

## Oral Session 5 – Pedodontic Endodontics, Dental Caries Management

### OR-05-01 | Endo-restorative treatment of severely destroyed primary anteriors with apical periodontitis

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**Background:** Early childhood caries often leads to complications – severe destruction of clinical crown and inflammation in periodontal tissues. Extraction of such teeth may negatively influence eating, speech development, esthetics, arch integrity and development of oral habits. Conservative treatment though remains being a challenge due to difficulties in behavior management and risk of possible long term complications.

**Methods:** Children up to 3 years of age with apical periodontitis in upper incisors were included in the study. Clinical crowns were destructed to gingival level. Treatment included root canal instrumentation and irrigation with 2% chlorhexidine solution either under local or general anesthesia using rubberdam isolation. Root canals were obturated with zinc oxide eugenol paste. Sealer was isolated with glass ionomer cement and free hand modelling technique was used to restore clinical crowns with composite. Intra oral and radiographic examination was performed 12 and 30 months after treatment to follow up the restorations and any possible signs of inflammation.

**Results:** 12 children with 48 restorations participated in the study. The overall survival of restorations was 48 (100%) after 12 months and 45 (93.75%) after 30 months: two (4.16%) restorations debonded and one incisor was extracted after trauma. There were no clinical or radiographic signs of inflammation after 30 months, 10 (20.8%) teeth showed slightly slower resorption of sealer than the root.

**Conclusions:** This approach for rehabilitation of destroyed upper incisors with apical periodontitis in children under three can be a possible treatment option, which helps to improve quality of life for our patients.

### OR-05-02 | Orthodontic treatment in case of regenerative endodontic therapy (RET) treated front teeth

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**Background:** RET is considered as a promising treatment in case of severely traumatized immature front teeth. Some of the RET treated children need orthodontic treatment (OT) later in life. The aim of this study is to examine if RET is a contraindication for future orthodontic intervention.

**Methods:** In the secondary dental care clinics of the PREP-dentists 20 children (14 boys) with 23 teeth were treated with RET and needed OT later on. After a mean follow-up time of 47 months OT started. In thirteen children the OT is finished, the other children are still being treated. No inflammation was present at the start of the OT.

**Results:** Most RET teeth did not show problems during or after OT. Ankylosis and periodontal problems were not seen. A new apical inflammation was seen in two cases after OT. One tooth was retreated and remained without inflammation, in the other child the RET tooth was lost. Apical resorption was found in seven children (7 teeth). In these children also in their not RET treated teeth apical resorption was found.

**Conclusions:** RET is not considered as a contraindication for OT in RET treated front teeth with absence of inflammation at the start of the OT. OT did not promote failure of the RET treatment, the apical resorption can be seen as an already known negative effect of OT.

### OR-05-03 | Long-term endodontic management of previously traumatized immature maxillary central incisors 8-year follow-up

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**Introduction:** Although pulpal prognosis is good for uncomplicated crown fractures of open-apex incisors, the pulp can become necrotic and require endodontic intervention. This case report presents endodontic management of previously traumatized immature incisor.

**Case report:** An 8-year-old girl was admitted with an abscessed and painful maxillary central incisor with an

enamel-dentin fracture restored previously with composite resin. Radiographic examination showed periapical radiolucency with an open apex, therefore regenerative endodontic treatment was performed. After 15 months, periapical pathology was also observed in the maxillary right central incisor, thus regenerative treatment was applied. Retreatment was required in both teeth after 3 and 4 years due to new periapical lesion. The teeth were treated with hydraulic filling technique involving MTA sealer and single-cone gutta-percha. After 36 months follow-up, there was complete periapical healing.

**Discussion:** In the case of failed regenerative endodontic treatment, conventional methods can provide predictable outcomes. Single cone obturation technique with MTA has shown promising results for necrotic immature anterior teeth with apical periodontitis.

**Conclusion:** The present case report shows successful management of traumatized immature with the single cone filling technique after unsuccessful management using regenerative endodontic therapy.

#### OR-05-04 | Evaluating antibacterial properties of a vasoconstrictive nasal solution with oxymetazoline that is used in pedodontic endodontics

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**Background:** The purpose of the study was to evaluate the antibacterial properties of a vasoconstrictive nasal solution that can be used as a pulpotomy medicament.

**Methods:** *S. mutans* bacterial cells were grown on brain-heart infusion (BHI) agar plates (with 0.5% glucose) and exposed to OXY (0.05%), Benzalkonium chloride (BKC-0.025%), Afrin® nasal solution (OXY-0.05% with BKC), Ferric sulfate (20%;ViscoStat), and deionized water (DI) using a well established discs inhibition assay. The plates with treatment were incubated at  $37 \pm 0.5^\circ\text{C}$  under anaerobic conditions followed by measuring zone of inhibition after 20 h. Additionally, an antibacterial broth inhibition test was conducted by adding the test samples in nutrient broth (0.5% glucose) containing *N. mucosa* at  $37 \pm 0.5^\circ\text{C}$  under an aerobic condition. The pH and optical density (OD) at 600 nm data were recorded simultaneously at defined time intervals (0, 1, 3, 5 and 20 h).

**Results:** The disc diffusion test suggest that nasal solution (Afrin) and BKC had the largest ZOI with the values  $12.6 \pm 0.8$  and  $12 \pm 0.9$  mm respectively, indicating antibacterial activity. Ferric sulfate demonstrated a very small ZOI, while OXY and DI had no ZOI. Antibacterial broth test for

*N. mucosa* confirmed the antibacterial property based on the OD and pH levels when exposed to Afrin (0.01%) and BKC (0.025%) for up to 20 h. DI and Oxymetazoline treated samples showed an elevation in OD indicating a normal bacterial growth and a concurrent drop in pH.

**Conclusions:** The vasoconstrictive nasal solution demonstrated antibacterial properties against abundant oral bacteria that are found in pulpal infection.

#### OR-05-05 | Inflamed vital pulp therapy of symptomatic irreversible pulpitis and apical periodontitis in immature permanent teeth – A case series analysis

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**Background:** With deepening research on pulp biology, inflamed vital pulp therapy (IVPT) in immature permanent teeth is being paid great attention due to its superiority in promoting root physiological development. Nevertheless, the indication, treatment procedure, and efficacy evaluation of IVPT require further improvement. We adopted IVPT in a case series of immature permanent teeth affected with symptomatic irreversible pulpitis (SIP) and apical periodontitis, and analyzed their follow-up results.

**Methods:** IVPT was performed with informed consent based on preoperative and intraoperative pulp status assessments. Bleeding color and time after pulp exposure were recorded. After chemical preparation and the removal of necrotic dental pulp, the bioceramic material iRoot BP Plus was used for pulp capping. In cases of insufficient residual vital pulp, calcium hydroxide paste was used for 2–3 weeks. Concentrated growth factor (CGF) was then placed above the vital pulp tissue. The access cavity was sealed with glass ionomer cement and composite resin. Regular clinical and radiographic examination were performed to evaluate the clinical efficacy and continued root development.

**Results:** All the five cases showed no clinical symptoms and achieved periapical healing at 3–6 months after treatment. Root length significantly increased in one case; root wall significantly thickened in two cases; and apical diameter significantly decreased in three cases.

**Conclusions:** Residual pulp tissues in the root canal could be preserved in immature permanent teeth with signs of SIP or even periapical periodontitis. The combination of CGF and bioactive pulp capping materials might improve the therapeutic effect of IVPT.