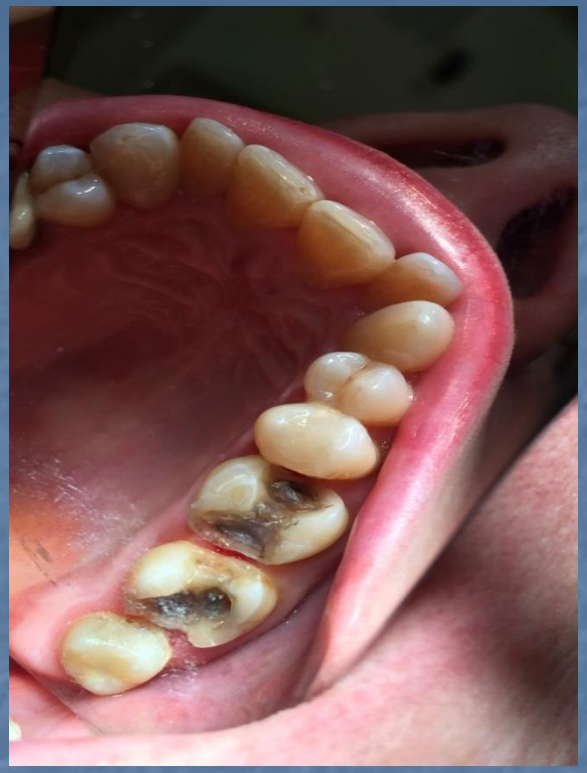
Making ceramic onlay-s in upper arch

Removing of amalgam fillins in absolut isolation

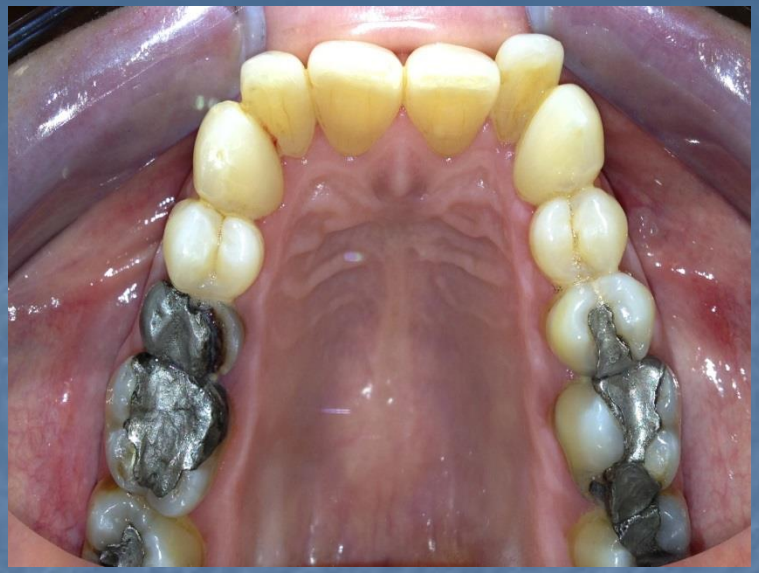
The amalgam fillings were removed on 15, 16, 17 and 18. After removal, small secondary caries was discovered and also removed.15 and 18 were prepared for a composite filling

Absolute isolation was used with rubber dam, full-circular matrix was used for

Composit fillings in 15 and 19



Acid etching with 37% phosphoric acid – enamel 30 seconds and dentin 15 seconds. Wash. Dentsply bonding material applied and light cured for 20 seconds. The OD cavity on 15 and the MO on 18 were filled with A3 composite. Finishing and polishing carried out and the occlusion adjusted with articulating paper.

