

Atlantic Provinces
Interprofessional Pain Conference

Acute Pain Management
in Dentistry



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Disclosure



I have no industry associations or bias to disclose.

Objectives

1. Give an appreciation of the common causes and relative severity of acute pain in dentistry.
2. Understand the general pain management strategies for these conditions.

Outline



- Common Analgesics in Dentistry/OMFS
- Anatomy
- Sources of Acute Dental Pain
- Sources of Acute Maxillomandibular Pain
- Sources of Acute TMJ Pain
- Summary

Acute Pain Medications

- Respect non-opioid efficacy
 - ibu 400 mg = conventional opioid dose
- For dental pain...
 - NSAID > acetaminophen
 - NSAID + acet > NSAID or acet alone

Hyllested M et al, Br J Anaesth, 2002
Ong CK et al, Anesth Analg, 2010
Daniels SE et al, Clin J Pain, 2011

Acute Pain Medications

- NSAIDs are first line
 - analgesic ceiling
 - anti-inflammatory doses, routinely
- Acetaminophen as adjunct
 - analgesic ceiling
 - 1000 mg / dose, routinely



Weil K et al, Cochrane Database Syst Rev, 2007

Acute Pain Medications

- Opioids to augment
 - no ceiling, titratable
 - codeine & hydrocodone poor choices (CYP2D6)
 - meperidine and propoxyphene poor choices
 - avoid combos with acetaminophen or NSAIDs



Acute Pain Medications

- Pre-emptive pre-op analgesics

- controversial – probably not

Jung YS et al, Oral Surg Oral Med Oral Pathol Oral Radiol Endod, 2005

- NSAIDs immed post-op better

Kaczmarzyk T, Int J Oral Maxillofac Surg, 2010

- tramadol in future?

Isiordia-Espinoza M et al, Med Oral Patol Oral Cir Bucal, 2011

Acute Pain Medications

- Steroids
 - anti-inflammatory properties
 - minimal analgesia
 - some study of use in acute dental pain, most effective for post-op swelling

Troullos ES et al, J Oral Maxillofac Surg, 1992

Local Anaesthesia

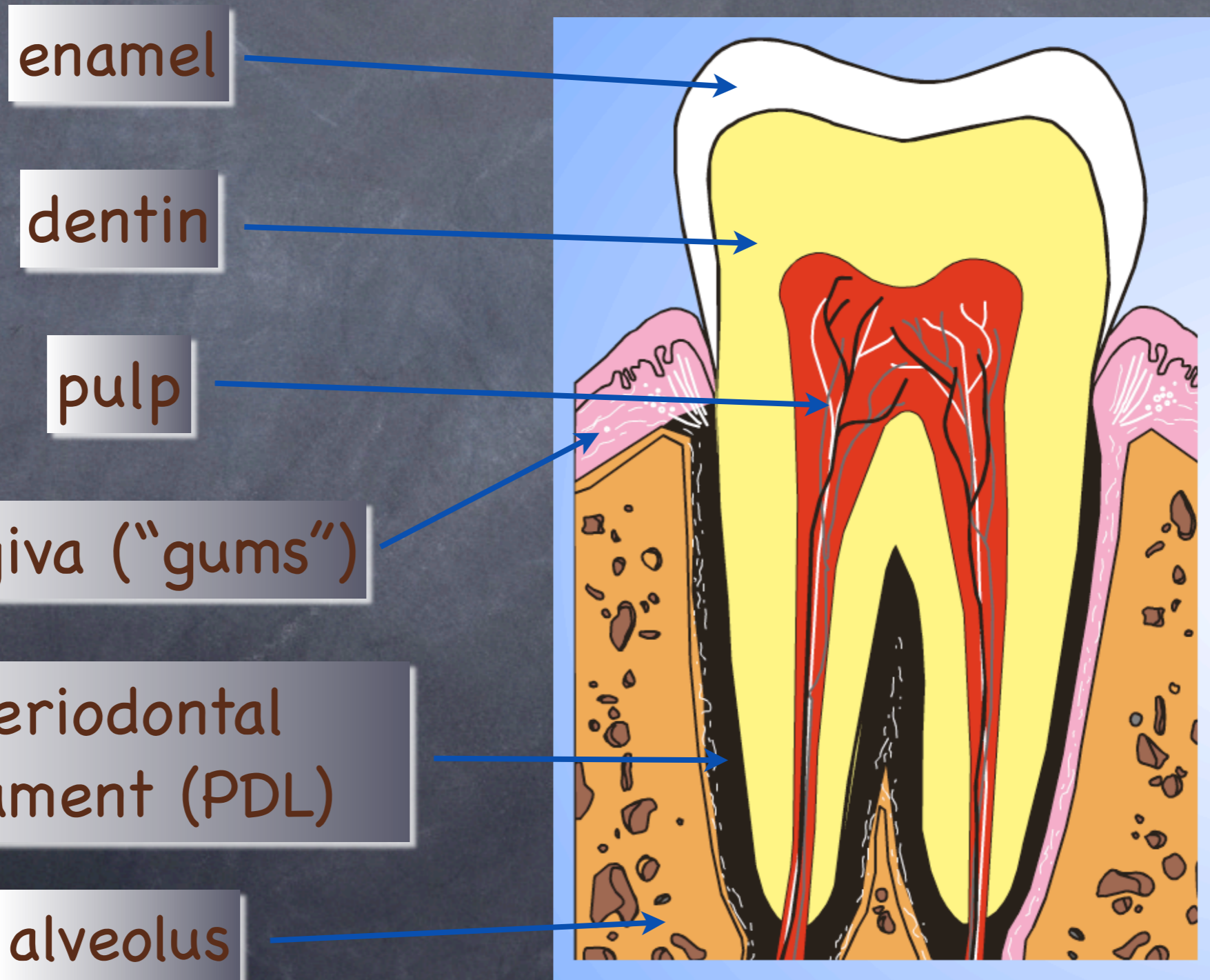
- The ultimate analgesic!
- “Everything” dental can be anaesthetized
- Value in diagnosis of pain source
- Value in intra-op treatment - effects on GA or IV Sedation requirements
- Value in post-op management - decr or delayed need for analgesics

Local Anaesthesia

- Problem: LA causes pain to administer!
- Management:
 - pre-injection pharmacology
 - relaxation/breathing
 - closing eyes (if needle phobic)
 - hypnosis
 - distraction
 - topical anaesthetics
 - pressure or shake tissues (gate control theory of pain)
 - slow injection

