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الرَّحِيمِ



UNIVERSITY OF MOSUL
COLLEGE OF
DENTISTRY

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ENDODONTIC EMERGENCIES



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- **An endodontic emergency** is defined as pain or swelling caused by various stages of inflammation or infection of the pulpal or periapical tissues.
- as compared to Less critical **urgency** which indicates a less severe problem in which next visit may be scheduled for convenience of both patient as well as the dentist

Classification of Endodontic emergencies

o Before treatment

- ☐ Cracked tooth syndrome
- ☐ Symptomatic reversible pulpitis
- ☐ Symptomatic irreversible pulpitis
- ☐ Symptomatic apical periodontitis
- ☐ Acute exacerbation of asymptomatic apical periodontitis(phoenix abscess)
- ☐ Acute alveolar abscess
- ☐ Cellulitis

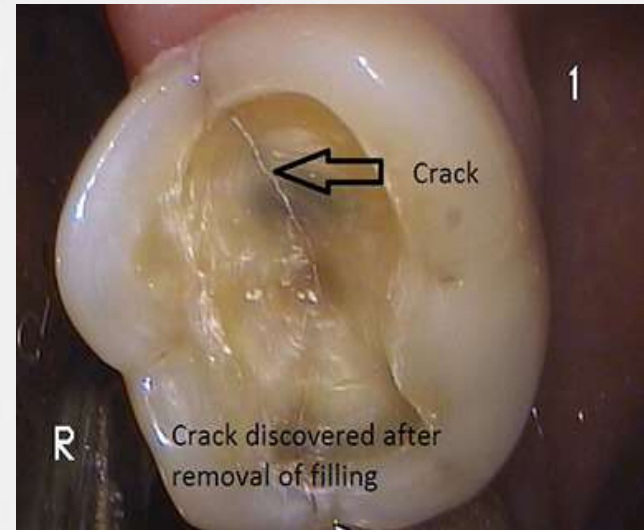
Cracked tooth syndrome

Clinical Characteristics

Incomplete vertical fractures, often involving the pulp

Treatment

Reduction of occlusal contact, restoration/full occlusal coverage immobilizing the segments

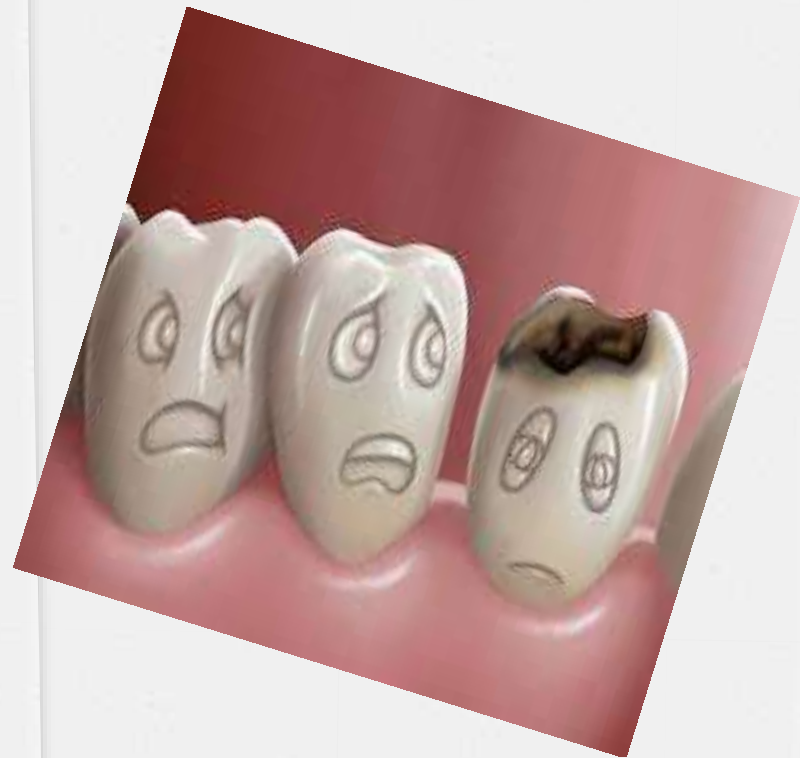


Symptomatic reversible pulpitis

Mild-to-moderate pulpal inflammation caused by noxious stimuli;
pulp capable of returning to normal once stimuli are removed

Treatment

Removal of noxious stimuli and restoration, if required
.Periodic vitality testing



