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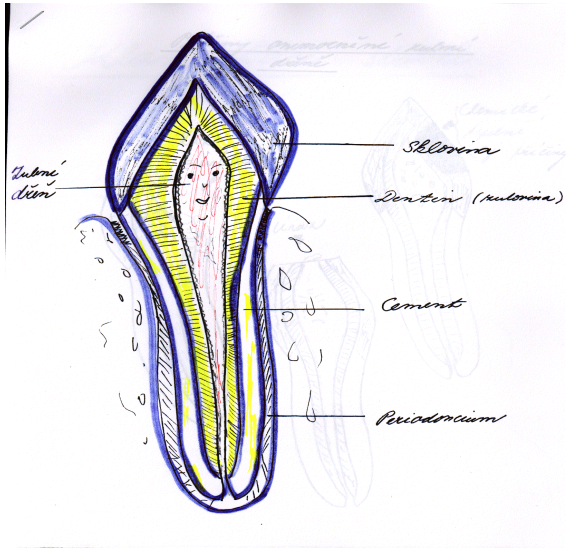
Preclinical dentistry I.

Class V. cavity preparation

Characteristic

- Cervical defects



Anatomical x Clinical crown

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Anatomical x clinical crown

- Anatomical crown - cementum- enamel junction

- Clinical crown – gingival border

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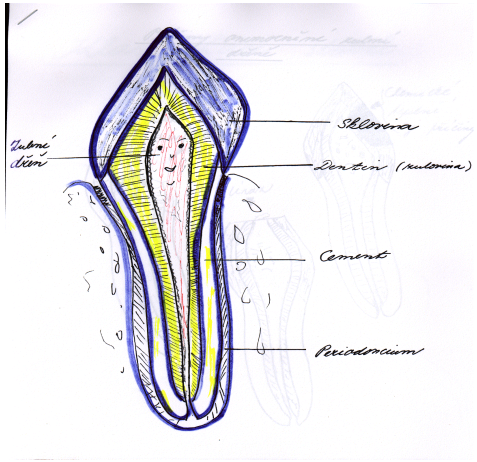
Anatomical X Clinical crown



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Cervical area

- Caries danger area – plaque accumulation
- Gingiva - possibility of its injury, bleeding, inflammation
- Flow of the sulcular liquid
- Specific ordering of the hard dental tissues
- Risk of perforation into dental pulp – thin layer of hard dental tissues

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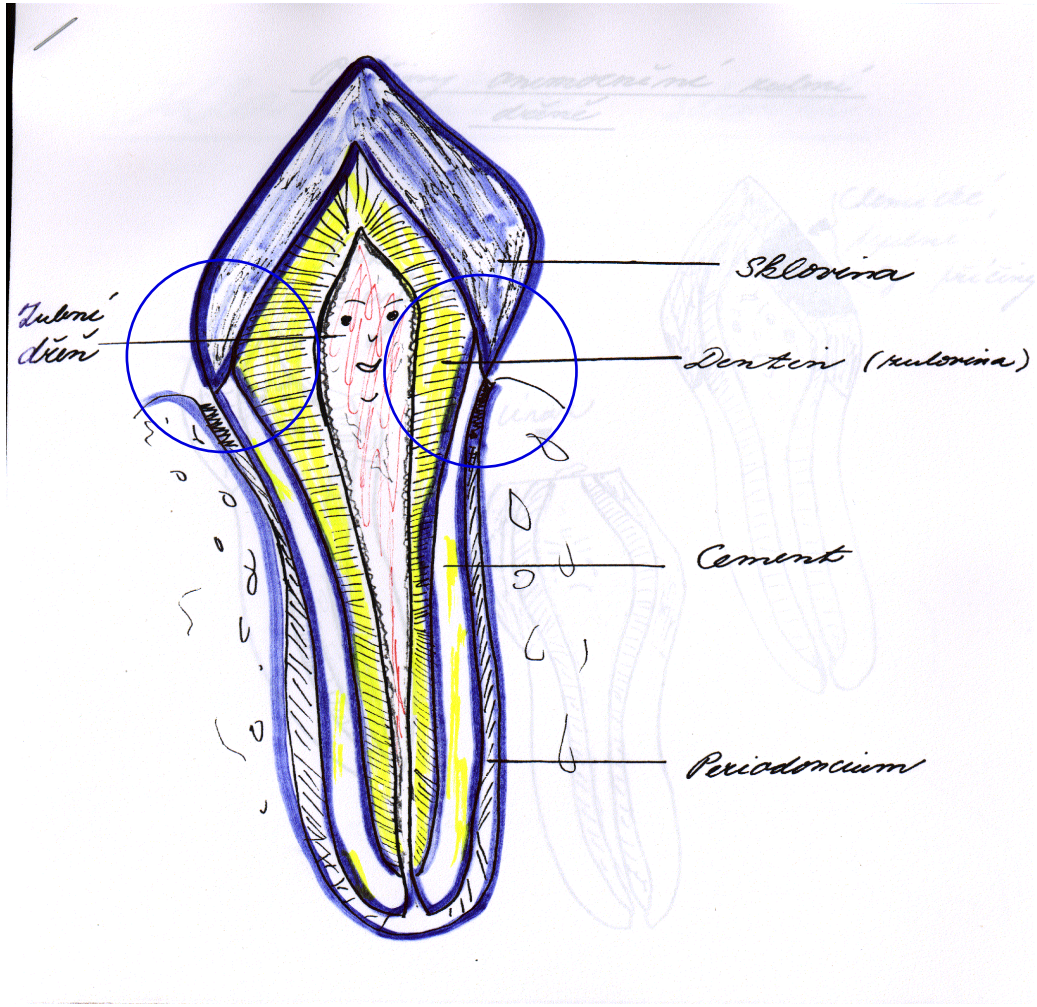
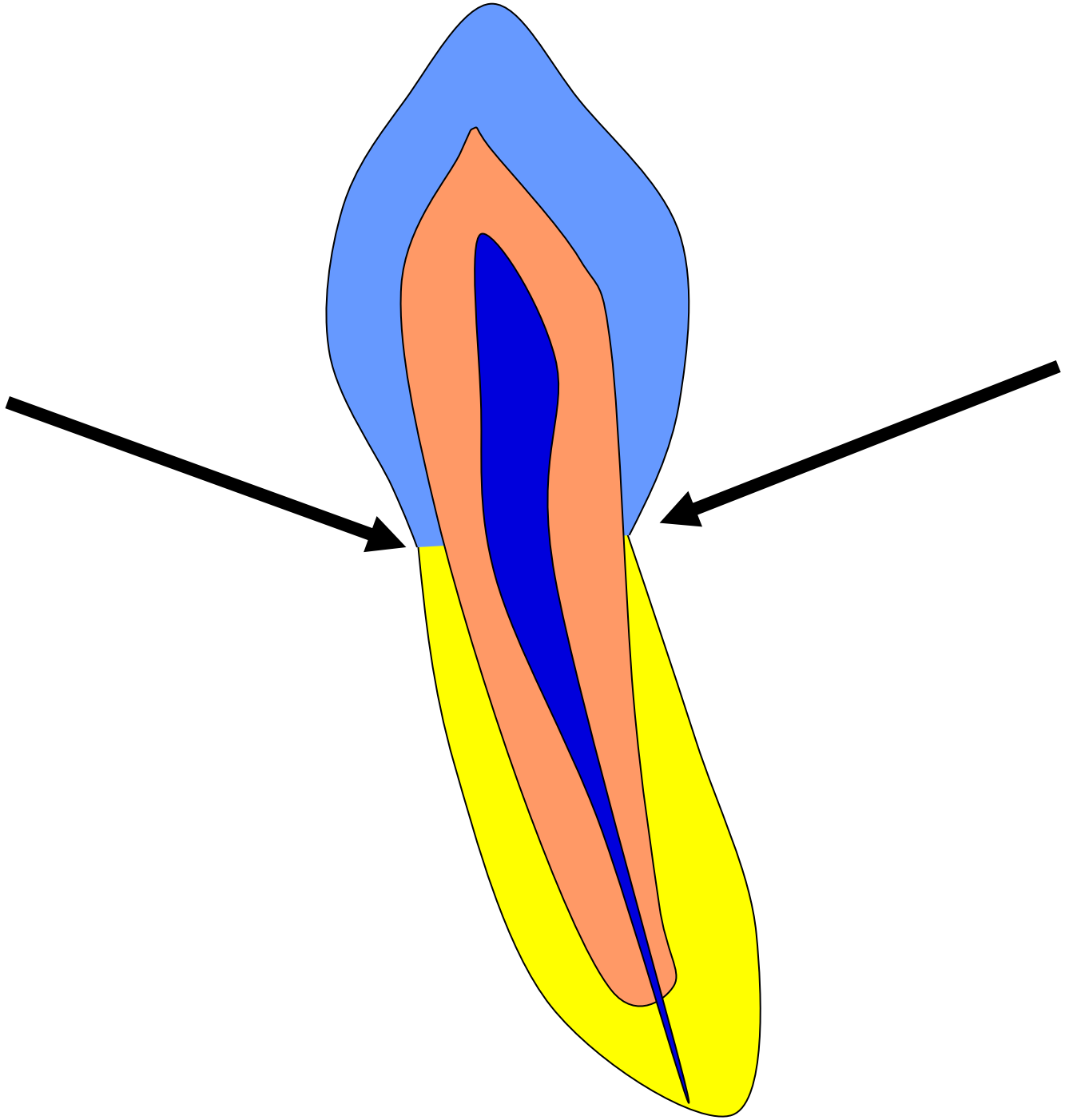
Ordering of the dental tissues

