

Endodontic Emergency

DEFINITION :

EMERGENCY according to Dorland's Medical dictionary is defined as a sudden, urgent, usually unforeseen occurrence requiring immediate action. Life threatening emergencies can and do occur in the practice of dentistry. Endodontic emergencies are circumstances associated primarily with Pain and/or Swelling that require immediate diagnosis and treatment.

Most of the emergencies are unscheduled.

The reason for endodontic emergency treatment is pain and swelling from pulpo periapical pathosis.

Although all forms of medical emergencies may develop in dental practice, some are seen with greater frequency. These are situations produced entirely by stress or those that are acutely aggravated when the patient is under stress.

Most dental emergencies are unscheduled intrusions into the routine of daily practice. Nevertheless, the dentist must provide speedy and effective relief because such care is an essential part of daily practice.

The reason for endodontic emergency treatment is PAIN and at times SWELLING ensuing from pulpo periapical pathosis. Because dental pain has many causes, the adept clinician must diagnose the origin of pain as quickly as possible to render rapid and effective relief.

DIAGNOSIS

In an ACUTE pain emergency, the PHYSICAL as well as the EMOTIONAL state of the patient should be considered. The doctor's reactions to the patient is important for both pain and patient management. The patient's needs, their fears about the immediate problem and their defences for coping with the situation must be understood.

The chief tool in establishing a correct diagnosis remains in careful history taking, followed by a thorough but quick clinical examination.

According to Grossman – The diagnostic methods available to clinicians are:

SUBJECTIVE SYMPTOMS : Which is the chief complaint of patient eliciting either:

- 1) Pain
- 2) Swelling
- 3) Lack of function
- 4) Esthetics

DENTAL HISTORY

MEDICAL HISTORY

OBJECTIVE SYMPTOMS

Which are determined by tests and observations performed by clinicians. The tests are as follows:

- Visual and Tactile Inspection.
- Percussion.
- Palpation.
- Mobility and Depressibility.
- Radiographs.
- Electric pulp test
- Thermal tests - Hot - Cold
- Anaesthetic test
- Test cavity

CLASSIFICATION OF ENDODONTIC EMERGENCIES

1. According to GROSSMAN

- a) Acute Conditions
 - Reversible pulpitis
 - Irreversible pulpitis.
 - Alveolar abscess.
 - Periodontal abscess
- b) Emergencies During Treatment
- c) Fractures
 - Crown
 - Root

- d) Avulsed tooth
- e) Referred pain

2. According to GUTTMAN

i. TREATMENT OF VITAL PULP

- Acute reversible pulpitis
- Hypersensitive dentin.
- Recurrent decay.
- Recent restoration.
- Cracked tooth syndrome.

ii. TREATMENT OF NON-VITAL PULP

- Acute apical periodontitis.
- Necrotic pulp.
- Acute alveolar abscess.
- Phoenix abscess.
- Acute irreversible pulpitis
 - Localised.
 - Non-localized

iii. ESTHETIC EMERGENCY

- Fracture of crown.
- Fracture of root.
- Avulsed tooth.

3. According to WALTON

- i. Pretreatment emergencies.
- ii. Interappointment emergencies.
- iii. Post-obturation emergencies

Pre-endo emergencies are-

- Acute reversible pulpitis
- Acute irreversible pulpitis
- Acute apical periodontitis
- Acute alveolar abscess
- Acute periodontal abscess
- Cracked tooth syndrome
- Crown fracture
- Root fracture
- Tooth Avulsion
- Referred pain

HOT TOOTH

Hot tooth refers to a painful tooth and initial therapy for it refers to what needs to be done to give relief from pain at first appointment. Before treatment is given, diagnosis is made, that whether the pain is of odontogenic or non odontogenic origin Sometimes living nerve tissue is present inside the hot tooth, but the extent of inflammation prevents the tooth from recovery. Sometimes hot tooth will no longer be vital, such teeth are termed necrotic. Pretreatment Emergencies

Interappointment Emergencies

- Mid treatment flare-ups
- Exposure of pulp
- Fracture of tooth
- Recently placed restoration
- Periodontal treatment

Post - endo emergencies:

- Vertical Fracture
- Over obturation
- Under obturation

Dentin Hypersensitivity

It is defined as sharp, short pain arising from exposed dentin in response to stimuli typically thermal, chemical, tactile or osmotic and which can't be ascribed to any other form of dental defect or pathology.

Etiology

The primary underlying cause for dentin hypersensitivity is exposed dentinal tubules which can occur by two processes-

By loss of enamel or by loss of covering periodontal structures.

Treatment

Two main treatment options are plug the dentinal tubules preventing the fluid flow and desensitise the nerve. Aetiology the primary underlying cause for dentin hypersensitivity is exposed dentinal tubules which can occur by two processes- by loss of enamel or by loss of covering periodontal structures.

