Endodontic Emergencies

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Endodontic Emergency

IT IS A SITUATION ASSOCIATED WITH PAIN AND/OR SWELLING THAT REQUIRES IMMEDIATE DIAGNOSIS AND TREATMENT.

IT MAY INVOLVE RESCHEDULING OF THE NORMAL APPOINTMENTS.

- An urgency represent a less severe problem.
- An emergency is more severe and requires immediate attention Now.
- A Rule of the true emergency :One tooth is the offender.

Key questions to differentiate between emergency and urgency

- Is the problem such that it disturbs your sleeping, eating, working, concentration? → An emergency condition affects these activities.
- How long has it been bothering you? →Short duration emergencies, with pain of long duration are urgencies.
- Have you taken any pain medication, Did it help? →Medications are usually ineffective during an emergency condition.

Etiologies:

- **Microbial**
- **Mechanical**
- **Chemical**

Factors causing pain are:

- **1-Chemical mediators**
- **2-Pressure**

Chemical mediators

1-Direct:

By activating nociceptors causing spontaneous pain

Or by lowering their pain threshold

2-Indirectly:

By activating nociceptors causing spontaneous pain

Or by lowering their pain threshold

Pressure:

- Edema results in increased fluid pressure, which mechanically stimulates pain reseptors.

Emergency Impacts

- Patient
- Staff
- Dentist

Patient Presentation

- Pain
- Pain and swelling
- ~~Trauma~~

3D's of Successful Management

- Diagnosis
- Definitive Dental Treatment
- Drugs

Diagnosis

- Determine the CC
- An accurate medical history
- Complete a thorough exam, with all necessary tests
- Perform a radiographic exam
- Analyze the results
- Establish the treatment plan

Treatment Plan

to
REMOVE
the
Etiology

When do patients present for emergency endodontic care?

- No prior RCT/ initial infection
- After RCT initiated
- After obturation

Initial Presentation

- Pain
- Primary Infection

After Initiation of Endodontic Therapy

- FLARE -UP

After Initiation of Endodontic Therapy

- Before obturation

After Obturation

- Recent obturation
- Non-healing endodontic therapy

Determine a PULPAL And PERIAPICAL Diagnosis

Pulpal Diagnosis

- ~~Normal pulp~~
- ~~Reversible pulpitis~~
- Irreversible pulpitis
- Necrotic pulp
- Pulpless/ previously treated

Periradicular Diagnosis

- Normal periradicular tissues
- Symtomatic periradicular periodontitis
- Acute periradicular abscess

Etiology

After listening to the patient, begin to determine the etiology of the chief complaint:

- Contents of the root canal
- Dentist controlled factors
- Host factors

Contents of the root canal

- Pulp tissue
- Bacteria
- Bacterial by-products
- Endodontic therapy materials

Dentist controlled factors

- Over-instrumentation
- Inadequate debridement
- Missed canal
- Hyper-occlusion
- Debris extrusion
- Procedural complications

Hyperocclusion

- Research have found that patients most likely to benefit from occlusal reduction are those teeth whose initially present with symptoms.
- Indiscriminant reduction of occlusal surface is not indicated

- **Pre-Op Pain**
- **Pulp vitality**
- **Percussion sensitivity**
- **Absence of a periradicular radiolucency**
- **Combination of these symptoms**

Procedure complications

- Perforation
- Separated instrument
- Zip
- Strip
- NaOCl accident
- Air emphysema
- Wrong tooth

Dentist Controlled Factors

- Dentist's personality

Host Factors

- Allergies
- Age
- Sex
- Emotional state

Host Factors

- Complex etiology

Microbiologic

Immunologic

Inflammatory

Emergency Treatment

- Non surgical
- Surgical
- Combined

Non surgical Emergency Treatment

- Pulpotomy
- Partial pulpoctomy
- Complete pulpectomy
- Debridement of the root canal system

Surgical Emergency Treatment

- Incision for drainage
- Trephination/ Apical fenestration

Rationale for Incision for drainage

- Decreases number of bacteria
- Reduce tissue pressure
  - Alleviates pain/trismus
  - Improves circulation
- Prevents spread of infection
- Alters oxidation-reduction potential
- Accelerates healing

Management of Acute Pulpitis:
Diagnosis:

- **Pain: +ve**
- **Vitality: +ve**
- **Tenderness to percussion :**
- **Radiographic changes:**

  No change from normal
- **Deep caries,**

  extensive restoration,

  trauma, pulp capping may be seen.

