



Dental Anatomy

Lecture (6)

PERMANENT MANDIBULAR INCISORS

Mandibular incisors are four in number two central and two lateral incisor.

Characteristic features of permanent mandibular incisors:

- 1.The mandibular incisors have smaller mesiodistal dimensions than any of the other teeth.
- 2.The contact areas are near the incisal ridges mesially and distally.
- 3.The lingual surface is relatively smooth and featureless with the marginal ridges and the cingulum being not well developed.
- 4.The labial surface inclined lingually so that the incisal ridge is lingual to a line bisecting the root.
- 5.The incisal surface of these teeth show a labial inclination in contrast to those of the maxillary incisors which have a lingual inclination.

Principles identifying features of permanent mandibular central incisors

- 1.It is the smallest tooth in the permanent dentition.
- 2.Single root which is very narrow mesiodistally.
- 3.Well defined distal longitudinal groove is seen on the root.

Labial Aspect

- 1.The incisal ridge is straight and nearly at a right angle to the long axis of the tooth.
- 2.The distoincisor angle is more rounded than the mesioincisor angle.
- 3.The contact areas are incisal to the junction between incisal and middle thirds of the crown.

- 4.The mesial and distal root outlines are straight with a distally curved apex.
- 5.The labial surface of the crown is smooth being flat at the incisal third and becoming more convex as it goes cervically.

Lingual Aspect

- 1.The lingual surface of the crown is smooth with very slight concavity at the incisal third.
- 2.No developmental grooves are found near the cingulum.

Mesial Aspect

- 1.The labial outline above the cervical curvature is straight.
- 2.The lingual outline show a shallow concavity ending to the blunt incisal ridge which is lingual to a line bisecting the root.
- 3.The curvature of the cervical line goes incisally about one third the length of the crown.
- 4.The mesial surface of the root showed a broad developmental depression for most of the root and this become deeper at the junction of the middle and apical third.

Distal Aspect

- 1.The cervical line curvature is less than that mesially.
- 2.The developmental depression in the root is more marked than that on the mesial side with a deeper and more well defined developmental groove in its center.

Incisal Aspect

- 1.The mesial half of the crown is almost identical to the distal half (bilateral symmetry).
- 2.The incisal edge is at right angle to a line bisecting the crown labiolingually.
- 3.At the incisal third the labial surface of the crown is broad and flat while in the cervical third slightly convex while the lingual surface is slightly concave at the incisal third.

4. More of the labial surface may be seen than of the lingual surface from this aspect.

5. Labiolingual diameter is greater than mesiodistal one.

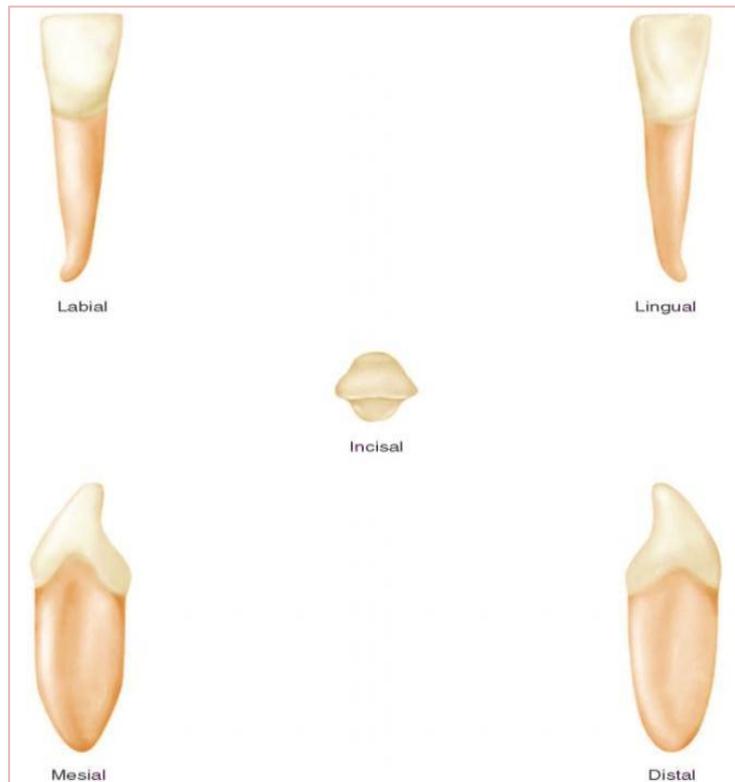


Figure (1):Permanent mandibular central incisor.

Mandibular lateral incisor

Principles identifying features of permanent mandibular lateral incisors

1. Slightly larger than mandibular central incisors .
2. The crown is slightly longer, but the root is considerably longer than the mandibular central incisors.
3. The mesial side of the crown is longer than the distal side, causing the incisal ridge to slope downward in a distal direction.
4. The distal contact area is more toward the cervical area than the mesial contact area.
5. Faint marginal ridges but more prominent than that in mandibular central incisors.

6.The incisal edge is twisted distally in a lingual direction to follow the curvature of the lower arch.

7.There are mesial and distal developmental depressions on the root.

