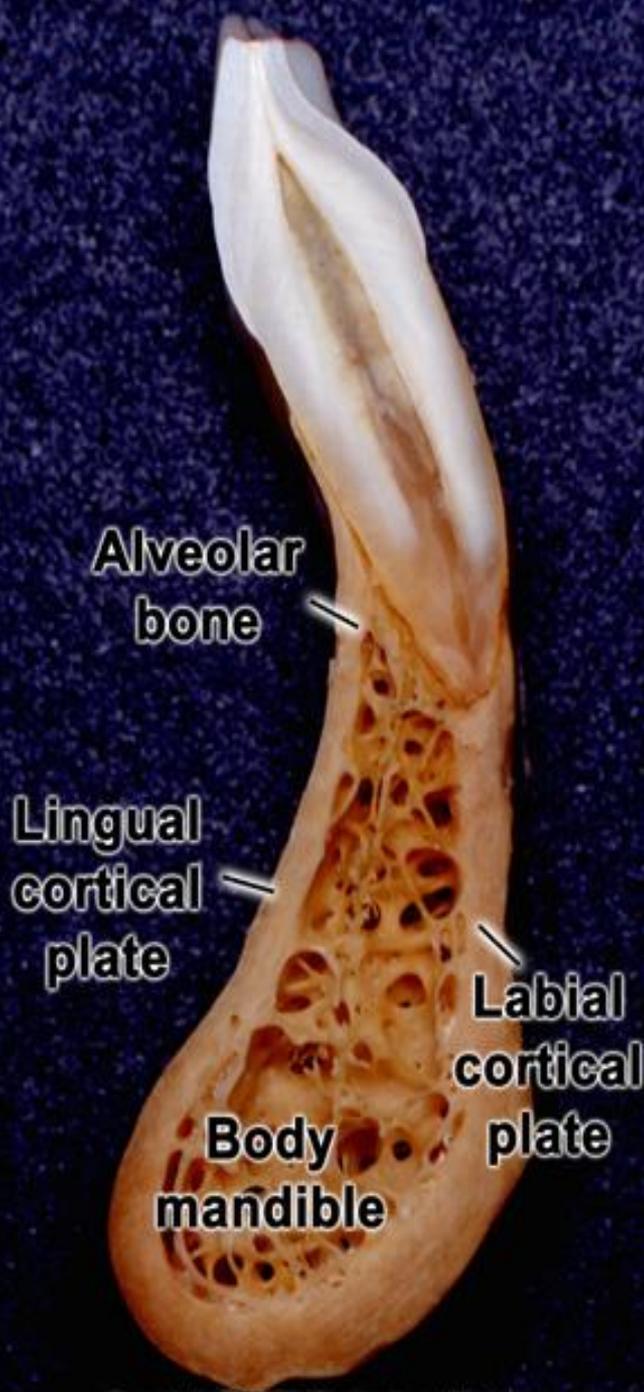


بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Bone &

ALVEOLAR PROCESS

(part 2)