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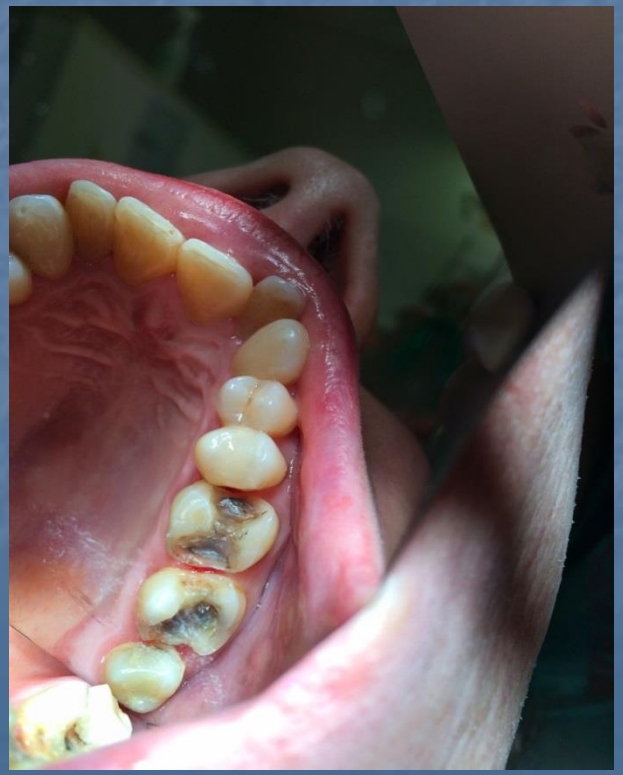
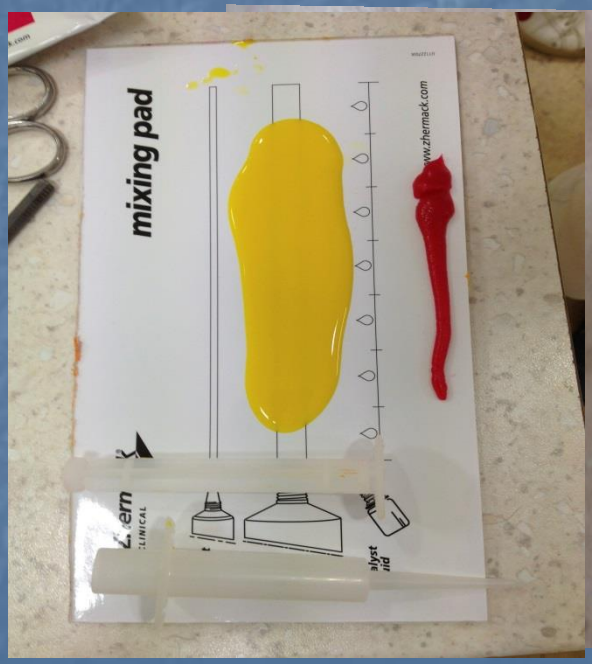
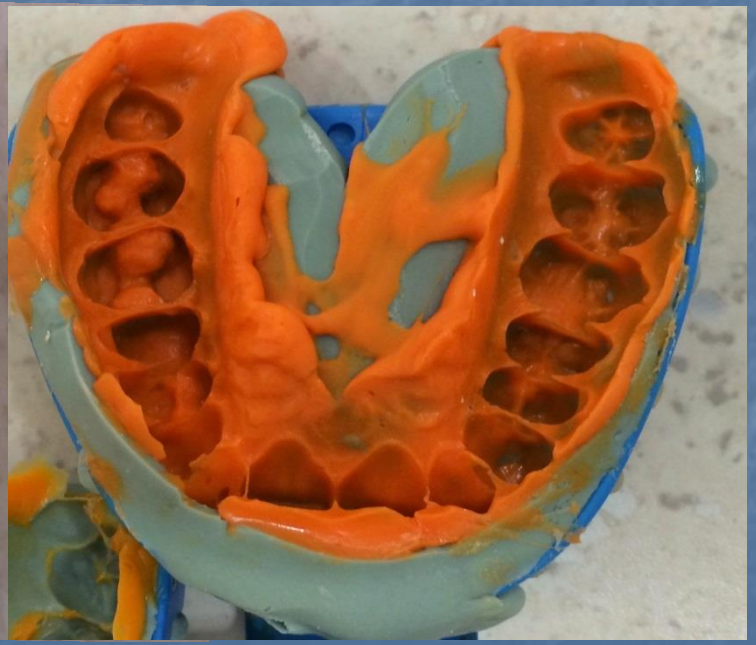