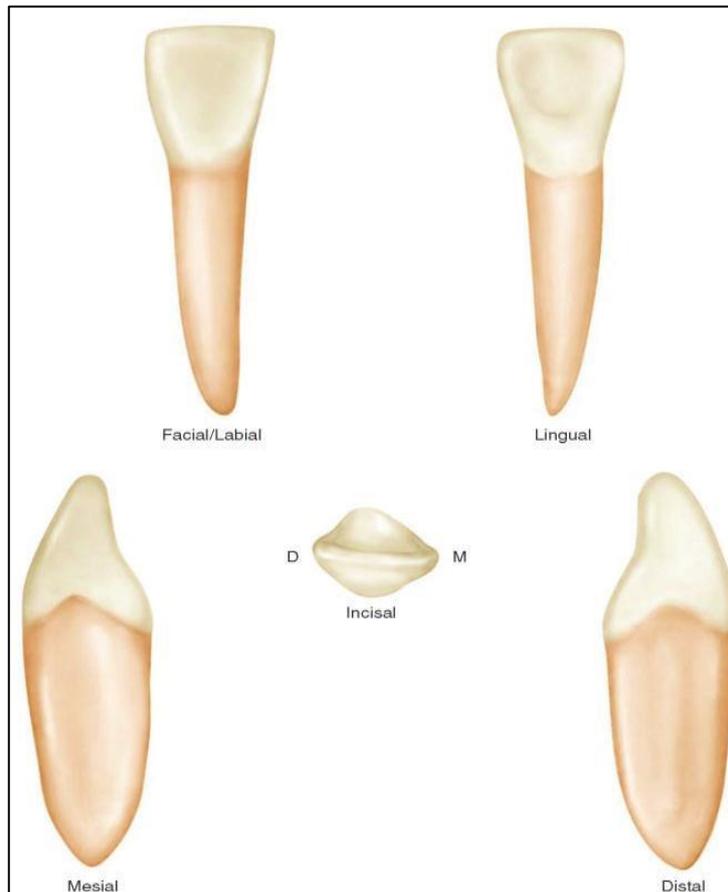


Figure (2):Permanent mandibular lateral incisor.

PERMANENT MAXILLARY CANINES

Characteristic features of permanent canines:

- 1.The positions and forms of the canines and their anchorage in the bone have a cosmetic value.Canines are placed at the corners of the mouth which help in keeping normal facial expressions .
- 2.The canines are the longest and strongest teeth in the mouth.
- 3.The canines are the most stable teeth in the mouth because of the followings:
 - *They have large labiolingual dimension.
 - *They have long roots, which are well anchored in the alveolar bone.

*The crown shape of the canine promotes cleanliness "self-cleansing" so they stay for longer time.

5.The middle labial lobe is highly developed incisally into a strong well-formed cusp.

Permanent maxillary canine

Principle identifying features of the permanent maxillary canine:

- 1.Single pointed cusp.
- 2.The distal slope of the cusp is longer than the mesial slope.
- 3.Marked convex labial outline and bulky palatal cingulum.
- 4.Very long single root.

Labial Aspect

- 1.The mesial outline of the crown is convex from the cervical line to the crest of curvature which is located at the junction of the incisal and middle thirds.
- 2.The distal outline of the crown is slightly concave from the cervical line to the crest of curvature which is located at the center of the middle third.
- 3.The tip of the cusp is in a line with the center of the root.
- 4.The distal slope of the cusp is longer than the mesial slope.
- 5.The cervical line is convex toward the root.
- 6.The labial surface is smooth except for a shallow depression mesially and distally, dividing the three lobes with the middle one much more developed producing the labial ridge.
- 7.The root is long and conical with the apex curved distally.

Lingual Aspect

- 1.The tooth is narrower lingually than labially (tapered lingually).
- 2.The cingulum in the maxillary canine is larger than that in the maxillary central and lateral incisors.

3. There is a well developed lingual ridge confluent with the cusp tip, which divides the lingual fossa into two fossae.

4. There is a developmental depression mesially and distally extending for most of the root length.

Mesial Aspect

1. The labial and lingual outlines of the crown are more convex than that in the maxillary central and lateral incisors with the crest of curvature (labially and lingually) located at the cervical thirds.