Management:

- **Limited time:**

  Anteriors/Premolar
- **Profound anesthesia.**
- **Complete pulp extirpation.**
- **Temporary dressing.**

  Molar
- **Pulpotomy**

Lots of time:

Anteriors/ Premolars/Molars

- **Complete pulp extirpation**
- **Temporary dressing**

Management of Acute pulpitis with apical periodontitis:

- **Diagnosis:**
- **Vitality: +ve**
- **Tenderness to percussion: +ve**
- **The tooth feels high and/or loose and that the teeth will not close together.**
- **X-ray: Normal to slight widening of periodontal ligament space to small radiolucence.**

Management

Minimal Time: Molar

- **Profound Anesthesia: May need an additional carpule.**
- **Pulpectomy of the largest canal (distal of lowers and palatal of upper).**
- **Temporary dressing.**
- **May need to call the next day to remove pulp from the other canal, pain will not subside if the other canals are the cause of pain.**

Anterior teeth/ Premolar

- **Complete pulp extirpation followed by temporary dressing.**

Lots of time:

- **Complete pulp extirpation of all the canals must be done followed by a temporary dressing.**

Management of Pulp Necrosis:

Rarely seen as an emergency

Diagnosis:

- **Non vital tooth(may be one or more of its root canal).**
- **No tenderness to percussion.**
- **Periapical radiolucency seen on the radiograph.**

Management:

1- Canal debridement followed by a temporary dressing.

2- Extraction of non restorable tooth. (Analgesics and antibiotics may be required).

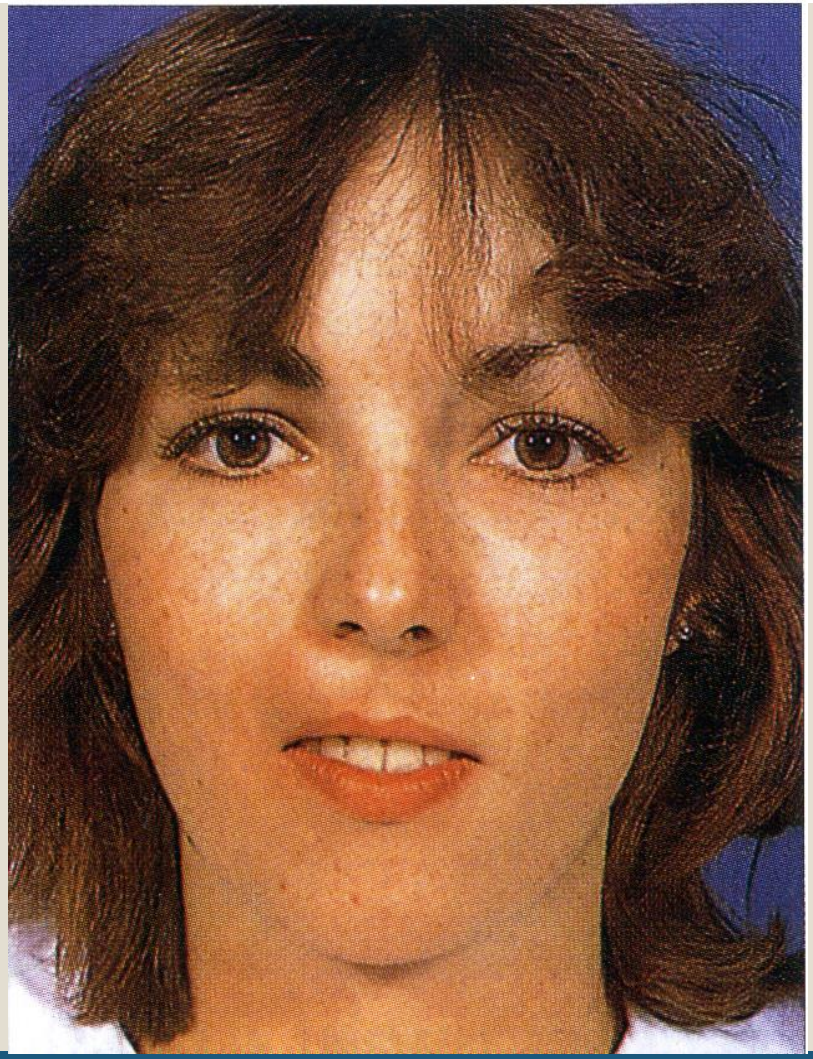
Acute apical Abscess:

The position of the swelling will depend on:

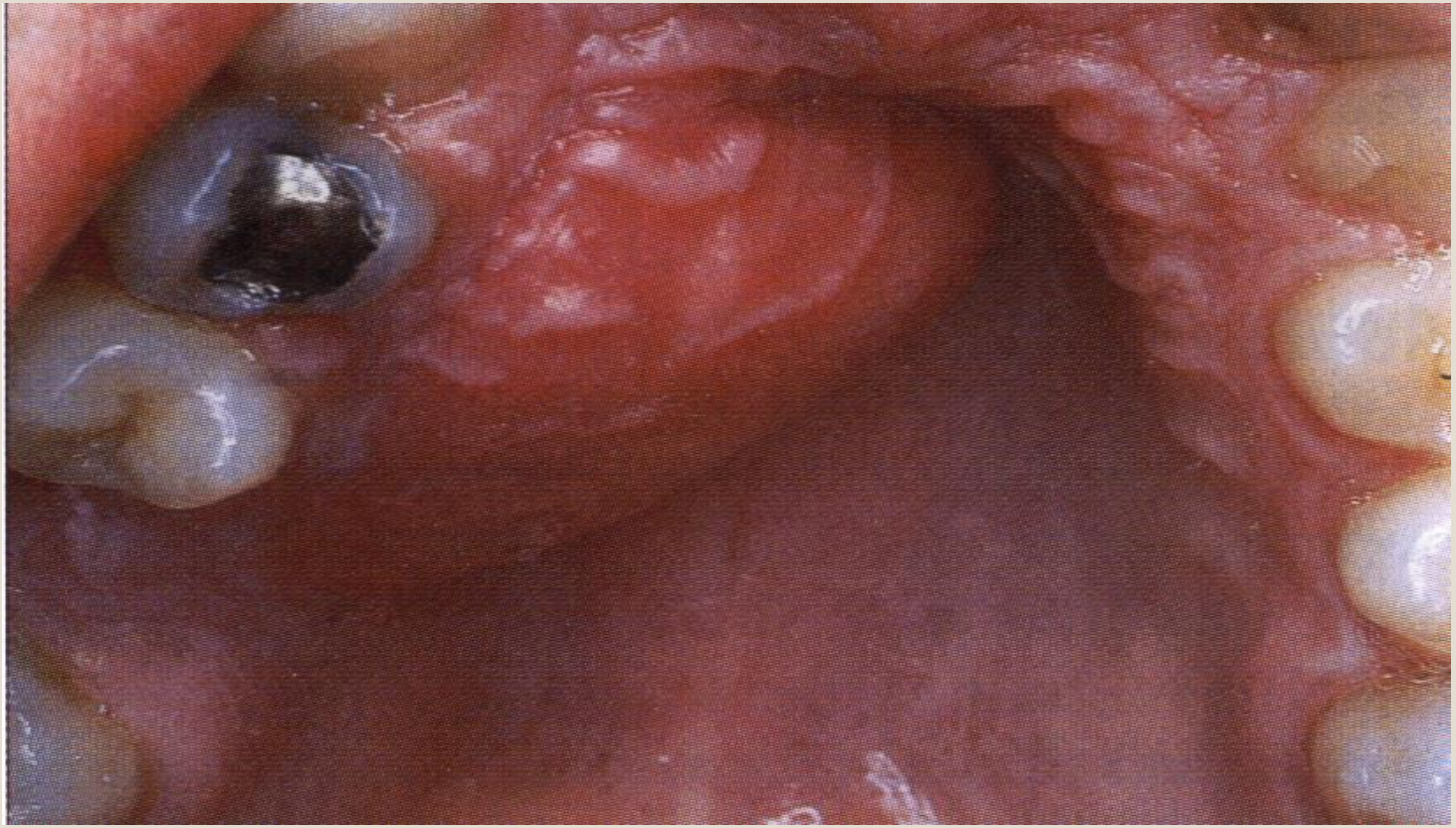
- **1- Orientation of the tooth apex.**
- **2-Relationship of the site of perforation to muscle attachment on the maxilla and mandible.**