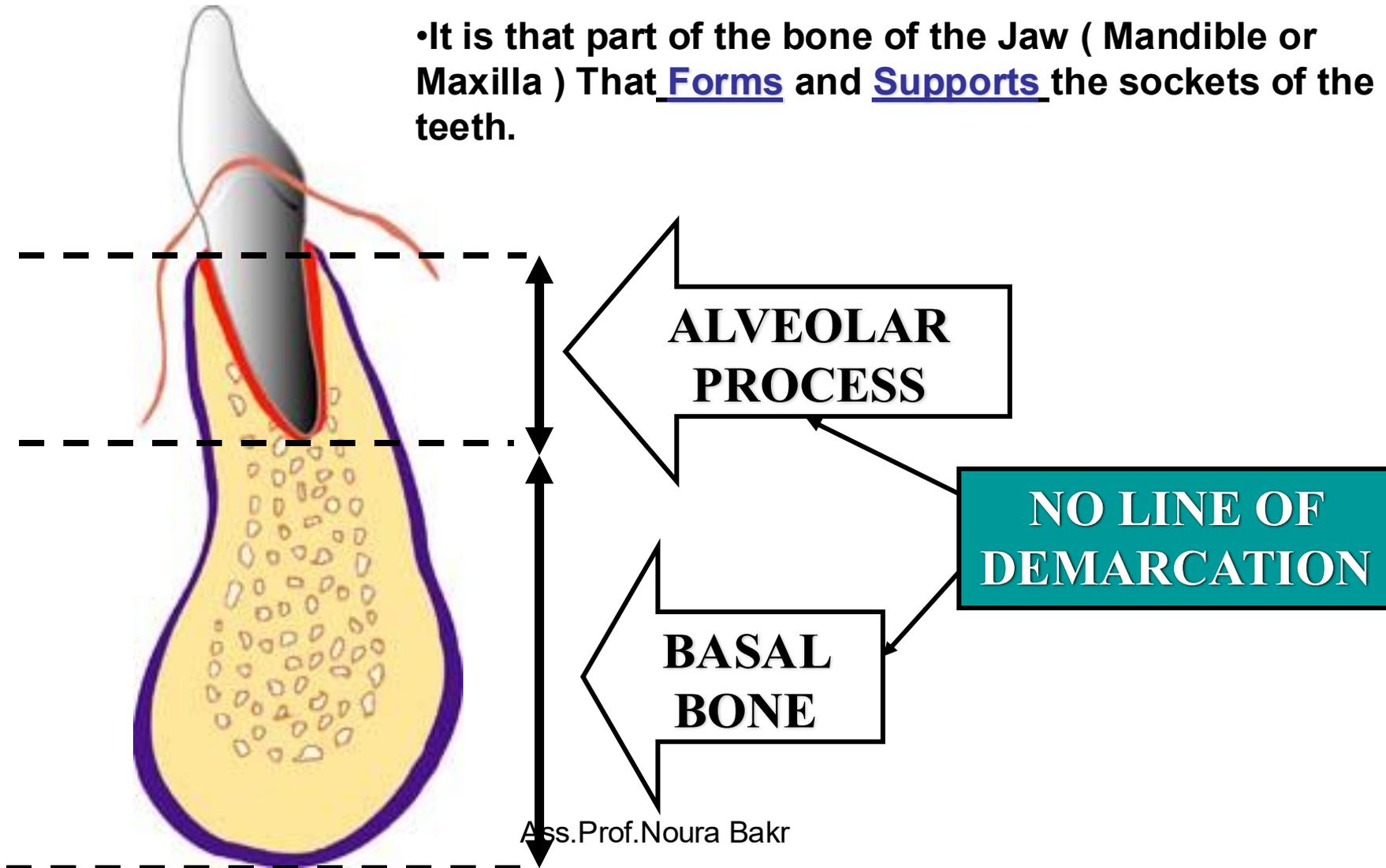


Basic items

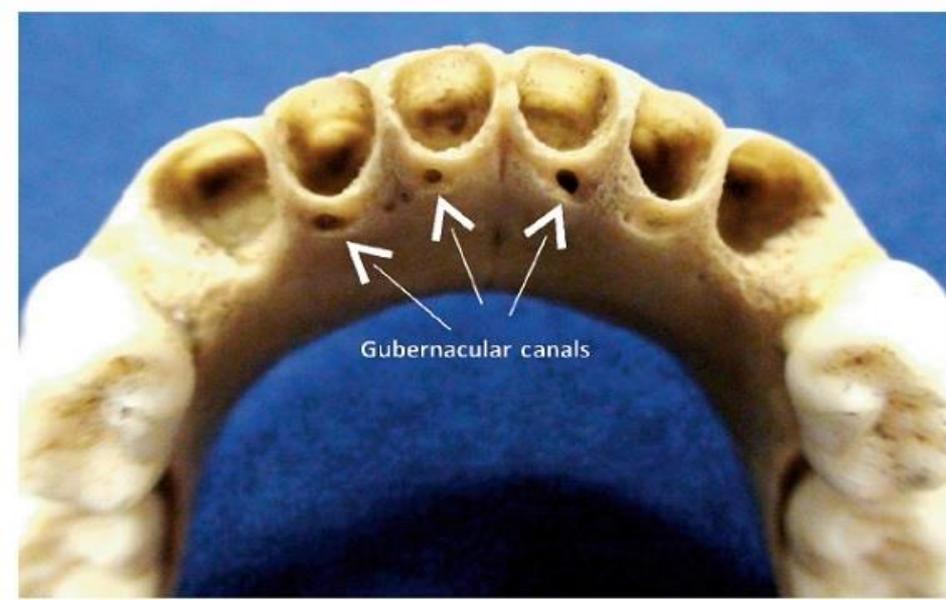
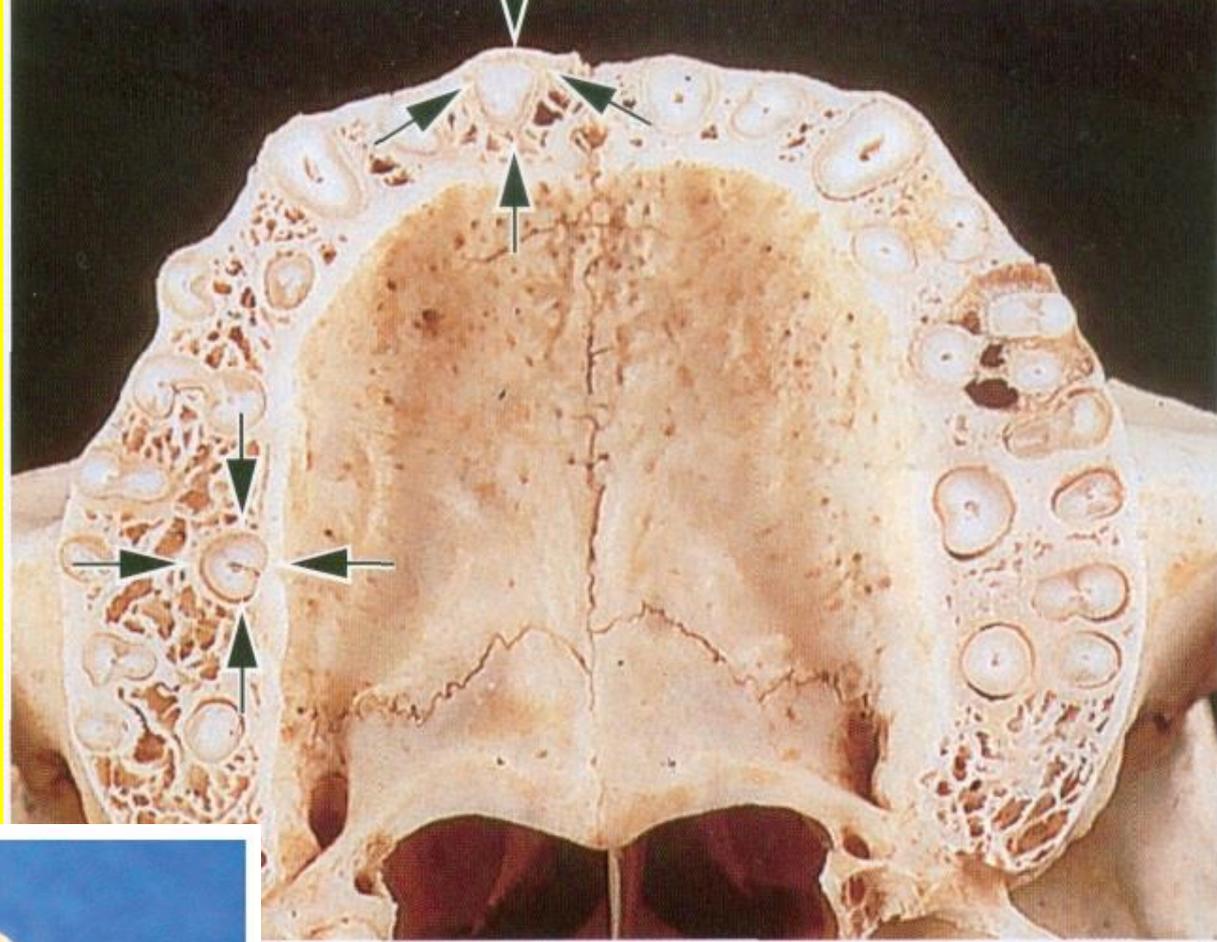
- *Bone structure & cells*
- *Bone types & histologic structure for each types*
- *Incremental lines of bone & its indication*
- *Alveolar bone process micro and macro structure*
- *Bundle bone & clinical , histological, functional and radiographical name*
- *Cortical plate and its clinical significance*
- *Central spongiosa, histological & radiographic*

ALVEOLAR PROCESS

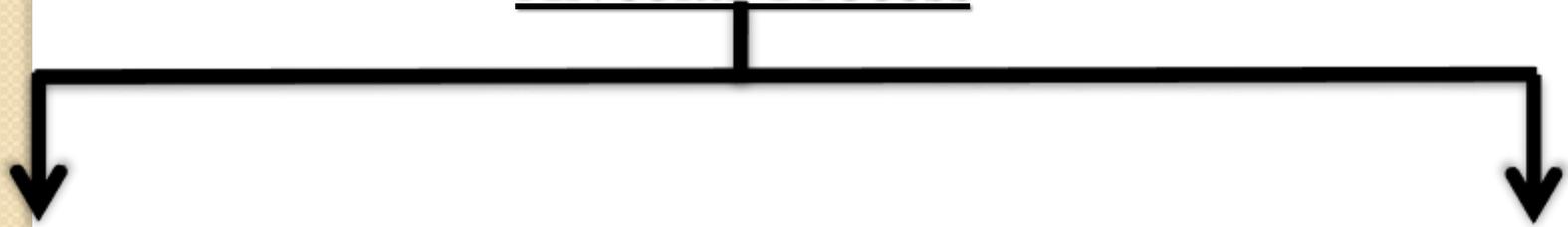
•It is that part of the bone of the Jaw (Mandible or Maxilla) That Forms and Supports the sockets of the teeth.



