

X – RAY DEPARTMENT

Lecture 8

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Normal radiographic Anatomy

The radiographic image of dental hard and soft tissue can be divided into 2 groups

1. **Radiopaque:** It means white, clear image which is due to absorption of x –ray by the object so x –ray photons can't reach the film and this seen in the radiographic image of hard structures like enamel, bone.
2. **Radiolucent:** It means black, dark image that's due to penetrations of x –ray through the object to film and this can be seen in the radiographic image of soft tissue pulp, periodontal ligament.

Structures related to the tooth

1. **Enamel:** It's, the most radiopaque structure.
2. **Dentin:** It's less the most radiopaque than enamel.
3. **Cementum:** It has the same radiopacity as bone and dentin, normally it can't be seen on the radiograph, but we can see it clearly in case of hypercementosis because in normal condition it present in a thin layer.
4. **Pulp and periodontal ligament:** appear radiolucent.
5. **Lamina dura:** appears radiopaque border of bone surrounding the periodontal ligament.
6. **Dental germ:** at early stage appear radiolucent then after calcification it appear as radiolucent will inverted U or V shape radiopaque foci.

The bone trabeculae in the maxilla appear as fine radiopaque and arranged in a lace like pattern with small bone marrow spaces.

While in mandible the bone trabeculae appear as coarse radiopaque and run in a horizontal pattern with large bone marrow spaces.

Landmarks in radiograph of maxilla

1. **Median suture:** a radiolucent line between maxillary central incisor.
2. Incisive or anterior palatine foramen: radiolucent round or oval in shape. It located either between or above the maxillary central incisors.
3. **Anterior nasal spine:** V- shaped radiopaque seen in the inferior aspect of nasal fossae, above the incisive foramen or it may superimposed on it.
4. **Lateral fossa:** It's a bony depression on the labial cortical plate of maxillary lateral incisor appear as an area of diminished radiopacity.
5. **Nasal septum:** it separates the 2 nasal fossae, it located in the midline and appear radiopaque.
6. **Nasal fossae:** bilateral radiolucent.
7. **At canine area:** we have the anterior border of maxillary sinus, and the floor of nasal cavity crossed each other in inverted Y shape pattern and this formed at the apex of upper canine.
8. **Maxillary sinus:** Radiographically can't seen until after 5 years of age. It appear as radiolucency that extend from bicuspid area to the tuberosity.
9. **Zygomatic process of maxilla:** it appear as U shaped radiopacity above the upper molars area.
10. **Coronoid process of mandibles:** it appear as a triangular radiopaque structure in the radiograph of appear third molar area.

Landmarks on radiograph of mandible

1. **Mental fossa:** bony depression on the labial cortical plate of mandibular lateral incisor it appears as an area of diminished radiopacity.
2. **Mental ridge:** Bony prominence present on the labial aspect of mandible appear radiopaque line extend from midline downward and backward area of premolars.
3. **Lingual foramen:** radiolucent dot in the mild line of mandible.
4. **Genial tubercle:** radiopaque zones located on either side of lingual foramen and can seen clearly on occlusal radiograph.
5. **Mental foramen:** oval or round radiolucency located below and distal to the apex of first bicuspid tooth.
6. **Mandibular foramens:** funnd –shaped radiolucency.
7. **mandibular canal:** radiolucent groove extends between the apices of lower molar teeth and lower border of the mandibular.
8. **External oblique line:** radiopaque structure present on the buccal aspect mandible.
9. **Internal oblique line:** radiopaque structure on the lingual aspect of mandible.
10. Both external and internal oblique lines enclose an area of radiolucency called retromolar triangle Mylohyoid line ridge: present in the lingual aspect of mandible appear as radiopaque structure it located below lower molar teeth.
11. **Submandibular salivary gland fossa:** Zone of radiolucency below the mandibular molars

Radiopaque restorative materials

1. Gold
2. Silver amalgam.
3. Silver point.
4. Zinc oxide euginol.
5. Zinc phosphate cement.
6. Gutta percha.
7. Metal wires.

Radiolucent restorative materials

1. Acrylic.
2. Silicate.
3. Porcelain.
4. Calcium hydroxide "dycal"