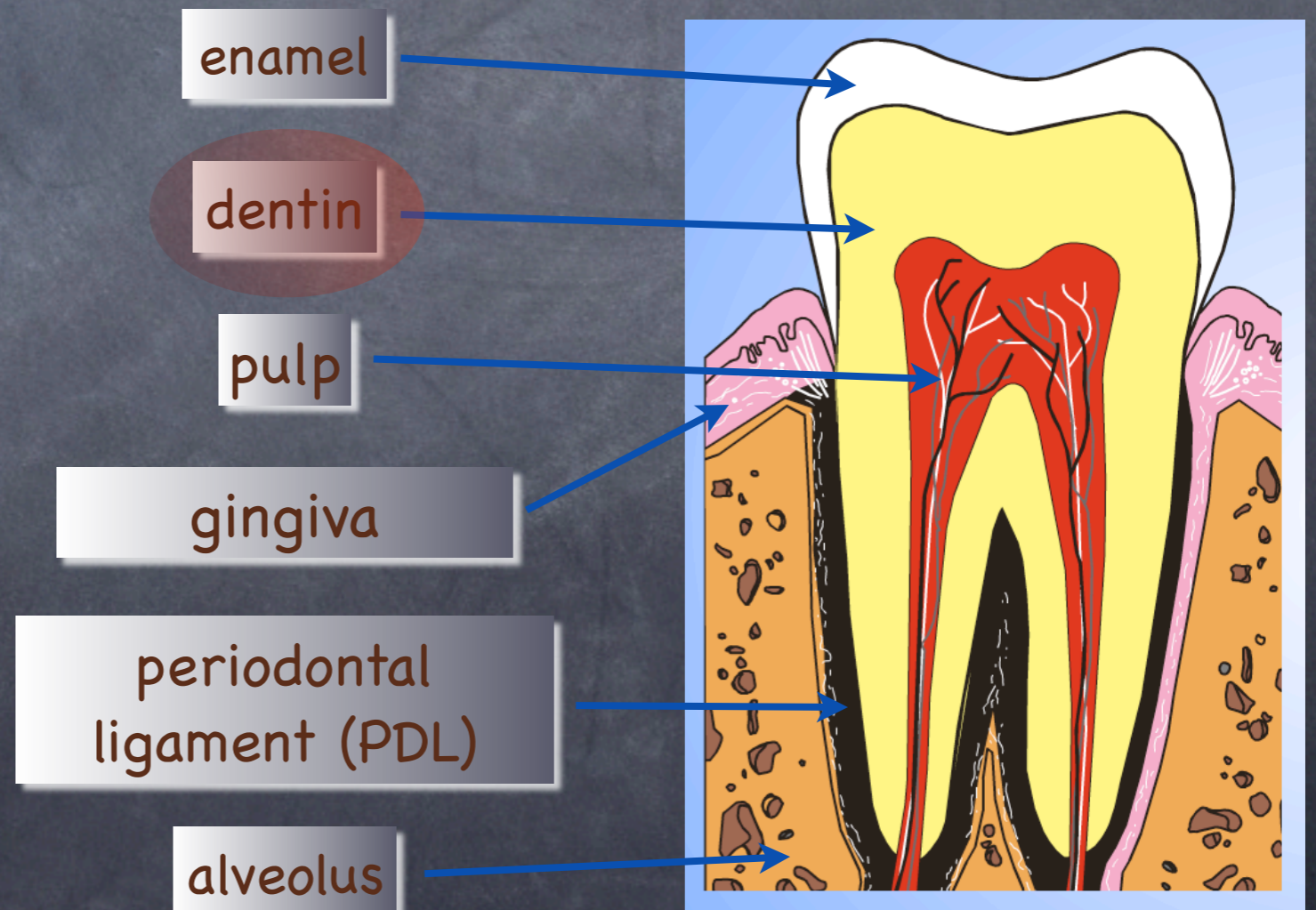


Dental Anatomy 101



Acute Tooth Pain

1-2 • Dentin sensitivity

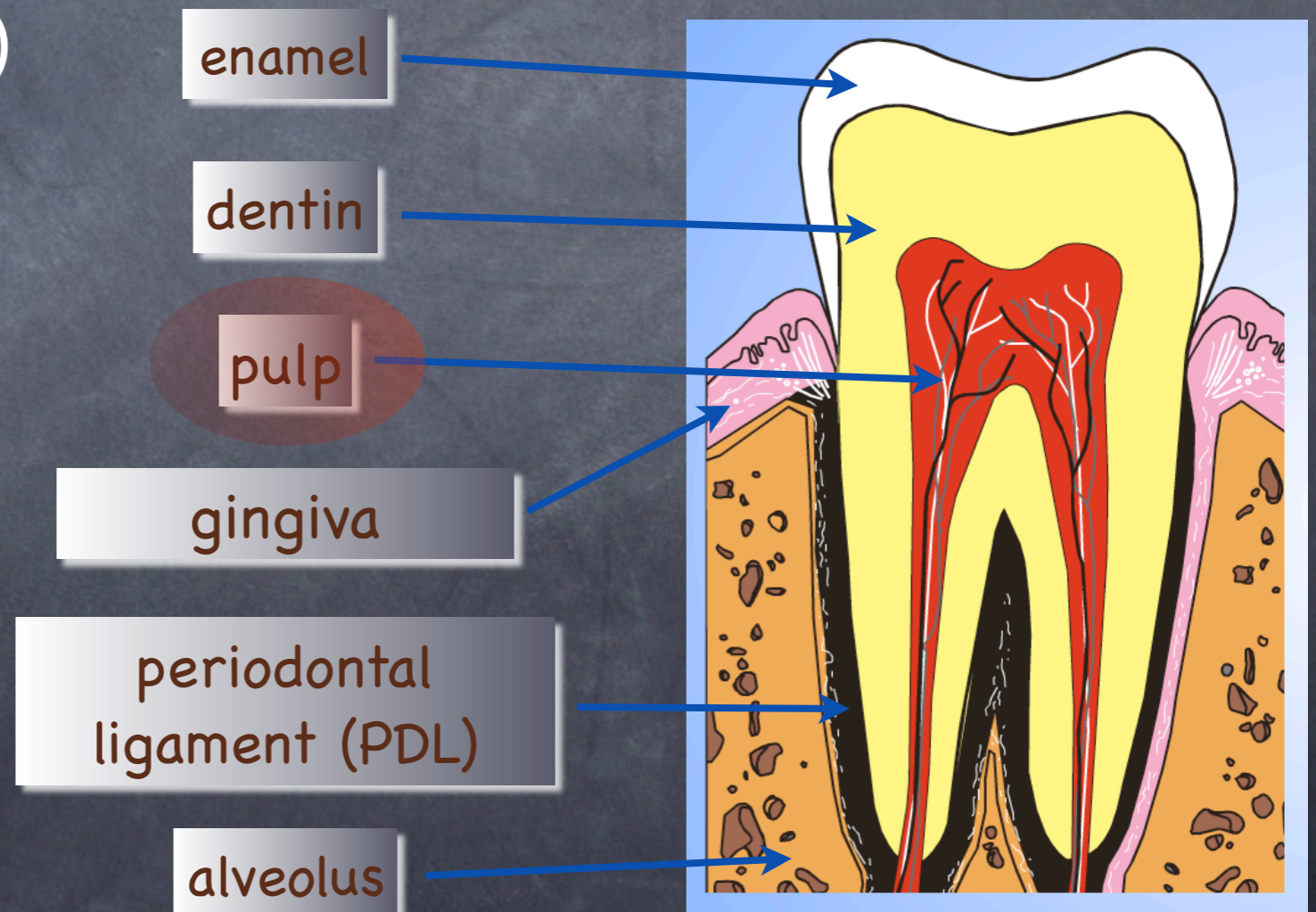


Acute Tooth Pain

• Pulp -

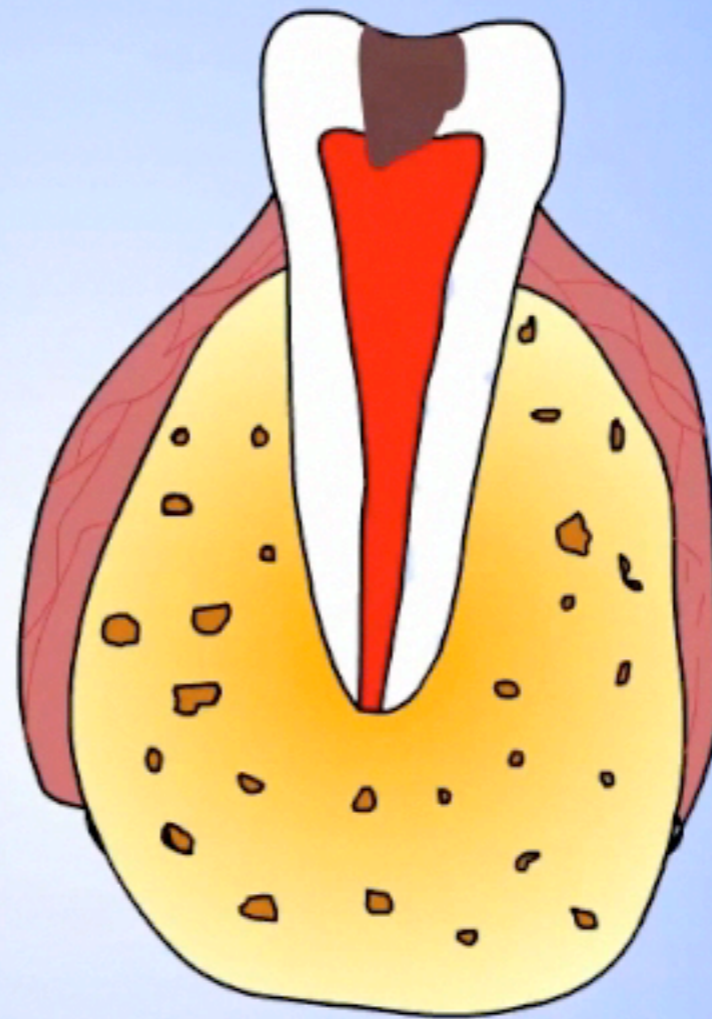
5-10

• pulpitis (reversible and irreversible)



What happens if a cavity is not filled

The decay spreads to reach the inner tissues of pulp which contains nerves and blood vessels



