

# Basic Oral Surgery

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# Objectives

- Identify or describe
  - Indications and three criteria for extraction
  - Instruments used for oral surgery and their care
  - Appropriate patient-based pain management protocols

# Objectives

- Identify or describe
  - Steps of extraction
    - Flap selection, design and implementation
    - Proper tooth sectioning
    - Methods of elevation
    - Proper closure
  - Common complications and their resolution
- Soft tissue management

# Extractions - Indications

- Persistent (retained) deciduous
  - Malocclusion may result if retained
- Deciduous malocclusion
  - Interceptive orthodontics
- Supernumerary (extra)
  - If crowded



# Deciduous Extractions

- Close proximity of permanent tooth bud
- Damage to perm tooth possible
- **Be Careful!**



# Extraction Indications

- Periodontal disease
- Evaluate
  - Attachment loss
    - Gingiva/bone
    - Extent
    - Pattern
- Strategic extractions



# Extraction Indications

- Compromised pulp
  - Open canal
  - Non-vital pulp
    - Radiograph
    - Transilluminate
- Alternative therapy  
Endodontics



# Extraction Indications

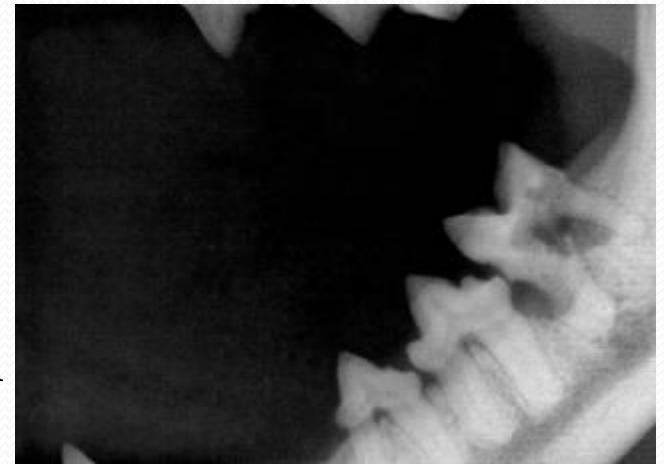
- Carious lesions
  - If extensive tooth destruction and pulpal exposure
- Unerupted teeth
  - Can form dentigerous cysts





# Tooth Resorption (TR)

- Odontoclastic
  - Crown lesion
  - Root resorbing
    - PDL not present
- Inflammatory
  - Secondary to periodontal disease
  - Resorption of exposed portion of root

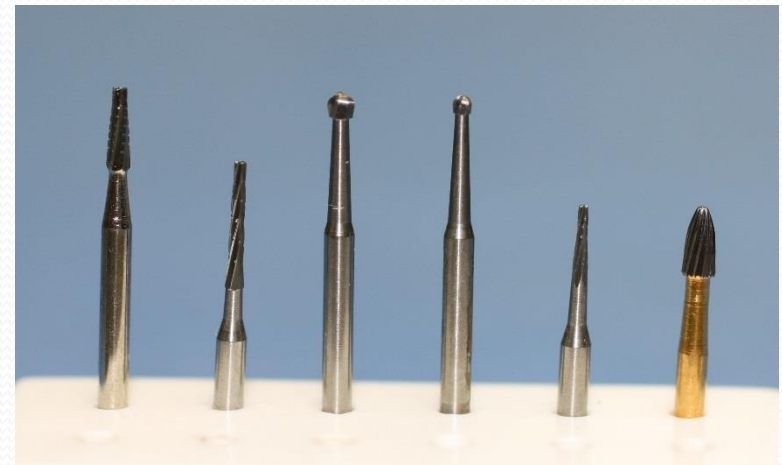
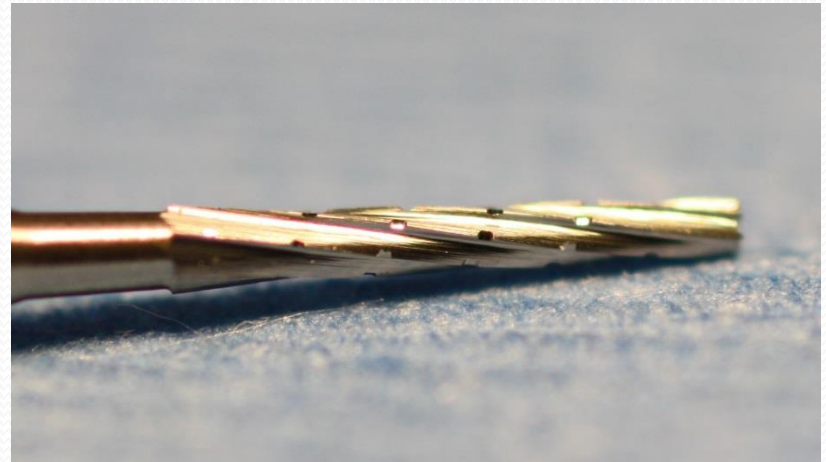


