

# Local Anesthesia Review and Surgical Pearls

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Diplomate of the American Board of Oral and Maxillofacial Surgery

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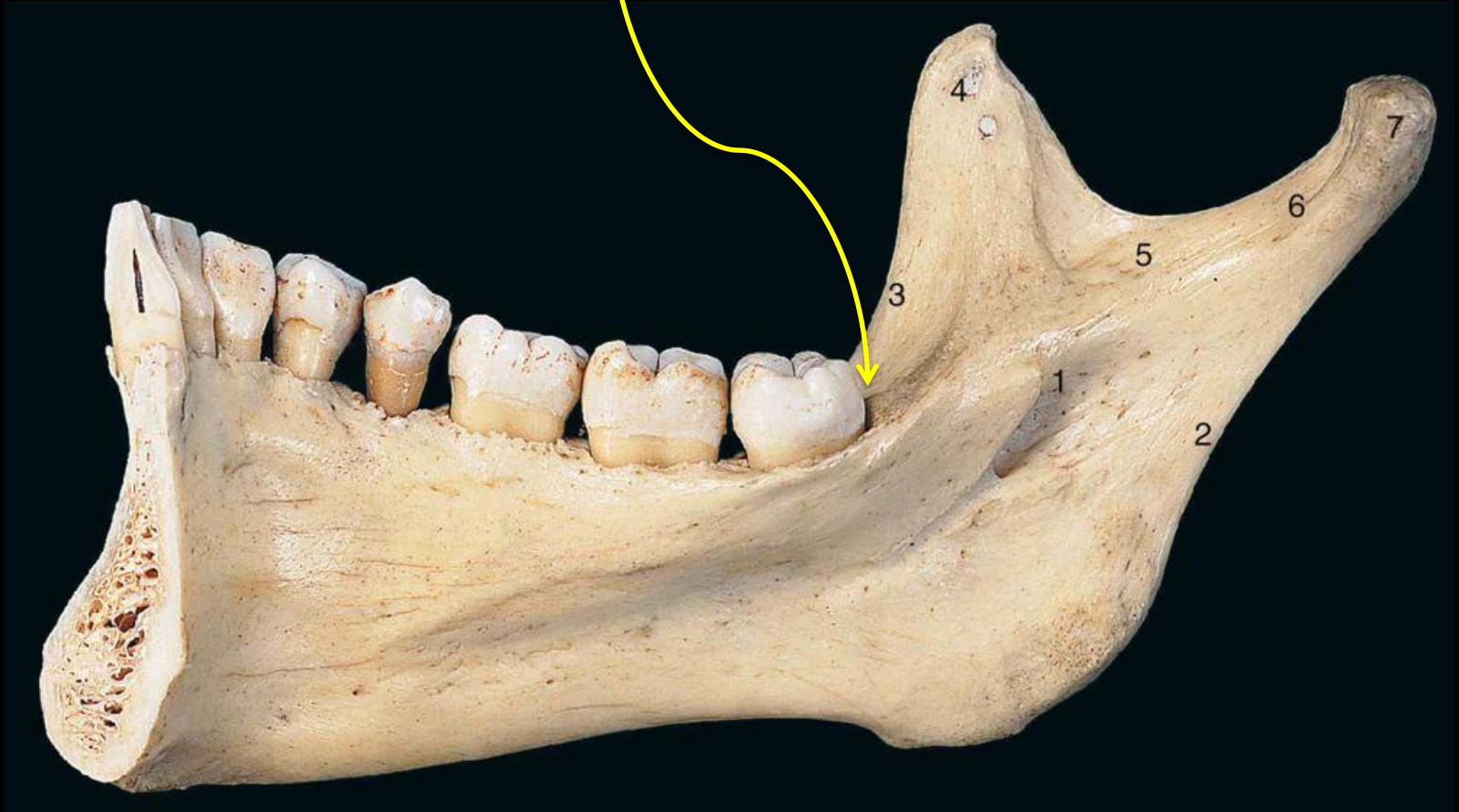
# Acknowledgement

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- NDA
- Platinum, Gold and Copper level sponsors and supporters