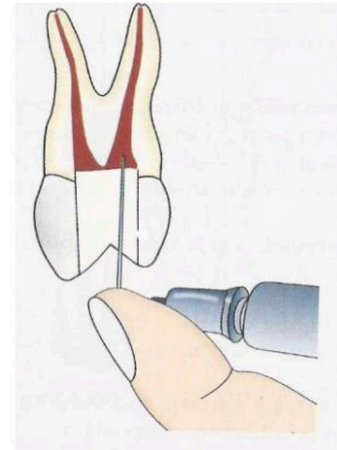
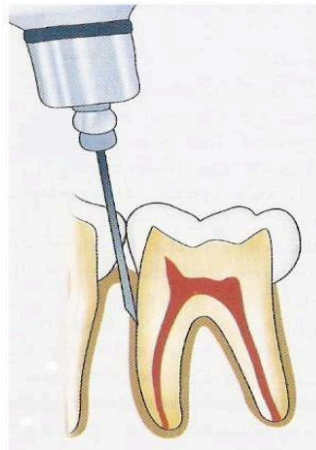
Figure Intracanal anaesthesia

ACUTE REVERSIBLE PULPITIS

DEFINITION:

It is a mild to moderate inflammatory condition of the pulp caused by noxious stimuli in which the pulp is capable of returning to the uninfamed state following removal of the stimulus.

It is characterised by sharp pain lasting for a moment, more often brought on by cold than hot food or beverages. The patient can identify the tooth. Momentary pain that subsides on removal of stimulus.



Symptoms:

A.R.P. is characterised by:

- Sharp pain lasting for a moment.
- Shooting pain lasting for short-duration.
- Pain brought on by cold beverages and sweets.
- Clinically – the patient can identify the tooth by pointing to it.

ETIOLOGY-

1. **Caries:** Lesions which are close to pulp can cause mild to moderate sensitivity to patients. Caries excavation and placing a sedative

Treatment: Cement like dycal and zinc oxide eugenol (IPC). which has a premature contact.

2. Recent restoration which has a premature contact point.

Treatment: Recon touring or removal of high points.

3. **Persistent pain and severe sensitivity after cavity preparation:** Suggesting Chemical leakage.

Treatment: Removal of restoration and placing sedative cement like zinc oxide eugenol.

4. **Recurrent caries-** Under an old restoration. Remove all caries and replace with a sedative

Treatment cement.

5. **Thermal shock-** from preparing a cavity with a dull bur or keeping the bur in contact with the tooth for a long time can cause acute reversible pulpitis which exaggerates on placing a metallic restoration over the tooth.

3. Persistent pain and severe sensitivity after cavity preparation Suggesting chemical leakage. Removal of restoration and placing sedative Treatment cement like ZOE

TREATMENT-

The best management is prevention. In a recently restored tooth, occlusion is adjusted. In cases of marginal leakage or secondary caries, the old restorations are removed and replaced with sedative cement. Pain usually disappears within several days, if it persists then pulp has to be extirpated

ACUTE IRREVERSIBLE PULPITIS

DEFINITION:

It is a persistent inflammatory condition of the pulp, symptomatic or asymptomatic, caused by a noxious stimulus. Acute Irreversible Pulpitis exhibits pain usually caused by hot or cold stimulus

Symptoms:

Pain lasts for minutes to hours.

- It is spontaneous.
- It often continues even when the cause is removed.
- Pain is present even on bending over.
- Patient complains of disturbed sleep.
- Pain is experienced on sudden temperature change.
- On taking sweets or acidic foodstuff.
- From packing of food into cavity/food impaction.

Causes:

- The most common cause of irreversible pulpitis is bacterial involvement of pulp through caries.
- Reversible pulpitis may also deteriorate into irreversible pulpitis.

In irreversible pulpitis the pulp may be

- ✓ Vital
- ✓ Non-vital

1. Vital pulp

According to Grossman, the preferable emergency treatment is 'PULPECTOMY' - complete removal of the pulp and placement of an intracanal medicament to act as a disinfectant or obtundent.

According to many authors like Weine, Walton and Grossman, in posterior teeth, where time is a factor, PULPOTOMY or removal of coronal pulp and placement of formocresol or similar dressing on the radicular pulp should be performed as an emergency treatment whereas in single rooted teeth, pulpectomy can be performed directly.

Procedure:

- ✓ Administration of local anaesthesia.

- ✓ Access cavity is prepared.
- ✓ With a spoon excavator and round bur the coronal pulp is removed.
- ✓ A cotton pellet moistened with formocresol is placed in the cavity and it is sealed with ZnOE cement. After removal of the tissue, the site of inflammation precipitating a painful response is gone. The formocresol fixes the non-inflamed tissues in the canal until the subsequent treatment of endodontics is followed. The tooth involved is then relieved out of occlusion.

2. Non-Vital

Pulp Necrotic pulp rarely causes an emergency procedure. Most of the time these teeth do not respond to stimuli such as hot, cold or electric stimulation, they may still contain vital inflamed tissue in the apical portion of root canal and also inflamed periapical tissue which causes pain.

ACUTE APICAL PERIODONTITIS:

DEFINITION:

It is a painful inflammation of periodontium as a result of trauma, irritation or infection through the root canal whether the pulp is vital or non vital.

CAUSES:

- Occlusal trauma
- Wedging of foreign objects
- Blow to tooth
- Over instrumentation or over filling

Symptoms:

Pain & tenderness of the tooth, sometimes the tooth may be extruded.

TREATMENT:

Vital tooth –Symptomatic Treatment

Non vital tooth

- Profound anaesthesia of the involved tooth

- Preparation of the access cavity
- Total extirpation of pulp in pulp chamber
- Determination of working length
- Total extirpation of the pulp
- Biomechanical preparation
- Thorough irrigation
- Placement of sedative
- Dressing followed by closed dressing
- Relieve occlusion if indicated
- Prescribe analgesics to reduce pain.