Landmarks of teeth

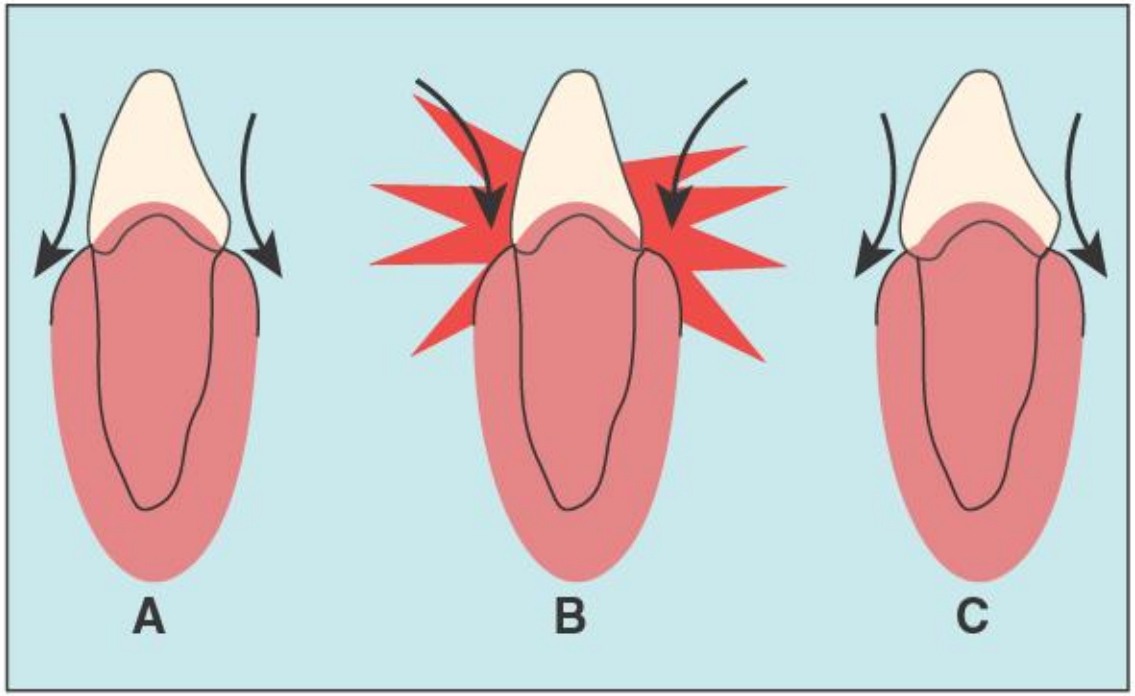
Dr Modar Ahmad
D.D.S, M.Sc., Ph.D.,

Anatomic Features of the Teeth

Anatomic features of the teeth help maintain their positions in the arch and protect the tissues during mastication.

- Contours
- Contacts
- Embrasures

Tooth contours



A, normal curvatures : arrow shows theoretical path of food during mastication
B, if tooth shows little or no curvature , there is possibility for food impaction
C, tooth in excess of curvature .such an excess in curvature has not been firmly established .

Embrasures

When two teeth in the same arch contact, their curvatures next to the contact areas form spillway spaces called **embrasures.**

An embrasure is a triangular space in a gingival direction between the proximal surfaces of two adjoining teeth in contact.

- There are four embrasures: (1) Facial (buccal or labial) (2) Occlusal or incisal
- (3) lingual or palatal (4) Apical