Symptomatic irreversiblepulpitis

Symptomatic pulpal
inflammation; pulp incapable of
healing

Pulpectomy and pharmacological
management of pain

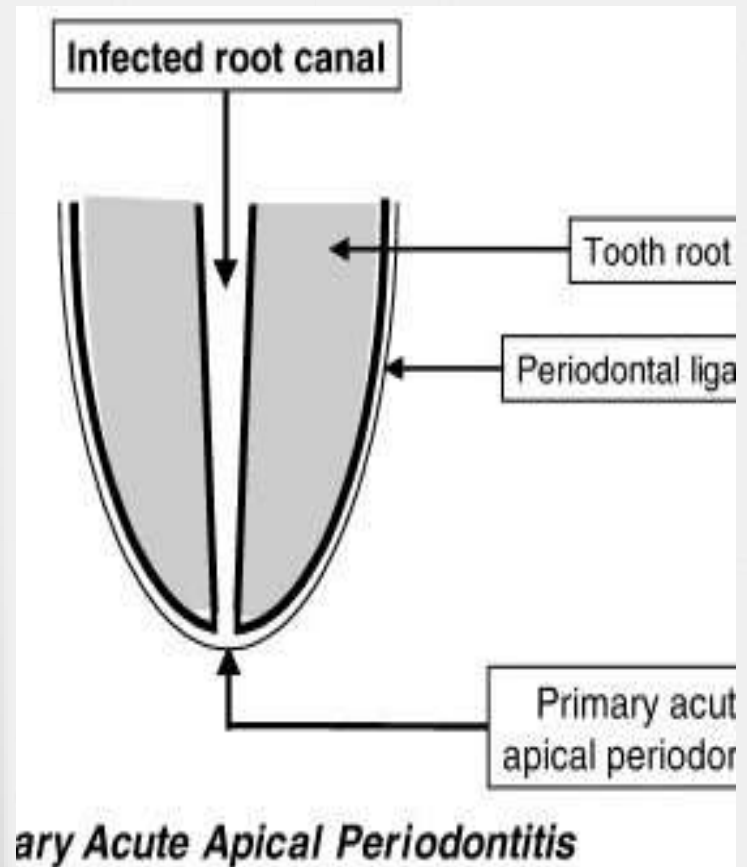


Symptomatic apical periodontitis

Painful periodontal inflammation due to trauma, irritation, or root canal infection;

clinical symptoms painful response to biting and percussion

RX: Pulpectomy and pharmacological management of pain



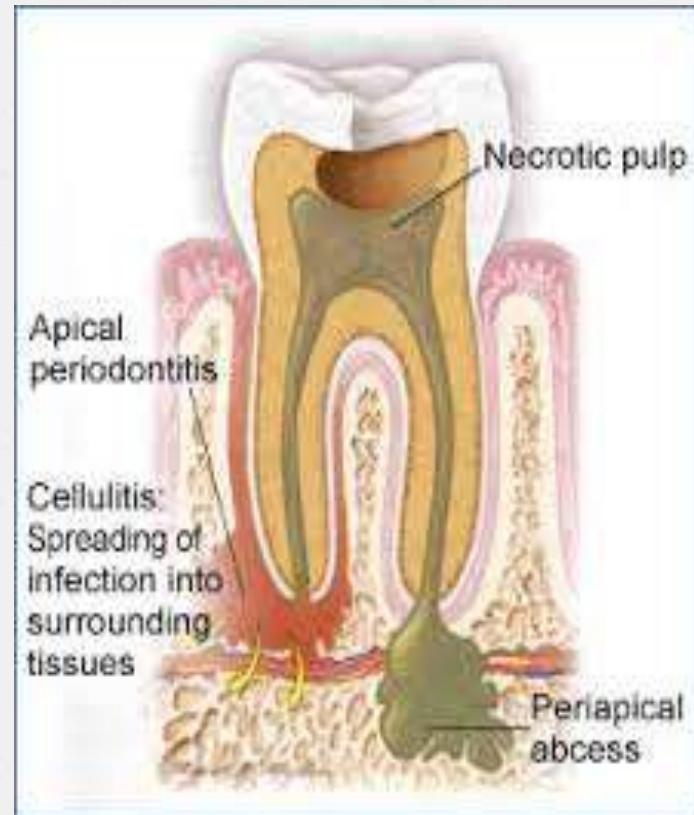
Acute exacerbation of asymptomatic apical periodontitis (Phoenix abscess)

Acute inflammatory reaction superimposed on an existing asymptomatic apical periodontitis



Cellulitis

Symptomatic, edematous inflammatory process associated with invasive microorganisms that spread diffusely through connective tissues and fascial planes





Acute alveolar abscess

Rapid inflammatory reaction to pulpal infection and necrosis; symptoms include spontaneous pain, tenderness of the tooth to pressure, pus formation, and eventual swelling of associated tissue

- Pharmacological management of pain and swelling along with one or more of the following:
- 1-Occlusal adjustment
- 2-Access opening of the root canal(s)
- 3-Incision and drainage
- 4-Needle aspiration
- 5-Antibiotics
- 6-Trephination and decompression

endodontic emergencies presenting during treatment

- Severe pain and swelling following an endodontic treatment may arise as a result of mechanical injury or chemical injury or microbial injury to the root canal system. The mechanical and chemical injuries are mostly of iatrogenic origin, but the inter appointment pain due to microbial injury is the predominant factor



