

Pit and fissure caries

Occlusal surfaces of premolars and
molars

Foramina coeca

All pit and fissure restorations (fillings)

They are assigned in to three groups.

R. on occlusal surface of premolars and molars

R. in foramina coeca – usually on occlusal two thirds of the facial and lingual surfaces of molars.

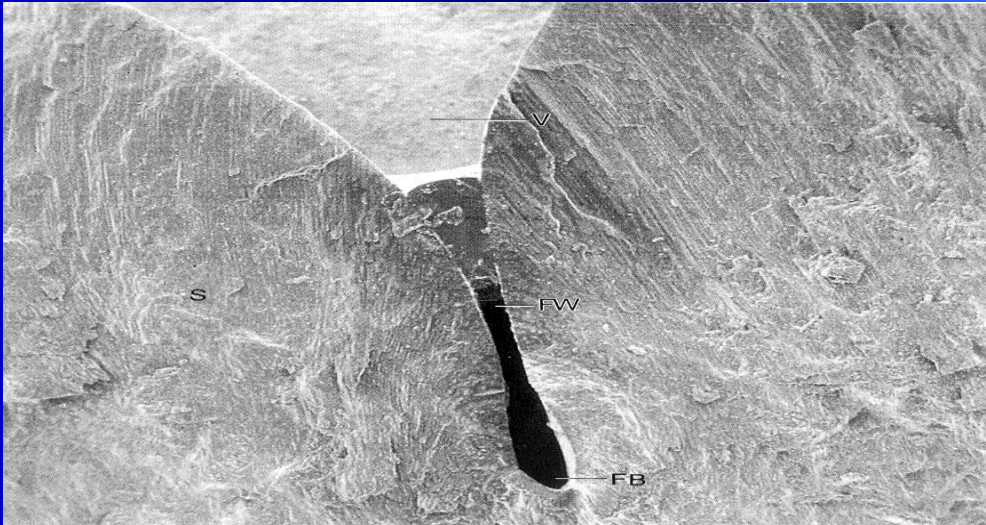
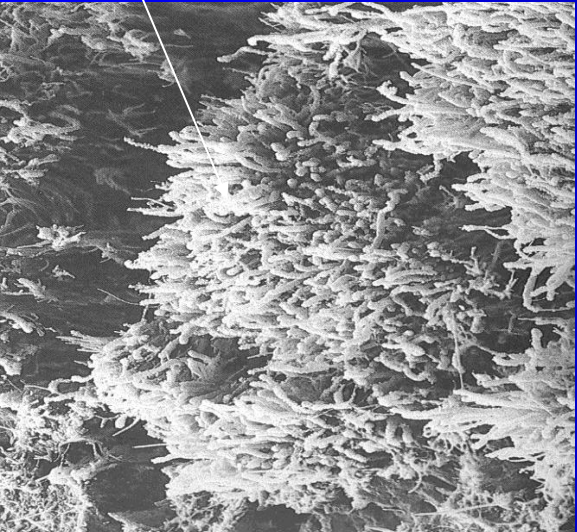
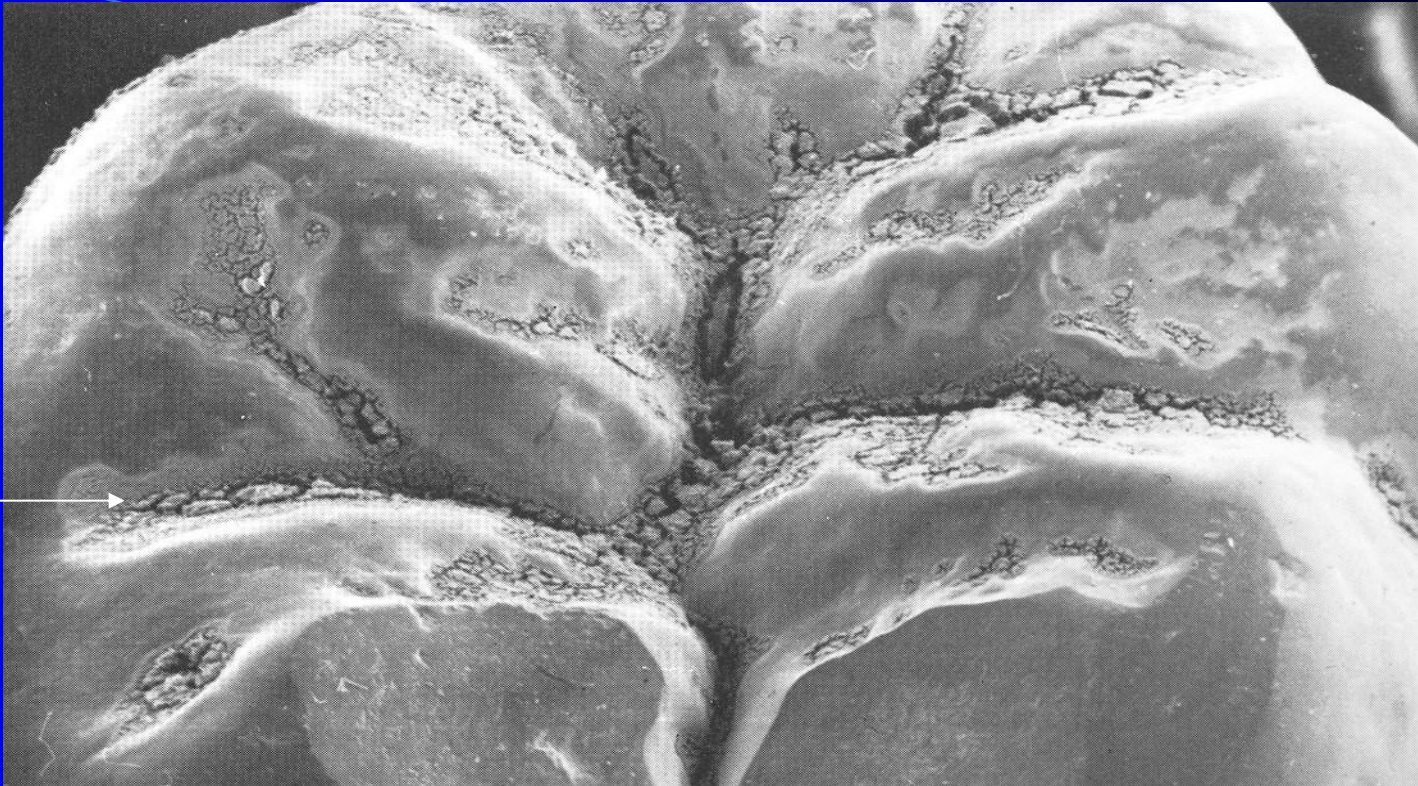
R. on lingual surface of maxillary incisors.

