PERMANENT MAXILLARY INCISORS

(Morphology of Maxillary Central and Lateral Tooth)

Maxillary incisors are 4 in number. Central incisors are centered in the maxilla, one on either side of the median line with the mesial surface of each in contact with the mesial surface of the other. Maxillary and mandibular central incisors are only neighbouring teeth in the dental arch with the mesial surfaces in contact. Maxillary lateral incisors are distal to maxillary central incisors. Maxillary central incisor is larger than maxillary (Max.) lateral incisor. Max. Lateral (Lat.) and central (Cent.) supplement each other in function. Lat. and Cent. are similar anatomically. Their major function: Punch and cut food during the process of mastication.

I. MAXILLARY CENTRAL INCISOR

- The widest mesiodistally of any of the anterior teeth.
- Less convex labial aspect than max. Lat. incisor.
- Squared or rectangular shape
- Have a nearly straight incisal edge
- Cervical line with even curvature toward the root, mesial side with straight outline, distal side is more curved.
- Mesial incisal angle is relatively sharp, the distal incisal angle is more rounded.
- Mammelons may be seen on incisal edge
- Developmental lines are divided labial surfaces into 3 parts
LABIAL ASPECT

Crown:

- Height: 10-11 mm (highest point of cervical line to lowest point of incisal edge)

- Mesiodistal wide: 8-9 mm (at the contact areas).

- At cervix, this measurement is 1.5-2 mm less.

- Distal outline is more convex than mesial outline, the crest of curvature being higher towards cervical line.

- Distoincisal angle is not sharp as mesioincisal angle.

- Incisal outline is usually regular and straight (after mamelons obliterated)

- Incisal outline tends to curve downwards towards the center of crown outline → making the crown length greater at the center than at 2 mesial angles

- The incisal outline follows a semicircular direction with the curvature of rootwise

Root:

- Cone-shaped with relatively blunt apex

- Outline is regular mesially and distally

- 2-3 mm longer than crown
**PALATINAL ASPECT**

- Reverse of that found on labial aspect
- Palatinal aspect has convexities and concavity
- The outline of cervical line is similar but immediately below it, there is cingulum.
- Marginal ridges confluent with the cingulum mesially and distally.
- There is *palatinal fossa* below the cingulum and between marginal ridges.
- Marginal ridges and cingulum are completing the palatinal portion with raised palatal portion of incisal ridge by bordering palatinal fossa.
- There are *developmental grooves* extending from cingulum into the palatinal fossa.
- The crown and root *taper labiolingually*.
- A cross section of root at cervix shows the root to be triangular with rounded angles: One side of triangle is labial with the mesial and distal sides pointing palatinally.
- Mesial side of triangle is trifle longer than distal side.

**MESIAL ASPECT**

- Crown is fundamental form of incisor :wedge-shaped or triangular with the base at cervix and the apex at the incisal edge.
- Line drawn through the crown and the root, the center of tooth will bisect the apex and also incisal ridge.
- Labial outline of crown is slightly convex.
• Palatinal outline is convex at point where joins the crest of curvature at cingulum, then it becomes concave at mesial marginal ridge and becomes slightly convex again at palatoincisal ridge and incisal edge.

• Cervical line in this aspect curves incisally to a noticeable degree.

• This curvature is greater than at any surface of any other tooth.

• Root is Cone-shaped with a bluntly rounded apex.

**DISTAL ASPECT**

• Crown looks thicker toward incisal 1/3 because of slope of labial surface distopalatinally (illusion): more of that surface is seen from this aspect.

• The curvature of cervical line is less in extent on the distal than on the mesial surfaces.

**INCISAL ASPECT**

- Labial face of crown is relatively flat and broad in comparison with palatal surface especially toward 1/3.
  - Cervical portion is convex labially.
  - Incisal ridge may be seen clearly (slope of incisal edge toward palatinal).
  - Triangular outline reflected by outline of root cross section.
  - Outline of palatinal portion tapers palatinally toward cingulum.
  - Mesiolabial and distolabial line angles are prominent.
  - Calibration of mesial and distal labial line angles are greater than the calibration of mesio and distopalatinal line angles (which they represent mesial and distal marginal ridge borders).
- Bulky from this aspect than mesial or distal aspect.
- Relatively broad surface at site of contact areas at mesial and distal.
- Labiopalatinal calibration of crown is more than 2/3 as great as the mesiodistal calibration.

*Line drawn to the center of cingulum from mesioincisal angle is greater than the line drawn from same point to distoincisal angle.

II. MAXILLARY LATERAL INCISOR

- Supplements central incisor in function & resemble central
- Smaller in all dimensions except length
- Vary in form (peg-shaped, twisted, missing) more than from any other tooth in the mouth except 3rd molar.

LABIAL ASPECT

- **Crown**
  - Have more curvature than Cent. incisor with rounded incisal ridge and mesial and distal incisal angles. Labial surface of crown is more convex.
  - Smaller in all dimensions than Cent. Lateral crown is approximately 2 mm narrower mesiodistally and 2-3 mm shorter cervicoincisally than Cent.
  - Crest of contour mesially is at the juction of incisal and middle 1/3.
✓ Crest of contour distally is at the center of middle 1/3.

• **Root**
  ✓ Often about 1.5 times the length of the crown.
  ✓ Tapers evenly from the cervical line to a point approximately 2/3 of its length apically.
  ✓ In most cases, root curves sharply from this location in a distal direction and in apointed apex.

**PALATINAL ASPECT**

• Mesial and distal marginal ridges are marked
• Cingulum is prominent
• Deep devolepmental grooves within the palatinal fossa
• Palatoincisal ridge is well developed
• Palatinal fossa is more concave than Cent.
• Tooth tapers toward palatinal
• It is not common to find deep developmental groove at the side of cingulum

**MESIAL ASPECT**

• Similar to that of a small central incisor except root appears longer.
• Crown is shorter, root is relatively longer and labiopalatinal length is 1 mm or so less than the central incisor of same mouth.
• Cervical line is marked in the direction of incisal ridge. Curvature is less than central incisor.

• Heavy developed incisal ridge makes incisal portion appears thicker than central incisor.

• Tapered cone root with bluntly rounded apical end

*A line drawn the center of root tends to bisect the insical ridge of crown.

**DISTAL ASPECT**

• Width of the crown appears thicker. (Because of the placement of crown)

• The curvature of cervix is usually 1 mm or so less in depth than on the mesial side.

• There is no developmental groove either on crown or root.

**INCISAL ASPECT**

Resembles to small;

• Central incisor except in size

It exhibits more convexities labially and palatinally than Cent.

• Or sometimes a canine (Variation)

Cingulum and incisal ridge is larger or mesiodistal dimensions are greater than labiopalatinal dimensions
References: