Endodontic Emergencies and Antibiotics

Dr Zuryati Ab-Ghani
BDS, Grad Dip Clin Dent, FRACDS, D Clin Dent (Pros)
28.06.06
Topics to be covered

Endodontic emergencies
Systemic antibiotics
- Indication for using systemic antibiotics
- Strategies for using antibiotics
- Which antibiotic should be used
- Specific indications for antibiotics in endodontics
Topical antibiotics
- Intracanal medicaments
Endodontic emergencies

- Require careful handling
- Difficult to spend time with patient due to busy schedule
- Types of emergencies:
  Acute pulpitis, acute apical periodontitis or acute apical abscess
Basic principles of management

- Correct diagnosis
- Remove the cause of pain
- Provide drainage (if necessary)
- Correct medication if necessary (local and systemic)
- Rest (general and occlusal)
Acute pulpitis

If irreversible:
- LA, rubber dam
- Remove all caries, gain access, extirpate pulp
- Canal preparation not essential if time limited
- Ledermix paste dressing, temporary restoration
- Routine endo treatment carried out at convenient time
Acute apical periodontitis

Pain is caused by inflamed dental pulp or infected canal

Treatment: as for acute pulpitis
Acute apical abscess

Severe pain, swelling, fever

Treatment: As for acute pulpitis PLUS

- Establish drainage (if required)- via root canal or via incision of mucosa.
  Canal should not be left open. Better to see patient after 12 to 24 hrs for further drainage

- Antiobiotic systemically

- Analgesics

- Rest (occlusion and sleep)
Endodontics: largely concerned with apical periodontitis with source of infection from tooth.

- Thos can be treated with removal of the infected canal content
- Should only be considered as an adjunct to endo Rx
- Should not be used as a means of providing pain relief
Indication for using systemic antibiotics

- Malaise
- Elevated body temperature
- Lymph node involvement
- Suppressed or compromised immune system
- Cellulitis or a spreading infection
- Rapid set of a severe infection (i.e. less than 24 hours)
Contra indication of systemic antibiotics

- No systemic illness
- Chronic alveolar infections associated with pulpless teeth
- Inflammatory pulp condition
- Acute alveolar condition where adequate drainage, debridement and intra-canal medication have been achieved.
Systemic antibiotics not indicated

- Pulpitis and periapical periodontitis
  Systemic antibiotics will not remove the cause of the problem nor remove the bacteria present in the tooth as the concentration is low
- Necrotic pulp or pulpless tooth - no blood supply thus antibiotic will not reach the root canal system
Which antibiotic should be used

- Bacterial involved in endodontic infection:
  - Bacteroids vulgaris
  - Fusobacterium necrophorum
  - Peptostreptococcus spp.
  - Prevotella spp.

At least 70 different bacterial species have been isolated
Which antibiotic should be used

Penicillin V

- First choice of oral antibiotics
- Narrow but appropriate antibacterial spectrum
- Loading dose of 1000mg, followed by 500mg taken every 6 hrs for 5-7 days
Metronidazole

- Second choice esp if anaerobic bacteria are suspected
- Very narrow spectrum- ineffective against aerobic and facultative anaerobic organisms
- Can be used with Pen V
- Loading dose of 800mg, followed by 400mg tid, 5-7 days or
- Loading dose of 400mg, followed by 200mg
Clindamycin

- First choice in patients allergic to penicillin
- Appropriate spectrum
- Loading dose of 300mg, followed by 150mg tid 5-7 days
- Erythromycin is another alternative in these patients, but the spectrum is not appropriate for endo infection
Amoxycillin

- Very popular
- Broad spectrum
- Should not be used for routine Rx of endo infection
- Recommended as antibiotic prophylaxis in pts at risk for developing infective endocarditis – single 3 gm dose 1 hr pre-op
Tetracycline

- Has an inappropriate spectrum of antibacterial activity for most endodontic infections
Ideally a microbiological analysis should be done when antibiotics are being considered as part of the Rx plan in order to identify the bacteria.

Some anaerobes are resistant to penicillin and thus serious infection is treated with combination of metronidazole and penicillin.
Specific indications for antibiotics in endodontics

Prophylaxis

- For patients at risk of developing infective endocarditis
- Following trauma to prevent inflammatory root resorption and replacement resorption
- Prior to some surgical situations
Treatment

- Facial cellulitis
- Acute apical abscess
- Rapidly spreading infection
- Immuno-compromised patients
Intracanal medicaments

- Antiseptics
- Antibiotics
Calcium hydroxide

- Antiseptic
- Bactericidal due to high pH of 12.2
- Stimulates calcification
- Irritant-avoid use as initial dressing in teeth associated with pain, or when the inhibition of inflammation or inflammatory root resorption is necessary
Antibiotics

- Commercial preparations containing antibiotics also contain corticosteroids
- Corticosteroids reduce inflammation, pain and initiate healing
- Preparations:
  - **Ledermix paste** (demeclocycline 3.21%, triamcinolone)
  - **Septomixine Forte** (Neomycin, polymixine B sulphate, dexamethasone)
  - **Pulpomixine** (framycetin, polymixine B sulphate, dexamethasone)
Ledermix paste- material of choice. The concentration of tetracycline is high enough to inhibit the common bacteria.
Recommended materials

- Ledermix paste (a corticosteroid – antibiotic paste)
- Pulpdent paste (calcium hydroxide in methyl cellulose paste)
- 50:50 mixture of Ledermix paste and Pulpdent pastes
<table>
<thead>
<tr>
<th>Medicament</th>
<th>Min time</th>
<th>Max time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ledermix paste</td>
<td>10-14 days</td>
<td>6-8 wks</td>
</tr>
<tr>
<td>Pulpdent paste</td>
<td>3-4 wks</td>
<td>3-5 mths</td>
</tr>
<tr>
<td>50:50 Ledermix/Pulpdent</td>
<td>3-4 wks</td>
<td>3-4 mths</td>
</tr>
</tbody>
</table>
THANK YOU

References