Spreading submandibular swelling due to an acute apical abscess

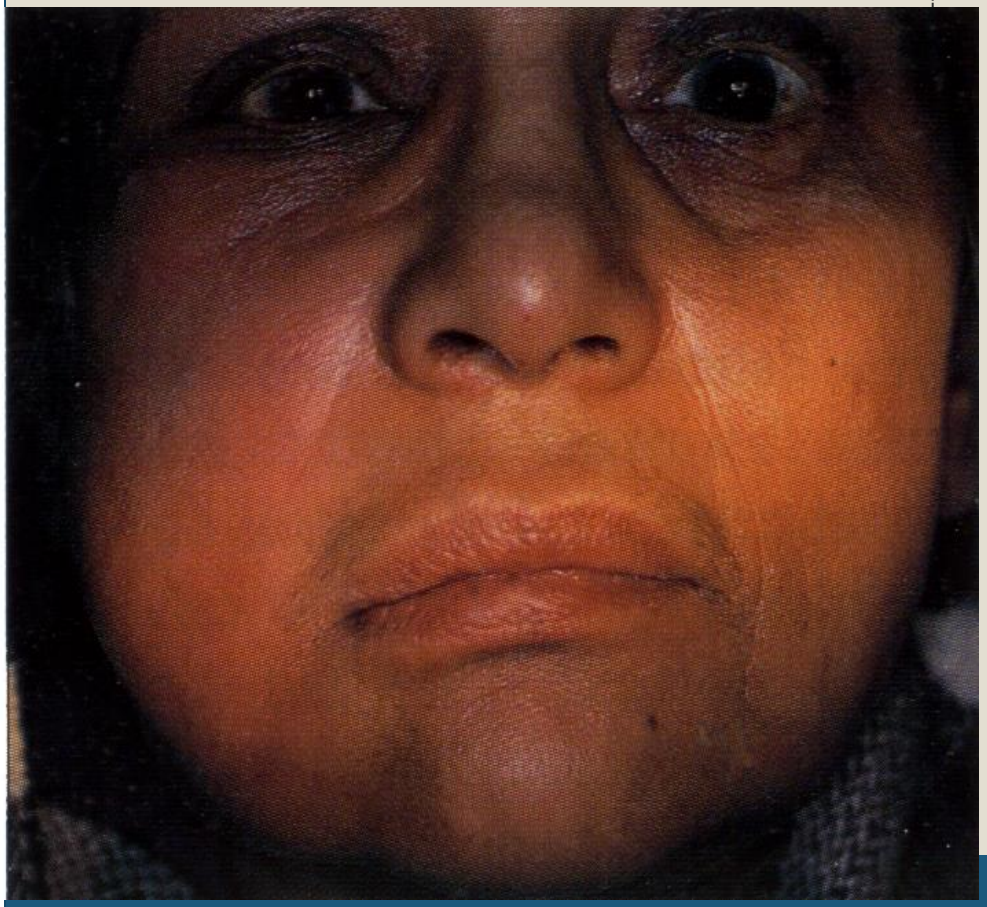
Facial swelling should be detected

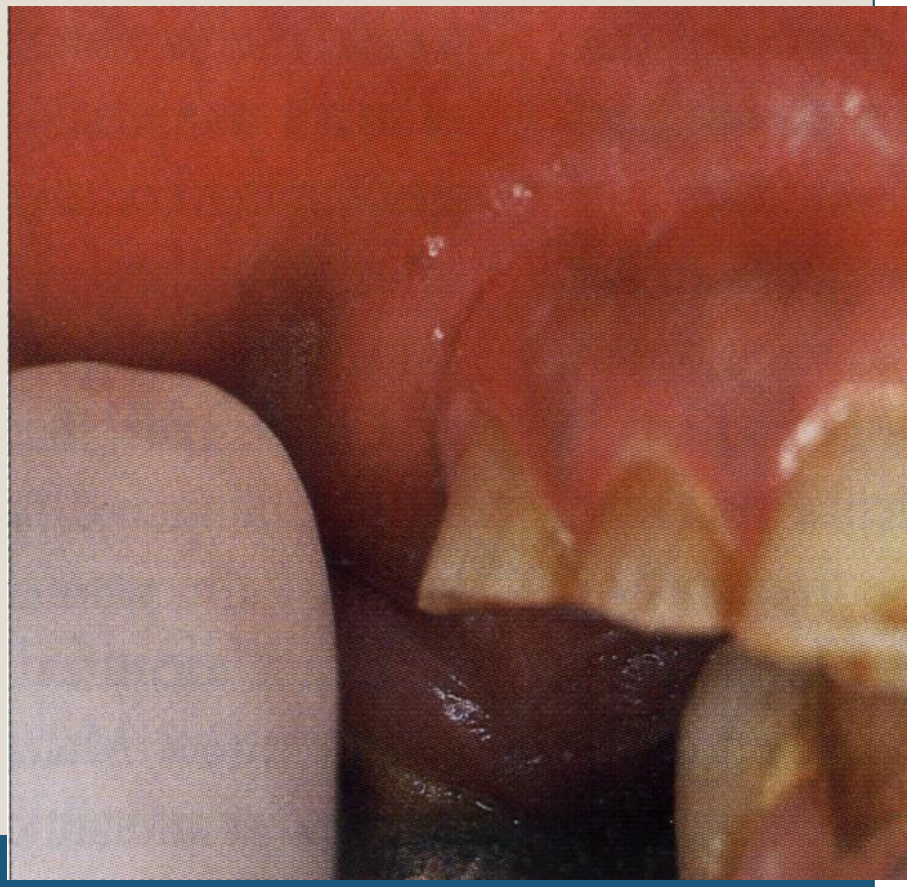


Palatal swelling associated with upper lateral incisor

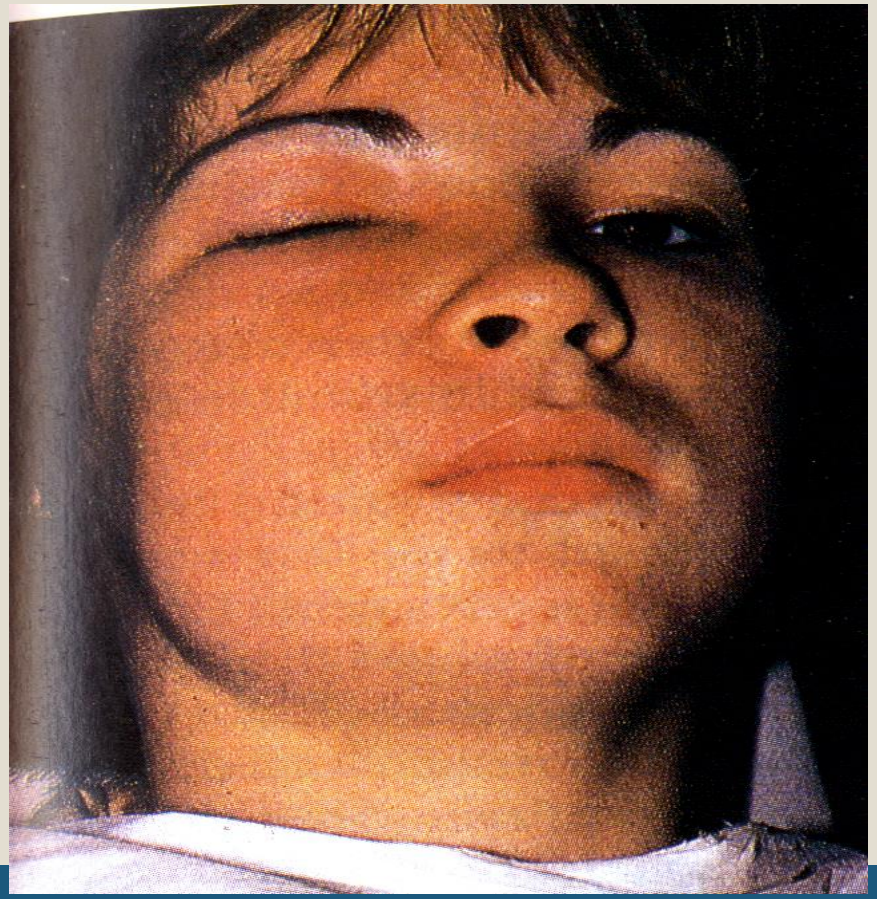


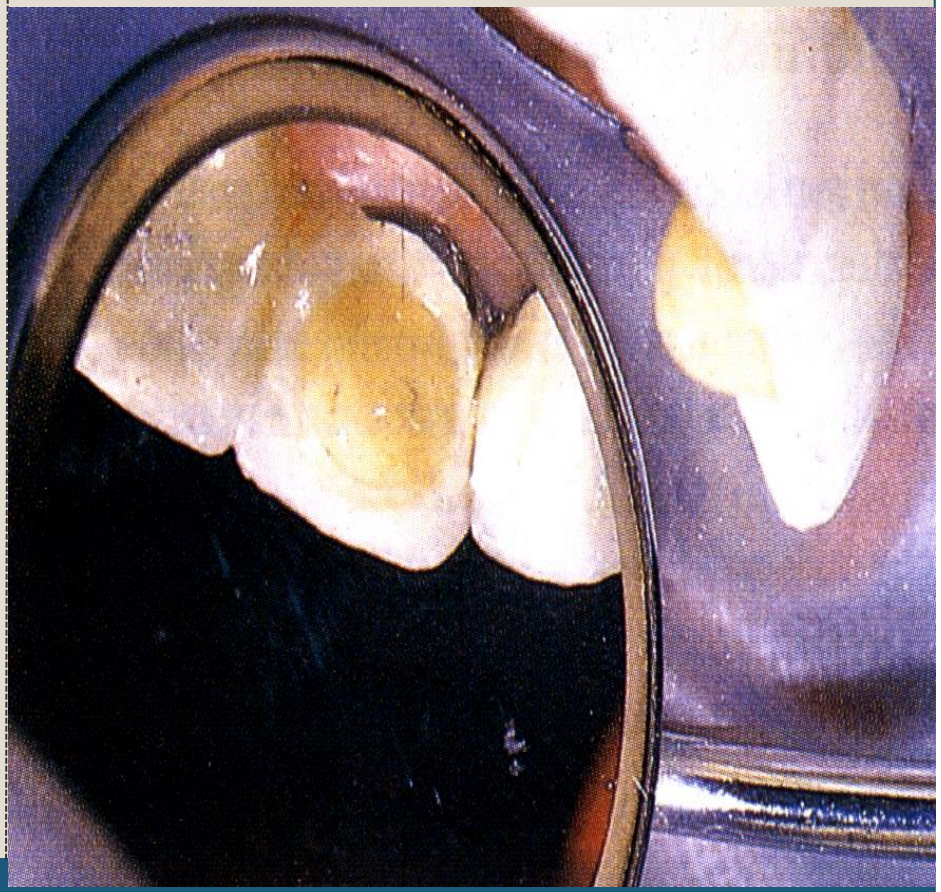
Facial Swelling Associated with maxillary canine





Acute apical abscess producing a facial swelling
Tooth drainge of an apical abscess





To resolve swelling:

1)Establish drainage through the root canal.

2)Establish drainage by incising a fluctuant swelling.

3)Prescribe antibiotics.

Management of a localized soft tissue swelling:

* If it is fluctuant, it indicate that pus is present, soft tissue infiltration of anesthesia around the periphery of the infected area.
* Incise at the site of greatest fluctuance down to the level of apical bone.

- **A vertical incision offers improved post operative healing compared with a horizontal incision.**
- **Place the incision in a position to encourage drainage by gravity.**

- **Dissect gently through the deeper tissues and explore all parts of abscess cavity.**
- **The wound should be kept clean with hot salt-water mouth rinses to promote drainage.**

Diffuse swelling:

- From endodontic point of view, the tooth is opened, and the canal is thoroughly instrumented and irrigated, if no drainage is achieved, the apical foramen is instrumented through to encourage drainage from the periapical tissues.

- **In the absence of drainage through tooth, soft tissue drainage might be established through incision. The drain is sutured into incision wound to ensure tissue drainage.**

- **The patient who show sign of toxicity, CNS changes, or airway compromise should be considered for immediate hospitalization.**

Guidelines for Antibiotic Therapy

- Select antibiotic with anaerobic spectrum
- Use a larger dose for a short period of time

- **For localized swellings the antibiotic therapy is usually unnecessary (except with patient with depressed host defense).**
- **For diffuse swelling antibiotic are indicated.**