Acute Tooth Pain

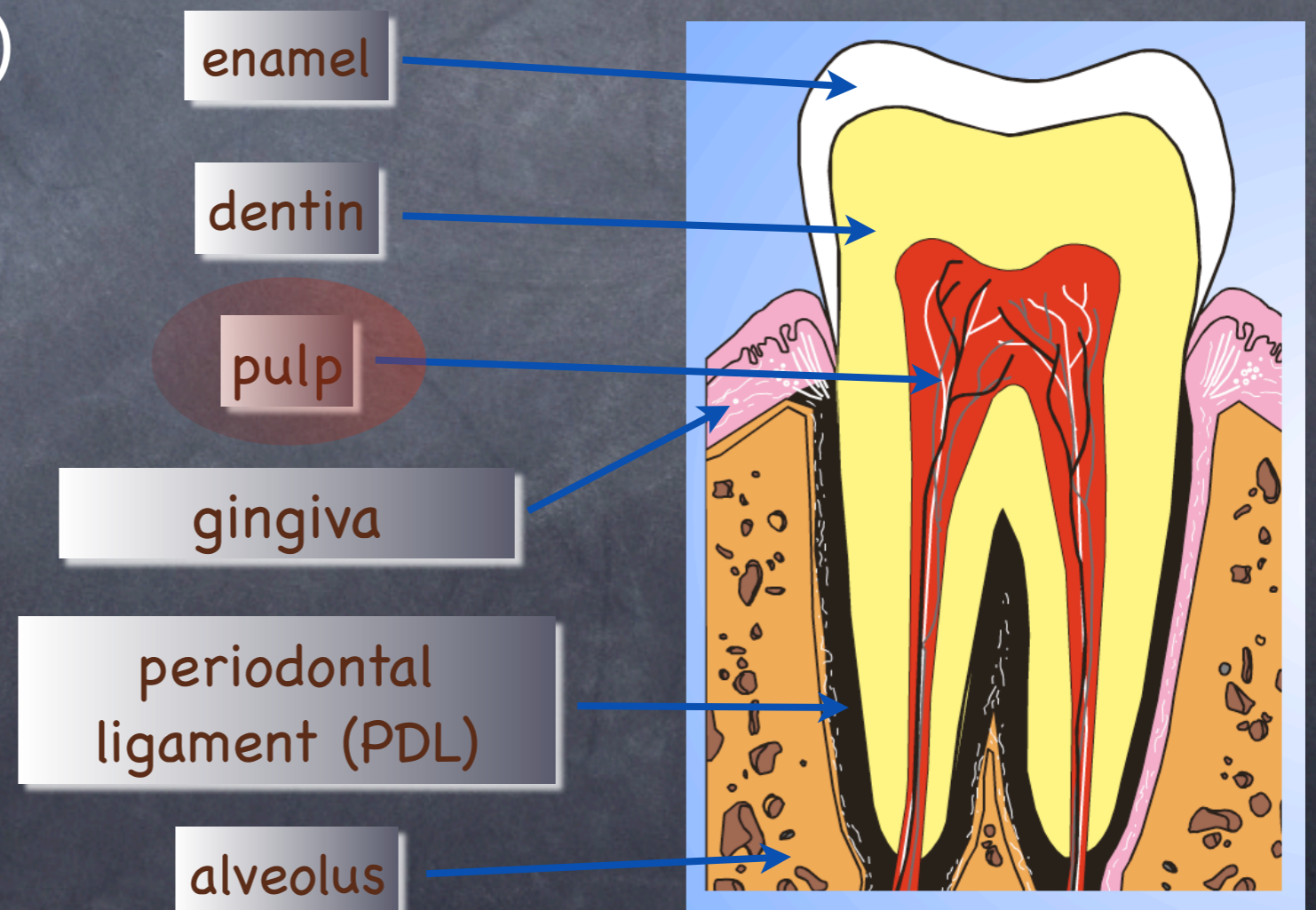
• Pulp -

5-10

• pulpitis (reversible and irreversible)

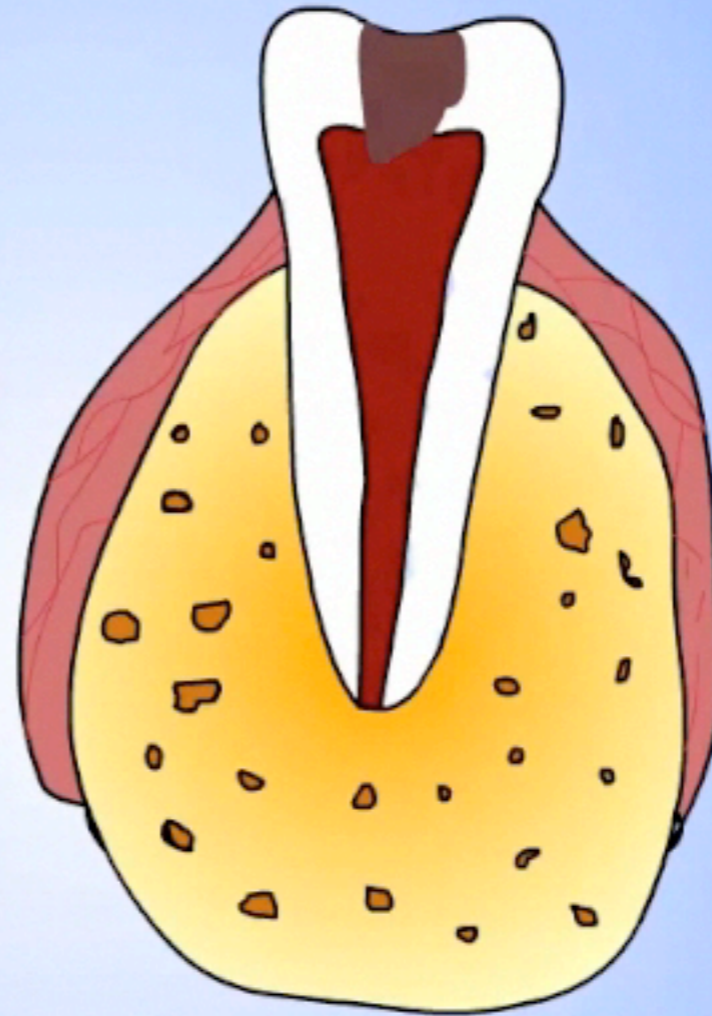
0-3

• necrosis



What happens if a cavity is not filled

Once the decay reaches the pulp the pulp gets infected



Acute Tooth Pain

• Pulp -

5-10

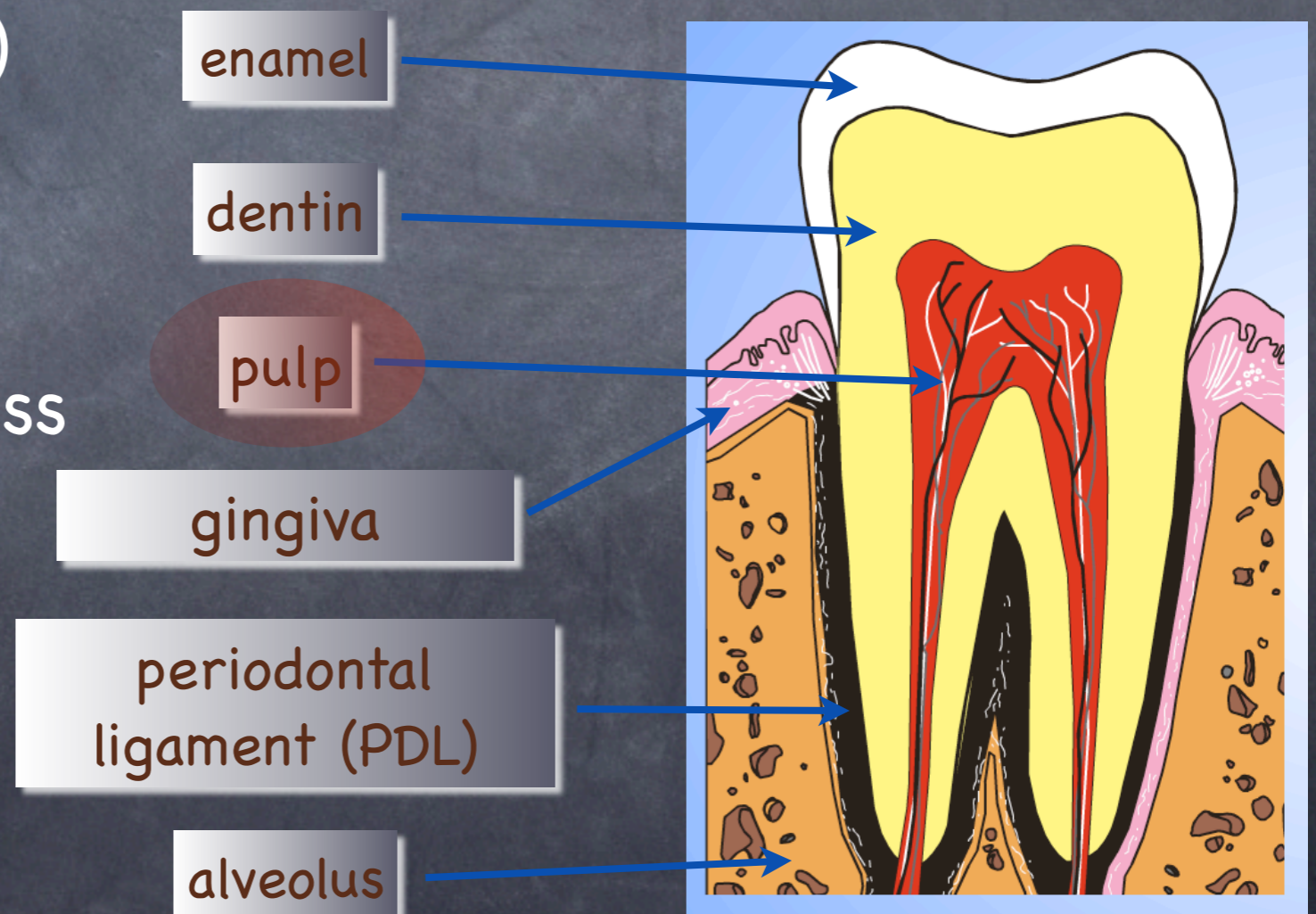
• pulpitis (reversible and irreversible)

