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Objectives

• Understanding complex anatomy and how it affects profound local anesthesia
• Supplemental injection techniques and when to utilize them
• Communication between the provider and assistant, keys to patient comfort
• Review of the agents we use in practice
• Localized dental abscesses what to do and when
• Third molars how to NOT get in trouble
Accessory Innervation
Anatomical Considerations

Type 1
- Unilateral
- Bilateral

Type 2
- Unilateral, limited to ramus
- Unilateral, extending into body
- Bilateral, limited to ramus
- Bilateral, extending into body

Type 3
- Combination of Types 1 and 2

Type 4
- Originating from two mandibular foramina
Gow Gates Nerve Block

1. Flat tragus
2. Mildly divergent tragus
3. Widely divergent tragus
Infraorbital Nerve
Infraorbital Foramen
Anterior Middle Superior Alveolar
Anterior middle superior alveolar (AMSA) Nerve Block
Region of Coverage

- Incisive foramen
- Extraoral soft tissue
- Alveolar mucous membrane
- Greater palatine foramen
- Palatal soft tissue and bone
Local Anesthetic Agents

- Lidocaine
- Articaine
- Prilocaine
- Mepivacaine
- Bupivacaine
Lidocaine

Most common used in dentistry
Very safe across populations
Cartridges are 1.7777 mls (1.8)
Lidocaine

Maxillary Infiltration
Pulpal $\rightarrow$ 60 minutes
Soft Tissue $\rightarrow$ 170 minutes (2.5 hours)

Mandibular Nerve block
Pulpal $\rightarrow$ 85 minutes
Soft tissue $\rightarrow$ 190 minutes (3 hours)
For a typical ASA I or II human being Maximum recommendation...

8.3 cartridges of volume (1.8ml cartridge) Total Max dose (Malamed): 300mg Manufacturer: 500mg

Total mg/cartridge: 36mg
Kinetics of Local Anesthesia

Diagram:
- Site of injection
- Blood
- Fat
- Slow equilibrium space
- Muscle
- Rapid equilibrium space
- Brain
- Myocardium
- Lungs
- Liver
- Elimination
Response to anesthetic
<table>
<thead>
<tr>
<th>Medical Problem</th>
<th>Drugs to Avoid</th>
<th>Type of Contraindication</th>
<th>Alternative Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local anesthetic allergy, documented</td>
<td>All local anesthetics in same chemical class (e.g., esters)</td>
<td>Absolute</td>
<td>Local anesthetics in different chemical class (e.g., amides)</td>
</tr>
<tr>
<td>Bisulfite allergy</td>
<td>Vasoconstrictor-containing local anesthetics</td>
<td>Absolute</td>
<td>Any local anesthetic without vasoconstrictor</td>
</tr>
<tr>
<td>Atypical plasma cholinesterase</td>
<td>Esters</td>
<td>Relative</td>
<td>Amides</td>
</tr>
<tr>
<td>Methemoglobinemia, idiopathic or congenital</td>
<td>Prilocaine</td>
<td>Relative</td>
<td>Other amides or esters</td>
</tr>
<tr>
<td>Significant liver dysfunction (ASA 3–4)</td>
<td>Amides</td>
<td>Relative</td>
<td>Amides or esters, but judiciously</td>
</tr>
<tr>
<td>Significant renal dysfunction (ASA 3–4)</td>
<td>Amides or esters</td>
<td>Relative</td>
<td>Amides or esters, but judiciously</td>
</tr>
<tr>
<td>Significant cardiovascular disease (ASA 3–4)</td>
<td>High concentrations of vasoconstrictors (as in racemic epinephrine gingival retraction cords)</td>
<td>Relative</td>
<td>Local anesthetics with epinephrine concentration of 1:200,000 or 1:100,000, or mepivacaine 3%, or prilocaine 4% (nerve blocks)</td>
</tr>
<tr>
<td>Clinical hyperthyroidism (ASA 3–4)</td>
<td>High concentrations of vasoconstrictors (as in racemic epinephrine gingival retraction cords)</td>
<td>Relative</td>
<td>Local anesthetics with epinephrine concentration of 1:200,000 or 1:100,000, or mepivacaine 3%, or prilocaine 4% (nerve blocks)</td>
</tr>
</tbody>
</table>
Mepivacaine
Prilocaine HCL
Articaine
<table>
<thead>
<tr>
<th>Local Anesthetic Solution</th>
<th>Color of Cartridge Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articaine HCl 4% with epinephrine 1:100,000</td>
<td>Gold</td>
</tr>
<tr>
<td>Bupivacaine 0.5% with epinephrine 1:200,000</td>
<td>Blue</td>
</tr>
<tr>
<td>Lidocaine HCl 2%</td>
<td>Light blue</td>
</tr>
<tr>
<td>Lidocaine HCl 2% with epinephrine 1:50,000</td>
<td>Green</td>
</tr>
<tr>
<td>Lidocaine HCl 2% with epinephrine 1:100,000</td>
<td>Red</td>
</tr>
<tr>
<td>Mepivacaine HCl 3%</td>
<td>Tan</td>
</tr>
<tr>
<td>Mepivacaine HCl 2% with levonordefrin 1:20,000</td>
<td>Brown</td>
</tr>
<tr>
<td>Prilocaine HCl 4%</td>
<td>Black</td>
</tr>
<tr>
<td>Prilocaine HCl 4% with epinephrine 1:200,000</td>
<td>Yellow</td>
</tr>
</tbody>
</table>
Different Gauge Needles
‘Secret’ Techniques of Local Anesthesia

