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Restorative dentistry I.
4th lecture

Preparation and making fillings
Class V., III., IV.

Class V.

Fillings od cervical defects-

In cervical area can be found:

Dental caries

Non carious lesions:

Non carious lesions are defects of hard dental tissues caused by various reasons, no microbs are involved.

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Dental caries

Types of defects

- Caries
- Erosion
- Abrasion
- V shaped defects
- Erosion

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Erosion

- Irreversible loss of hard dental tissue as a consequency of demineralization without participation of microbs. Repeated contact with chemicals of low pH (1-3) is necessary.

Acidic food and beverages, gastric acid (gastrooesophageal rephlux).

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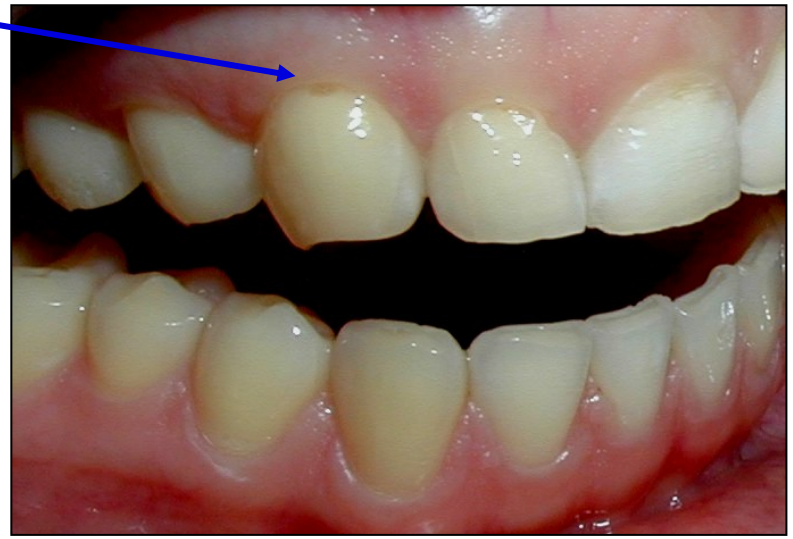
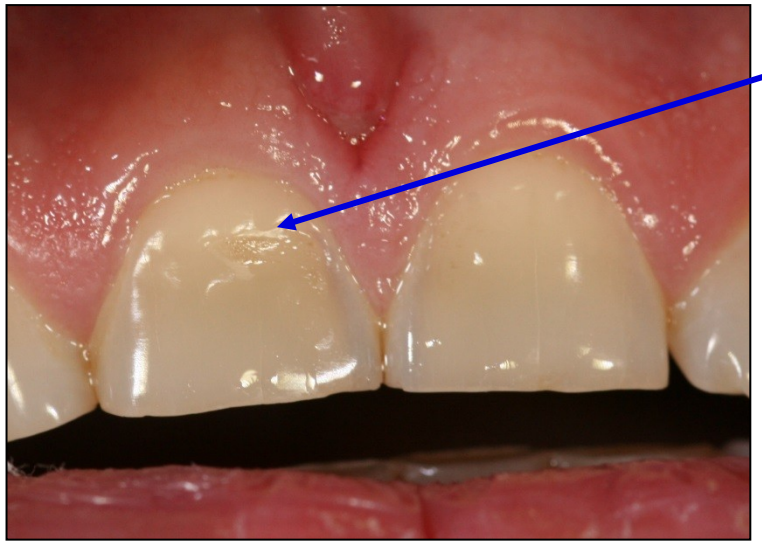
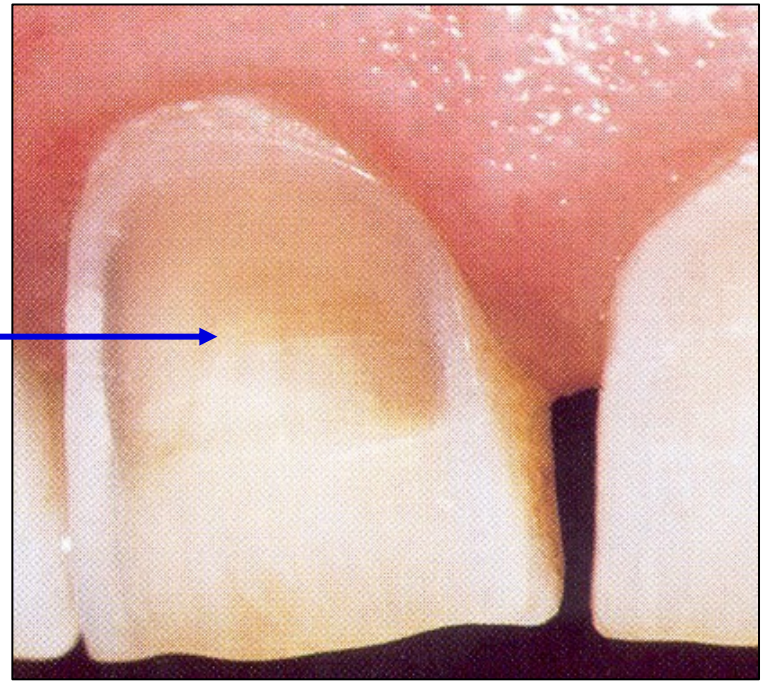




Erosion + abrasion



Abrasion

- Abrasion is a lost of hard dental tissues caused mechanically with some substance or objects. Abrasion is often combined with erosion. Typical location – cervical area of canines and premolars.

Typical reason: hard toothbrush, abrasive toothpaste.

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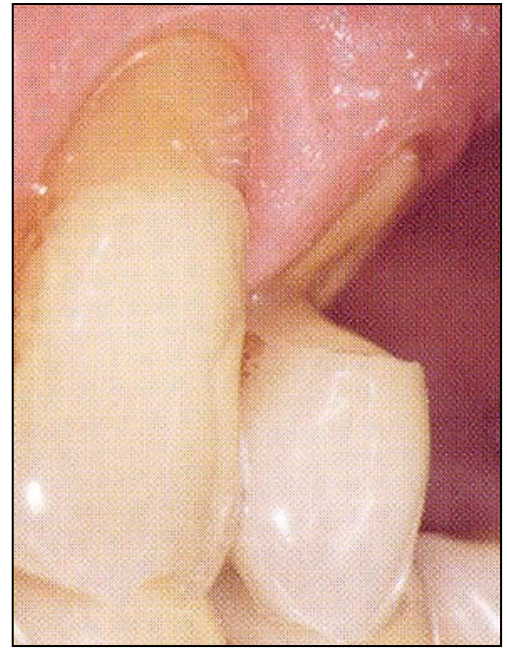
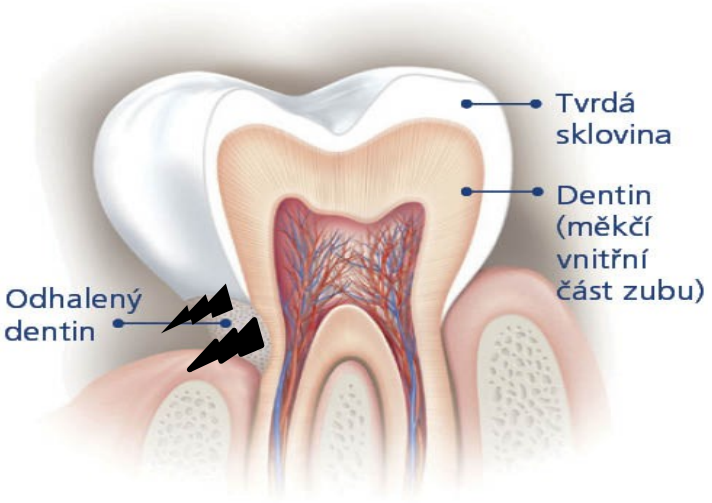
V shape defect



Typical shape, smooth bottom, the border is subgingivally. No pain.

Aethiology of V shaped defects - abfraction

During the occlusal loading
– elastic deformation of dentin
- enamel looses the support
- fracture of small pieces
- abfraction



Hard enamel
Elastic dentin

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Filling therapy of cental caries and non carious lesions is the same

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Choice of material

- Amalgam (posterior area)

- Composite (mainly in anterior teeth where the defect is situated in enamel)

- Glassionomer: caries defects, esp deeper, situated out of enamel, higher caries risk

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V.Class Amalgam

- Posterior area

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Access

- Elimination od the undermined enamel
  - Burs or diamonds (pear), tapered fissure bur
- Separation of the gingiva– temporary filling guttapercha, fermit, clip, zinkoxidsulfate cement, cavit, provimat).
- Ablation of ingrown gingiva – surgical (scalpel, laser, high frequency current)

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Cavosurface margins

Gingival: axial dephth of 0,5 mm inside the DEJ.