- Morphology determined by **size, shape, function and location** of teeth



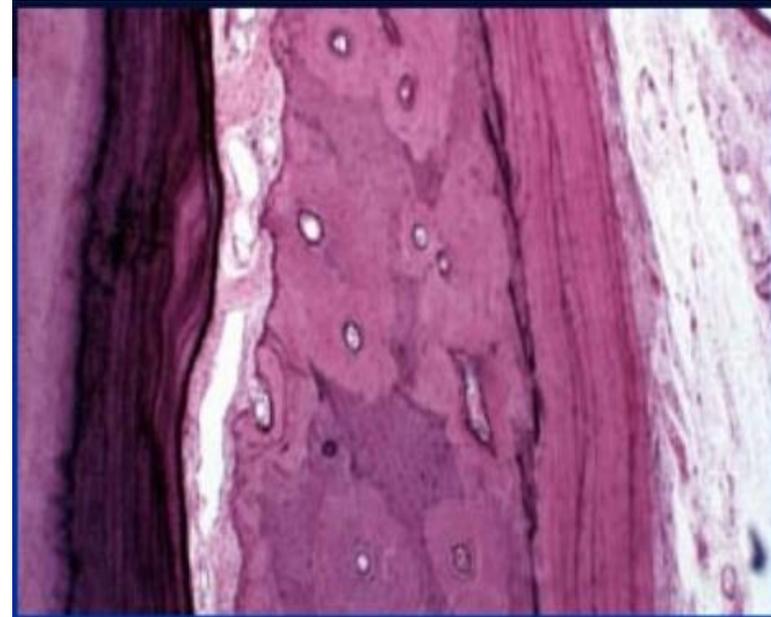
Alveolar Process



Macro-anatomy

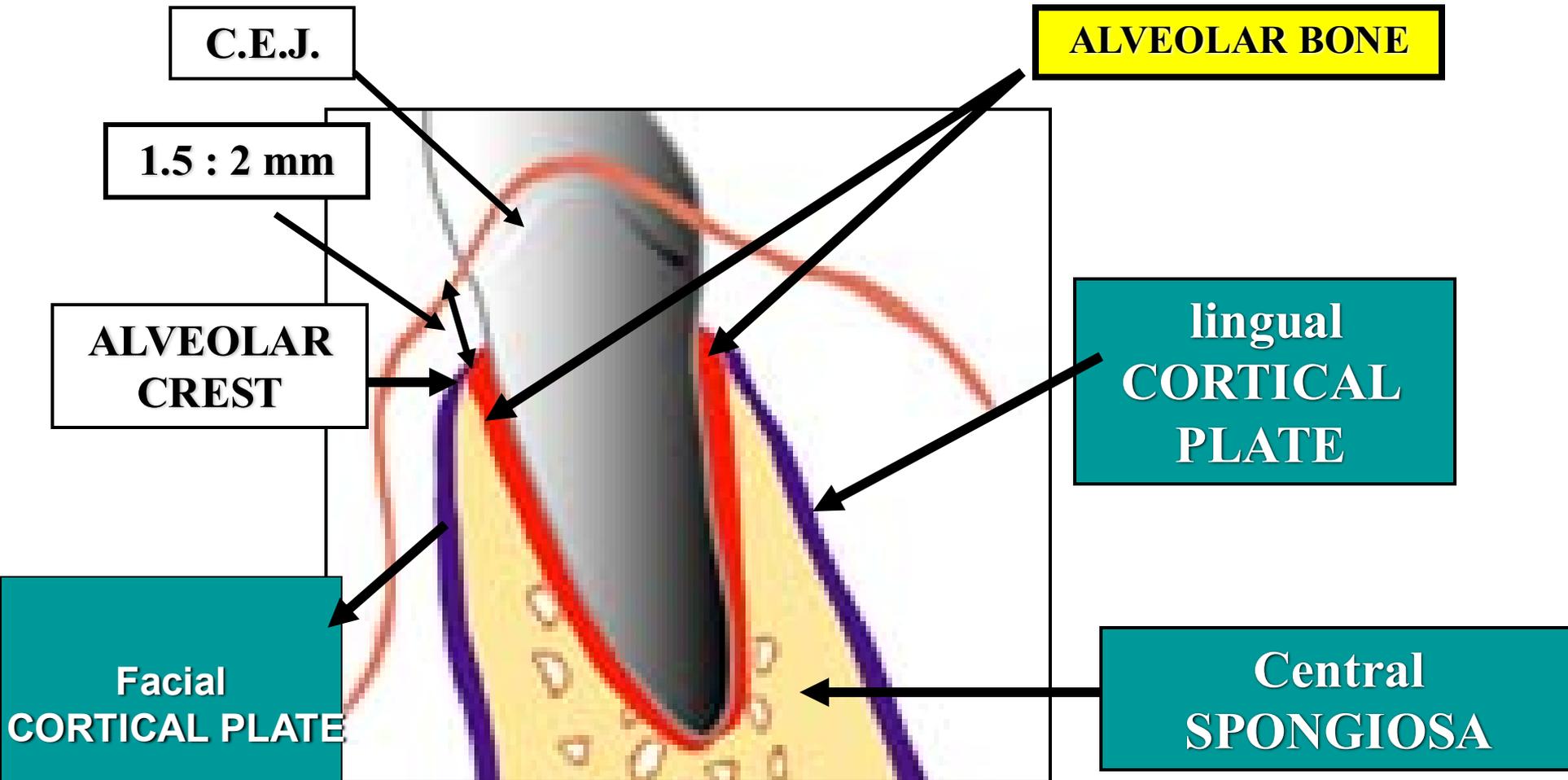


Micro-anatomy



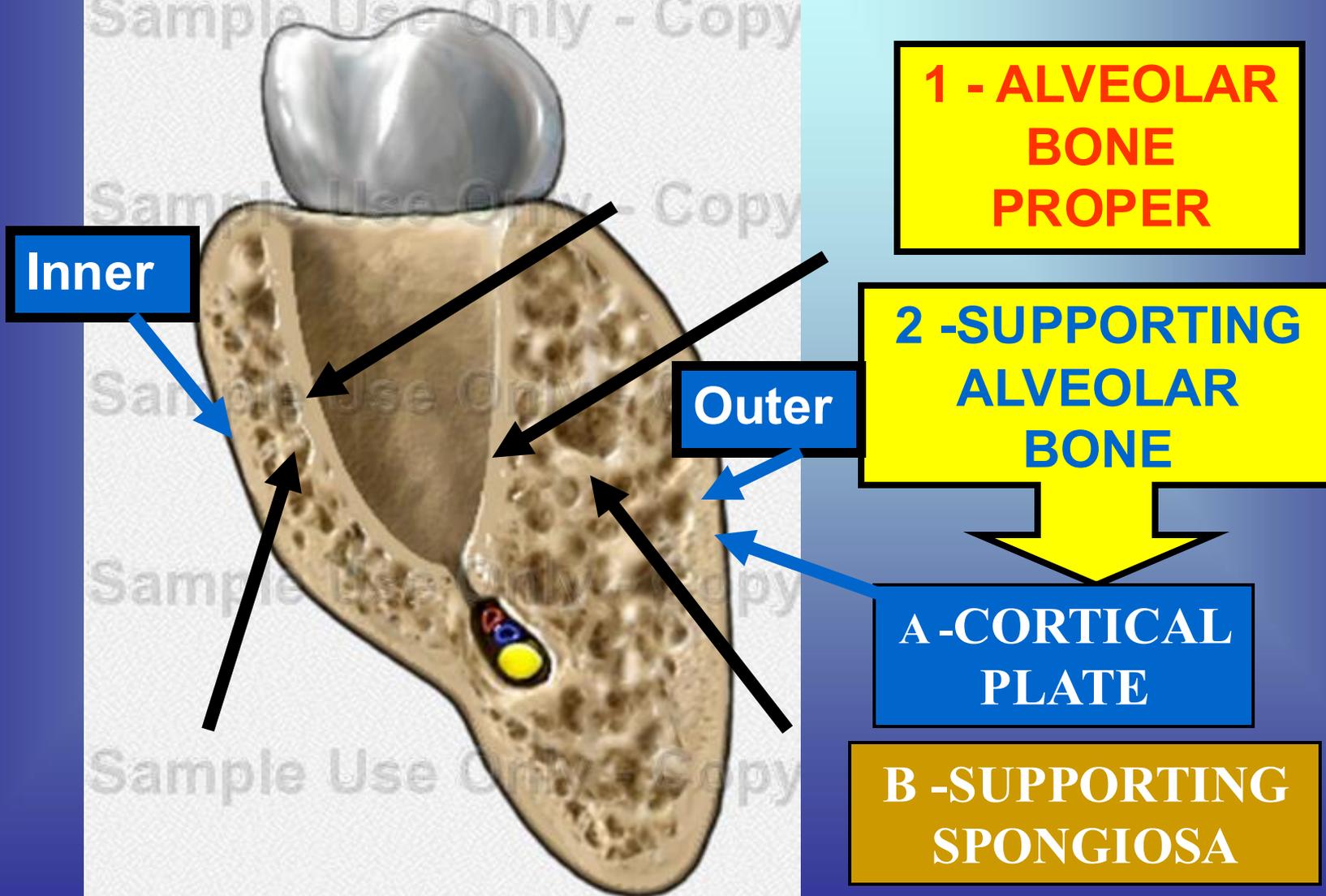
MACRO-ANATOMY

ACCORDING TO FUNCTION



Macro-anatomy

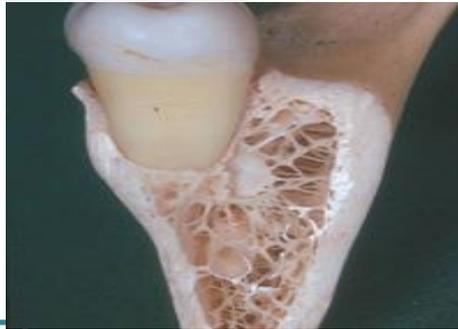
According To Function



Alveolar process

Alveolar bone proper

Supporting alveolar bone



Bundle bone

Lamellar bone

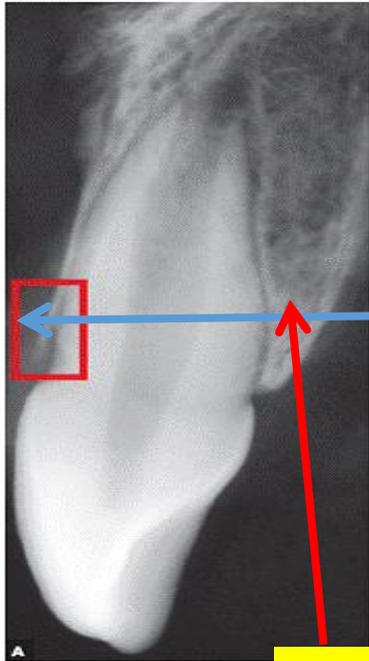
Spongiosa (spongy bone)

Cortical plates (outer&inner)

Recently the components of alveolar process described as follow:

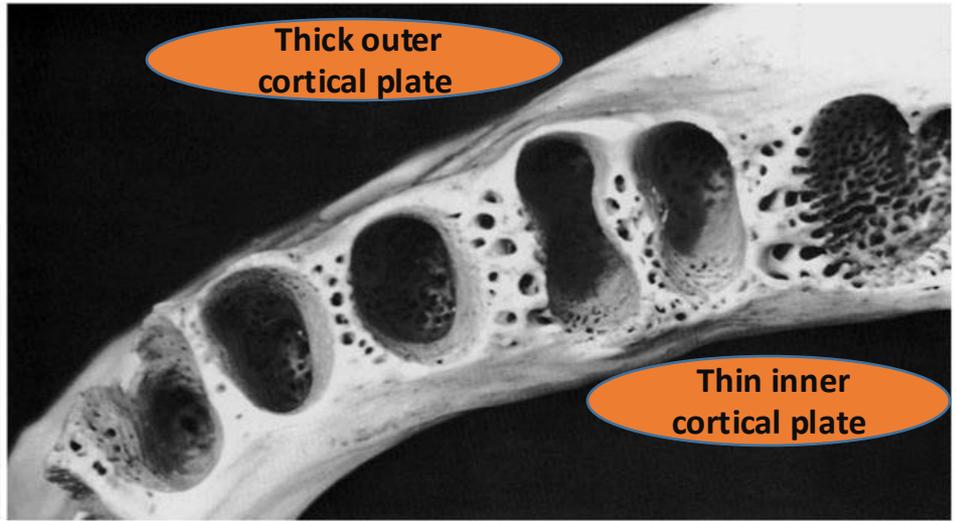
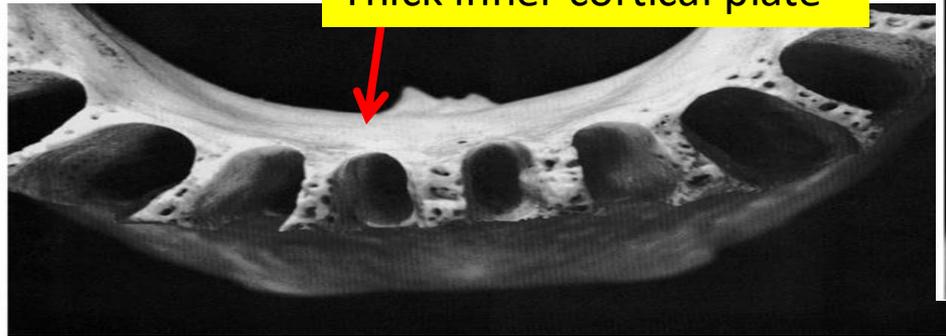
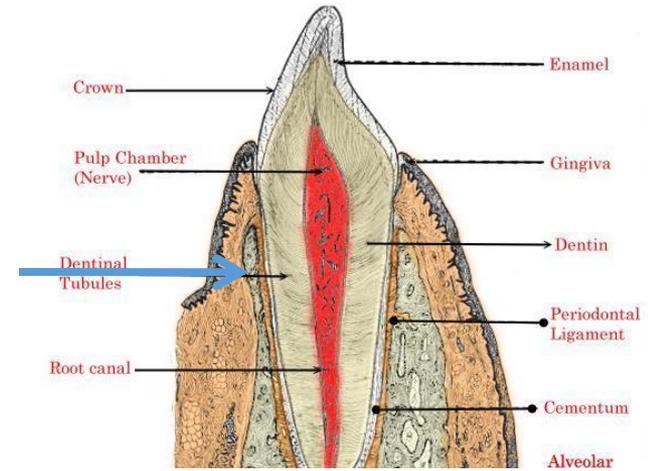
- Facial and lingual cortical plates.
- A central Spongiosa.
- From inner side facing periodontal ligament, the alveolar bone
- The alveolar bone and the cortical plates merge at the alveolar process crest (usually 1.5 to 2mm below the level of the cemento-enamel junction).

