Oral Surgery For the General Dentist

David B. Ettinger MD,DMD
Assistant Professor Oral and Maxillofacial Surgery
Indications for Extraction

- Caries
- Periodontal Disease
- Orthodontics
- Tooth Fracture
- Preprosthetic Preparation
- Irreversible Pulpitis
- Teeth Associated with Pathologic Conditions
- Chemotherapy and Radiation

"I'm real sorry, Kandlewood, but we've had some reductions in our dental plan."
Tooth Removal/Extraction

The area around the tooth is numbed before extraction.

An elevator helps loosen the tooth.

Dental forceps are used to remove the tooth.
Principles of Simple Extraction

- Involves minor alveolar bone expansion, separation of the periodontal ligament, and simple coronal forceps delivery of the tooth
- Positioning of the patient in the dental chair to allow for the surgeon’s optimal control and visibility
- Use of appropriate specialized instrumentation
  - Proper elevation of the tooth
  - Choosing the right forceps in order to be able to grasp the cervical portion of the tooth and position it as apically as possible to try to shift the center of rotation toward the root
- Avoid any traumatic extraction leading to further bone remodeling and ultimately more bone resorption
Involves techniques to remove teeth other than by simple luxation of the tooth and forceps delivery
- Elevation of a mucoperiosteal flap
- Ostectomy
- Sectioning of the tooth
- Luxation and removal of roots
- Removal of radicular pathologic condition when present
- Debridement of the surgical field and removal of sharp bony edges
- Wound closure
Accidental fracture of crown during simple extraction that leaves the root buried in the socket
- Retained roots
- Severely carious teeth that will fracture with forceps extraction
- Endodontically treated teeth
- Teeth with internal resorption
- Teeth with widely divergent roots
- Teeth with dilacerated or greatly curved roots
- Ectopic teeth in positions where forceps cannot be used
- Teeth that are positioned close to vital anatomic structures
- Unerupted teeth other than third molars
- Hypercementosis
- Ankylosed teeth
- Mandibular third molar in the proximal segment of a fracture of the mandibular angle region
- Multirooted teeth located in areas of the jaw where bone preservation is critical for implant placement
- Tooth that will be used for autotransplant
Flap Design

- Full thickness mucoperiosteal flap
- Allow for complete visualization of the operative field
- Prevent unnecessary trauma to the adjacent soft tissue when removing teeth
- Provide an adequate working area that will allow for the full removal of intrabony pathologic conditions when present
Incisions should be placed over bone not planned for removal

The incision should be long enough to allow for a flap that will give clear and adequate hard tissue visualization and permit easy retraction without tearing

The base of the flap should be wider than the reflected free margin to ensure a proper blood supply to the reflected soft tissue

Avoid placing incisions over vital structures (mental foramen and lingual nerve)

Closure typically with 3–0 or 4–0 chromic
Sometimes it will be necessary to remove alveolar bone from the crown of the tooth or from the retained root to facilitate its removal

- Constant irrigation
- Must be as conservative as possible
Sample Post Operative Instructions

- Bite down on gauze pad for 1 hr after leaving clinic
- Do not spit. Swallow your saliva continuously to keep your mouth dry.
- On arrival home, place ice bag on face for 20 min, take off for 20 min, but do not freeze skin. If too cold, place a thin towel on skin and apply ice bag on towel.
- Upon removal gauze pad may be stained pink. This does not mean there is bleeding – bite down on another clean gauze pad for 1 hr and repeat if necessary, but do not rinse.
- Some swelling or discoloration may follow oral surgery and would cause no concern.
- Do not rinse today. Tomorrow, rinse after meals, using ¼ teaspoon salt in a large glass of warm water.
- Do not smoke for 48 hrs.
- Diet: any soft food that you can mash with a fork (cold or warm, but not hot).
- Brush all teeth carefully and gently, especially the teeth around the area of operation. Use a soft toothbrush.
- If you were given any prescriptions, take the medicine as directed.
- Do not take aspirin if you have pain; take Advil or Tylenol.
Indications for Removal of Impacted Third Molars

- Active/chronic infection at site
- Cyst formation
- Tumors
- Caries
- Preparation for orthognathic surgery
- Preradiation therapy for head and neck cancer
- Resorption of adjacent teeth
- Persistent facial pain of unknown origin
- Wisdom tooth in line of fracture
- Active periodontal disease around distal of adjacent teeth
The American Association of Oral and Maxillofacial Surgery and the Oral Maxillary Surgery Foundation’s landmark 7-year study advise that most third molars, even those that are asymptomatic and display no current sign of disease, are at risk of chronic oral infectious disease, periodontal pathologic conditions, and tooth decay and should be considered for removal in young adulthood.
Those patients who choose not to electively have their 3rd Molars removed must be made aware of their increased risks for systemic disease and need for evaluation of future periodontal disease.

The least morbidity associated with 3rd molar removal occurs when removed between the ages of 15 and 25 or when the roots are only two thirds formed.