Extention of the preparation incisally,

Gingivally: 0,5 mm subgingivally

mesially and distally: to axial walls

Or: untill the cavosurface margins are positioned in sound dental structure. (small cavities, good oral hygiene)

Total dephth: 1 – 1.25 mm. If on root surface -0,75 mm

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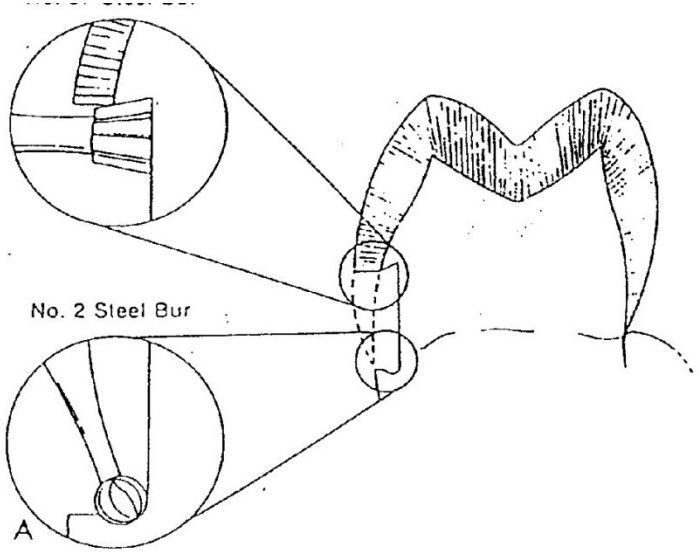
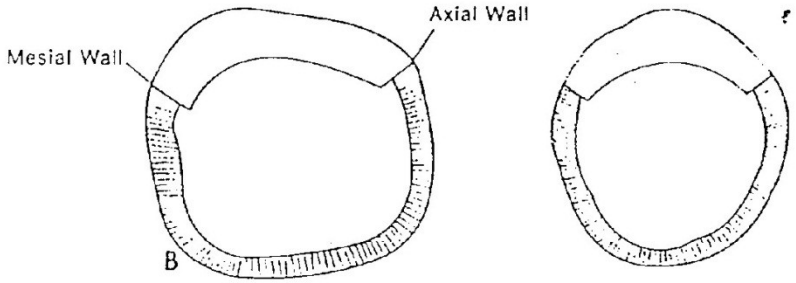
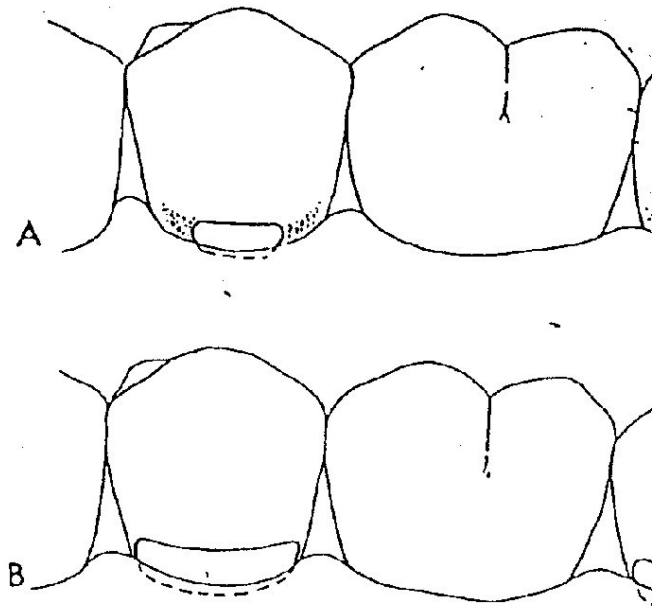
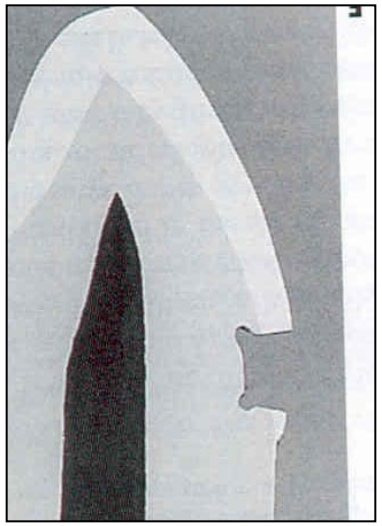

No. 2 Steel Bur
A

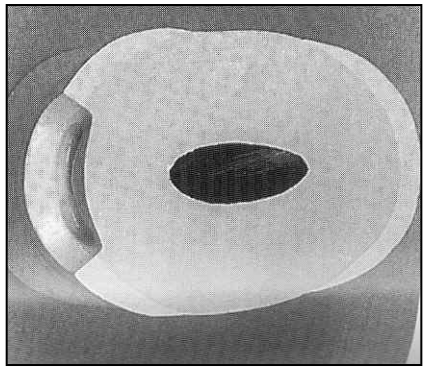

Mesial Wall
Axial Wall
B


A
B

Retention

- Box 0,75 – 1,25 mm deep, undercuts,





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Depht

Gingivally: axial depht of 0,5 mm inside the DEJ.(Subgingivally)

Total dephth: 1 – 1.25 mm. If on root surface -0,75 mm

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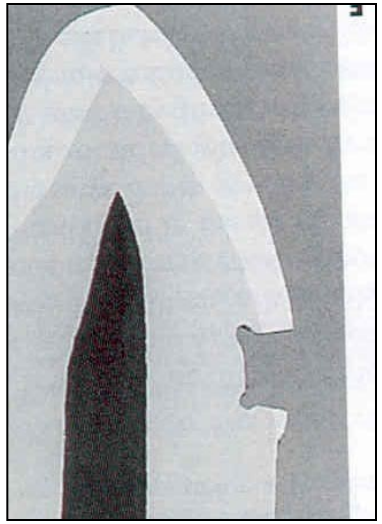
Resistance

No occlusal forces



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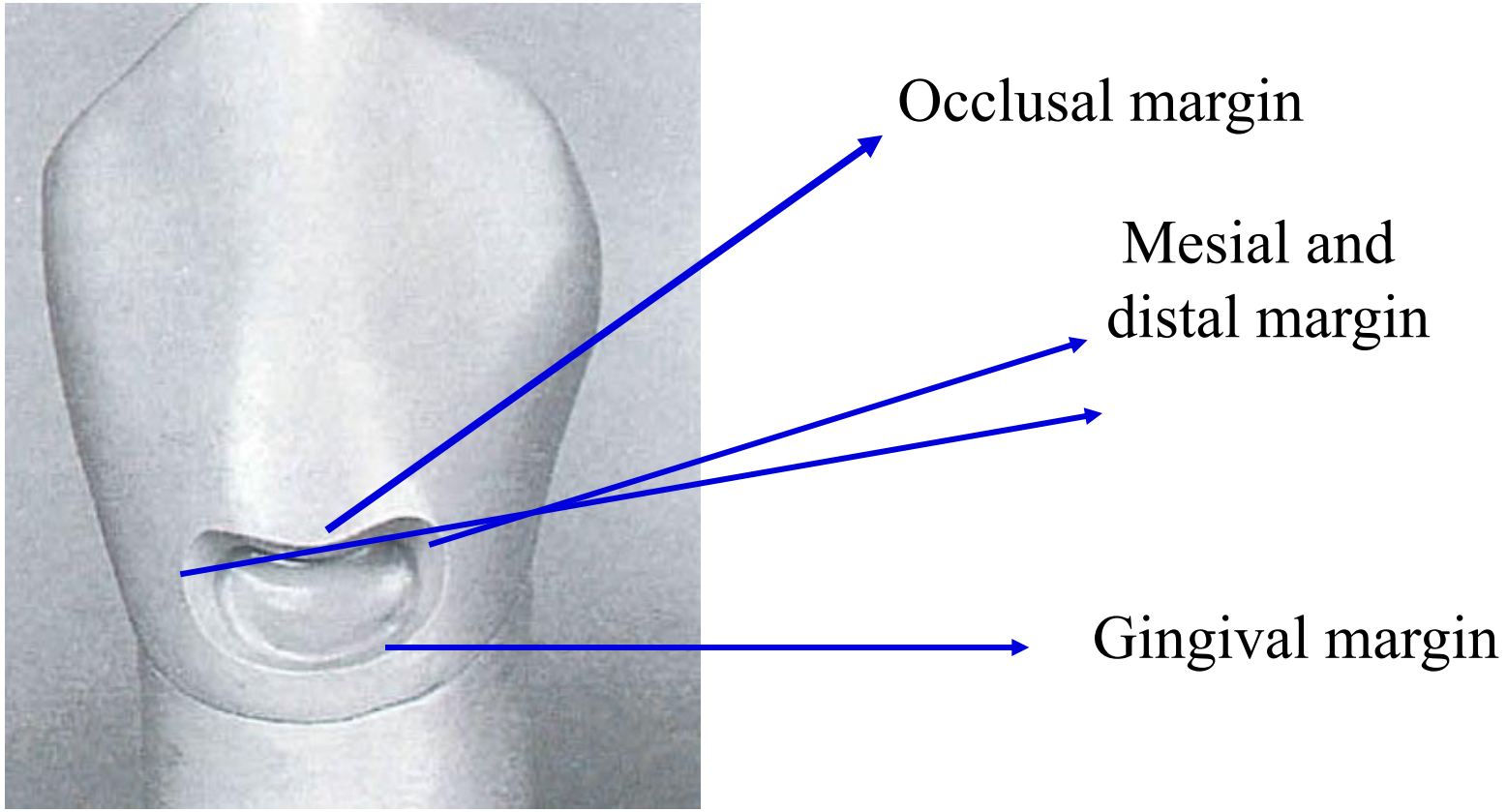
The bottom of the cavity follows the convexity of the crown.



Filling

Base – pulpal wall

Amalgam – portion by portion, condensor with straight front, burnisher (spatula).

