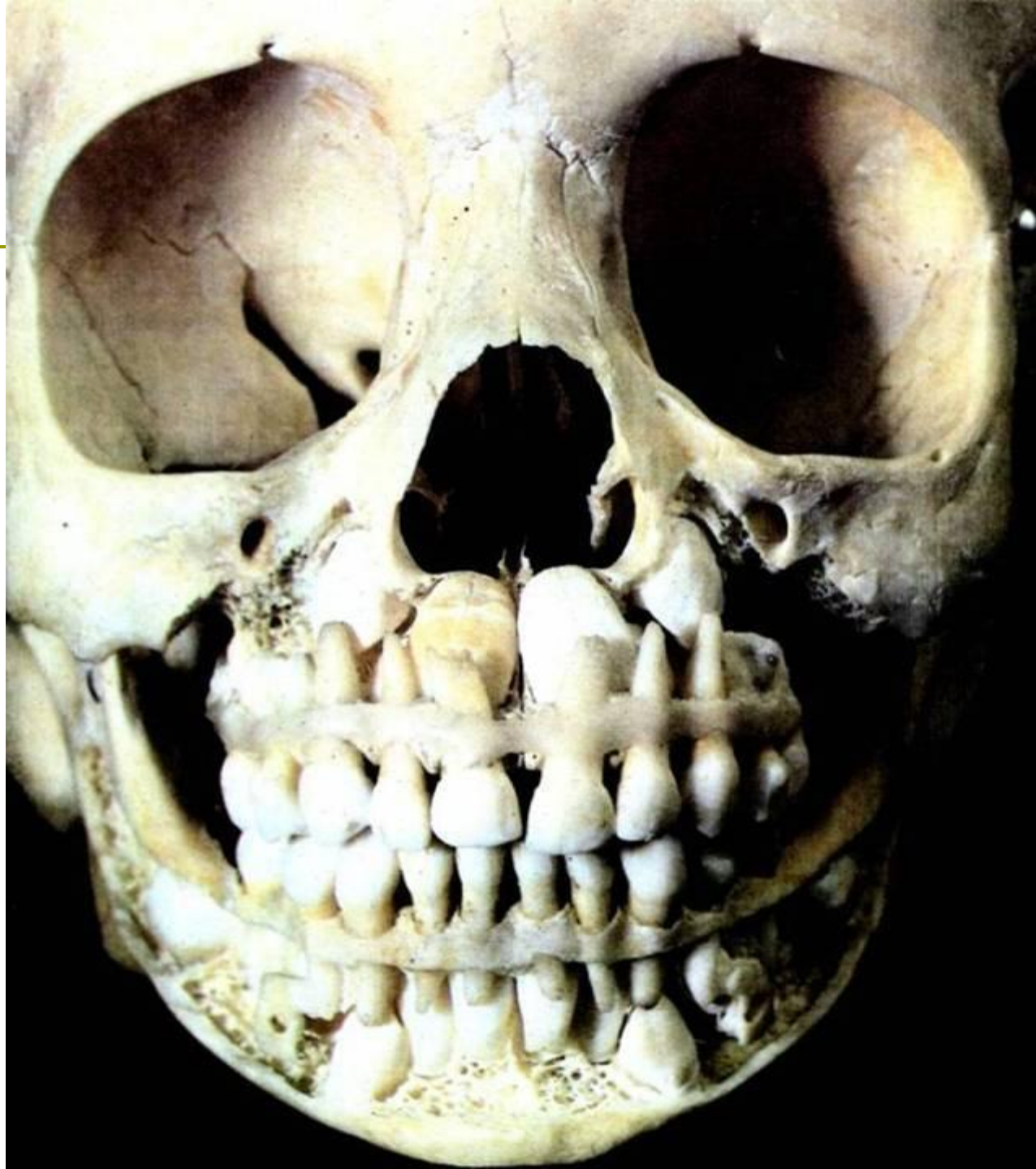
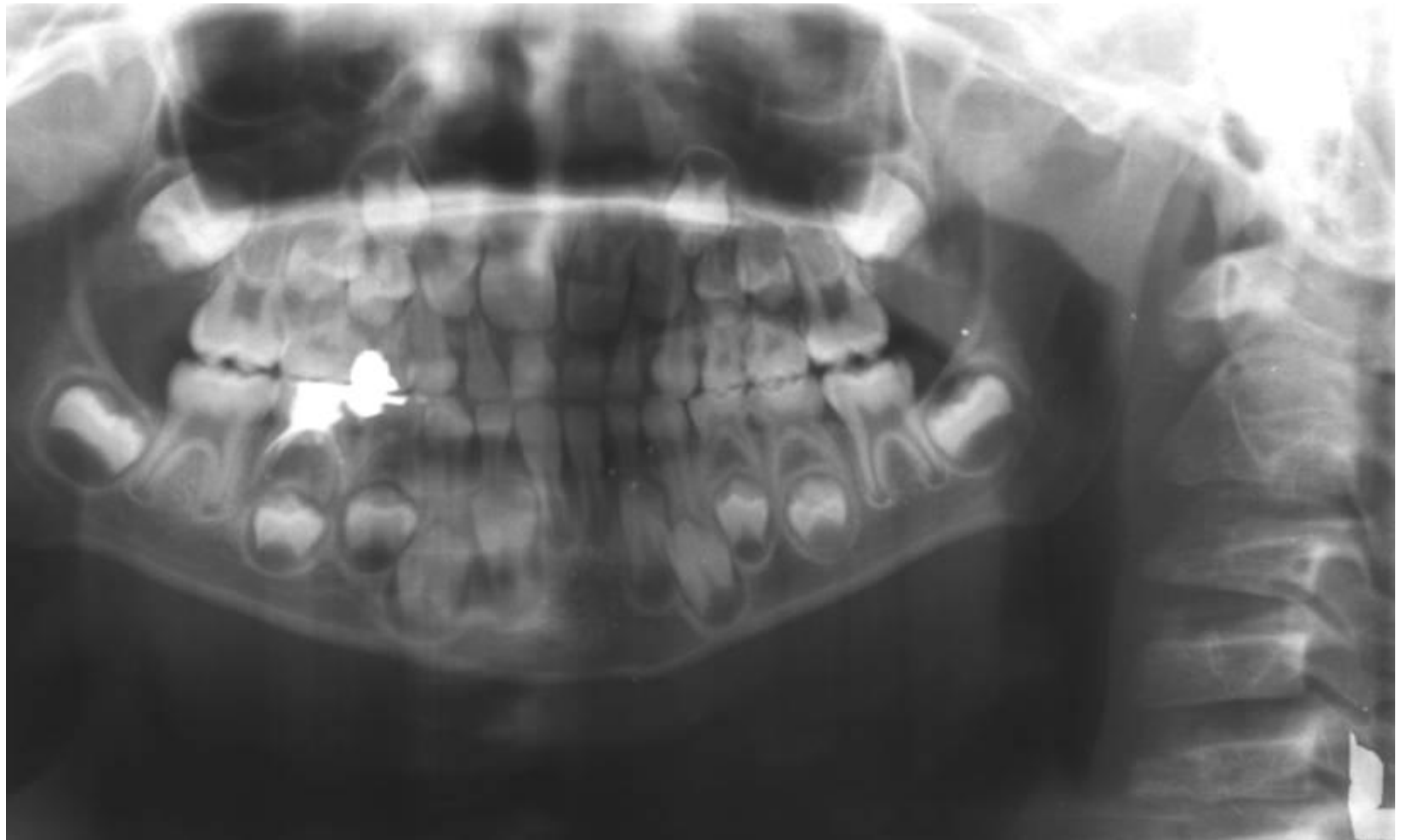


