Treating Deep Caries and Dental Emergencies

- Clinical Assessment
- Deep Caries – Vital Pulp Therapy
- Deep Caries – Non-Vital Pulp Therapy
- Dental Emergencies Associated with Caries

Assessment of Reversible or Irreversible Pulpitis

- History of Pain
- Clinical Evaluation
- Radiographic Assessment
HISTORY OF PAIN
- Duration of Pain
  - Few seconds vs. minutes/hours
- Frequency of Pain
  - Intermittent, stimulated vs. spontaneous nighttime
- Location of Pain
  - Children have difficulty localizing pain

CLINICAL EVALUATION
- Presence of abscess or fistula
- Mobility
  - Pathology
  - Normal exfoliation
- Percussion sensitivity
- Soft tissue swelling
- Lymphadenopathy
- Pulp Exposure
  - Hemorrhagic
  - Necrotic

RADIOGRAPHIC ASSESSMENT
- Proximity of caries to pulp is difficult to differentiate
- PDL widening
- Furcation pathology vs. periapical
- Resorption-internal vs. external
- Pathology vs. normal exfoliation (check antemere)
Vital Pulp Therapy
-- Caries Control
-- Indirect Pulp Cap
-- Pulpotomy

Caries Control –
Arrest Progression and Aid in Diagnosis

Two Months Later –
No Symptoms, Re-excavated and Restored
Caries Control
Preoperative

Caries Control
Postoperative

Caries Control –
Arrest Progression and Aid in Diagnosis
One Months Later –
No Symptoms, Re-excavated and Restored

Vital Pulp Therapy
-- Caries Control
-- Indirect Pulp Cap
-- Pulpotomy

Indirect Pulp Cap -- Rationale
- A deep carious lesion that approaches the pulp, but no exposure.
- Minimizes the risk of pulp exposure.
- Preserves pulp vitality.
Indirect Pulp Cap -- Initial Caries Removal

Indirect Pulp Cap -- Final Caries Removal

Indirect Pulp Cap – Coverage with Glass Ionomer Cement
Indirect Pulp Cap - Failure

Vital Pulp Therapy
-- Caries Control
-- Indirect Pulp Cap
-- Pulpotomy

Vital Pulpotomy -- Rationale
- Definitive treatment for a carious or mechanical exposure in a primary tooth.
Initial Opening – Wide Enough to Remove Entire Pulp Chamber

Post-Op Pulpotomy – 4 years later
View After Initial Opening

View of Initial Opening

Preparation Slightly into Orifaces
Formocresol for 5 Minutes

Crown over Pulpotomy

Crown over Pulpotomy
Deep Caries Treated with Pulpotomy

Pulpotomy Failure
**Indirect Pulp Cap vs. Pulpotomy**
for Treatment of Deep Caries
in Primary Teeth

<table>
<thead>
<tr>
<th></th>
<th>Success</th>
<th>Mean Follow-up (yrs)</th>
<th>Range (yrs)</th>
<th>No. of Teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPC</td>
<td>93%</td>
<td>4.2</td>
<td>1.9-7.5</td>
<td>55</td>
</tr>
<tr>
<td>Pulpotomy</td>
<td>74%</td>
<td>3.9</td>
<td>1.9-6.9</td>
<td>78</td>
</tr>
</tbody>
</table>


**Signs of Reversible Pulpitis**
- Provoked pain (by some food/drink)
- Pain can be relieved
- Soft tissue within normal limits
- No tooth mobility/sensitivity to pressure
- No history of fever
- No abscess or fistula
- No internal/external root resorption or bifurcation radiolucency

**Signs of Irreversible Pulpitis**
- Pain is spontaneous, especially at night
- Soft tissue swelling
- Tooth mobility/sensitivity to pressure
- Lymphadenopathy
- History of fever
- Abscess or fistula
- Internal/external root resorption or bifurcation radiolucency
Non-Vital Pulp Therapy
-- Pulpectomy
-- Extraction

Indications for Pulpectomy
- Spontaneous pain
- Small abscess
- Limited mobility
- No root resorption
- Age of patient

Pulp Canal Anatomy of Primary Teeth
Pulpectomy – 8 Years Later

Deep Caries – Non-Vital Pulp Therapy

-- Pulpectomy
-- Extraction

Summary -- Deep Caries in Primary Teeth

- Vital Pulp Therapy
  -- Caries Control
  -- Indirect Pulp Cap
  -- Pulpotomy

- Non-Vital Pulp Therapy
  -- Pulpectomy
  -- Extraction
Dental Emergencies
Associated with Caries

- Reversible pulpitis
  - intermittent pain associated with eating

- Irreversible pulpitis
  - spontaneous pain, especially at night

- Abscess
  - Fistula, swelling
  - Fever, lymphadenopathy, cellulitis

Dental Emergencies

- Reversible pulpitis
  - caries excavation and sealing dentin
  - If pulp is exposed – vital pulpotomy

Dental Emergencies

- Irreversible pulpitis
  - pulpectomy or extraction
**Dental Emergencies**

- **Abscess**
  - Immediate treatment depends on whether abscess will interfere with being able to anesthetize the tooth.
  - If need to delay, prescribe antibiotic and analgesics (4-7 days).
  - Oral penicillin -- 50mg/kg in 3-4 divided dosages.
  - Ibuprofen -- 10 mg/kg q6-8 hr.
  - Cellulitis spreading to facial triangle or submandibular space.
    - Parenteral antibiotics and hospitalization.

Abscess of mandibular first molar that can be anesthetized with mandibular block.

Abscess of a maxillary first molar that may be difficult to anesthetized due to infection in the area.
Dental Emergencies

Abscess
- Immediate treatment depends on whether abscess will interfere with being able to anesthetize the tooth
- If need to delay, prescribe antibiotic and analgesics (4-7 days)
  - Oral penicillin – 50mg/kg/d in 3-4 divided dosages
  - Clindamycin – 30mg/kg/d in 3-4 divided dosages
  - Ibuprofen – 10 mg/kg q6-8 hr
- Cellulitis spreading to facial triangle or submandibular space
  - Parenteral antibiotics and hospitalization

Cellulitis affecting the maxillary triangle
Summary of Dental Emergencies

- Reversible pulpitis
  - caries control/temporization

- Irreversible pulpitis
  - pulpectomy or extraction

- Abscess
  - immediate or postponed pulp treatment/extraction
  - antibiotics