Hot tooth

refers to a painful tooth and initial therapy is done by give relief from pain at first appointment for tooth with pulpal or periapical involvement

- which is the most difficult tooth to anaesthetize especially in mandibular posterior teeth. Such cases are well known to remain with feeling in the nerves after more than one carpule of local anesthetic require supplemental anesthesia. These include the following Periodontal Ligament (PDL) Injection, Intra osseous Intra pulpal

Endodontic Flare-Ups

is a complication of endodontic treatment which is defined as an **acute exacerbation of asymptomatic pulpal or periapical pathoses after the initiation or continuation of root canal treatment** characterized by pain and/or swelling that may arise following initial debridement of the root canals or even after obturation. The severity of a flare-up varies according to the severity of the patient's pre-operative pathosis, signs and symptoms

Etiology

1. Microbial factors

Cause interappointment pain as a result of imbalance in host-bacteria relationship induced by intracanal procedures due to presence of pathogenic bacteria like *Porphyromonas endodontalis*, *Porphyromonas gingivalis*, and *Prevotella* species

- Some situations during the endodontic treatment can facilitate microorganisms to cause interappointment pain. These include apical extrusion of debris; incomplete instrumentation leading to changes in the endodontic microbiota or in environmental conditions; and secondary intraradicular infections.

2. Non Microbial factors

- o Mechanical and chemical injury to the peri radicular tissue would also result in inflammatory reaction causing pain. **Mechanical irritation** includes mainly over instrumentation and overextended filling materials. **Chemical irritation** includes apical extrusion of irrigants or intracanal medications. **The larger the amount of overextended material, the greater is the intensity of damage to the periradicular tissues**

3. Inflammatory factors

- o Bacteria that suddenly gain access to the periradicular tissues are faced with two immediate lines of defense, represented by the **complement system** and by **phagocytes** (neutrophils and macrophages) present in the **chronically inflamed tissue**



Treatment of Interappointment Pain

'3D' approach for pain control:
Diagnosis, Definitive treatment,
and Drugs



- Re-Instrumentation
- Incision and Drainage
- Intracanal Medicaments
- Occlusal Reduction

Drugs

- ❖ Non-narcotic analgesics, NSAIDs and acetaminophen have effectively been used to treat the endodontic pain patient
- ❖ Opioid analgesics For pain that is not controlled by NSAIDs and acetaminophen
 - ❖ Antimicrobial Drugs locally and/or systemically



indications exist for use of antimicrobial drugs;

1. to treat infection and to prevent infection in therapy
2. for active infection abscesses and cellulitis
3. prophylaxis in medically compromised patients during routine endodontic therapy,
4. in some cases of persistent exudation not resolved after revision of intracanal procedures,
5. after the replantation of avulsed teeth

POST ENDODONTIC TREATMENT

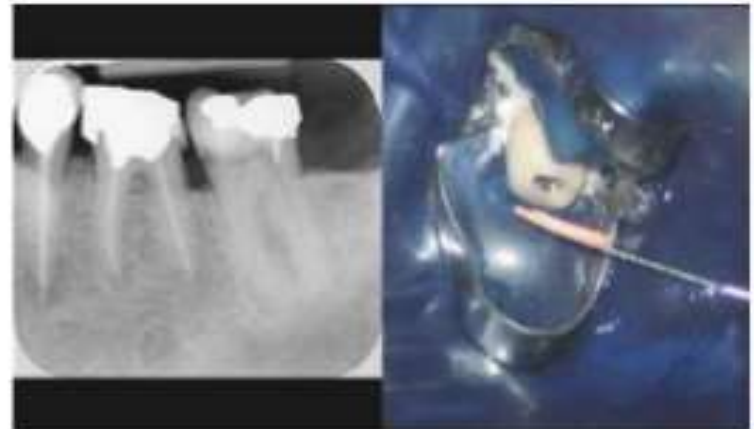
- ❑ Over extension
- ❑ Under extension
- ❑ Hyperocclusion
- ❑ Missed canals



OVERFILLING- can either gutta percha or sealer

etiology-

- sequel of over instrumentation
- uncontrolled condensation pressure
- inflammatory resorption
- incomplete development of root
- open apex



TREATMENT:

- ❑ Sealer – no treatment required as it removed from body by action of macrophages.
- ❑ Gutta percha – re- re- / apical surgery followed by retrograde filling



□ UNDERFILLING

ETIOLOGY-

- natural barrier in canal
- ledge
- insufficient flaring
- poorly adapted master cone
- inadequate condensation pressure

TREATMENT-

- removal and retreatment

Management of Postobturation Emergencies

- o Reassurance of the patient,
- o Prescribe analgesics
- o Check occlusion
- o incision of the fluctuant tissue is perhaps the only reasonable emergency treatment, provided if the root canal filling is adequate.



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THE END

Thank you



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