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Class V. composit

- Aesthetic area
- Margin in enamel

Preparation for composite, making filling

Cavity is limited on caries lesion only

Enamel must be beveled

Etching, priming + bonding

Placement of composite

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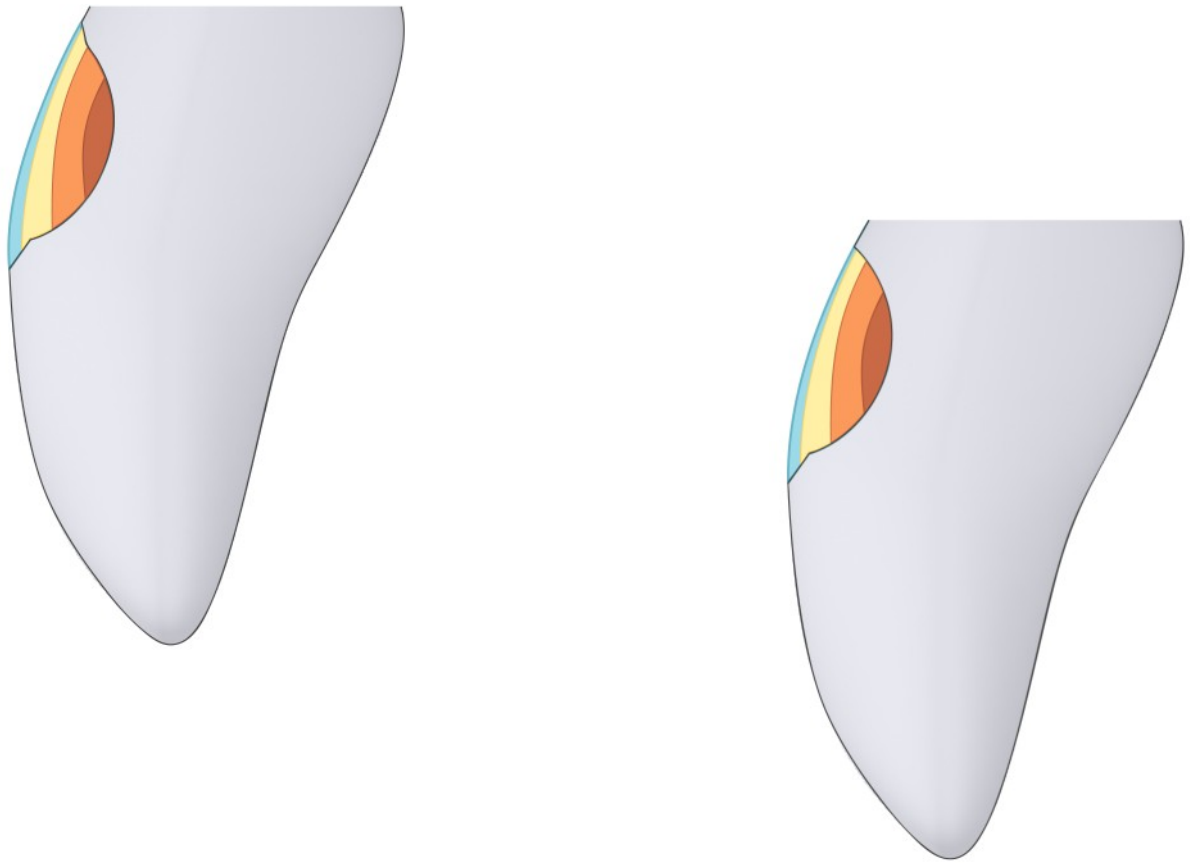

Matrices

Transparent cervical matrices

Matrix band acc. to Belvedere

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Class V. glassionomer

- Cavities with margins in cementum
- Or also in enamel or partly in enamel (in patients with worse level of oral hygiene)

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Glassionomer

- Bonds chemically to hard dental tissues
- Realease fluoride ions
- Thermal expansion similar to dentin
- Acceptable aesthetics

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Preparation for glassionomer

- Cavity is limited on carious lesion only
- Margins sholud be smoothen (no bevel)
- Conditioner (polyacrylic acid) -20 s
- Washing
- Placement of glassionomer (one bulk)
- Matrix (transparent or aluminium cervical
- Matrix – cervical foil)

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Matrices for glassionomers

- Cervical foils

Hawe adaptable metal cervical matrices have a specially treated aluminium surface and are suitable for all self-curing composites and glass ionomers.

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Combination of materials

- Glassionomer – replaces lost dentin
- Composite – replaces lost enamel

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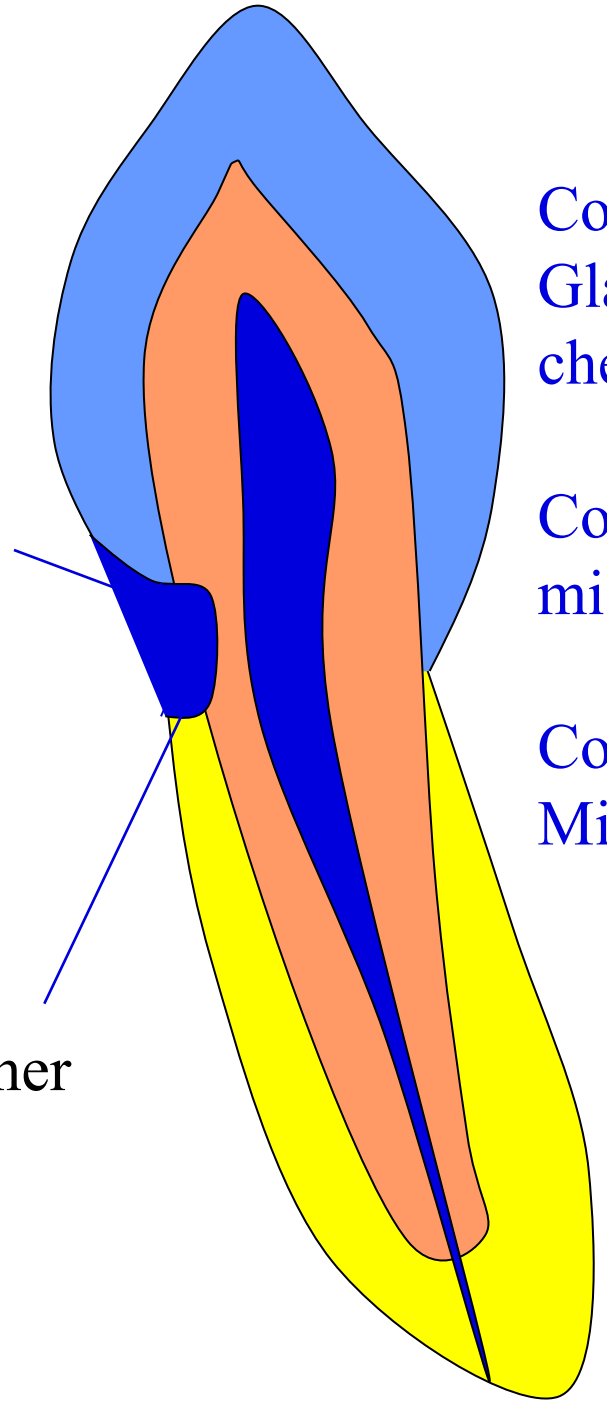
Composite

Base of glassionomer

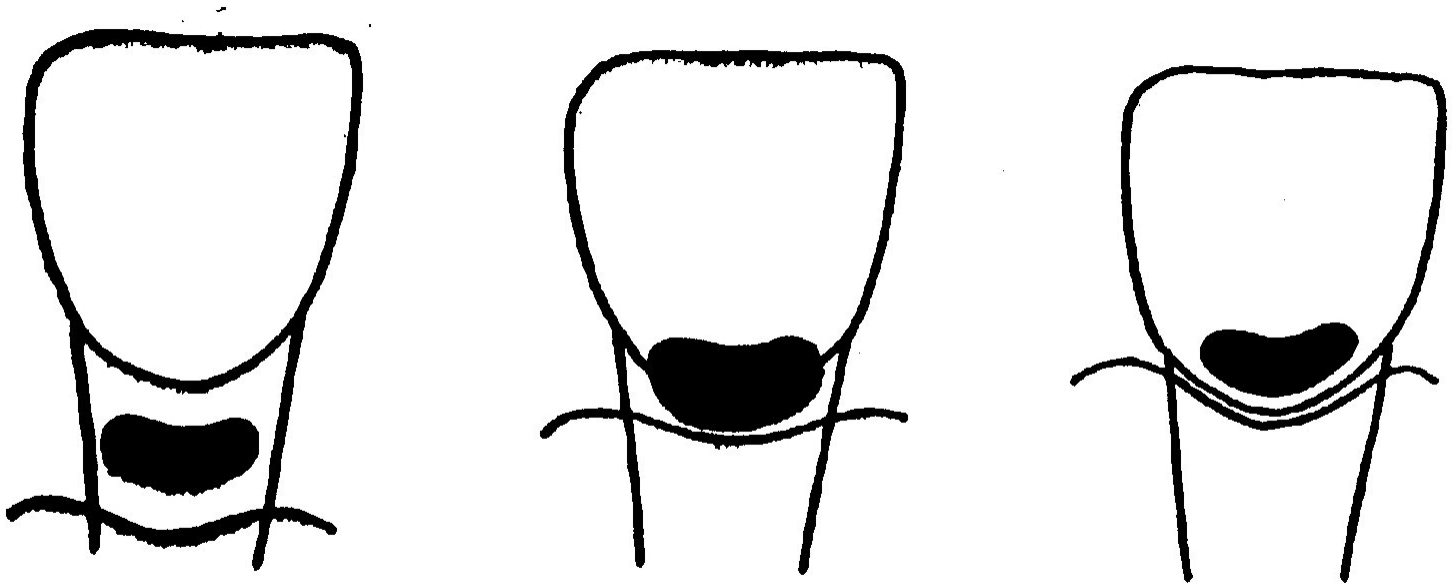


Connection - bonding
Glassionomer – tooth: chemical

Composite – tooth: micromechanical

Composite – glassionomer
Micromechanical.

