



GOOD MORNING

RADIOGRAPHIC ANATOMY OF TOOTH STRUCTURE

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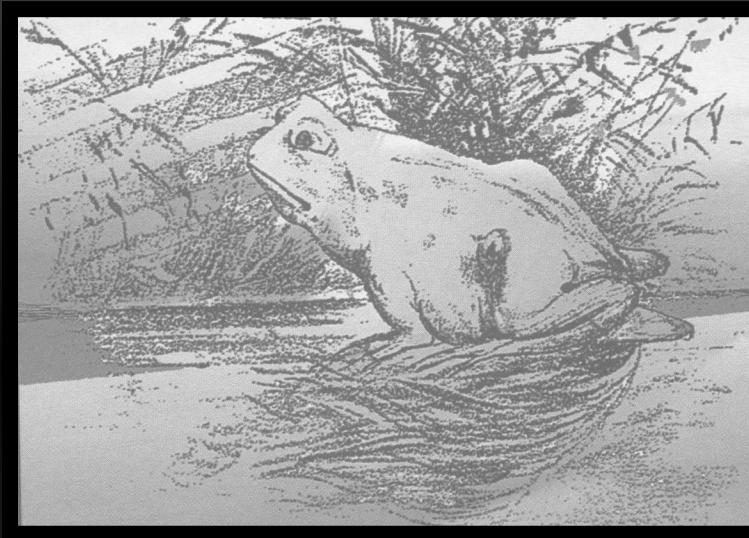
OCH 1 25-26



By the end of this lab session students should be able to :

- ❖ Discuss radiographic interpretation of normal tooth structure
- Enamel ,
- Dentine and
- Pulp

Radiographs play a significant role in diagnosis and treatment planning of a disease



When you see..

Think . . .

The "when you see. . think. . ." principle is a common approach to assessing the meaning of the radiologic changes.

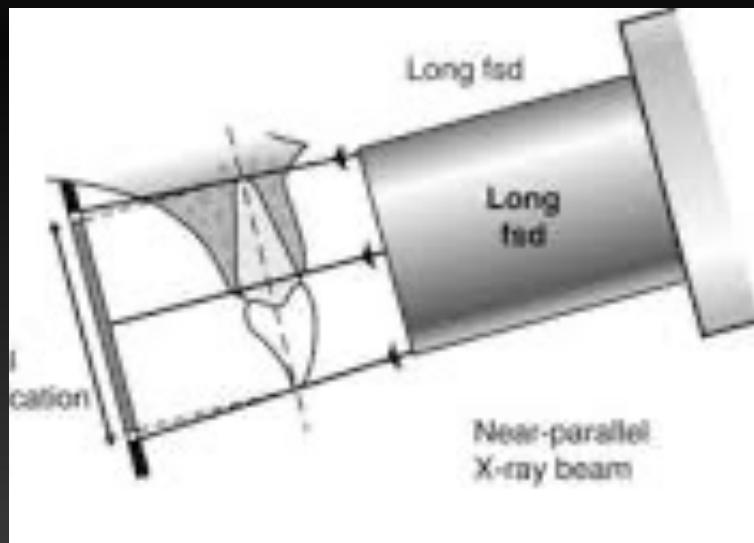
"What the brain does not know, the eye cannot see"

Sir William Osler

Knowledge of ‘radiographic anatomy’ allows us to detect any abnormal shadows in the dental and supporting structures while reading a radiograph.