0-3

• necrosis

8-0

• periapical abscess or granuloma



Acute Tooth Pain

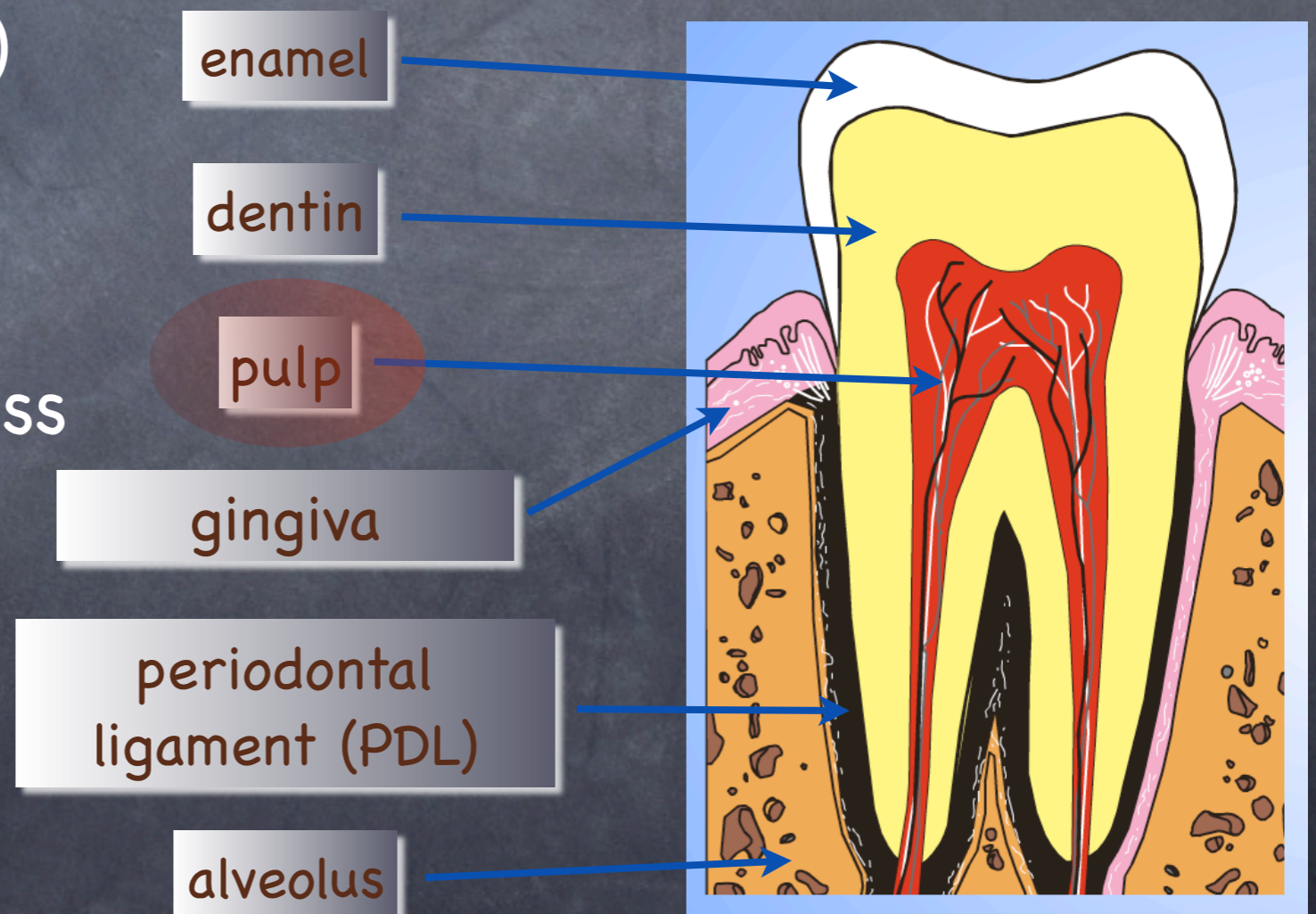
• Pulp -

5-10 • pulpitis (reversible and irreversible)

0-3 • necrosis

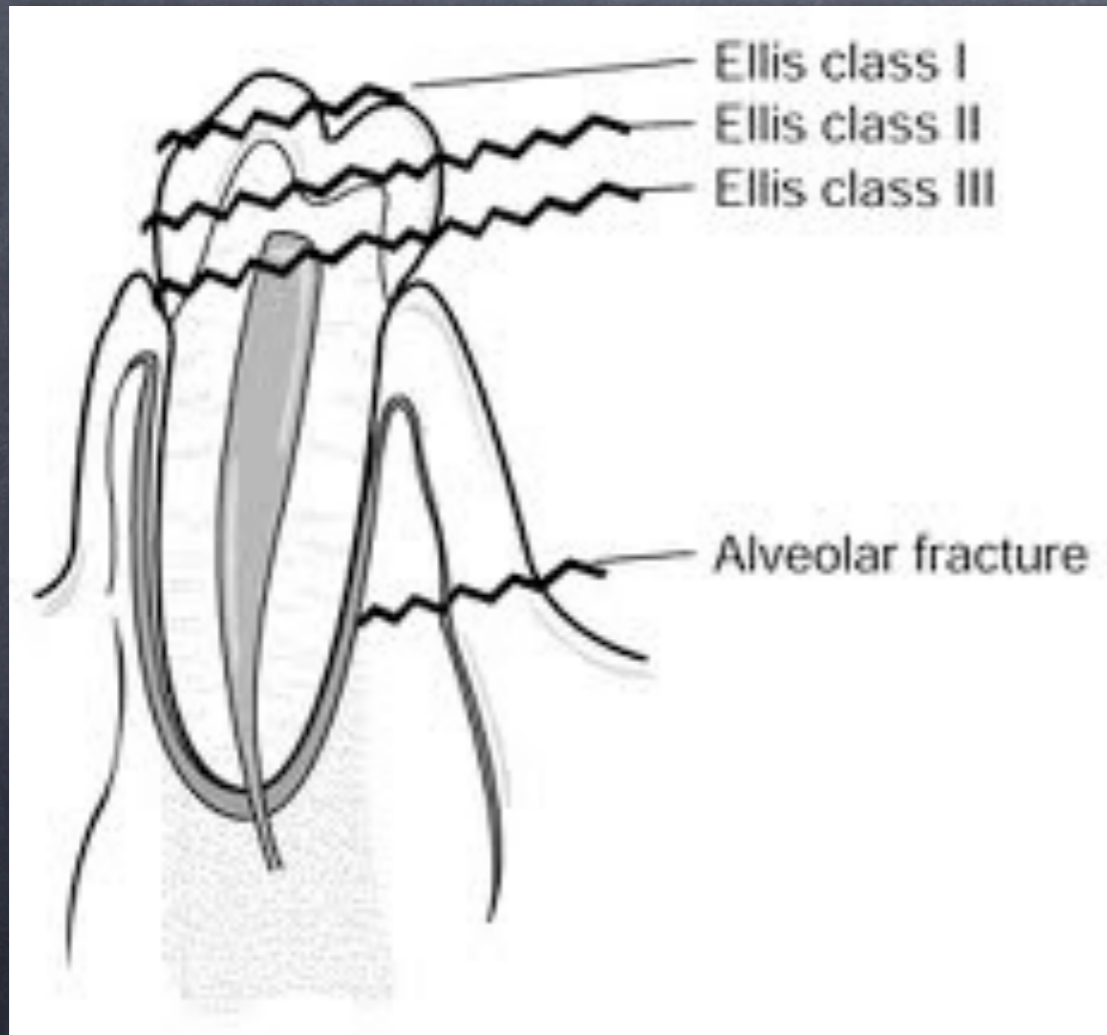
8-0 • periapical abscess or granuloma

0-8 • visible infection



Acute Tooth Pain

0-9 • tooth fractures

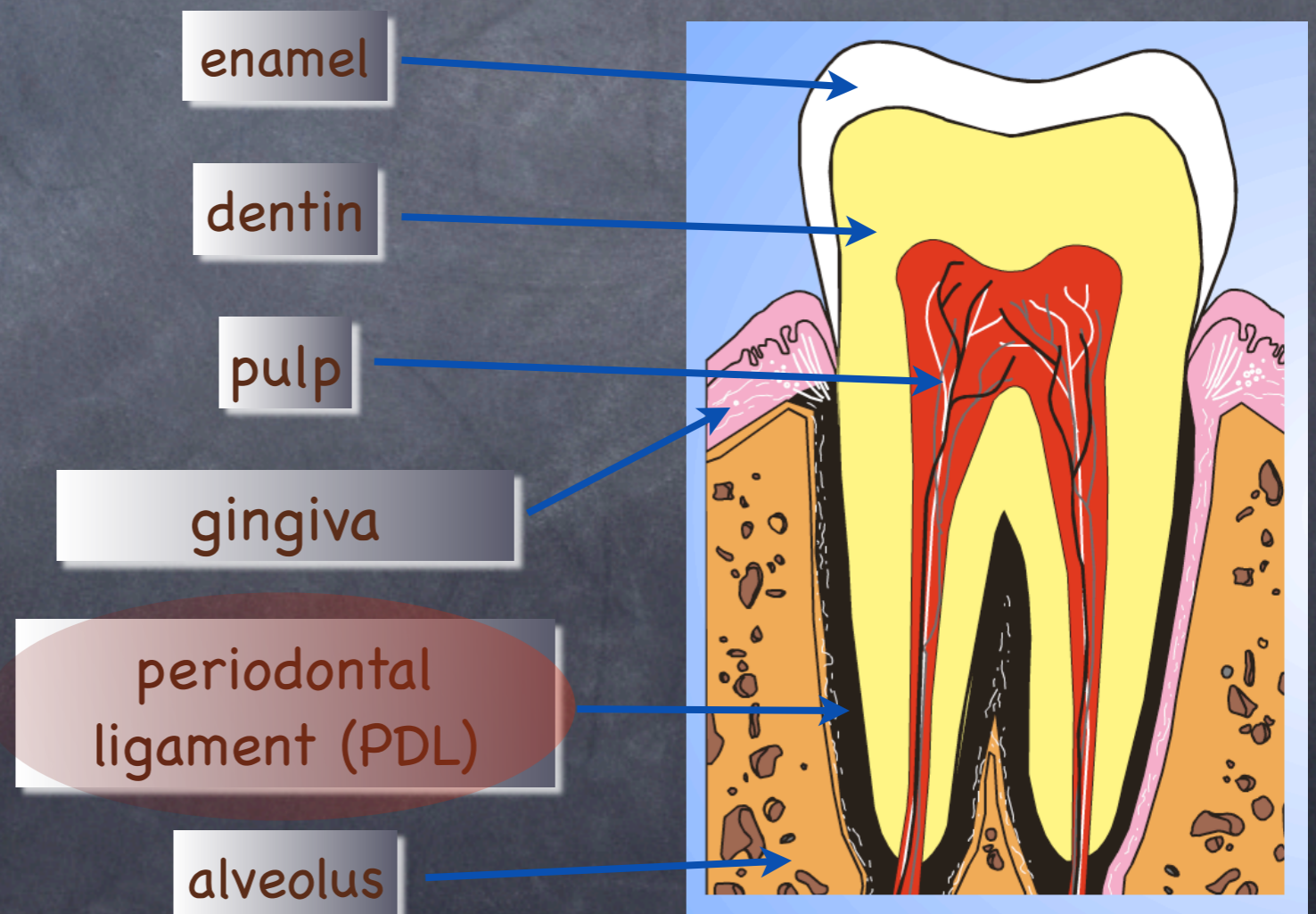


Supporting Structures

• Periodontal ligament -

I(8) • "cracked" root

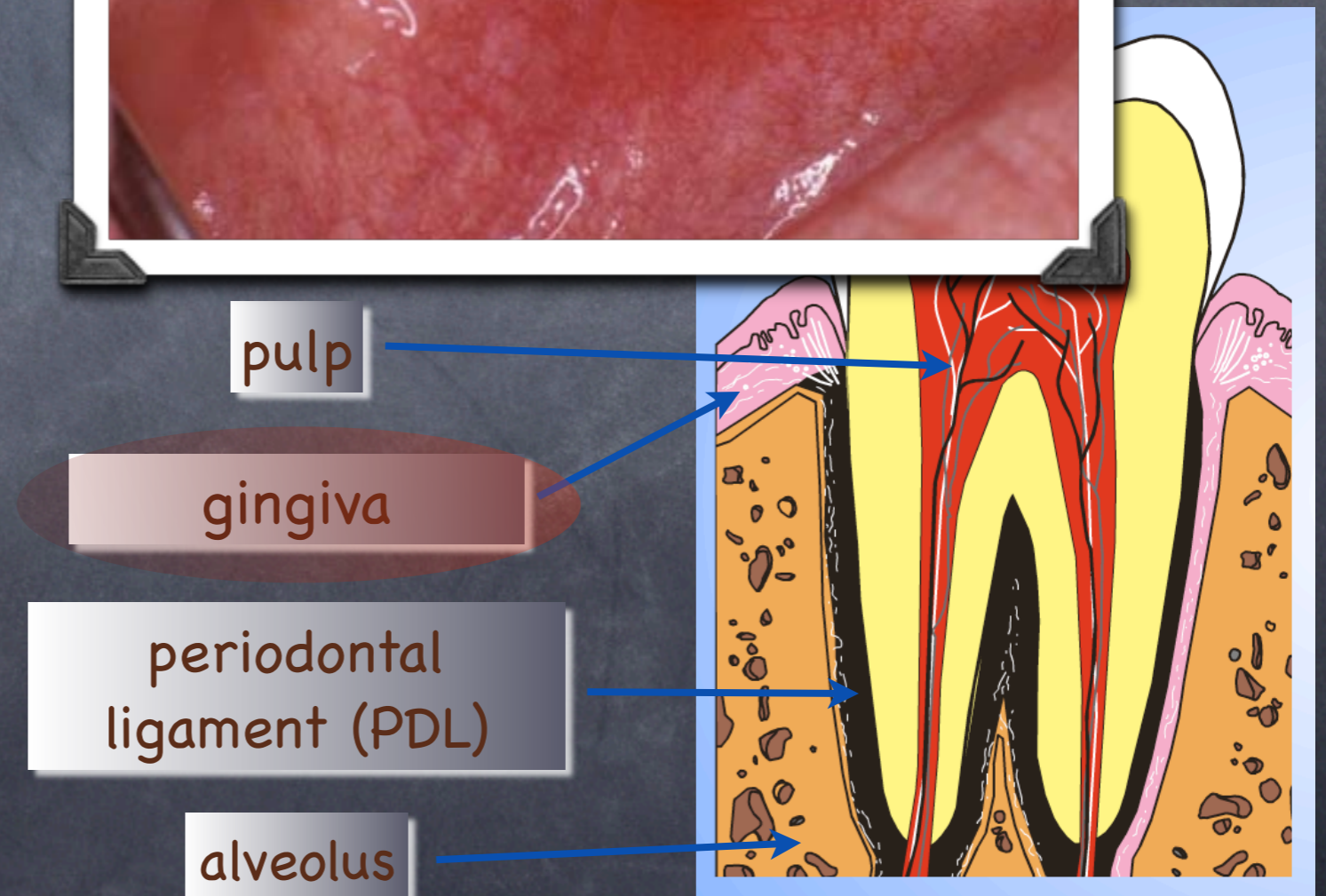
I-7 • periodontal abscess



Supporting Structures

1-3

- Gingiva -
 - mucosal diseases
 - trauma
 - pericoronitis



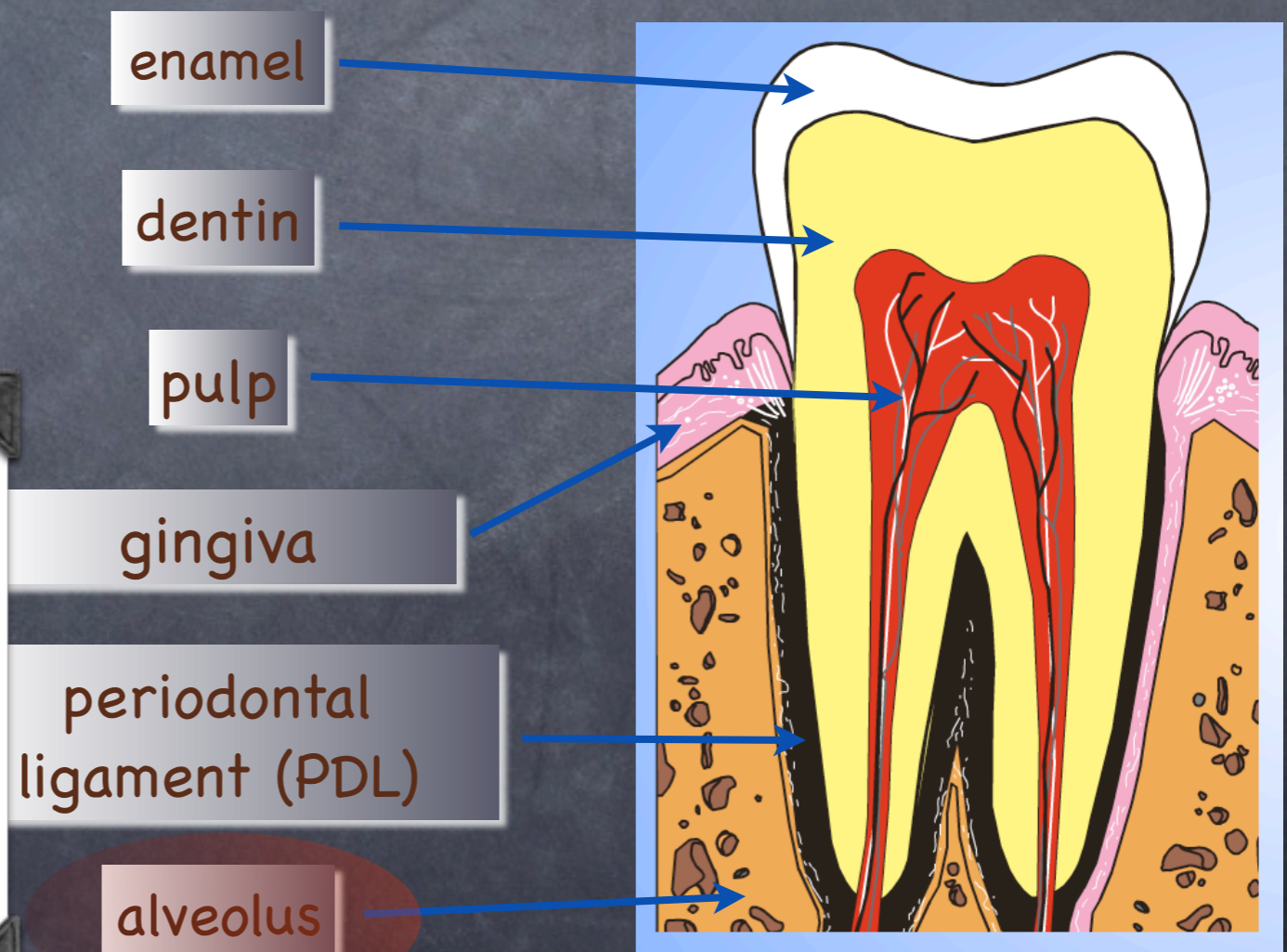
Supporting Str

- Alveolus & jaws -

5-8 fractures

- dentoalveolar

- facial/jaw



Supporting Structures

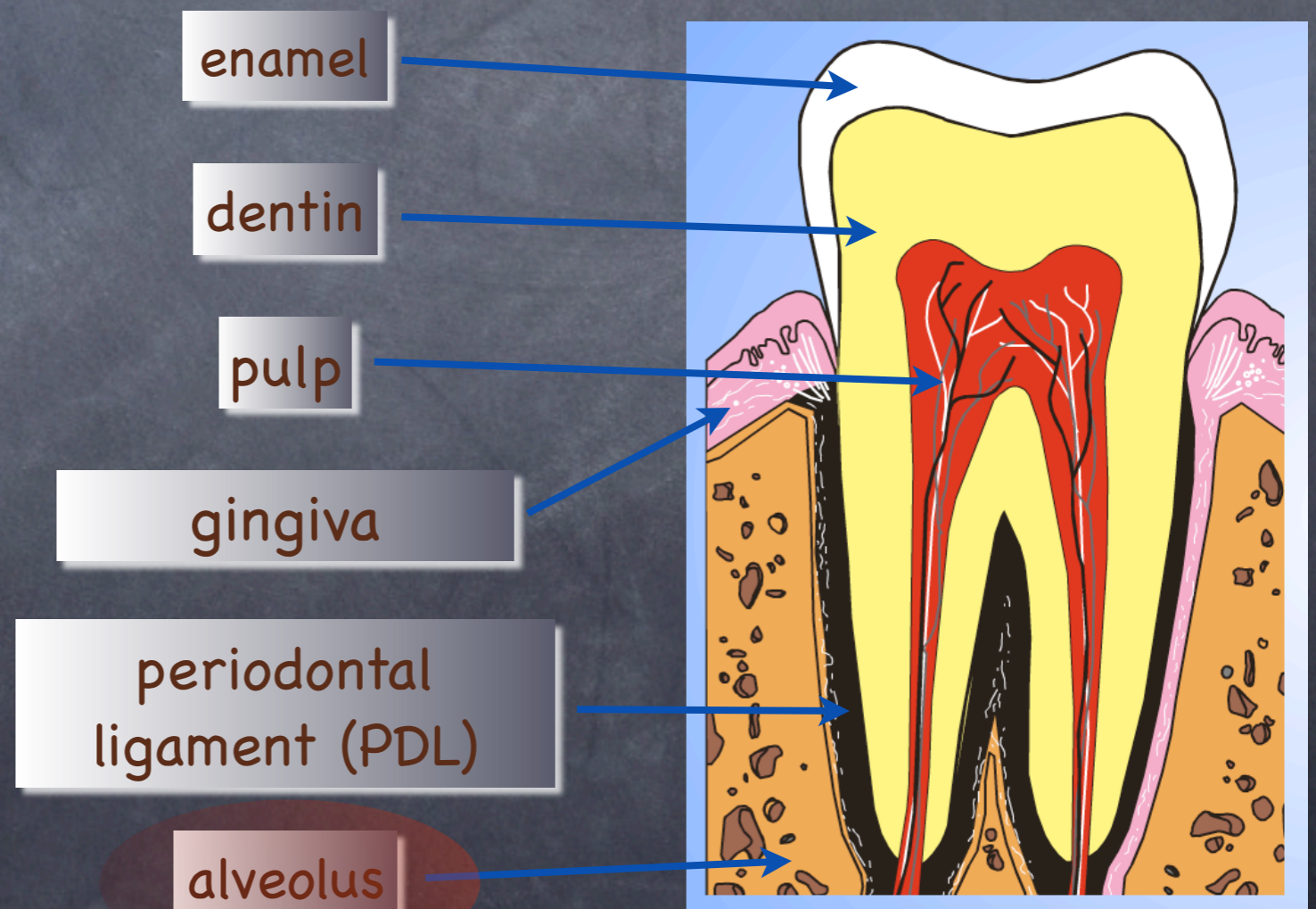
- Alveolus & jaws -

5-8 • fractures

- dentoalveolar

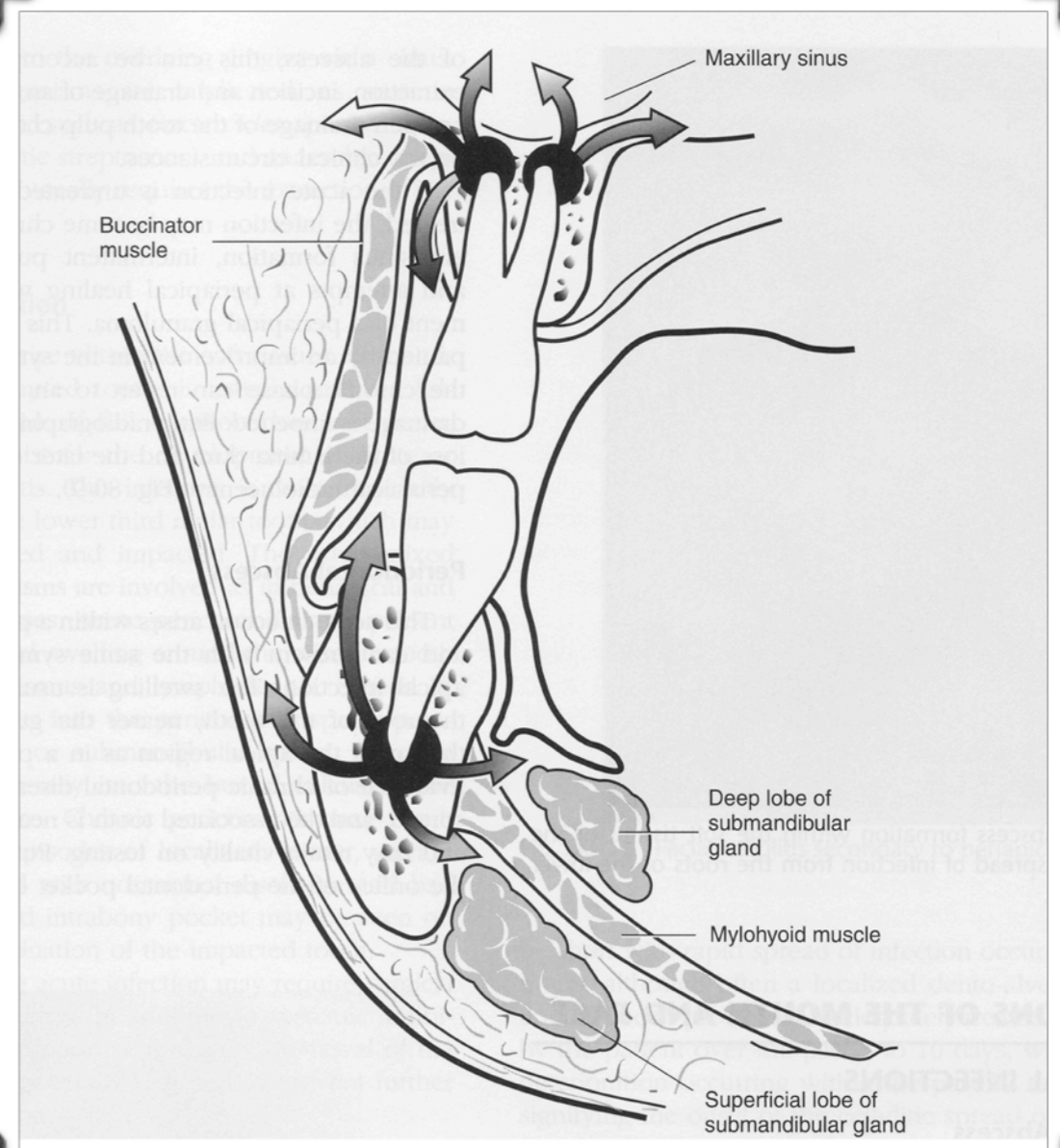
- facial/jaw

0-9 • infection

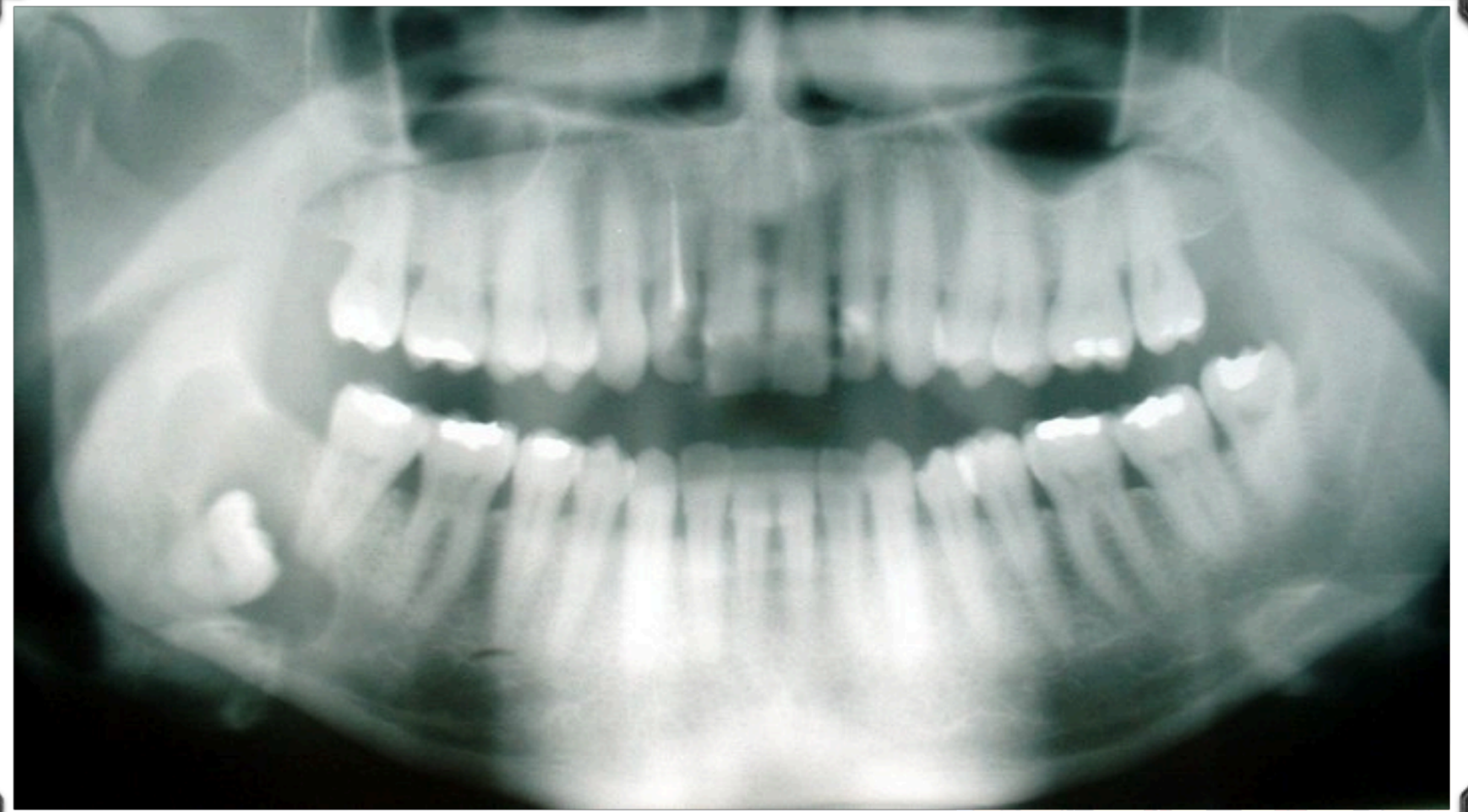