Pits and fissures

- Caries danger areas – plaque accumulation due to morphology of fissures
- Structure of hydroxyapatite (carbonated HA) – enamel does not mature completely

Morphology
of fissures

Biofilm





















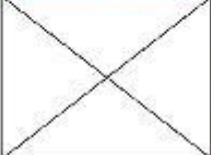


Diagnosis

- Visual diagnosis – ICDAS, UNIWISS
- Infrared laser fluorescence (uncertain)
- Radiogram – if it spreads to dentin
- Diagnocam (uncertain)

Clinical picture

- Dark colour
- White colour (undermined enamel) around cavitation

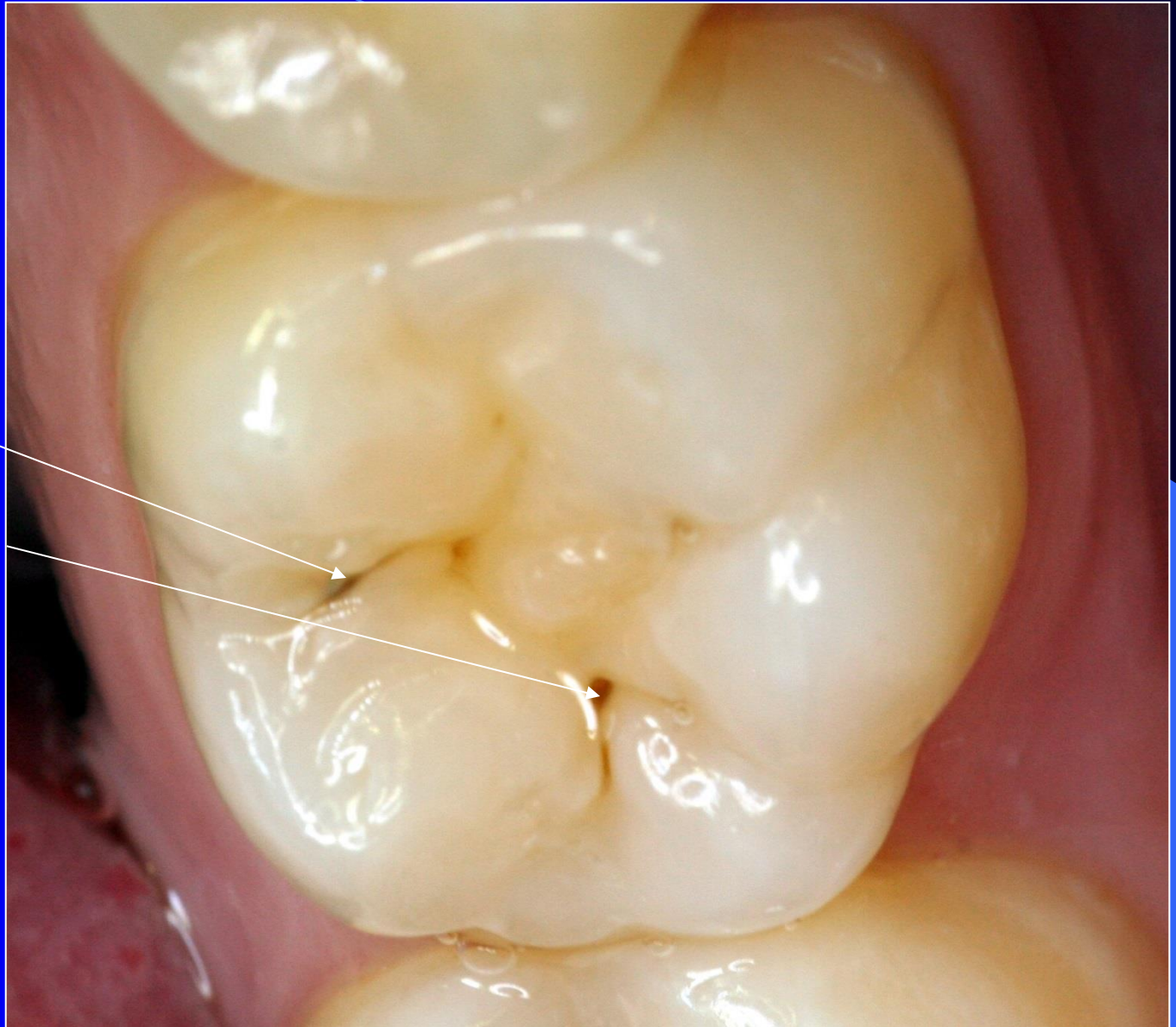
Universal Visual Scoring System for pits and fissures (UniViSS occlusal)