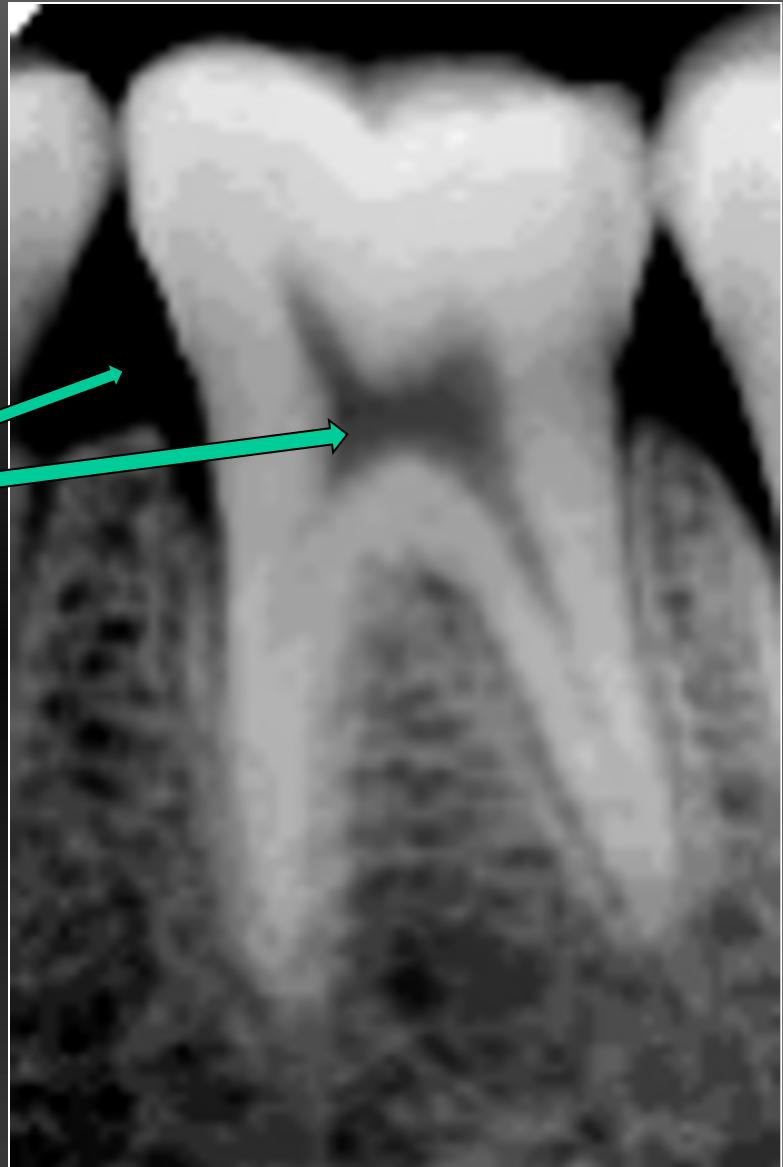


- The formation of an image in radiography depends on **tissues of different density** blocking a different proportion of the incoming **x-rays** from passing through them and reaching the **digital sensor**.



- Areas that are less dense, will allow more x-rays to pass through, and appear **darker/black** on the radiograph, termed **'RADIOLUCENT'**

Eg: Cavities, depressions, or openings in bone such as a sinus, fossa, canal or foramen.



- Structures that are bony in origin absorb or stop the penetration of the x-rays and, therefore, do not reach the receptor

appear-

RADIOPAQUE or white on radiographic images.

- Some structures partially absorb radiation and are represented in varying degrees of radiopacity.



RADIOGRAPHIC ANATOMY

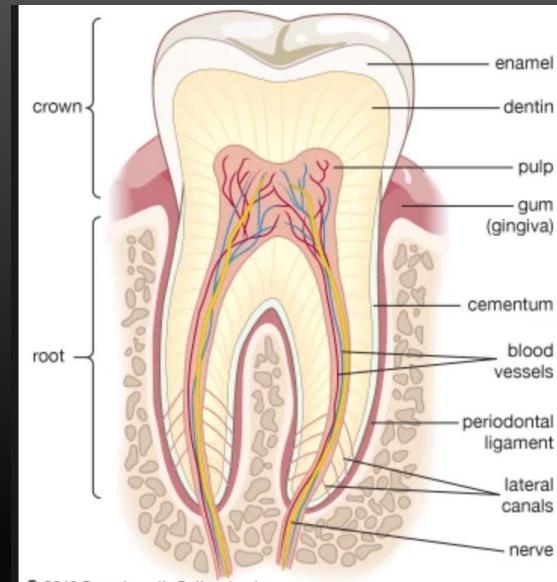
Teeth & Supporting Structures- common to both Maxilla & Mandible

TEETH:

Enamel

Dentin

Pulp Cavity

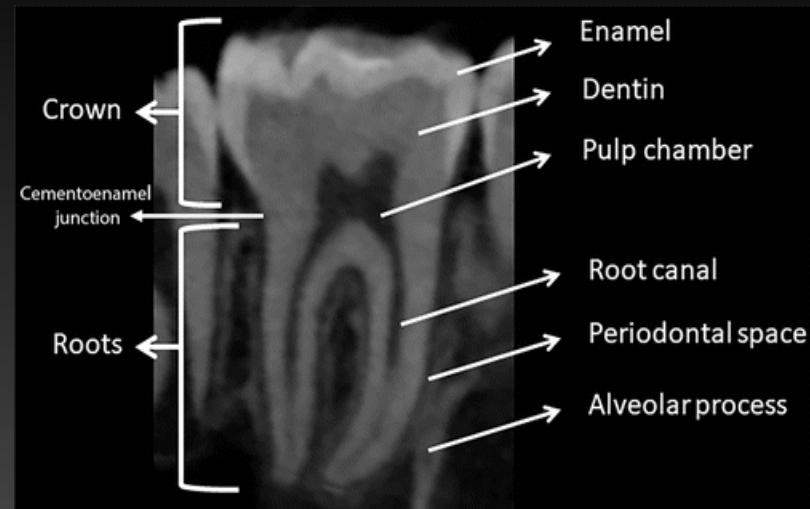


SUPPORTING STRUCTURES :

