### Review of common Local Anesthetics

- **Short Duration**
- **Moderate Duration**
- **Long Duration**
- **“Permanent”**

<table>
<thead>
<tr>
<th>Local Anesthetic</th>
<th>Trade Name</th>
<th>Adult Max Dose</th>
<th>Pediatric Max Dose</th>
<th>Pediatric Max Dose</th>
<th>Duration of Action</th>
<th>PRC</th>
<th>Metabisulfite</th>
<th>Drug Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lidocaine 2% w/epi</td>
<td>Xylocaine, Octocaine</td>
<td>7mg/kg 500mg max</td>
<td>4-7mg/kg 105mg max</td>
<td>60-190 minutes</td>
<td>B</td>
<td>yes</td>
<td>increased BP, Beta blockers</td>
<td></td>
</tr>
<tr>
<td>Mepivacaine 3% plain</td>
<td>Carbocaine, Polocaine, Lingospan, Alphacaine</td>
<td>6.6mg/kg 400mg max</td>
<td>same as adult</td>
<td>25-160 minutes</td>
<td>C</td>
<td>no</td>
<td>none known</td>
<td></td>
</tr>
<tr>
<td>Mepivacaine 2% w/epi</td>
<td>same as above with levonordefrin</td>
<td>6.6mg/kg 400mg max</td>
<td>same as adult</td>
<td>50-185 minutes</td>
<td>C</td>
<td>yes</td>
<td>same as epi, levonordefrin</td>
<td></td>
</tr>
<tr>
<td>Prilocaine 4% plain</td>
<td>Citanest</td>
<td>8mg/kg 400mg max</td>
<td>same as adult</td>
<td>20-190 minutes</td>
<td>B</td>
<td>no</td>
<td>Methemoglobinemia</td>
<td></td>
</tr>
<tr>
<td>Prilocaine 4% w/epi</td>
<td>Citanest Forte</td>
<td>8mg/kg 400mg max</td>
<td>same as adult</td>
<td>40-220 minutes</td>
<td>B</td>
<td>yes</td>
<td>Same as Epi, 1:200,000</td>
<td></td>
</tr>
<tr>
<td>Articaine 4% w/epi</td>
<td>Septocaine, Septanest N</td>
<td>7mg/kg 500mg max</td>
<td>5mg/kg</td>
<td>60-230 minutes</td>
<td>C</td>
<td>yes</td>
<td>Same as Epi, 1:200,000</td>
<td></td>
</tr>
<tr>
<td>Bupivacaine 0.5% w/epi</td>
<td>Marcaine</td>
<td>2mg/kg 200mg max</td>
<td>same as adult</td>
<td>40-440 minutes</td>
<td>C</td>
<td>yes</td>
<td>Same as Epi, 1:100,000</td>
<td></td>
</tr>
<tr>
<td>Etidocaine 1.5% w/epi</td>
<td>Duranest</td>
<td>8mg/kg 400mg max</td>
<td>NA</td>
<td>40-440 minutes</td>
<td>B</td>
<td>yes</td>
<td>Same as Epi, 1:200,000</td>
<td></td>
</tr>
<tr>
<td>Prilocaine 3% w/felypressin</td>
<td>3% Citanest Dental w/Octapressin</td>
<td>8mg/kg 400mg max</td>
<td>same as adult</td>
<td>40-220 minutes</td>
<td>B</td>
<td>no</td>
<td>Methemoglobinemia less stimulating than Epi, no ischaemia at site!</td>
<td></td>
</tr>
</tbody>
</table>
Allergic reactions

- True reactions extremely rare to amide local anesthetics
- Most responses are Vaso-Vagal syncope, I.E. – fainting
- Recommend skin testing
- Consider cardiac 2% lidocaine
- Consider Benadryl for injection

Local anesthetic choice for various procedures

- Routine operative (less than 1 hour, non bloody) – LA with NO vasoconstrictor, such as carbocaine or prilocaine plain
- Complex operative, C&B (more than 1 hour, and bloody) – LA with vasoconstrictor, such as 2% lidocaine w/ 1:100,000 epi

Local anesthetic choice for various procedures

- Long procedures or procedures with post operative pain – Long duration LA w/ vasoconstrictor, such as 0.5% marcaine w/ epi
“permanent” nerve block local anesthetics

• Denatured alcohol
• Glycerin
• Botox - botulinum toxin A
• Myobloc – botulinum toxin B

• All these agents generally provide 4-12 months of parathesia

Keys to a painless injection and a happy patient!

• Go Slow! One drop per second (and slower if the patient can feel it)
• Warm the carpules
• Inject local ahead of the needle advancing
• Avoid “sawing” the needle

Special use of Local anesthesia injections

• For diagnostic injections to find source of pain
• For control of trigger points in various neuralgias, both diagnostic and therapeutic
• Relief of pain and breaking of adhesions and releasing closed lock internal derangements in the TMJ
Maxillary infiltration

- Anesthesia injected generally at the approximate apex/depth of vestibule
- Generally one tooth on either side of the tooth being worked on
- Provides hemostasis with LA/epi injection into gingiva

High division Maxillary blocks – complete V2

- Infraorbital – intraoral
- Infraorbital – extraoral
- Pterygo-palatine fossa – from Greater palatine foramen
- Pterygo-palatine fossa – from lateral approach through the Pterygo-maxillary fissure (a deep PSA) easier with 27ga

Posterior Superior Alveolar Nerve (PSA)
Common reasons for failed blocks - Maxilla

- Bone very thick – as in bruxers, clenchers, and exostosis/tori formation, and anterior teeth
- Palatal innervation
- Infection and inflammation
- Contra-lateral or co-innervation

Inferior Alveolar Blocks

- Traditional Halstead approach (cross arch technique)
- Gow-Gates
- Akinosi
- ART- Anterior Ramus Technique
- “RPM" direct anatomical approach

Problems/Failures of previous techniques

- Must use a 27 ga long needle—more risk of trauma to nerve, artery, and veins
- Based on soft tissue landmarks—which vary greatly and in many cases are not present
- High probability of intra-muscular injection–post op pain
“RPM”™ Technique

- Orient free hand on anterior border, centered on the Coronoid notch (deepest portion) and posterior ramus
- Syringe and needle align parallel to this lateral plane and enter straight in
- Redirect as needed to get around anterior border of ramus
The RPM injection nicely avoids the surly medial pterygoid muscle.

Its biggest advantage is that it uses only one landmark: the bony mandible. It presents only one variable, and it is a soft tissue one, not a bony one, that can be palpated by the operator.

Another advantage of the RPM injection is that it will anesthetize the long buccal nerve as well as the inferior alveolar nerve and lingual nerve with a single injection.
Advantages of “RPM™ injection

• Can be performed with a 30ga needle short (7/8” or 23MM)
• Idea depth to nerve is exactly to the hub of the 30ga needle (3/4 the length of a 27ga long)
• Can be perform with the mouth open, closed, or with a bite block in place
Advantages

- Injection landmarks based entirely on boney landmarks
- Avoids going through the muscle or ligaments to enter the pterygo-mandibular space
- One injection provides a full V3 division block- IAN, lingual, buccal, and myohyoid

Common reasons for failed blocks (IAN)

- Injection too low
- Injection too medial
- Lateral flare of the mandible
- Infection lower ph
- Accessory innervation
- Timing of procedure (too soon or too late)
- Intravascular injection

Surgical examples:

- Socket preservation with and without membrane
- Microtome/luxator removal of root tips
- Surgical removal of impacted 3rd Molars
- Soft Tissue
- Partial Boney
- Horizontal Complete boney
- Removal of Palatal and Mandibular Tori
- Orthodontic canine exposure with/without bracket
Socket Preservation a hands-on approach

- Review of Extraction techniques
- Socket defects
- Barrier Membranes
  - Resorbable and Non-Resorbable
- Bone Grafting Materials
  - Advantages and Disadvantages
  - Synthetics, Allogenic, Autogenous, and Xenografts

Extraction techniques:

- Flapless Atraumatic Surgery
  - Usually the smaller the instrument the better, such as a Woodsen waxing instrument, Bandit elevators, or Microtomes
  - Sectioning with a fine bur and lots of irrigation (avoid any bone removal)
  - Easy X-Trac system
  - The Čiğram System
  - The “Tip It” “an innovative root tip extractor"
  - Specialized “atraumatic forceps” (Misch forceps)
Instrument list

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevators</td>
<td>E92, E46R, E301</td>
<td>#369 - 6804</td>
</tr>
<tr>
<td>Bone File</td>
<td>BF21</td>
<td>#368 - 2903</td>
</tr>
<tr>
<td>Periosteal</td>
<td>P9</td>
<td>#372 - 1529</td>
</tr>
<tr>
<td>Woodson</td>
<td>PH2</td>
<td></td>
</tr>
<tr>
<td>Curette</td>
<td>CL85</td>
<td>#368 - 5807</td>
</tr>
<tr>
<td>Bard Parker</td>
<td>SZ.3</td>
<td>#128 - 6038</td>
</tr>
<tr>
<td>Minnesota</td>
<td></td>
<td>#CRM 0810</td>
</tr>
<tr>
<td>Hemostat</td>
<td></td>
<td>#086 - 3472</td>
</tr>
<tr>
<td>Ronguers</td>
<td></td>
<td>#373 - 1544</td>
</tr>
<tr>
<td>Scissors</td>
<td>Dean</td>
<td>#089 - 3800</td>
</tr>
<tr>
<td>Needle Holder</td>
<td>NH5038</td>
<td>#371 - 5810</td>
</tr>
<tr>
<td>Seldin retractor</td>
<td>(P23)</td>
<td>#369 - 0013</td>
</tr>
<tr>
<td>Ash Forceps</td>
<td>FX13</td>
<td>#086 - 4058</td>
</tr>
<tr>
<td>Upper Anterior forceps</td>
<td>150AS</td>
<td>#370 - 8955</td>
</tr>
<tr>
<td>Lower Anterior Forceps</td>
<td>151S</td>
<td>#086 - 4934</td>
</tr>
<tr>
<td>Upper Right Molar Forceps</td>
<td>89</td>
<td>#370 - 6579</td>
</tr>
<tr>
<td>Upper Left Molar Forceps</td>
<td>90</td>
<td>#370 - 6587</td>
</tr>
<tr>
<td>Upper 3rd. Molar Forceps</td>
<td>210</td>
<td>#086 - 4371</td>
</tr>
<tr>
<td>Cow Horn Forceps</td>
<td>23</td>
<td>#370 - 6488</td>
</tr>
<tr>
<td>East/West Elevators</td>
<td>25, 26</td>
<td>#086 - 2169, 2177</td>
</tr>
<tr>
<td>Root Tip Picks</td>
<td>2, 3</td>
<td>#086 - 2540, 2557</td>
</tr>
<tr>
<td>Millers Elevators</td>
<td>(E71), (E72)</td>
<td>#369 - 5319, 5327</td>
</tr>
<tr>
<td>Chisels</td>
<td>2mm, 4mm, 6mm</td>
<td>#497 - 0232, 0240, 0257</td>
</tr>
<tr>
<td>Mallet</td>
<td></td>
<td>#371 - 2254</td>
</tr>
<tr>
<td>Cotton Pliers</td>
<td>DP18L</td>
<td>#368 - 4602</td>
</tr>
<tr>
<td>Explorer</td>
<td>EXD3CH</td>
<td>#368 - 0196</td>
</tr>
<tr>
<td>Scissors</td>
<td>4 1/2&quot;</td>
<td>#499 - 5403</td>
</tr>
<tr>
<td>Ligature Pliers</td>
<td>(GAC Ortho)</td>
<td>#GAC503</td>
</tr>
<tr>
<td>Wire Cutter</td>
<td></td>
<td>#OGD - 1000</td>
</tr>
<tr>
<td>Surgical Cassettes</td>
<td>#IMOSO</td>
<td>oral surgery</td>
</tr>
<tr>
<td>Twisted Bandit Elevators</td>
<td>(Walter Lorenz)</td>
<td>#09 - 0356</td>
</tr>
<tr>
<td>Upper Incisor Pedo Forceps</td>
<td>150s</td>
<td>#370 - 6314</td>
</tr>
<tr>
<td>Lower Incisor Pedo Forceps</td>
<td>151s</td>
<td>#370 - 6322</td>
</tr>
</tbody>
</table>

Woodson elevator
(Philips Modified Periosteal)

Loss of a Tooth Results in a Ridge Defect 90% of the Time

Types of Defects
- **TYPE I** – 32% Bucco-lingual with no vertical loss of height
- **TYPE II** – 3% Apico-coronal with no bucco-lingual loss
- **TYPE III** – 55% Combination of both directions of bone loss
Socket Defects

• Classifications:
  • Type I - The facial soft tissue and buccal plate of bone are at normal levels in relation to the cemento-enamel junction of the pre-extracted tooth and remain intact post extraction.