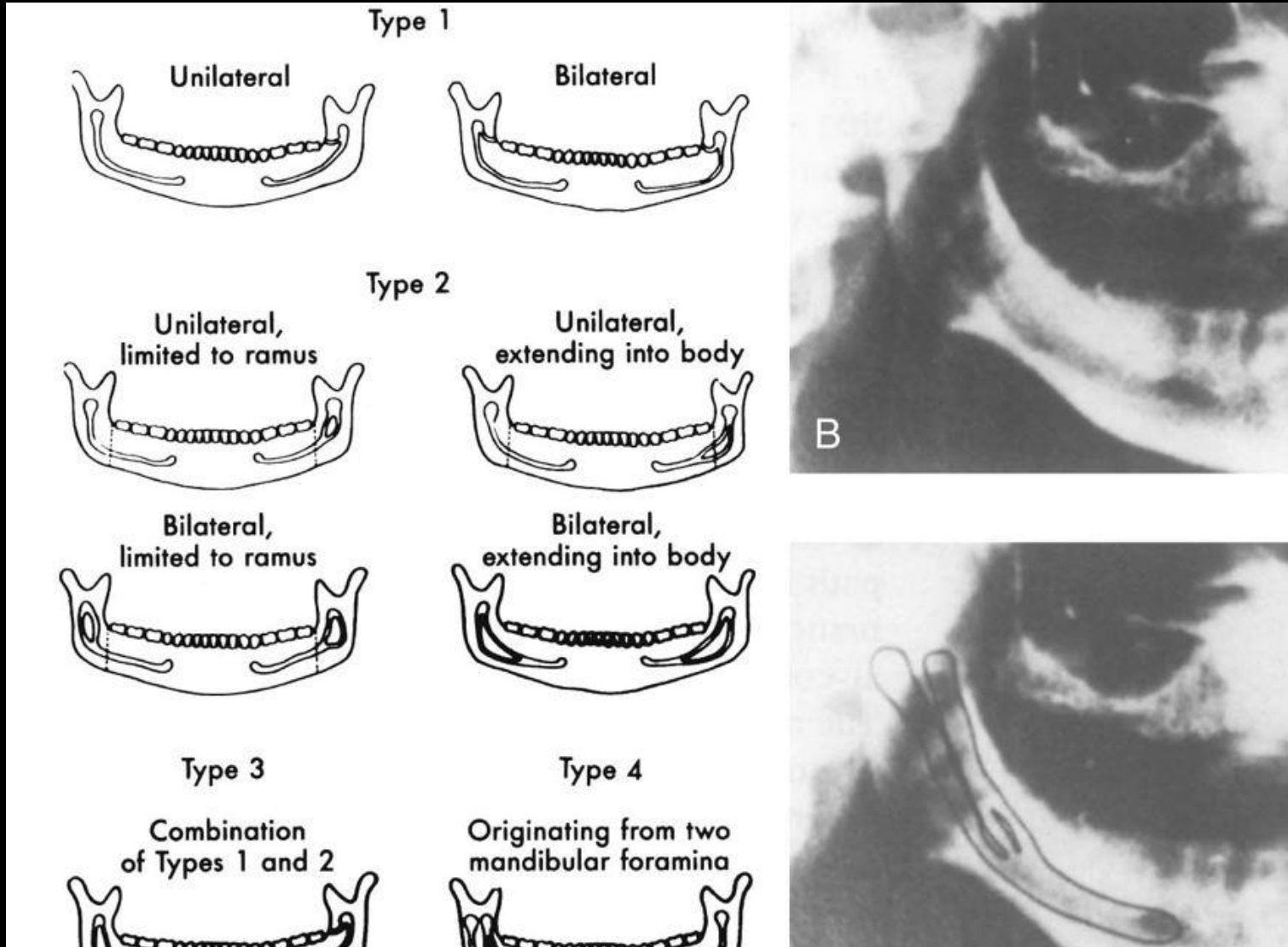
# Objectives

- 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

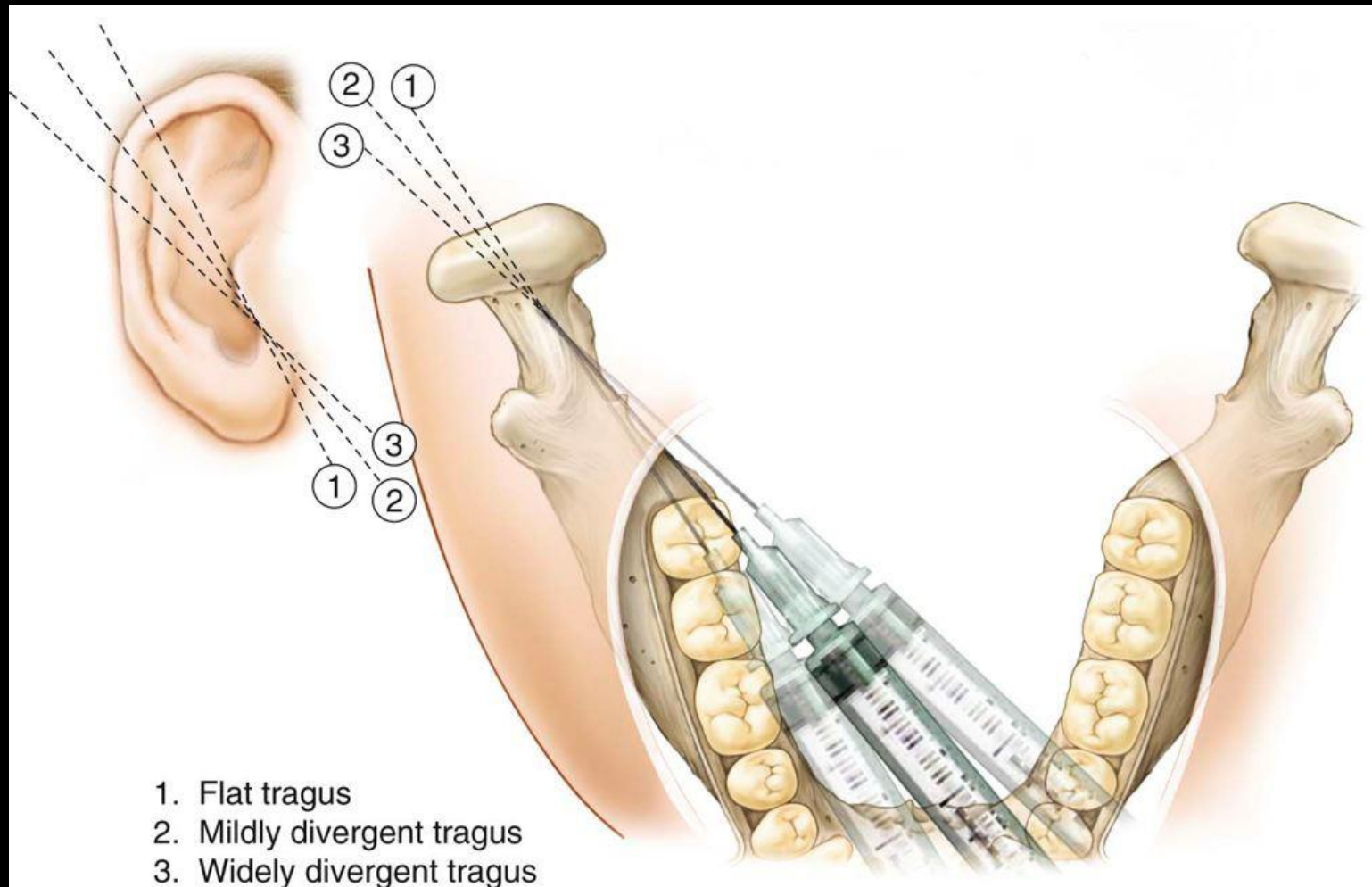
# Accessory Innervation



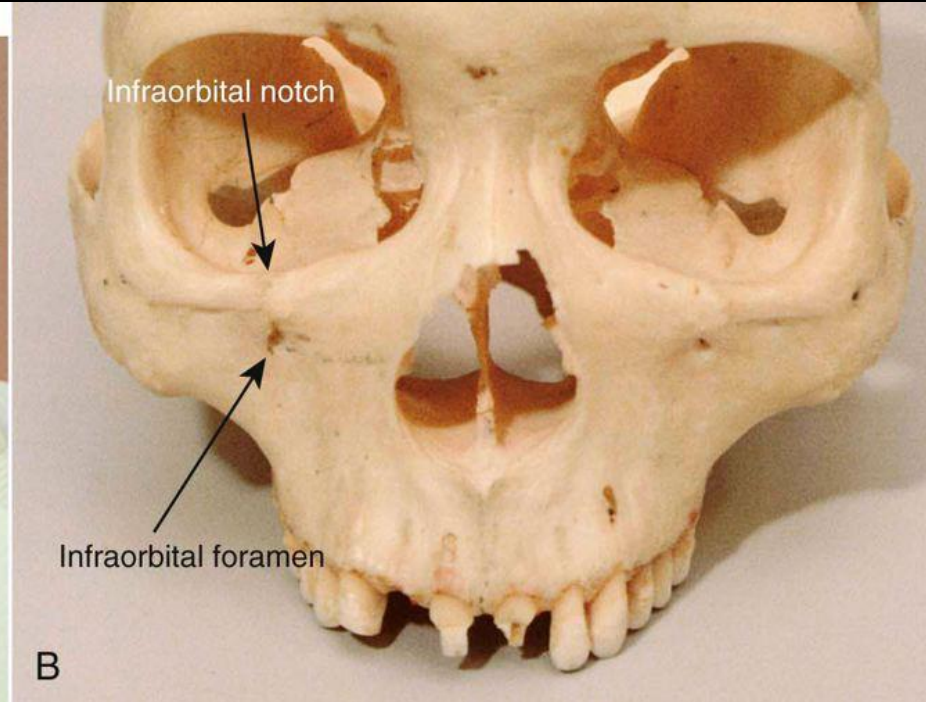
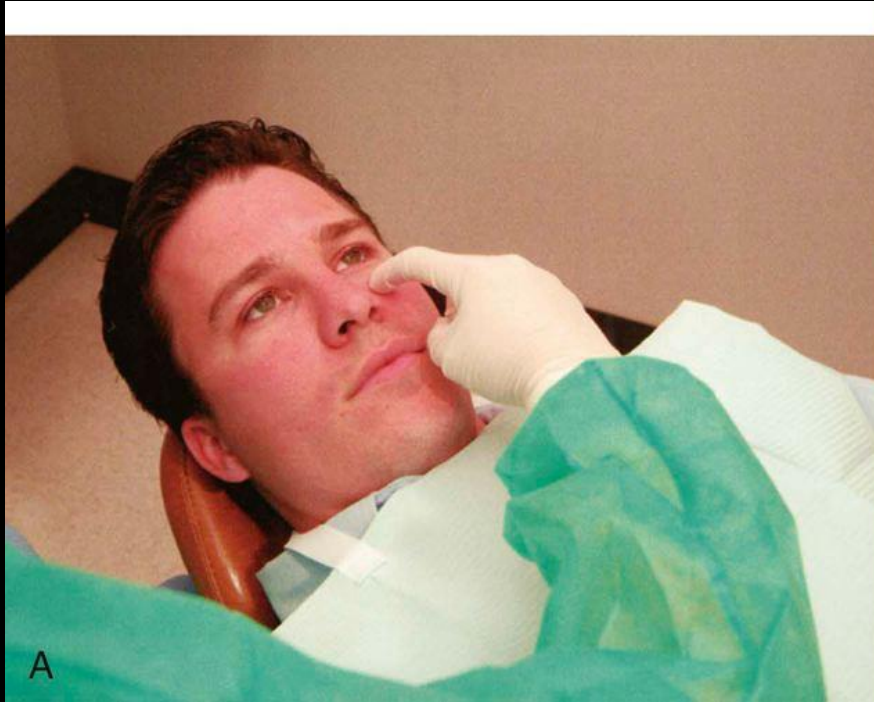
# Anatomical Considerations



# Gow Gates Nerve Block

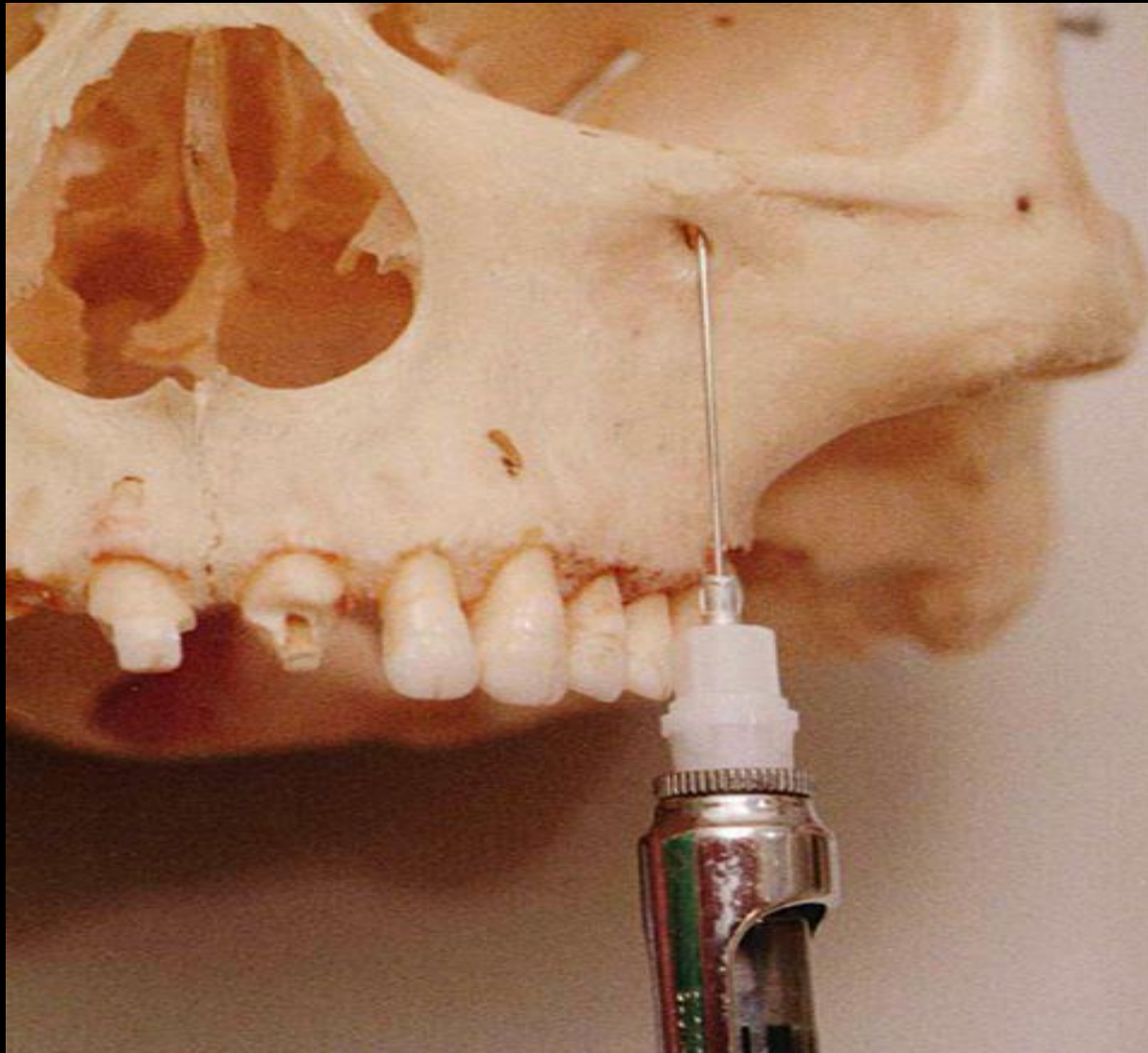


# Infraorbital Nerve



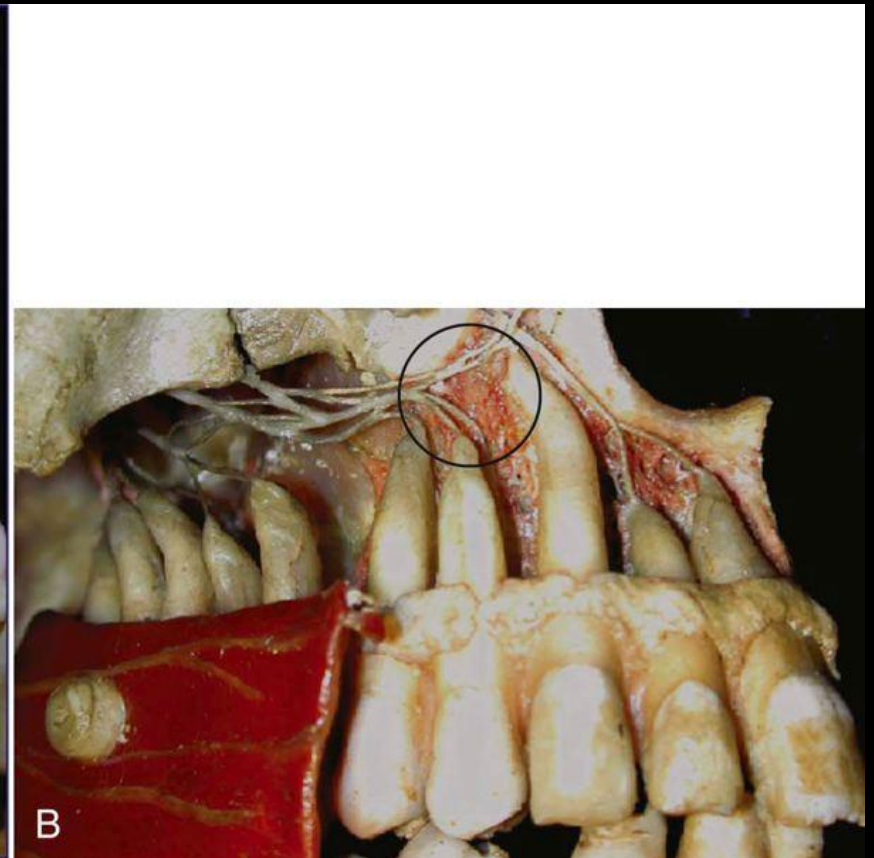
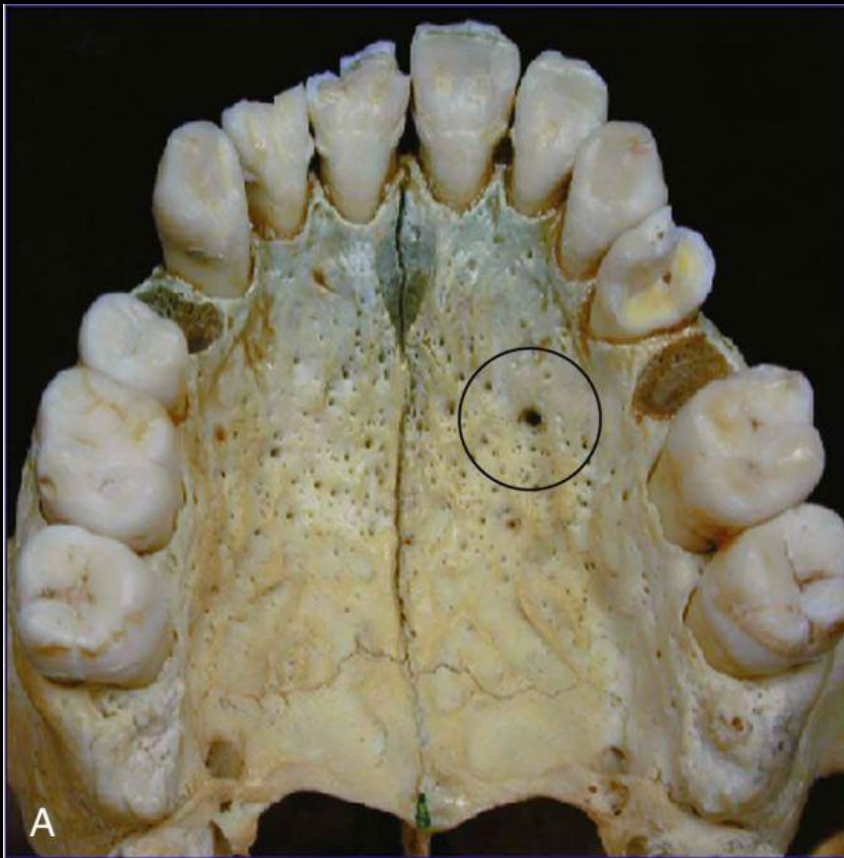