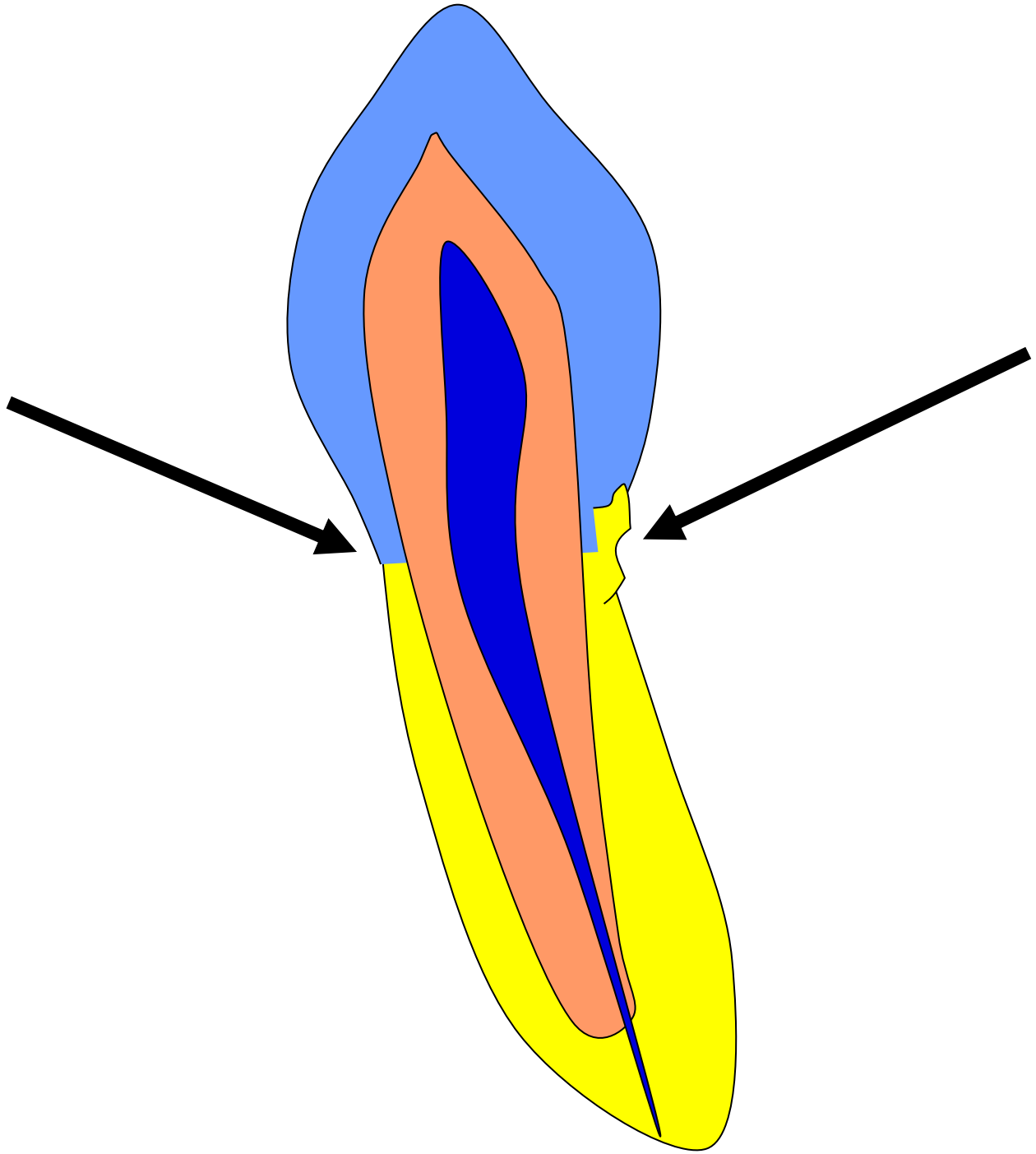


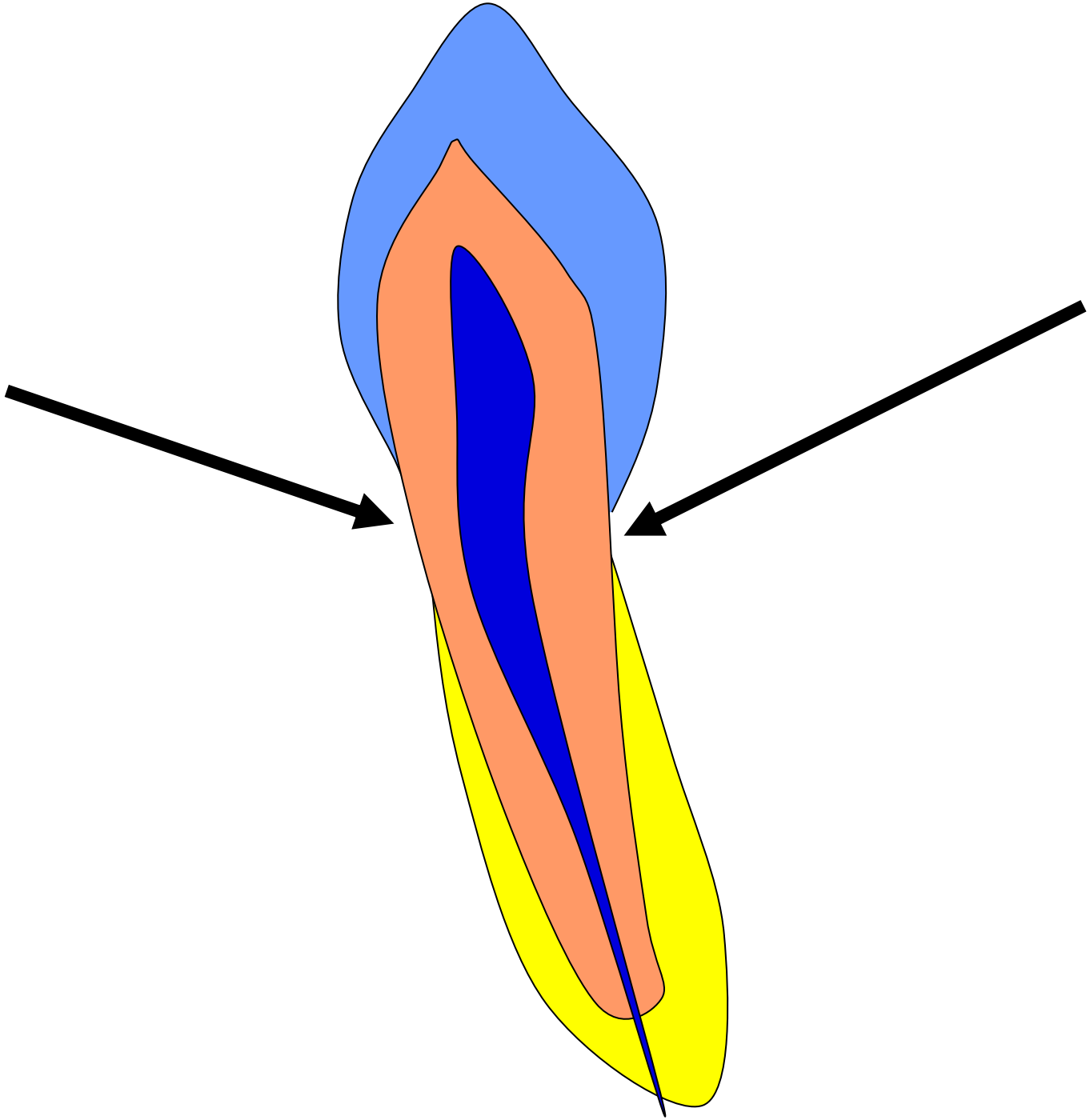
On the surface can be

Enamel
Cementum
Dentin

Risk of opening of the pulp chamber

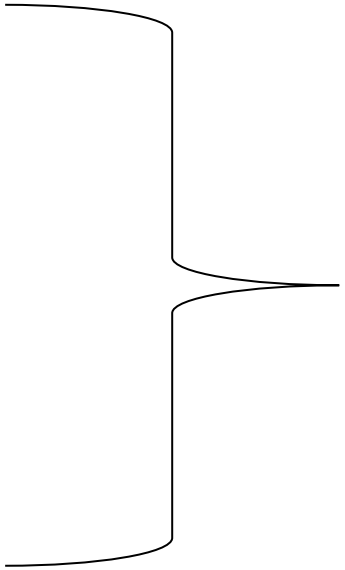






Types of defects

- Caries
- Erosion
- Abrasion
- V shaped defects



Non carious lesions

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Dental caries

Abrasion

Non correct technique of toothbrushing
Hard toothbrush

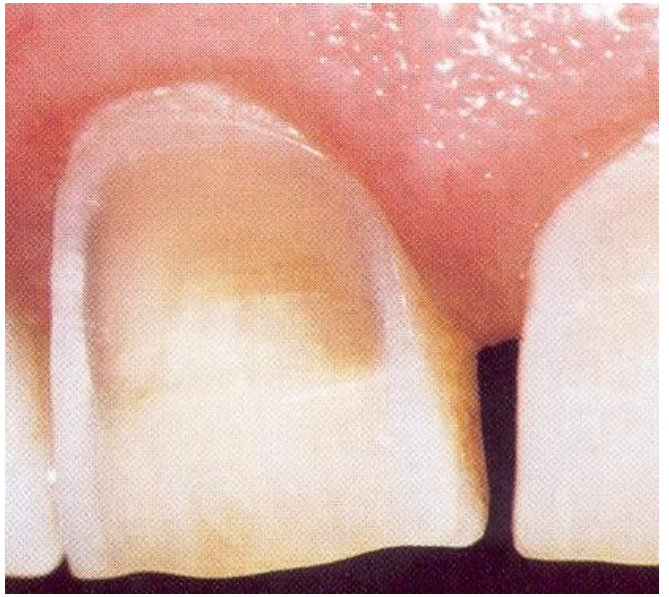
Erosion

Erosion

Acidic food, beverages,medicaments

Gastric acid (reflux)

Combination with abrasion



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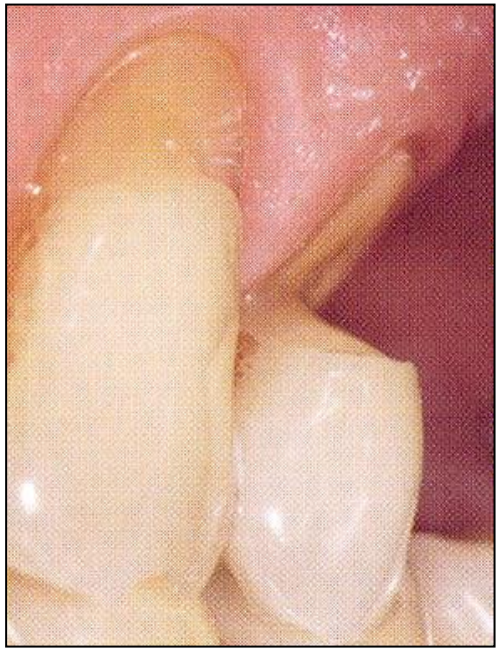
V shaped defects



– Typical defects V – shape

Abfraction

(elastic deformation by occlusal loading, dentin is more elastic, enamel loses support – fracture of microscopic particles).

