



PEDIATRIC DENTISTRY DISCIPLINE

UMF „Victor Babes” Timisoara

PRACTICAL CLASS 9

ENDODONTIC TREATMENT OF PRIMARY TEETH (THE PULPECTOMY PROCEDURE)



THE PULPECTOMY INDICATIONS

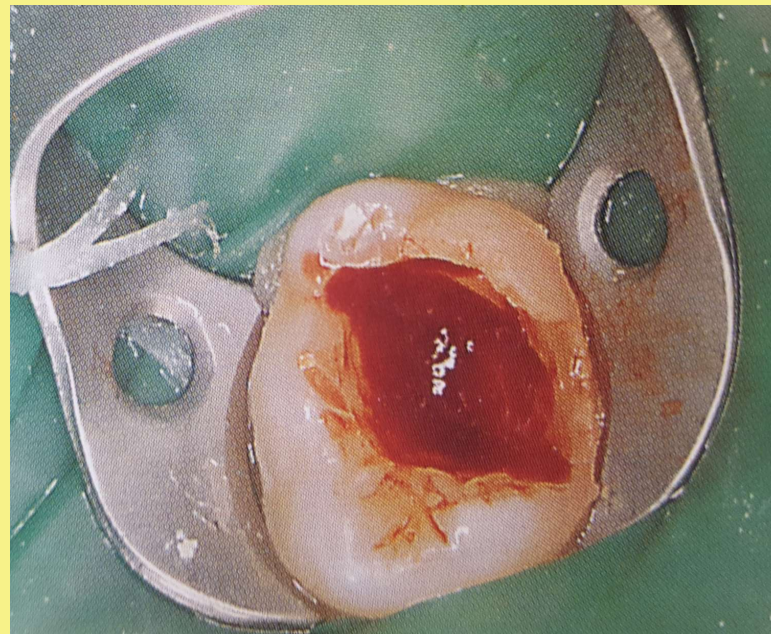
- **irreversible** changes may occur very early in the dental pulp of primary teeth
- when the **pain is spontaneous**, a carious primary tooth is **nonvital** or when the **inflammation** is found to extend to the radicular tissue (evident from **uncontrollable haemorrhage**, even after the application of the haemostatic agent)
- **in the worst situation**, the completely nonvital primary tooth may have developed complications (furcation pathology, fistula, abscess)



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THE PULPECTOMY INDICATIONS



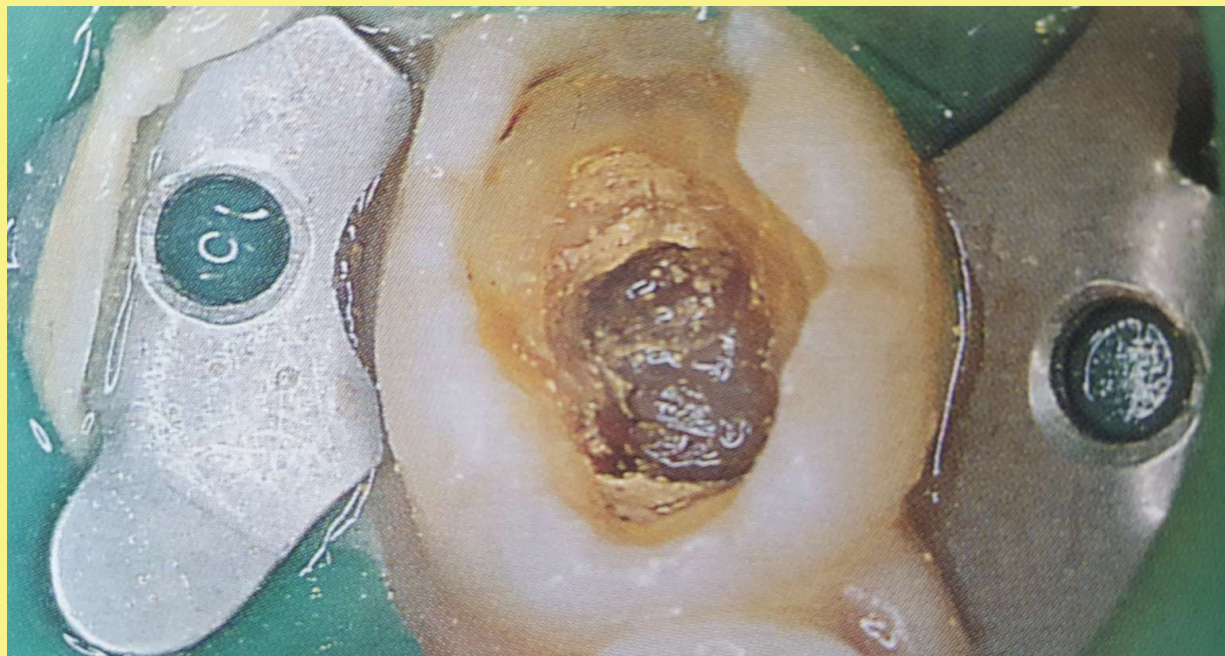
Irreversible inflammation extending to the radicular pulp, even after application of haemostatic agent, for a sufficient time, implies irreversible inflammation of the radicular tissue