# Infraorbital Foramen

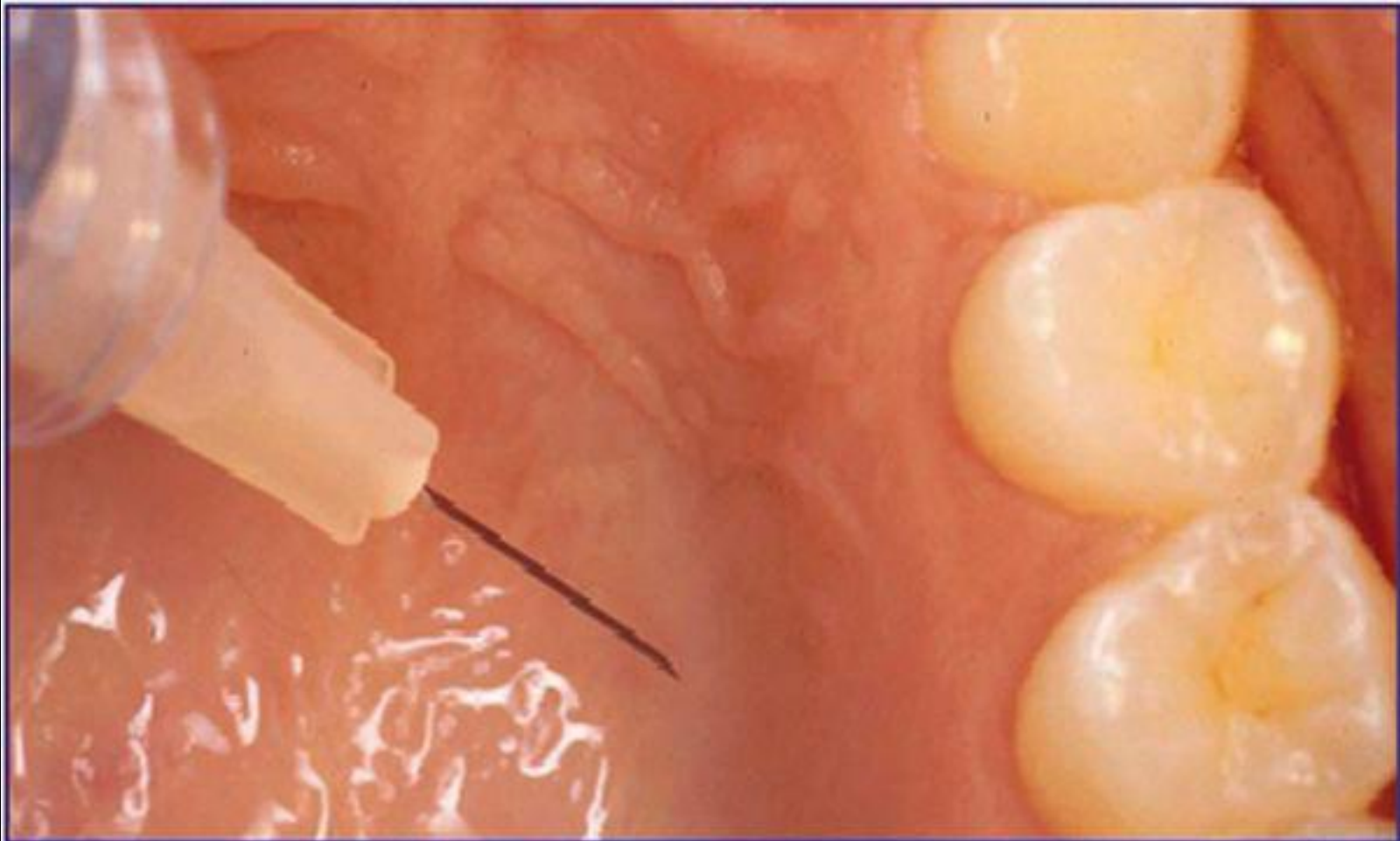




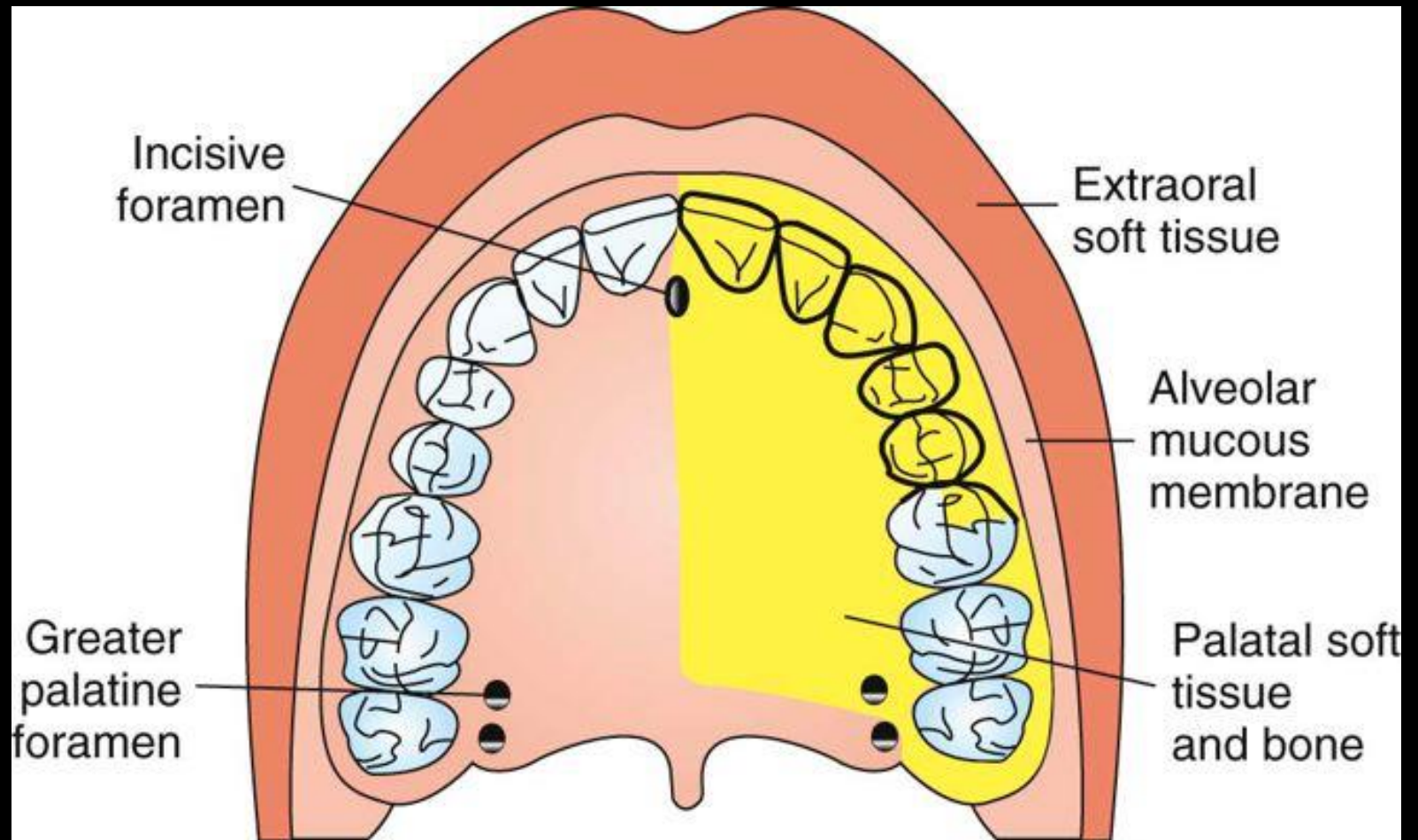
# Anterior Middle Superior Alveolar



# Anterior middle superior alveolar (AMSA) Nerve Block



# Region of Coverage



# Local Anesthetic Agents

- Lidocaine Lidocaine
- Articaine Articaine
- Prilocaine
- Mepivacaine Mepivacaine
- Bupivacaine

# Lidocaine

Most common used in dentistry

Very safe across populations

Cartridges are 1.7777 mls (1.8)

# Lidocaine

Maxillary Infiltration

Pulpal → 60 minutes

Soft Tissue → 170 minutes (2.5 hours)

Mandibular Nerve block

Pulpal → 85 minutes

Soft tissue → 190 minutes (3 hours)



# Lidocaine

For a typical ASA I or II human being  
Maximum recommendation...

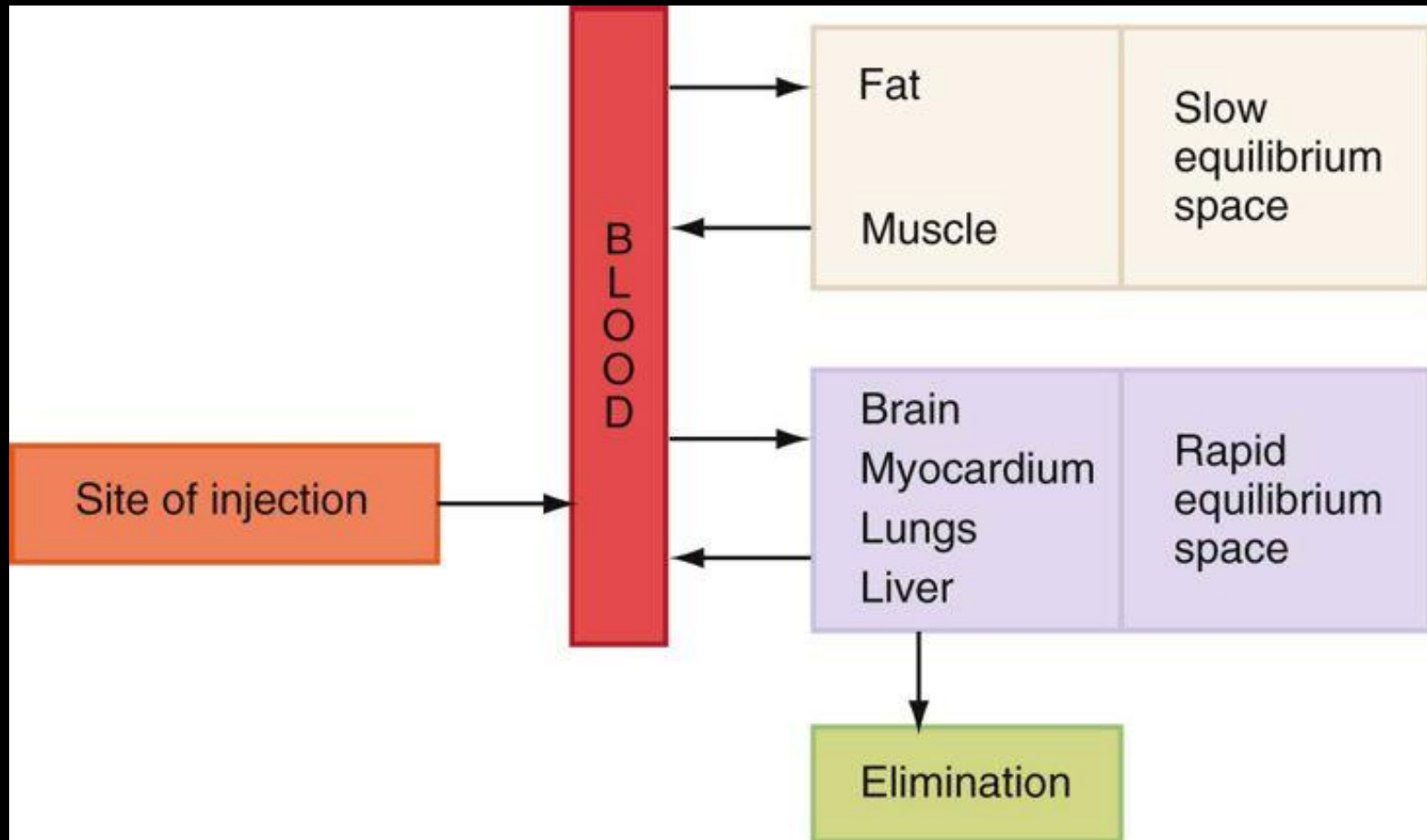
8.3 cartridges of volume (1.8ml cartridge)