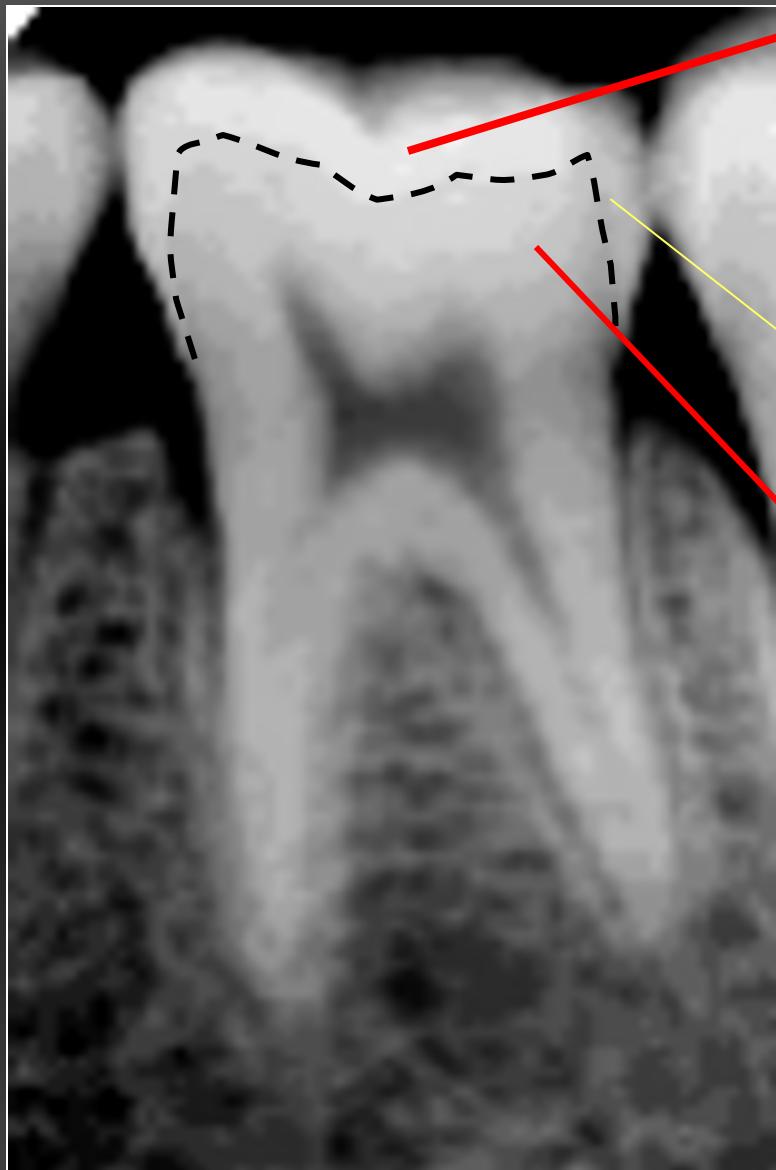
Alveolar process

Periodontal ligament space

CORTICAL BONE



RADIOGRAPHIC ANATOMY : TEETH & SUPPORTING STRUCTURES



Enamel Cap

Densest/hardest
structure -96% inorganic
material - causes >
attenuation of x-rays.

MORE RO

**Amelo-dental
Junction**

Dentin

65% inorganic
material, < RO than
Enamel.

Cementum-radiographically not apparent
- thin & contrast b/w cementum & dentin
is very low.

