Endodontic Emergencies

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Course learning outcomes: By the end of this lecture, students should be able to:

- Identify the etiology of emergencies which occur prior to, during and after endodontic treatment.
- Recognize what constitutes a real emergency.
- List factors that relate to a greater frequency of inter-appointment and post obturation flare-ups.
- Describe and outline a sequential approach to the management of endodontic emergencies.
- Outline the examination procedures required to identify a source of pain and establish a pulpal or periapical diagnosis.
- Describe when pretreatment emergencies might occur and how to manage these emergencies.
- Outline the steps involved in treatment of painful irreversible pulpitis, necrotic pulp with acute apical periodontitis, acute abscess including the indications and procedure for incision and drainage.
- Describe in detail pharmacological support therapy used in endodontic emergencies to reduce pain and control inflammation and infection.
Endodontic Emergencies

- Definition: emergency associated with pain and/or swelling and require immediate diagnosis and treatment
- Requires unscheduled office visit
- Disrupt routine schedules
- Challenge
- Clinicians must have knowledge in
  - Pain mechanisms
  - Pt management
  - Diagnosis
  - Anaesthesia
  - Therapeutics
Endodontic Emergencies

• Associated with pain or swelling

• Caused by
  • Pathology: pathoses in the pulp or periapical tissues,
  • Traumatology: including severe traumatic injuries

• Requires immediate diagnosis and management STAT!

• Differentiate from urgency.....
  • A less severe problem
How painful is painful?

- Emergency
- Does the pain disturb your sleeping, eating, working or other daily activities?
- How long has the pain been bothering you?
- Have you taken any pain medication? Did it help?
Endodontic Emergencies

May occur at:

- Pretreatment
- Interappointment
- Postobturation
Diagnosis

Accurate diagnosis depends on:

• Ability to obtain information
• Ability to reproduce patient’s current complaint in the chair
• Ability to use pt’s dental history, your experience in diagnosis
• MUST Include

✓ Status of the pulp or periapical tissues
✓ Causative factor
System of Diagnosis

Diagnosis sequence

- Obtain pertinent information about medical and dental histories
- Ask subjective questions on the pain: History, location, severity, duration, character, stimuli.
- Perform a visual extra-oral exam
- Perform an intra-oral exam related to the area of complaint
- Perform pulp testing
- Use palpation and percussion test to determine periapical status
- Interpret appropriate radiographs
- Identify the offending tooth and tissue
- Establish a pulp and periapical diagnosis and its cause
- Design a treatment plan
Radiographic Examination
Treatment Plan

• To remove causative factors ie reduction of pressure or removal of inflammed pulp

• Aims to relief pain for the First Visit eg first time seeing pt.

• Or can occur in the stabilisation stage of treatment planning
  • ROF/ Control –Phase 1
    • Re-evaluation phase
  • Arrest of active disease/ Caries stabilisation phase- phase II
  • Corrective/ Definitive phase – Phase III
  • Maintenance/ Review
PRETREATMENT EMERGENCIES

• (COVERED IN YOUR DENTAL EMERGENCIES LECTURE)
Irreversible Pulpitis – is the state of the pulp, what is the cause of the pulp to be in that condition?
Management of Painful Irreversible Pulpitis:

- LA- profound anaesthesia.
  - Palatal infiltration
  - Long buccal
  - Re-test
- Isolation of tooth
- Caries removal
- Removal of coronal pulp
- Occlusal adjustment (if necessary)
- Prescribe Analgesics**
  - 400mg Ibuprofen or
  - 1000mg acetaminophen

**Pulp Removal Options:**
1) Enough time
   - Pulpectomy
   - Coronal flare
   - NaOCl irrigation
   - Put Endopaste/Ledemix paste
   - Temp dressing

2) Minimal time
   - Pulpotomy - remove pulp from largest canal
   - NaOCl irrigation
   - Place dry cotton pellet
   - Temp dressing
Ledermix/Endopaste®

Contents:
• Triamsinolone acetate
• Demethyl chlortetracycline calcium

Indication:
Emergency treatment of pulpal inflammation

Functions
• Anti-inflammatory (Corticosteroids)
• Antibiotics
Pulp Necrosis due to?
Apical Periodontitis due to?
Management of Painful Necrotic Pulp Without Swelling:

- LA
  - Profound anaesthesia
- Isolation of tooth
- Caries removal
- Canal debridement
- Occlusal adjustment (if necessary)
- Prescribe Analgesics
  - Long term anaesthesia
  - Moderate pain management
  - 400-800mg Ibuprofen by the hour + 1000mg PCM

Debridement Options:

1) Enough time
   - Coronal flare
   - Working length
   - NaOCl irrigation
   - Put CaOH
   - Temp dressing

2) Minimal time
   - Partial debridement at estimated working length to size #25 or more
   - NaOCl irrigation
   - Place dry cotton pellet
   - Temp dressing
PULP NECROSIS WITH SWELLING /
ACUTE APICAL ABSCESS/
ACUTE EXACERBATION OF CHRONIC LESION
Management of Painful Necrotic Pulp With Localised Swelling:

- LA
  - Profound LA
- Isolation of tooth
- Caries removal
- Canal debridement
- Localised swelling incised and drained
  - ROPP
  - Removal of potent purulence
- Occlusal adjustment (if necessary)
- Prescribe Analgesics
  - Mild- mod pain relief
  - Most important is ROP

Treatment:
1) Debridement
   - Clean canal
   - Over-instrumentation to drain pus through the canal
     - CaOH and dry cotton pellet
     - Place temp dressing

2) I & D
   - Incise the fluctuant area
   - Drain pus
Management of Painful Necrotic Pulp With Diffused Swelling (Cellulitis):

Referral!!! Consider extraction!

- LA
- Isolation of tooth
- Caries removal
- Canal debridement
- Swelling incised and drained (if possible)
- Occlusal adjustment (if necessary)
- Prescribe Analgesics
- **Prescribe Antibiotics (if there’s systemic manifestation)**

**Treatment:**

1) Debridement
   - Clean canal
   - Over-instrumentation to drain pus through the canal
   - CaOH and dry cotton pellet
   - Place temp dressing

2) Incision & Drainage
   - Incise the fluctuant area
   - Drain pus
INTERAPPOINTMENT EMERGENCIES

- Flare-ups
- To differentiate from discomfort
- Duration
- Can occur during definite /corrective phase (Phase II)
Causative Factors - controversial

- Incidence 1.8-3.2%
- Patient related
- Causative bacteria
- Treatment procedures
  - Susceptible cases
    - Teeth with necrotic pulp
    - Acute apical abscess
    - Apical radiolucency
    - Pt with pre-operative pain
  - Trauma to periapical tissues - Apical patency, over-instrumentation
  - Extrusion of debris, irrigation fluid
  - Hypochlorite accident
Prevention

- Use of long acting LA
- Careful treatment procedure
- Warning of discomfort after treatment
Instruments for irrigation
<table>
<thead>
<tr>
<th>Case</th>
<th>Status</th>
<th>Management</th>
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<tbody>
<tr>
<td>Previously pulp extirpated</td>
<td>Without swelling</td>
<td>✓ Reassurance ✓ Prescribe analgesics</td>
</tr>
<tr>
<td></td>
<td>Comp. debridement</td>
<td></td>
</tr>
<tr>
<td>Previously pulp extirpated</td>
<td>Without swelling</td>
<td>✓ Canal to be debrided ✓ Prescribe analgesics</td>
</tr>
<tr>
<td></td>
<td>Incomp. debridement</td>
<td></td>
</tr>
<tr>
<td>Non vital cases</td>
<td>Without swelling</td>
<td>✓ Reclean canal ✓ Complete prep ✓ Intracanal medication</td>
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<tr>
<td></td>
<td>Canal prep not comp</td>
<td></td>
</tr>
<tr>
<td></td>
<td>With swelling</td>
<td>✓ Prescribe strong analgesics ✓ I &amp; D (swelling)</td>
</tr>
<tr>
<td>NaOCl accident</td>
<td>Swelling</td>
<td>✓ Reassurance ✓ Prescribe analgesics</td>
</tr>
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POSTOBTURATION
EMERGENCIES
Causative Factors

- Periapical irritation by obturating materials
- Poor coronal seal
- High occlusion
- Extrusion of sealer
Management

- Reassurance
- Wait a few days to see if pain is reduced
- Serious complications
  - Retreatment
  - Apical surgery
Questions?

- References
  - Endodontics Principles and Practice
    4th edition. Walton Torabinejad