# Decision to Extract

- Tooth
  - Extent of disease
  - Relative importance
- Patient
  - Systemic issues – more likely to extract
- Client
  - Compliance with home care and rechecks
  - Expense of ‘saving’ a tooth

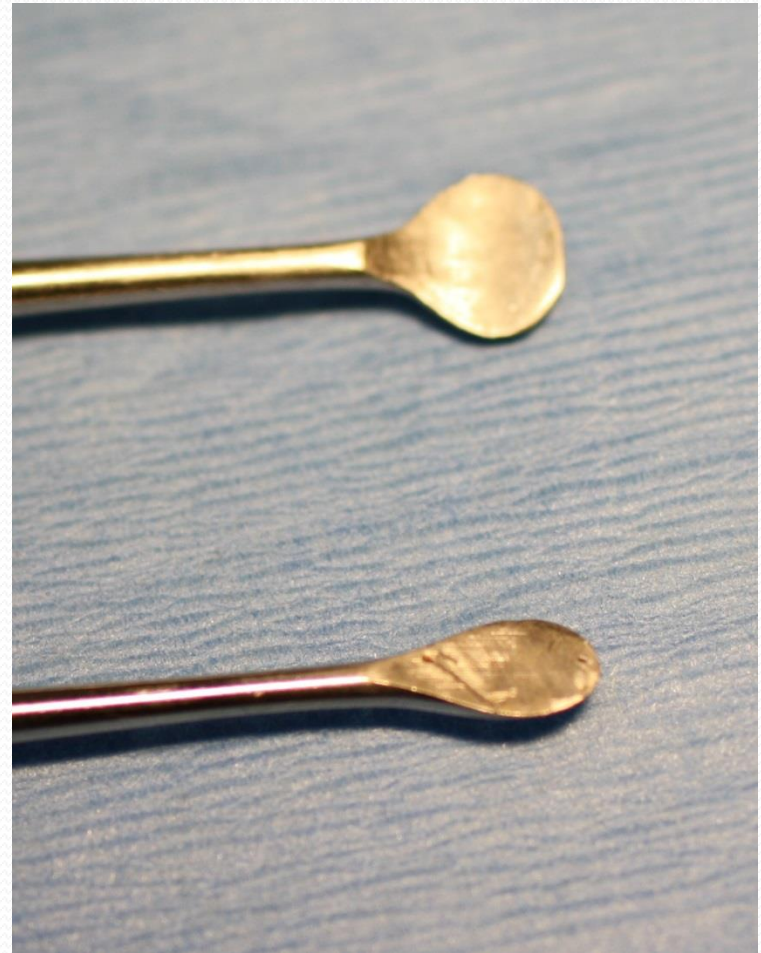
# Extraction Equipment

- Sectioning teeth
  - 700L or 701L – dogs
  - 699 cats
- Alveoloplasty
  - Round burs
  - Diamond burs
- 12-fluted bur