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THE PULPECTOMY INDICATIONS



Necrotic pulp in a primary tooth, found when patients present with a carious asymptomatic teeth, that on accessing the pulp chamber, present like shown on this picture



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THE PULPECTOMY INDICATIONS



Primary teeth with evidence of furcation pathology, as infection in primary teeth usually manifests in the bi/trifurcation region, as opposed to the periapical pathology usually seen in permanent molars, because many fine channels of communication exist between pulp chamber and the bone in the furcation area



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THE PULPECTOMY INDICATIONS



The presence of a chronic, draining sinus (fistula) on the gingiva, usually on vestibular side of the tooth, near the gingival margin of the affected tooth



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THE PULPECTOMY INDICATIONS



The presence of an acute abscess, with or without an associated cellulitis



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THE PULPECTOMY CONTRAINDICATIONS

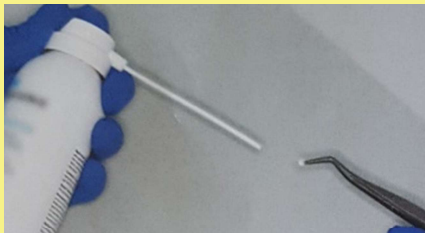
- **Medical contraindications** (heart defect or heart surgery, because these children are at risk of developing bacterial endocarditis; immuno-compromised children, who are neutropenic for considerable periods, during the treatment of severe diseases)
- **unrestorable crown**, if after removal of all caries, there will not be enough tooth structure left to support the crown restoration, when even the placement of a stainless steel crown is not predictable
- **Advanced pathological root resorption**, due to a chronic abscess
- **Advanced physiological root resorption**



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INSTRUMENTS AND MATERIALS



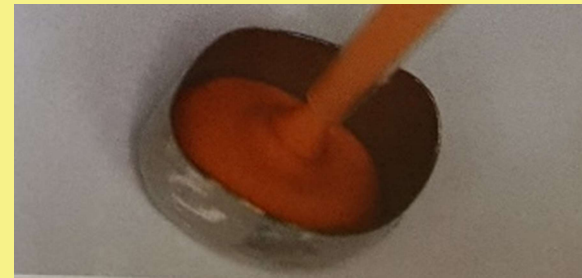
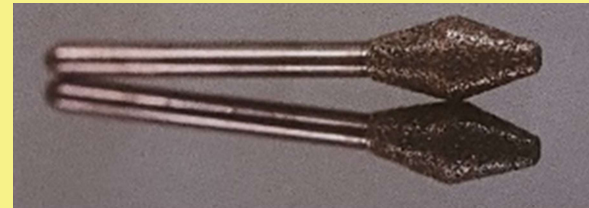
- Cold vitality test spray; calcium hydroxide with iodoform or zinc oxide eugenol resorbable paste
- Different burs: pear shaped and cylindrical diamond turbine burs, contra angle carbide round burs (normal and long neck), specific endodontic diamond drill for turbine(long round with collar 802L, inactive tip)



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INSTRUMENTS AND MATERIALS



- Turbine diamond burs for the proximal and occlusal reduction of primary teeth before placement of stainless steel crowns
- Set of instruments and precontoured stainless steel crowns
- Glass ionomer cement (GIC), used for luting stainless steel crowns on endodontically treated primary teeth



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TYPES OF PULPECTOMY TECHNIQUES

- Pulpectomy can be accomplished in either one or two visits, depending upon the clinical signs and symptoms present and the ability of the child and of his parents to cooperate
- The endodontic treatment can be performed using a vital or a non-vital technique
- The two-stage pulpectomy is usually performed when: we have a necrotic primary tooth, associated with an acute abscess or cellulitis; a chronic buccal lesion with active discharge or acute symptoms; non-vital pulpectomy