Choice of materials



Glassionomer Combination Composite

Or amalgam in posterior area

Remember !

- The filling therapy is symptomatic therapy only!

- *It is always important to discover the ethiology of non carious lesions and eliminate it if possible.*

Class III.

Proximal surface of frontal teeth (incisors and canines) without loss of incisal edge. It originates usually below the contact point.

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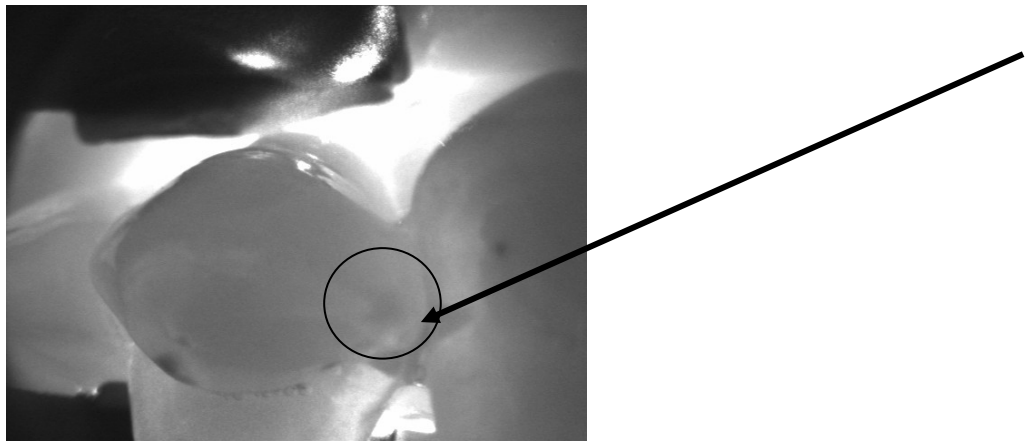
Diagnosis and clinical symptoms

- Visual diagnosis – good illumination or transillumination. Dark spot can be seen. Also Diagnocal can be helpful.
- Early diagnosis is quite easy.



Access to the cavity

- Through the enamel from the oral side
- If the carious lesion is spreading towards vestibular side, vestibular access is acceptable
- Removal of old filling
- Separation of teeth - wedges
- Removal od hyperplastic gingiva

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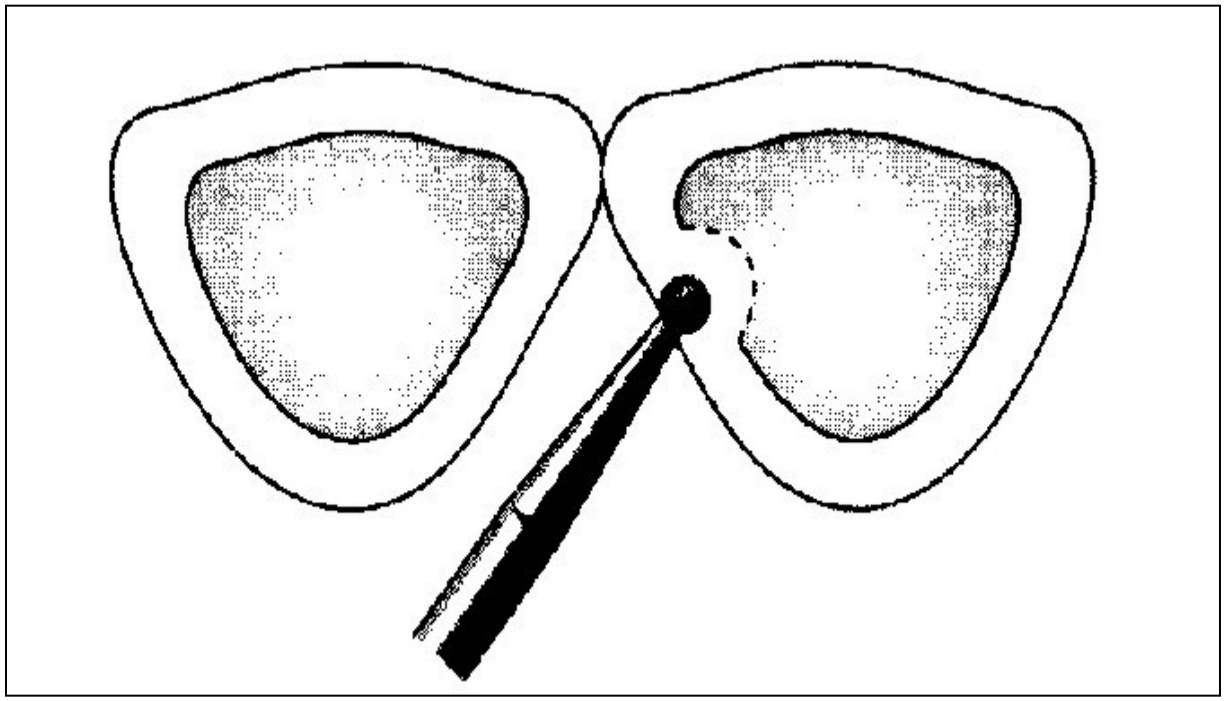
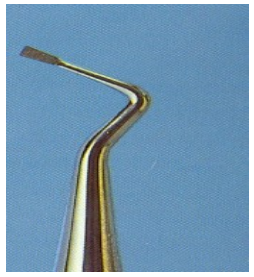
Access



Round bur or diamond,
from oral side,
the caries lesion
on proximal wall must be reached

Cavosurface margin

- Cavity is limited on carious lesion only
- Margins must be beveled



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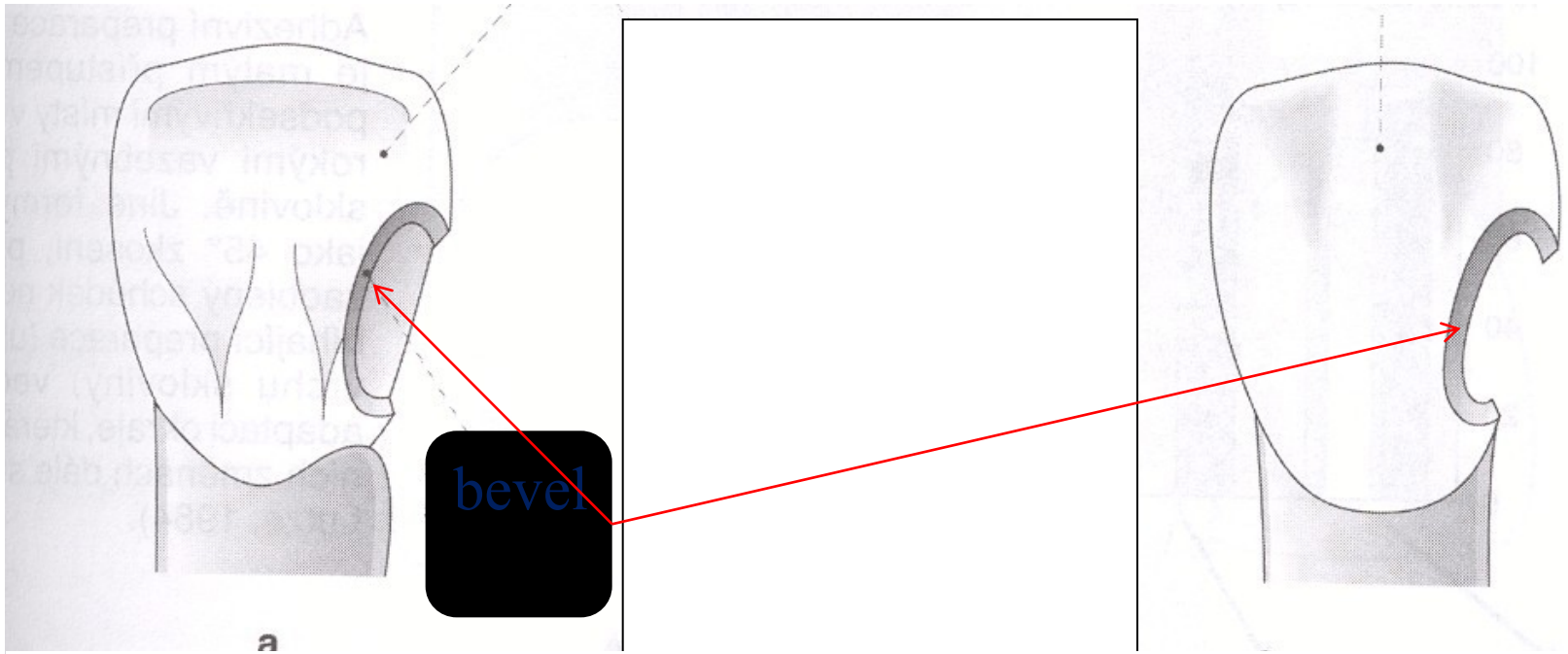
bevel
a

Retention

- Margins must be beveled – micromechanical retention
- Within the bevel (retentive border – shallow groove around the lesion) the aprismatic enamel is removed, the prismatic structure is exposed. Depth 0,5 mm. Angel appr. 45°.