Contraindications of elective removal of extracted teeth dictated by medical history and age.
COMPLICATION – “an additional problem that arises following a procedure, treatment or illness and is secondary to it. A complication complicates a situation.”
Complications of Exodontia

- Removal of the wrong tooth
- Injuries to teeth and adjacent structures
- Residual root remnants
- Displacement of teeth or root tips
- Soft tissue injuries
- Oroantral communications
- Swallowing or aspiration of teeth, fragments of teeth, or restorations and crowns
- Tissue emphysema
- Sensory nerve injuries
- Alveolar Osteitis (dry socket)
- Infection
- Trismus, swelling, or pain
- Temporomandibular joint problems
- Hemorrhage
- Injuries to osseous structures
INFORMED CONSENT
Removal of Wrong Tooth

- Miscommunication between referring dentist and office personnel with specialist’s office
- Incorrectly labeled radiographs or referral slips
- Disagreement between dentist and patient
- Inadvertent removal
- If discovered at time of surgery, tooth should be implanted immediately and stabilized
- Patent should be informed
Injuries to Teeth or Adjacent Structures

- Fractures and loosening adjacent teeth
- Dislodging large restorations or crowns
- Careful evaluation of surrounding dentition and radiographs should be done before instituting treatment
- Partially avulsed teeth should be repositioned and stabilized
- Crowns should be recemented
- Dislodged restorations temporized
Residual Root Remnants

- Dilacerated or divergent roots
- If remnant is 2–3 mm and in close proximity to a vital structure, risks versus benefits should be considered
- Usually small remnants will be of no consequence if not grossly infected
- Post op radiograph
- Appropriate follow up
Displacement of Teeth and Root Tips

- Inexperience of surgeon
- Uncontrolled force
- Improper use of instrumentation
- Difficult access with poor visualization and inadequate exposure
- Variations in anatomy
- Most common sites – maxillary sinus, submandibular space, and infratemporal fossa
Mandibular Molars

- Care should be taken in attempting to remove distal roots of third molars because the lingual cortex of the mandible curves laterally and is thin in this area.
- When a root tip is displaced into the sublingual space, an attempt should be made to palpate it digitally and push it back into the socket.
Maxillary Sinus or Infratemporal Fossa

- Usually occurs because of close proximity and thinness of the sinus floor or wall
- Adequate bone removal
- Good visibility
- Careful elevation
- Distal stop
- Attempt should be made to retrieve root or root tip through extraction site with a suction tip
- If unsuccessful, radiographs should be taken to localize the tooth
Oroantral Communication

- Exposure of maxillary sinus
- Maxillary sinusitis or chronic oroantral fistula
- Widely divergent roots increase the chance that the sinus floor could be removed along with the root
- Less force should be used and division of roots should be considered if tooth roots in close proximity with sinus floor
Oroantral Communication

- Treatment dictated by size of communication
- Probing not advised
- <2mm – collagen plug can be placed in socket; sinus precautions
- 2–6mm – collagen plug placed with figures-of-eight sutures over the socket to prevent the plug from being dislodged; sinus precautions
- >6mm – communication must be closed primarily using a flap procedure; sinus precautions
Soft Tissue Injuries

- Laceration of the flap
- Burns
- Abrasions
- Puncture wounds
- Subcutaneous emphysema
Tissue Emphysema

- Seen less frequently since the use of rotary instruments such as the Hall drill
- Caused by the inclusion of air under pressure into the subcutaneous soft tissue during removal of bone or sectioning of teeth with an air driven dental hand piece
- Rapid onset of swelling
- Crepitus
- Tenderness
- Can be life threatening or result in an infection leading to meningitis or mediastinitis
- Tx: ice application, antibiotics, and close monitoring
Swallowing or Aspiration

- Teeth or fragments of teeth, restorations, and crowns
- Chest X-ray for patients who have swallowed/aspirated teeth to localize it
- If aspirated during surgery and lodged in trachea, methods used in ACLS, abdominal thrusts, back slaps, Heimlich maneuver
Can occur with the removal of teeth whose roots are close to the inferior alveolar, lingual, or mental nerve

Horizontally impacted 3rd molars

Depth of impaction, presence of completely developed roots, use of rotary instruments, and sectioning of teeth

Division of inferior alveolar nerve is infrequent but pressure and compression can take place during removal of third molars

Proper patient evaluation, correct flap placement, proper use of rotary instruments, knowledge of anatomy, and informed consent
Alveolar Osteitis (Dry Socket)

- One of the more common surgical complications seen post operatively
- Smoking, oral contraceptives, mandibular teeth, experience of surgeon, complexity of extraction, poor oral hygiene
- Dull throbbing pain on POD 3–5 with complaint of earache, headache, radiating pain, and no relief with analgesics
- Malodorous
- Extraction site devoid of clot
Alveolar Osteitis (Dry Socket)

- Dry socket pastes containing eugenol, guaiacol, chlorobutanol, and balsam of peru are placed on a dressing and placed in the socket
- Dressings replaced every 2 days
- Obtain imaging if pain persists beyond 3 weeks
Infection

- Signs and symptoms typically manifest 5 days post op
- Swelling, trismus, tenderness, redness, fever, malaise, purulent discharge
- Flap elevation, bone removal, poor surgical technique, poor oral hygiene, noncompliant patient, periodontal disease, immunocompromised patient
- Tx: antibiotics, incision and drainage, and acquisition of cultures
Hemorrhage
Hemorrhage

- Pressure with a moistened tea bag or gauze pad
- Bone wax
- Cautery
- Absorbable gelatin sponges (Gelfoam)
- Oxidized regenerated cellulose (Surgicel)
- Microfibrillar collagen (Avitene)
- Absorbable collagen dressings (Collatape, CollaPlug)
- Topical thrombin
Temporomandibular Joint Problems

- Due to lack of support against lateral forces during exodontia
  - Bite block
  - Other hand
- Thorough history
- Post op instructions
Questions?

"Please be gentle. I have a very low threshold for pain."