Prepared cavity for onlay

2 stage 2 phase precisional situational impression with retraction cord technique,

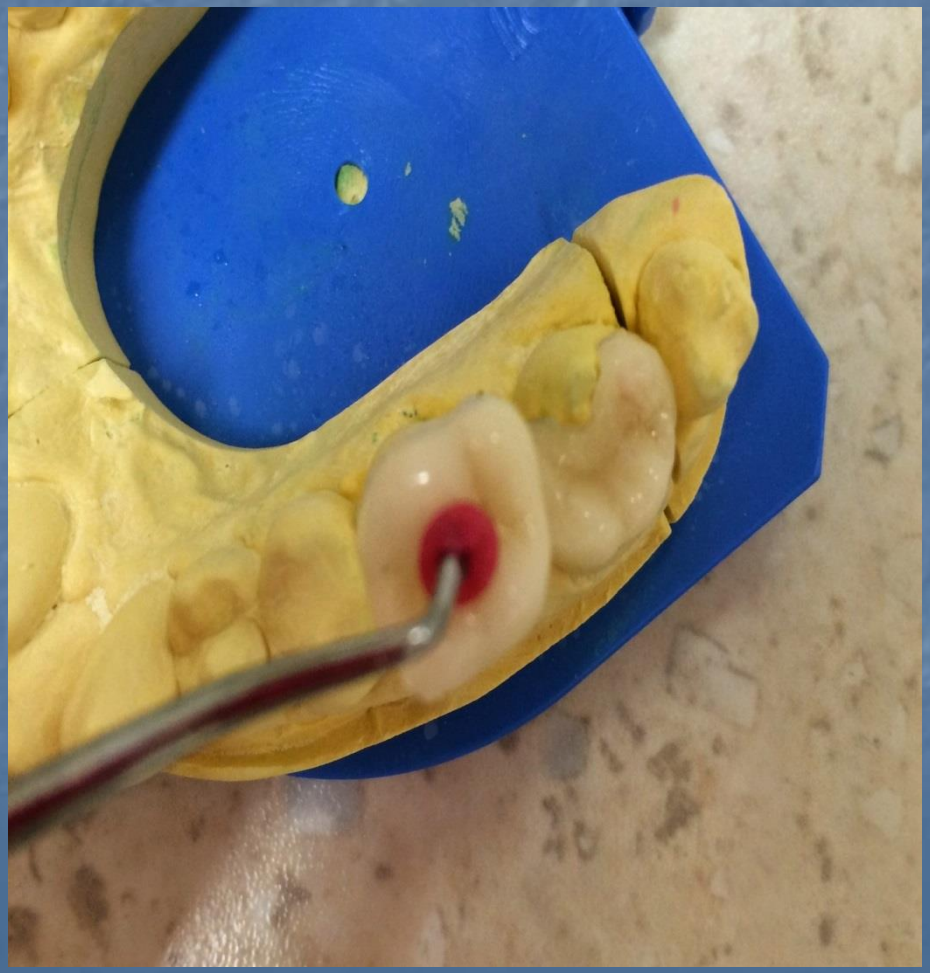


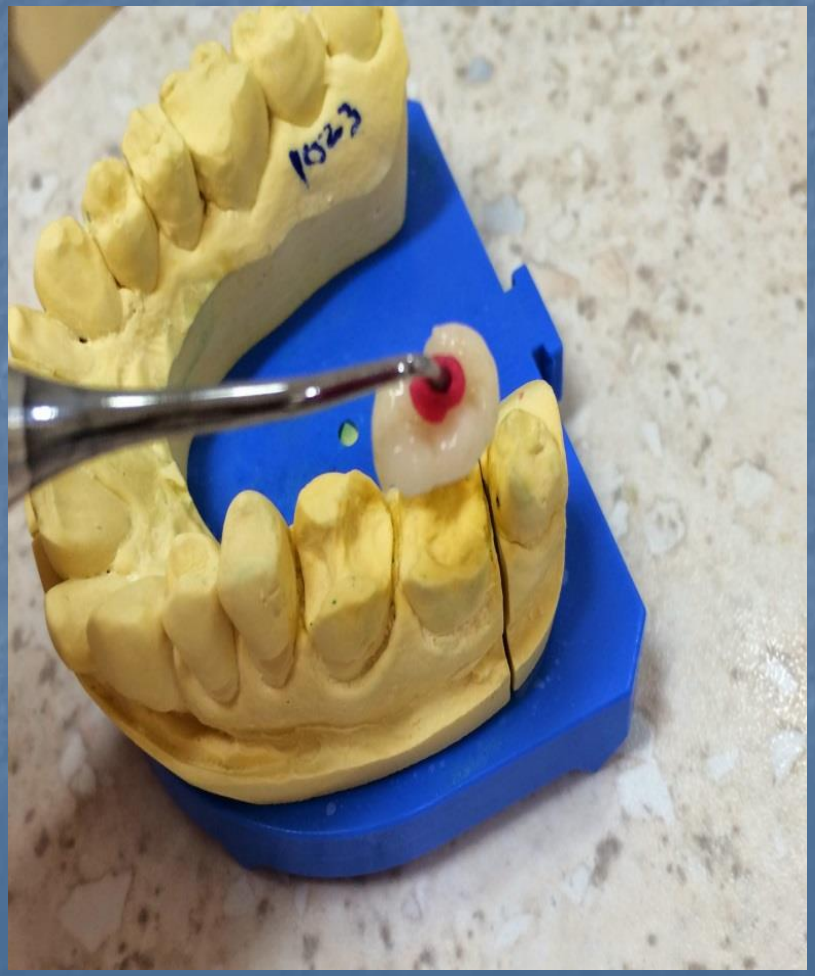


Antagonistic impression and wax bite.