Total Max dose (Malamed): 300mg

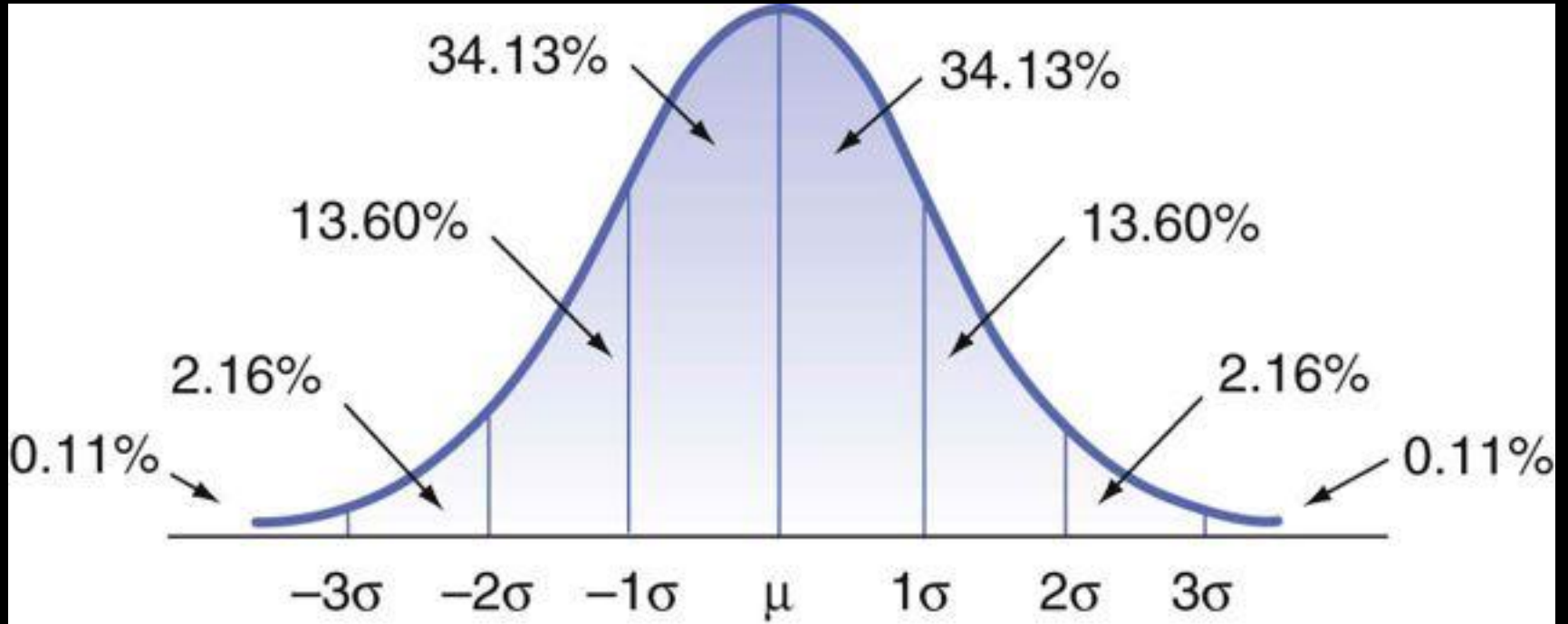
Manufacturer: 500mg

Total mg/cartridge: 36mg

# Kinetics of Local Anesthesia



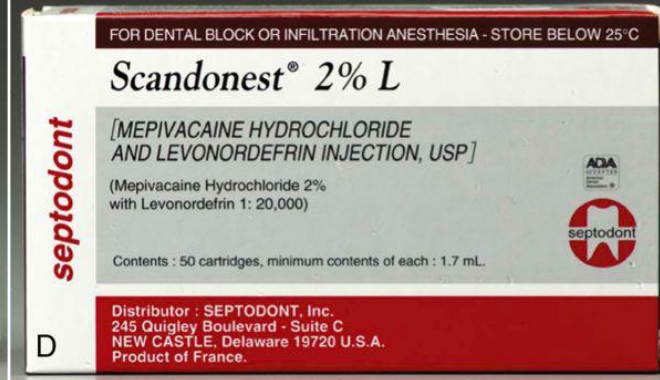
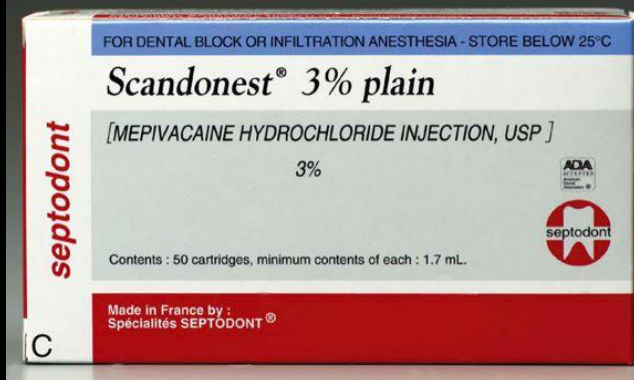
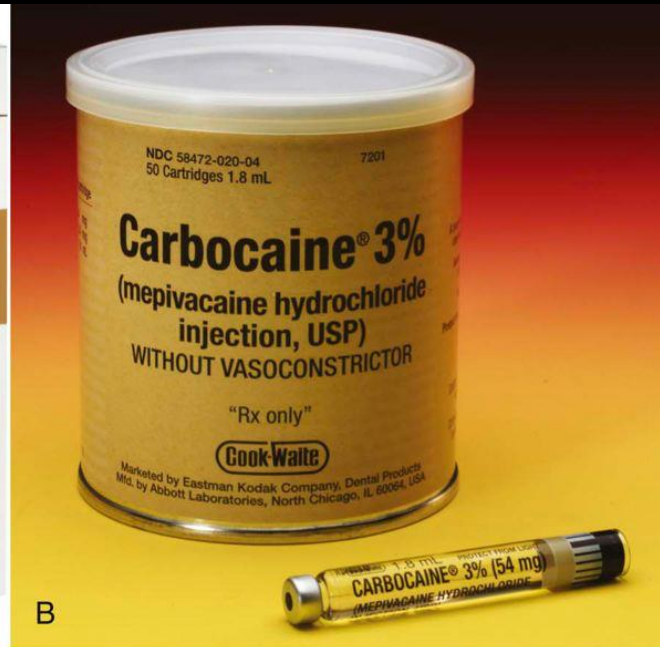
# Response to anesthetic



# Whom Can't You use LA on?

Medical Problem	Drugs to Avoid	Type of Contraindication	Alternative Drug
Local anesthetic allergy, documented	All local anesthetics in same chemical class (e.g., esters)	Absolute	Local anesthetics in different chemical class (e.g., amides)
Bisulfite allergy	Vasoconstrictor-containing local anesthetics	Absolute	Any local anesthetic without vasoconstrictor
Atypical plasma cholinesterase	Esters	Relative	Amides
Methemoglobinemia, idiopathic or congenital	Prilocaine	Relative	Other amides or esters
Significant liver dysfunction (ASA 3–4)	Amides	Relative	Amides or esters, but judiciously
Significant renal dysfunction (ASA 3–4)	Amides or esters	Relative	Amides or esters, but judiciously
Significant cardiovascular disease (ASA 3–4)	High concentrations of vasoconstrictors (as in racemic epinephrine gingival retraction cords)	Relative	Local anesthetics with epinephrine concentration of 1:200,000 or 1:100,000, or mepivacaine 3%, or prilocaine 4% (nerve blocks)
Clinical hyperthyroidism (ASA 3–4)	High concentrations of vasoconstrictors (as in racemic epinephrine gingival retraction cords)	Relative	Local anesthetics with epinephrine concentration of 1:200,000 or 1:100,000, or mepivacaine 3%, or prilocaine 4% (nerve blocks)

# Mepivacaine





# Priilocaine HCL





# Articaine

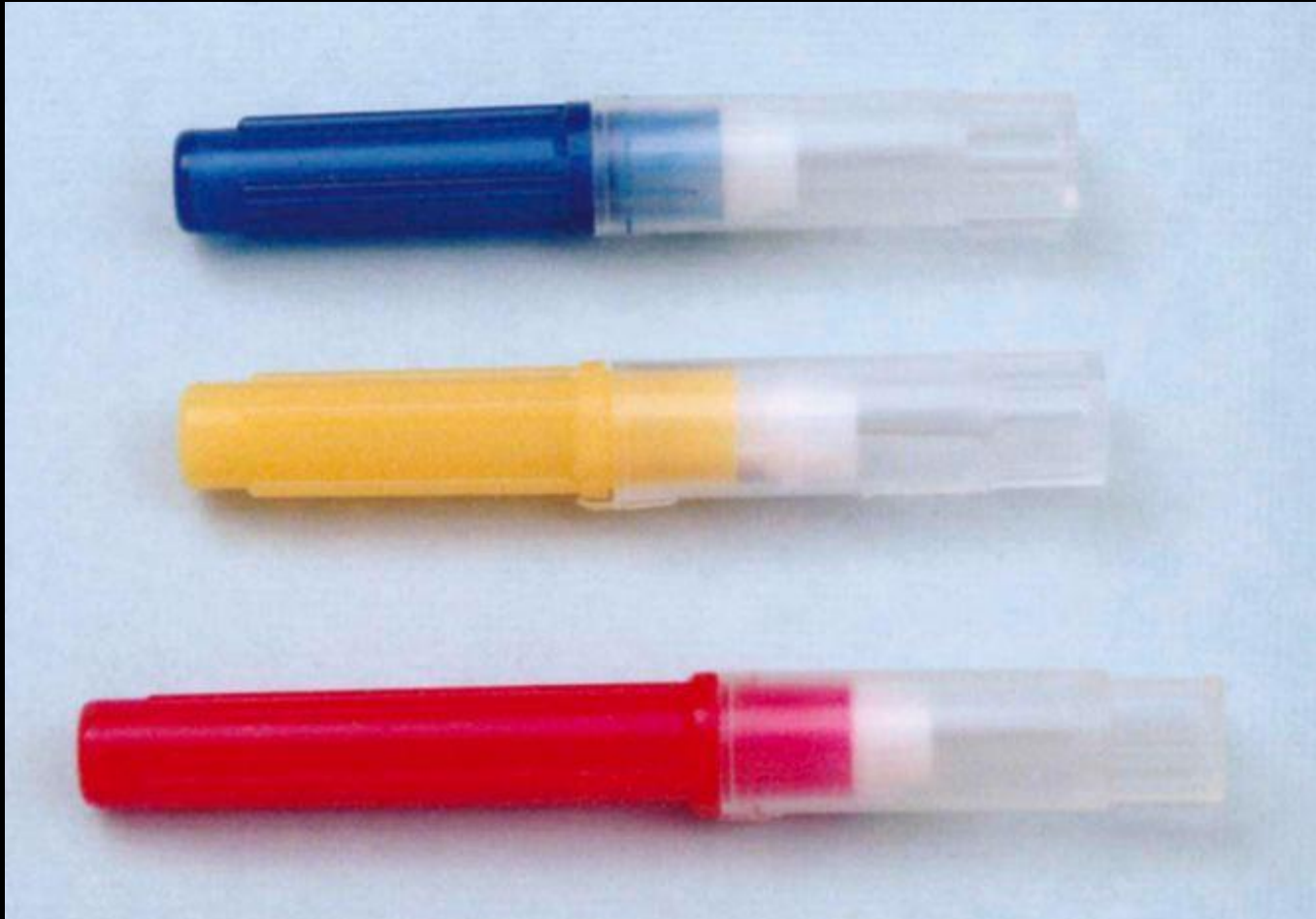


Local Anesthetic Solution	Color of Cartridge Band
Articaine HCl 4% with epinephrine 1:100,000	Gold
Bupivacaine 0.5% with epinephrine 1:200,000	Blue
Lidocaine HCl 2%	Light blue
Lidocaine HCl 2% with epinephrine 1:50,000	Green
Lidocaine HCl 2% with epinephrine 1:100,000	Red
Mepivacaine HCl 3%	Tan
Mepivacaine HCl 2% with levonordefrin 1:20,000	Brown
Prilocaine HCl 4%	Black
Prilocaine HCl 4% with epinephrine 1:200,000	Yellow

# Bupivacaine



# 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

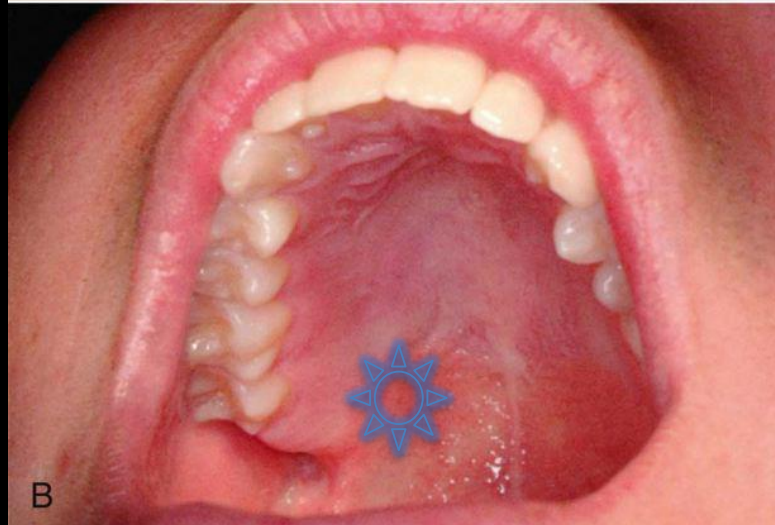
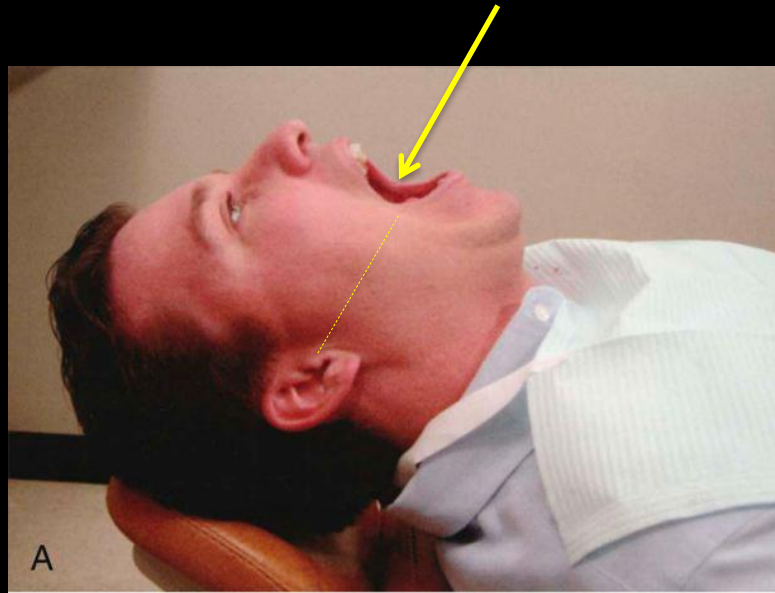