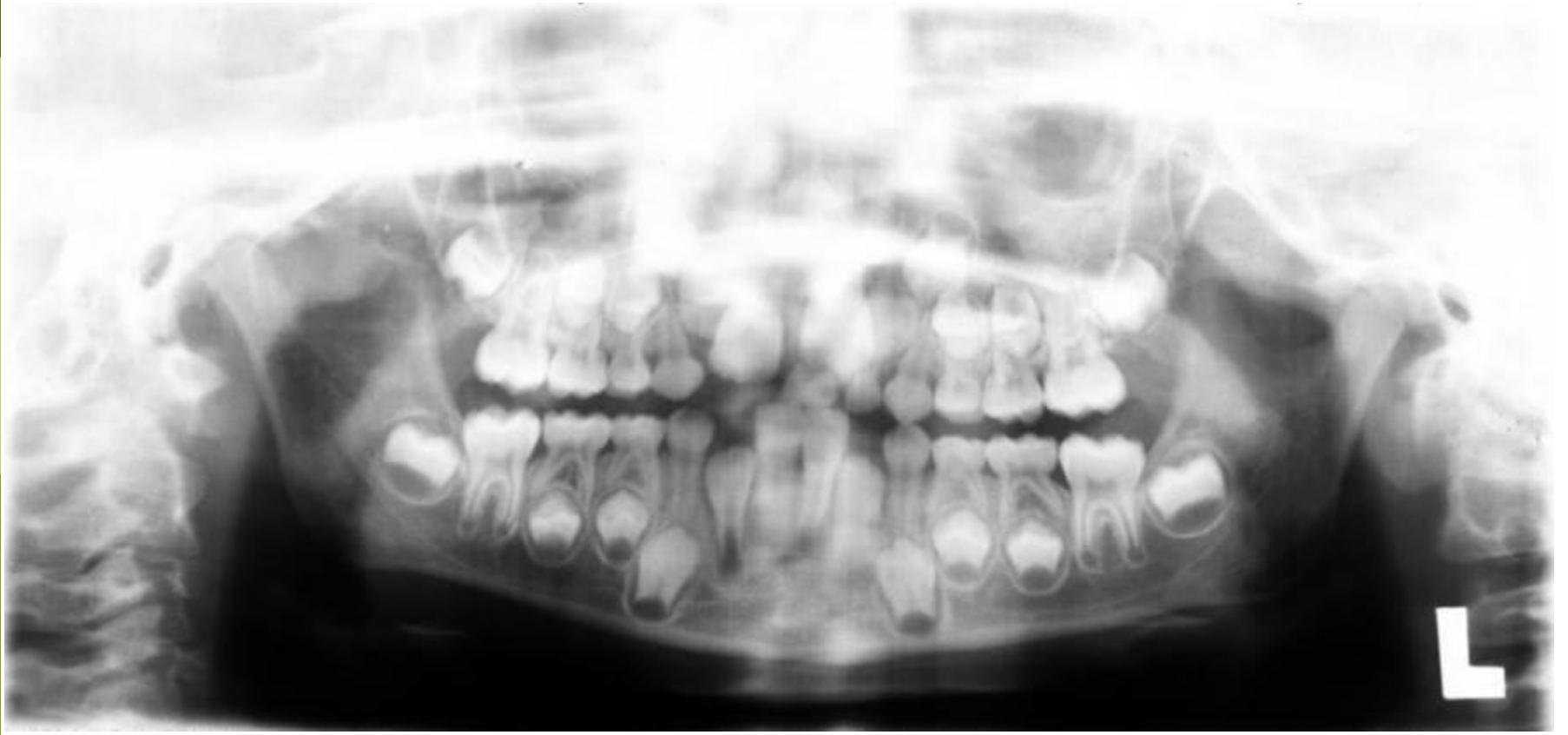
# Paediatric dentistry III



Treatment procedures in  
primary dentition









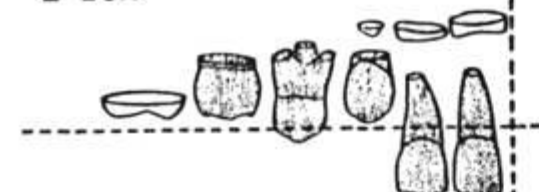
Novorozenec



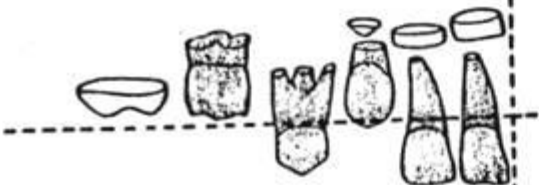
6 měsíců



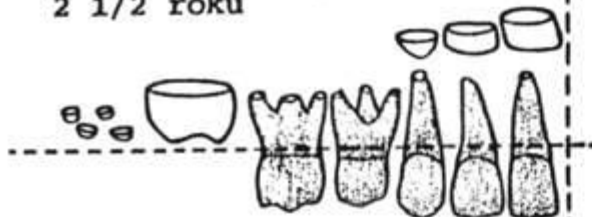
1 rok



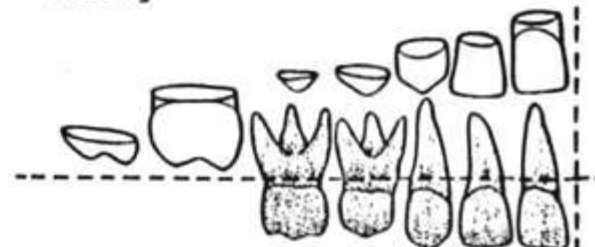
1 1/2 roku



2 1/2 roku



4 roky



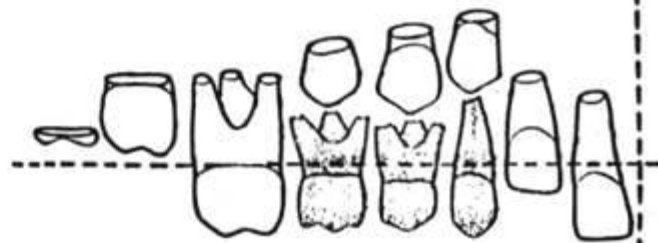
5 let



6 let



8 let



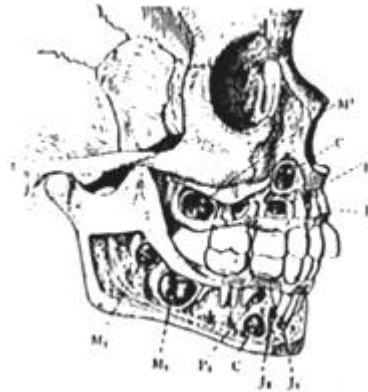
# Skull of a child at about 2 1/2 years

---

- Erupted primary dentition relation between primary teeth and buds of permanent teeth. Crowns of second premolars are not mineralised yet at this age.



□ Frontal view



□ Lateral view

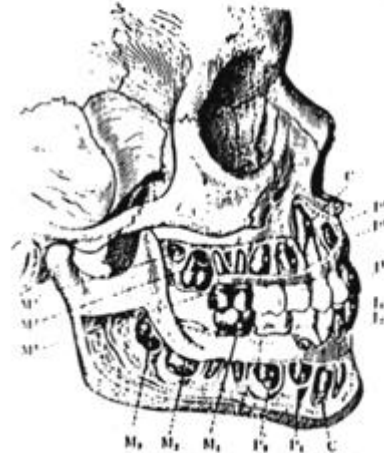
# Skull of a child at about 8 years

---

- First permanent incisors and molars are erupted, second permanent incisors in different stages of eruption.



- Frontal view



- Lateral view



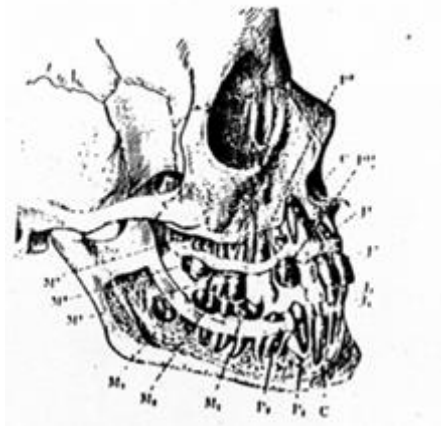