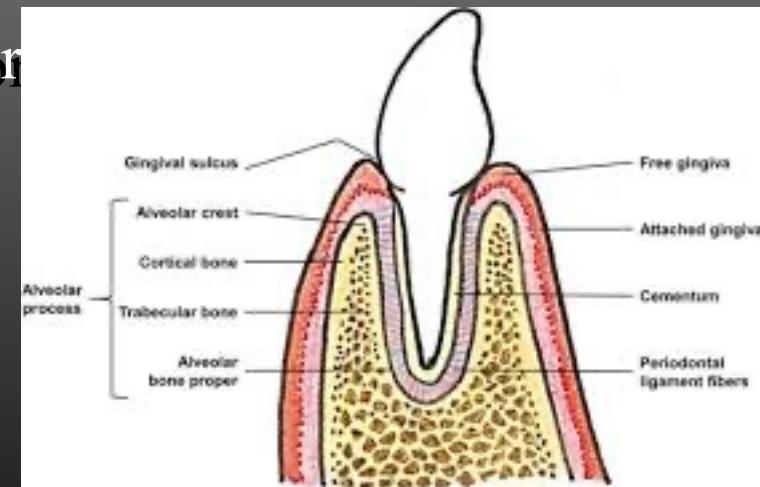


Pulp cavity -RL

Pulp Chamber

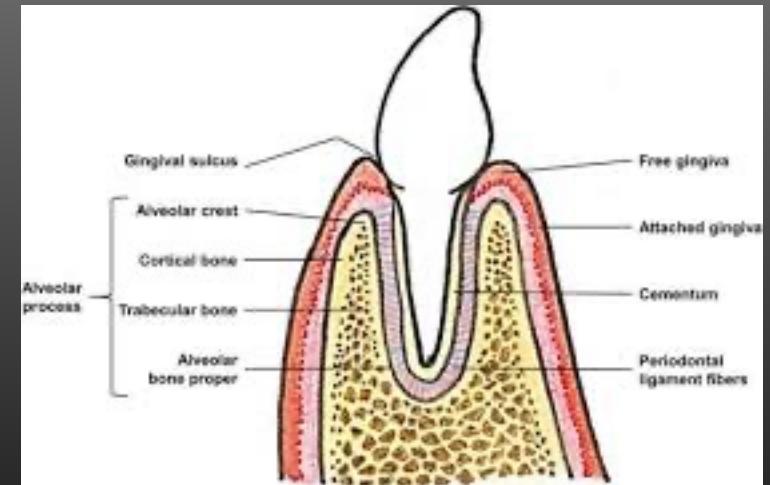
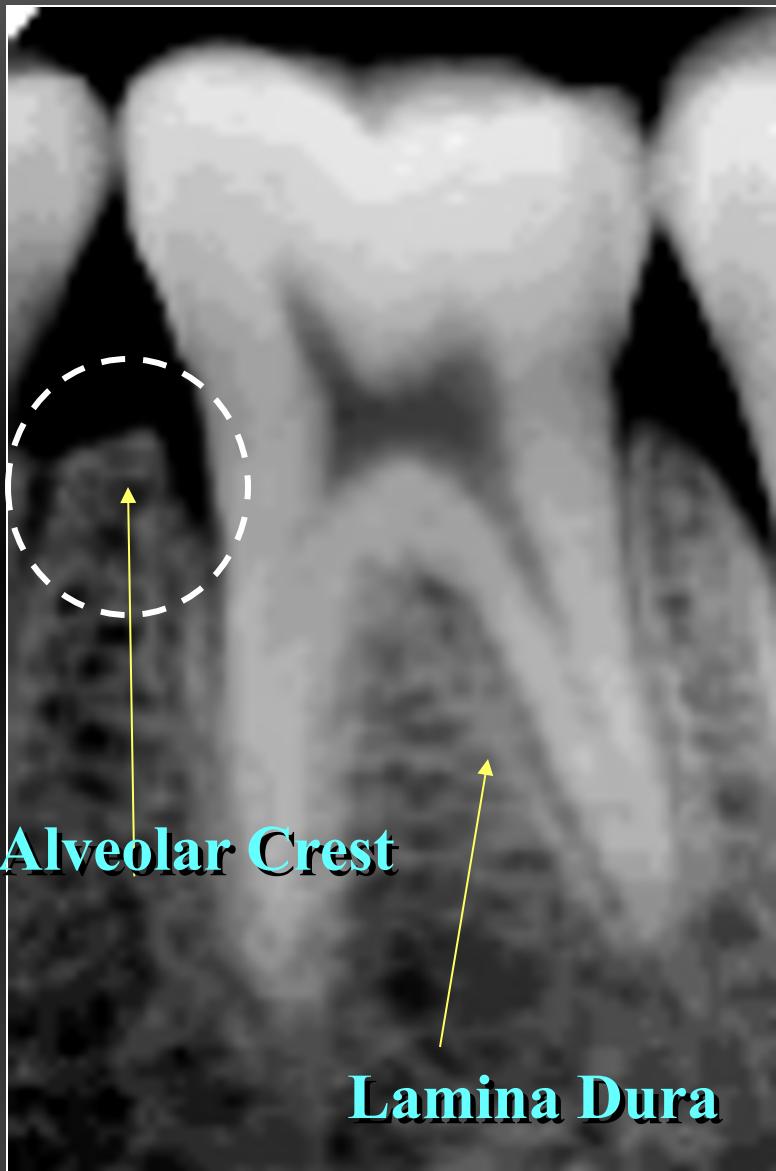
Pulp/root Canal

Alveolar process the part of the maxilla or mandible that forms and supports the sockets of the teeth.



- **Lamina Dura**
-(Alveolar bone proper)
- **Supporting Alveolar Bone**
↓
- CORTICAL PLATES
- SPONGY BONE