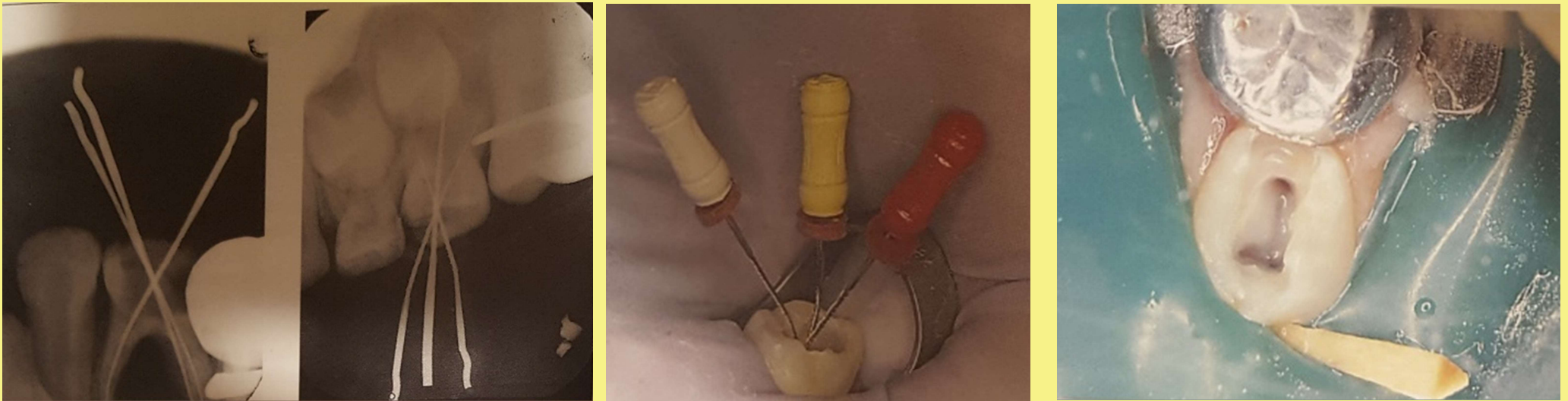
Clinical steps:



- Step I: Give a local anaesthesia and isolate the tooth with rubber dam
- Step II: Remove the caries and identify exposure site
- Step III: Remove the roof of the pulp chamber as described for pulpotomy and identify opening of root canals



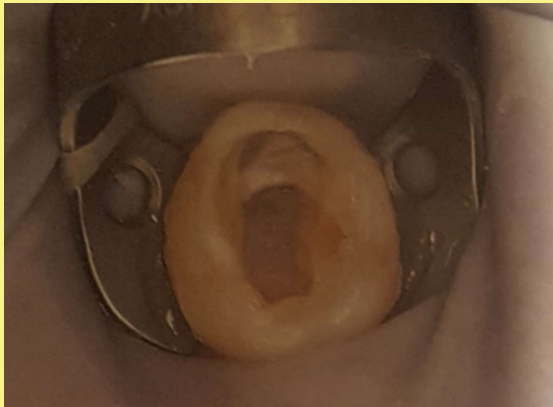
Clinical steps:



- Step IV: Take a diagnostic radiograph with files in the root canals, if possible
- Step V: Clean out root canals with K-files or a combination of manual and rotary files, specially designed for paediatric dentistry, irrigating the canals with warm 2% hypochlorite solution



Clinical steps:



- Step VI: Dry root canals with paper points (Some years ago Formocresol was also used to “fix” any tissue that may have been left behind in the apical 1-2 mm of the root canals and in any accessory canals that may be present)
- StepVII: Select a paper point or a canal tip (Some years ago a short root canal filler was used, taking the risk of fracturing and pushing the material through the apex)



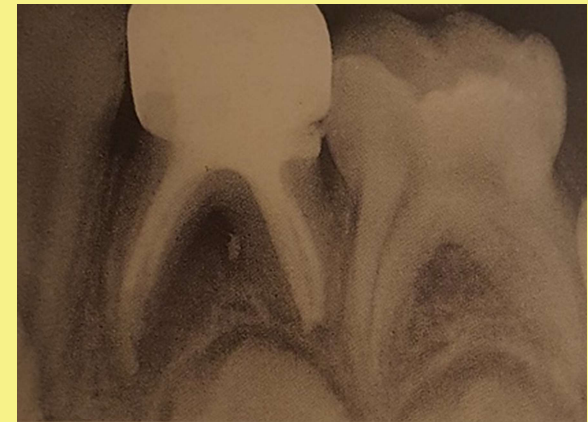
Clinical steps:



- Step VIII: Mix zinc oxide and eugenol (ZOE) as a slurry or use a calcium hydroxide and iodoform paste (Vitapex) and apply it into the root canals. **The use of guttapercha points or non resorbable pastes is not allowed!**
- Step IX: Fill the pulp chamber with cement (ZOE or GIC)



Clinical steps:



- Step X: Restore the tooth with long lasting materials like: composite, compomer or a stainless steel crown
- Step XI: Take a postoperative radiograph to check the root filling



Follow-up and clinical prognosis:

- teeth that have been treated with pulpectomy technique should be reviewed **both clinically and radiographically** at follow-up appointments
- the pulpectomy is **clinically successful** if there is alleviation of acute symptoms and the tooth is free of pain and mobility and any draining sinus should have disappeared
- The **follow-up radiographic schedule** is: 1 pre-operatively, 1 immediately post-operative and at 6 months and 1 year later. The x-rays should be assessed for **furcation pathology**
- **Improvement or no further deterioration** of the bone condition of that region means that the pulpectomy has been **successful**
- **Worsening of the extent of radiolucency** in the furcation region could be an indication for tooth extraction



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Bibliography:

- **Course notes**
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