# Skull of a child at about 10 years

---

- Permanent dentition before completion of eruption. Primary teeth in different stages of resorption.



- Frontal view



- Lateral view

Age: 0-1 month,- 1 year

1-4 years

Newborns,

Succlings,

Toddlers

---

- ❑ **Caries shortly after eruption**
- ❑ primarily inferior quality of enamel
- ❑ dummmmy with honey  
circulary caries
- ❑ sweetened drinks in the night

## Pre-school age

- ❑ Complete primary dentition

6				6
<hr/>				
6	1		1	6

- ❑ Caries in primary molars

## 4-6 years

- + l. permanent molars
- + lower permanent incisors

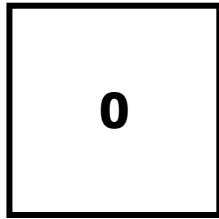
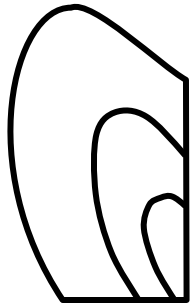
occlusal surfaces  
approximal surfaces

# Early school age

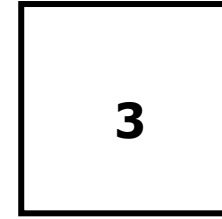
6-12 years

---

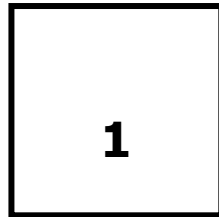
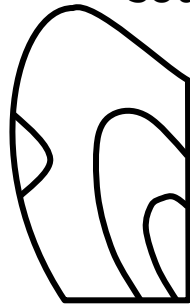
- Caries in primary molars
- Caries in primary canines
- Risk of caries transfer to permanent molars — *immature enamel*



