Endodontics I.

Morphology
Pulp disease
Indication
Contraindiction
Instrumentarium

Endodontics

Pulp and periodontal diseases – diagnosis, therapy, prevention

Endodoncie I.

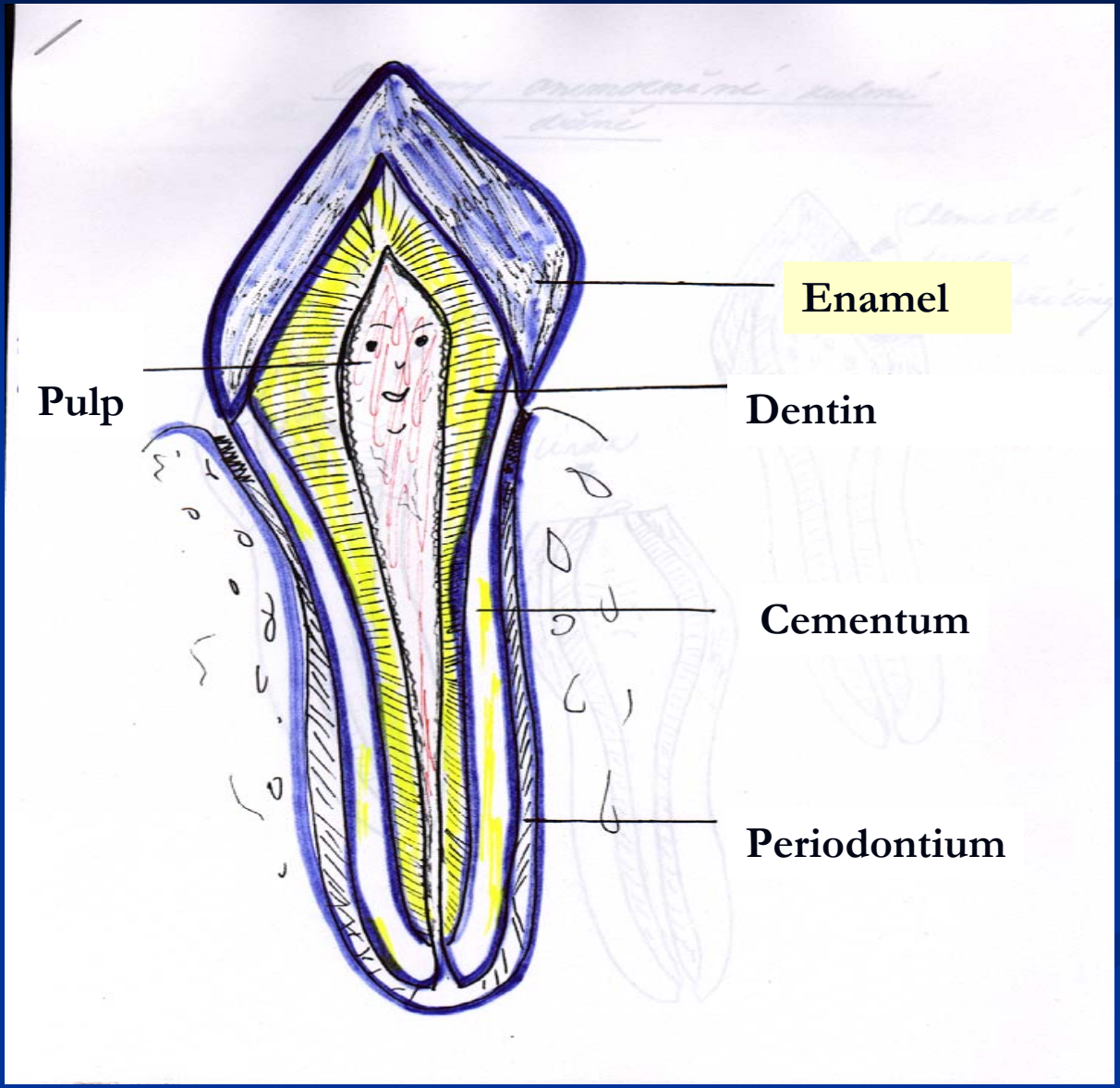
Morphology

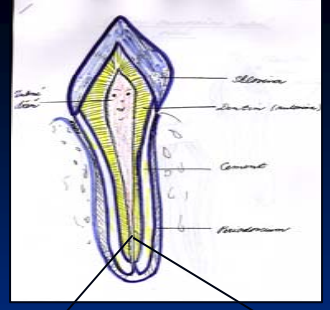
Onemocnění zubní dřeně

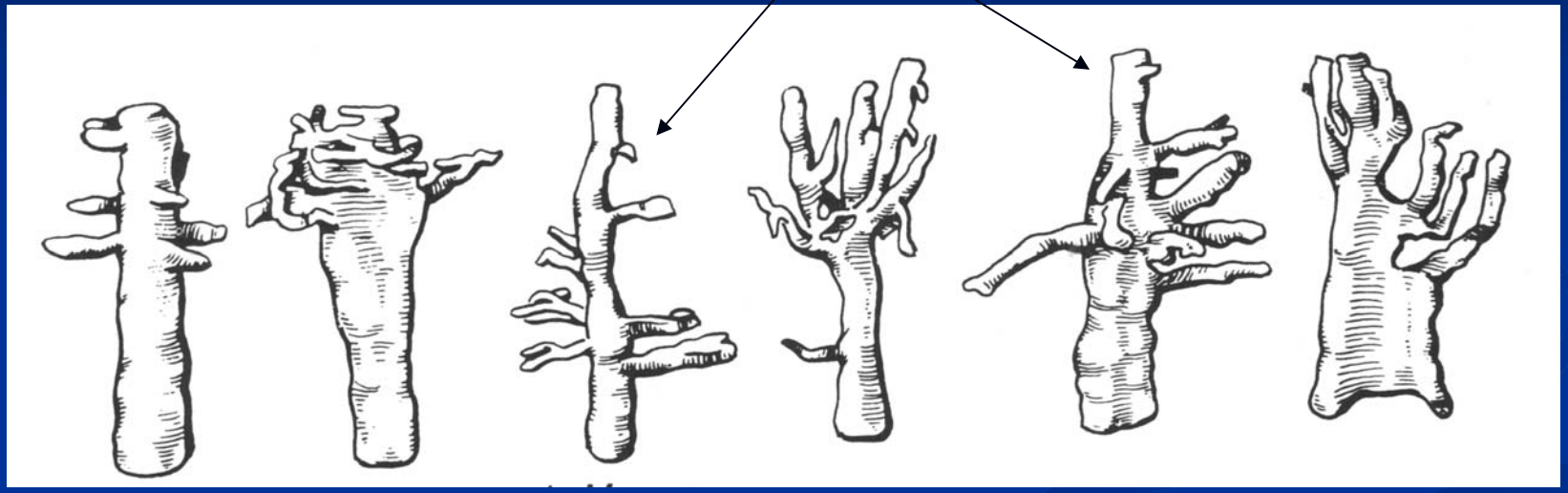
Indikace a kontraindikace endodontického ošetření