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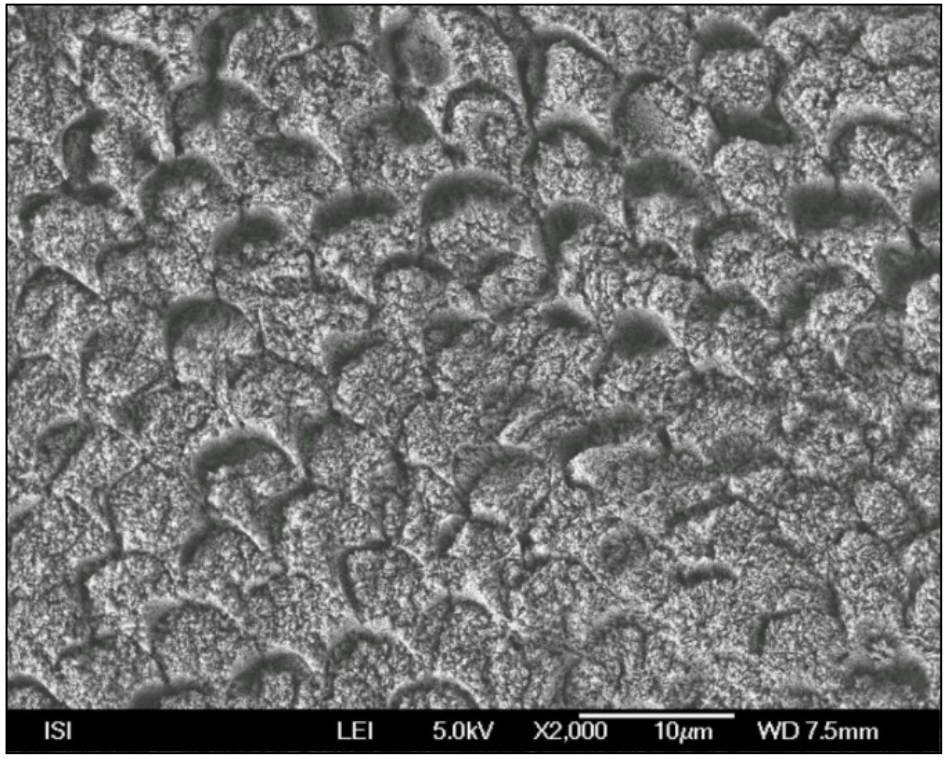
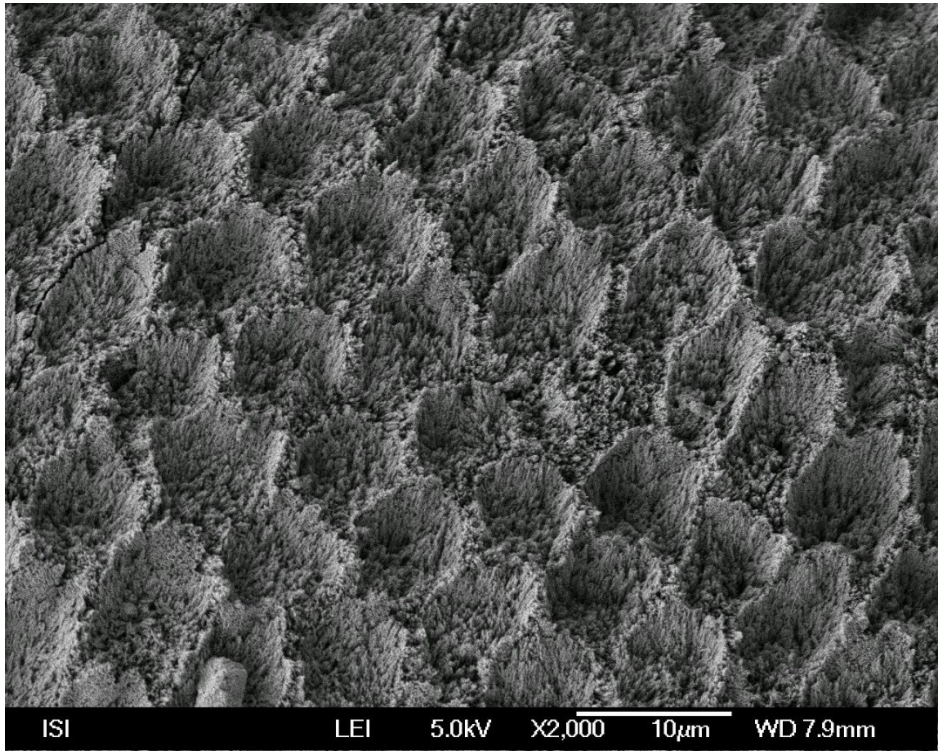
Prismatic structure
after the removalof aprismatic enamel
and acid etching – retentive pattern
periprismatic intraprismatic





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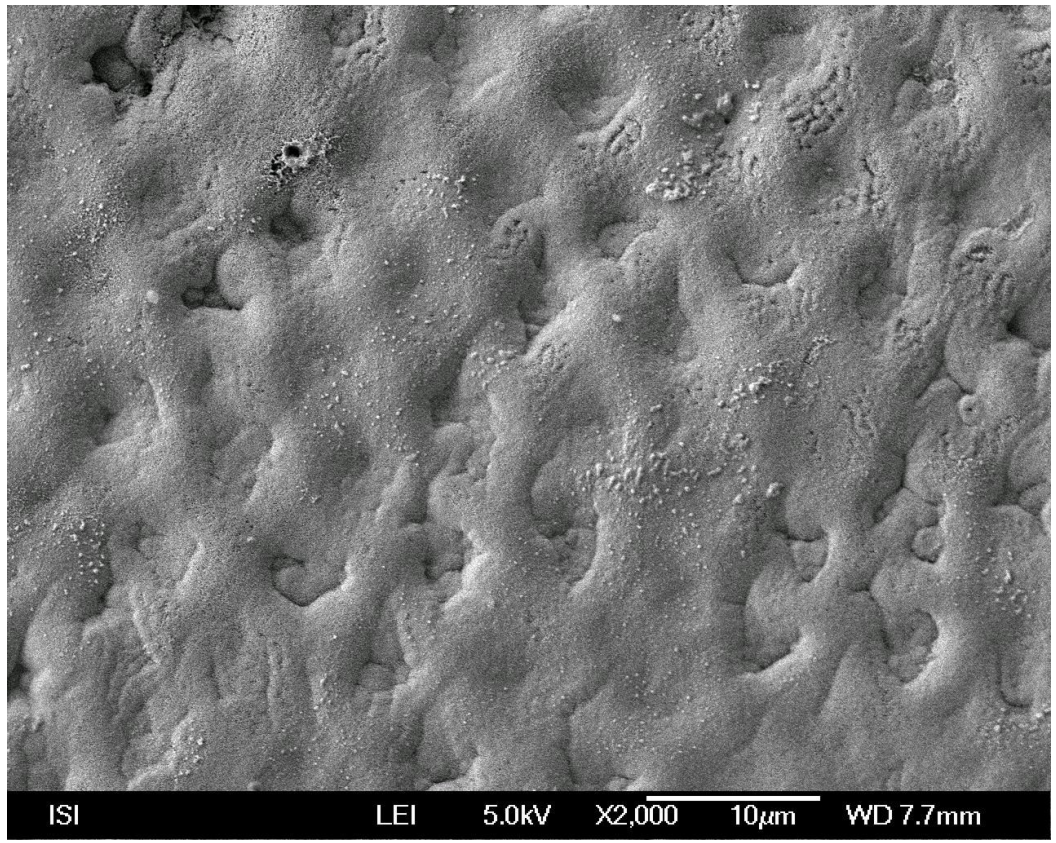
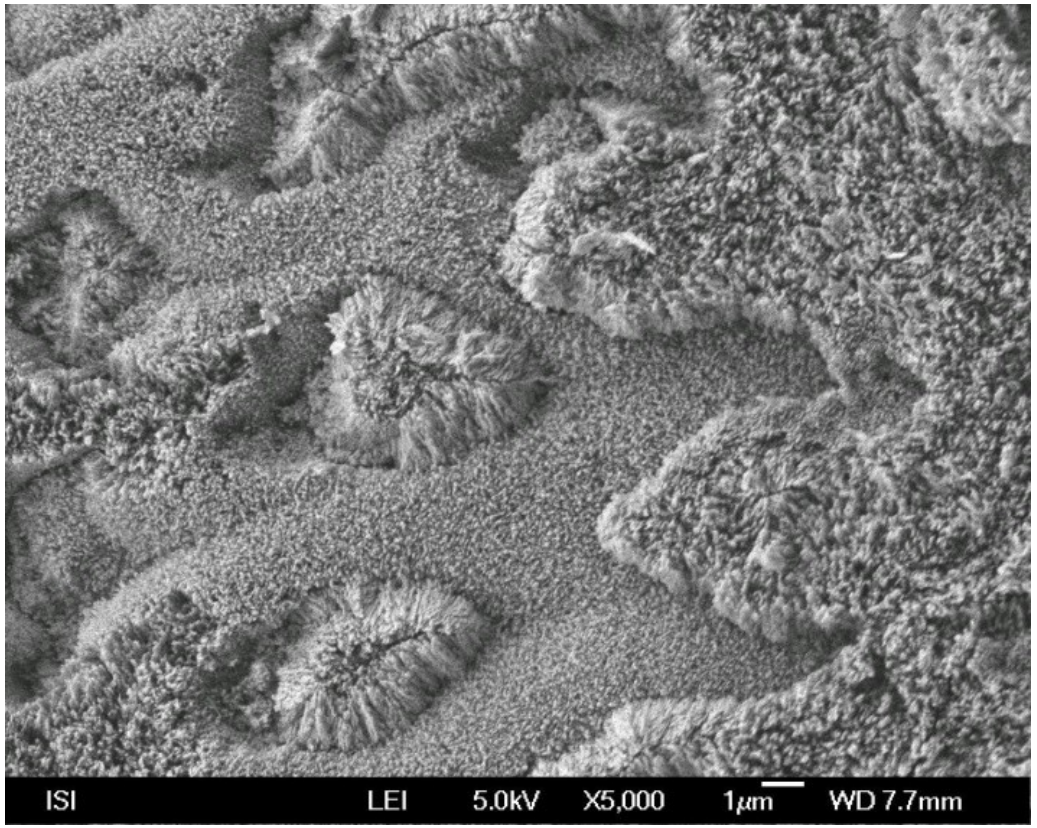
Aprismatic enamel