# Nasopalatine Nerve Block



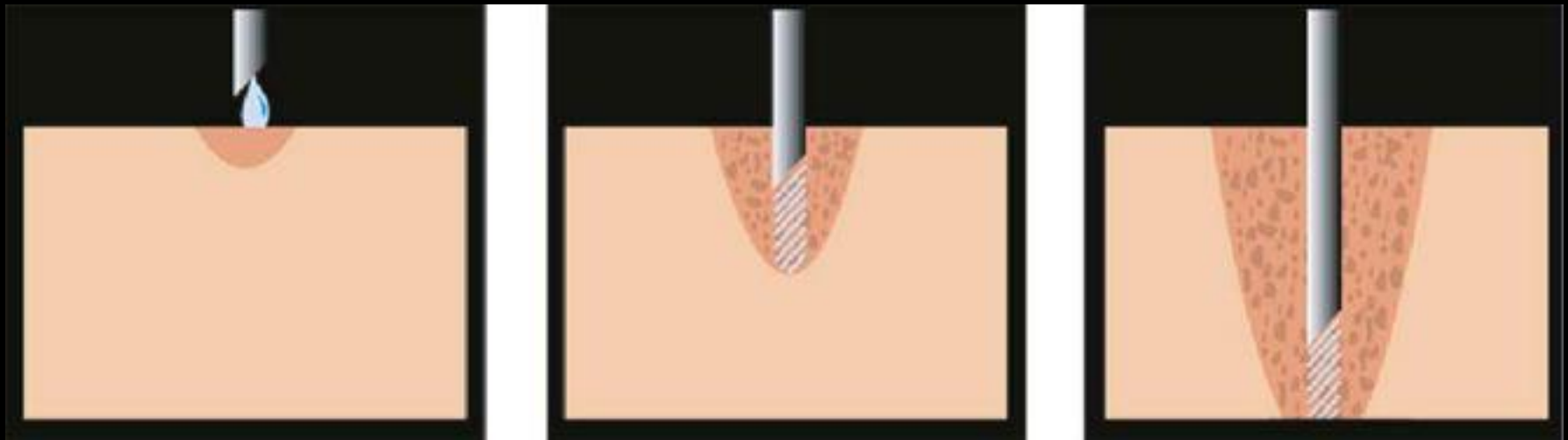
# Proper position surgery or admin of LA



