Sri Aurobindo College of Dentistry
Indore, Madhya Pradesh
INDIA
MODULE PLAN

- TOPIC: EXODONTIA
- SUBJECT: ORAL SURGERY
- TARGET GROUP: UNDERGRADUATE DENTISTRY
- MODE: POWERPOINT – WEBINAR
- PLATFORM: INSTITUTIONAL LMS
- PRESENTER: DR. NIKIT AGRAWAL
Dr. William Morton

Ether Dome

Massachusetts General Hospital
Exodontia

- The ideal tooth extraction is the painless removal of the whole tooth, or tooth-root, with minimal trauma to the investing tissues, so that the wound heals uneventfully & no postoperative prosthetic complication is created.
Indications for extraction

Common reasons for extraction are:

1. Carious tooth that is non restorable
2. Periodontally involved teeth
3. Non treatable pulpal or periapical lesion
• Common reasons for extraction are:

• 4. To facilitate orthodontic treatment

• 5. Teeth involved in significant infection

• 6. Patients inability to afford more optimal treatment because of limited finances or time.
• Uncommon reasons for extraction:

• 7. Malpositioned & malopposed teeth
• 8. Cracked teeth
• 9. Fractured tooth which is nonrestorable
• 10. Impacted teeth
• **Uncommon reasons for extraction:**

• 11. Supernumerary teeth

• 12. Preprosthetic extractions

• 13. Teeth associated with pathologic lesions

  ➢ Esthetics

  ➢ Economics
Preradiation therapy

- Most feared side effect of radiotherapy is osteoradionecrosis.

- Should teeth be extracted?

- Extraction may spare the patient, months or years of suffering from osteoradionecrosis.
Preradiation therapy

• Attempt is made to remove a good portion of the alveolar process along with the teeth & achieve a primary soft tissue closure

• Traditionally 7 to 14 days between tooth extractions and radiotherapy has been suggested

• Radiotherapy should be delayed for 3 weeks if possible to ensure sufficient soft tissue healing
Tooth associated with jaw fracture

- If tooth is grossly displaced, severely mobile, or grossly decayed – remove

- If tooth is non carious & appears secure in alveolar bone – retain
Over retained deciduous teeth
Contraindications for extraction

• Systemic contraindications
  • Uncontrolled metabolic disease
    • Diabetes
    • Hyperthyroidism
    • Osteoporosis
    • End stage renal disease
  • Malignant disease
    • Leukemia
    • Lymphoma
Systemic Contraindications for extraction

• Uncontrolled cardiac diseases

• Blood disorders

• Patients on medication should be treated with caution (corticosteroids, immunosuppressives, cancer chemotherapy drugs)

• Pregnancy is considered a relative contraindication
Local contraindications

- Previous radiation treatment
- Hemangioma
- Malignant tumours
- Acute oral infections
  - Acute pericoronal abscess or pericoronitis
  - AHGS, ANUG. A.periapical, A.periodontal abscess.
Basic Methods

1. Close / Forceps / Intra-alveolar method

2. Open / Trans-alveolar method.
Mechanical principles of extraction

• Expansion of bony socket
• The use of lever and fulcrum
• The insertion of the wedge
Fig. 2.—The insertion of the wedge-shaped forceps blades may cause the tooth to rise in its socket.
BASIC PRINCIPLES FOR FORCEPS TECHNIQUE

- Beaks should be seated as far apically as possible without compression of the soft tissues.
- Beaks of the forceps as parallel as possible to the long axis of the tooth.
- Application of excessive force should be avoided.
Presurgical assessment

- Medical history
- Dental history (history of difficult extraction)
- Patient’s emotional maturity
- Clinical examination
- Radiographic examination

“Never treat a stranger” — Textbook of practical O&MFS by Daniel Waite
Clinical examination

- Presence of infection
- Restriction of mouth opening
- Condition of the crown of the tooth
- Tooth mobility
- Tooth alignment in the arch
Indications for a preoperative radiograph

- History of difficult or attempted extraction
- Tooth abnormally resistant to forceps extraction
- If a transalveolar approach is going to be used
- Teeth or roots in close relationship to maxillary sinus or inferior dental & mental nerves
Indications for a preoperative radiograph

- All mandibular 3\(^{rd}\) molars, instanding premolars, or misplaced canines
- Heavily restored or pulpless teeth
- Tooth affected by periodontal disease accompanied by some sclerosis
Indications for a preoperative radiograph

- Tooth subjected to trauma
- Isolated maxillary molar
- Partially or unerupted tooth
- Retained root
Indications for a preoperative radiograph

• Any condition which predisposes to dental or alveolar abnormality

  • Osteitis deformans in which the roots are hypercementosed & there is predisposition to chronic osteomyelitis

  • Cleido-cranial dysostosis, for pseudo anodontia & hooked roots occur in this condition
Conditions predisposing to dental abnormality

- Patients who have received therapeutic irradiation to the jaws
- Osteopetrosis predisposes to chronic osteomyelitis
Relationship to Maxillary sinus

- If only a thin layer of bone is present between the sinus & the molar teeth, there is increased potential for perforation of the maxillary sinus during extraction.
Configuration of roots

- First evaluate number

Then
- Curvature
- Shape
- Size
- Length
Root caries

Root resorption
Previous Endodontic treatment
Condition of surrounding bone
“7 Minimum Essentials”