Aprismatic enamel after acid etching



Good isolation with the rubberdam

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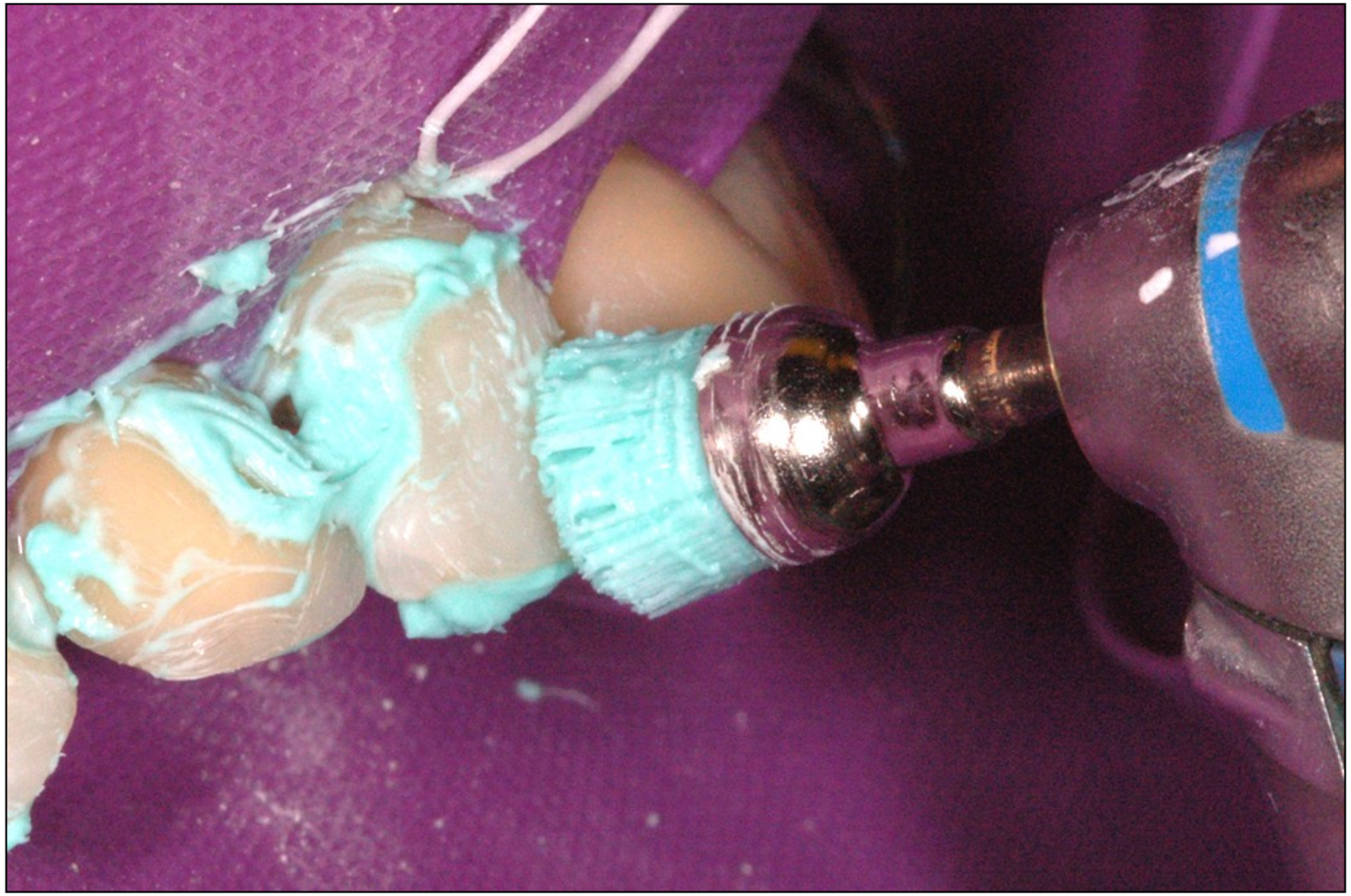
Acid etching of enamel and dentin:
Enamel 20 – 30 s
Dentin 10 s

Bonding

Sequence of operation – after choosing the colour – the enamel is cleaning



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Preparation

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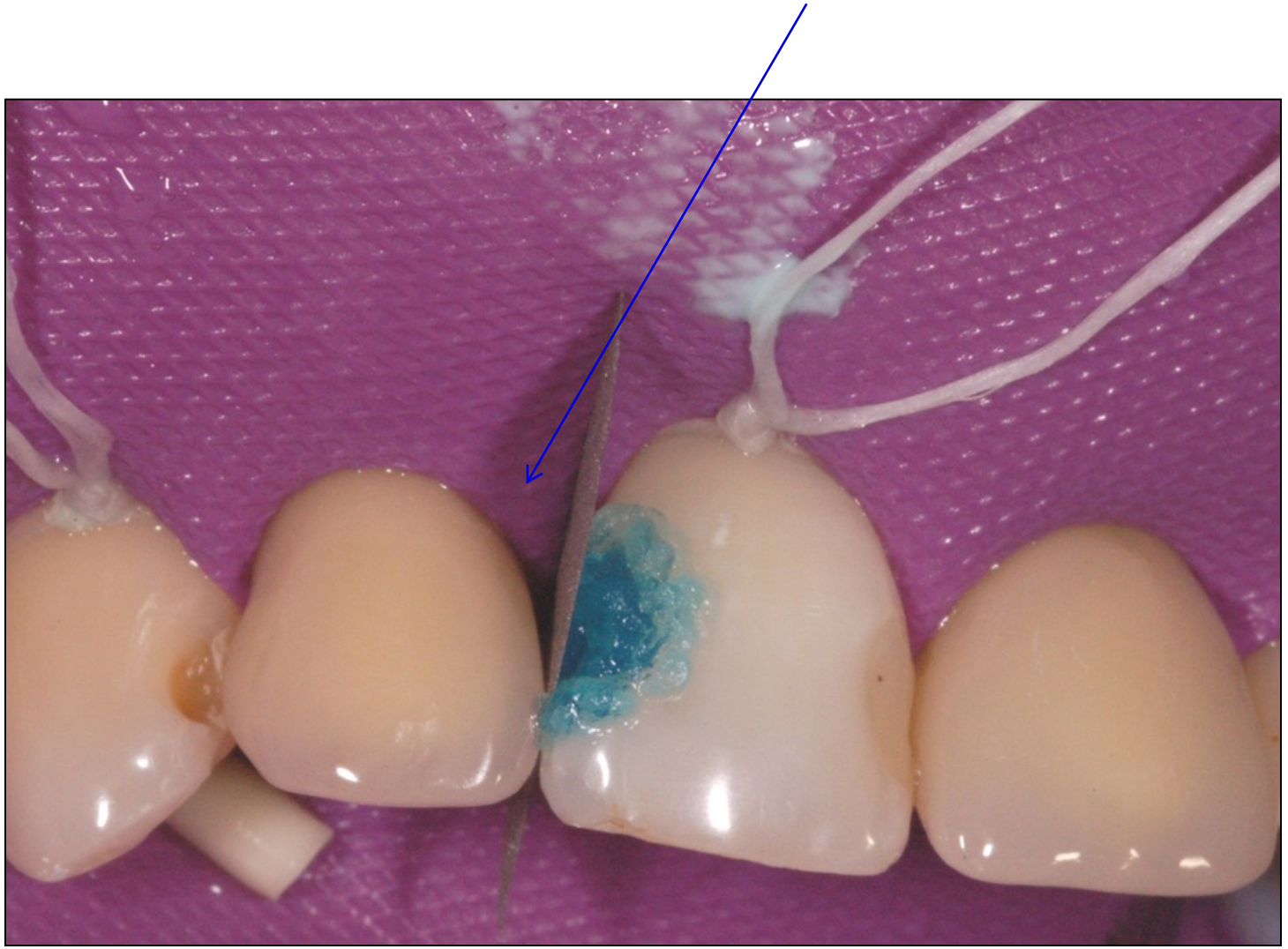
Acid etching – protection of the other tooth tooth



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Matrix (transparent polyester strip) and wedge, priming and bonding

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Application of the composite – palatal layer first

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Incremental technique

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Before finishing, the wedge can remain in situ – separation of teeth

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Layering of the composite

- Palatal wall (matrix in situ) – enamel shade
- Dentin shade
- Enamel shade

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Matrix has been removed

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Finishing: final shape with fine and extrafine diamond bur, flexible discs

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Polishing – rubber instruments, fine discs

Rubber cups,
brushes

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Finished filling

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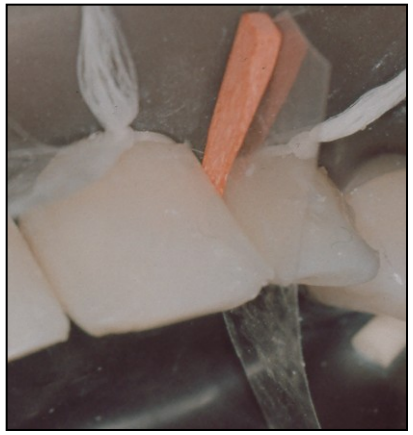
3 rd class restoration – 20 years ago



Layering depends on size and location of the defect – dentin and enamel shades

Class IV.