# Greater Palatine Nerve Block



# Pressure Pre puncture Technique

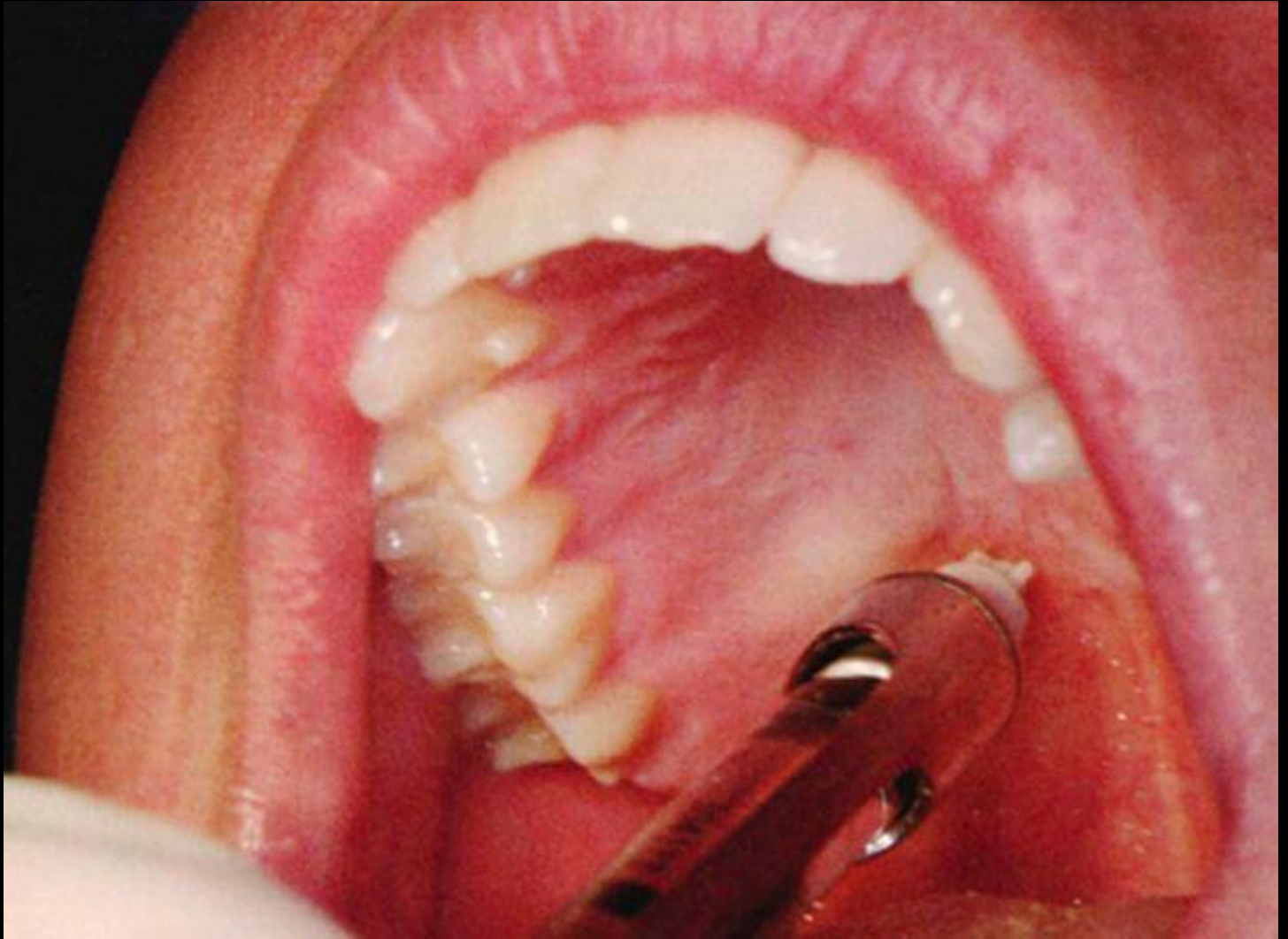


# Palatal ASA



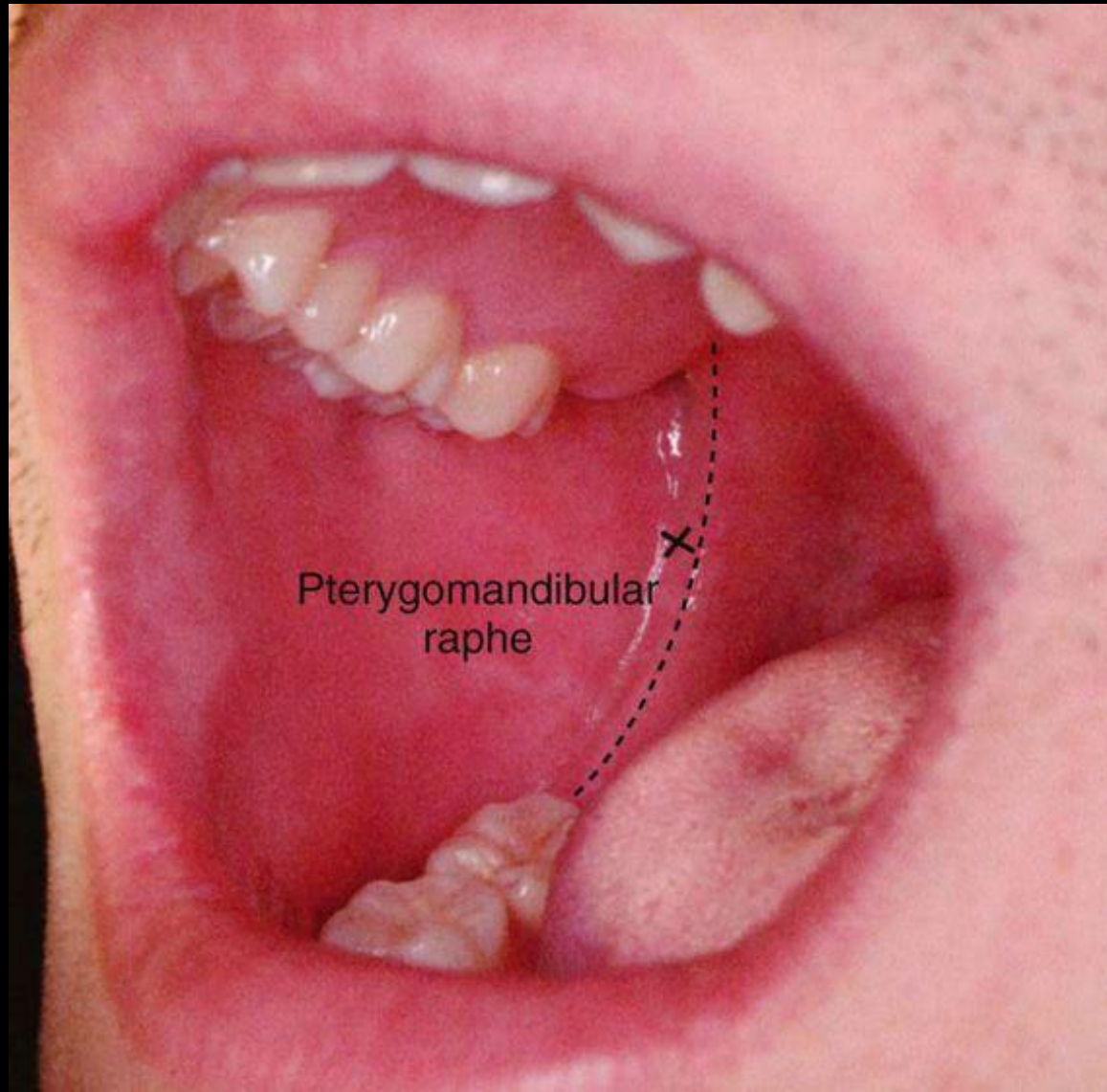


# Complete V2 block





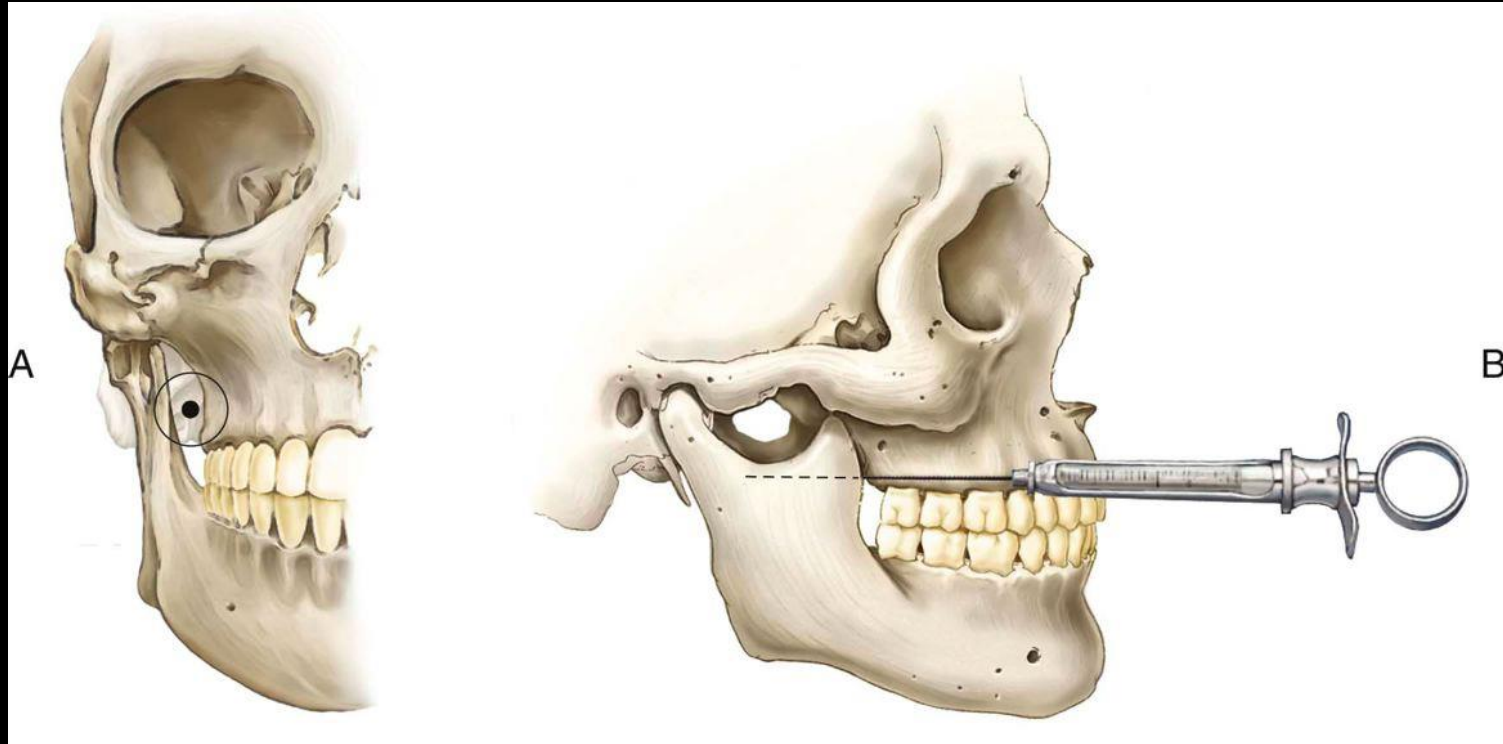
# Raphe Look for it!



# Mandible (La Mandibula)



# Akinosi Block







# Mental vs Incisive Nerve Block





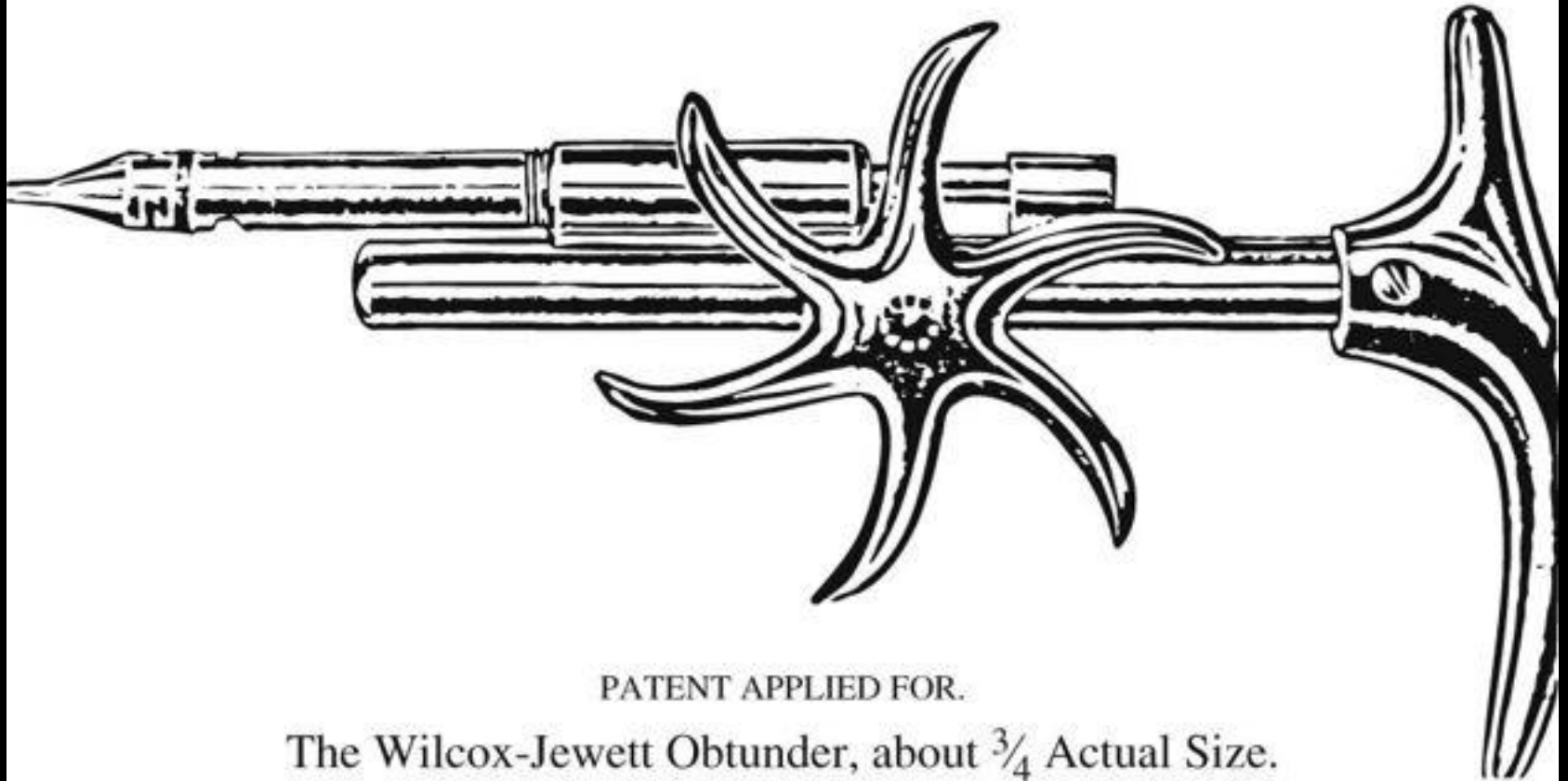
# Mylohyoid Nerve fibers/block



# 1905 PDL Syringe

**THE WILCOX-JEWETT OBTUNDER.**

**LEE S. SMITH & SON, PITTSBURG.**



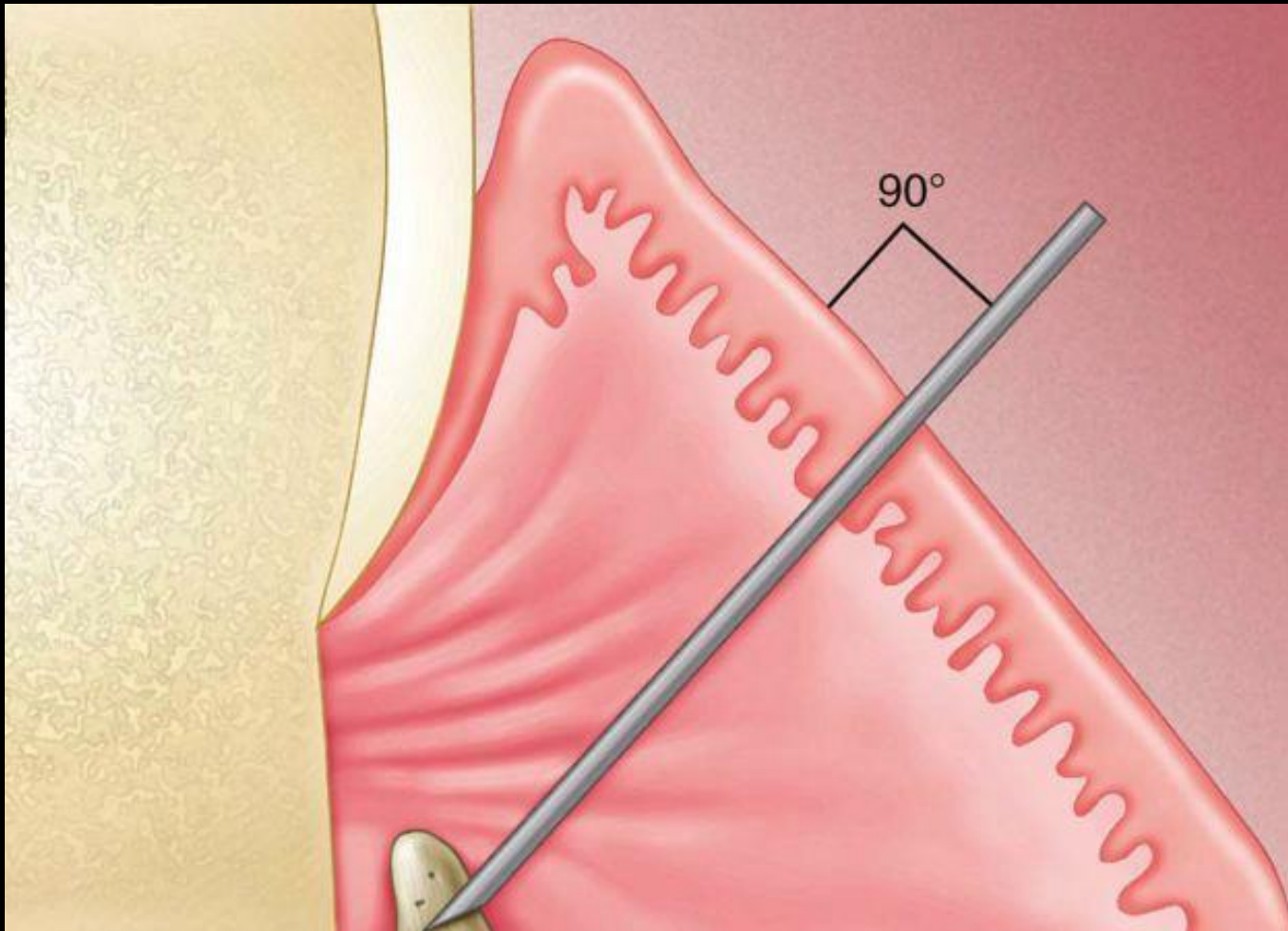
PATENT APPLIED FOR.

The Wilcox-Jewett Obtunder, about  $\frac{3}{4}$  Actual Size.

# PDL intraosseous



# Intraseptal Injection

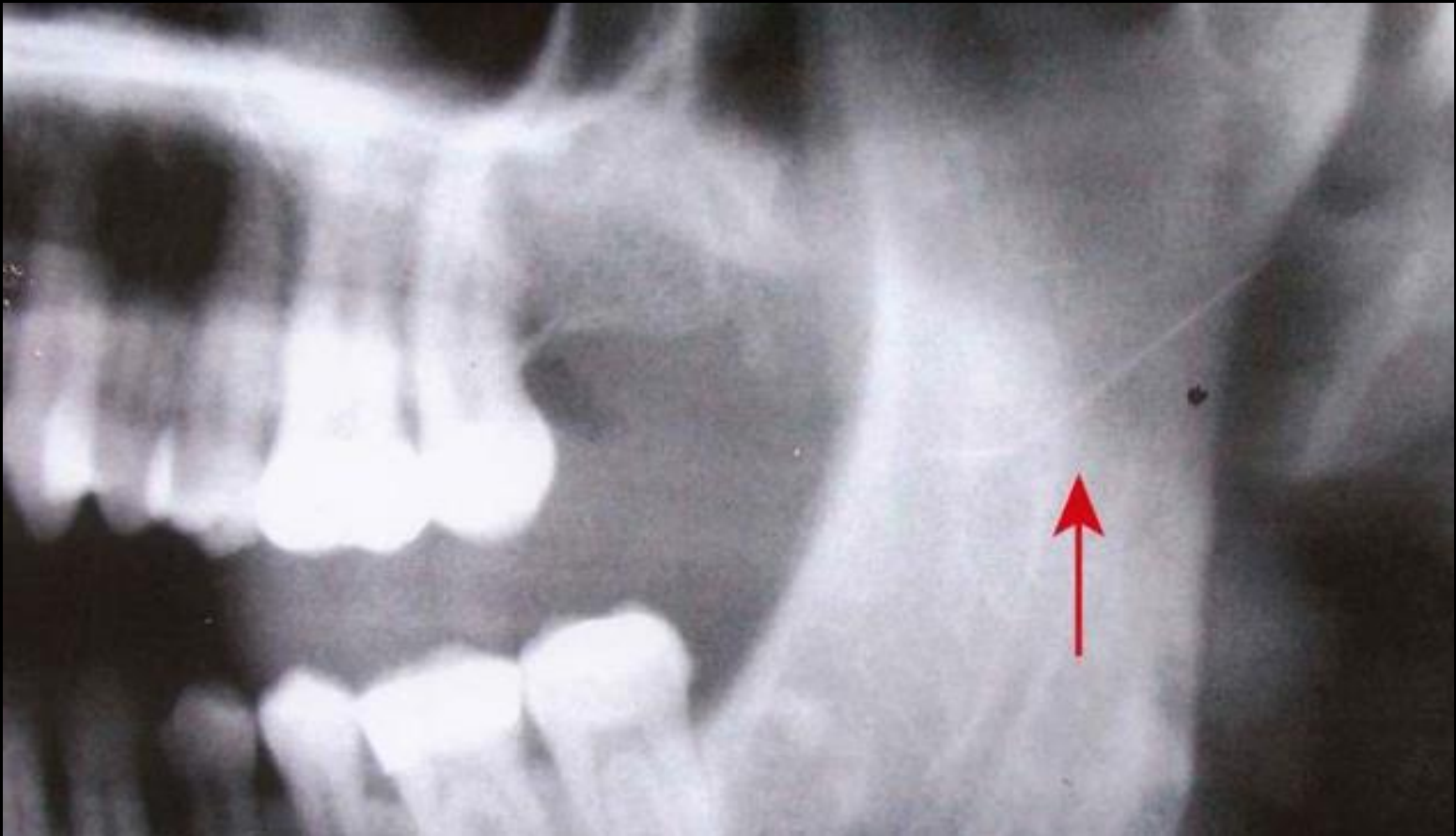








# Broken Needle in ?? space



# *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:

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- 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.