- Radiograph
- Anesthetic
- Forceps & elevators
- Flap tray
- Light
- Efficient assistance
- Suction apparatus

Sir Thomas Stamford Raffles (1781 – 1826)
Founder of Singapore
Extraction Technique

• Adequate access to the tooth

“You have to see well what you do in order to do well what you see”

G.C Ingham
British Technique

- Forceps always held with palm of hand above the handles of the forceps

- Patient is inclined 15-20° for extraction in the lower left quadrant & 30 – 45° in the other 3 quadrants

- Dentist stands behind the patient for extraction in the lower right Q & in front of the patient for all other extractions
Position of Operator
Position of supporting hand
SUPPORTING HAND POSITION
MAXILLA
SUPPORTING HAND POSITION
MANDIBLE
North American Technique

- Forceps are usually held with the palm of the hand below the handles of the forceps.
- The patient is usually inclined 30-45 degrees for all extractions.
- The dentist normally stands behind the patient in all extractions.
Basic steps in Forceps extraction

• Grasping the tooth – engaging the beaks 1-2 mm beyond the CEJ
• Expansion of the bony socket
• Mobilization of the tooth
• Delivery of the tooth
APPLICATION OF FORCEPS BLADES

Cross-sections of root with forceps blades applied to it. A, Ideal fit. B, "Two-point contact". C, "One-point contact".
Basic forces used to mobilize the tooth

- Apical pressure
- Buccal force
- Lingual force
- Rotational force
- Traction force
Application of force related to tooth morphology

- Maxillary anteriors
  - Have conical roots
  - Lateral incisors being slightly longer & slender
  - Canine usually the longest
  - Alveolar bone thin on the labial side
  - Initial movement in labial direction, a less vigorous palatal force is then used, followed by rotational force
Application of force related to tooth morphology

- **Maxillary first premolar**
  - Bifurcated usually in the apical 1/3 to ½
  - Roots extremely thin & subject to fracture
  - Buccal pressures should be greater than palatal pressures
  - Rotational force should be avoided
Maxillary premolar
Application of force related to tooth morphology

- Maxillary 1\textsuperscript{st} & 2\textsuperscript{nd} molars
  - Have 3 large roots
  - Buccal roots are relatively close together
  - Strong buccal force is used with minimal palatal forces
Maxillary 1\textsuperscript{st} & 2\textsuperscript{nd} molars
Maxillary 3rd molars
Application of force related to tooth morphology

- Mandibular anteriors
  - have fine roots with flattened sides
Stobie’s technique
Application of force related to tooth morphology

• **Mandibular Premolars**
  – Have tapered roots and their apices may be distally inclined
  – Extracted with lateral movements
  – Only in the case of the 2\textsuperscript{nd} premolar can initial movements be rotatory

• **Mandibular molars**
  – Have 2 roots flattened mesiodistally
  – Figure of 8 with strong buccal and lingual motion is used to expand the socket & the tooth is delivered in the buccoocclusal direction
Extraction forceps. Left to right: Upper straights, side view upper straights, upper premolars, upper molars, side view upper molars, lower straights, lower premolars, lower molars.

Elevators. Left to right: Couplands 1, 2, and 3, Cryers left and right, Warwick James left, straight and right.
Policy for leaving root fragments

- 3 conditions must exist for a tooth to be left in the alveolar process
  - Root fragment must be small
  - Root deeply embedded in bone
  - Root must not be infected
Risks is considered greater when:

- Removal of root will cause excessive destruction of surrounding tissue.
- Removal of root endangers vital structures.
- Attempts of recovering the root can displace it into the maxillary sinus or tissue spaces.
Surgical plan for full mouth extraction

- The ideal tooth extraction is the painless removal of the whole tooth, or tooth-root, with minimal trauma to the investing tissues, so that the wound heals uneventfully & no postoperative prosthetic complication is created
- Maintain the anterior teeth
- Maintain the vertical dimension
- Best to perform surgery in opposing quadrants
Multiple extractions – Order of Extraction

- Maxillary teeth should be removed first
  - Infiltration anesthesia has more rapid onset
  - Debris may fall into empty sockets of lower teeth
  - Teeth removed with a major component of buccal force
- Disadvantage – hemorrhage may interfere with visualization
Multiple extractions – Order of Extraction

• Extract the most posterior teeth first

• 2 teeth most difficult to remove are the first molar and canine
Transalveolar Extraction

- General guideline

- Indications:

  1. Attempts at forceps extraction have failed

Forceps extraction of these teeth resulted in removal of bone & tooth instead of just tooth
Transalveolar extraction - indications

2. Retained roots, especially those in close proximity to the maxillary sinus

3. History of difficult or attempted extractions

4. Heavily restored tooth

5. Hypercementosed & ankylosed teeth
Transalveolar extraction - indications

6. Geminated & dilacerated teeth

7. Teeth shown radiographically to have
   • Complicated root patterns or
   • Roots with conflicting lines of withdrawal

8. When inserting immediate dentures
Transalveolar extraction - indications

- Heavy buccal plate suggests difficult forceps extraction
- Teeth exhibiting bruxism may have denser bone & stronger PDL attachment
Transalveolar Extraction

• 6 Fundamental steps

  • Raising a flap
  • Removal of bone
  • Tooth division
  • Removal of tooth
  • Wound toilet
  • Primary closure
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