Onlay-s on cast

Tray in process





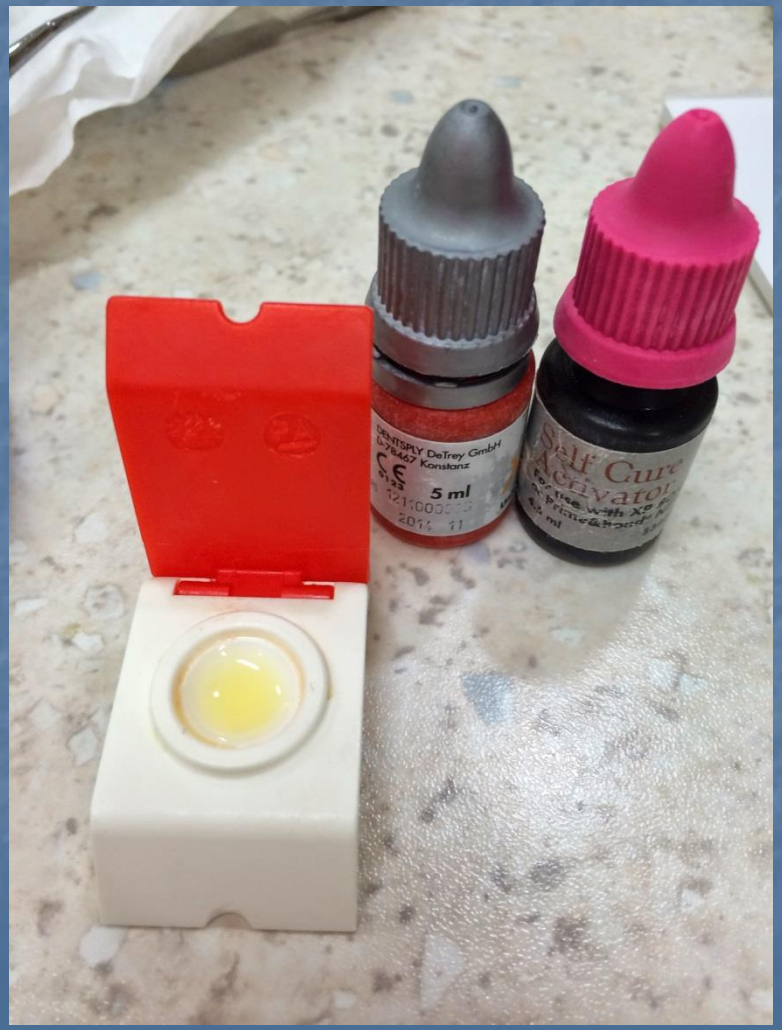
Tray in process without rubber dam

Preparation of onlays for cementation with hydrofluoric acid and silane

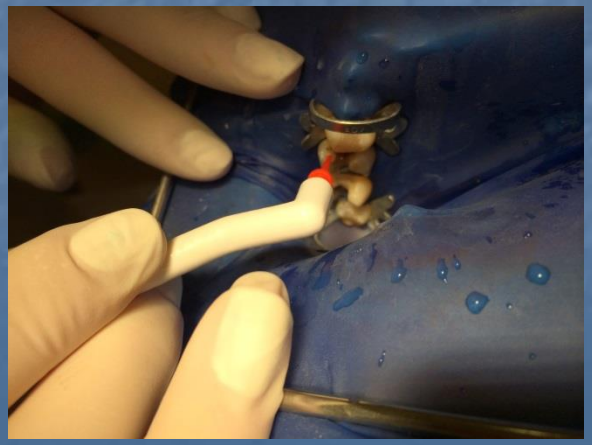
Each inlay was cemented seperately

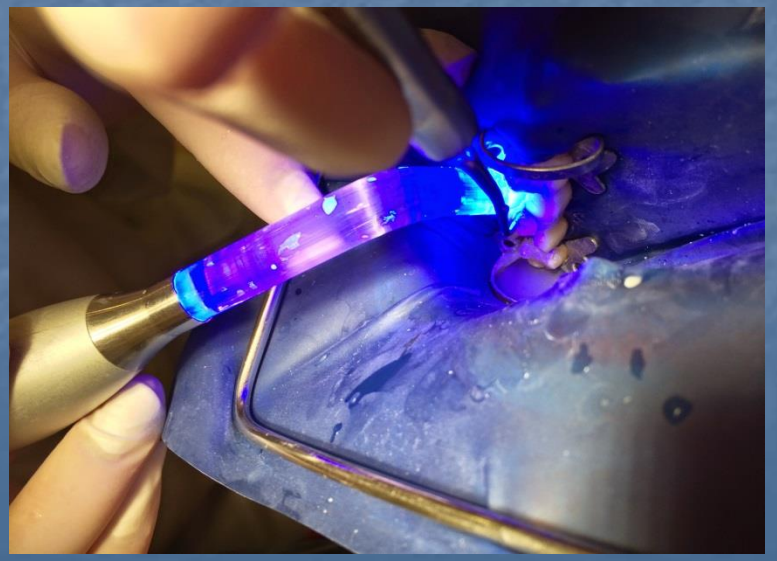
Preparation of tooth for receiving the only with cement by etching and bonding

Acid etching with 37% phosphoric acid – enamel 30 seconds and dentin 15 seconds. Wash, dry, apply dual cure resin bonding material



After surfaces are prepared the onlay is cemented carefully into place with dual- cure resin cement. Excess cement should be quickly wiped away and dental floss used inter-dentally. Light cure all sides of the onlay with lamp