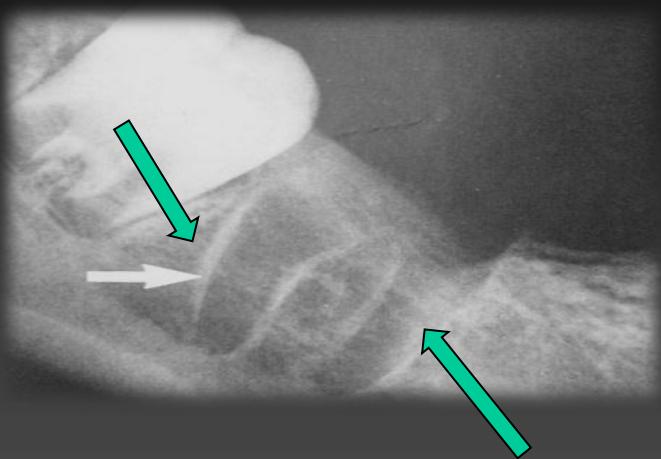
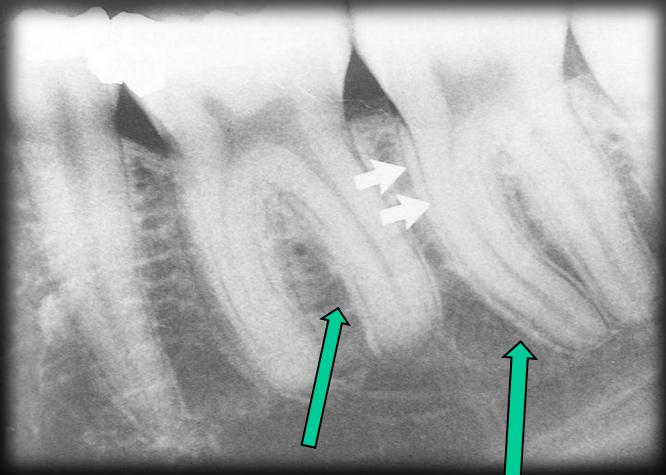
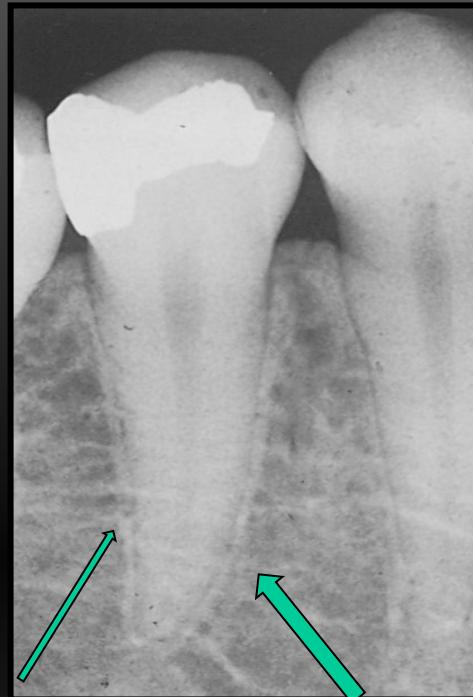
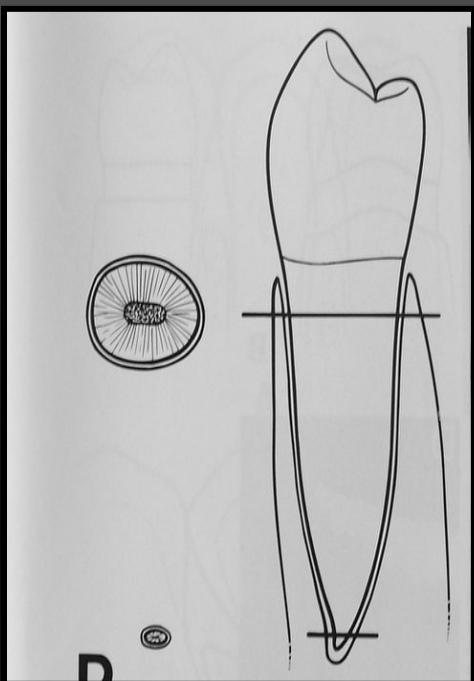
LAMINA DURA



-DENSE RADIOPAQUE

- a thin outer layer of dense cortical bone that lines the tooth socket and gives attachment to the principal fibers of the periodontal ligament.
- This layer is continuous with cortical bone of the alveolar crest.