- **1st choice: penicillin VK**

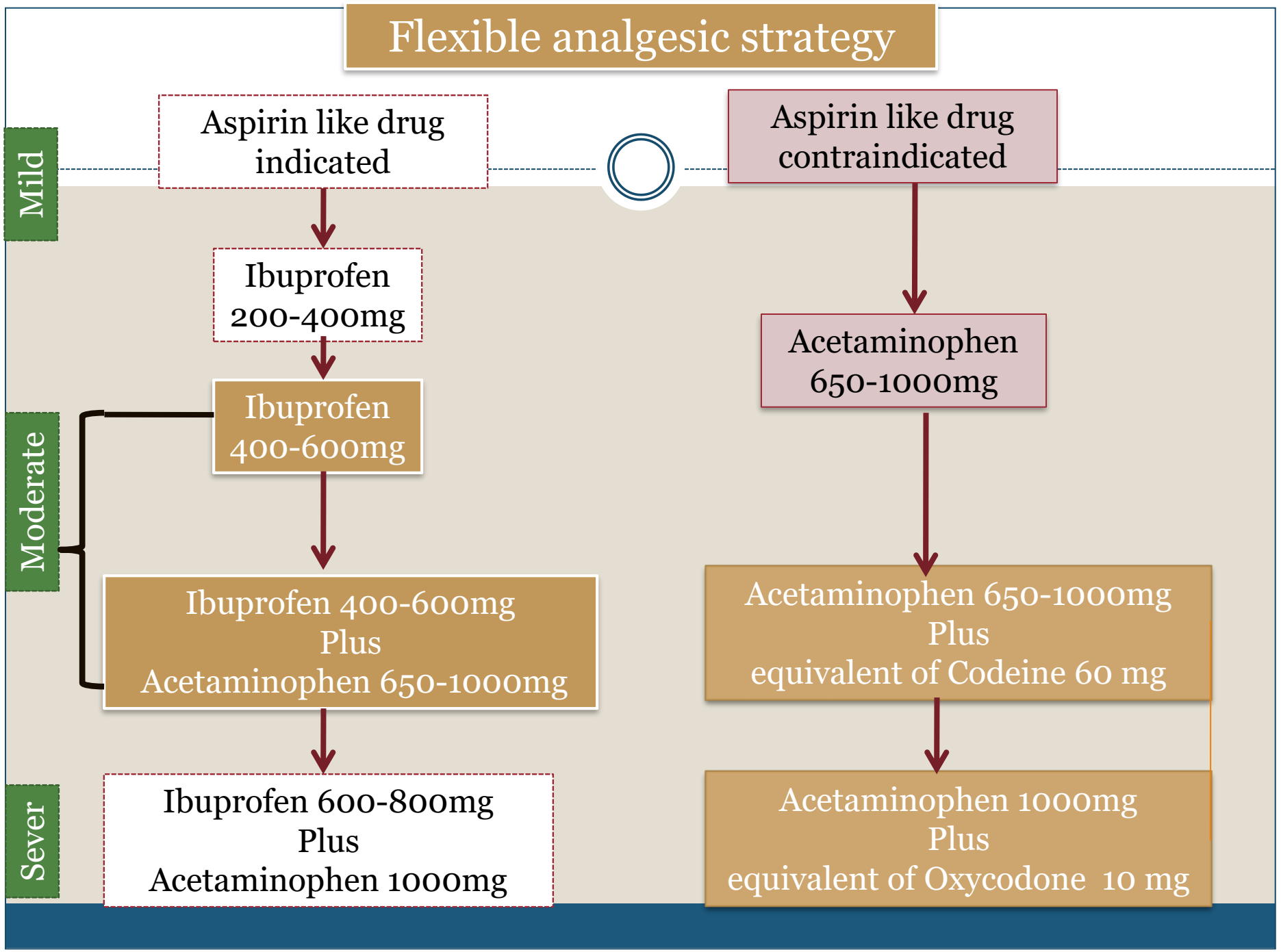
Initial dose 1-2 g then 500mg every 6 hours for 7-10 days

- **The combination of penicillin and metranidazole (250mg) is recommended 7-10 days.**