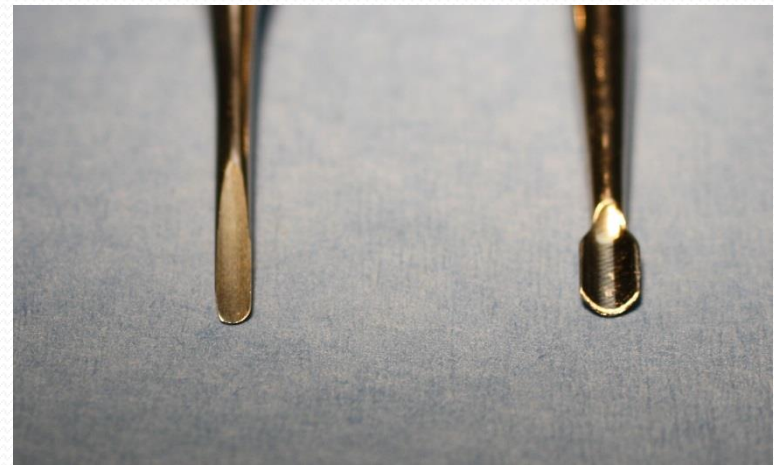
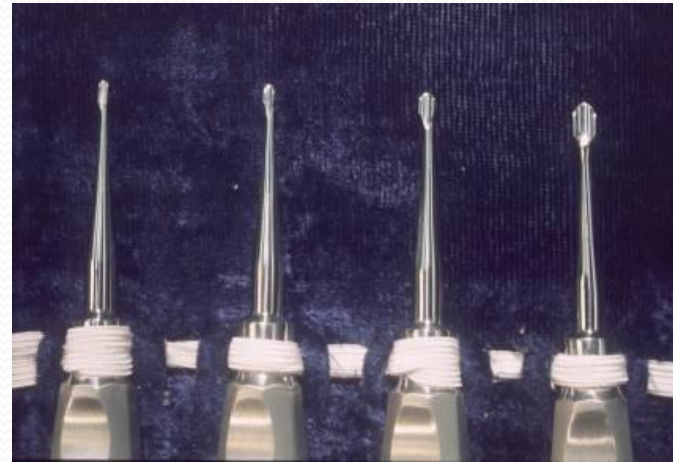
# Extraction equipment

- Periosteal elevator
- Molt #2 / Molt #4
  - Cislak EX 20/21
  - Serrated edge version for debridement



# Dental Elevator

- Elevator/Luxators
  - Winged vs flat
- Sharp working head
- Shape to fit root
- Place with forces
  - Fatigue PDL



# SHARPEN!!!

- Tip of dental elevator is to be placed in between the tooth and alveolar bone
  - Periodontal ligament space
- Very Thin
- Use sharpened tip carefully
- Re-sharpen as needed!!



# Extraction Equipment

- Small breed extraction forceps
- Scalpel blade – 15C
- Suture
  - Monofilament
  - 4-0 to 5-0
  - Reverse cutting
  - Tapered - cats



# Pain Management – Peri-operative!

- Pre-operative
  - Before the pain starts
- Multi-modal
  - NSAID
  - Opioids
  - Alpha 2 Agonists
- Intra-operative
  - Local and regional anesthetic blocks
- Post-operative
  - Don't stop until the pain stops!



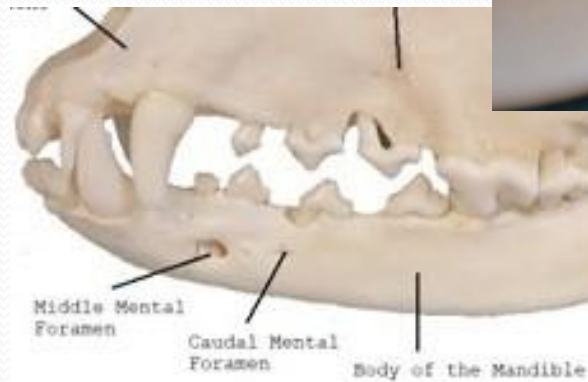
# Regional and Local Blocks

- Agents
  - Lidocaine – quicker, not last as long
  - Bupivacaine – place early
    - 0.5% with 1:200,000 Epinephrine
    - 1mg/kg cats; 2mg/kg dogs
    - Liposomal – extended release
    - Potentiate with buprenorphine
- Watch total dose



# Intra-Operative

- Blocks
  - Infraorbital
  - Caudal mandible
  - Mental
- Training required!



