



**PEDIATRIC DENTISTRY DISCIPLINE**  
**UMF „VICTOR BABES” TIMISOARA**

**PRACTICAL CLASS 11.1, 11.2**

# **ENDODONTIC TREATMENT OF YOUNG PERMANENT TEETH**



## **Treatment objective:**

- to maintain partial/complete vitality of the pulp of young permanent teeth
  - pulp vitality in the apical region is required in order to finalize development of the root
  - conservation of pulp vitality in young permanent teeth is possible due to numerous cells with high biologic potential and rich vascularization



## Therapeutic options:

- Direct or indirect pulp capping
- Pulpotomy, partial or complete
- Partial pulpectomy

aim: to stimulate  
**APEXOGENESIS**  
(natural apex formation)

- Apexification



## **Clinical considerations:**

- All the procedures performed in immature permanent teeth must be carried out under isolation with rubber dam
- Materials used in contact with the pulp must be biocompatible and bioactive (to reverse inflammation and stimulate pulp healing and regeneration)



# Indirect pulp capping:

## INDICATIONS:

- deep carious lesions
- pulpal hyperemia
- partial serous pulpitis

## CONTRAINDICATIONS:

- purulent pulpitis (partial and complete)
- general conditions — immunocompromised children, some blood disorders



# Direct pulp capping:

## INDICATIONS:

- Accidental opening of the pulp chamber <1-2mm
- Small carious opening in a tooth with no clinical symptoms, or radiological signs of inflammation
- Recent crown fracture (no more than a few hours) with small pulp exposure <2mm



# Direct pulp capping:

## CONTRAINDICATIONS:

- Clinical and radiological signs of pulp inflammation
- Pulpopathy and mobility of the tooth
- Old dental trauma (more than 6 hours)
- General conditions



# Pulpotomy:

## INDICATIONS:

- failure of pulp capping procedures
- pulp exposure >2mm
- all forms of acute partial pulp inflammation: hyperemia, partial serous or purulent pulpitis)





# **Pulpotomy:**

## **CONTRAINDICATIONS:**

- uncooperative patients
- general conditions – immunocompromised children, heart and blood disorders



# Pulpotomy – Cvek technique:

- local anaesthesia
- rubber dam isolation
- caries and infected dentin removal (using big round burs in the slows-peed handpiece) until pulp exposure
- removal of the coronal pulp (using sharp manual excavators or round burs in the slow-speed handpiece with adequate cooling)
- bleeding control
- application of the therapeutic material in contact with the pulp (calcium hydroxide/MTA/Biodentine)



## **Apexification procedure:**

- effective treatment method for permanent immature teeth with pulpal necrosis
- in irreversible pulpal disorders associated with open apexes
- must precede definitive endodontic treatment
- the formation of calcified apical bridge is followed radiologically
- then proceed to the conventional endodontic treatment, with the protection of that fine barrier formed apically



## **Apexification procedure - clinical steps:**

- removal of the necrotic pulp
- decontamination of the endodontic space (use of antiseptics, antibiotic pastes and calcium hydroxide) - in one or more sessions
- artificial closure of the apex by the apical barrier of MTA
- permanent closure of the endodontic space (with gutta-percha)
- coronary restoration



# **Complications of endodontic procedures in young permanent teeth:**

- lack of apical barrier formation
- external resorption
- ankylosis
- internal resorption
- coronary dyschromia