• Type II - Facial soft tissue is present but the buccal plate is partially missing following extraction of the tooth, can also be a fistula or buccal periodontal defect present. Most common with vertical root fractures of endodontically treated teeth.

• Type III - The facial soft tissue and the buccal plate of bone are both markedly reduced before and after tooth extraction.
Barrier Membranes

- Resorbable
  - Very Short 7-14 days
  - Short 4-6 weeks
  - Moderate 8-12 weeks
  - Long 4-9 months
- Materials
  - Human/Allograft - dermis (Alloderm), cardiac pericardium, and Autogenous tissue
  - Animal/xenograft - Bovine, Porcine, and shellfish
  - Synthetic

Barrier Membranes

- Non-Resorbable (must be removed at some point)
  - e-PTFE (Teflon- Expanded Polytetrafluoroethylene)
    - Plain / Smooth (Gortex)
    - Dense Micro-textured (d-PTFE cytoplast TXT-200)
  - Titanium Reinforced e-PTFE
  - Titanium Mesh
  - Gold, Platinum, Titanium Foils
  - Silicone (Supramid)
  - Porous Polyethylene (Medpor)
Additional Enhancing Materials

- PRP – Plasma Rich Platelets
- PRF – Plasma Rich Fibrin
- GEM -21 Growth factor enhanced matrix rhPDGF-BB
- Infuse – recombinant Bone Morphogenic Protein
- PostPlant -(K2H enhanced) Vitamin

Bone grafting Materials

- Autogenous- SELF “The Gold Standard”
  - Membranous- Cranial, Maxilla, and Mandible
  - Endochondral- Ilac crest, Tibia, and Fibula
- Xenograft- different species, Animal grafts
- Allograft/Homograft- same species graft
- Syngeneic- genetically identical (maternal twins)
- Synthetic- Man Made or altered
  - Ceramics-Hydroxyapatite-non Resorbable and Resorbable Types, beta-Tricalcium, porous Alumina
  - Bioactive glass- Poroglass and Biogran

The “Bio-Col” Technique Ridge Preservation

Bio-Oss bone graft—plus—CollaPlug =Bio-Col
The “Bio-Col” Technique

- Clinical goals
  - Preserve existing Hard and Soft Tissue
  - Minimize or Eliminate Post Extraction Bone Resorption
  - Prevent Soft Tissue Collapse

- Biologic goals
  - Maximize invasion of Osteoprogenitor Cells
  - Provide a slowly Resorbing Osteoconductive Scaffold
  - Isolate Surgical site from Oral Environment

Bone grafting Biotechnology

- Conditions for successful Osteoconduction
  - Scaffold must be bio-inert or Bioactive
  - Material should be slowly replaced by bone via resorption and substitution during remodeling phase of bone
  - Micro-topography similar to bone
  - Material should favor tissue in growth and bony deposition
  - Porous and Hydrophilic
Bio-Oss
an ideal Osteoconductive Material for use in ridge preservation
• An organic Bovine bone mineral
• Maintains chemical composition, crystalline properties, and extensive surface area of bone
• Long term safety record

Bio-Oss Advantages
• Hydrophilic material promotes bone ingrowth, resulting in a load bearing composite
• Provides inclusive barrier function when mixed with Autogenous bone
• Slow substitution rate (perceived disadvantage)

Bio-Oss Disadvantages
• May not be compatible with certain religious beliefs
• Hydrophilic Material wicks in bacteria
  • Keep away from incisions
  • Keep within osseous confines of socket
• Slow substitution rate
  • Material may appear as pebbles or gel upon re-entry following site preservation
The Bio-Col Procedure