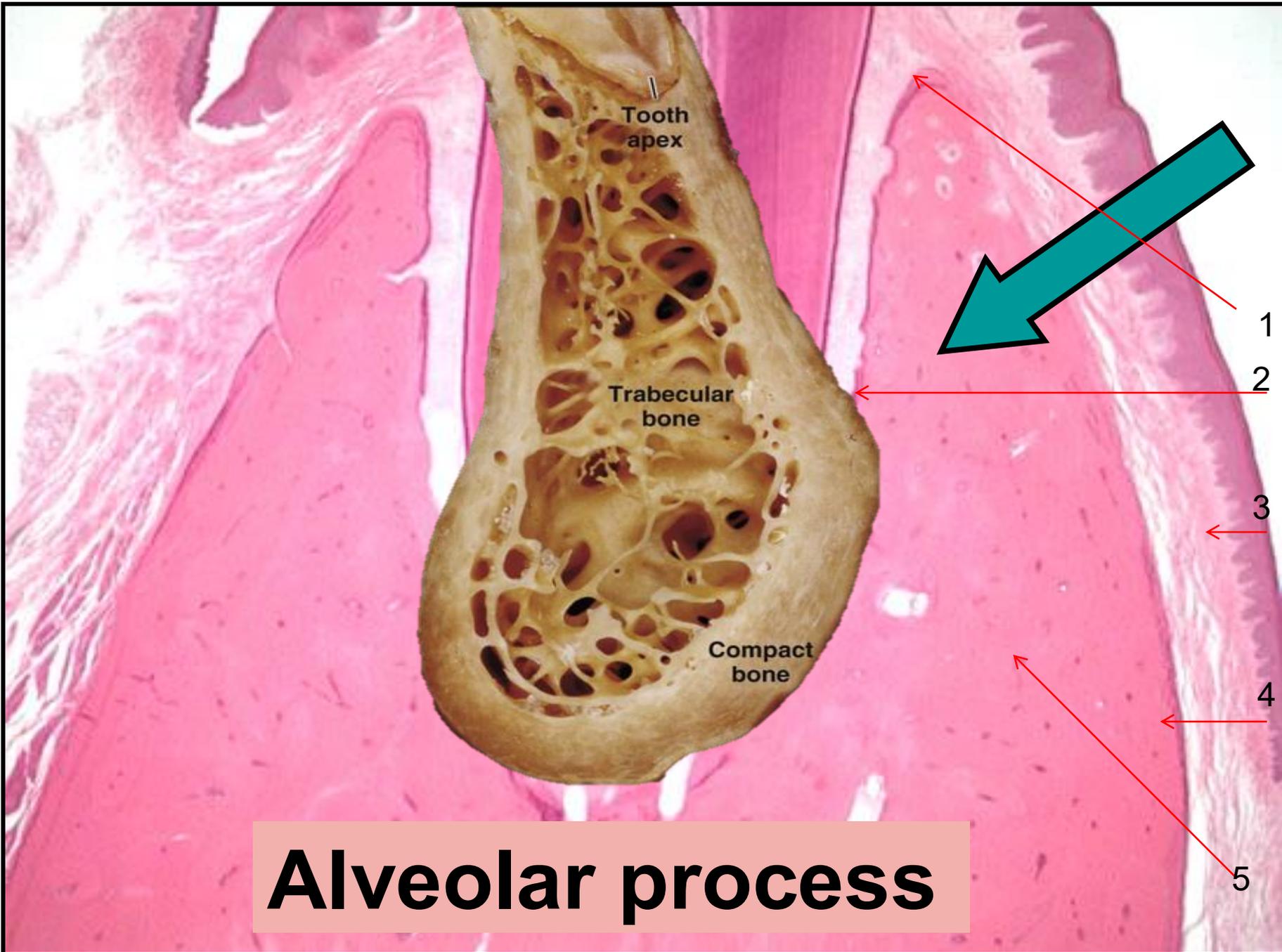
Cortical Plate



Thin outer cortical plate

Thick inner cortical plate

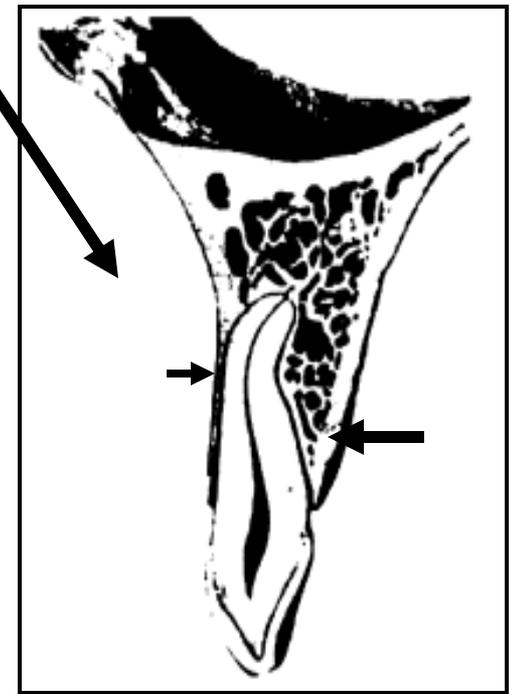
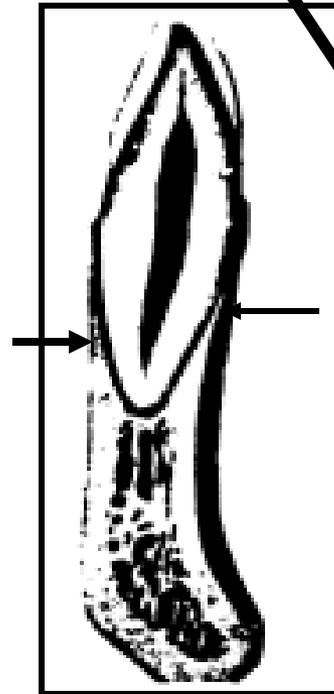
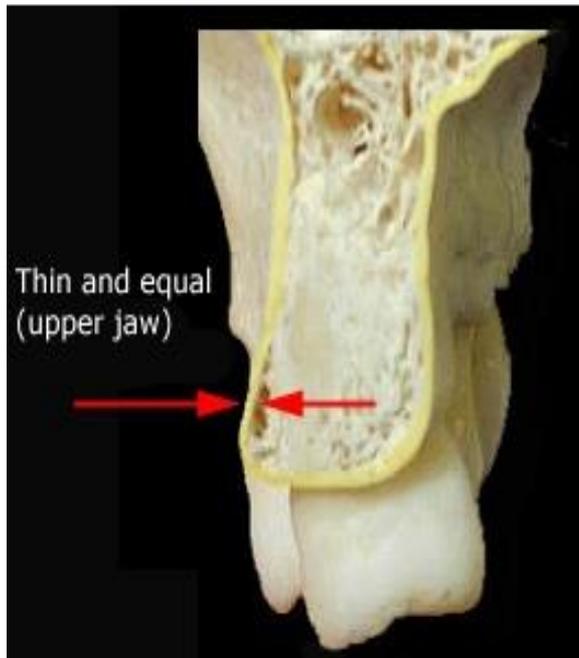