# Infraorbital



# Regional Blocks

- Caudal Maxillary
  - Behind zygomatic arch
  - Potential for damage



# Local 'blocks'

- If you cannot safely perform a deeper regional block, at least infiltrate a line of agent in the buccal mucosa at the site
- You can infiltrate more once the flap is raised or the bone is exposed

# Patient Management

- Appropriate antimicrobials
- Monitoring
  - Anesthetic time
- Client communication
  - Informed consent
  - Available during procedure



# Pre-operative Intraoral Radiograph

- Documentation
- Anatomical abnormalities
  - Extra roots
  - Curved roots
- Pathology
  - Tooth resorption
- Thin bone
- Fractured roots



# Extraction Steps - Systematic

- Gingival flap with release
- Section tooth or alveoloplasty
- Elevate tooth segment(s)
- Finish site – curette, pack
- Suture flap



# Initiate Gingival Flap

- Scalpel blade (15C)
- Freshen gingival edge
- Insert blade into sulcus to cut epithelial attachment
- Releasing incisions
  - Mesial and distal
  - Past mucogingival junction



# Maxillary Releasing Incisions



# Gingival Flap – Mandibular Canine

- Releasing incision
  - From distal aspect
  - Y-shaped with lingual and buccal extensions
  - At mesial aspect – buccally
- Elevate to access the distal aspect of tooth



# Elevate flap

## Buccal Flap

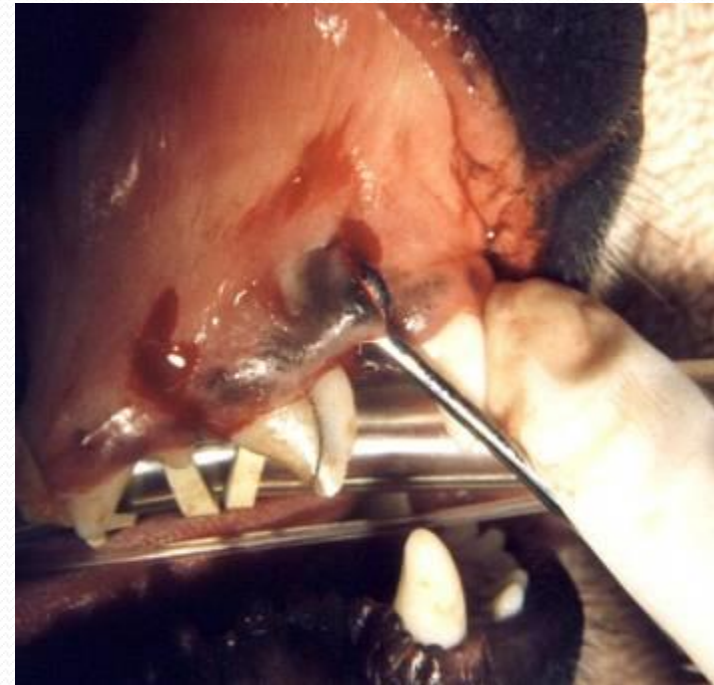


## Lingual Flap



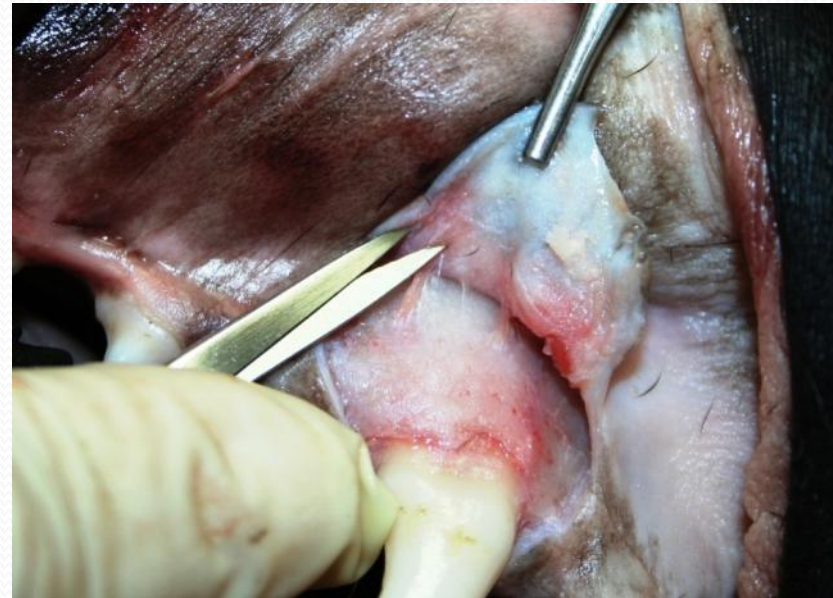
# Elevate Flap

- Periosteal elevator
- Elevate attached gingiva, extending under the alveolar mucosa a few millimeters
- Past the mucogingival line
  - Don't bluntly dissect any further than is necessary