- Atraumatic Extraction
- Curettement of socket, thorough removal of all granulation tissue and debris & promote bleeding
- Irrigation of socket with Hydrogen Peroxide, Chlorhexidine or Betadine solution (optional)
- Placement of Membrane (if class II defect)
- Place and pack graft just below gingival crest (2-3 mm)
- Place (or fold over) membrane over graft
- Suture with plain or chromic gut (3-0 or 4-0)
- Seal with tissue glue (PeriAcryl 90 www.glustitch.com) and apply "water" to set glue
- Preservation of the tissue support with a pontic, (bonded, removable, or an Essex retainer)

Tissue Glue

- Without membrane
  - Use material of choice, prefer slow resorbing material over 3-6 months
  - Stimulate bleeding if not already present by "scraping socket"
  - Make sure blood soaks graft material
  - Cover with 3-4 layers of gel foam membrane
  - Suture inside/out figure of eight
  - Seal with tissue glue
Graft material

- Bio-Oss Collagen blocks (Geistlich)
  - Crush and shape material to fit into socket and compress with light to moderate force till at boney crest

- 100mg Block = $99
- 250mg Block = $189
- 500mg Block = $325

Socket Preservation Graft with Membrane

Soft Tissue Impaction

Ideal Case Selection:
- Vertical or slight mesial angle impaction
- 3/4 to almost fully developed tooth (usually under 25 Y.O.)
- Cone shaped root structure
- Minimal flap design
- Look and feel for the “MAGIC SPOT” !!!!!!
Partial Boney Impaction #32

Ideal Case Selection:
Vertical or slight mesial angle impaction
3/4 to almost fully developed tooth (usually under 25 Y.O.)
Cone shaped root structure
Minimal flap design
Bone removal with elevator or handpiece
Look and feel for the “MAGIC SPOT” !!!!!!!

Complete Boney Horizontal Impaction #17

Flap design:
"hockey stick" envelope without release
Angle laterally from 2/3 the distance to DL line angle
"feel for the tooth" with the blade
Release the incision if necessary on mesial

Maxillary Palatal tori

- HS drill with #1703 surgical bur
- Woodson perioisteal elevator
- Flat osteotomes and mallet
- Large ronguers & #150 forceps
- 4-0 plain gut suture
- Optional stent or denture with soft tissue conditioner
Mandibular Lingual Tori

- Sulcular Incision with 12-B blade
- Extension into papilla
- Length one tooth on either side of tori, and usually to midline
- Slow, careful removal of tissue
- Score/trough with #1701 bur
- Fracture off tori with osteotome
- Continuous running 3-0 p-gut suture
Soft Tissue exposure tooth #6
Apically repositioned flap

- Vertical parallel Incisions
- Extension apically below the mucogingival junction
- Split interproximal papilla
- Release periosteum below M-G junction
- Leave excessive tissue folded, although it can be done as a free graft
Complex Orthodontic
Canine exposure #11
with gold bracket &
chain
- Flap design-usually Sulcular
  with release (buccal only)
- Preserve follicle at CEJ
- Avoid rotary instruments if
  possible, use
  elevators/osteotomes instead
- Remove bone to provide path
  for tooth, Avoid roots!

Impacted canine #22
removal
- Crestal incision with papilla sparing release
- Avoid reflection in Mental nerve area
- Start elevation with Woodson
- Continuous locking suture closer
Canine removal/Ortho exposure without bracket (Transplant)

Residual roots #9 & #10 removal with osteotome
- Incise down PDL with blade
- Work Woodson periosteal elevator or microtomes down PDL
- Start to apply more force working 360 degrees around root
- Start “tapping” osteotome
- Be Patient!!! It will release

Consult and Consents
- Recommend separate appointment
- Review x-rays & Clinical findings (order additional x-rays IE: 3D cone beam, labs, MD clearance, etc.)
- Patient/Parent views video consent (www.pbhs.com)
- Patient given handouts, written consent and Rx’s
- Written Financial agreement with copayment and policies
Treatment of Complications

- Bleeding
- Dry Sockets
- Infections
- Paresthesia
- Nausea and Vomiting
- Allergic or drug side effects
- MRONJ (BRONJ / ARONJ) - Bisphosphonate Related (Anti-Resorptive) Osteonecrosis of the Jaw
Causes of bleeding

- **Anticoagulants:**
  - Warfarin (Coumadin)
  - Aspirin
  - Clopidogrel (Plavix)
  - Dabigatran (Pradaxa)
  - Enoxaparin (Lovenox)
- **Herbal Supplements & Fish Oils**
- **High blood pressure**
- **Hemophilia's genetic/acquired**