Second step: Discoloration Assessment	First step: Lesion Detection & Severity Assessment					
	First visible signs of a caries lesion	Established caries lesion	Microcavity and/or localised enamel breakdown	Dentin exposure	Large cavity	Pulp exposure
	Score F	Score E	Score M	Score D	Score L	Score P
Sound surface (Score 0)	No cavitations or discolorations are detectable.					
White (Score 1)						
White-brown (Score 2)						
(Dark) Brown (Score 3)						
Greyish translucency (Score 4)	X				X	X

Caries

ICDAS 1

ICDAS 2



- Pit and fissure caries

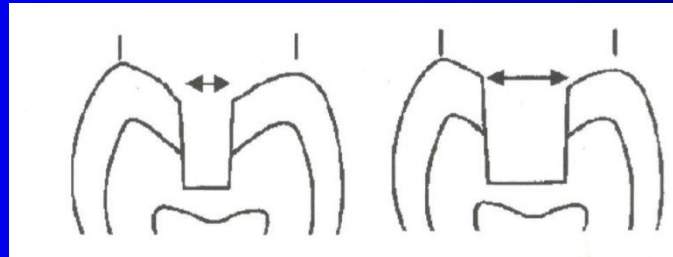


Treatment

- Non invasive ICDAS 0,1
- Minimally invasive ICDAS 2
- Invasive ICDAS 3,4

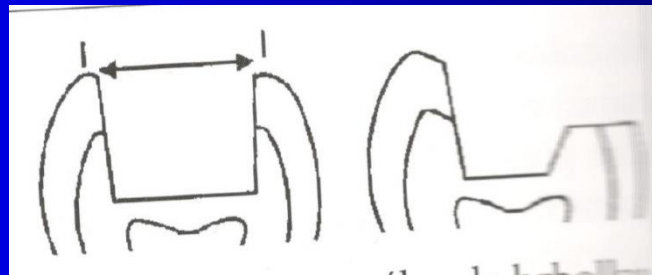
Fillings – small to medium lesions

- Composite – small to medium lesion (if indication)
- Amalgam is a material of second choice
- Metal or adhesive inlay can be used in medium lesions.



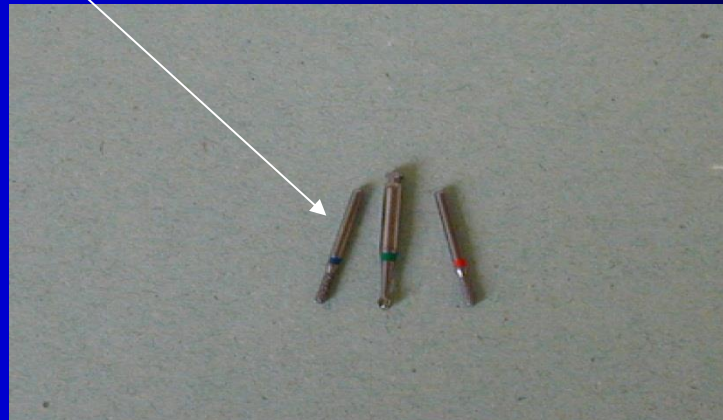
Fillings – large defects

- Adhesive inlay, metal inlay or onlay
- Amalgam filling with replacement of cusps
- Composit is not indicated (contraindicated)