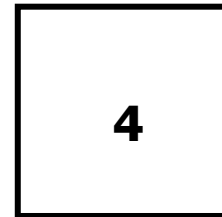
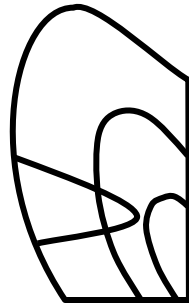
sound on bitewing



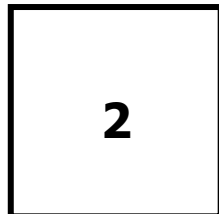
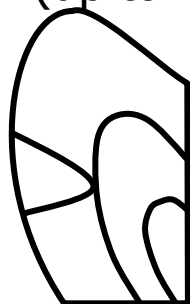
Radiolucency in enamel and  
outer half of dentine  
(caries superficialis)



Radiolucency confined to enamel  
(up to 1/2- caries incipiens)



Radiolucency in enamel and  
reaching to inner half of dentine  
(caries pulp. prox.)

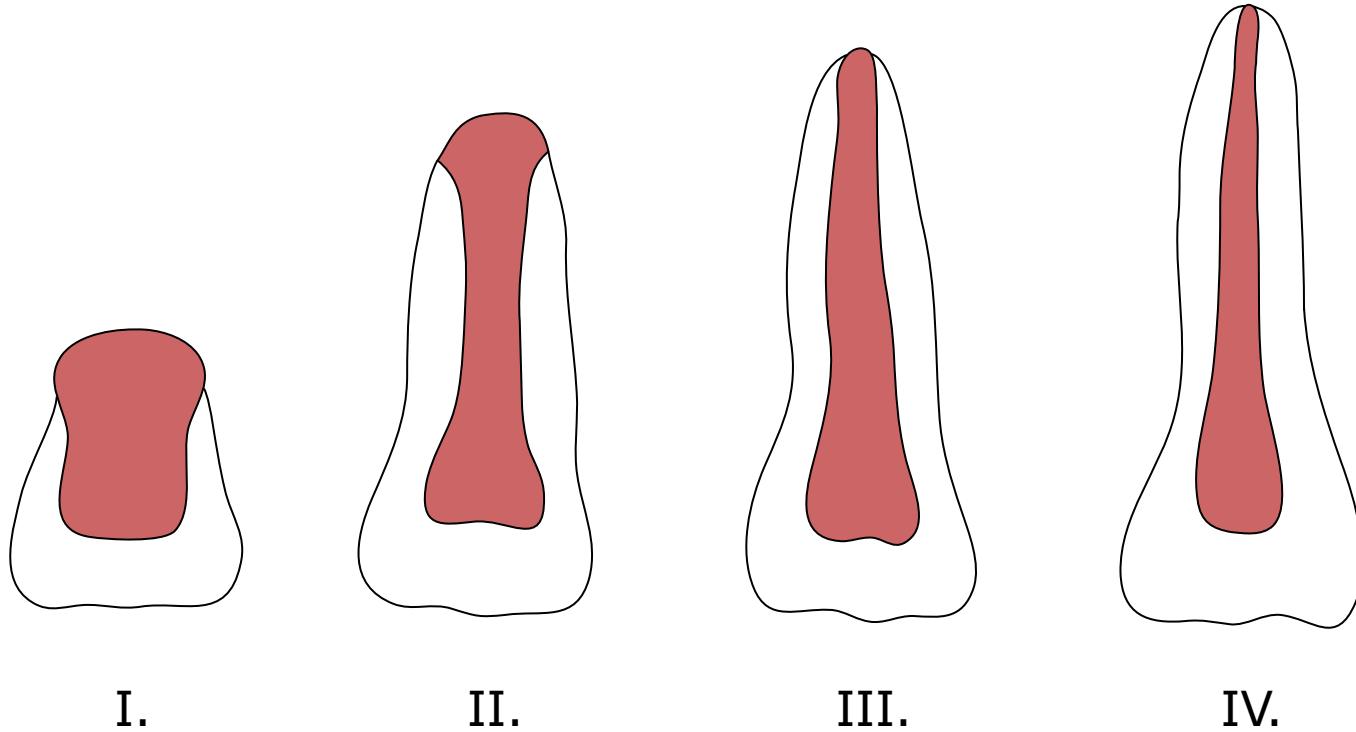


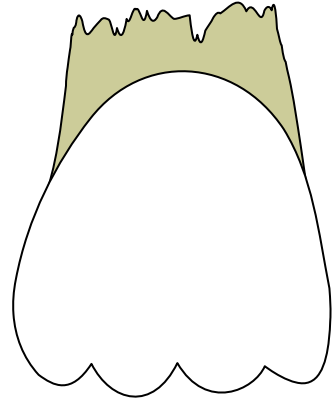
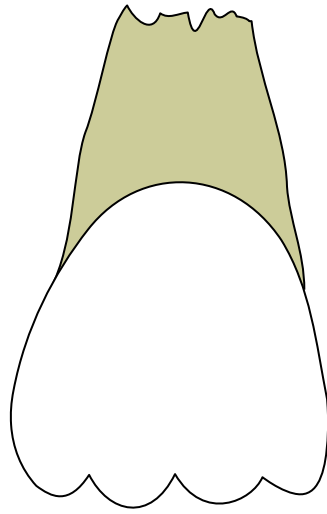
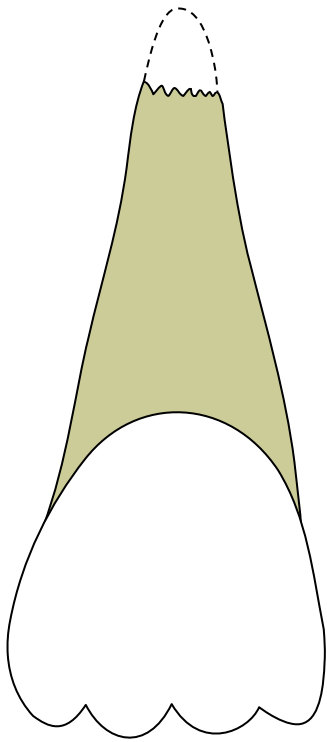
Radiolucency in enamel up to  
enamel-dentine junction

Diagrammatic representations of  
caries on bitewing radiographs.