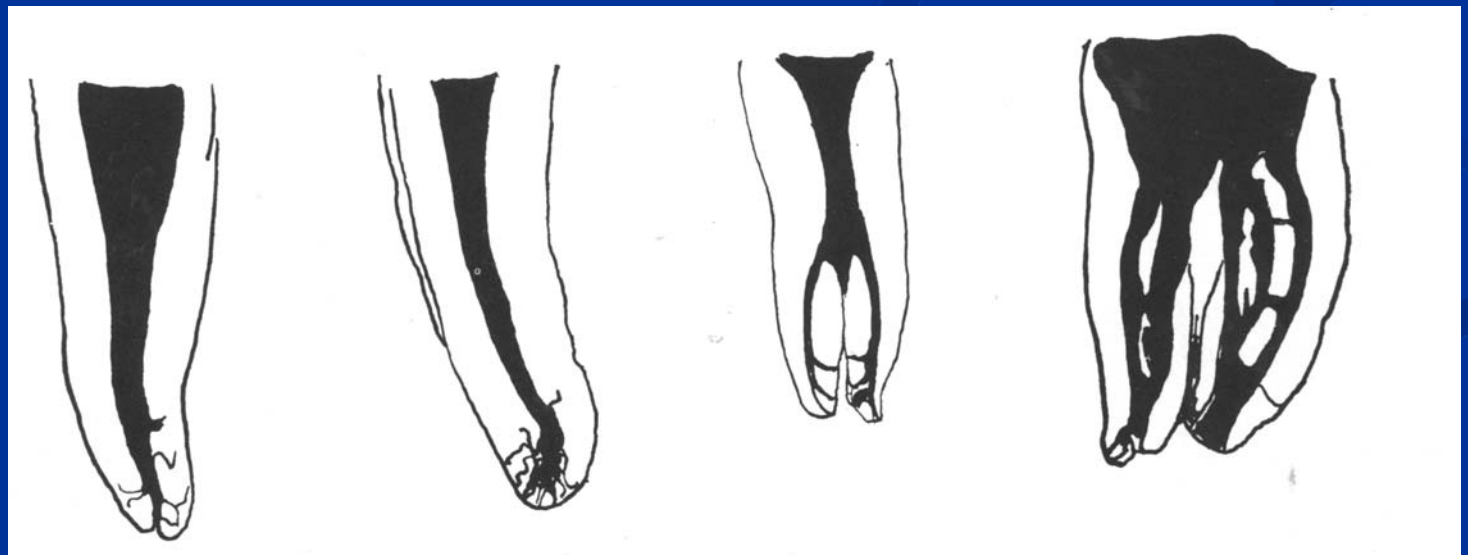
Instrumentarium

Morphology









3D

Meyers conclusions

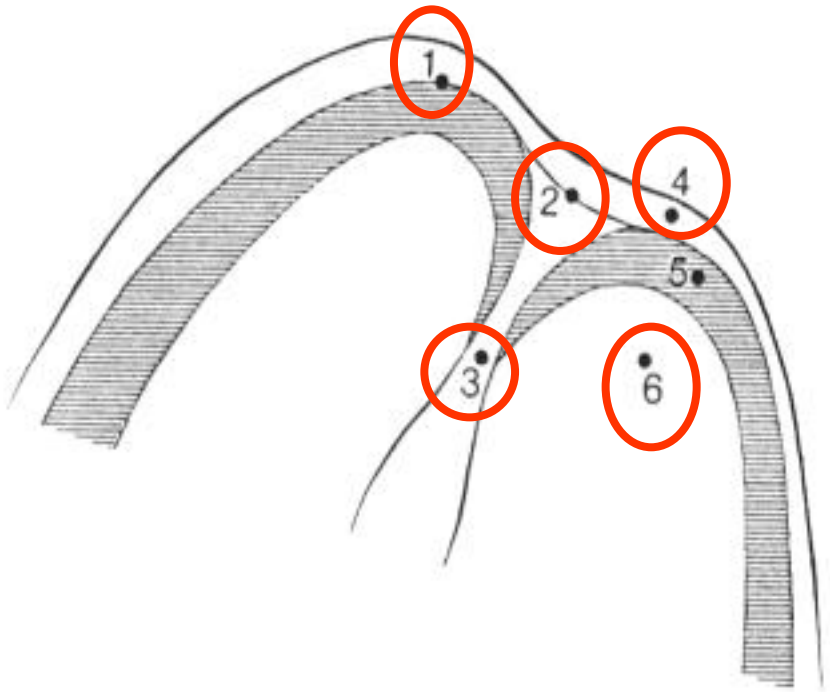
- The root canal is not round but oval (long axis mesiodistal)
- The root canal does not go straight but it deflects distal
- The outfall is not on the top of the root but below (distal or distooral)

Meyer´s conclusions

- The form of the outfall is funnel - shaped
- The root canal system has usually more outfalls (ramifications)
- The ramifications are situated mostly in apical area (first apical mm)
- All outfalls are situated in cementum

Basic forms of the root canal systém (Weine)

Apical morphology



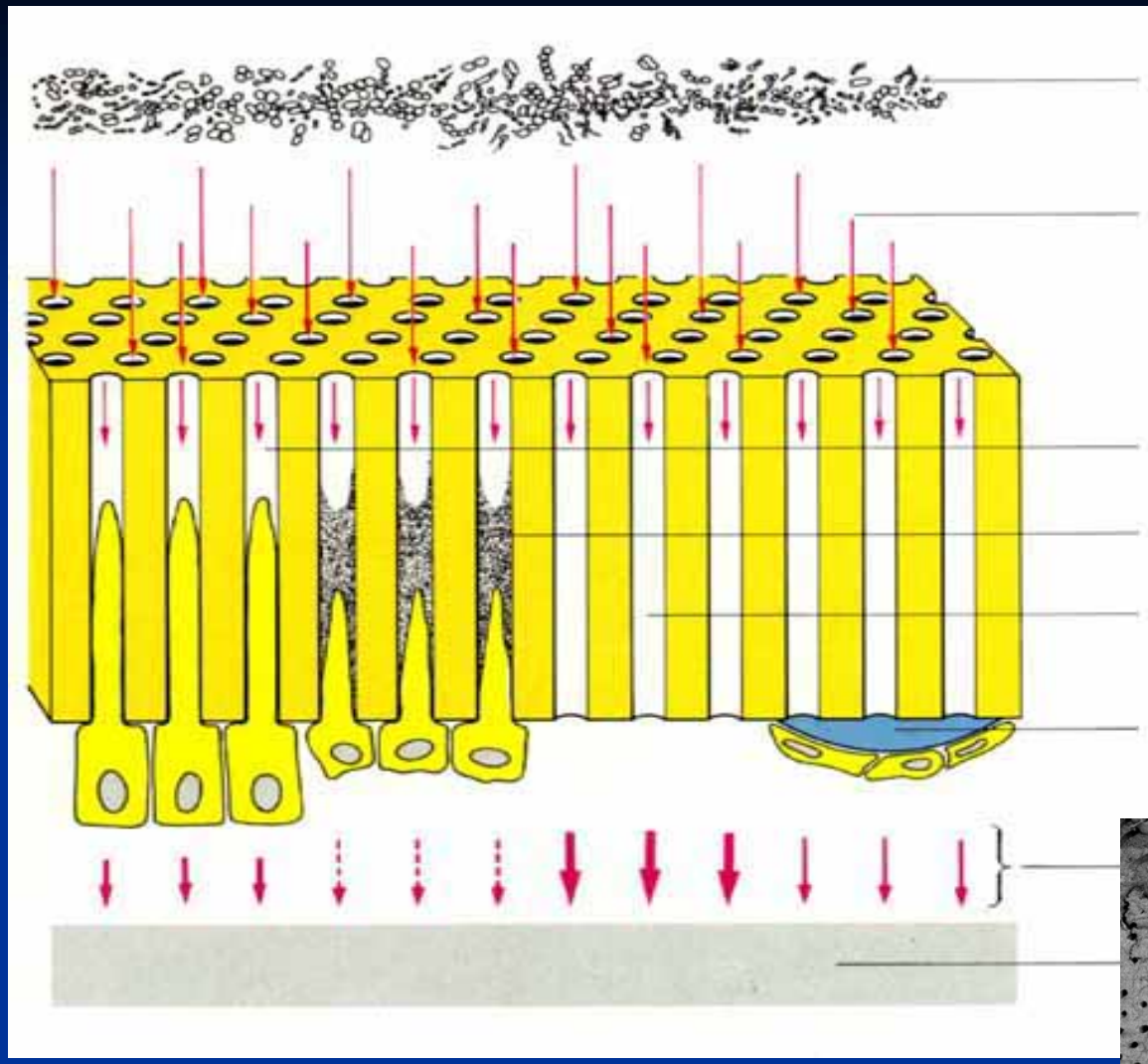
1. X – ray apex
2. Foramen apicale
3. Apical constrictionA
4. Periodontal ligament
5. Root cementum
6. Dentin

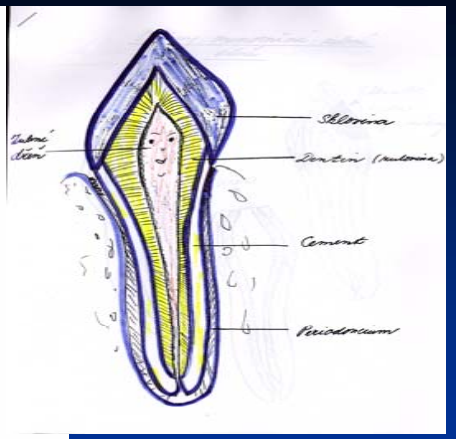
Acc. to Guldener a Langeland

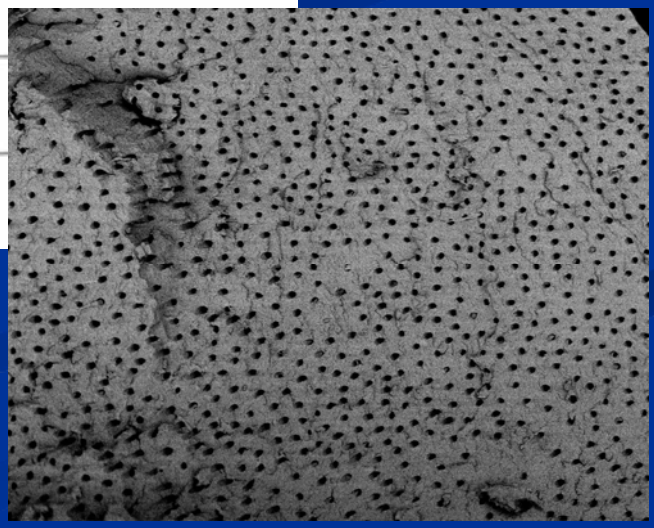
Canal shaping terminates in apical constriction

- Small communication
- Less risk of periodontal damage
- Prevention of overfilling
- Prevention of apical transport of infectious material
- Possibility of good bacterial decontamination
- Possibility of good condensation of the root filling

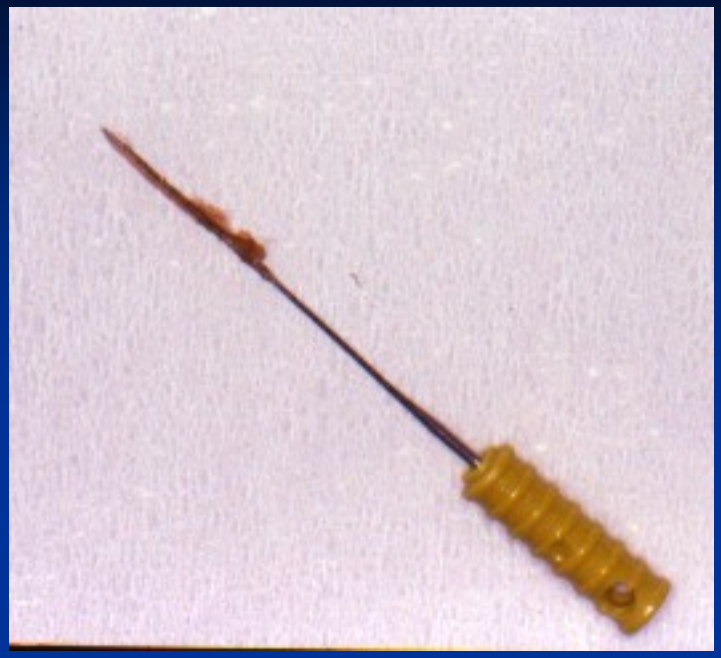
- Macrocanal system
- Microcanal system



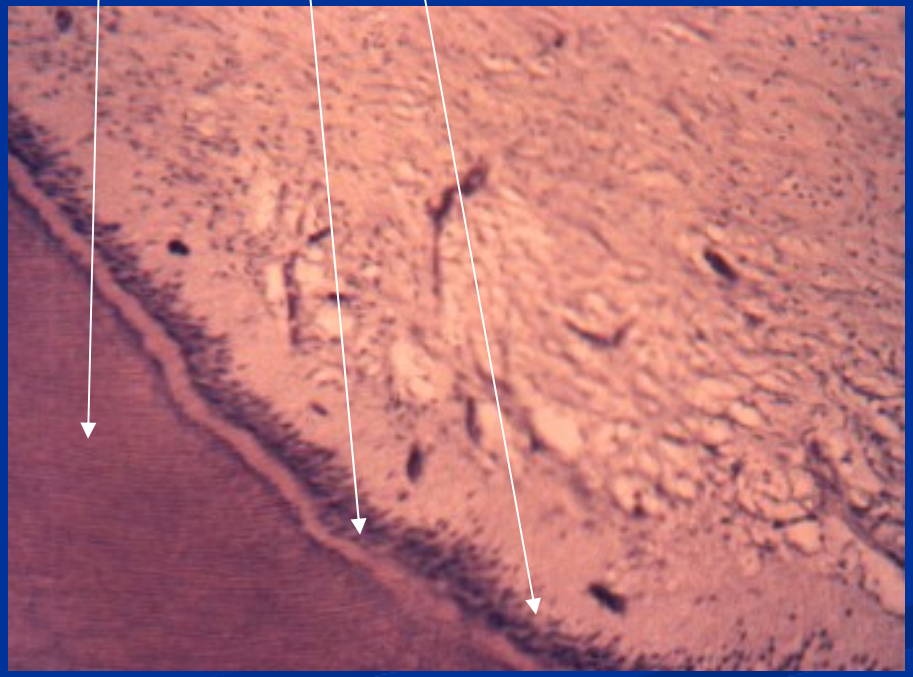




Endodont: dentin and pulp (morphological and functional unit)