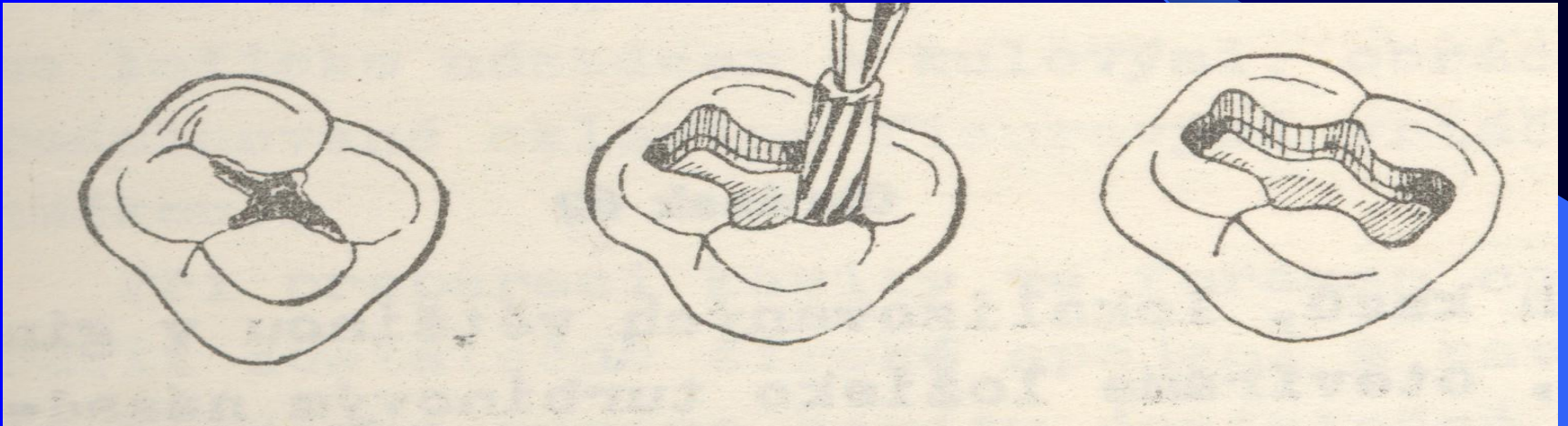
Access to the cavity

- From the occlusal surface using the fissure bur (or diamond burs, pear formed bur or cylinder).



Cavosurface margin for amalgam

- Ideal outline includes all occlusal pits and fissures. If crista transversa (1st lower premolar) or obliqua (1st and 2nd upper molar) are not affected, it is strongly recommended not to prepare them.



Upper jaw

Molars

M1

M2

M3



Crista obliqua

M1

M2

M3

Lower jaw

Box with undercut

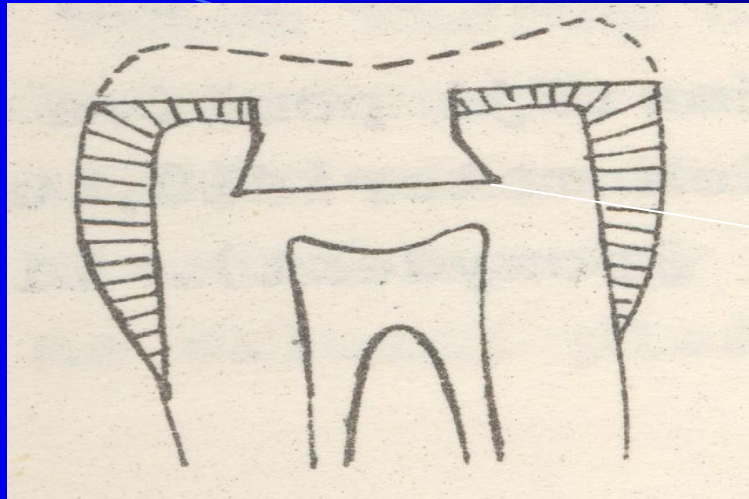


Retention principles

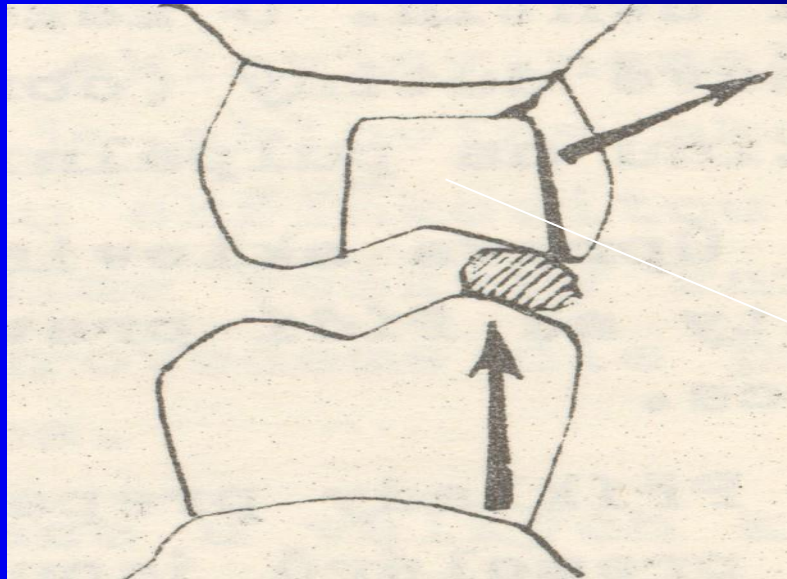
- Prepare the box – the bottom is in dentin
- Undercuts can be prepared!

Principles of resistance

- No undermined enamel left (proximal ridge should not be undermined!!!)
- No sharp edges
- The thickness of amalgam 2 mm



