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.

Radiography and Local Anesthesia

Reference:

Kholod Al-Manei

This is a reading guide for the assigned reference.

Importance of radiographs during root canal treatment

1. Diagnosis

- Radiographs perform essential functions in three areas:
  1. Diagnosis
  2. Treatment
  3. Postoperative evaluation or follow up
Importance of radiographs during root canal treatment.

2. Treatment

3. Postoperative evaluation or follow up

Radiographic sequence

- Diagnostic radiographs
- Working length
- Master cone
- Obturation
- Follow-up evaluation (recall)
The cone image shift reveals the third dimension

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
Cone-image shift (SLOB Rule)

**Disadvantages**
1. Decreased clarity
2. Superimposition of structures

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)

Interpretation of endodontic radiographs and its limitation

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

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)

Alternative injection and location:

- Gow-Gates and Vizanari-Akinosi techniques
- Incisive Nerve block/Infiltration at the Mental foramen

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)
Supplemental anesthesia techniques

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

2. Intraosseous Anesthesia Technique:

2. Intraosseous Anesthesia
   Two systems are available:
   1. Stabident
   2. X-tip
1. **Intraosseous Anesthesia**

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

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2. **Periodontal ligament injection**

- Onset immediately and profound
- No special needle or systems are required
- Very painful
- Duration is short (5-15 min)
- Pulp must be exposed

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3. **Intrapulpal injection**

- **Technique:**

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