• Standard Nerve Blocks
• Incisive versus Mental Nerve block
• Periodontal Nerve block
• Mylohyoid Nerve block
• Anteromedial Superior Nerve block
• Distal third molar (accessory nerve/vessel)
Administration
Nasopalatine Nerve Block
Proper position surgery or admin of LA
Greater Palatine Nerve Block
Pressure Pre puncture Technique
Palatal ASA
Complete V2 block
Raphe Look for it!

Pterygomandibular raphe
Mandible (La Mandibula)
Akinosi Block
Mental vs Incisive Nerve Block
Mylohyoid Nerve fibers/block
1905 PDL Syringe

THE WILCOX-JEWETT OBTUNDER.
LEE S. SMITH & SON, PITTSBURG.

PATENT APPLIED FOR.
The Wilcox-Jewett Obtunder, about \( \frac{3}{4} \) Actual Size.
PDL intraosseous
Intraseptal Injection
Broken Needle in ?? space
The use of prophylactic antibiotics prior to dental procedures in patients with prosthetic joints

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Management of patients with prosthetic joints undergoing dental procedures

Clinical Recommendation:
In general, for patients with prosthetic joint implants, prophylactic antibiotics are not recommended prior to dental procedures to prevent prosthetic joint infection.

For patients with a history of complications associated with their joint replacement surgery who are undergoing dental procedures that include gingival manipulation or mucosal incision, prophylactic antibiotics should only be considered after consultation with the patient and orthopedic surgeon.* To assess a patient’s medical status, a complete health history is always recommended when making final decisions regarding the need for antibiotic prophylaxis.

Clinical Reasoning for the Recommendation:
- There is evidence that dental procedures are not associated with prosthetic joint implant infections.
- There is evidence that antibiotics provided before oral care do not prevent prosthetic joint implant infections.
- There are potential harms of antibiotics including risk for anaphylaxis, antibiotic resistance, and opportunistic infections like Clostridium difficile.
- The benefits of antibiotic prophylaxis may not exceed the harms for most patients.
- The individual patient’s circumstances and preferences should be considered when deciding whether to prescribe prophylactic antibiotics prior to dental procedures.