Drugs that can cause bleeding

- Aceclofenac
- Acenocoumarol
- Acetysalicylic acid (Aspirin)
- Citalopram*
- Clopidogrel
- Derbivulen
- Diclofenac
- Dicumarol
- Escitalopram
- Fluoxetine*
- Flurbiprofen*
- Ibuprofen
- Indomethacin
- Ketoprofen

- Ketorolac
- Lenoxicam
- Nabumeetone
- Naproxen
- Paroxetine*
- Phenprocoum
- Piroxicam
- Sertraline*
- Sulindac
- Tenoxicam
- Ticlopidine
- Warfarin

Drugs that make you bleed!

- Aceclofenac
- Acenocoumarol
- Acetysalicylic acid (Aspirin)
- Citalopram*
- Clopidogrel
- Derbivulen
- Diclofenac
- Dicumarol
- Escitalopram
- Fluoxetine*
- Flurbiprofen*
- Ibuprofen
- Indomethacin
- Ketoprofen

- Ketorolac
- Lenoxicam
- Nabumeetone
- Naproxen
- Paroxetine*
- Phenprocoum
- Piroxicam
- Sertraline*
- Sulindac
- Tenoxicam
- Ticlopidine
- Warfarin

* = indicates a stronger potential for causing bleeding.
Condition

Prothrombin time

Partial thromboplastin time

Bleeding time

Platelet count

Vitamin K deficiency or warfarin

Prolonged

Normal or mildly prolonged

Unaffected

Unaffected

Disseminated intravascular coagulation

Prolonged

Prolonged

Prolonged

Decreased

Von Willebrand disease

Unaffected

Prolonged

Prolonged

Unaffected

Hemophilia

Unaffected

Prolonged

Unaffected

Unaffected

Aspirin

Unaffected

Unaffected

Prolonged

Unaffected

Thrombocytopenia

Unaffected

Unaffected

Prolonged

Decreased

Liver failure, early

Prolonged

Unaffected

Unaffected

Unaffected

Liver failure, end-stage

Prolonged

Prolonged

Prolonged

Decreased

Uremia

Unaffected

Unaffected

Prolonged

Unaffected

Congenital afibrinogenemia

Prolonged

Prolonged

Prolonged

Unaffected

Factor V deficiency

Prolonged

Prolonged

Unaffected

Unaffected

Factor X deficiency as seen in amyloid purpura

Prolonged

Prolonged

Unaffected

Unaffected

Glanzmann's thrombasthenia

Unaffected

Unaffected

Prolonged

Unaffected

Bernard-Soulier syndrome

Unaffected

Unaffected

Prolonged

Decreased or unaffected

Factor XII deficiency

Unaffected

Prolonged

Unaffected

Unaffected

Recommendations for Patients on Anticoagulants

- Do not stop anticoagulant (as a general rule)
- Check INR ≤3 and/or bleeding time ≤5 minutes
- Minimize surgery/Stage procedures
- Remove all granulation tissue
- “Socket Preservation” with gel foam block/membrane, suture and tissue glue seal

Bleeding!

- Intraoperative control-pressure packs, hemostat clamp and suture or electrocautery (contraindicated in Pacemaker patients)
- Laser
- Vitamin “S” (suture it closed!)
- Silver Nitrate cautery sticks
- Bone wax (questionable value in oral sockets)
- Adjunct clotting materials
Adjunct Materials for Bleeding!

- Collagen foam, plugs, gauze & tape
- Regenerated Cellulose - Blood Block HemoGauze
- Chitosan impregnated gauze - HemCon ChitoGauze
- Block graft material (Bio-Os)
- Tissue glue - PeriAcryl 90 (www.glusitch.com)
- Topical Thrombin (bovine) and new human Evithrom (www.ethicon360.com)
- Tranexamic acid-IV or Oral preop
- Aminocaproic acid - Amicar IV or oral preop
- Avitene Powder-microfibrillar collagen
- Fibrin glues/sealants - www.tisseel.com
- PRP - plasma rich platelet concentrate
- Vitamin K injections and Fresh Frozen Plasma
- Warm Tea Bag - wring out and apply

Dry Sockets!!!! (Fibrolytic Alveolitis)

- National incidence 15-25% (depending on experience)
- Usually 3-5 days for onset
- Almost exclusively in Mandible
- Risk factors - Smoking, infection, birth control pills/injections, estrogen supplements, Diabetes, Immunocompromised
- Poor sterile and surgical technique
- Sucking on Straws Have Nothing to do with it !!!!!!!!!!!!!!!!!!!!!!!!