Alveolar process

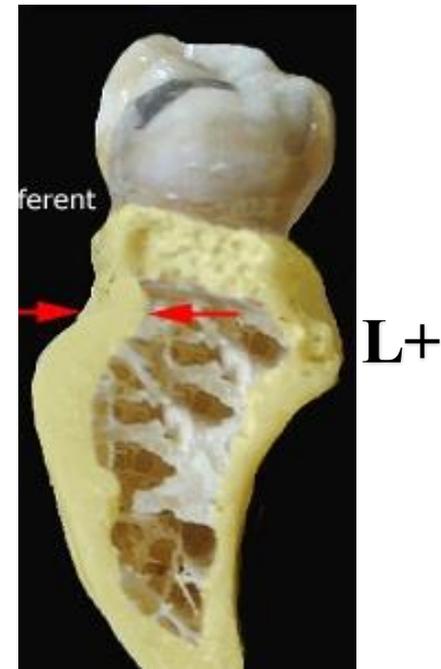
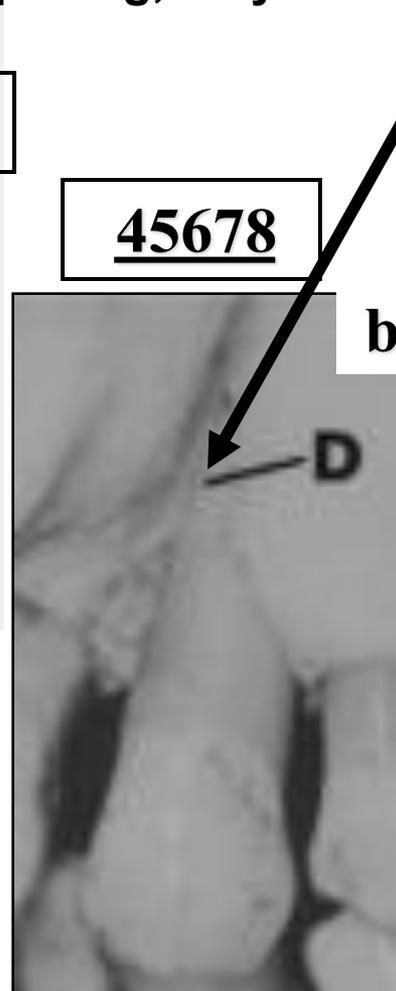
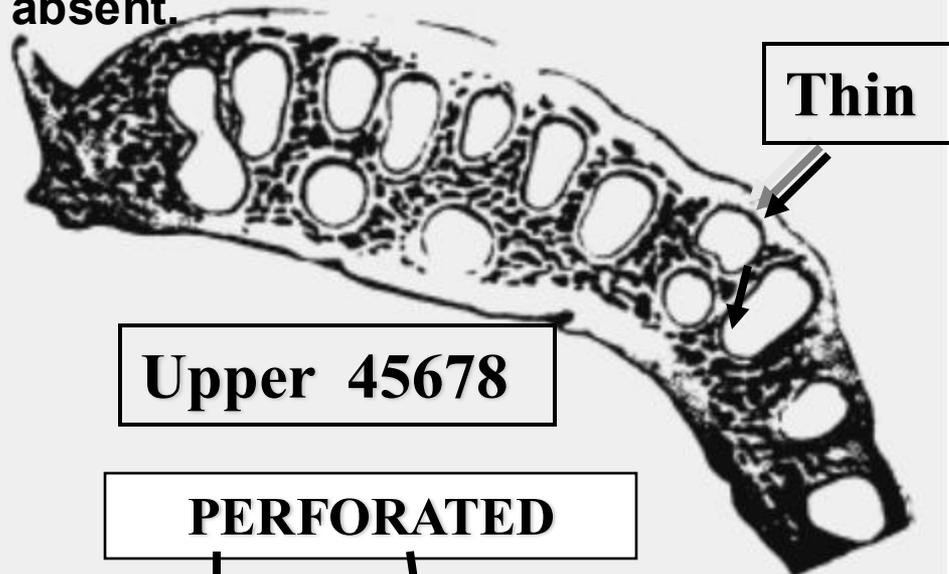
CORTICAL PLATE

- All upper and lower anterior teeth, their CP.(outer, inner).....Thin+ No central spongiosa (near the crest)+ Outer is thinner esp. in maxilla.



CORTICAL PLATE

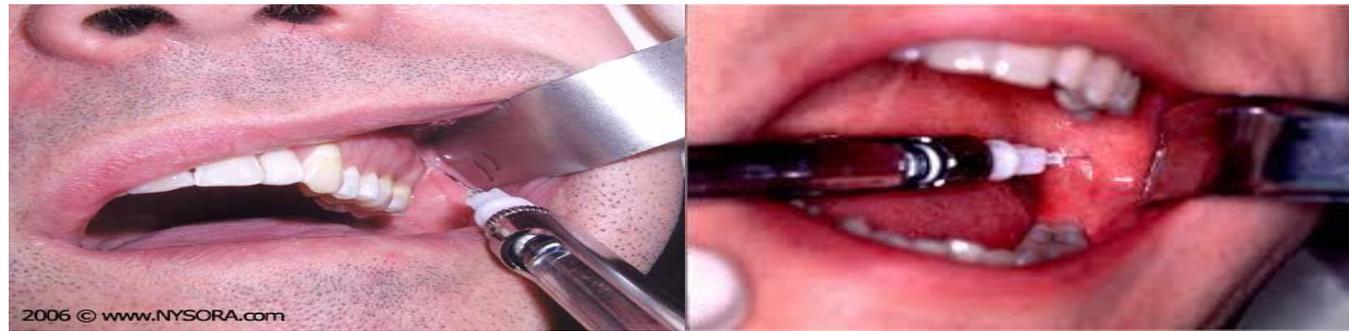
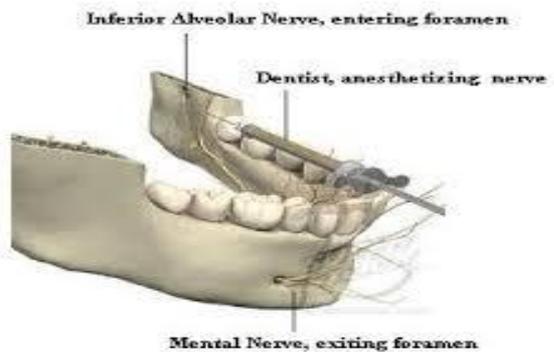
In premolars and molars region(Buccal CP)....*Mandible.....Thick+ dense
*Maxilla.....Thin, Perforated by many opening, may be completely absent.



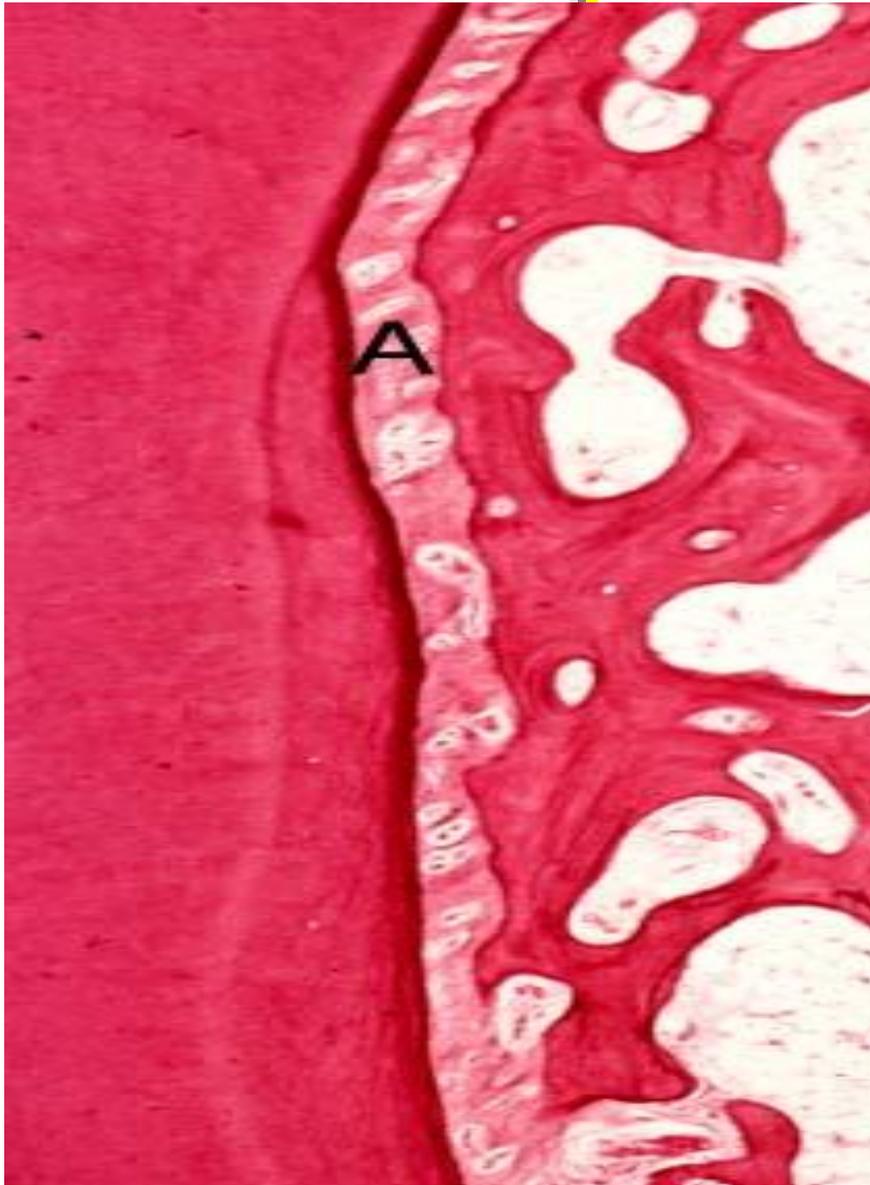
Lower 45678

Clinical consideration for the different outer cortical plate thickness:

- Outer cortical plate of maxilla is thinner than the mandible which allows direct insertion of the anesthesia beside the target tooth.
- In mandible due to thick cortical plate ,the mandibular nerve is anaesthetized on its entrance to the mandibular foramen. so half the mandible is anaesthetized with the soft tissue .