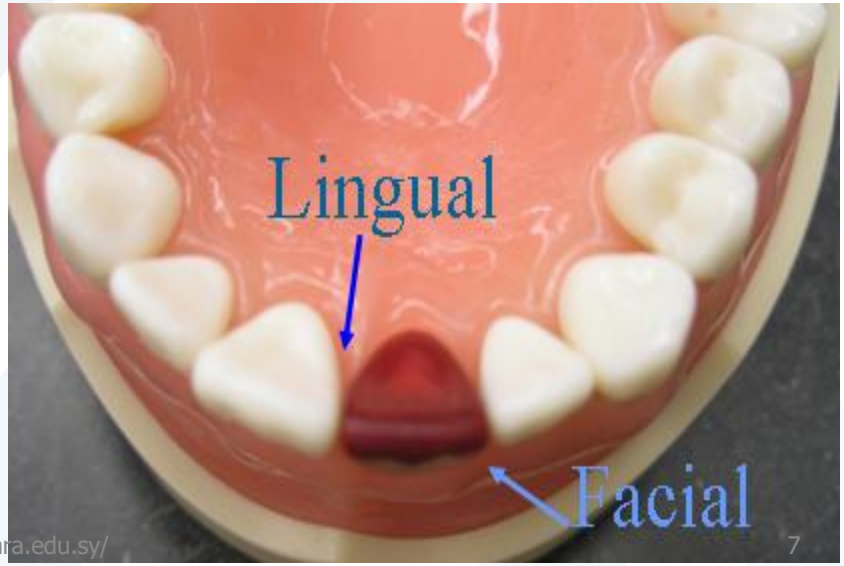
Embrasures

The curvature formed by two adjacent teeth in an arch form a spillway space that is called an embrasure

Embrasures

Embrasures are named relative to the contact area

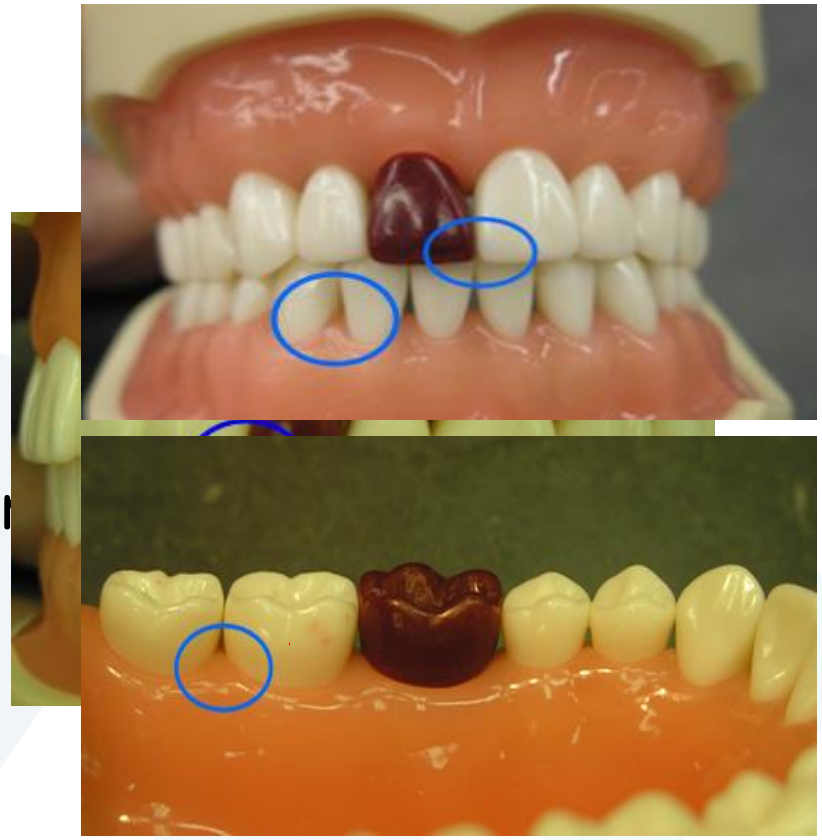
- **Facial or lingual views** show the occlusal/ incisal embrasures and cervical/ gingival embrasures
- **Occlusal views** show the buccal/ labial and lingual embrasures



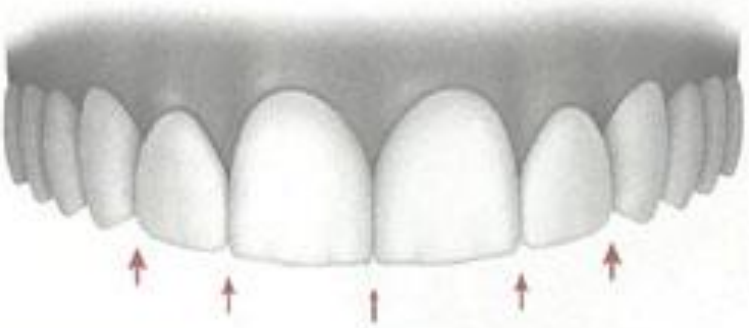
Facial or lingual aspects:

The incisal / occlusal embrasures increase in size from anterior to posterior

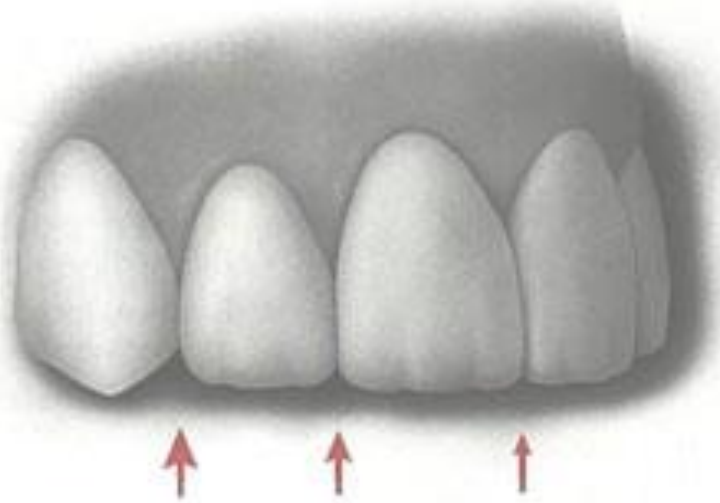
The cervical embrasure decreases in size from anterior to posterior



The incisal embrasure of the maxillary canine/premolar= <u>widest angle</u>



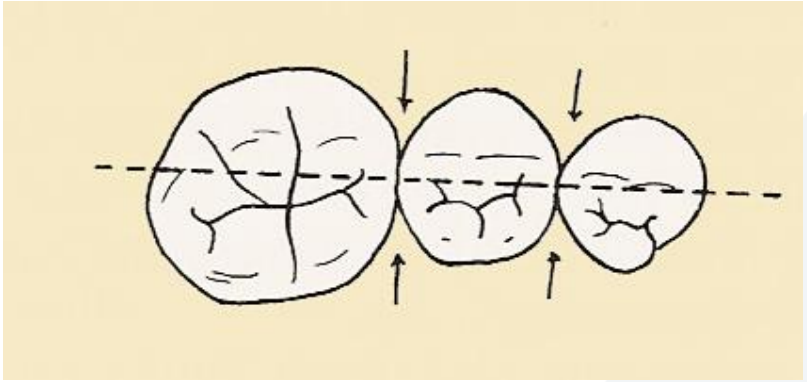
Incisal Embrasures



Demostrate a natural, progressives increase in size from the central to the canine

Embrasures are the small triangular gaps between the teeth at the biting edge. Without these a smile would look fake like the keys of a piano. Even when flat shaped teeth are used in a smile design you will always see some form of embrasure used.

Embrasures



Mandibular posterior area occlusal view

Arrows denote the facial and lingual embrasure areas

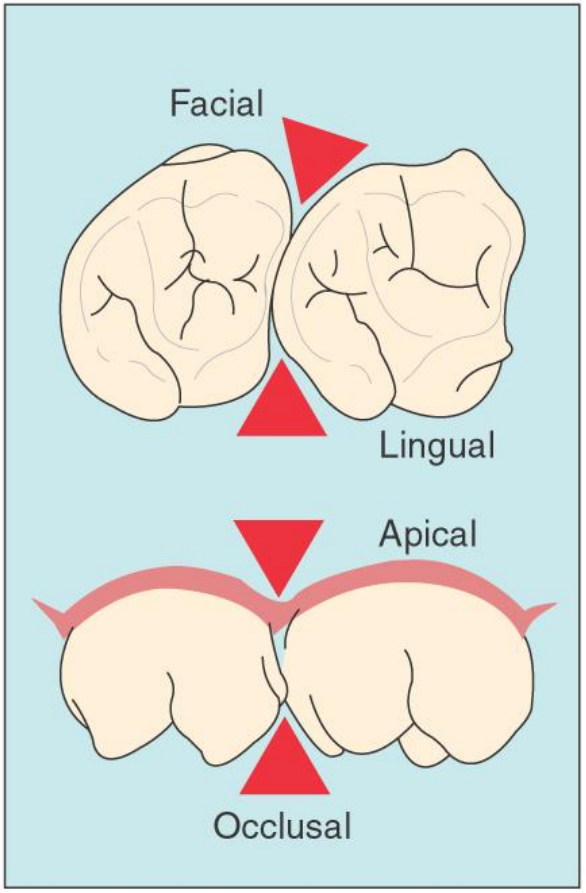
The lingual embrasures are larger than the facial embrasures, because of lingual convergence of the crown.