Treatment of Dry Socket

- Irrigate in the office and at home with mixture of:
  - 6 oz of warm salt water
  - 1 oz hydrogen peroxide 3% OTC
  - 1 oz mouthwash (peridex, Listerine, Aquafresh, etc.)
- Make sure patient has irrigating syringe and instruct them on how to use it!
- Take X-ray and check for tooth/root/bone fragments
Dry Socket

- Gently pack socket with ¼ inch Nu-gauze (gel foam if leaving out of town) soaked in Dentalone, repeat daily for 2-3 days if possible
- Apply topical after irrigating socket and you can mix some topical in with Dentalone if needed
- Start Antibiotic or change to AB that covers Gram Neg bacteria, such as Clindamycin

Recommendation for Sterile Technique

- Autoclave everything possible or use disposables
- Use a sterile water supply
- Use Nitrogen or electric powered drills
- Gas (Ethylene oxide) plastic high volume suction hoses and water/air syringes or Sterile sleeves
- Use Sterile gloves
- Practice sterile technique!

Anderson Gas Sterilizer
Infections

- Prevention is the best medicine
- For routine procedures ASA 1 and no risk factors, and no drilling!
  - Keflex 250 mg QID for 5 days
  - Keflex 500 mg QID (750mg BID) for 10 days if infection or drilling involved
  - Try to give 1 Gm 1 hour preoperatively!
  - Clindamycin, Z-Pak, Augmentin, Cipro as alternatives

Paresthesia's

- Generally only in the Mandibular division of the Trigeminal nerve
- Most often secondary to swelling from local trauma either induced by “sawing” the needle with repeated injections
- Use of Septocaine 4%
- Hematomas
- Direct trauma from removal of the roots
- Poor design of flap

Evaluation of Parathesia

- Classification of injury and document it
- Neuropaxia—non Wallerian degeneration, nerve intact, and general partial loss, Sensation intact but diminished
**Steroid Use**

- Generally for most surgeries, except severe infections
- Decadron (Dexamethasone) 4-8mg (1-2cc) injection into the “anesthetized” surgical site (burns terribly) can be given IV
- Also helps with Nausea, vomiting, asthma, and arousing sedated patients

---

**Nausea and Vomiting**

- Post op usually from swallowing blood secondary to bleeding from a disorganized blood clot, (Liver Clot) Remove clot and apply pressure with fresh gauze
- Secondary to medications-Patient needs to try to eat and drink a lot of water behind Meds
- Small sips of flat (shake the carbonation out) Coke or ginger-ale
- Liquid Children’s Benadryl 25-50mg
- Dramamine/Bonine Chewable tablets
- RX-suppositories Compazine/Phenergan

---

**Allergic or Drug Side Effects**

- Most common- Nausea/Vomiting-hold drugs and follow N/V protocol
- Rash/Itching-mild, use Benadryl OTC
  - Moderate to severe reaction-RX Medrol Dose-Pak, Change Rx’s
  - In office rare-Decadron 8mg IM followed by Medrol Dose-Pak or Epinephrine for Anaphylaxis
MRONJ – Bisphosphonate Related (Anti-Resorptive) Osteonecrosis of the Jaw

- Risks very low with Oral Dosing
  - Less than ½%
  - Up to 10% with IV therapy (usually getting Chemotherapy and/or Radiation)
- Pre and Post antibiotic therapy
  - "Rough up" or perforate socket walls to encourage bleeding
  - Recommended "drug holiday" for 3 months
- Can be treated early and locally with good success with Saucerization and Sequestrectomy

Post operative Instructions/Discharge

- Give verbal and written instructions (document)
- Pre operative Motrin 400-800mg (post operative if IV General) Tylenol 500-1000mg if allergic
- Extra 3X3 guaze packs
- Frozen Gel Packs with Velco head wrap (www.cooljaw.com)
- Emergency call numbers!
- Post-op evening follow up call
- Generally follow up in one week