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

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

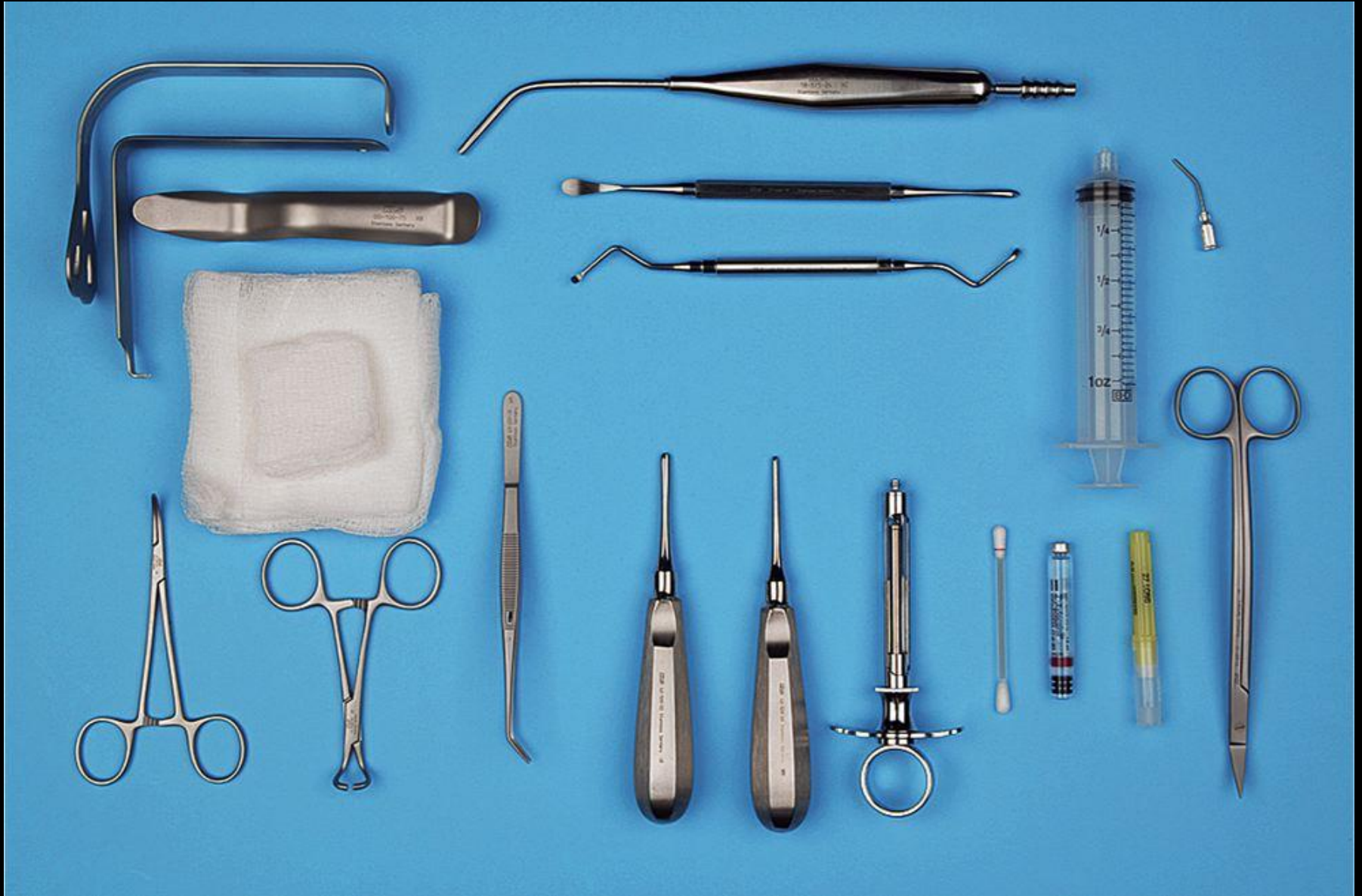


# Proper extension of the Instrument





# Basic Set Up



# The Young and the Restless...

‘You can put lipstick on a pig... But its still a pig!’

