

Lecture outline:

- Importance of radiographs during root canal treatment.
- Radiographic sequence.
- Vertical and horizontal angulations (SLOB tech).
- Interpretation of endodontic radiographs and its limitation.
- Conventional local anesthesia techniques: Infiltration and block.
- Supplemental anesthesia techniques: PDL injection, Intra pulpal anesthesia, and Intra osseous anesthesia

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Radiography and Local Anesthesia

Reference:
Chapter 9 and 12, Endodontics: Principles and Practice, 5th
edition. Torabinejad, Fouad, and Walton.(2014)

Kholod Al-Manei

This is a reading guide for the assigned reference

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Importance of radiographs during root canal treatment

1. Diagnosis



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Importance of radiographs during root canal treatment

- Radiographs perform essential functions in three areas:
 1. Diagnosis
 2. Treatment
 3. Postoperative evaluation or follow up

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Importance of radiographs during root canal treatment.

3. Postoperative evaluation or follow up



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Importance of radiographs during root canal treatment

2. Treatment

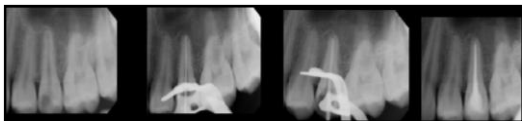


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Radiographic sequence

- Diagnostic radiographs
- Working length
- Master cone
- Obturation
- Follow-up evaluation (recall)

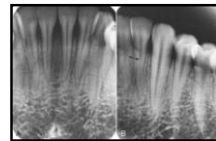


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Radiographic sequence

- Diagnostic radiographs
- Working length
- Master cone
- Obturation
- Follow-up evaluation (recall)

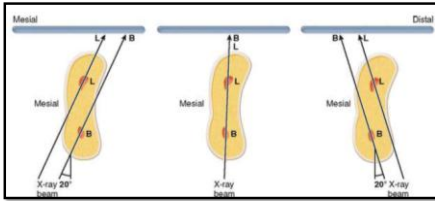


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Cone- image shift (SLOB Rule)

- The cone image shift reveals the third dimension

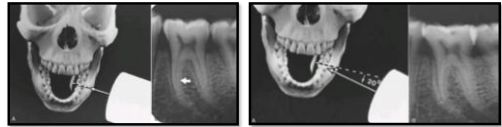


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Cone- image shift (SLOB Rule)

- The cone image shift reveals the third dimension



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Cone- image shift (SLOB Rule)

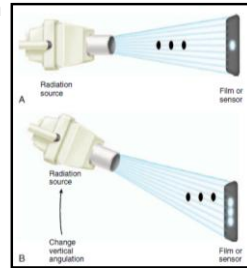
- **Indication and advantages**
 1. Separation and identification of superimposed canals
 2. Movement and identification of superimposed structure
 3. Determination of the working length
 4. Determination of the curvature
 5. Determination of faciolingual location
 6. Identification of undiscovered canals
 7. Location of calcified canals

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Cone- image shift (SLOB Rule)

- The cone image shift reveals the third dimension



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Cone- image shift (SLOB Rule)

Disadvantages

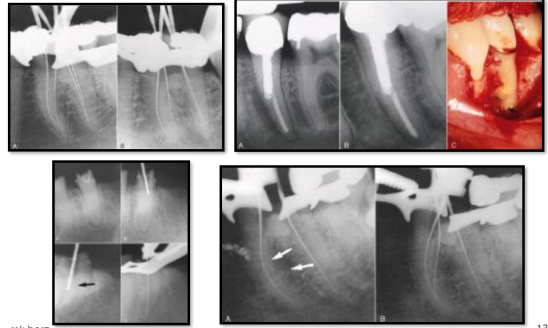
1. Decreased clarity
2. Superimposition of structures



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Cone- image shift (SLOB Rule) Indication:



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Conventional local anesthesia techniques