# Release Flap

- Lift flap
- Incise periosteal fibers
  - On the underside of the elevated flap
  - Grasp the edge and lift
  - Incise fibers
- Release tension
  - Essential step!



# Alveolar Bone Removal

- Expose canine
  - Mesial/distal grooves
  - Remove 2-3 mm buccal bone
  - Expose root at its widest
  - Remove additional bone as necessary



# Mandibular Canine





# Alveolar Bone Removal

- Expose furcation
  - Multi-rooted tooth
- Additional as necessary
  - Cortical buccal bone - maxillary
  - Interseptal bone - mandibular
    - Remove bone in between roots for better exposure



# Section Teeth

- From furcation through crown
- Crosscut fissure bur with coolant
- Protect soft tissue



# Maxillary 4<sup>th</sup> Premolar



# Maxillary First Molar

- Difficult to flap if only extraction
  - Elevate palatal mucosa and close behind 08
  - Extracting 2<sup>nd</sup> molar gives better flap
- Section into 3 roots



# Initial Elevation

- Flat elevator (luxator)
- Insert into PDL to start the separation
- Piezotome for elevation



# Simple Elevation

- Simple extractions
- Mobility – bone loss
- Elevation
- Suture



# Elevation Forces

- Deliberate, patient
- Control elevator
  - Advance into PDL space
  - Thin space – sharpened edge
- Between teeth
- Between tooth segments
- Fulcrum



# Elevation Forces

- Fulcrum of force when elevating between crowns - level of bone
- Extra care with maxillary premolars/molars
  - Proximity of infraorbital canal
  - Proximity of orbital area





# Elevator Forces



# Extraction Forceps

- Don't use force
- Grasp gently
- Gentle rotation, then hold
  - Determine continued attachment
  - Be cautious with curving roots, especially maxillary teeth



# Maxillary Canines

- Additional buccal bone removal
- Don't elevate crown laterally
- Watch palatal area



# Finishing

- Prepare flap
  - Elevate lingual aspect
- Alveoloplasty
  - Diamond bur
- Implant – bone graft
  - Osseopromotive
- Suture
  - Minimize tension



# Complications

- Root tips
  - Root tip picks
  - Bone removal
    - Interseptal
- Ankylosis
  - Avoid pulverizing
- Tooth resorption
  - Options



# Small Mandible Extractions

- Cup mandible with supporting hand
- Remove interseptal bone, preserve buccal bone if possible
- “May be fragile”



# Lost Root Tips

- Mandibular canal
- Nasal cavity
- Bone at apex diseased?
- Need to retrieve tip at that time
- Enlarge hole it fell through
- FLUSH



# Complications

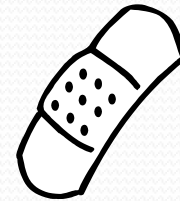
- Fractured jaw
  - Radiographs
  - Lower canine or first molar extraction if mandible compromised