Infection



Supporting Structures



5-8

Alveo

fr

0-9

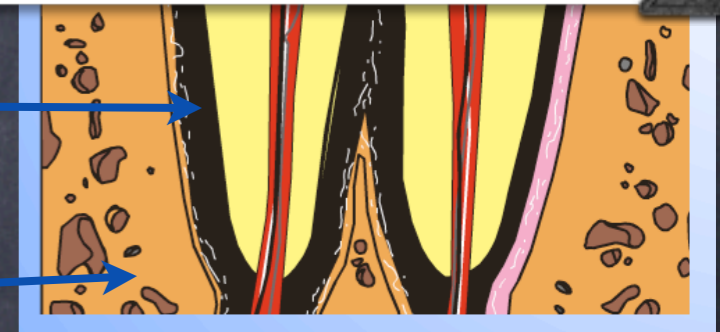
int

0-3

cysts/tumours

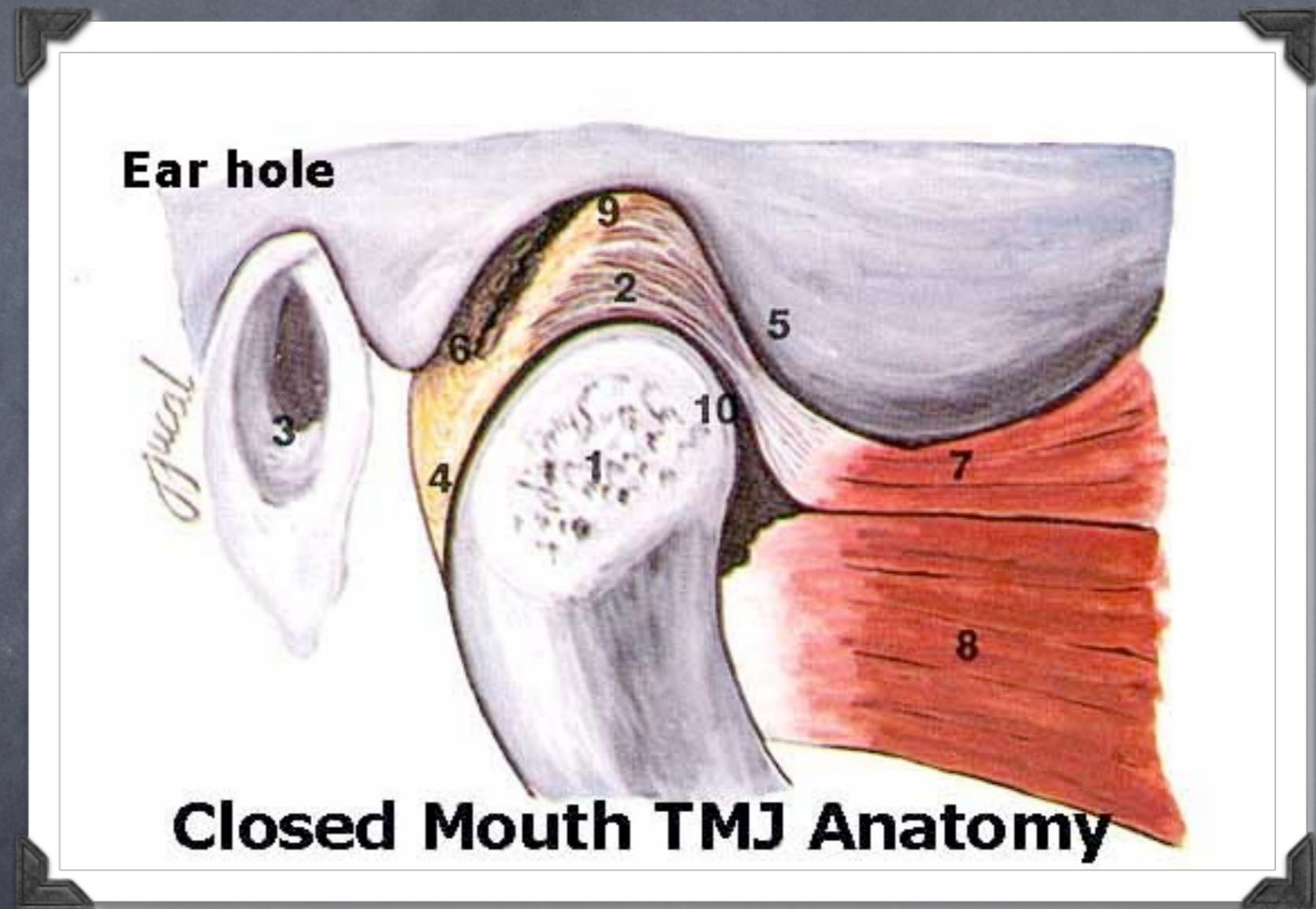
periodontal
ligament (PDL)

alveolus



Acute TMJ Pain

- Fracture
- Dislocation
- Capsulitis / Retrodiscitis
- Infection / Arthritis / Neoplasm
- (Myositis)



Post-op Pain

...increasing discomfort...



- Fillings or other restorations
- Root canals
- Mucosal surgery – biopsies; grafts
- Extractions (incl wisdom teeth)
- Bone surgery – orthognathic surgery; bone grafting; fracture repair; ablative or reconstructive procedures

Normal "Simple" Extraction Healing

...decreasing...

3



0

- tooth removed
- blood clot formation immediately
- mature clot 24 hours
- changed to granulation tissue 1+ wk