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Materials

- Amalgam
- Composite
- Glassionomer

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V.Class Amalgam

- Posterior area

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V.Class Amalgam - indication

- Posterior area
- Esp. Lower level of oral hygiene
- Patient does not want the aesthetic filling

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V.Class Amalgam - contraindication

- Frontal area
- Excellent level of oral hygiene
- Allergy
- Children (age15)

Pregnant women

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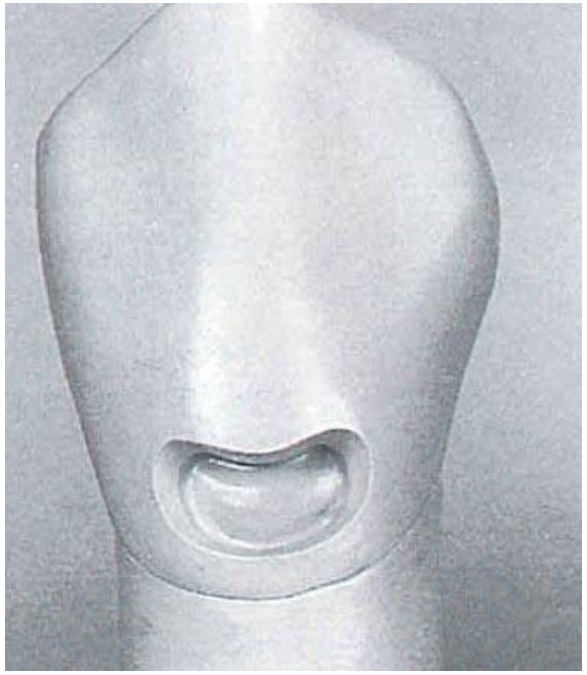
Cavosurface margin - extention for prevention

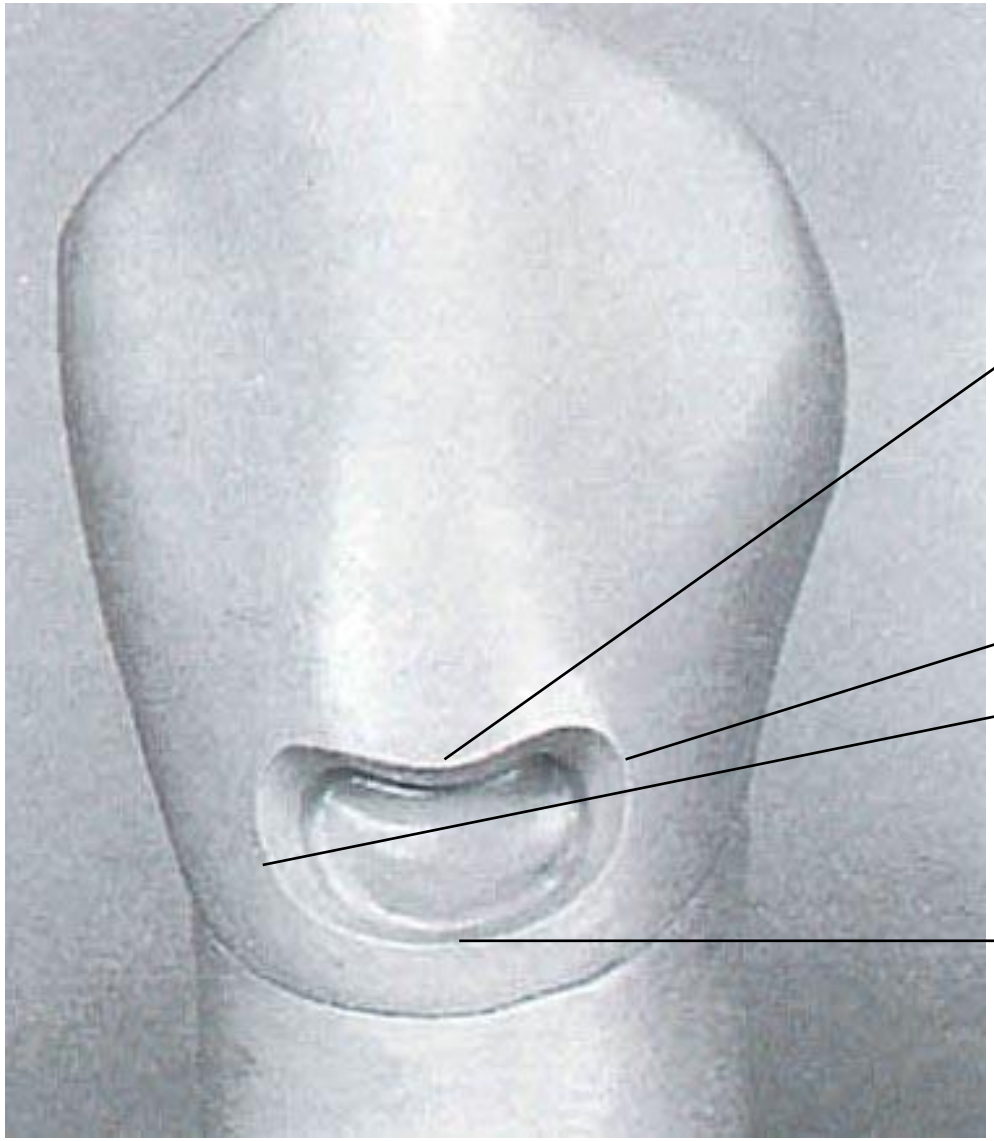
Gingivally: 0,5 below the gingival border

Incisally below the maximum convexity

Mesially and distally – till axial walls

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




Incisal (occlusal)border
Mesial
snd distal
border
Gingival border

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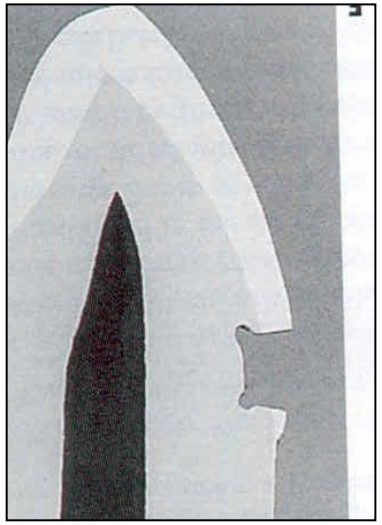
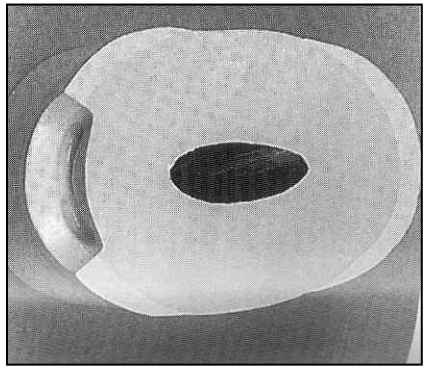
Retention

- Box 0,75 – 1,25 mm deep, undercuts,

  coves (larger cavities)





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Excavation of carious dentin

Round bur, slow rpm (3000)

Excavator

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Finishing of cavity borders

- Fine diamond bur

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Filling

- Portion of amalgam are condensed using a condensor (stamen) and finished using a spatula or a carver.

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Class V. composit

- Aesthetic area

Class V. composit indications

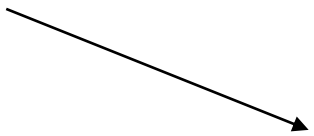
- Aesthetic area

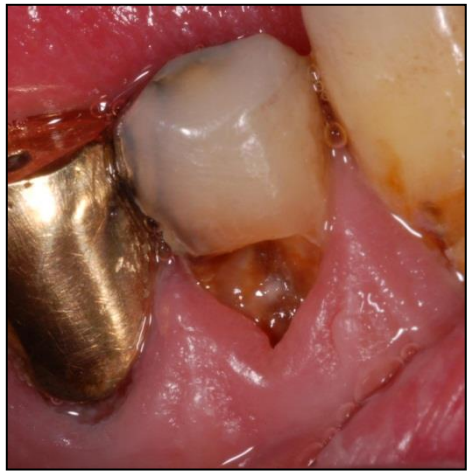
– Cavities in enamel

– Excellent level of oral hygiene

Class V. composit, contraindications

- No dry operation fiels
- Subgingival defects
- Malhygiena
- Root surface caries





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Access

- Directly from vestibular or oral side
- Removal of undermined enamel
- Gingivoplasty and gingivectomy
- Temporary filling if necessary to push gingiva out

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Cavosurface margin and extention for prevention

Gingival: supragingivally

Occlusally: below the maximum convexity

Mesially, distally: acc to size of the caries lesion

Total dephth: appr. 1 mm.

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Excavation of carious dentin

Round bur

Excavator

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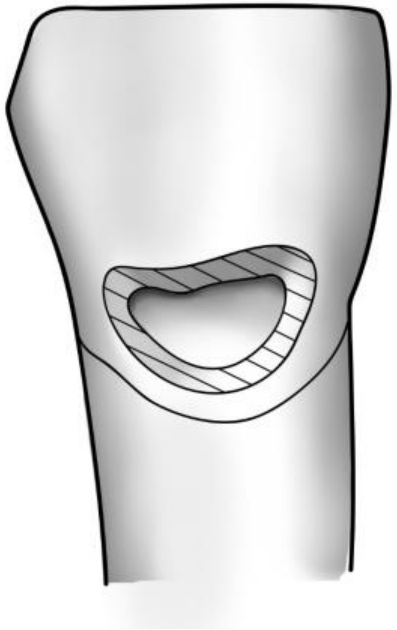
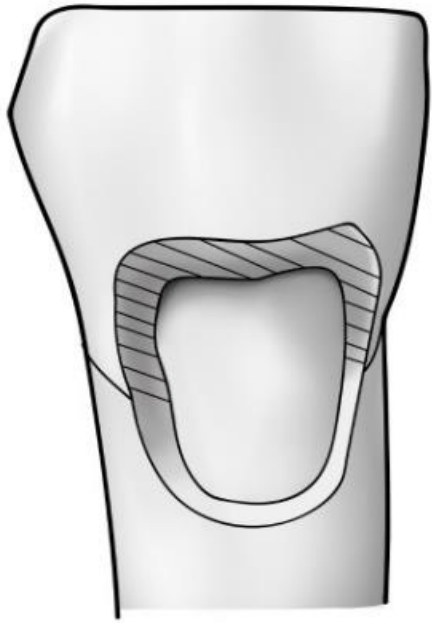
MED

Cavity in enamel - bevel

Completely



Partly



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Retention (micromechnical)

Enamel must be beveled (removal aprismatic enamel, good conditions for acid etching)

Acid etching (35-37% phosphoric acid)

20-30 s in enamel, 10 s in dentin

Washing

Priming, bonding – disperse with air syringe, curing

Placement of the composite material

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Matrices

Anatomical form

Good curing

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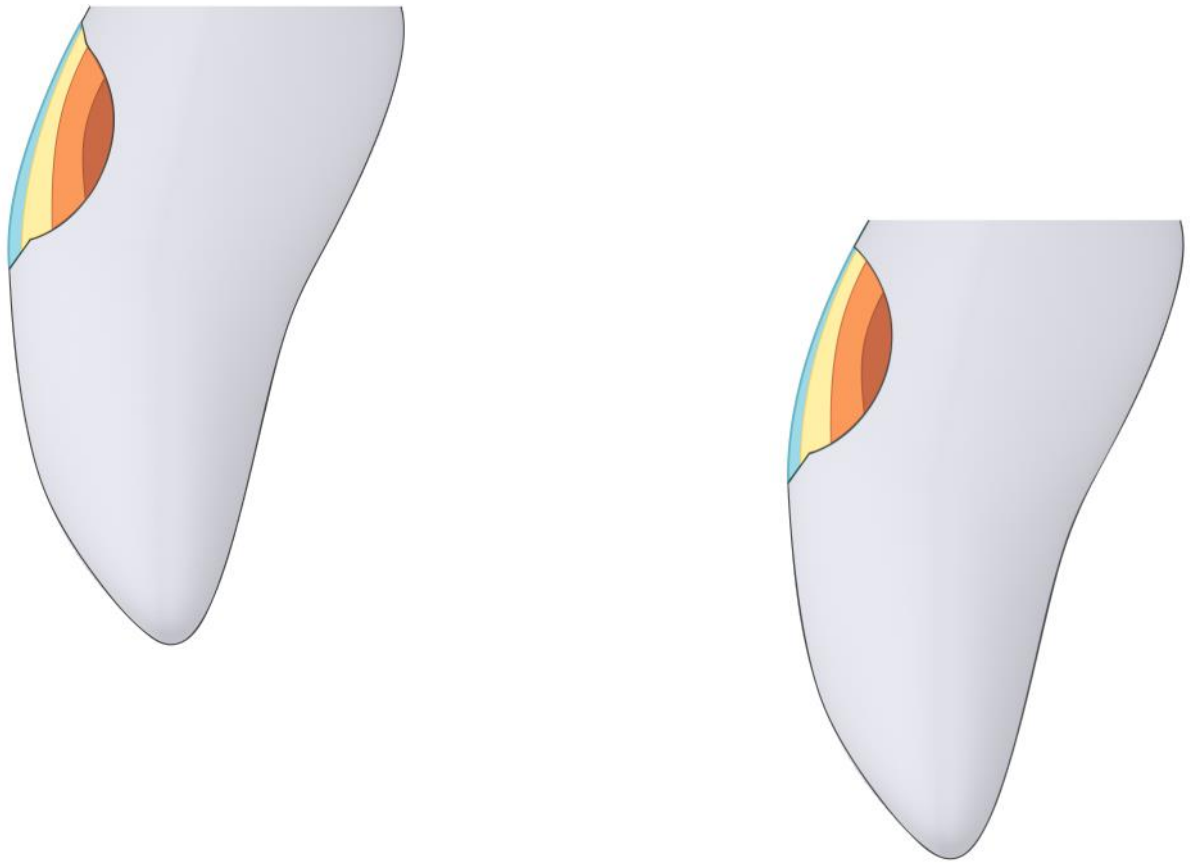

Class V. Glassionomer

– Indication:

- Cavity out of enamel (root rurface caries)

- Not optimal level of oral hygiene

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Class V. Glassionomer

– Contraindication:

- Cavity out of enamel (root rurface caries)

- Not optimal level of oral hygiene

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Glassionomer – benefits

- Chemical binding to hard dental tissues
- Realeasing fluoride ions
- Thermal expansion similar to dentin
- Acceptable aesthetics

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Glassionomer –disadvantages

- Vulnerable during setting
- Nor strong mechanically

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Access

- Directly from vestibular or oral side
- Removal of undermined enamel
- Gingivoplasty and gingivectomy
- Temporary filling if necessary to push gingiva out

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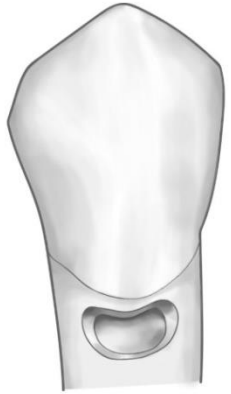
Cavosurface margin and extention for prevention

Preparation limited on caries lesion



Retention

- Box
- Chemical

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Resistance

No occlusal loading

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Excavation of carious dentin

Round bur

Excavator

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Finishing of the margin

- Smoothening using red coded diamond

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Filling

- Conditioner 20 s
- Washing off
- Wet cavity
- Filling material
- Matrix
- Varnish

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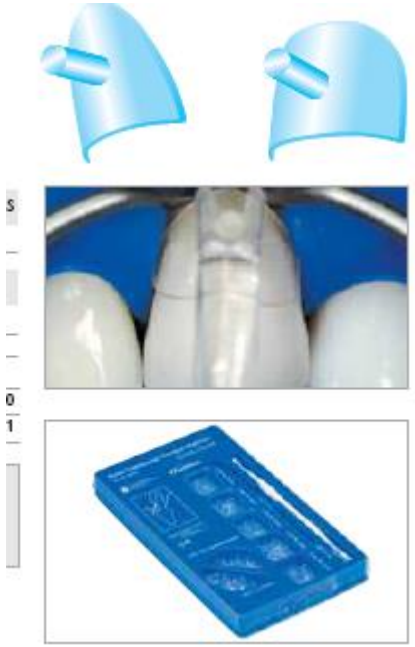
Matrices for glassionomer cement



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Class V. – Sandwich filling

Base of galsionomer – replace of the lost dentin

Thin layer of composite – replace of the lost enamel

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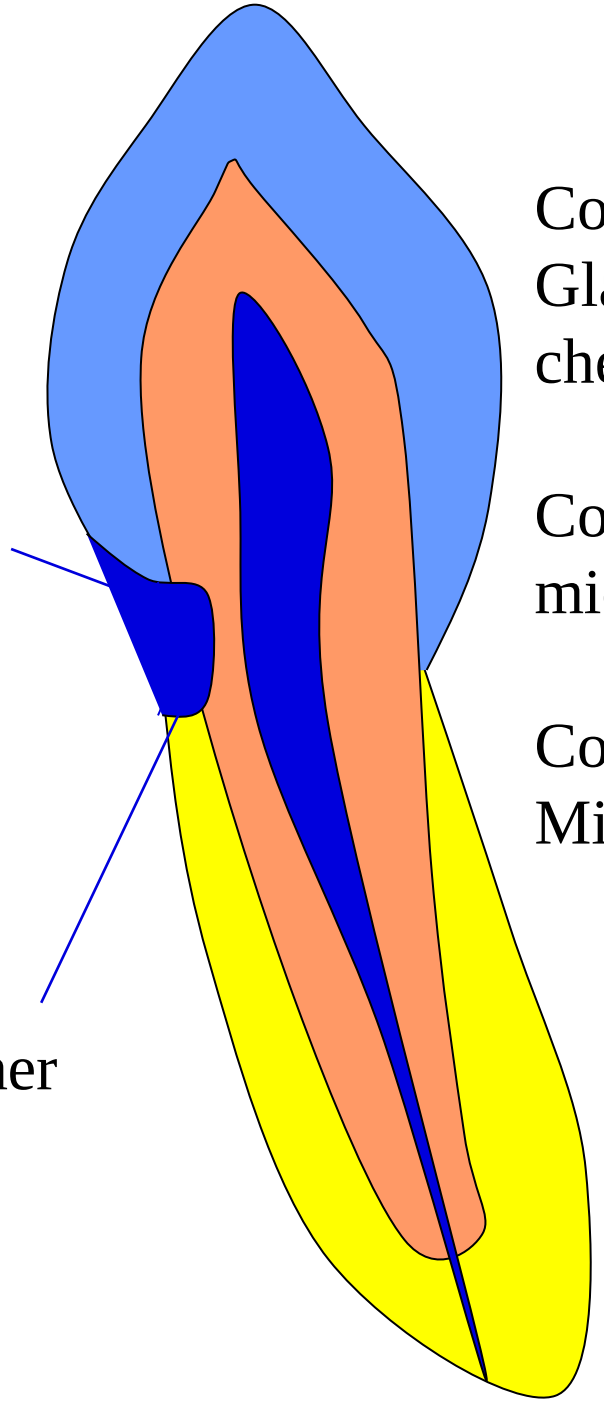
Composite

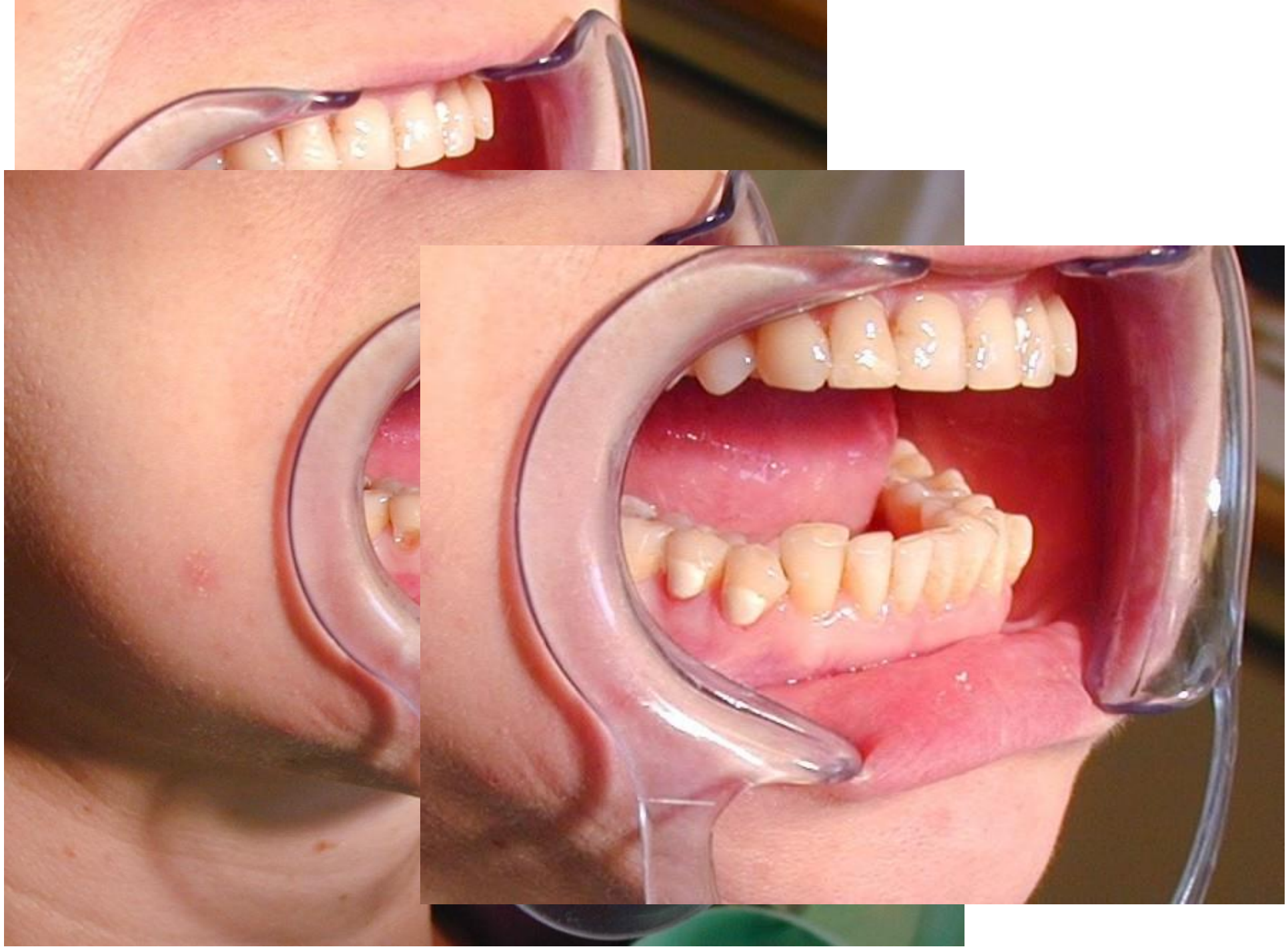
base of glassionomer



Connection
Glassionomer – tooth:
chemical

Composite – tooth:
micromechanical

Composite – glassionomer
Micromechanical.



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Access Into The Cavity

– 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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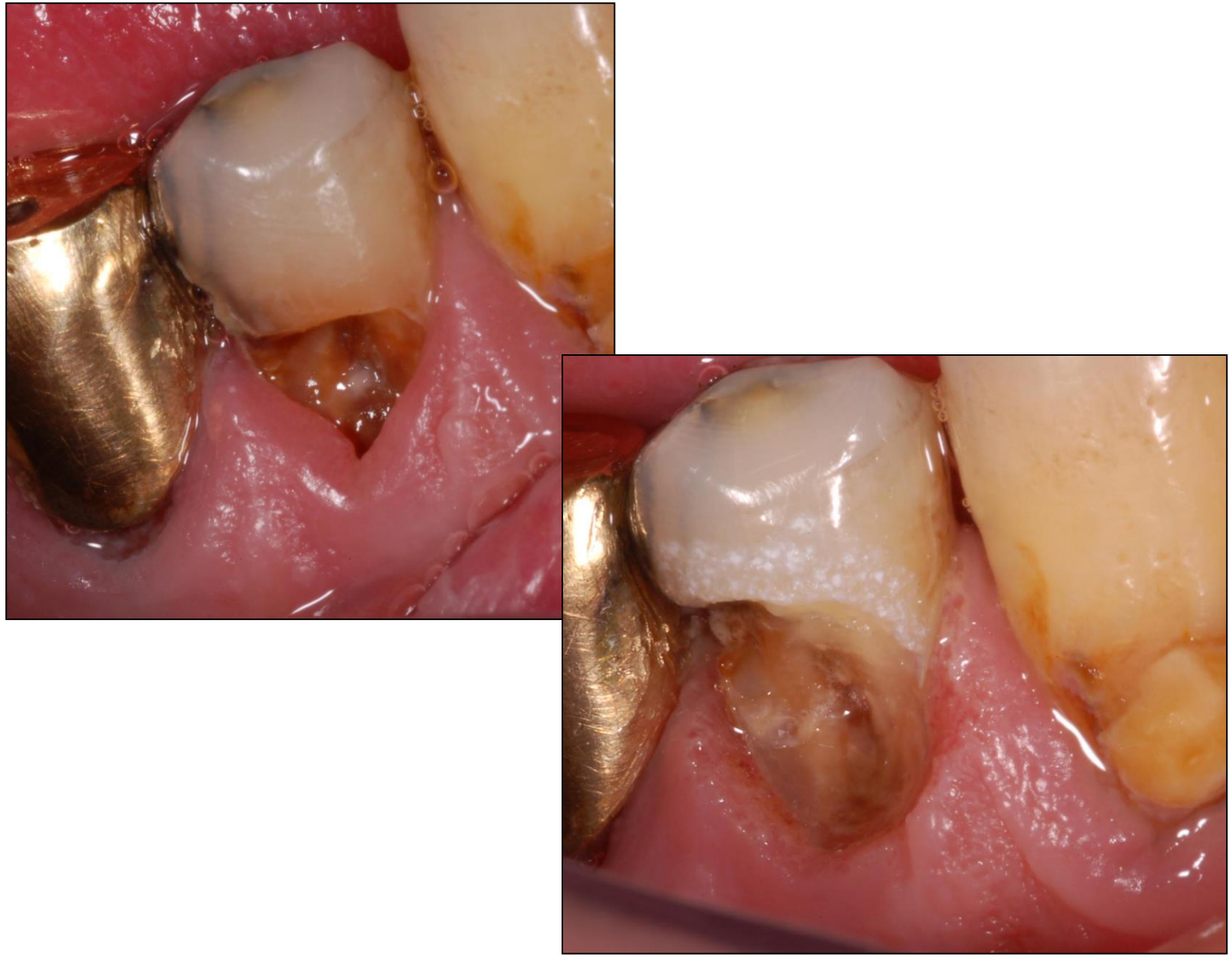


V.Class Amalgam

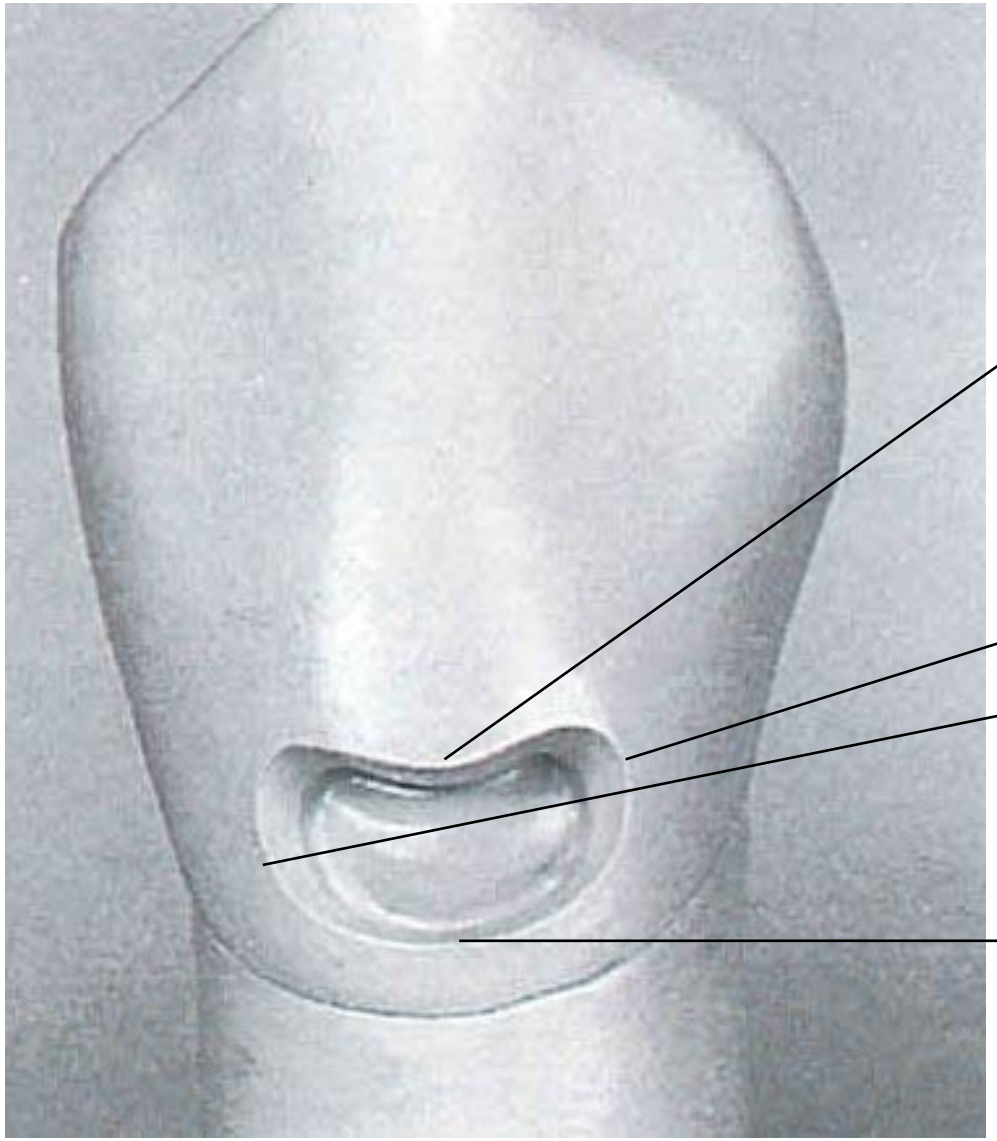
- Posterior area

Determination of cavity borders and extention for prevention

We do not follow Black´s rules exactly!

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

Extention of the preparation incisally, gingivally, mesially and distally untill the cavosurface margins are positioned in sound dental



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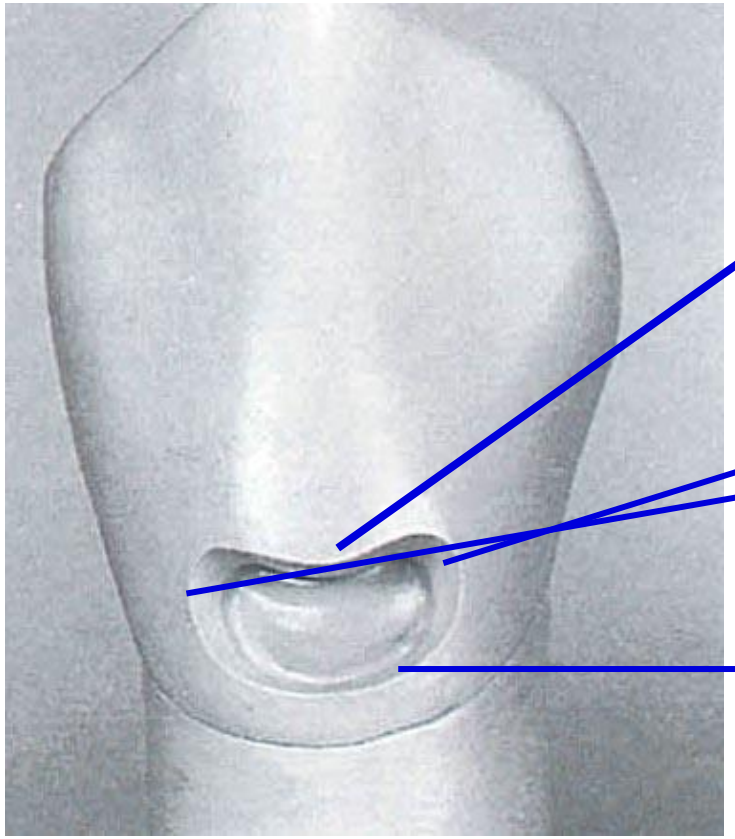

Occlusal border

mesial and distal border

Gingival border

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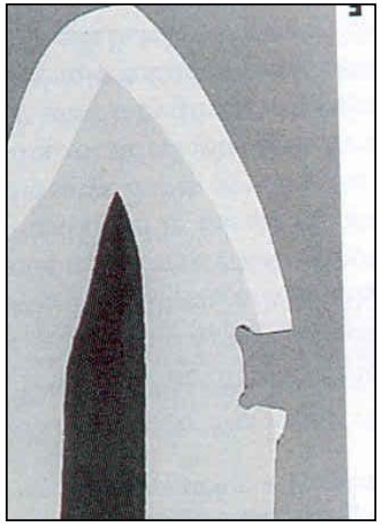
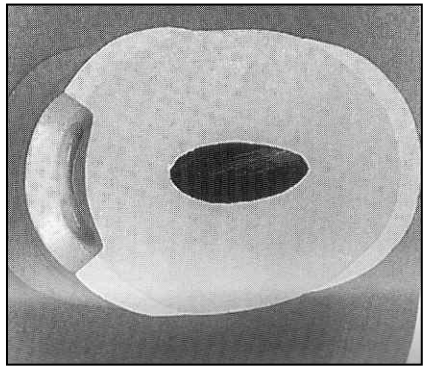
Retention

- Box 0,75 – 1,25 mm deep, undercuts,

  coves (larger cavities)





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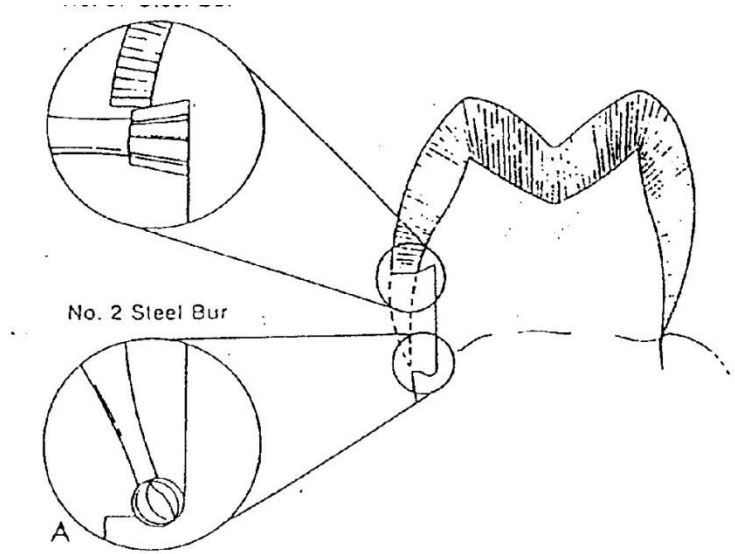
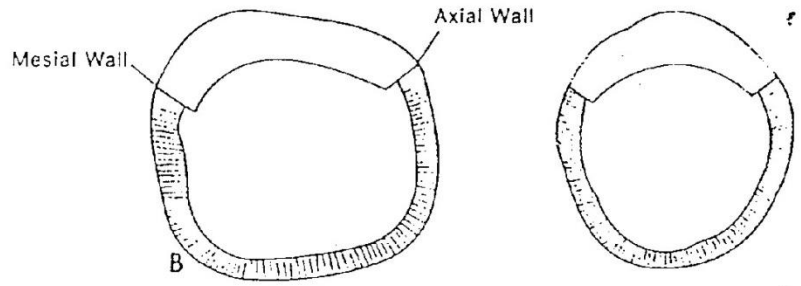
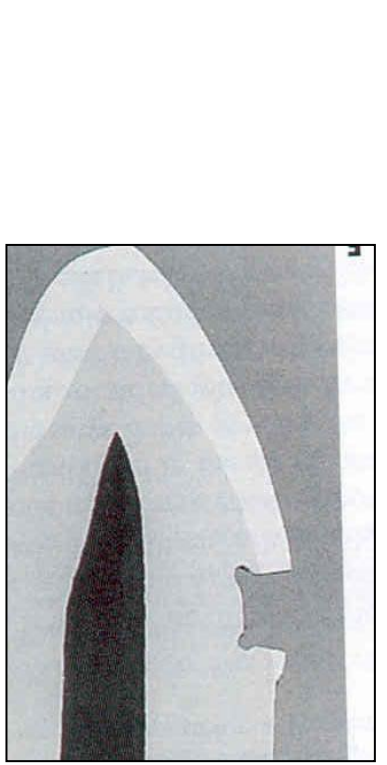

No. 2 Steel Bur
A


Axial Wall
Mesial Wall
B

Resistance

Elastic deformation during the biting



Class five - composïte

- Aesthetic reasons

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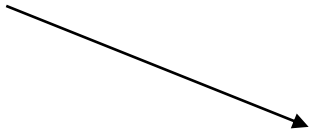
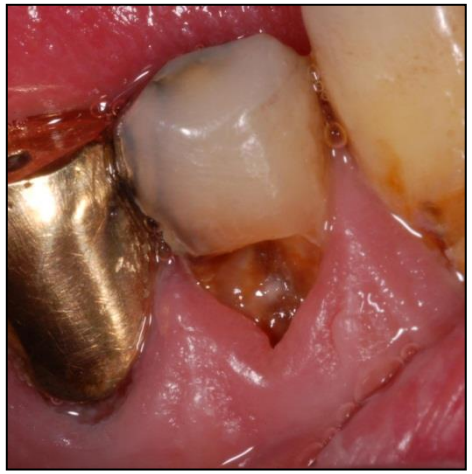
Contraindication of composites

- Bad hagiene
- Subgingival cavities
- Root caries (outside of enamel)





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Access Into The Cavity

– 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)

Composite must not be subgingival!!!!

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Determination of cavity borders - cavosurface margin

Cavity is limited on the caries defect only – no extention!!!!

The depth usually 1 mm

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Retention

- Micromechanical retention

Enamel: Retentive border – 1 – 2 mm wide and the angle 45°

Cementum: only finishing with the fine diamond bur.

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Retention

Retentive border:

- removing of the aprismatic enamel

↓

– better condition for micromechanical retention

- better aesthetics

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Retention

Acid etching (phosphoric acid): 30 s dentin,

30 s enamel

Rinsing (washing off) 30s

Priming, bonding, light curing.

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Filling

Spatula

Matrix

- Polyester strip, wooden wedges
- Special cervical matrix

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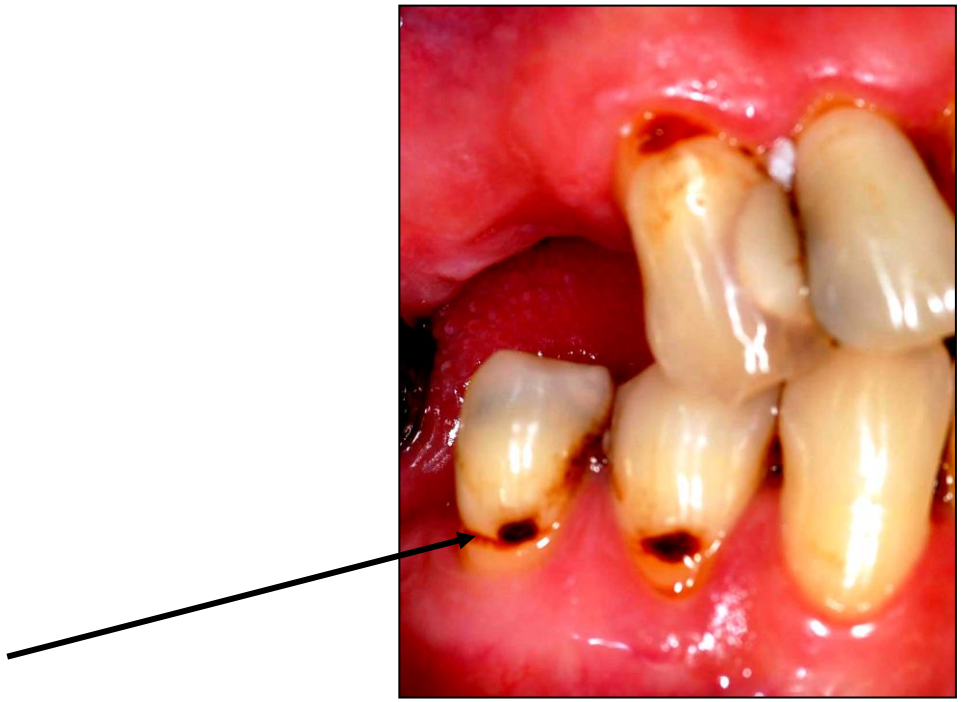
Matrix

Anatomical form

Class five - glasionomer

– Cavity outside of enamel



Properties

- Chemical fixation to tooth structure
- Fluoride release
- Favorable thermal expansion
- Aceptable aesthetics

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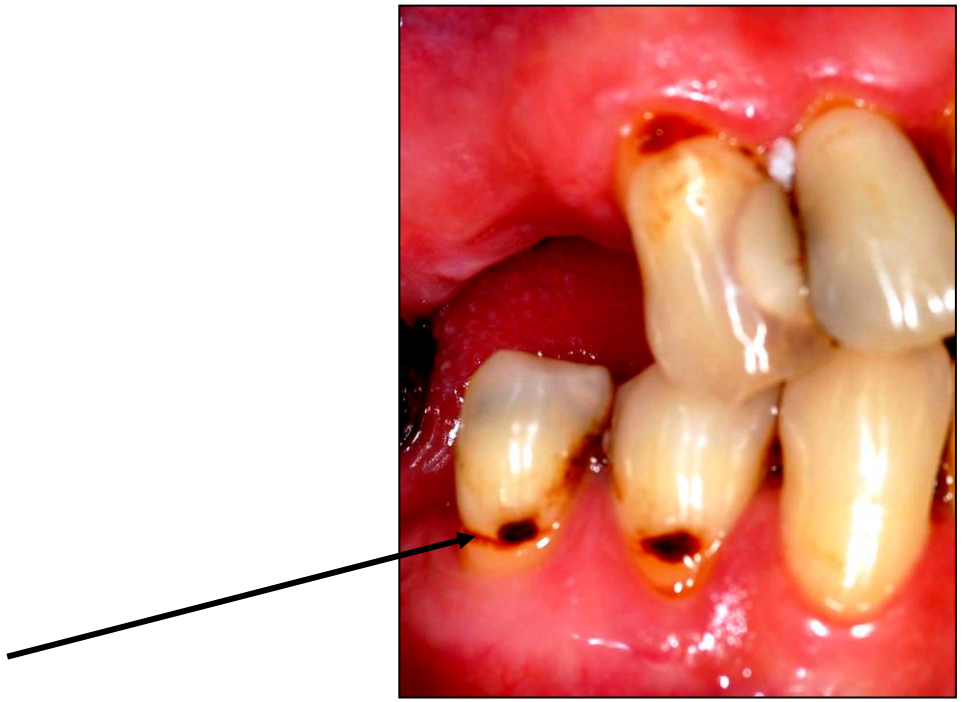
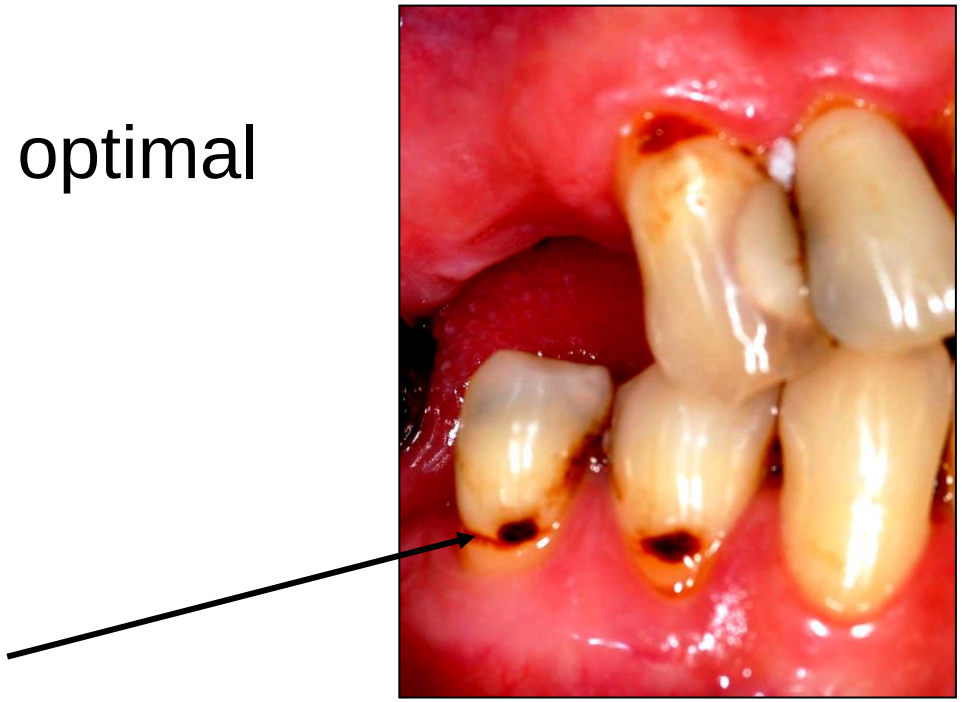
Class five - glasionomer

– Cavity outside of enamel



Class five – glasionomer indications

- Cavity outside of enamel – root surface caries
- Other caries and defects
- When oral hygiene is not optimal



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Cavosurface margin

Cavity is limited on the caries defect only – no extention!!!!

The depth usually 1 mm

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Retention

- Box

- Chemical

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Finishing of cavity borders

Fine diamond bur

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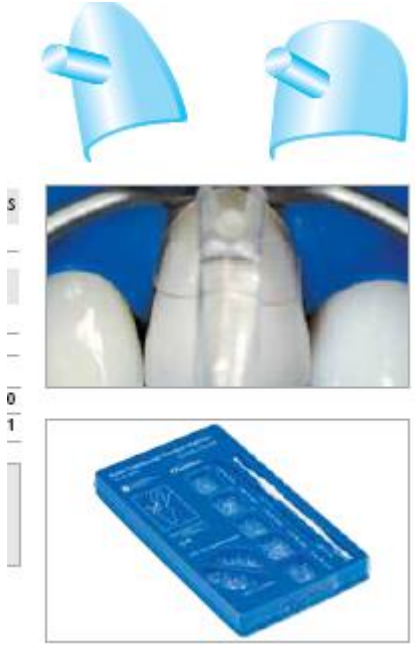
Matrices for glassionomers

- Cervical transparent matrices with the holder for lightcuring composites and glassionomers



Preparation for glassionomer making filling

- 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)

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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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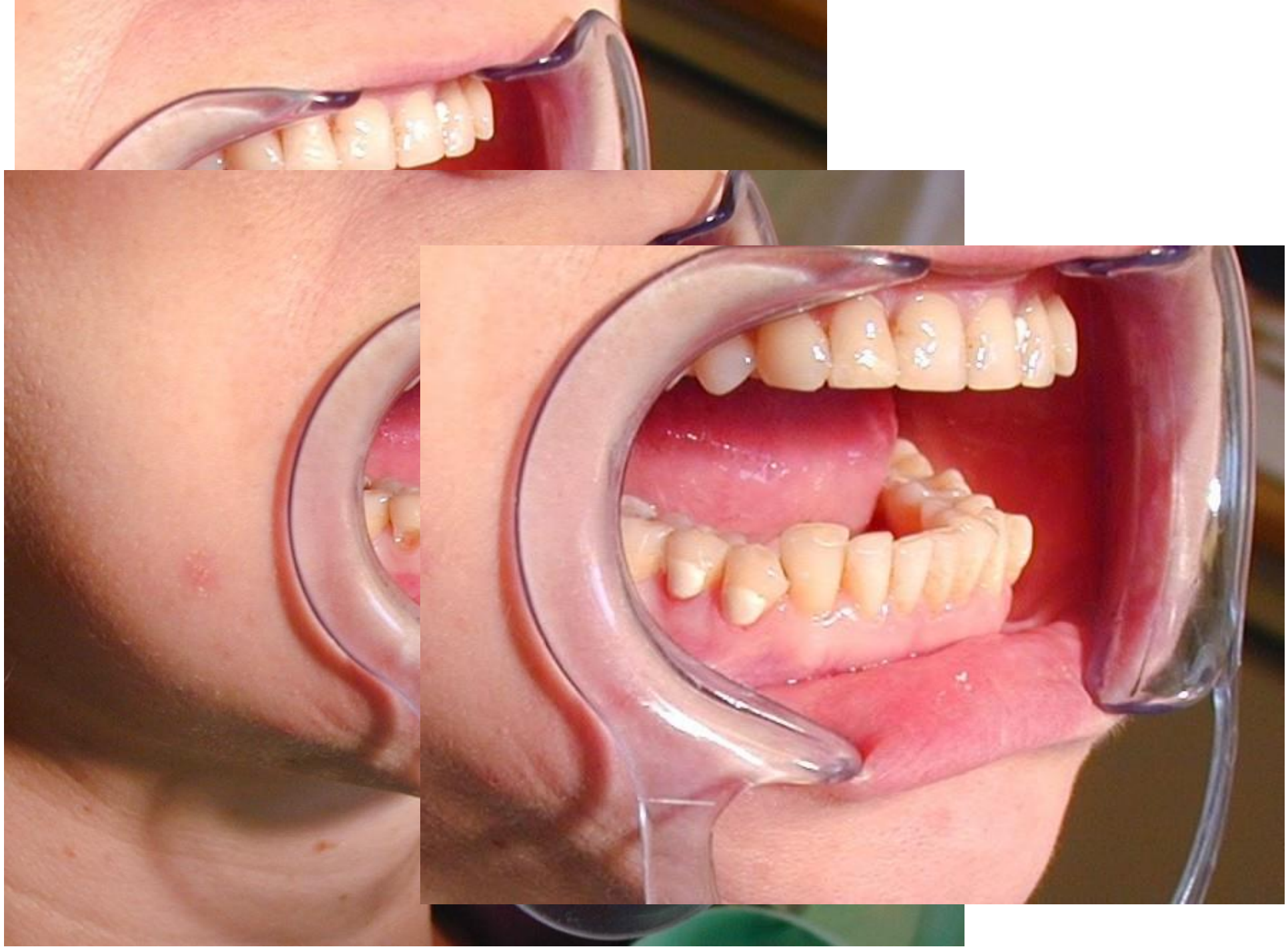