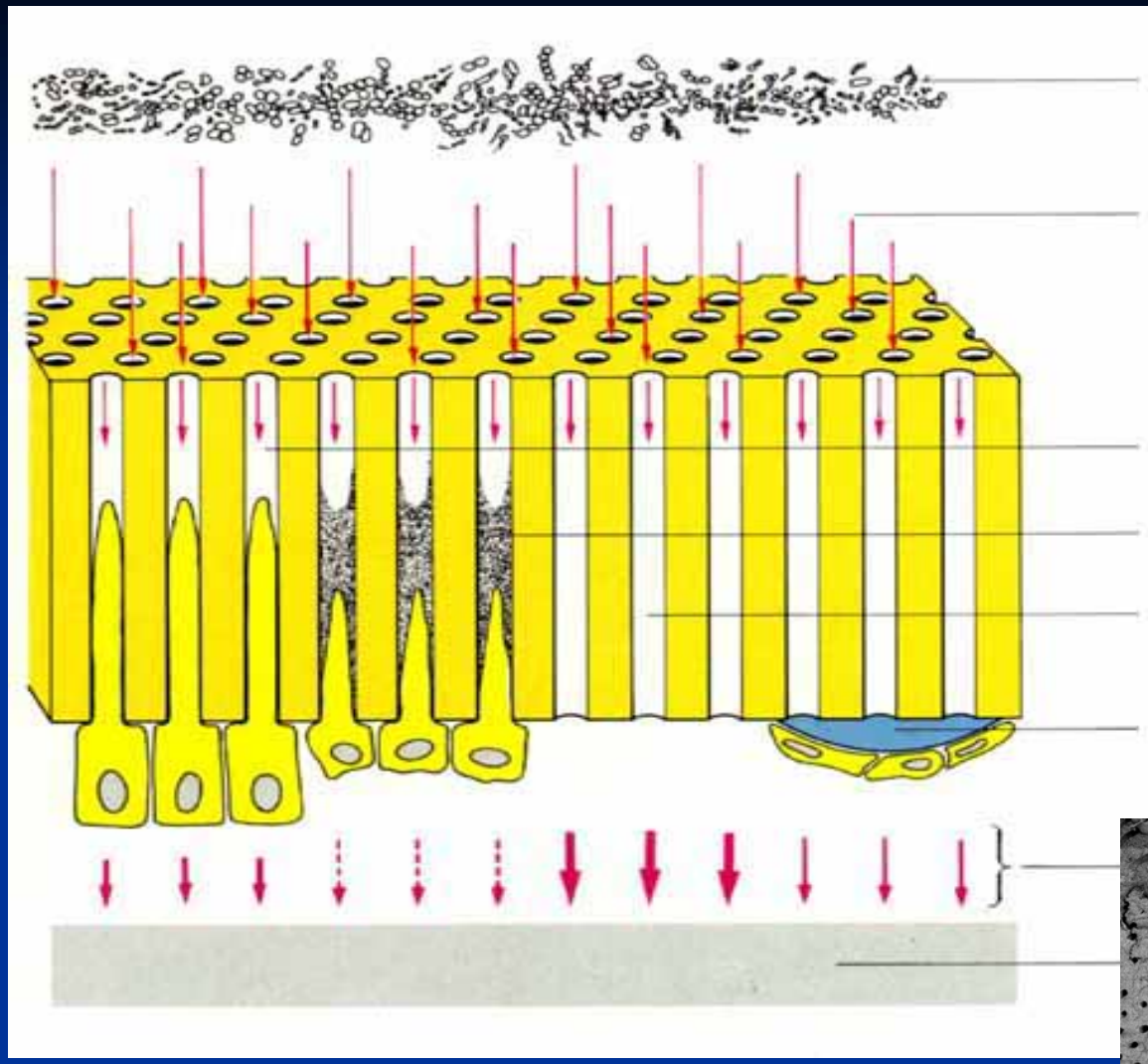
Odontoblasts
Predentin
Dentin

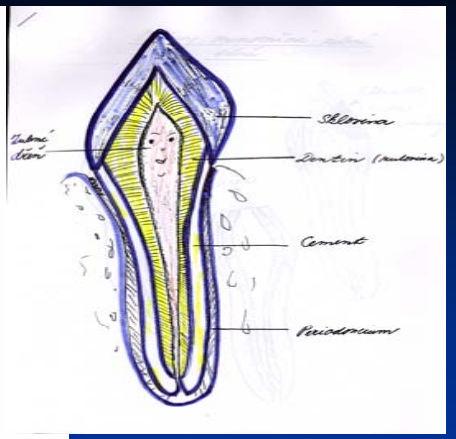


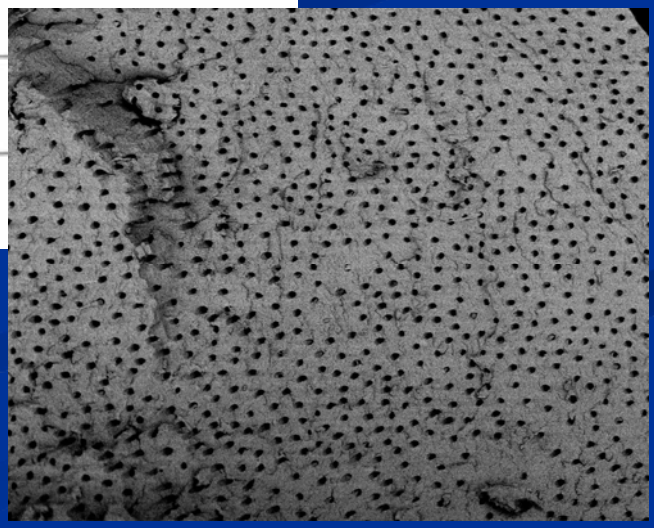
Dental pulp

Defense mechanisms of the pulp

- Sclerosis
- Tertiar dentin
- Dentin bridge







Pulpodentinální orgán - endodont

Pulp diseases

Inflammation - pulpitis

Consequences

- Necrosis
- Gangraena
- Apical periodontitis

Reasons

- Bacteria
- Mechanical irritants (overinstrumentation, trauma)
- Chemical irritation(esp. phenolic based intracanal medicaments, overfilling,irrigants)

Classification of pulp diseases

- Histopatological

Hyperemia pulpae

Pulpitis acuta serosa partialis

totalis

Pulpitis acuta purulenta partialis

totalis

Classification of pulp diseases

- Histopatological

Pulpitis chronica clausa

aperta

ulcerosa

polyposa

Classification of pulp diseases

Clinical

Reversible pulpitis

Pain does not linger after stimulus is removed

Pain is difficult to localize

Normal periradicular appearance

Teeth are not tender to percussion

Classification of pulp diseases

Clinical

Irreversible pulpitis

Pain may develop spontaneously or from stimuli

In later stages heat is more significant

Response lasts from minutes to hours

When the periodontal ligament is involved, the pain is localized

A widened periodontal ligament may be seen in later stages

Diagnosis

- **History**

Presenting complaint

Medical history

Dental history

Pain history

Location

Type and intensity of pain

Duration

Stimulus

Relief (analgetics, antibiotics, sipping cold drinks)