- epithelialization 3-4 wks
- gradual change to bone



Normal "Surgical" Extraction Healing

...decreasing... ...increasing...

3



7



0

- tooth removed
- blood clot formation immediately
- mature clot 24 hours
- **swelling, pain, trismus peak 24-72 hours**
- changed to granulation tissue 1+ wk
- epithelialization 3-4 wks
- gradual change to bone

What Can Go Wrong?

...decreasing...
3
↓
7
↓
0

- tooth removed
- blood clot formation immediately
- mature clot 24 hours
- swelling, pain, trismus peak 24-72 hours
- changed to granulation tissue 1+ wk
- epithelialization 3-4 wks
- gradual change to bone

normal to get worse initially

hematoma

"dry socket" @ 3-7 days
-painful!!
-loss of clot
-decreasing swelling
-abx no help
-pack or wait it out

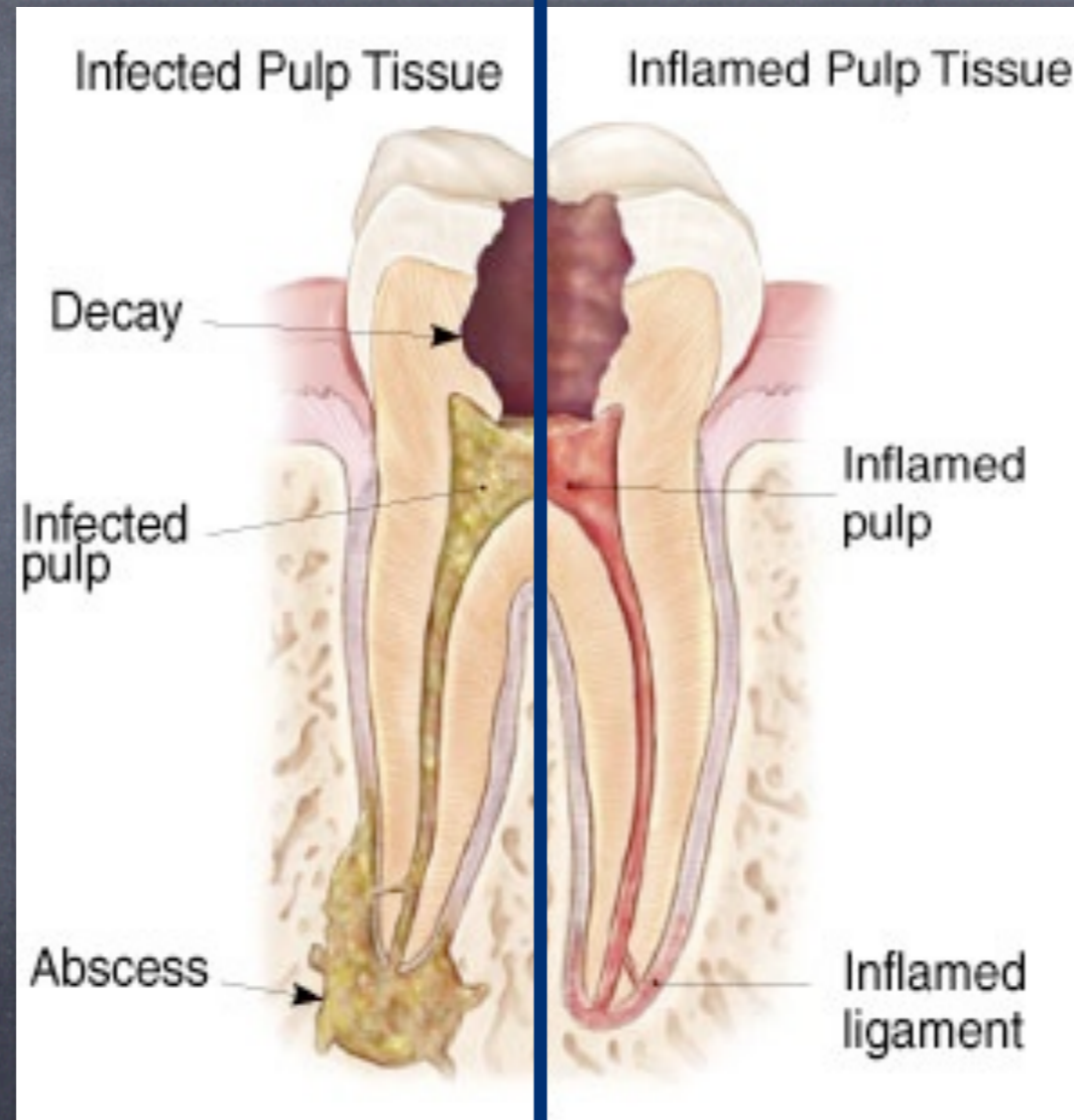
infection

Summary

- acute dental pain can be very severe
- knowledge of usual causes and severity aids in appropriate therapy
 - ...and avoiding inappropriate therapy
- Antibiotics only if demonstrable infection
 - not for pulpitis or dry socket

Summary

Moderate pain
- temp sens
+ sore to bite
+ Abx



Severe pain
+ temp sens
- sore to bite
- Abx

Summary - Analgesic Regimen



1. NSAID at anti-inflammatory dose routinely

- e.g. ibuprofen 600mg Q6H

2. combine with acetaminophen at 1000mg

- e.g. 1000mg Q6H

3. opioids prn

- avoid combinations, codeine, hydrocodone, meperidine if possible
- titrate to effect

Summary

- Local anaesthesia can aid tremendously in acute pain management in the oral & maxillofacial region
 - bupivacaine

Thank you!

Questions?