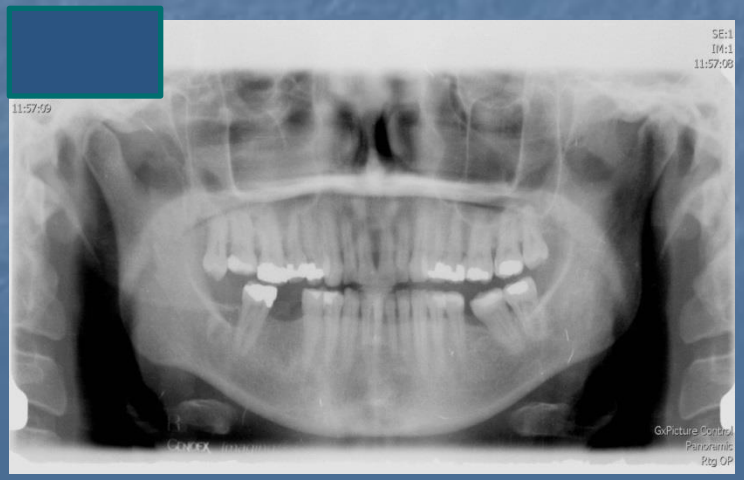




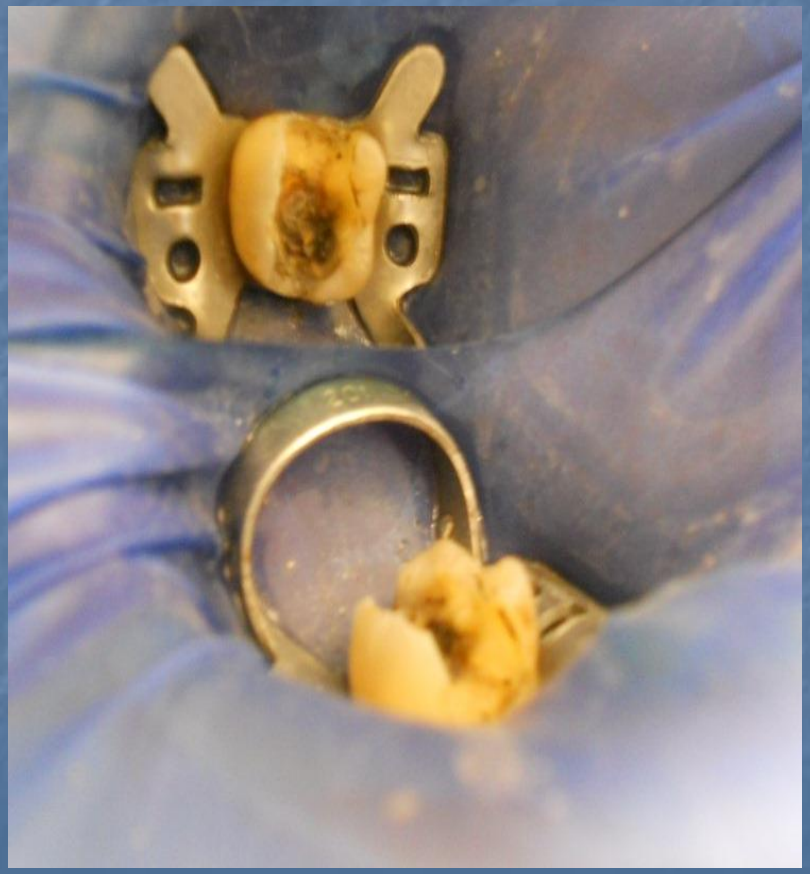
Checked occlusion with occlusal paper.

Before and after the treatment

Lower arch second Molar
(Gánti Bernadette)



Removing of amalgam



Preparation

Antagonist Impression Biteregistration

Impression for Onlay

- 2 fase in one time
- C silikon:
  - Zetaplus
  - Oranwash

Temporary filling Clip)