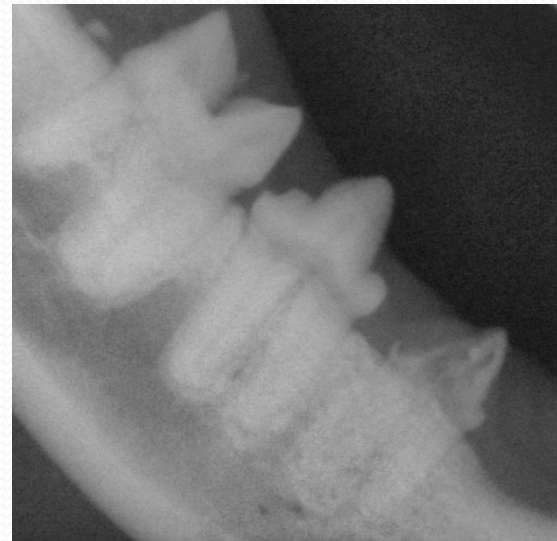
# Post-operative

- Pain management
  - Don't change NSAIDS
- Supportive care
- Follow-up care



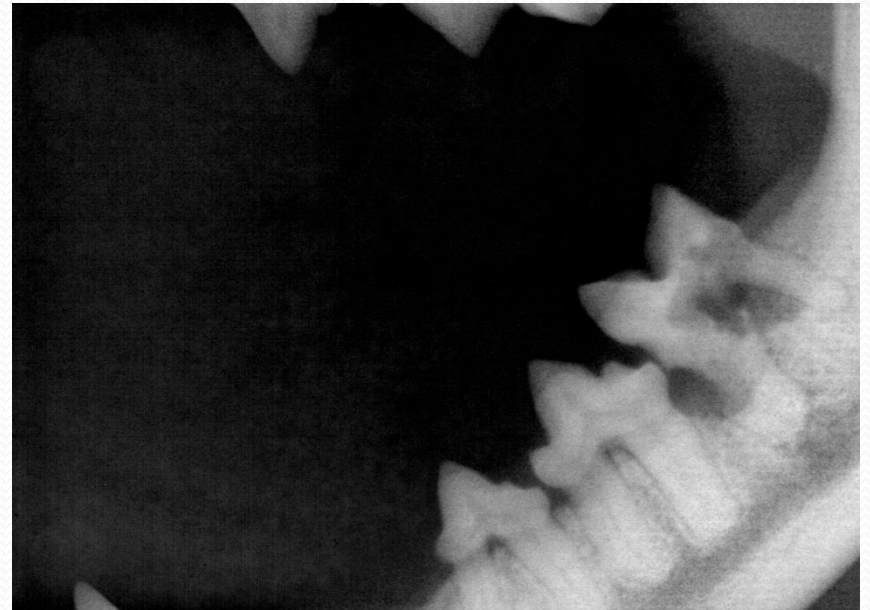
# Tooth Resorption - Odontoclastic

- Modified extraction technique
  - Mentioned in the exam room
- No evidence of apical pathology
- No periodontal ligament
  - Elevation by loosening ligament is not possible
- Root is being turned into bone
- Elevate what you can



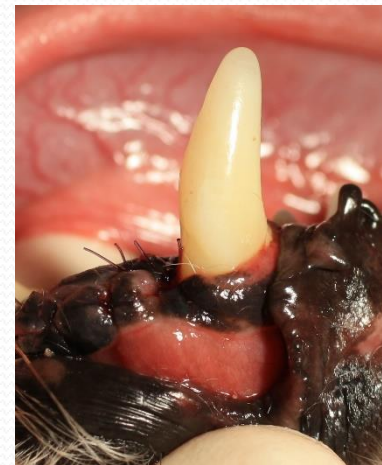
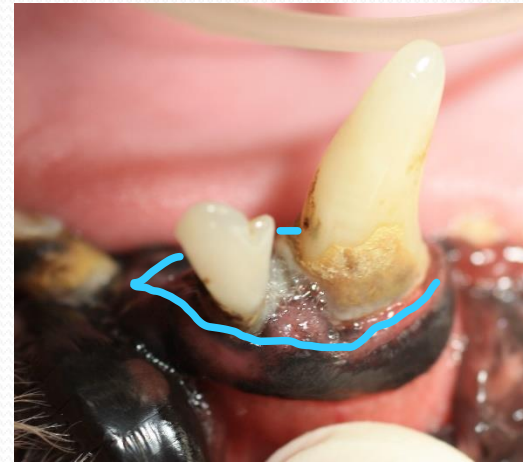
# Tooth Resorption - Inflammatory

- Externally may look like classical TR
- On radiograph –
  - Intact PDL
  - Bone loss due to periodontal disease
  - Exposed root resorbs
- Entire root MUST be elevated



# Soft tissue management

- Periodontal therapy for teeth adjacent to extraction sites
- Open root planing
- Bone graft +/-
- Gingival recontouring
  - Wedge resection
  - Apically repositioned
- Gingivoplasty





# QUESTIONS?