# Developmental stages of root

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# Dental caries - primary dentition

Caries depth



a) 3 years



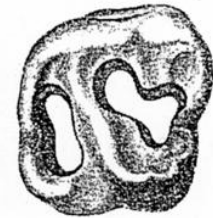
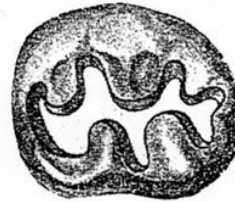
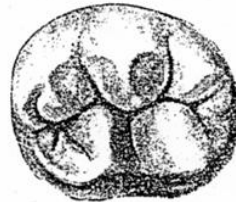
b) 6 years

2 mm — molar

a) car. pulp. proxima

b) caries media

## Occlusal caries



diameter of the bur – 1 mm, depth - 0,5 mm in dentin

## Filling

silver amalgam + cement – exceptionally

GIC+ Dycal (alkaline cement) GIC

Compomer

Composite resin (+ dentine adhesive, or capping of pulpal wall with alkaline cement)

# Working procedure

---

- ❑ hand instruments
- ❑ low revolutions
- ❑ minimal pressure
- ❑ checking of the cavity
- ❑ Compomer
- ❑ Composite resin
- ❑ GIC or GIC + base - alkaline cement



# Approximal caries

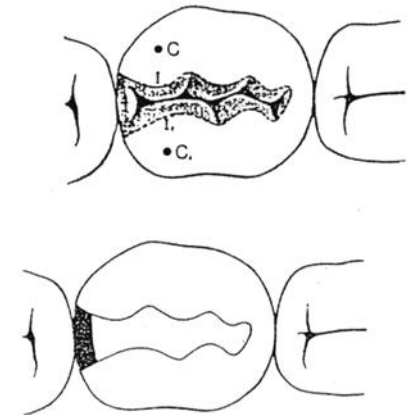
---

caries media – marginal ridge is not affected  
otherwise  
caries pulpaе proxima or caries penetrans

The filling should include  
retention  
resistency

Neighbouring tooth has to be investigated  
isthmus -  $\frac{1}{3}$  of the intercuspal distance  
not less than 1,5 mm

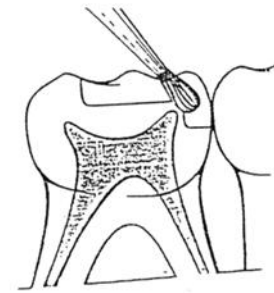
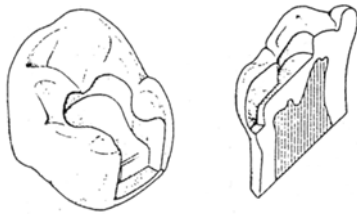
gingival wall                      1 mm  
point of contact has to be in filling



# Approximal caries

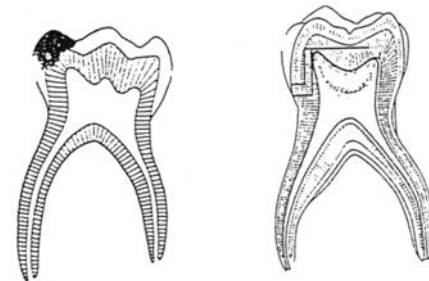
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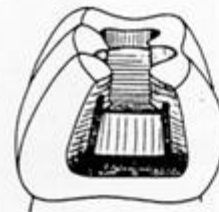
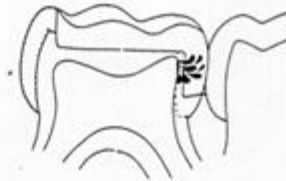
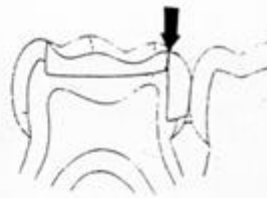
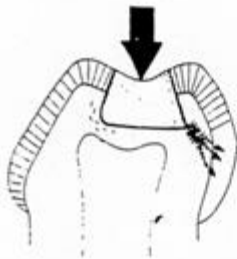
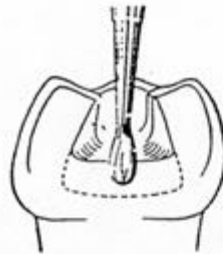
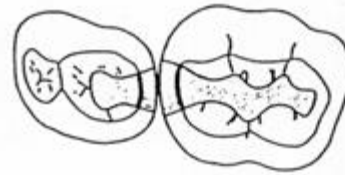
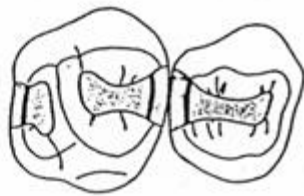
Dental pulp must not be threatened