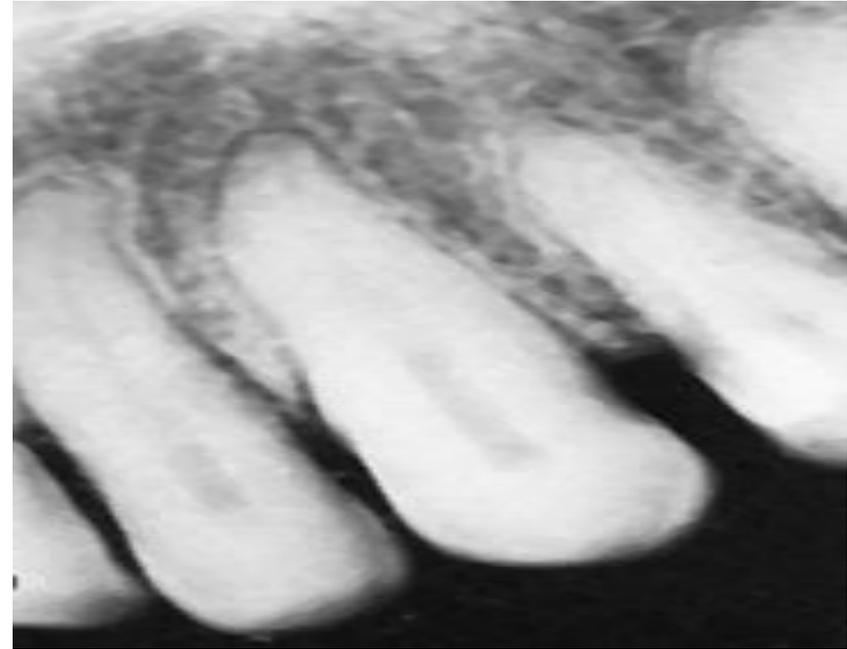
Central spongiosa (trabecular bone)



a

Radiographic picture of spongiosa in alveolar process

There are two main patterns seen in radiographs which are either:



- **Thick** bone trabeculae arranged in a **ladder** like.
(**Type 1**)

- **Thin** numerous bone trabeculae arranged in an **irregular** manner. (**Type 2**)