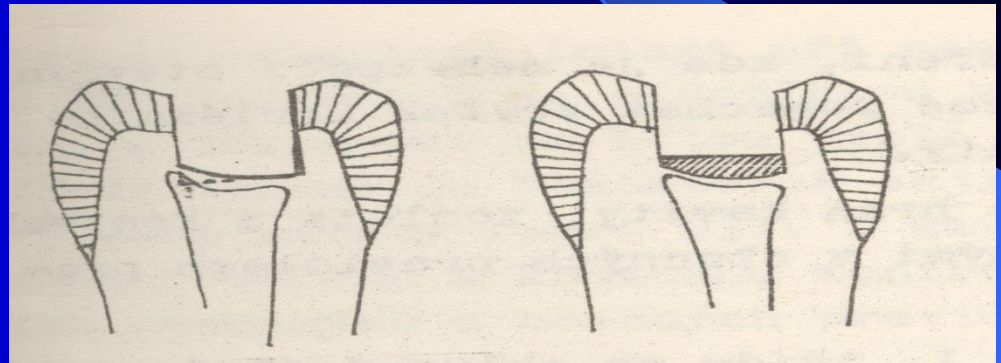
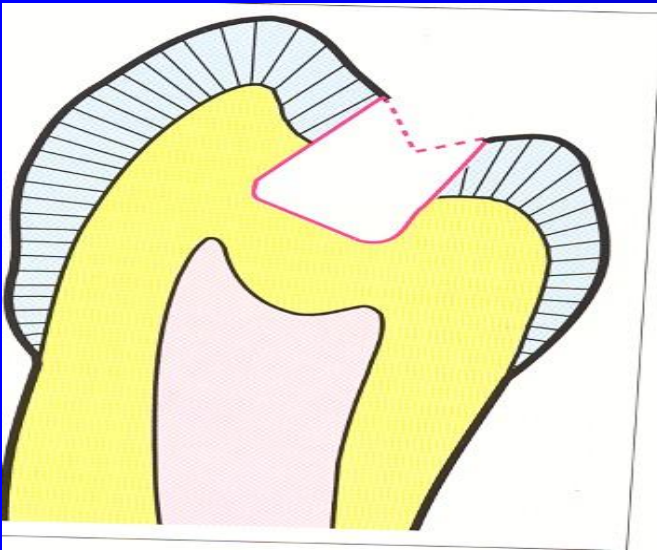
Sharp edges



Margin too next to cup

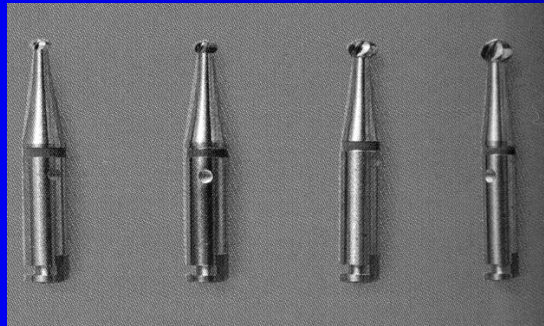
The pulpal wall and pulp chamber

Pulpal wall is parallel to the pulp chamber



Removal of carious, infected, dentin

- Spoon excavator or a slowly revolving, round carbid bur of appropriate size.



Protection of dentin wound

- Dentin wound should be covered – protection of dental pulp against irritation

Physical

-thermal

-osmotic

Chemical

Combination

Protection of dentin wound

Isolation

Filling (small cavities)

Base (moderate – large cavities- depth 2mm and more approx.)

For amalgam – zinkoxidphosphate cement

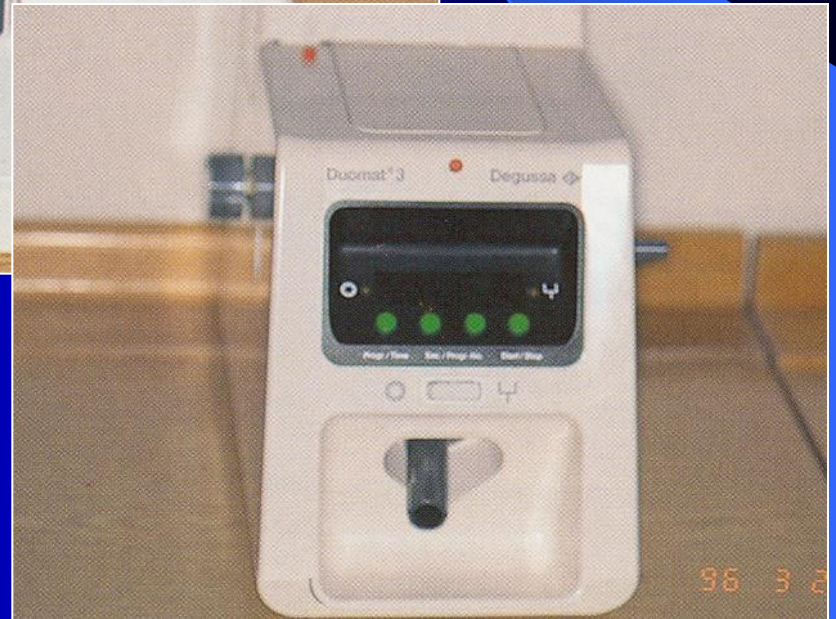
When amalgam is used:

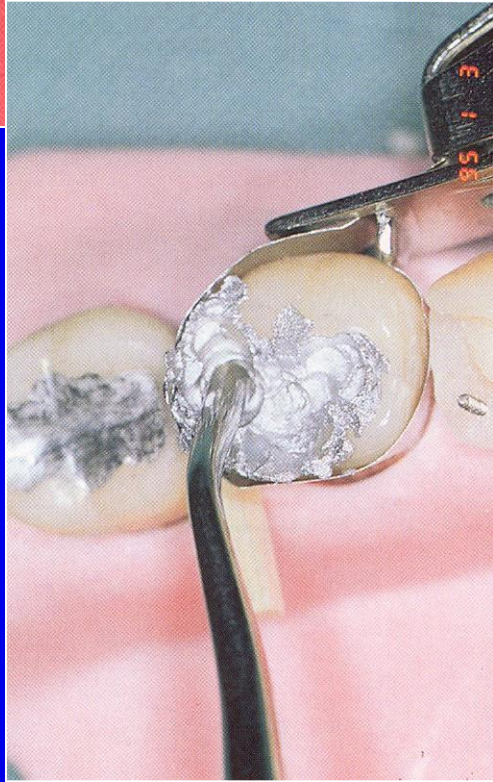
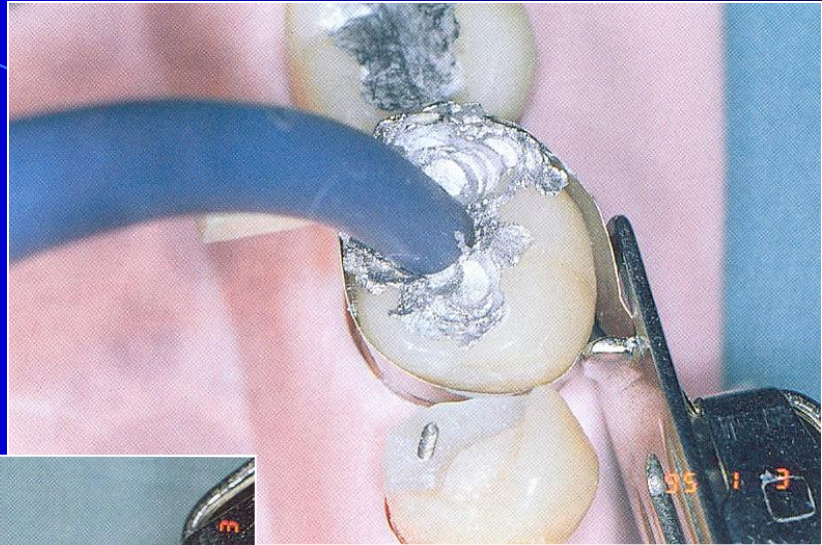
**Base is made usually
of zinkoxidphosphate cement
It is placed only on pulpal wall**

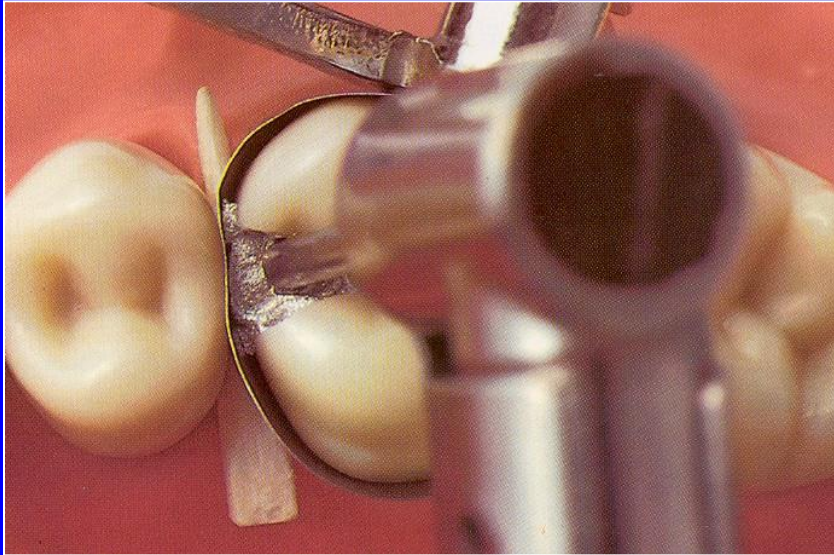


Filling

- Filling replaces lost hard dental tissue anatomically and functionally
- Always different properties in comparison to hard dental tissues.