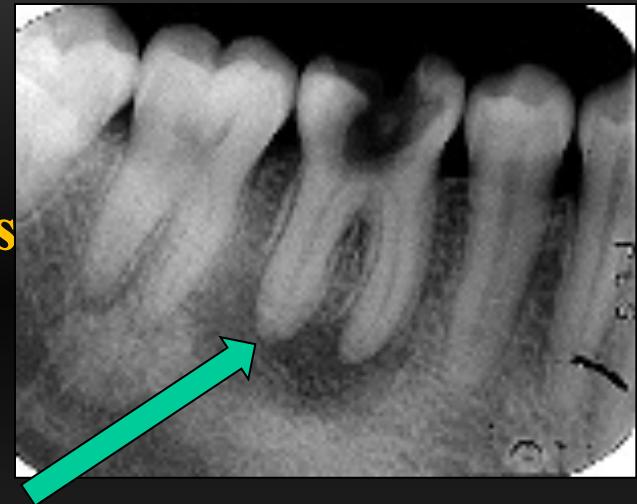
LAMINA DURA



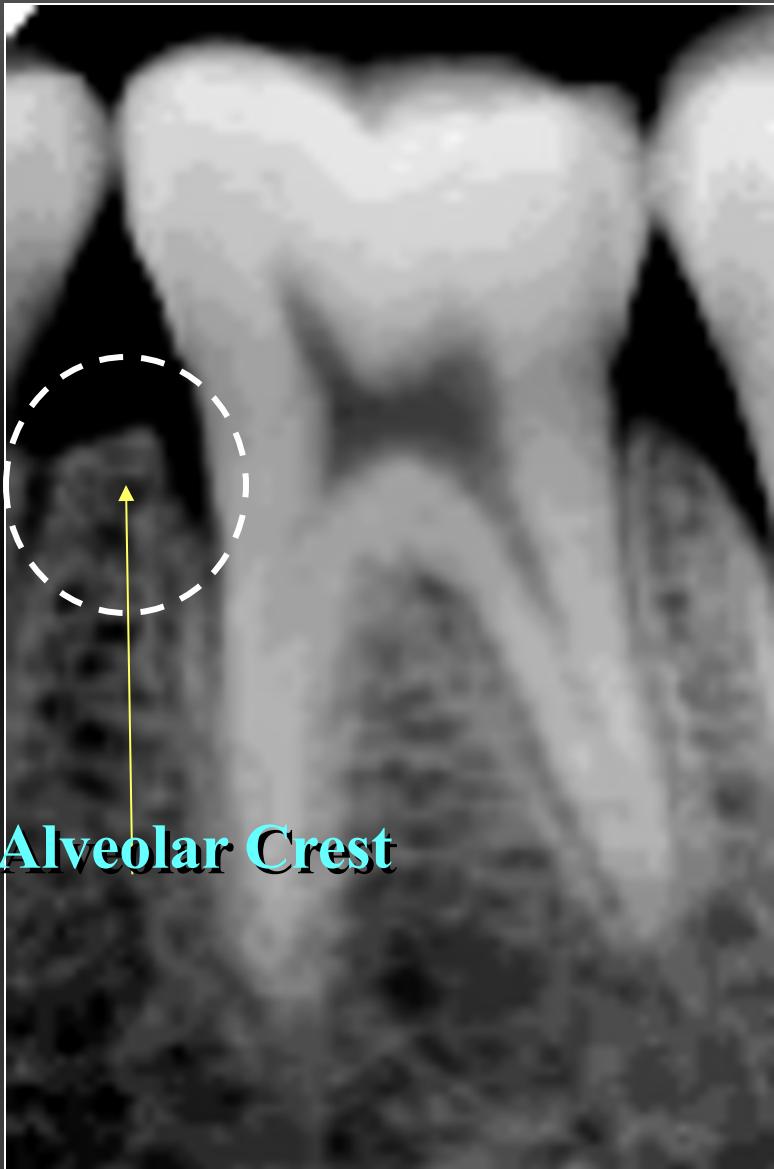
Importance of Lamina Dura

Presence of intact lamina dura
around an apex of tooth –**vital pulp.**

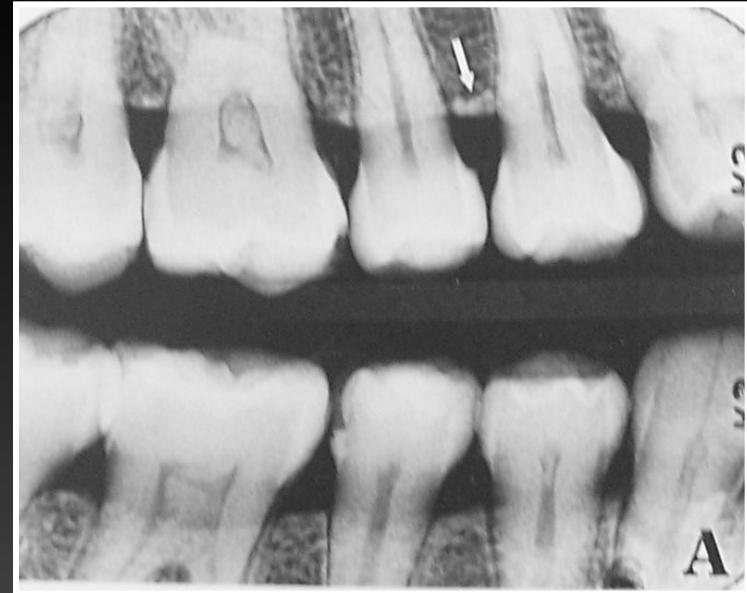
Loss of lamina dura- Periapical Abscess



Alveolar crest: The coronal margin of the alveolar bone processes found bw teeth are called alveolar crests.

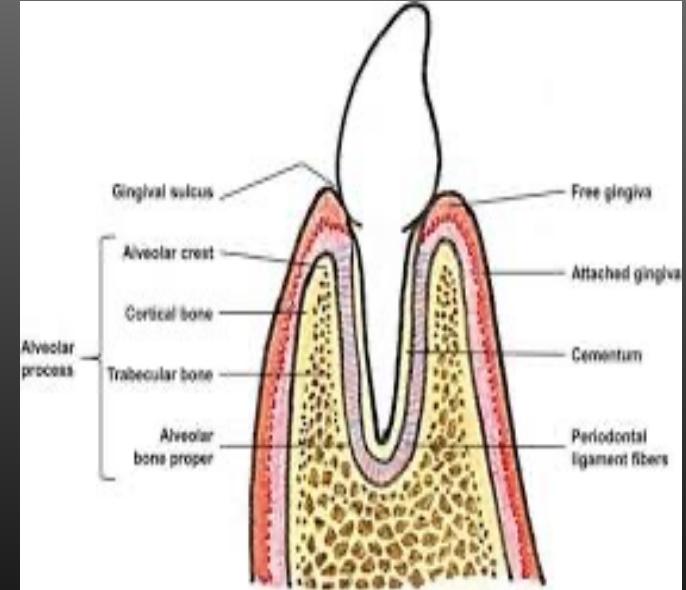


- Crest of bone is continuous with lamina dura & forms sharp angle.
- Rounding – PDL disease