2. The curvature of the cervical line is 2.5 mm toward the cusp.

3. A line bisecting the cusp is labial to a line bisecting the root.

4. There is a developmental depression extending on part of the root.

Distal Aspect

1. The curvature of the cervical line is less distally than mesially (as in the maxillary central and lateral incisors).

2. The developmental depression of the root is more pronounced distally than mesially.

Incisal Aspect

1. The labiolingual dimension is greater than the mesiodistal dimension.

2. The ridge of the labial lobe is very noticeable labially with its greatest convexity at the cervical third.

3. The cingulum is well developed and makes a small arc when compared with the labial outline which makes a large arc.

4. The tip of the cusp is labial to center labiolingually and at or slightly mesial to the center mesiodistally.

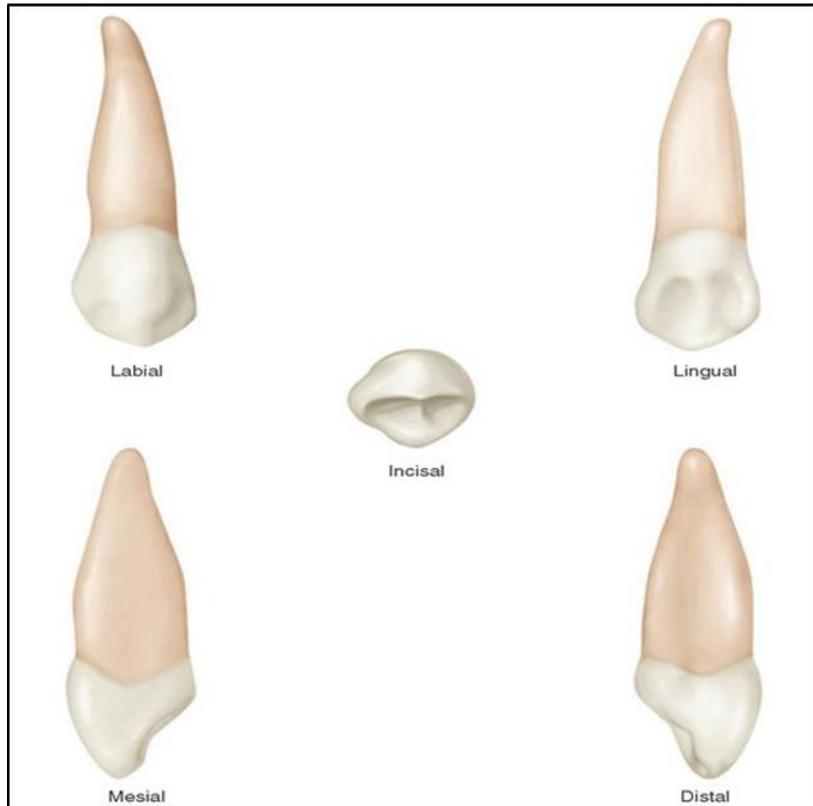


Figure (3): Permanent maxillary canine

Permanent mandibular canine

Principle identifying features of the permanent mandibular canine:

- 1.The mandibular canine is narrower mesiodistally and labiolingually than the maxillary canine.
- 2.Labially the crown of the mandibular canine appears longer.
- 3.The lingual surface of the crown of the mandibular canine is shorter than that of the maxillary canine, with less developed cingulum and less prominent marginal ridge.
- 4.The cusp of the mandibular canine is not as well developed as that of the maxillary canine.
- 5.The tip of the cusp is not in a line with the center of the root.
- 6.The mesial slope of the cusp is shorter than the distal slope.
- 7.The distal outline of the crown is more rounded than the mesial outline.

8. The mesial surface of the crown is nearly straight with the mesial surface of the root, with the contact area being near the mesioincisal angle.

9. The distal contact area is located more incisally than the maxillary canine.

10. The mandibular canine root is shorter by 1 or 2 mm on average than that of the maxillary canine.

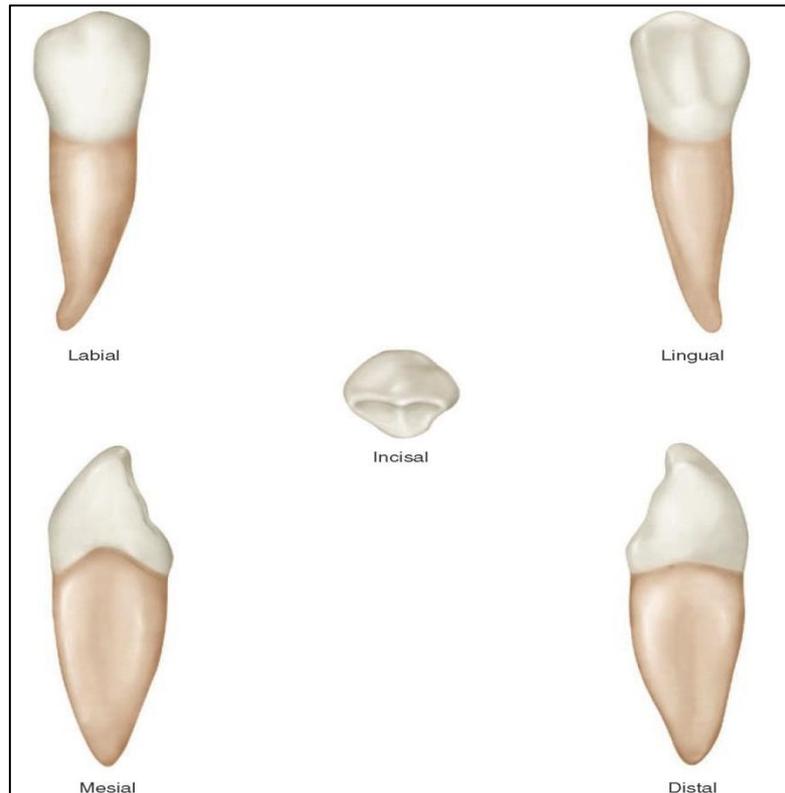


Figure (4): Permanent mandibular canine

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