Introduction to Dental Anatomy (Third Lecture)





Elevated Landmarks

1- Dental Lobe:

- Mamelon.
- Cingulum.
- Cusp.
- 2- Tubercle:-

3- Ridge:- It classified into:

• According to location:

- a. Proximal (marginal ridge).
- b. Labial ridge.
- c. Buccal ridge.
- d. Lingual ridge.
- e. Cervical ridge.
- f. Incisal ridge.
- g. Cusp ridge.
- According to shape:
- a.Triangular ridge.
- b.Transverse ridge.
- c.Oblique ridge.

Dental lobe

- It is one of the primary centers of growth and calcification formed during the crown development.
- Mamelons, cingulum and cusps are mature forms of lobes (representative of lobes) in the anterior and posterior teeth, respectively.
- Each tooth begins to develop from four lobes or more.
- It is possible to find a variation in the number of lobes in molars.



Anterior teeth



premolars



Maxillary molars



Mandibular molars



Mamelon

- It is any one of the three primary projections in the incisal third of the newly erupted incisor teeth.
- eventually the mamelons wear down into a flat edge.







Cingulum

 It is a rounded projection, making the lingual bulk at the cervical third of the crown in anterior teeth.







Cusp

 It is a pyramidal projection on the occlusal surfaces of posterior teeth and incisal surface of the canine.





Tubercle

- It is an elevation on the crown surface, resulting from excessive localized deposition of enamel.
- Tubercle is noticed at :
 - the palatal surface of primary (maxillary) second molar & permanent (maxillary) first molars.
 - sometimes at the lingual surface of incisors or canines over the cingulum.



N.B. Tubercle differs from cusp , it is formed of enamel only while cusp is formed of pulp horn covered by dentin and enamel.



Ridge

 It is a linear elevation on the crown defined according to its shape and location.

According to location:

- a. Proximal (marginal ridge):
 - it is the mesial and distal elevated margins of enamel forming the margin of the surface of a tooth.
 - On mesial /distal margins of lingual surfaces anterior teeth.
 - Mesial & distal margins of occlusal surfaces posterior teeth





Ridges

- b. Labial ridge: is a bulging of the middle labial lobe of anterior teeth.
- c. <u>Buccal ridge</u>: is a bulging of the middle buccal lobe of the posterior teeth. The buccal ridges that run cervico-occlusally on the buccal surfaces of premolars or molars.
- **d.** <u>Lingual ridge</u>: it is extending vertically from cingulum to cusp tip of canine, thus, dividing its lingual surface to mesial and distal depressions (fossae).
- e. <u>Cervical ridge</u>: is a diffuse mesiodistal excessive formation of enamel at the cervical third of the crown and has variable development in different teeth.
- f. <u>Incisal ridge</u>: is a lingual projection at the incisal margin of the newly erupted incisors. The ridge is transformed into edge as the attrition removes some of the incisal enamel.
- **g.** <u>Cusp ridge</u> (also known as cusp slopes): is descends mesially or distally from cusp tip into the proximal ridge or buccal or lingual developmental groove.



Ridge

According to shape

a. <u>Triangular (occlusal) ridge</u>: it descends from the cusp tip of posterior teeth toward the central part of occlusal surface or toward the depression (sulcus). It is formed as the occlusal sides of the cusp ridge meet together to form line angle.



Ridge

- a. <u>Transverse ridge:</u> is the union of the directly opposing buccal and lingual triangular ridges buccolingually crossing the occlusal surface of posterior teeth.
- b. Oblique ridge: is the union of the non-opposing buccal and lingual triangular ridges obliquely crossing the occlusal surface of maxillary molars from the mesiolingual cusp to the distobuccal cusp.





A- Linear Depressions:

1-Developmental grooves:

It is a shallow linear depression in the occlusal surface and may extend buccally, lingually or mesially denoting the line of fusion of primary lobes



2- Supplemental grooves:

- Small , irregularly placed auxiliary grooves.
- Branches from developmental grooves.
- They do not denote union of primary lobes.
- The third molars followed by second permanent molars are characterized by high number of supplemental grooves.





3- Fissures

- Found in the bottom of developmental grooves.
- Result from incomplete union of the primary lobes.
- Represent a fault in enamel.





4- Sulcus:

- It is a broad depression or valley on the occlusal surfaces of posterior teeth.
- Its inclines meet in a developmental groove and extend to the cusp tips.





Depressions Landmarks B- Irregular Depressions

1-Fossa: It is a small depression or concavity on the occlusal surface of posterior teeth or the lingual surface of anterior teeth. It has different shape including:



Lingual Fossa Found on the lingual surfaces of anterior teeth.



Triangular fossae Found on the occlusal surfaces of posterior teeth mesial and distal to the marginal ridges.



Central fossa Found on occlusal surfaces of molars. They are formed by the converging of ridges terminating at a central point where there is the junction of grooves.

Depressions Landmarks B- Irregular Depressions

Pit: it is a pinpointed depression in enamel which may be true or fault.

- a) True pit: It is present at the ends or termination of the developmental grooves, found occlusally in the bottom of circular and triangular fossa.
- b) Fault pit: It is created due to the tiny localized imperfect fusion or defective formation of enamel, found at the buccal and lingual terminations of developmental grooves.
 - It may be comparable to fissure defect in enamel, but the fault pit is pinpointed defect rather than linear.
 - It is located at the end of the buccal developmental grooves of the lower molars or palatal developmental grooves of the upper molars.



Caries-Prone Pits and Fissures