A



B



ALVEOLAR BONE

**ALVEOLAR
BONE**

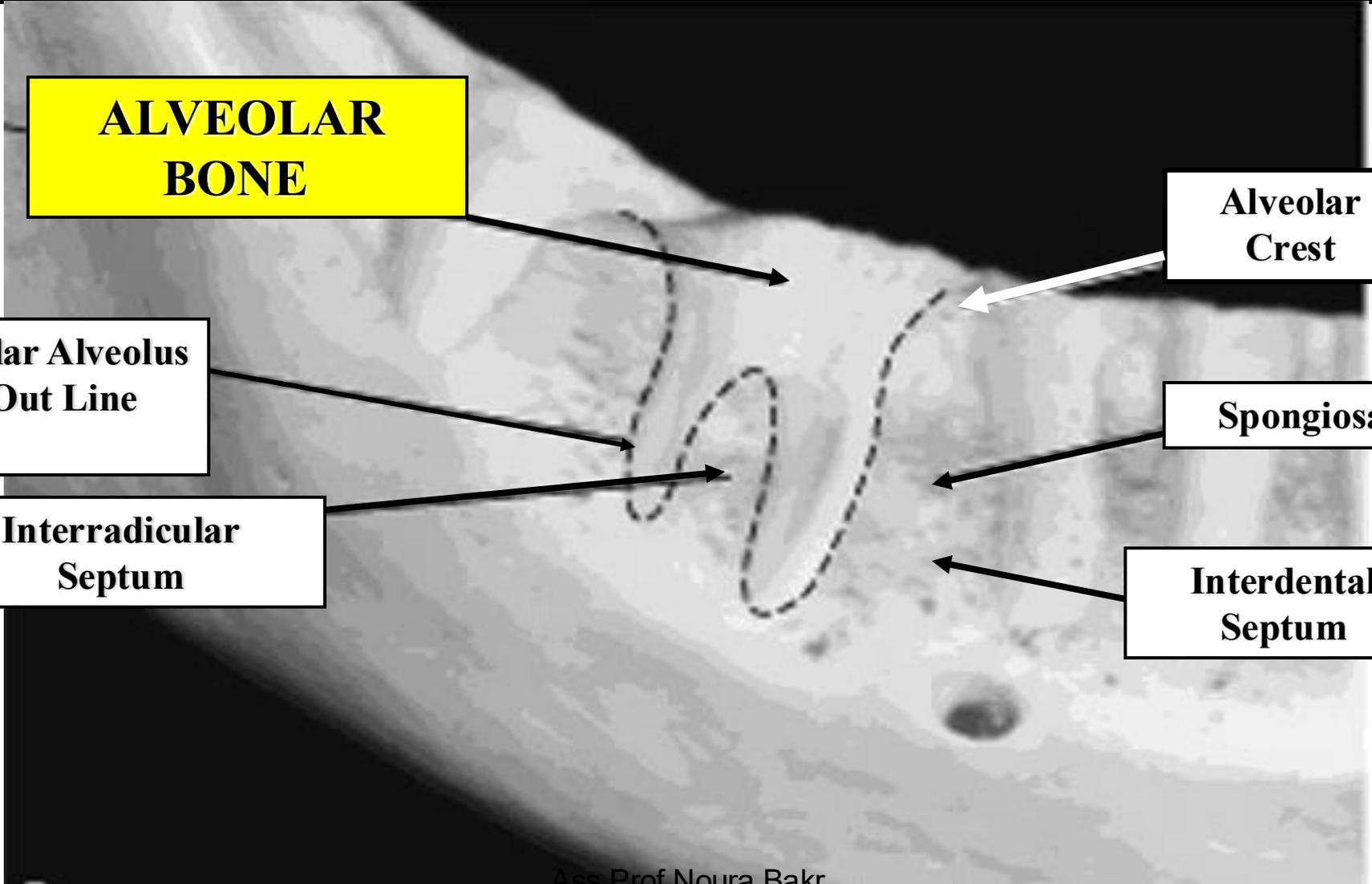
**Alveolar
Crest**

Spongiosa

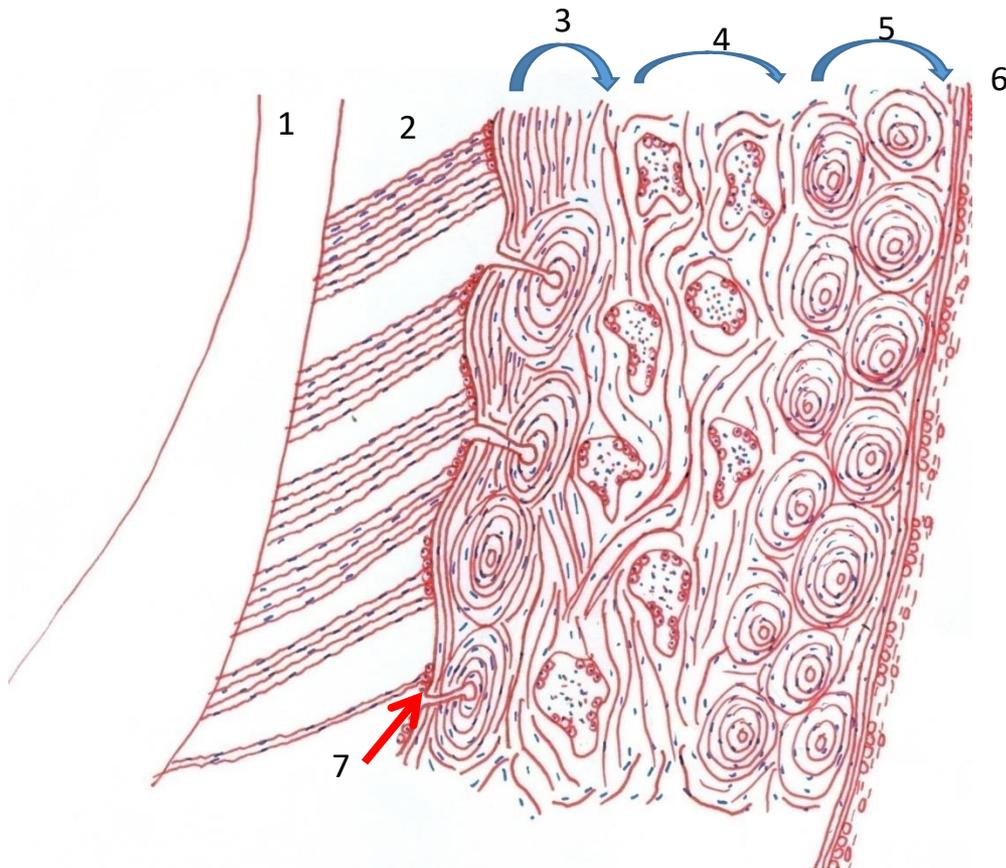
**Interdental
Septum**

**Molar Alveolus
Out Line**

**Interradicular
Septum**

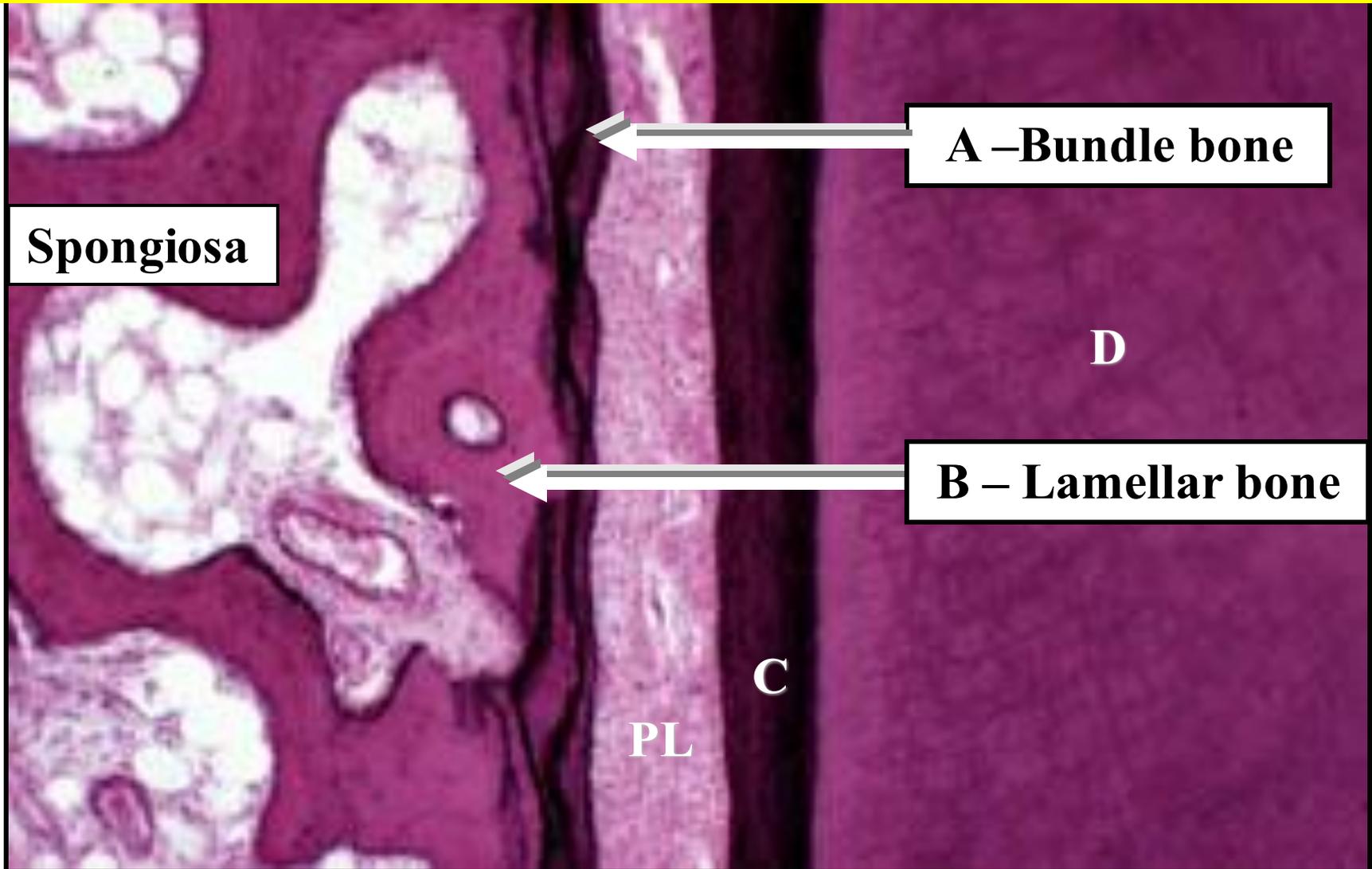


Micro-anatomy of Alveolar Process

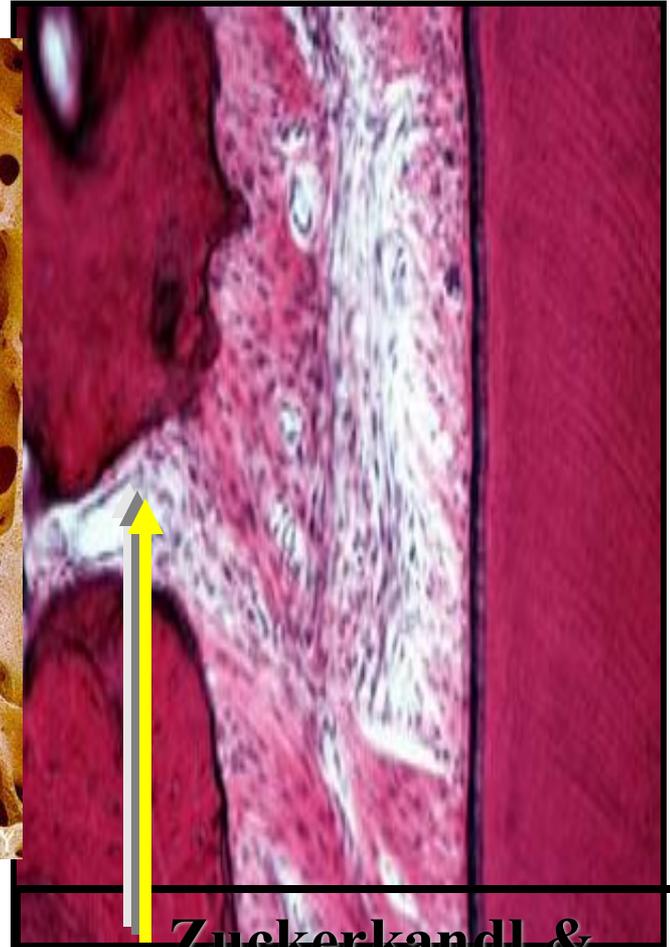
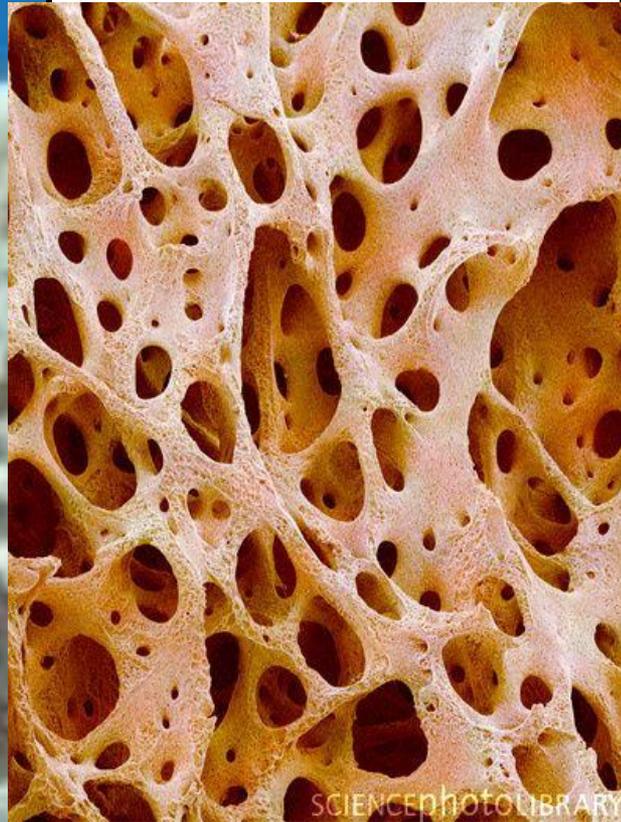
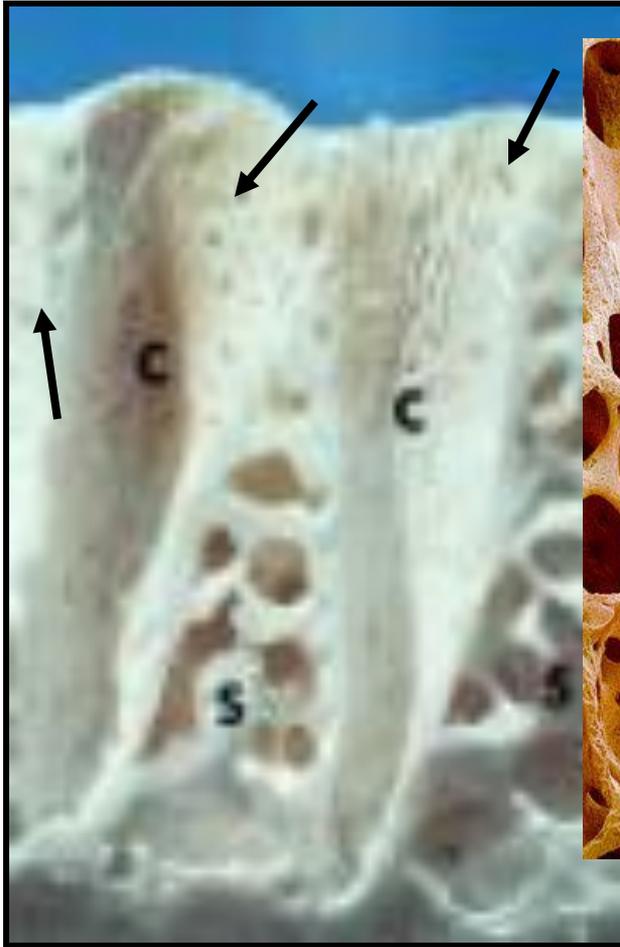