D7210



# Difficult D7210



# Grossly decayed lower molars





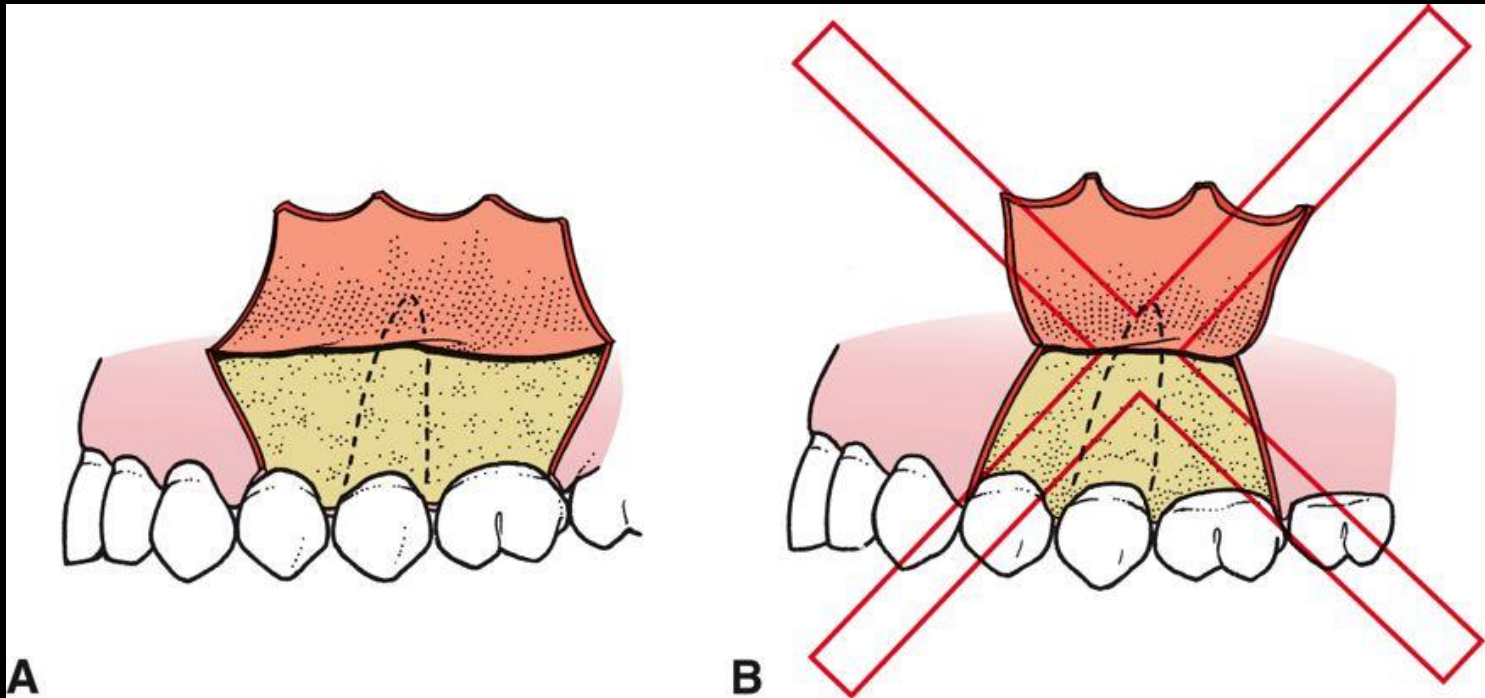
# Dilaceration



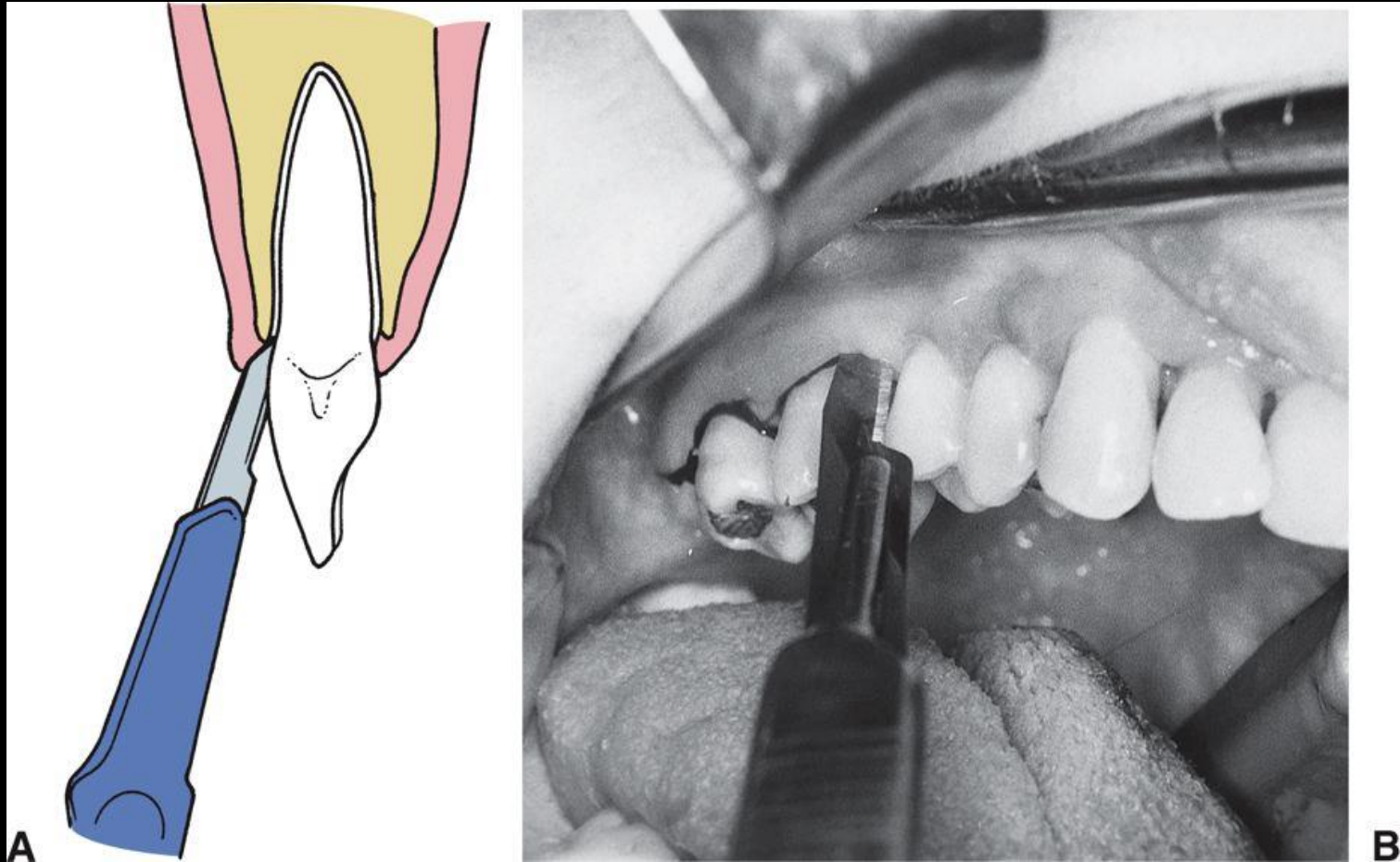
# Bulbous Roots



# Broad Based Flaps



# Intrasulcular Incisions around Teeth



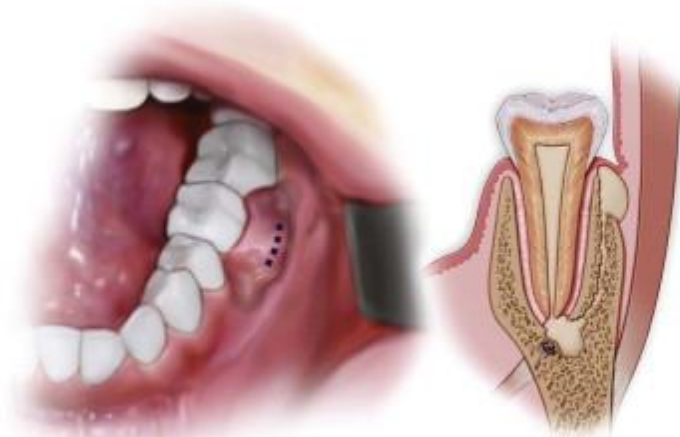




# Intra Oral Dental Abscess



Maxillary vestibular



Mandibular vestibular

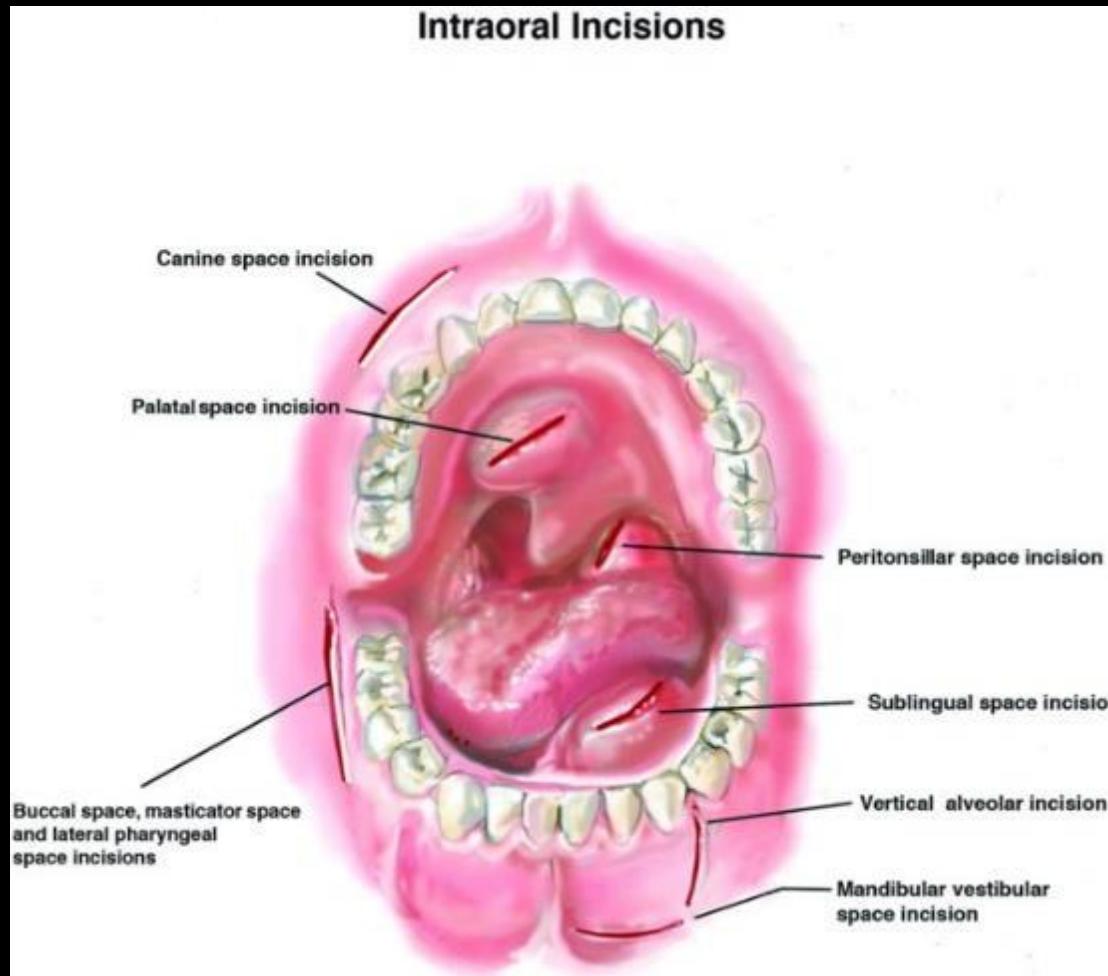


Palatal



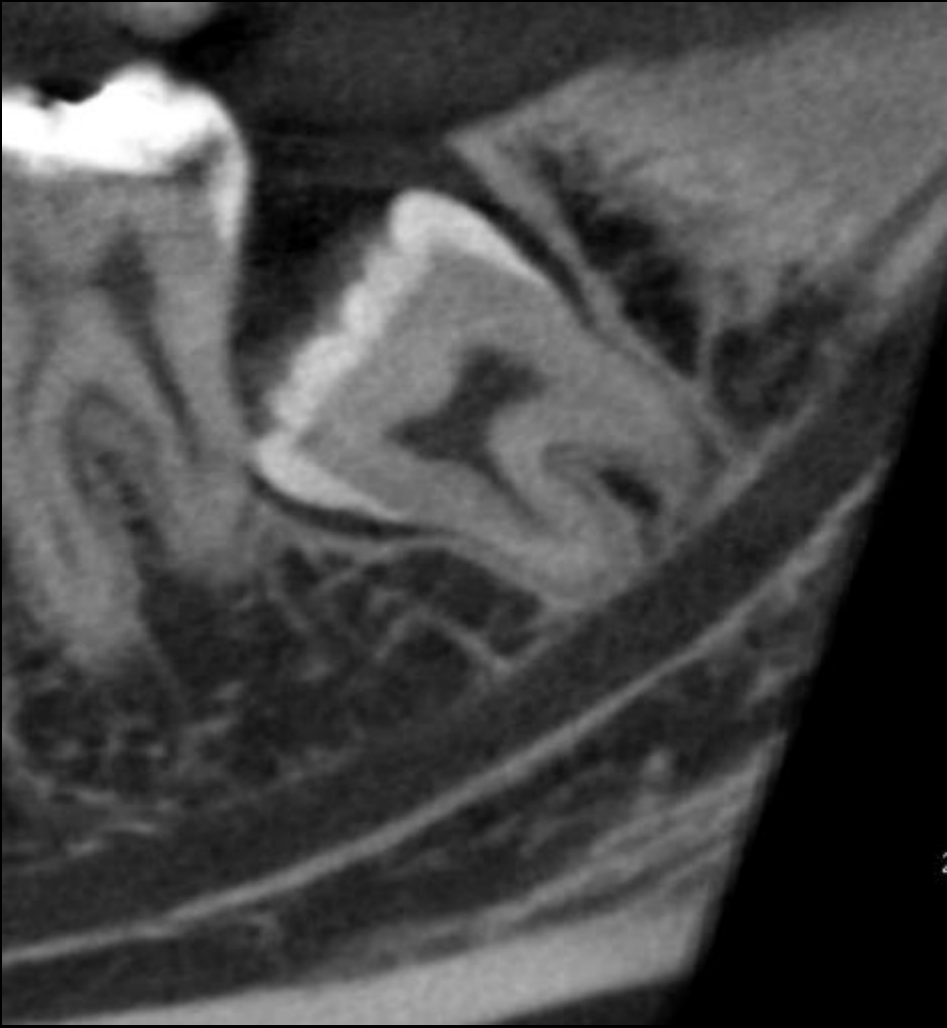
Canine

# Intraoral Incision Sites

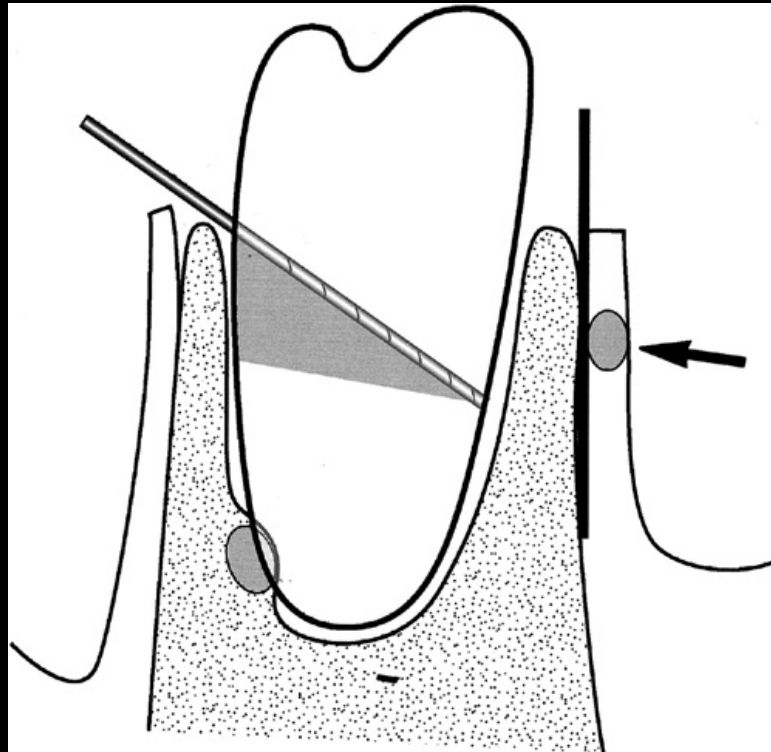


# Dental Abscess Management

- 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

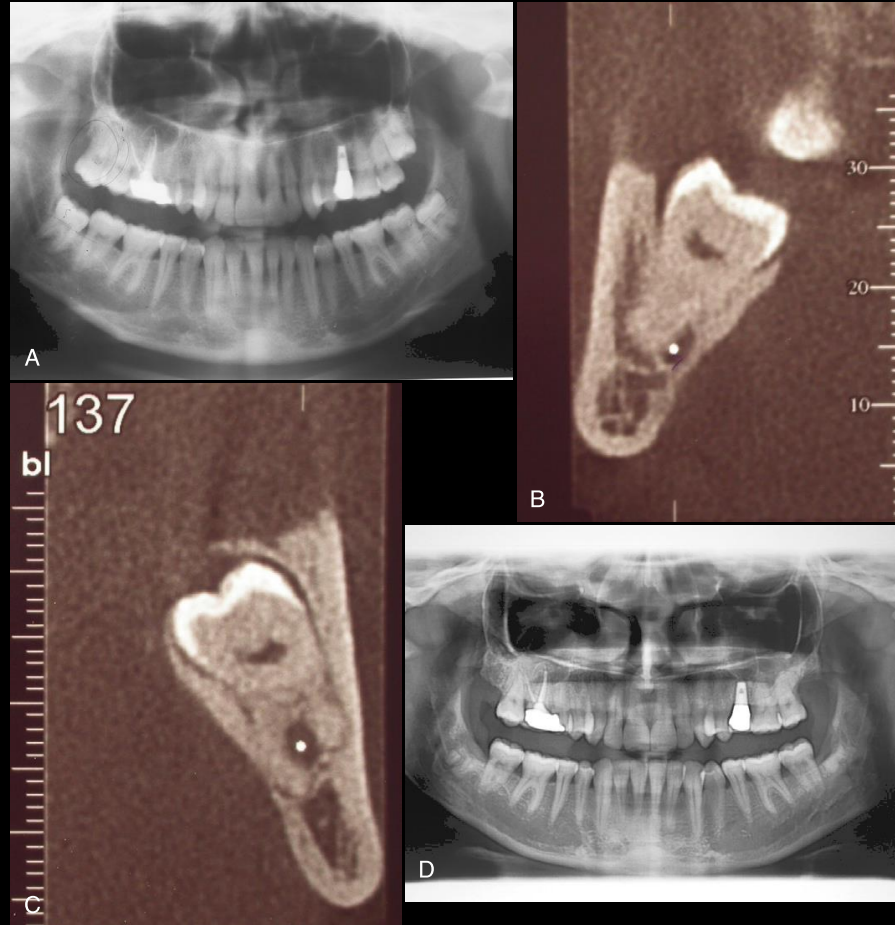


# Coronectomy





# 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.

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# 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?