* In cases where antibiotics are deemed necessary, it is most appropriate that the orthopedic surgeon recommend the appropriate antibiotic regimen and when reasonable write the prescription.
# Antibiotic Regimen for Prophylaxis of IE

## Table 2-4  Antibiotic Regimen for Prophylaxis of Infectious Endocarditis

<table>
<thead>
<tr>
<th>Situation</th>
<th>Antibiotic</th>
<th>Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard prophylaxis</td>
<td>Amoxicillin</td>
<td>Adults: 2 g orally 1 h before procedure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children: 50 mg/kg orally 1 h before procedure*</td>
</tr>
<tr>
<td>Penicillin allergic</td>
<td>Clindamycin</td>
<td>Adults: 600 mg orally 1 h before procedure*</td>
</tr>
<tr>
<td></td>
<td>or azithromycin</td>
<td>Children: 20 mg/kg orally 1 h before procedure*</td>
</tr>
<tr>
<td></td>
<td>or clarithromycin</td>
<td>Adults: 500 mg orally 1 h before procedure*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children: 15 mg/kg orally 1 h before procedure*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adults: 500 mg orally 1 h before procedure*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children: 15 mg/kg orally 1 h before procedure*</td>
</tr>
<tr>
<td>Unable to take oral medication</td>
<td>Ampicillin</td>
<td>Adults: 2 g IM or IV within 30 min before procedure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children: 20 mg/kg IV within 30 min before procedure*</td>
</tr>
<tr>
<td>Unable to take oral medication</td>
<td>Clindamycin</td>
<td>Adults: 600 mg IV within 30 min before procedure*</td>
</tr>
<tr>
<td>and penicillin allergic</td>
<td>or cefazolin</td>
<td>Children: 20 mg/kg IV within 30 min before procedure*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adults: 1 g IM or IV within 30 min before procedure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children: 25 mg/kg IM or IV within 30 min before procedure*</td>
</tr>
</tbody>
</table>

*IM = intramuscularly; IV = intravenously.

*Total children’s dose should not exceed adult dose.
Clinical steps for EASY surgical Exodontia

1. Profound Local Anesthesia
2. Flap design and elevation of FTMP flap
3. Luxate tooth (know the difference in maxillary and mandibular luxation goals)
4. Section appropriately if necessary
5. Attempt delivery or luxate again
6. Delivery tooth/root with proper force/angulation
15 or 15c blades
#9 Periosteal Elevator
Visibility is key
Proper position of instrument
Proper extension of the Instrument
Basic Set Up
The Young and the Restless...

‘You can put lipstick on a pig... But its still a pig!’
Difficult D7210
Grossly decayed lower molars
Dilaceration
Bulbous Roots
Broad Based Flaps
Intrasulcular Incisions around Teeth
Intra Oral Dental Abscess

Maxillary vestibular

Mandibular vestibular

Palatal

Canine
Intraoral Incision Sites

- Canine space incision
- Palatal space incision
- Peritonsillar space incision
- Sublingual space incision
- Vertical alveolar incision
- Mandibular vestibular space incision
- Buccal space, masticator space and lateral pharyngeal space incisions
Dental Abscess Management

- Small gauge needle (30)
- Enter mucosa at very small angle approximately 1-2mm
- Administer slowly without advancing into the purulence (pus)
- Mucosa should blanch approximately 5-7mm around your entry point (remember DONOT advance needle)
- Allow to work for 3-5 minutes
- Enter puncture site with 15 or 11 blade, make the incision about 5mm in length
- Follow through with curved hemostat approximately 5-10mm in the direction of the apex of the offending tooth
- Irrigate with saline alone or saline/ chlorhexidine mix (100 mls)
- No sutures
- Gauze packs
- Good post op instruction with 48 hour follow up
Coronectomy
Coronectomy Indications
Drill Systems

- Air driven systems
- Hall drill (nitrogen)
- Electric
- Electric with computer controls
Air-Driven HPs

Types of Dental Handpieces

Based on design, a dental handpiece can be classified into two, Air-Driven Handpiece and Electric Handpiece.

Air-Driven High-Speed Handpieces contain air-driven turbine inside. This generates the rotational motion of the dental handpiece.

Electric Handpiece contains an electric motor driving the handpiece. An electric handpiece consists of an entire system.
Nitrogen Powered HPs
Electric HPs
Electric with Smart Device
Post Surgical Instructions

- Gauze packs absolutely no smoking
- Soft bristle tooth brush the next morning
- Chlorhexidine Rinse BID gentle rinses
- Call the patient the w/n 24 hours following surgery
- In general the more complicated the situation, the closer follow up is recommended
- These instruction should be given in general by at least 2 people during the course of patient encounters
Questions?