1. Cementum
2. PDL
3. Alveolar bone proper
 - a) Bundle bone
 - b) Lamellar bone
4. Spongiosa
5. Cortical plate
 - c) Haversian system
 - d) Longitudinal lamellae
6. Periosteum
7. Nutrient canal

Histologically ALVEOLAR BONE



Alveolar Bone (Cribriform plate)



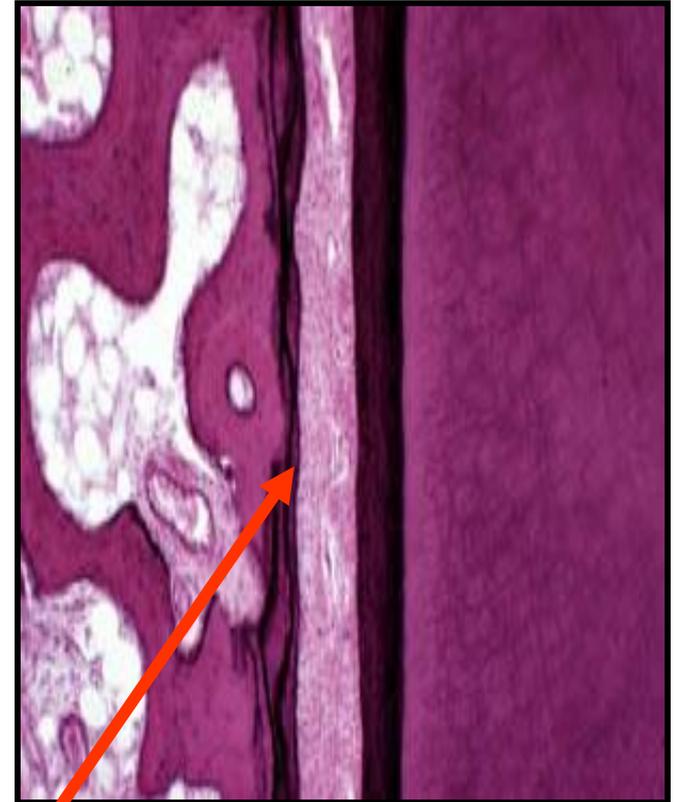
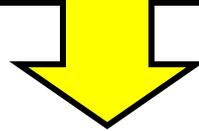
Cribriform plate

**Zuckerkanal &
Hirschfeld canals**

Alveolar Bone



**Is Also
Called**



LAMINA DURA

alveolar bone proper

- Is the part of alveolus which immediately is surrounds the root

Why the following ????????????

- Cribriform plate (anatomical term)
- Lamina dura (X -ray term)
- Bundle bone (Histological term)
- Attachment bone (functional term).

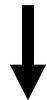
AGE CHANGES OF THE BONE

1 - **DECREASE IN THE WATER CONTENT**

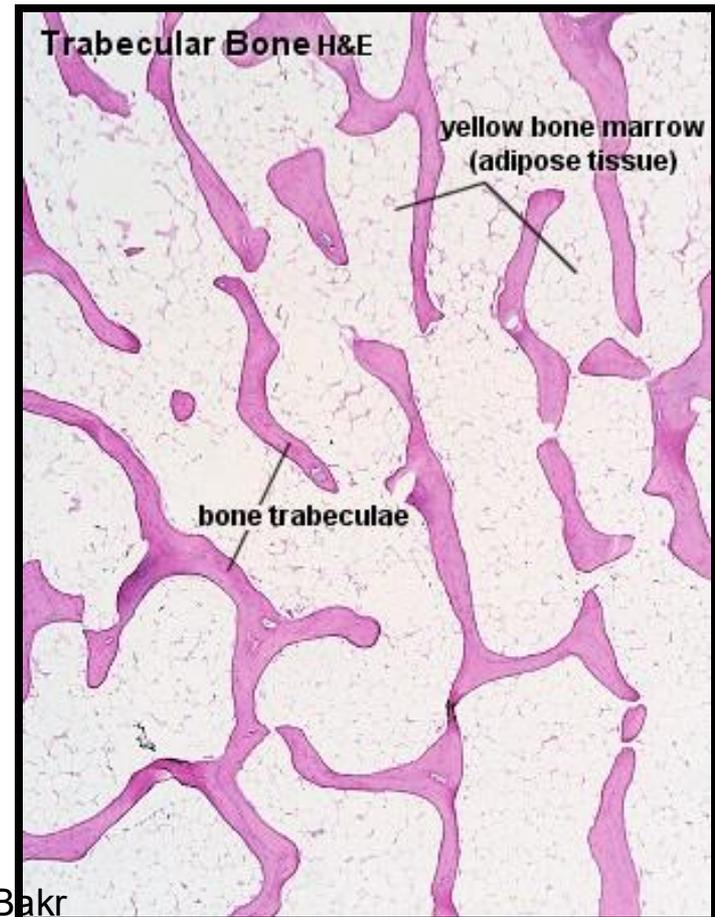


BRITTLE BONE.

2 - **SPONGIOSA**



THIN TRABECULAE AND WIDE MARROW SPACES.



AGE CHANGES

3 - SPONGIOSA



**RED B.M. Transformed
Into FATTY B. M.**

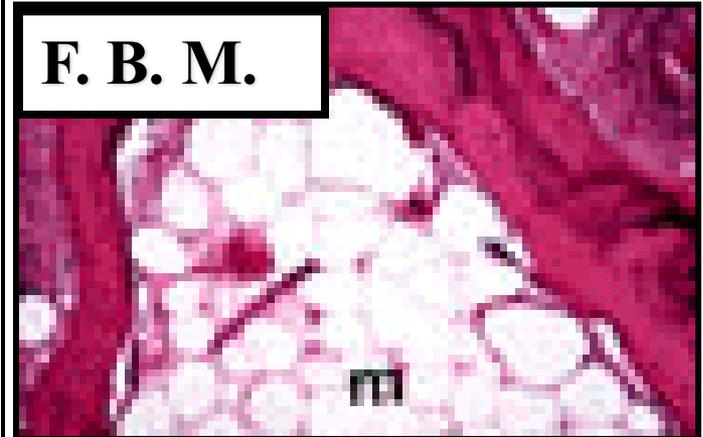
WHILE IT PERSISTS RED IN:

- THE CHONDYLAR HEAD**
- ANGLE OF THE MANDIBLE**
- MAXILLAR TUBEROSITY.**

R. B. M.



F. B. M.

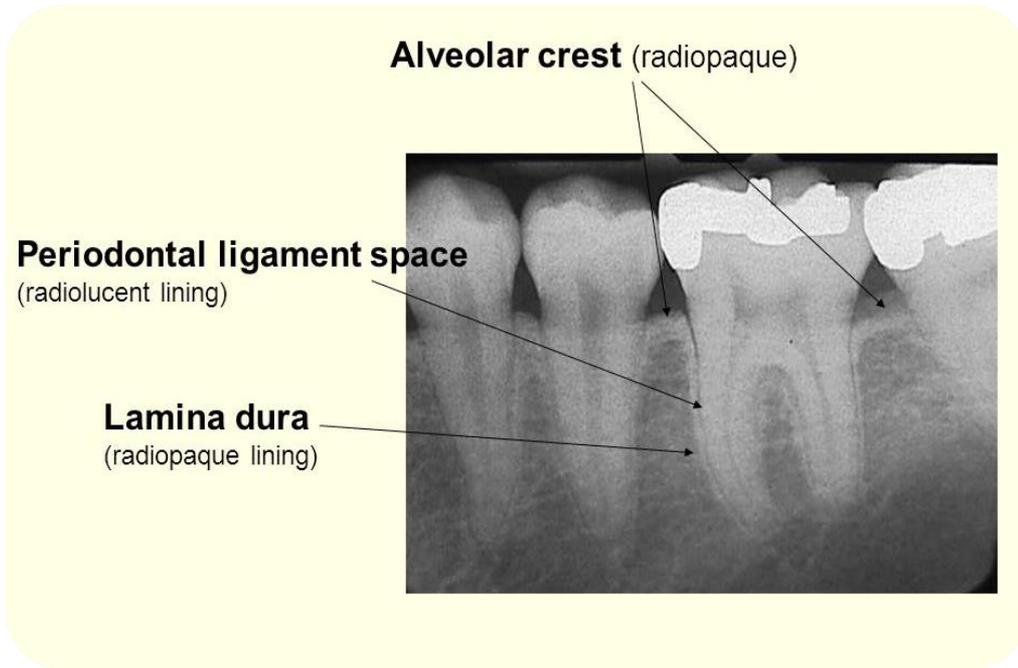




What's the pointed structure?
Describe its different radiographic
patterns.

Radiographic appearance of Bundle bone

- Appears **more radiopaque** than adjacent bone....**WHY???**





THE ANATOMY

Asst. of. Noura Ba