Mesial horn – easy perforation

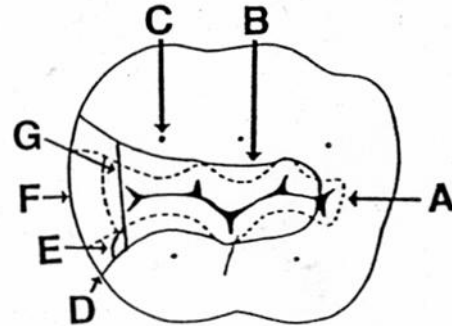
V	IV	IV	V
<hr/>			
	IV	IV	



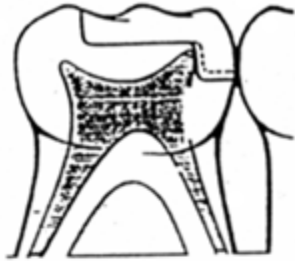


# Errors during preparation – class II cavity.

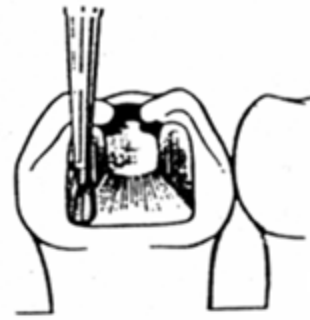
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- A. Insufficient preventive extension – fissure complex not involved totally in the preparation.
- B. Excessively involved cusps – loss of hard tissues
- C. Isthmus too large – greater than 1/3 of the intercuspal distance
- D. Approximal walls divergent too much: the cause of following errors
- E. The angle between axial and buccal/lingual walls too great
- F. gingivally small extension – point of contact is not in the filling (in the gingival region)
- G. gingival wall too great mesio-distally – more than než 1 mm

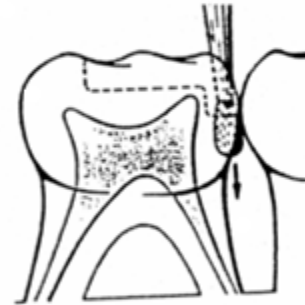


dental pulp exposure  
(horn)

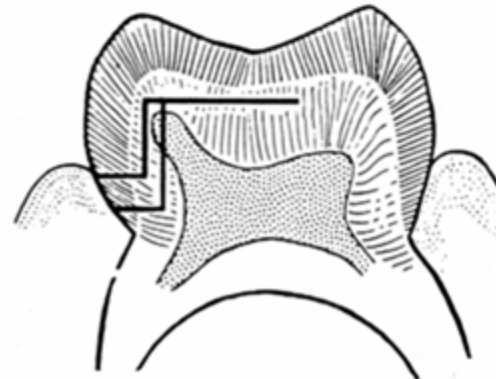


loss of wall convergence

too deep shoulder preparation



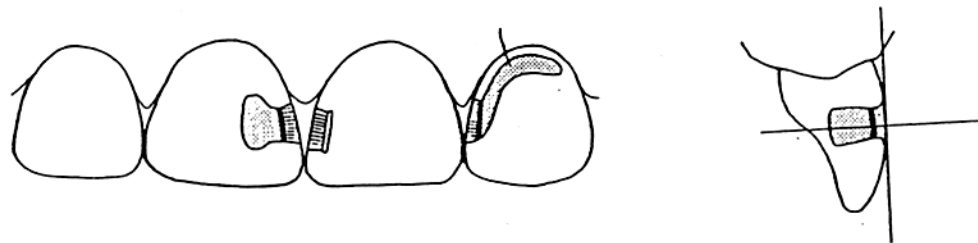
consequence - dental  
pulp exposure



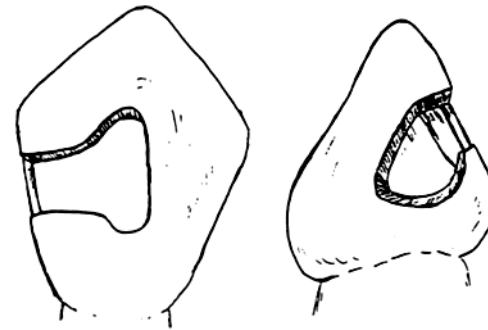
# Class III.

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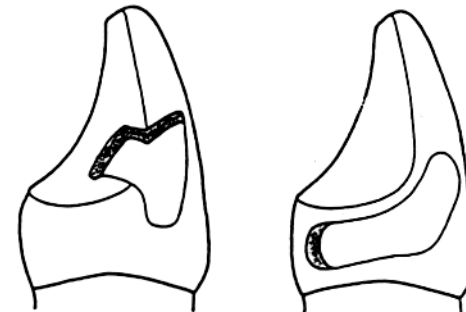
- Access opening from the labial surface, the size of cavity is given by the caries extent



- Access opening in primary maxillary canines may be from the palatatal surface, in mandibular canines from vestibular surface.



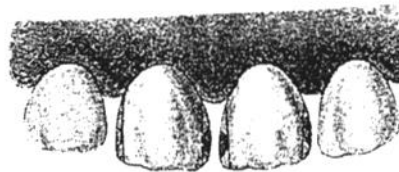
- The dovetail is usually placed to the strong marginal ridge, not directly to the oral surface



# Class IV.

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- ❑ Not very frequent
- ❑ Crown must not be restored esthetically – cover the dentin wound
- ❑ Teeth before shedding – grinding of approximal surface, impregnation by fluorides