Diagnosis

- Clinical examination

Extraoral (swelling, redness, extraoral sinuses, lymph nodes, degree of mouth opening)

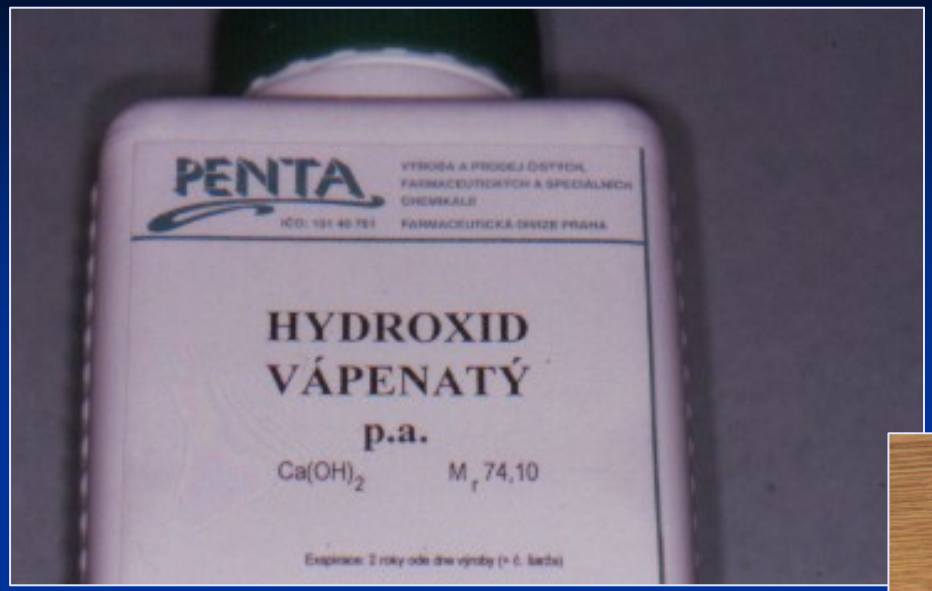
Intraoral examination

Swelling, redness,palpation, percussion, sinus tract examination, teeth mobility,pockets

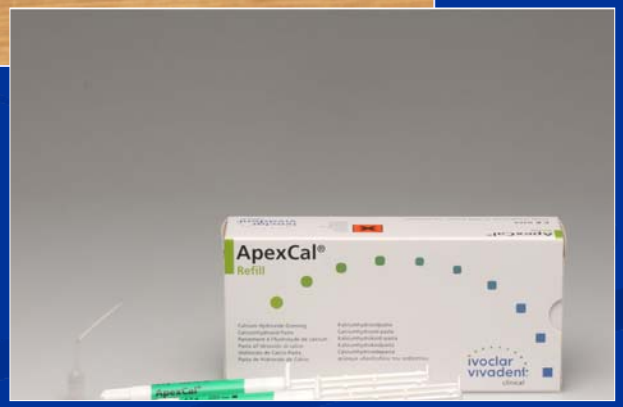
Diagnosis

Clinical examination

Pulp sensitivity tests, radiographic examination, transillumination.