Defects on proximal surfaces premolars and molars with loss of part or complete incisal edge

Dental caries
Trauma

Cavosurface margin

Preparation is limited on the defect

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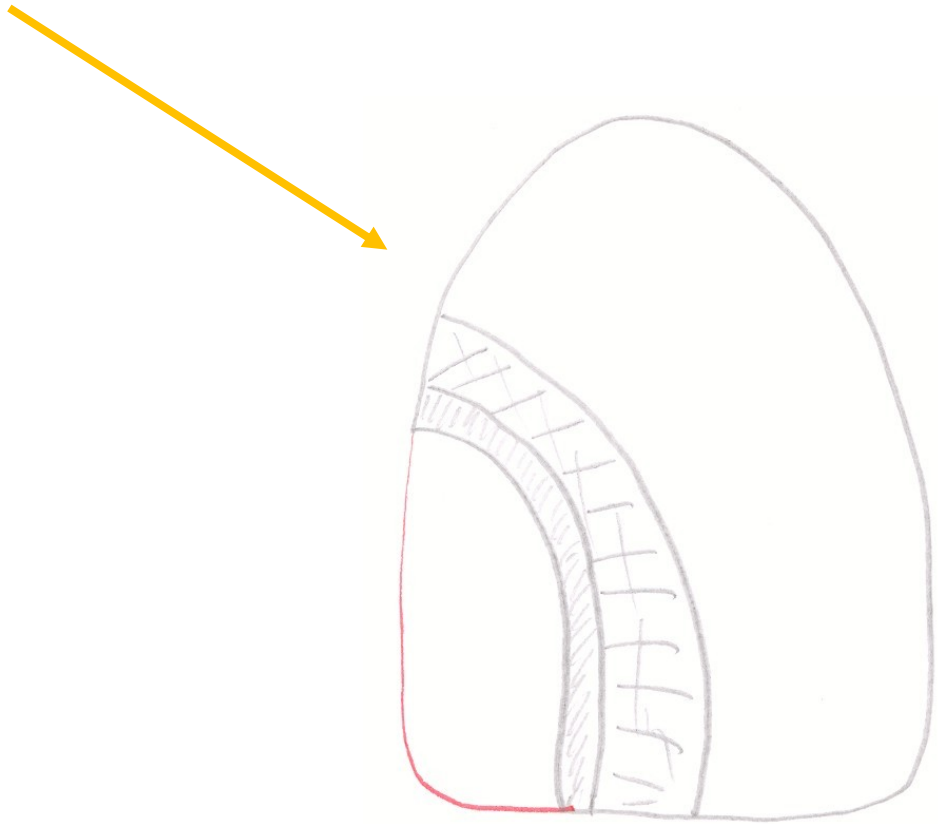
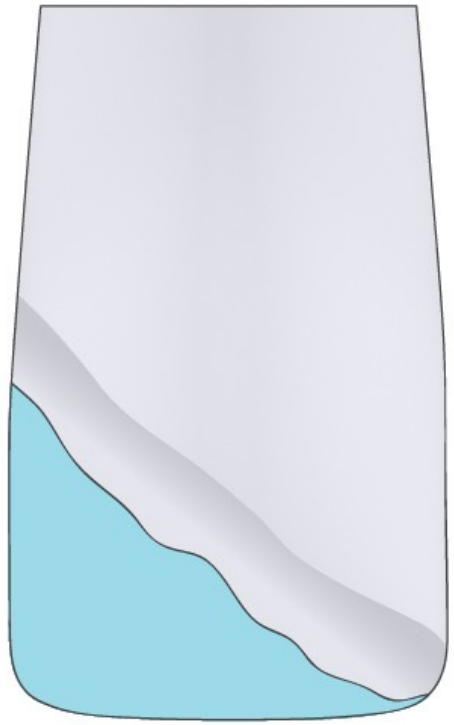
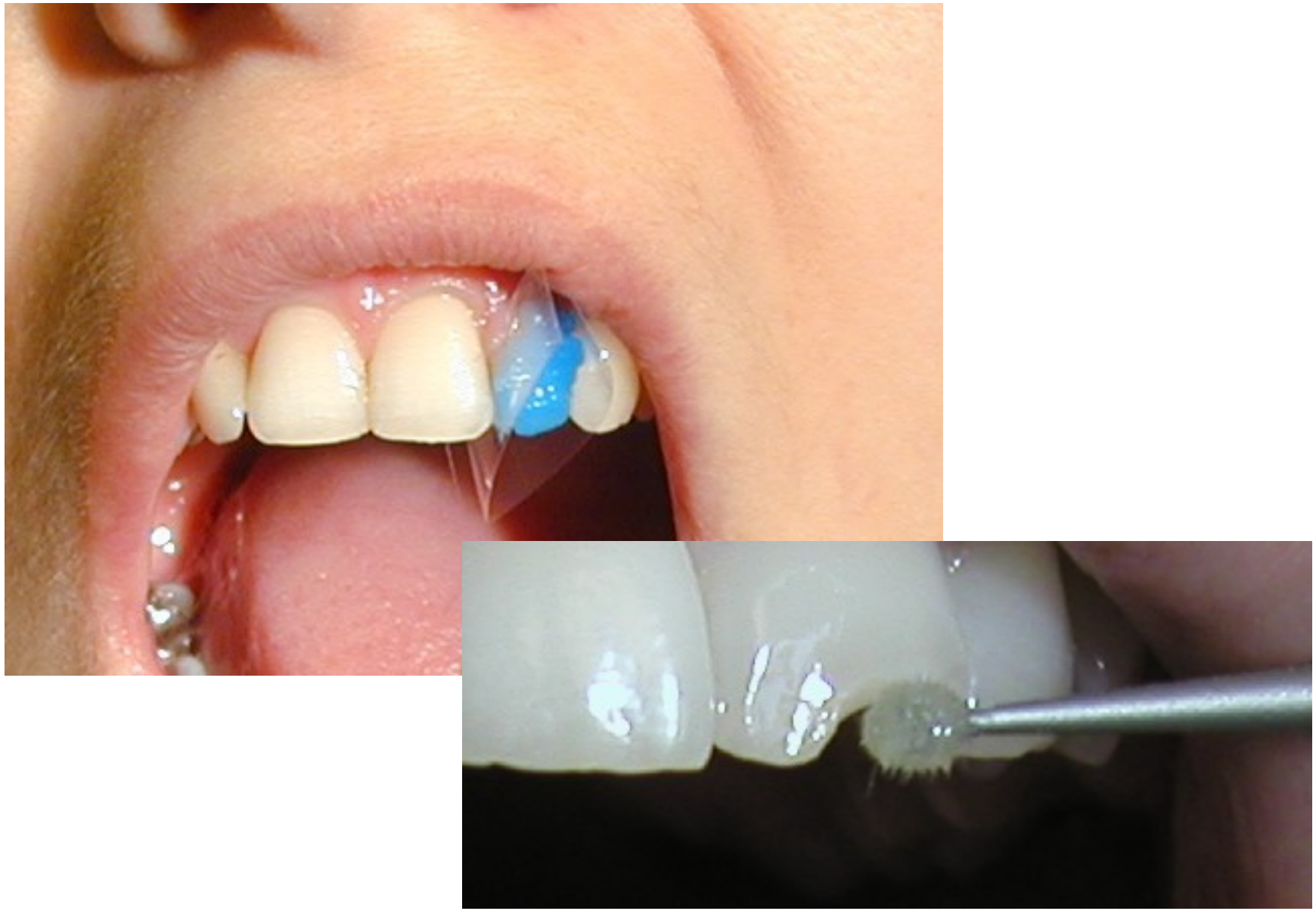
The enamel must be beveled