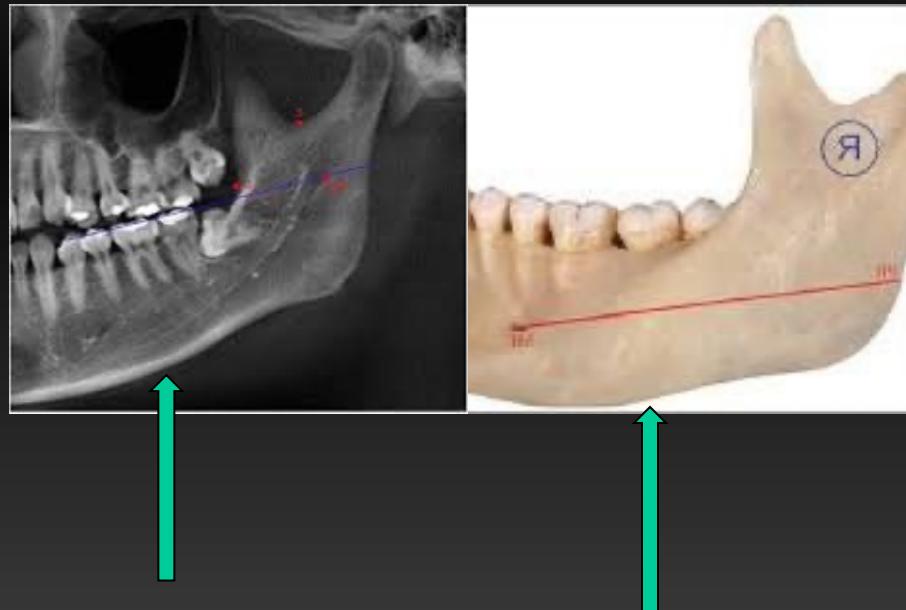


Cortical bone:

- consist of plates of compact bone found on the facial and lingual surfaces of the alveolar bone enclosing **spongy bone**.
- produce no images on the radiograph.

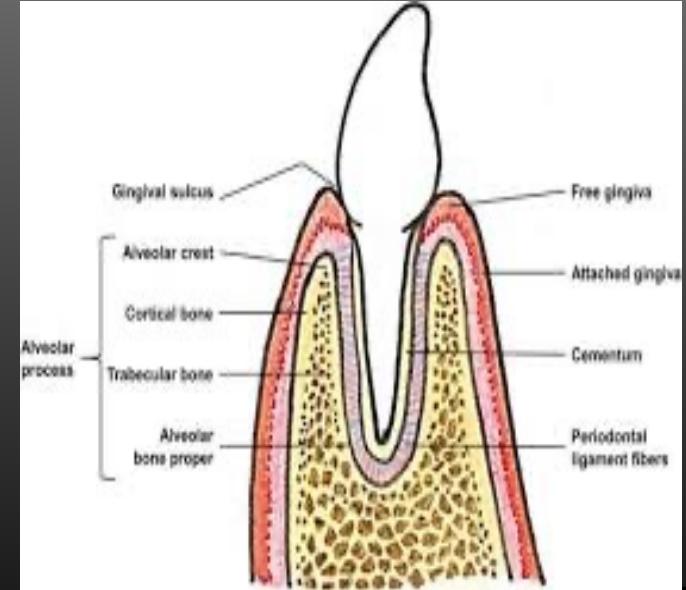


However is identifiable at: **as RO**
Inferior border of mandible
Alveolar crest b/w teeth
Cortical borders of hard palate, sinus.



Cancellous bone/spongy bone:

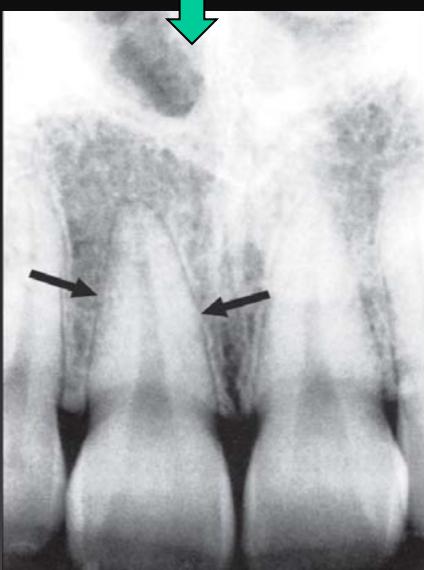
- bw two layers of dense cortical bone.
- Made of thin strands of bone called **trabeculae** , appear RADIOPAQUE
- Between the trabeculae are the **medullary spaces**, appear RADIOLUCENT.



Maxilla -

Anteriorly- thin & numerous trabecular - small & numerous marrow spaces.

Posteriorly- large marrow spaces.