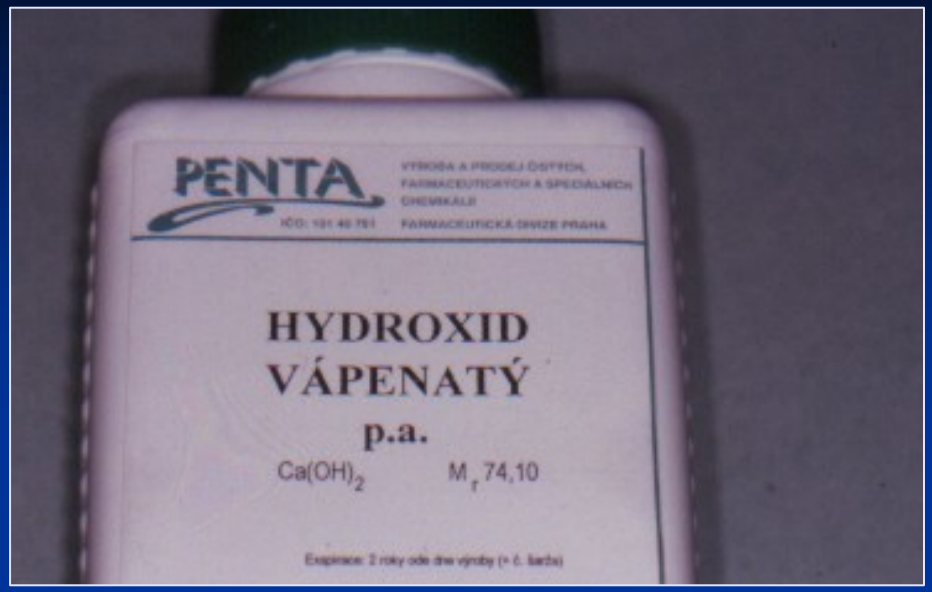
$Ca(OH)_2$



Disociation – strong alcality

Low solubility

Suspension

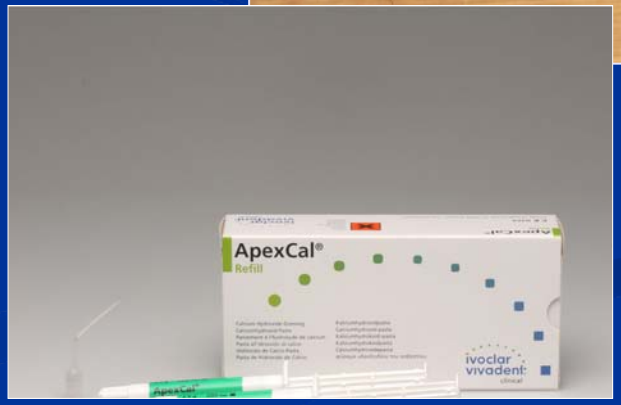


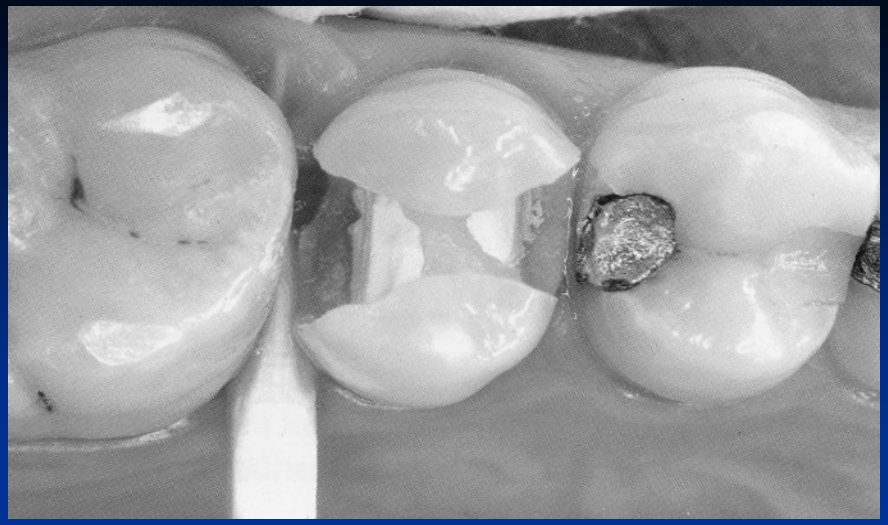
Antiphlogitic

Improves dentinogenesis

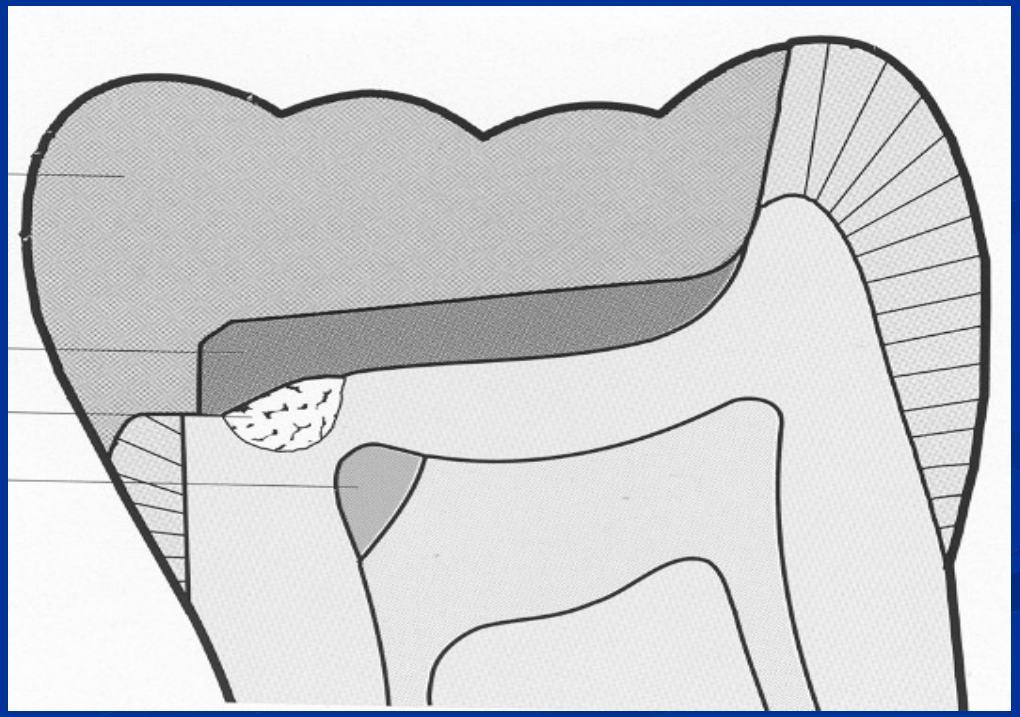
Antimicrobial effect

Suspensions
Cements
Subbase
Temporary root canal filling
- Short term
- Middle term
- Long term