## Filling in class III. and IV.

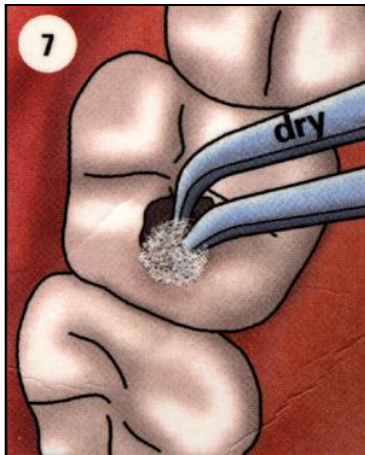
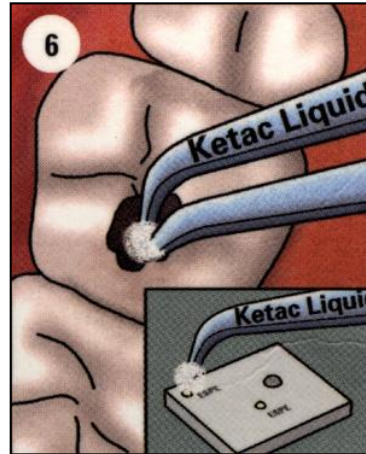
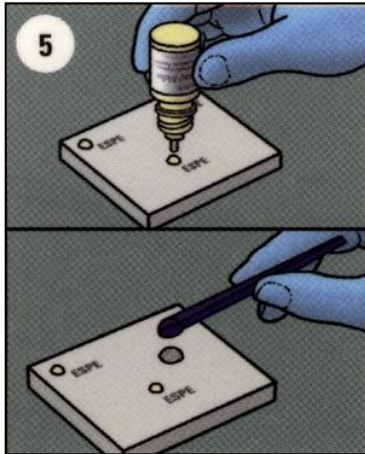
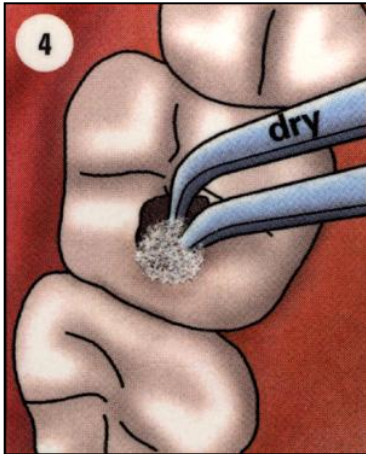
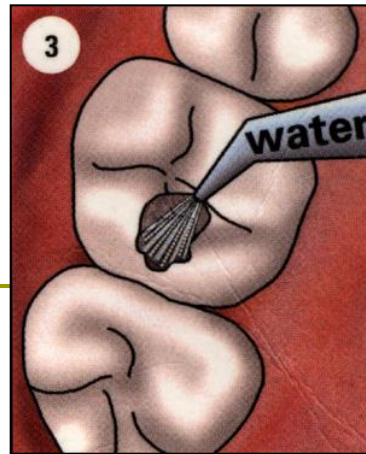
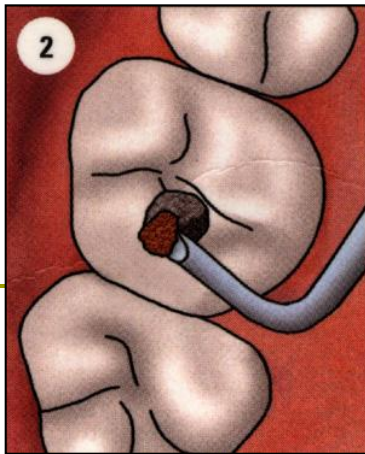
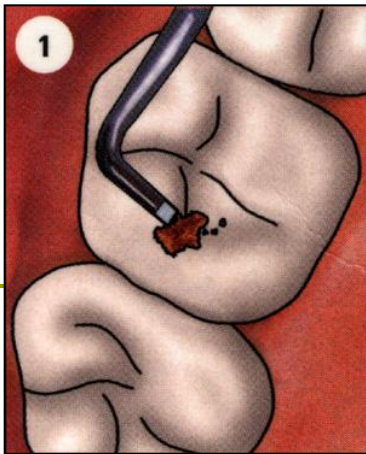
- ❑ Composite resin + etching technique
- ❑ glassionomer cement
- ❑ compomers

# A.R.T. - Alternative Restorative Treatment

---

- ❑ New attitude to caries treatment – for use in developing countries (1990)
- ❑ Originally – no machine driven preparation
  - Removal of soft demineralized tooth tissue
  - Only hand instruments
  - Application of GIC – filling material (+ alkaline cement)
- ❑ Method recommended by WHO for treatment of teeth in areas of the world where dentistry was inaccessible (South-East Asia, Afrika).
- ❑ May be used for treatment of uncooperative children.
  - Minimal preparation
  - Hand instruments or micromotor (low speed)
  - Carious masses have to be removed
  - Filling material                   - Ketac Molar (finger press technique)
  - Físsures sealing                   - Ketac Molar
- ❑ Very good results - class I. a V. cavities, acceptable in class II. cavities
- ❑ Class III. and IV. not very successfull - cause unknown
- ❑ **Better any cure than untreated caries!**







# Glassionomer cements in Pediatric Dentistry

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## Properties and indications

1. Fissure sealing
2. Base for amalgam and composite resin fillings
3. Crown cementation (stainless steel)  
bonding to metals
4. Cementation of orthodontic appliances
5. Restauration of primary teeth – replacement of amalgam
  - minimal occlusal caries
  - approximal preparation (buccal, lingual access)
  - tunnel preparation
  - minimal preparation in incisors

# Properties of GIC

---

- ❑ abrasion
  - Of the same rapidity as enamel (x amalgam)
- ❑ resistance
  - low, weak link – transition between occlusion and axial wall
- ❑ fluoride ions release
  - inhibition of microbes in plaque
  - enamel resistance increase
- ❑ light cured - advantage for children

Properties of GIC enable their usage as esthetic filling in frontal region

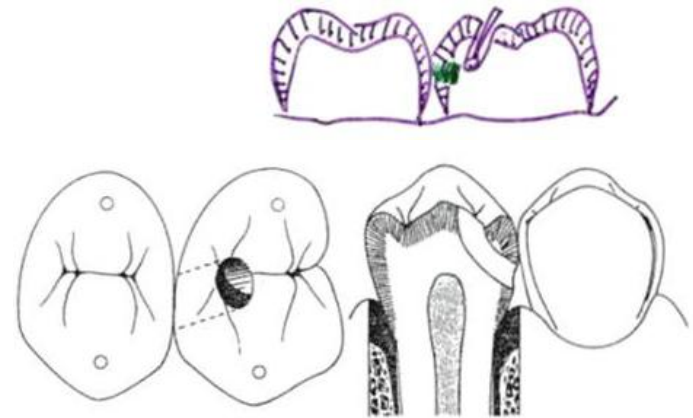
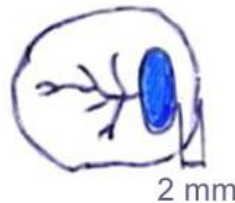
## Buccal access