Class V. – Sandwich filling

Base of galsionomer – replace of the lost dentin

Thin layer of composite – replace of the lost enamel

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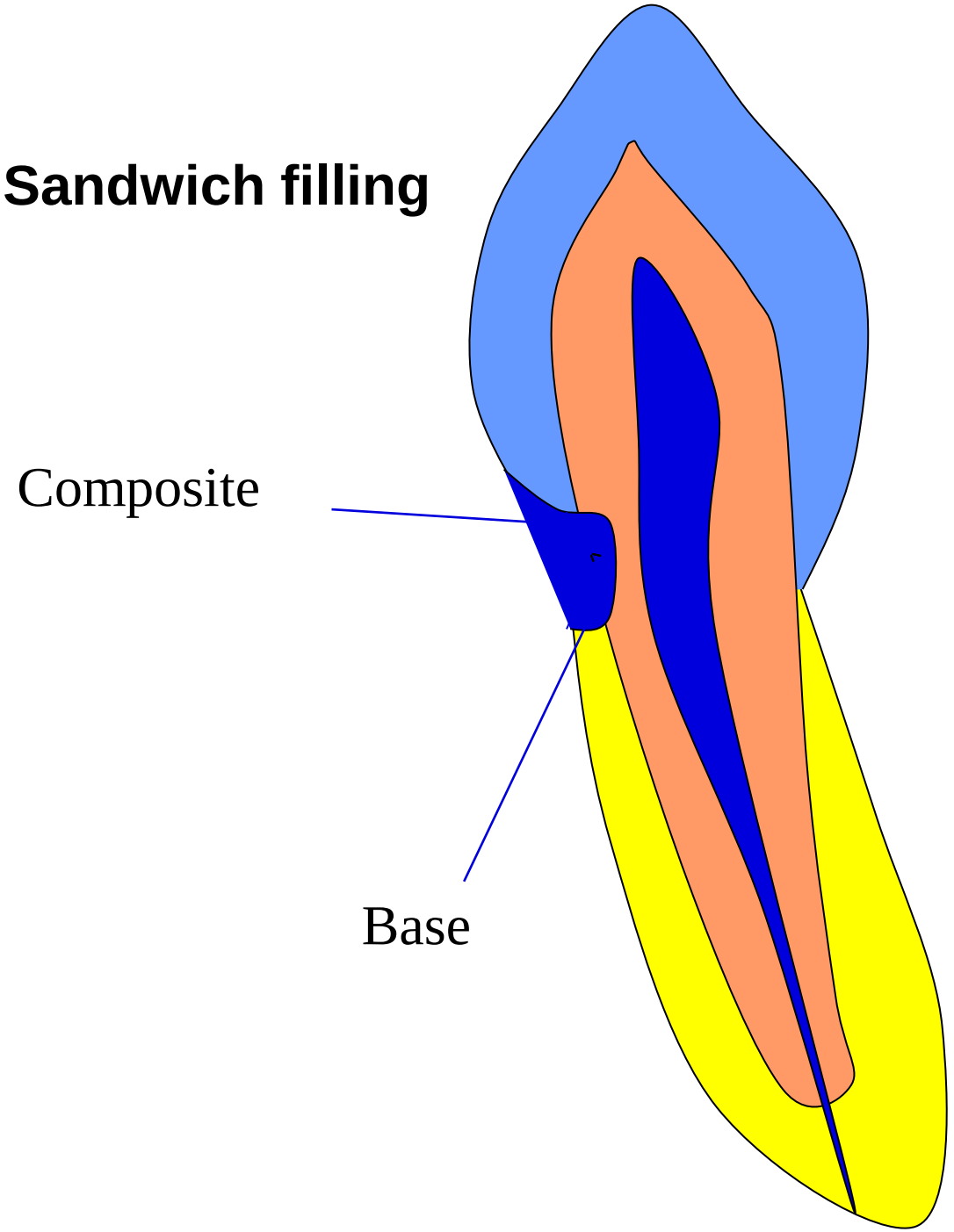
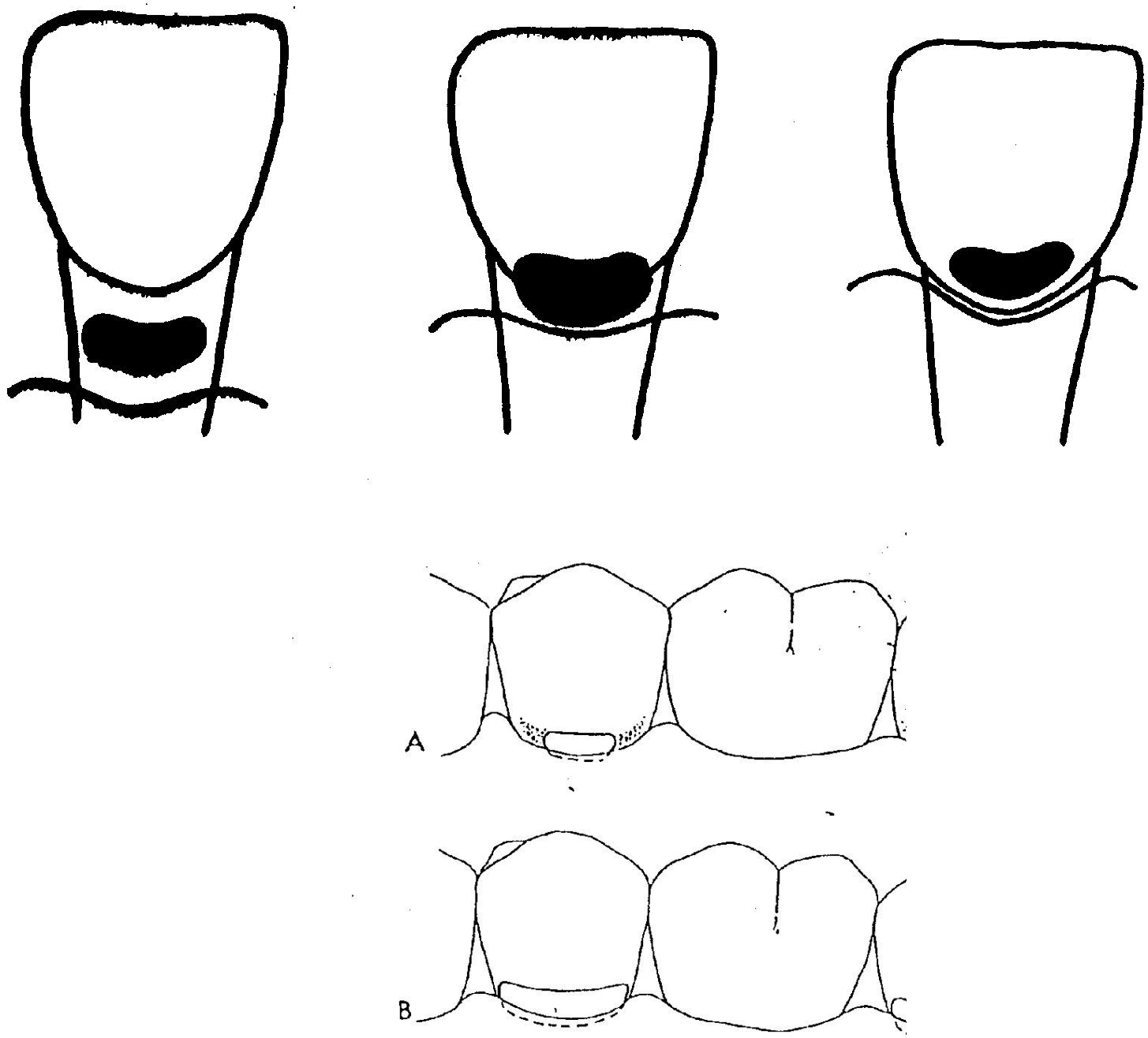
Sandwich filling

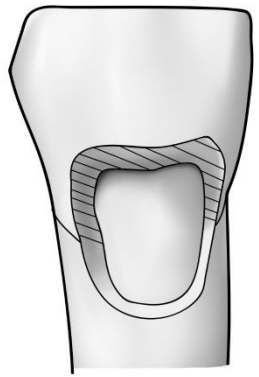


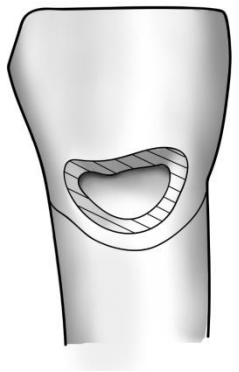
Bond:
GIC - Tooth
Chemical

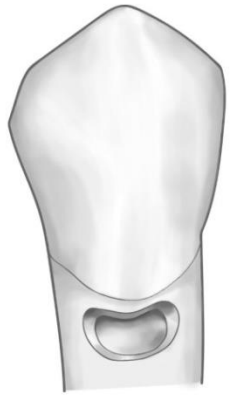
Composite – Tooth
Micromechanical

Composite - GIC
Micromechanical


A
B







Management of subgingival cervical defects

- Retraction cord
- Liquid dam
- Rubberdam with retraction clamp
- Gingivectomy

Retraction cord

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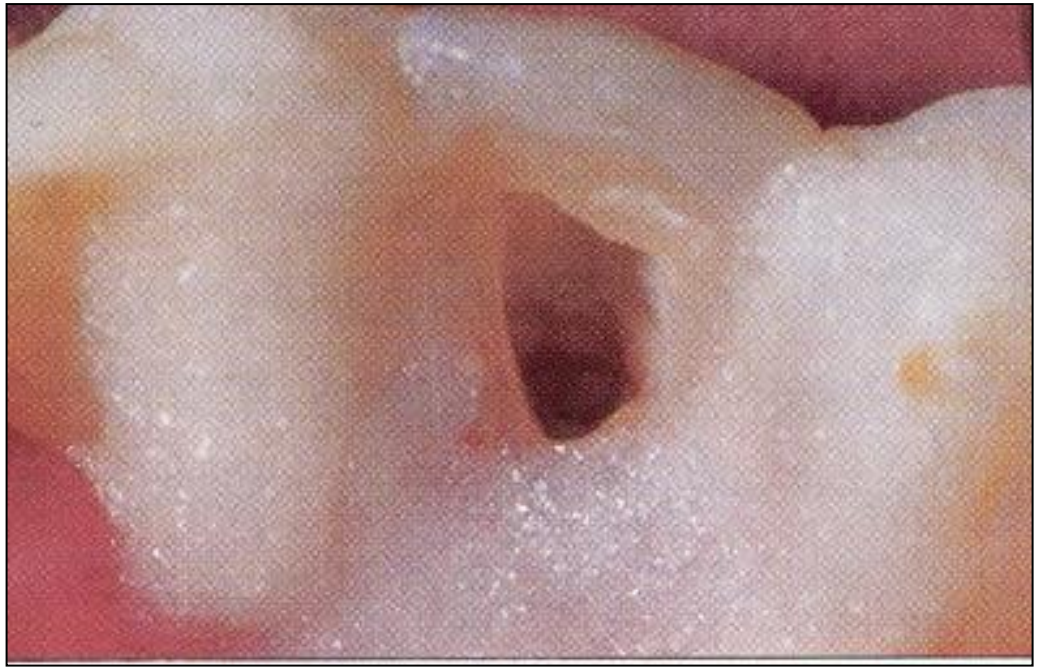
Liquid dam



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