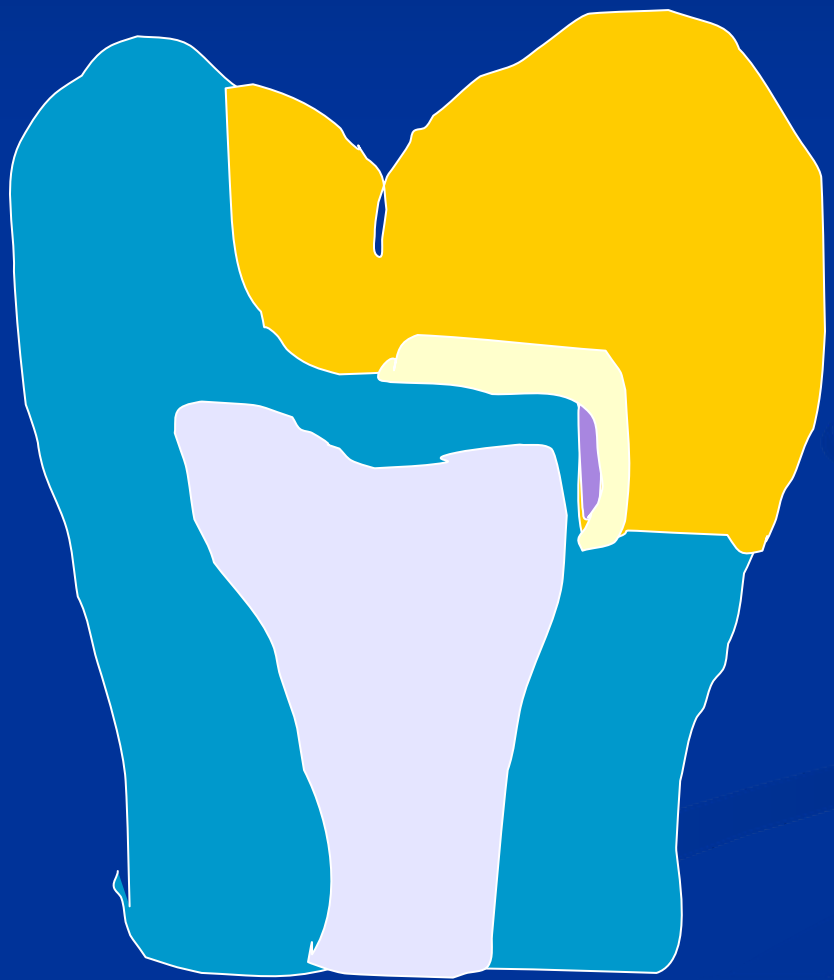




Indirect pulp capping



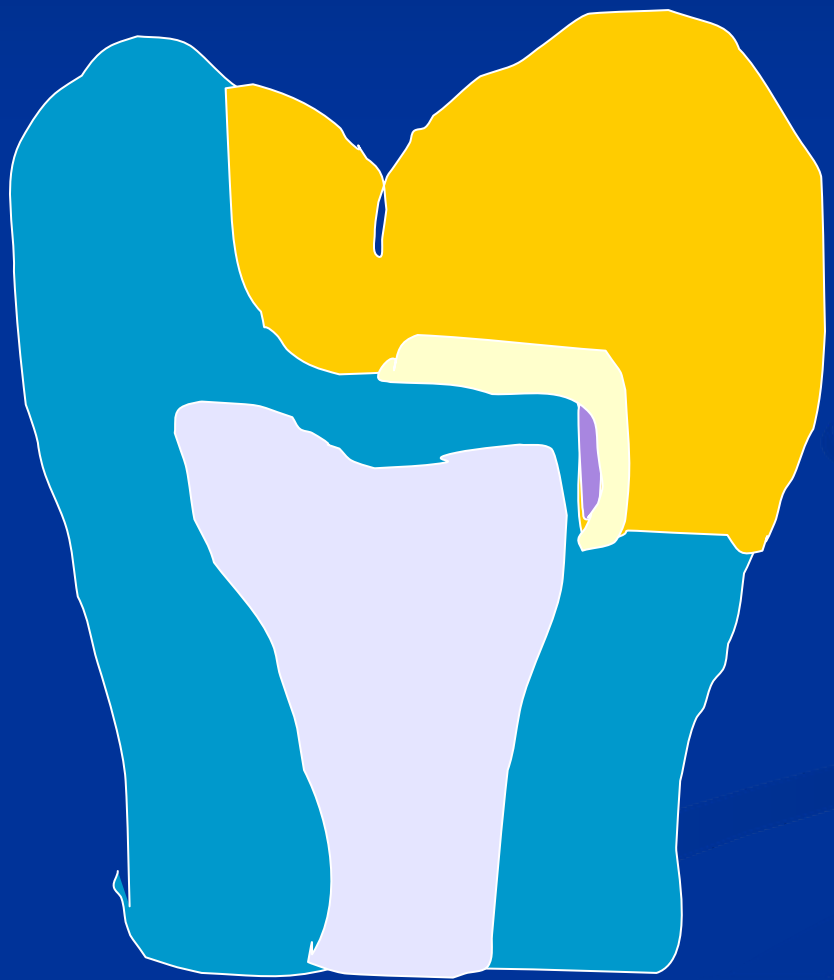
Indirect pulp capping



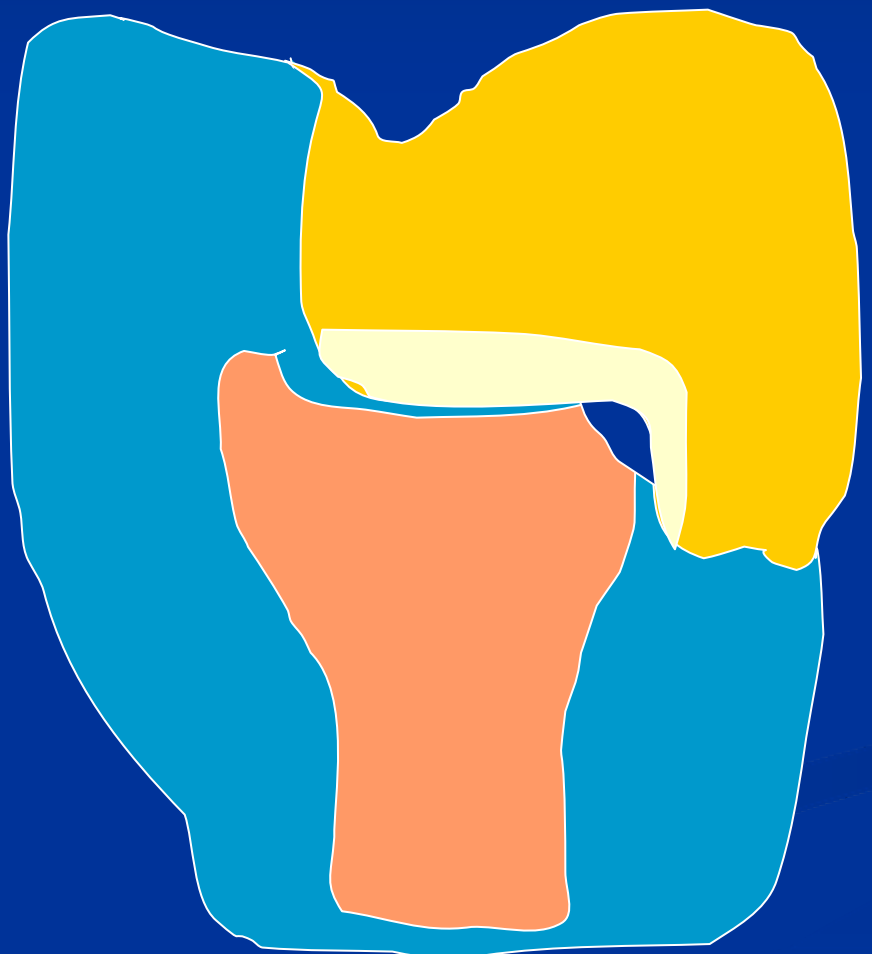
Suspension

Cement

Intermitent excavation

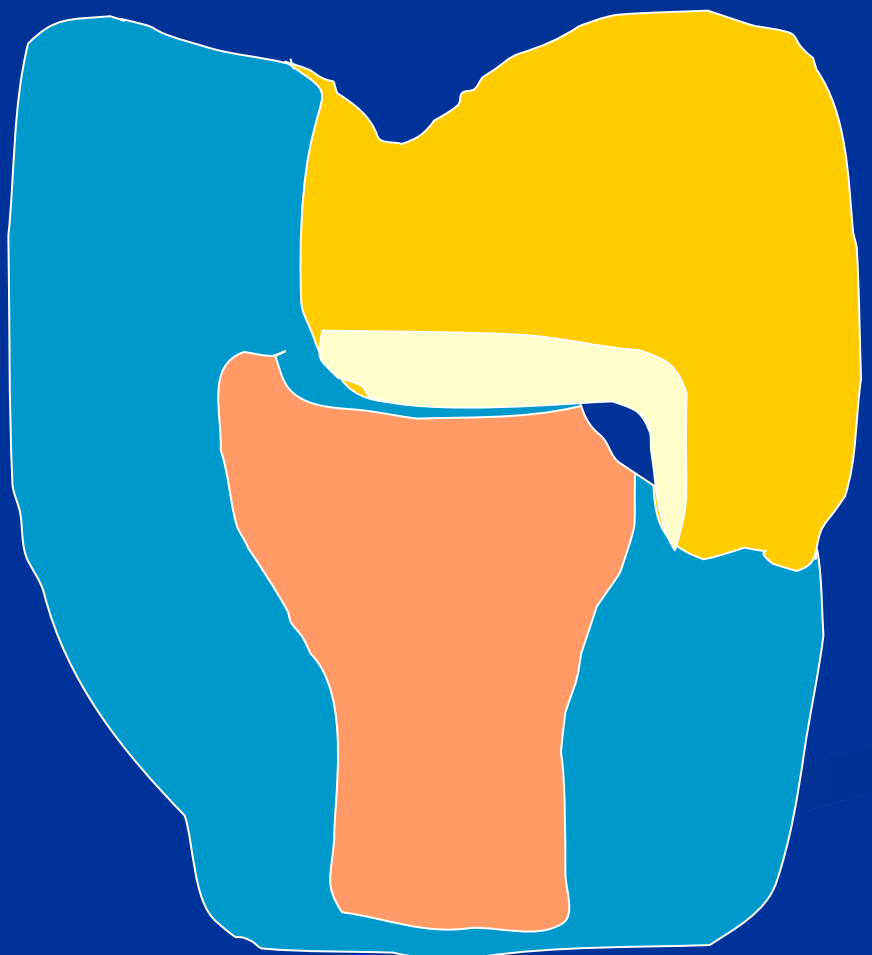


Direct pulp capping

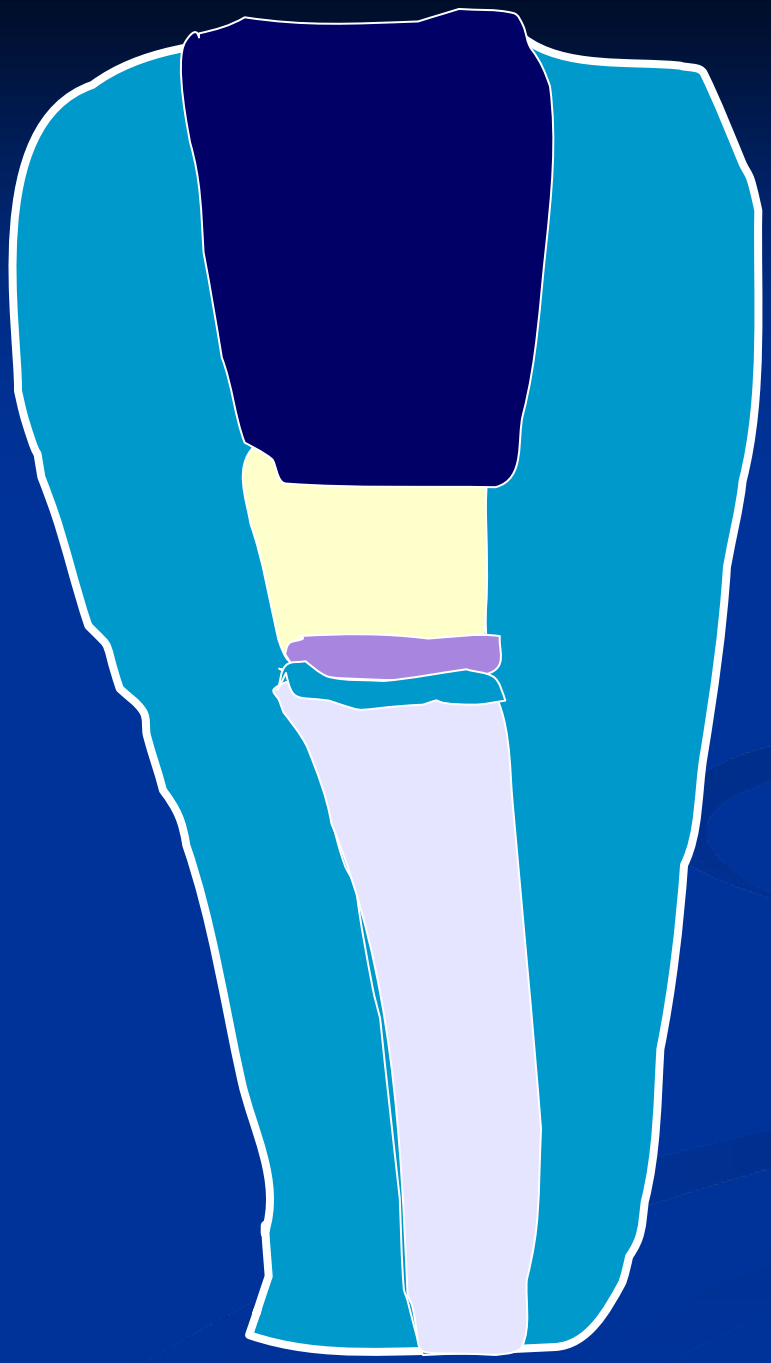


Necrosis
Reparative inflammation
Dentin bridge

Direct pulp capping



Small perforation surrounded with healthy dentin, immediately.



Pulpotomy

Indikace a kontraindokace endodontického ošetření

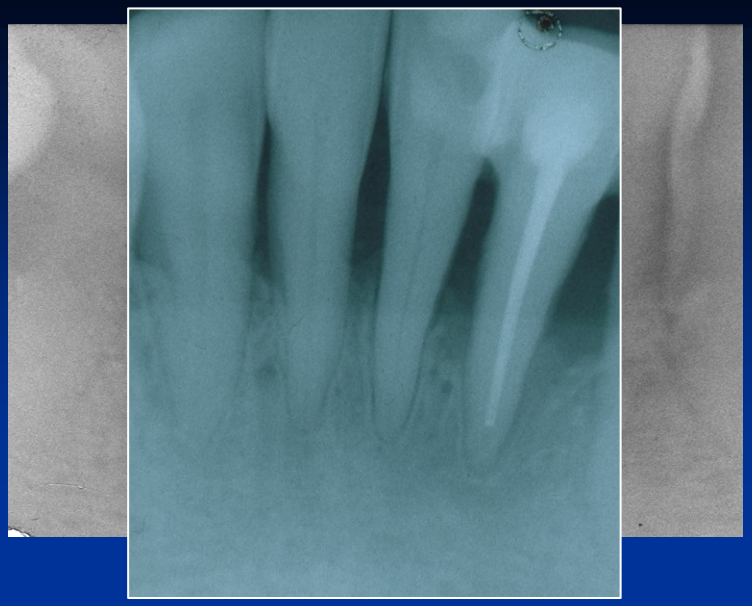
- Hledisko

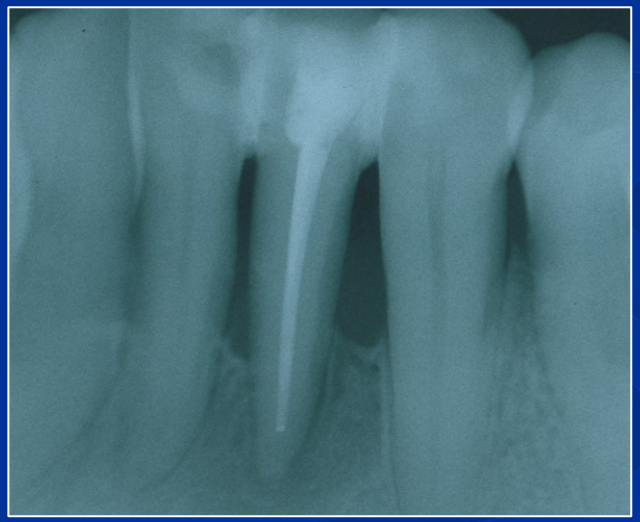
- Místní
- Regionální
- Celkové

Indikace a kontraindokace endodontického ošetření

- Hledisko

- Místní
- Stav parodontu
- Anatomické poměry kořenových kanálků





Indications and contraindications of the endodontic treatment

- Point of view

Local – morphology of the tooth (number of roots, configuration of the root canals, destruction of the clinical crown).