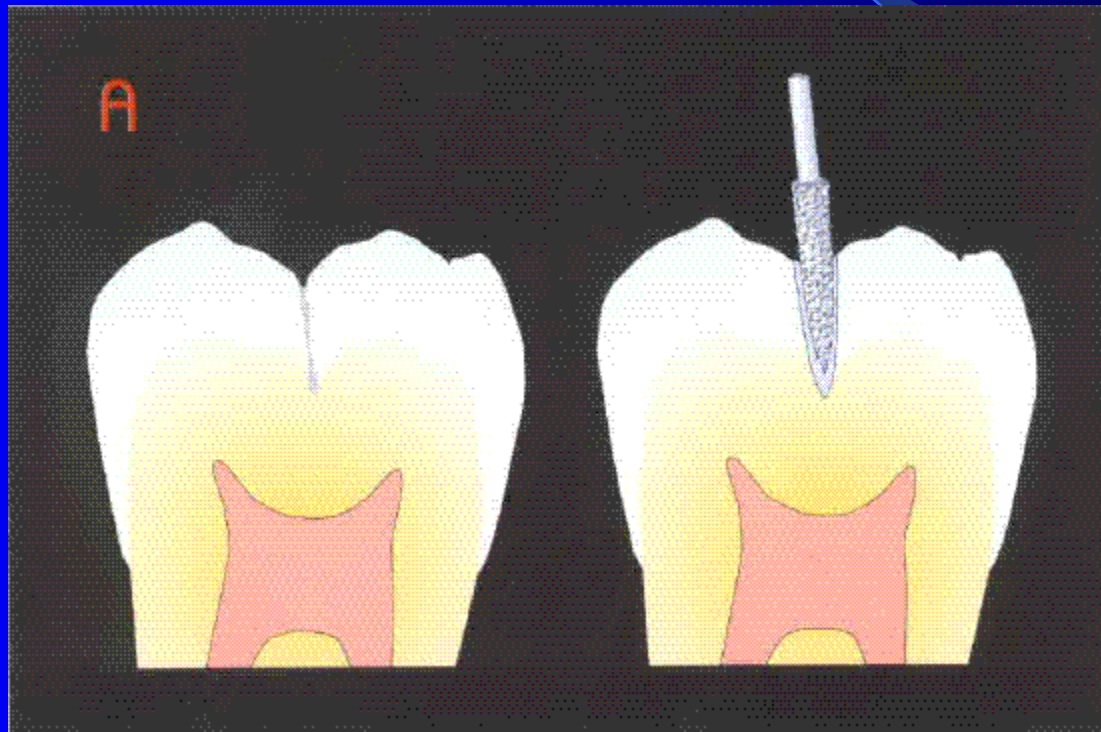
Composit material

- Small cavities – preparation is limited on caries lesion only, small instruments no extention, fissure sealing around and sealant also covers the filling. This is preventive filling.
- Medium cavities – preparation is limited on caries lesion, undermined enamel can be left, GIC replaces lost entin, composite filling on the top.

Box (remember rounded edges)