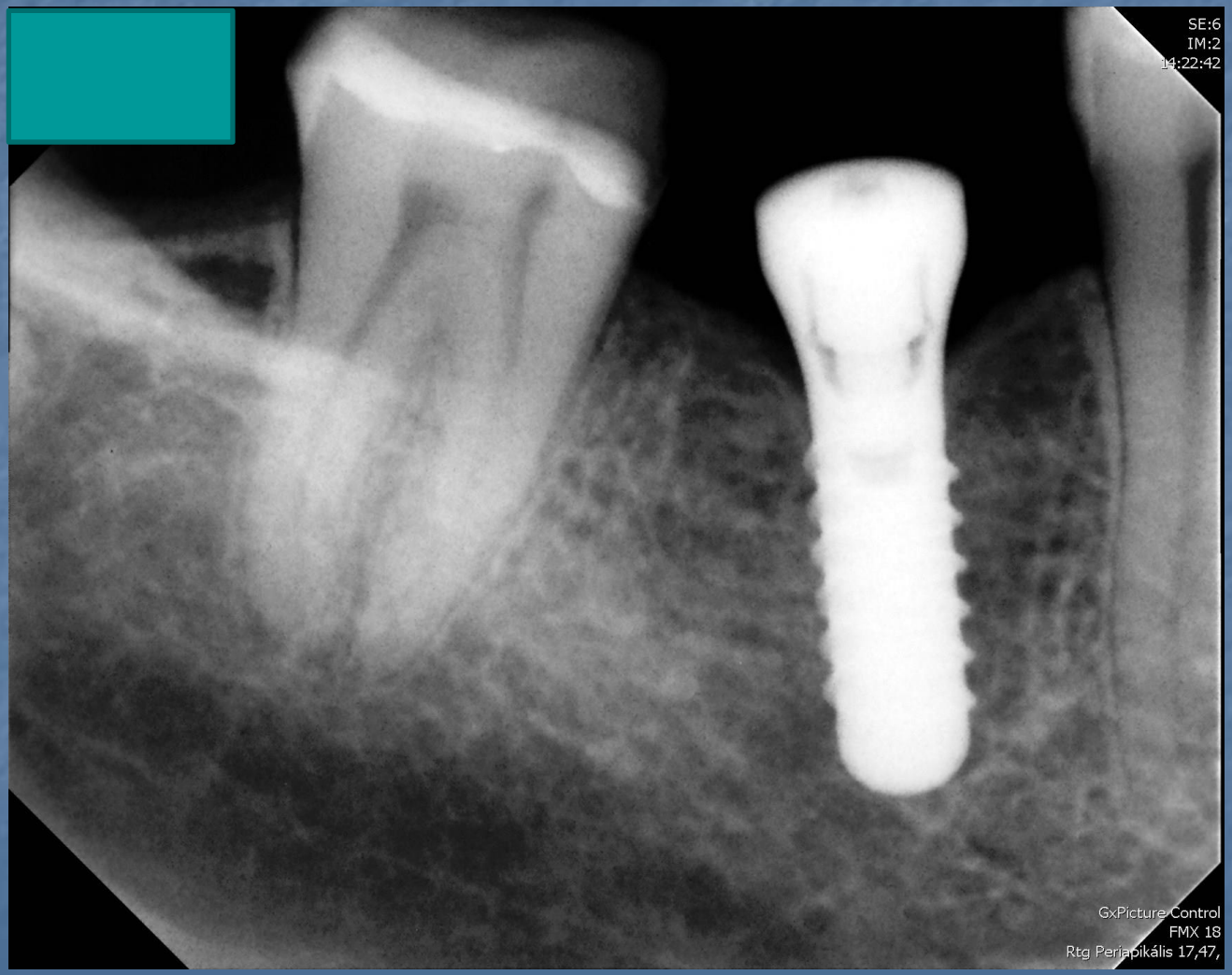
Onlay in Articulator

Onlay on cast

Controll in the Mouth

Onlay after the Fixation

X-RAY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Differences

in making esthetic and metal inlays

	Esthetic inlay	Metal Inlay
Preparation, Divergency Beveling, Depth	6-8-10° No beveling! 1,5-2 mm	3-5 ° Beveling!(40-30°) 1,5 mm
Retention makro, mikro, friction	Mikroretention Adhesive system	Friction grip No adhesive s.
Luting material, luting tecnic	Composit resin Dual curing	Glass-ionomer Phosphate cem.