- ❑ caries localization – localization aproximally, gingivally
- ❑ marginal ridge is not affected or undermined
- ❑ caries is not very extensive
- ❑ dove tail is not prepared in the occlusal surface, it is replaced by anchoring in the buccal wall
- ❑ filling making requires the matrix

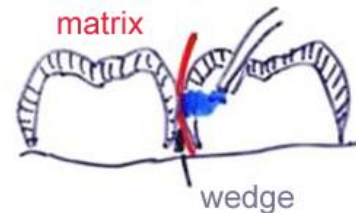
# Tunnel preparation

- conditions
  - non affected marginal ridge
  - caries of small extent

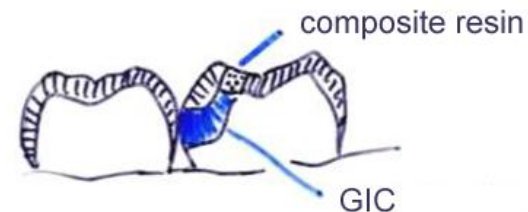
- a. access – round bur  
access channel – to  
extend bucco-lingually



- b. removal of carious masses, matrix  
application + wedge



- c. esthetic improvement by composite  
resin(compomer) not necessary



- d. fissure complex has to be sealed

# GIC

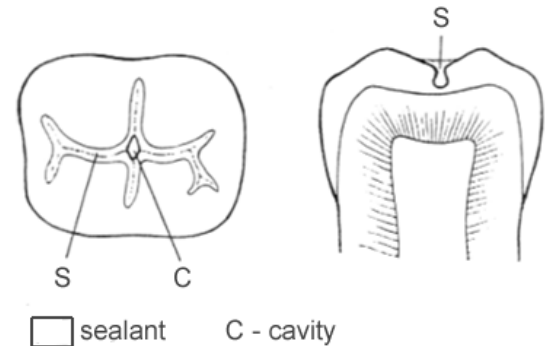
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- ❑ **base for amalgam filling**
- ❑ suitable in large losses of dentine
  - in dental pulp vicinity + alkaline cement
- ❑ **base for composite resin filling**
  - before composite resin application- roughen mechanically or etching
  - application to dental pulp vicinity or direct contact has to be avoid
- ❑ **restauration of primary teeth**
- ❑ Ketac Molar or other GIC, especially resin reinforced
  - **filling materials reinforced by metals**
    - ❑ Ketac Silver
    - ❑ **Miracle-Mix**
- ❑ approximal caries
  - preparation according to Black
  - tunnel preparation
  - buccal access

# Preventive filling

## 1. sealant filling

- caries confined to enamel of pit or fissure, only sealant. The technique is used rather exceptionally, D1, D2, and D3 (just below dentino-enamel junction) are treated by prophylactic procedures)



## 2. preventive filling

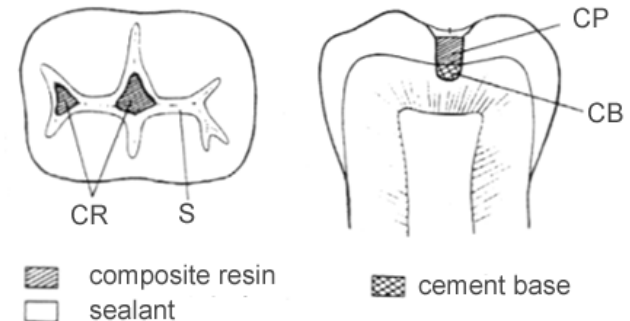
- caries in pits and fissures, reaching to dentine
- preventive composite filling
- preventive glassionomer filling

### ■ **indication:**

- primary molars, premolars, permanent molars
- caries lesion D3
- small caries lesion

### □ **contraindication:**

- approximal caries on the treated tooth, more extensive caries (more than 1/3 of intercusp distance), open approximal defects on any tooth, DMFT/dmft >5,



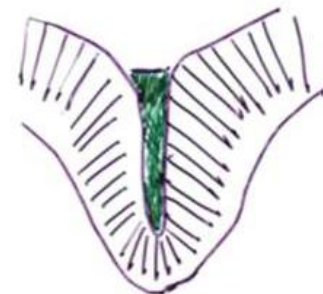
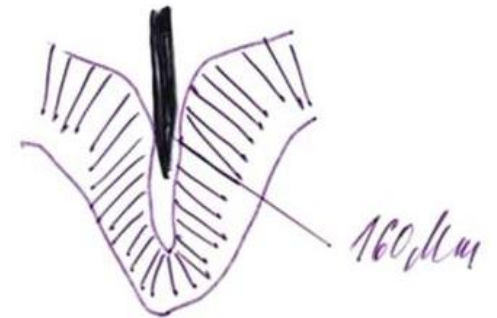
# Fissure sealing

---

1. fissure too narrow  
not suitable

2. suitable fissure

3. wall protects the cement





# Filling materials in Paediatric Dentistry

---

## 1. Silver amalgam

- used rather exceptionally (moisture)
- primary dentition
- permanent dentition
- the base necessary- not into direct contact with dentin of the pulpal wall

## 2. composite resins

- may be used  
but
- aprismatic enamel has to be removed – or prolonged etching
- sealants

## 3. glassionomer cements (polyalkenoates)

- filling
- sealants
- tunnel preparation
- buccal access
- **A.R.T.**

## 4. compomer materials

- may be used (dentine adhesives)

# Filling materials in Paediatric Dentistry

---

## 5. **cements**

- zinkoxidsulfate
- zinkoxiphosphate
- zinkoxideugenol (Caryosan)
- karboxyl
- alkaline cements (with calcium hydroxide)

## 6. **metals**

- inlay
- crown

## 7. **resin**

- crown

## 8. **calcium hydroxide**

- large scale of usage

## 9. **root canal filling materials**

- the main required property - resorbable