Mandible:-

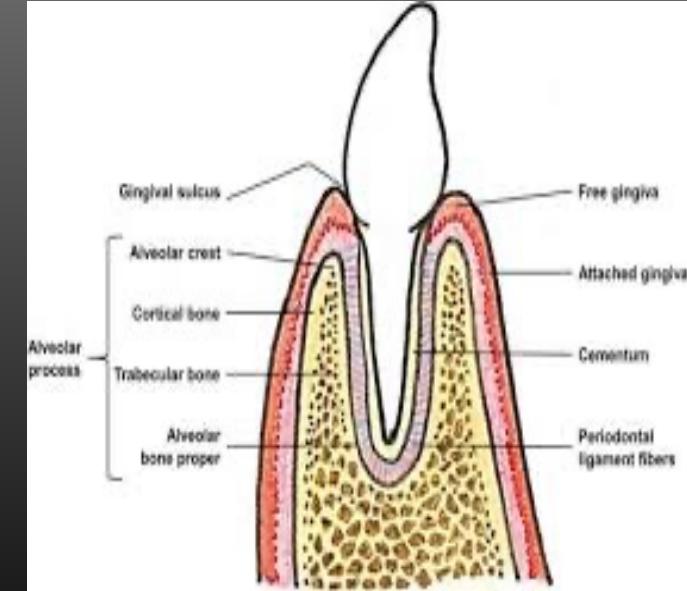
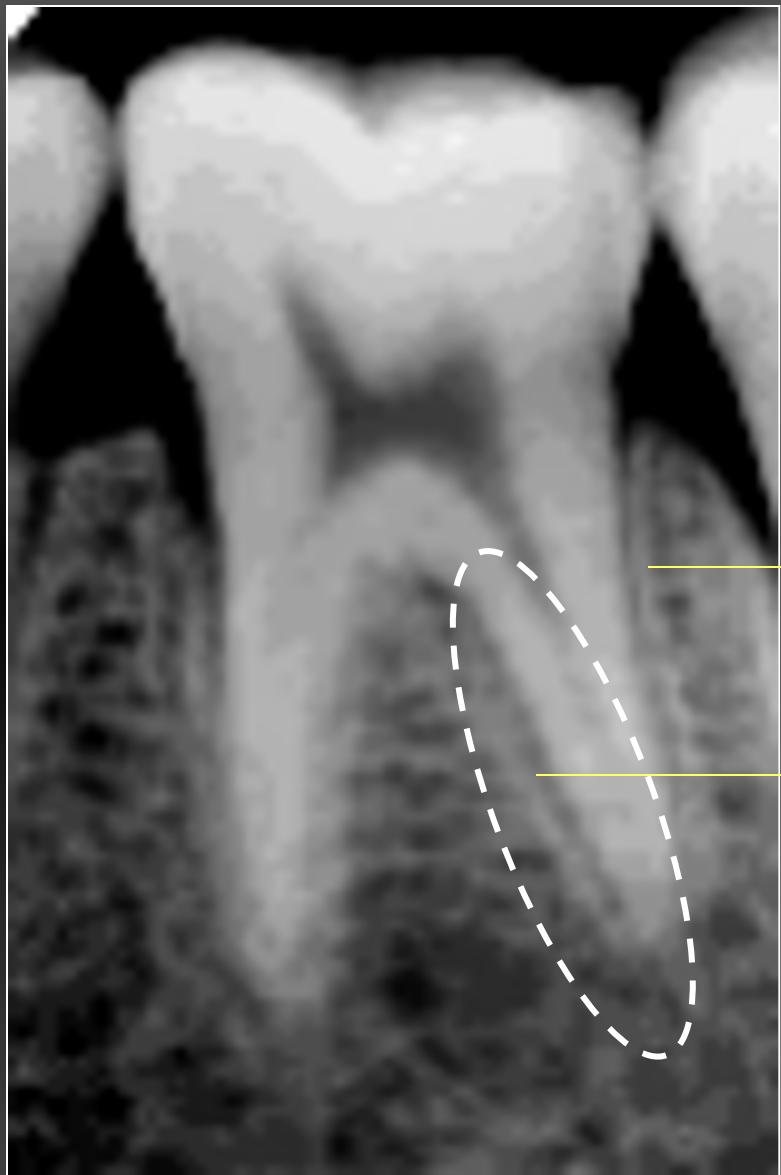
Anteriorly-thicker, fewer ,larger marrow spaces - horizontal pattern.

•Posteriorly- shows stepladder pattern.



B

Periodontal Ligament Space- RL



→ **Lamina Dura**

→ **Periodontal
Ligament Space**

Widest at:- coronally , slightly narrow
—apex.

- ✖ A loss of the PMS - Ankylosis

Reference:

- Oral radiology- Principle and Interpretation by White & Pharoah; 7th edn
- Diagnostic imaging of the jaws by Langlais & Langland; 2nd edn



Identify and label



Periodontal ligament space appears radioopaque:
True or false

The lamina dura noted on radiographs corresponds to which of the following structures?

Basal bone of the jaw

Buccal and lingual cortical plates of the jaws

Supporting cancellous bone between the teeth

Outer layer of dense cortical bone

Which term is used to describes a structure that allows X-rays to pass through?

Radiolucent

Radiopaque

Dense

Transparent

How does the trabecular bone pattern in the mandible typically appear on a radiograph?

Radiolucent

Radiopaque

Both radiolucent and radiopaque

Neither radiolucent nor radiopaque