Mandibular anesthesia for restorative dentistry

- Lidocaine with 1:100,000 epinephrine
 - Anesthetic factors associated with the inferior alveolar nerve block
 - Alternative attempts to increase anesthetic success
 - Alternative solutions
- 2% Mepivacaine with 1:20,000 levonordefrin, 4% Prilocaine with 1:200,000 Epinephrine, and plain solution (3% Mepivacaine and 4% Prilocaine)

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Interpretation of endodontic radiographs and its limitation

- Differential Diagnosis:
 - Endodontic pathosis vs. nonendodontic pathosis
- Radiolucent lesion
- Radiopaque lesion
- Anatomic structures

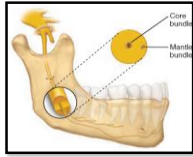


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Conventional local anesthesia techniques

- **Mechanisms of failure with the inferior alveolar nerve block:**
 1. Accessory innervations: Mylohyoid nerve
 2. Accuracy of injection
 3. Needle deflection
 4. Cross innervations
 5. Central core theory



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Conventional local anesthesia techniques

- **Alternative injection and location:**
- Gow-Gates and Vizarani-Akinosi techniques



- Incisive Nerve block/ Infiltration at the Mental foramen



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Conventional local anesthesia techniques

Maxillary anesthesia for restorative dentistry

- **Alternative injection technique**
 1. Posterior superior alveolar nerve block(2nd and 3rd molars)
 2. Infraorbital block(1st and 2nd premolars anesthesia)
 3. Second division nerve block (premolars and molars)
 4. Palatal-anterior superior alveolar nerve block(incisors+canine)
 5. Anterior middle superior alveolar nerve block(all anteriors+premolars)

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Conventional local anesthesia techniques

Maxillary anesthesia for restorative dentistry

- Lidocaine with 1:100,000 epinephrine
- Alternative attempts to increase anesthetic success
- Alternative solutions
 - 2% Mepivacaine with 1:20,000 levonordefrin,
 - 4% Prilocaine with 1:200,000 Epinephrine,
 - and plain solution (3% Mepivacaine and 4% Prilocaine)

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Supplemental anesthesia techniques

1. Infiltration

- A. Additional infiltration of lidocaine in the maxilla
- B. Infiltration of Articaine in the mandible

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Supplemental anesthesia techniques

- 1. Infiltration
- 2. Intraosseous Anesthesia
- 3. Periodontal ligament injection
- 4. Intrapulpal injection

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Supplemental anesthesia techniques

2. Intraosseous Anesthesia

Technique:



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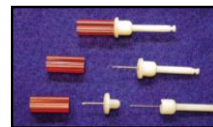
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Supplemental anesthesia techniques

2. Intraosseous Anesthesia

Two systems are available:

- 1. Stabident
- 2. X-tip

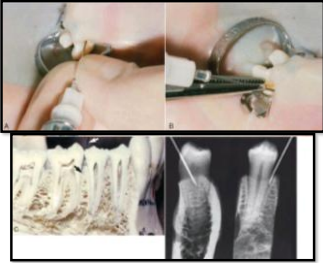


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Supplemental anesthesia techniques

3. Periodontal ligament injection



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Supplemental anesthesia techniques

2. Intraosseous Anesthesia

- Onset:
- Duration:
- Postoperative pain:
- Contraindication:

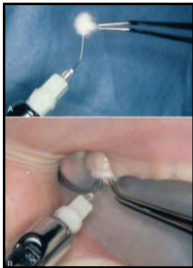
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Supplemental anesthesia techniques

4. Intrapulpal injection

- Technique:



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Supplemental anesthesia techniques

4. Intrapulpal injection

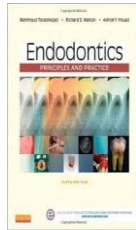
- Advantages and disadvantages:
 1. Onset immediately and profound
 2. No special needle or systems are required
 3. Very painful
 4. Duration is short (5-15 min)
 5. Pulp must be exposed

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**THIS IS A READING GUIDE FOR THE ASSIGNED
REFERENCE**

Endodontic Principles & Practice 5th ed.



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**Success of local anesthesia with
symptomatic irreversible pulpitis:**

- Success of inferior nerve block was 15% to 57%
- Success of maxillary molar infiltration was 54% to 88%

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