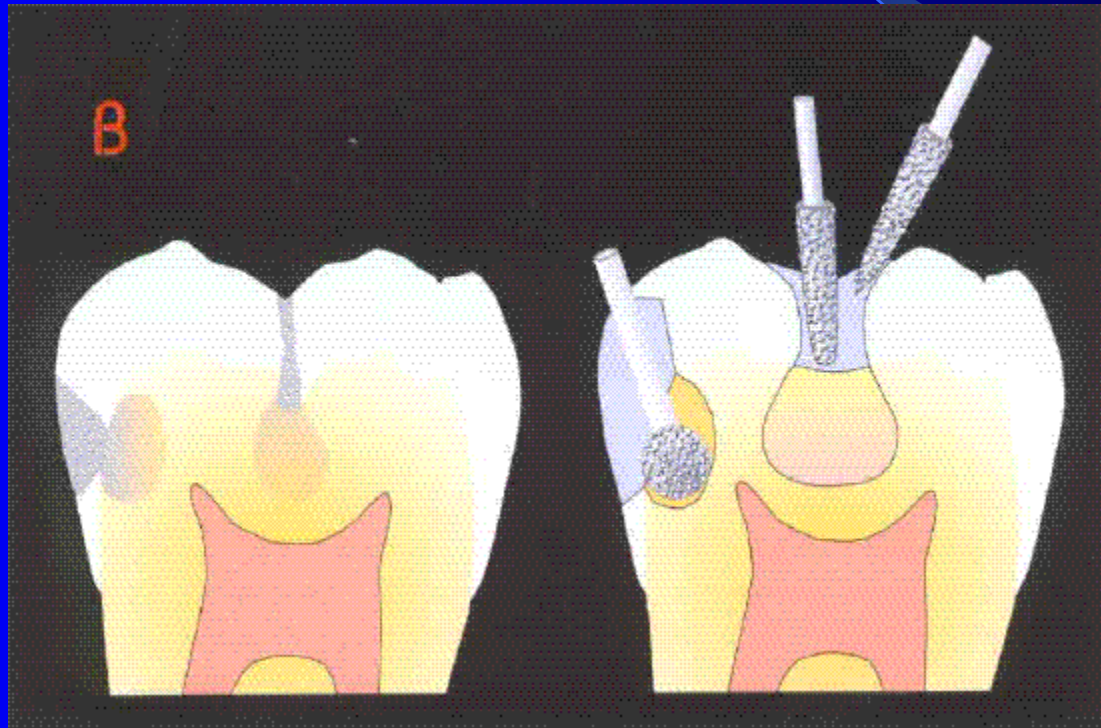


Adhesive preparation in a fissure opening of fissures

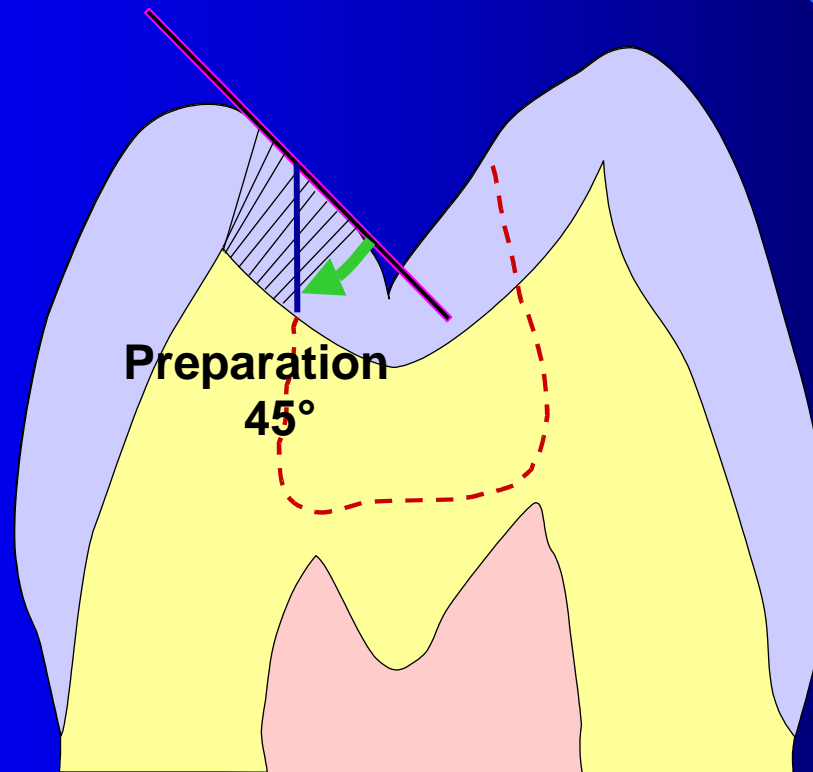


Adhesive preparation

Excavation of carious dentin



Preparation of enamel borders In small – medium cavities no bevel

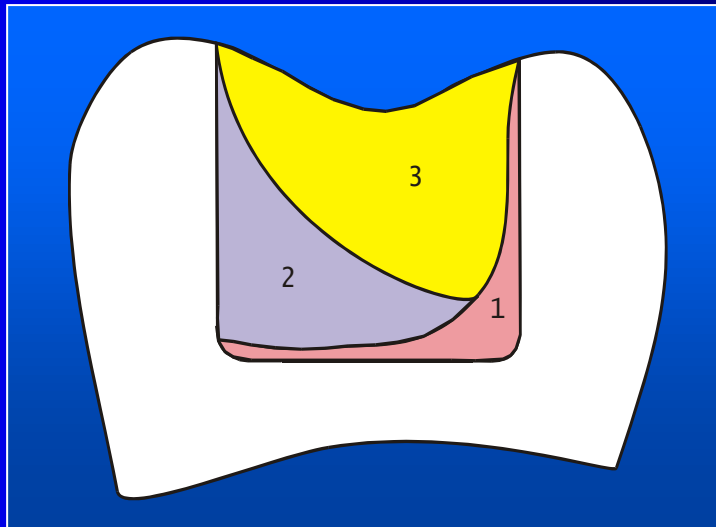


Placement of the material

Cavities have high C-factor.

Layering of composite material with regard to C-factor of each place.

Free surface as big as possible.

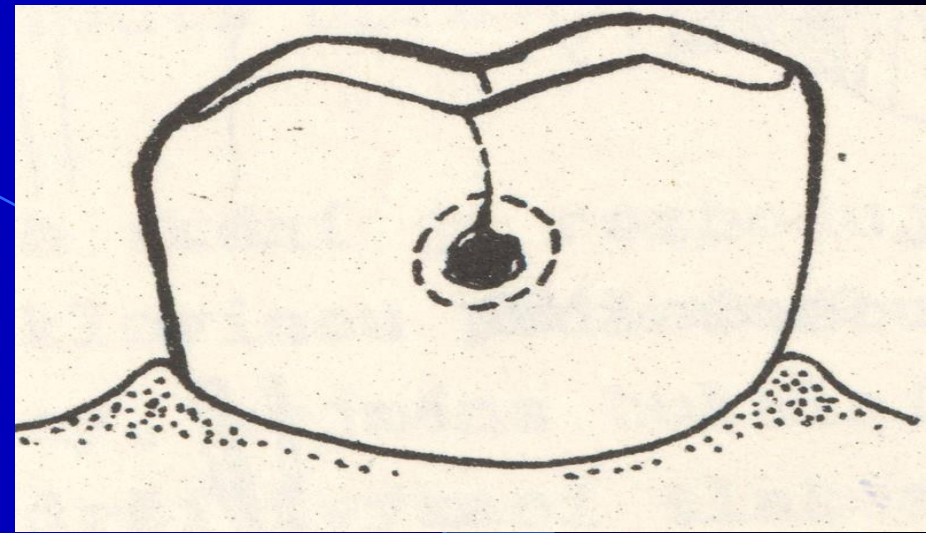
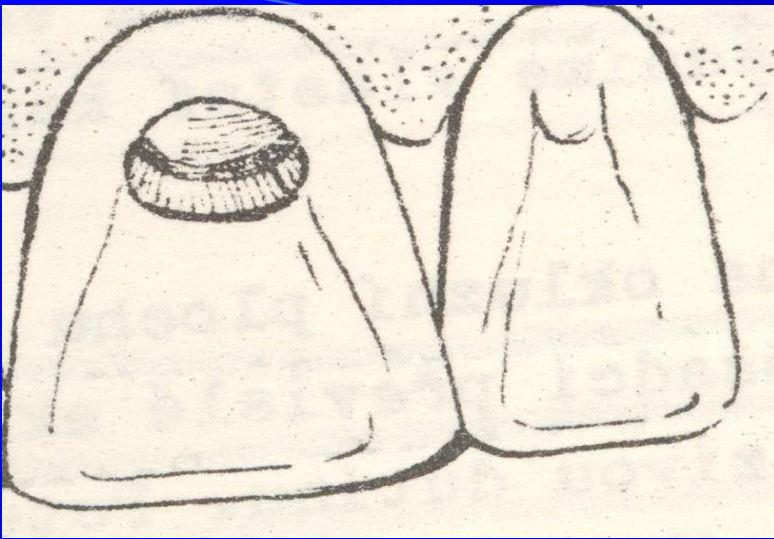


Finishing and polishing

- Fine grit diamond bur or special instruments for polishing (metal and rubber).

Final control

- Wash and dry the cavity
- Check the preparation in good illumination



Preparation is limited on the caries lesion

1,5 mm deep

Undercuts can be prepared when amalgam is used.

When composite material is used – no undercuts, bevel the enamel.

If the caries undermines the occlusal enamel,
prepare the cavity on the occlusal surface.

This is for.

For composite limit preparation on caries lesion.