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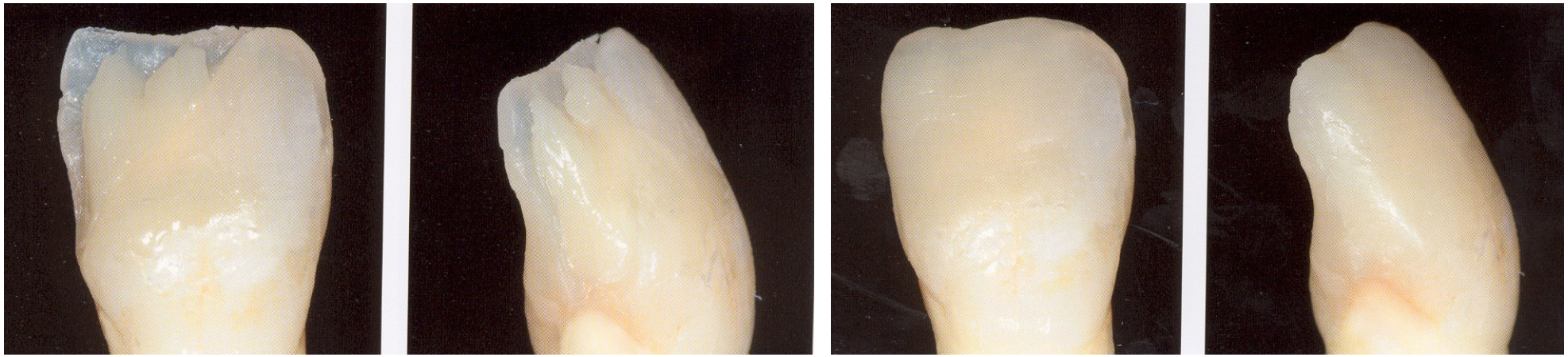
Principle of the layering of the composite material



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The matrix is necessary:

Transparent polyester strip + wooden wedge
For location od the palatal wall silicone matrix can be used

Silicone matrix

- Is a simple impression of silicone impression materiál after building of the shape of the future restoration on the model or in oral cavity

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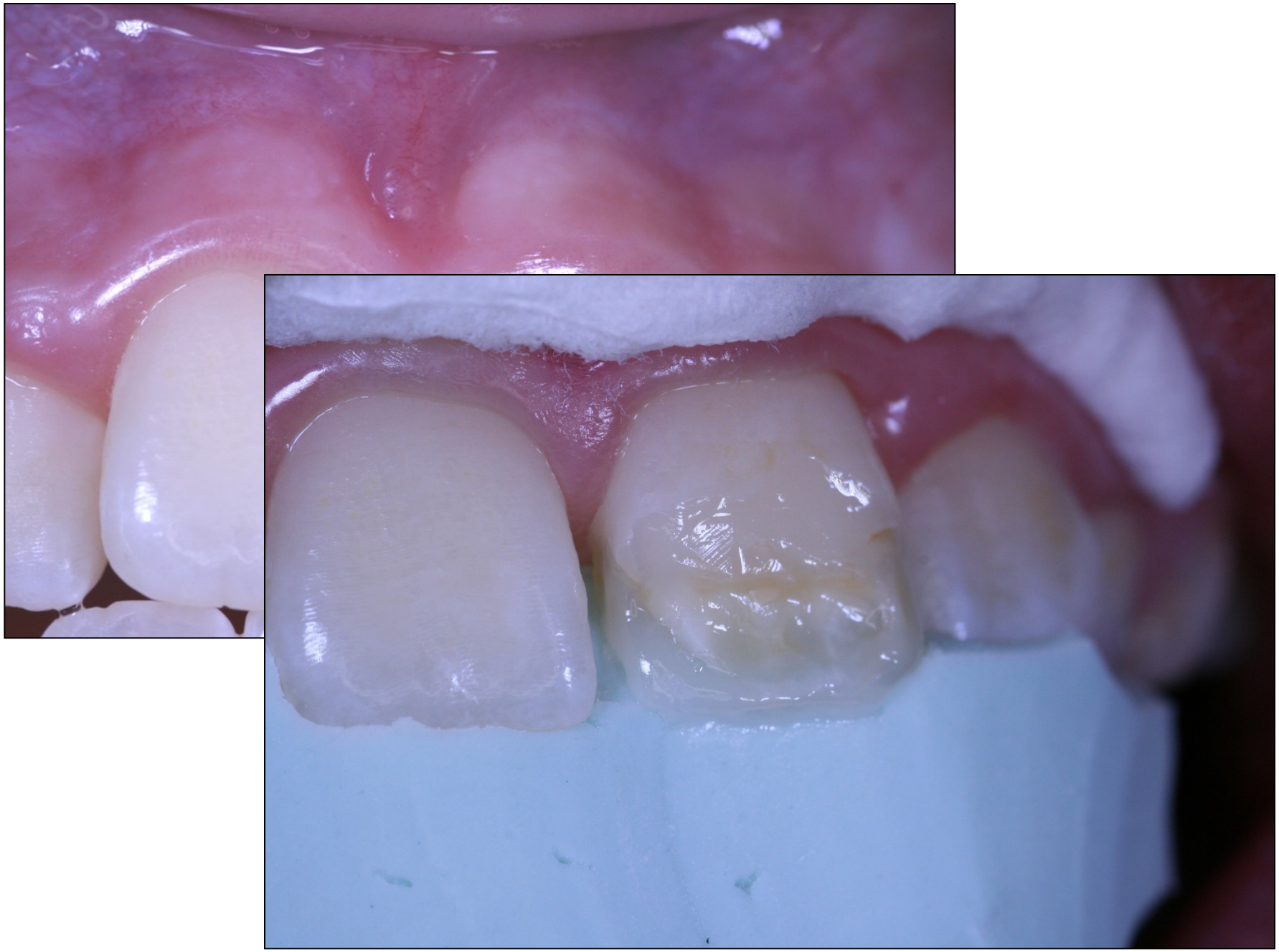

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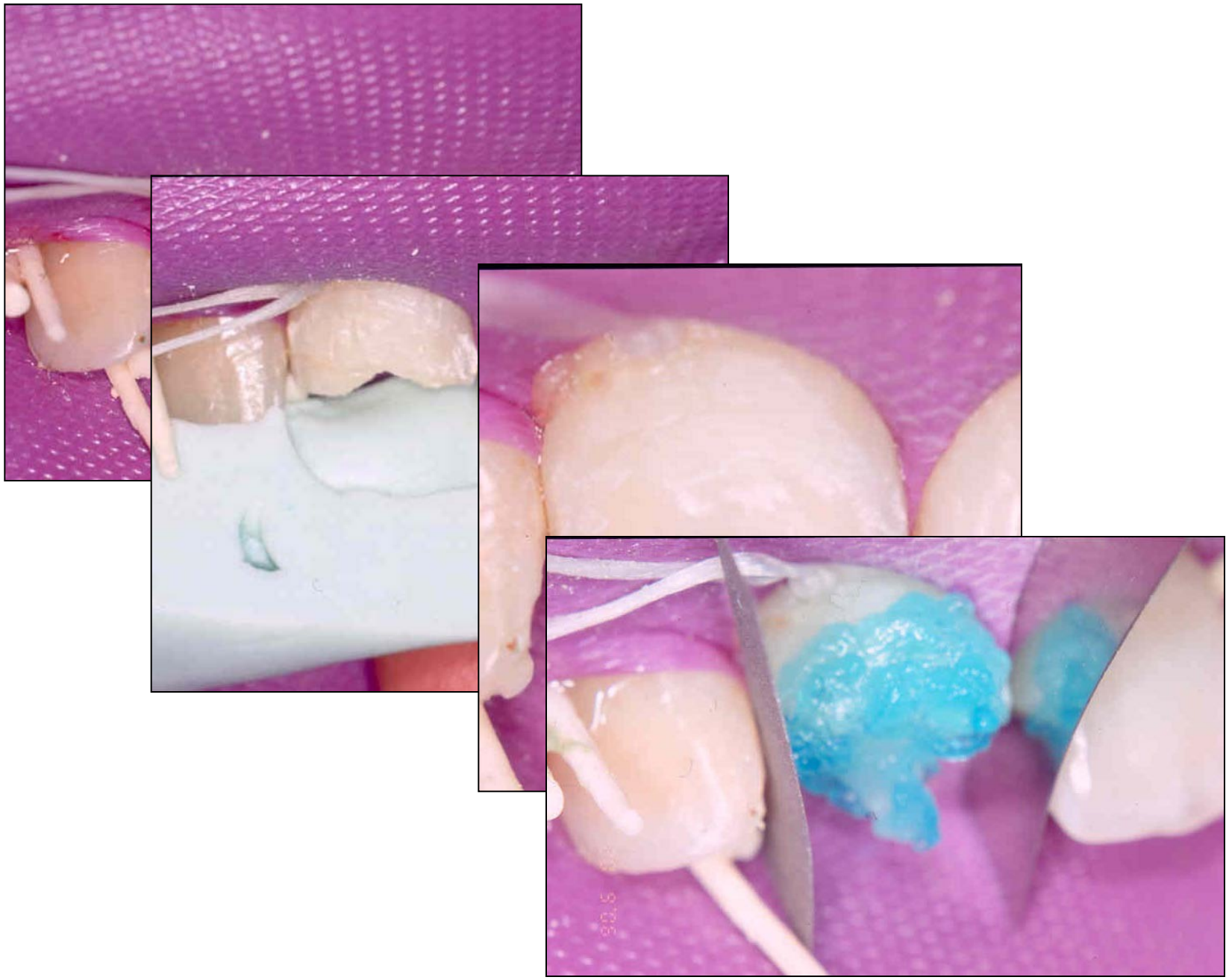
Now the transparent strip
and wedge is necessary again



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