Indications and contraindications of the endodontic treatment

- Point of view

- Regional

Importance of the tooth

Indikace a kontraindokace endodontického ošetření

- Point of view

- Systemic

Healthy status

Ability of cooperation

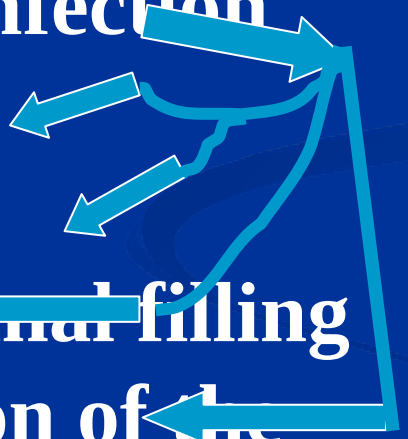
Pre-requisites for succes

- **Right indication**
- **Elimination of infection**

Canal shaping

Canal cleaning

- **Hermetic root canal filling**
- **Adequate reaction of the patient**



Phases of the endodontic treatment

- Diagnosis (history, investigation, x-ray)
- Decision
- Local anaesthesia
- Removal of old fillings, dental caries, reconstuction of the clinical crown if necessary, rubber dam
- Access to the pulp chamber

Phases of the endodontic treatment

- Opening of root canal orifices
- Cathetrization, removing of the content of the root canal, initial shaping – safe length
- Negotiation of he working length
- Root canal shaping and irrigation
- Recapitulation
- Drying
- Root canal filling
- X- ray
- Temporary filling
- Postendodontic treatment