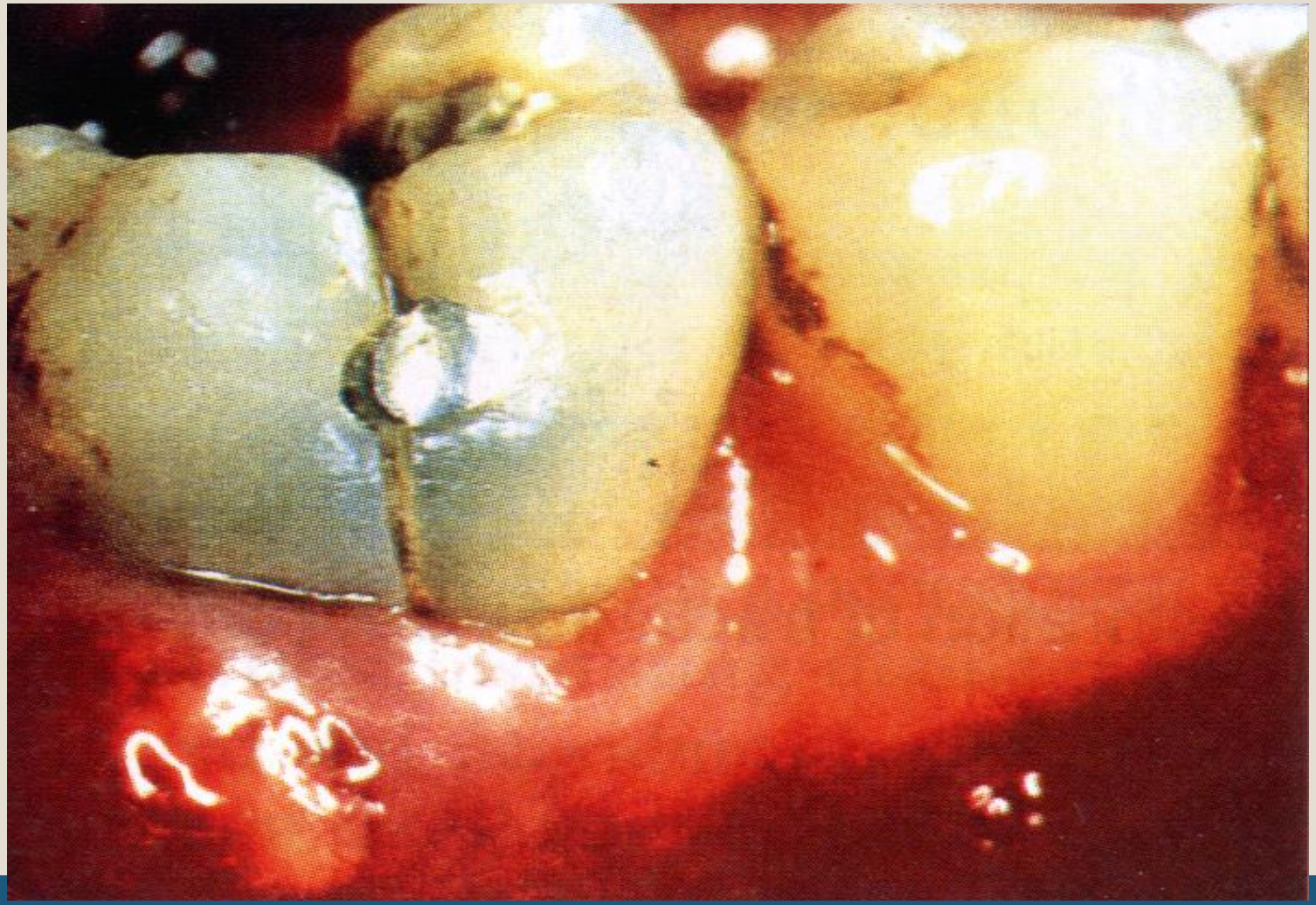
- **Clindamycin are suitable alternatives for patients who are allergic to amoxicillin.**
- **The dose 300mg followed by 150 to 300mg every 6 hours for 7-10 days.**
- **(some times signs of colitis)**

As a general rule:

- **Antibiotic therapy should be considered for patients who have signs and symptoms of infection, such as cellulites, fever, or lymphadenitis.**


Flexible analgesic strategy
Aspirin like drug indicated
Aspirin like drug contraindicated
Mild
Ibuprofen 200-400mg
Acetaminophen 650-1000mg
Moderate
Ibuprofen 400-600mg
Ibuprofen 400-600mg Plus Acetaminophen 650-1000mg
Acetaminophen 650-1000mg Plus equivalent of Codeine 60 mg
Sever
Ibuprofen 600-800mg Plus Acetaminophen 1000mg
Acetaminophen 1000mg Plus equivalent of Oxycodone 10 mg

Crown-Root Fractures



Untreated undiagnosed fractres

Root fracture induced during obturation

Thank You