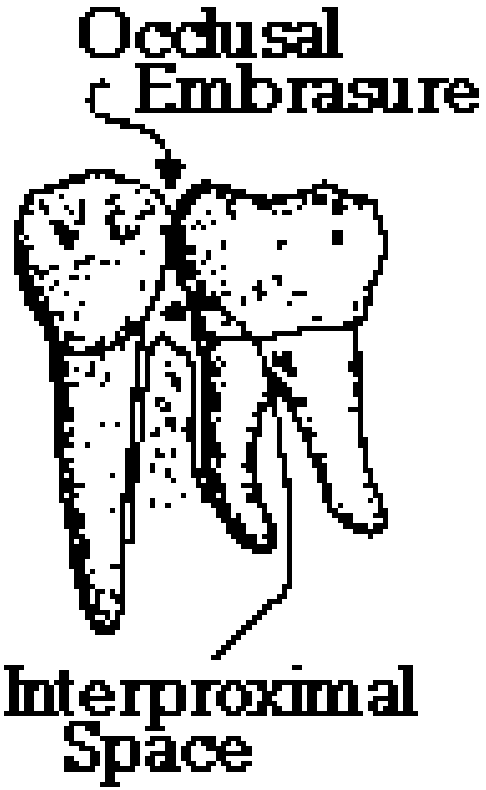
impotrtance of Embrasure form

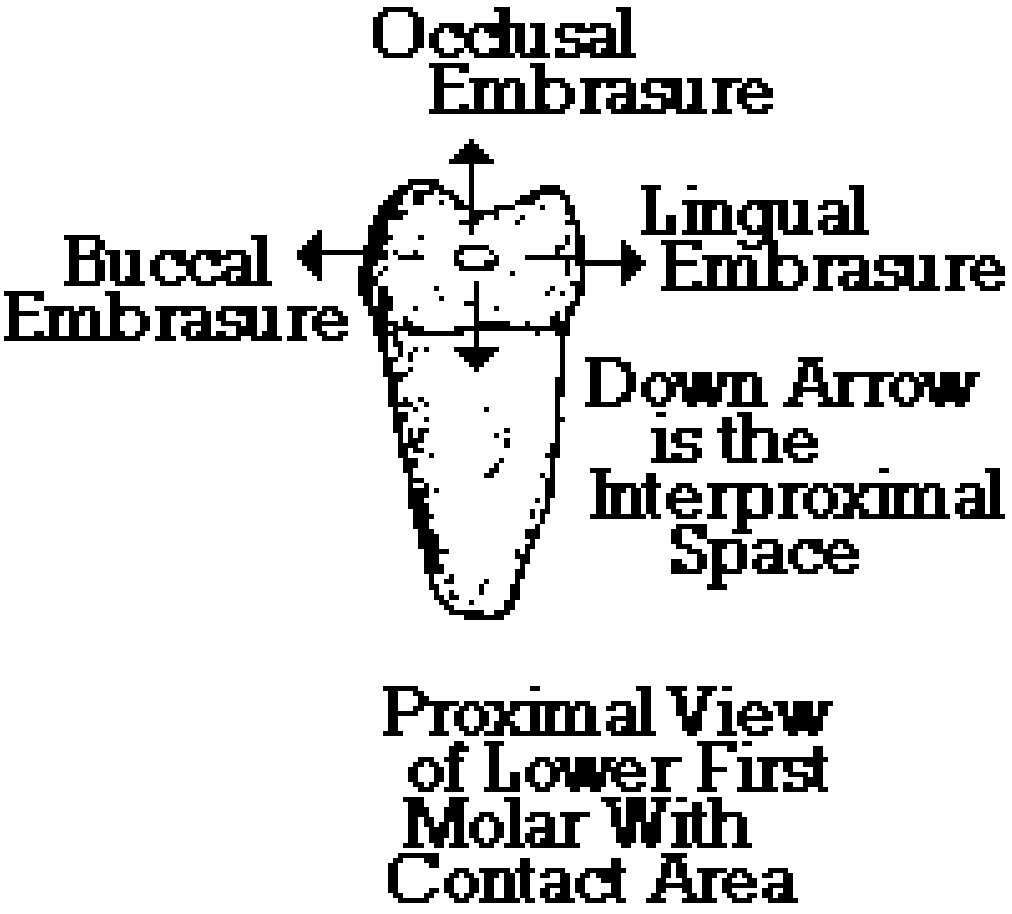
Serves as a spillway for food material during mastication

Prevents food from being forced through the contact area and injuring the periodontal tissues.

Embrasures may diverge facially, lingually, occlusally, or apically.




Occlusal
Embrasure
Interproximal
Space


Occlusal
Embrasure
Buccal
Embrasure
Lingual
Embrasure
Down Arrow
is the
Interproximal
Space
Proximal View
of Lower First
Molar With
Contact Area

Lingual Embrasures

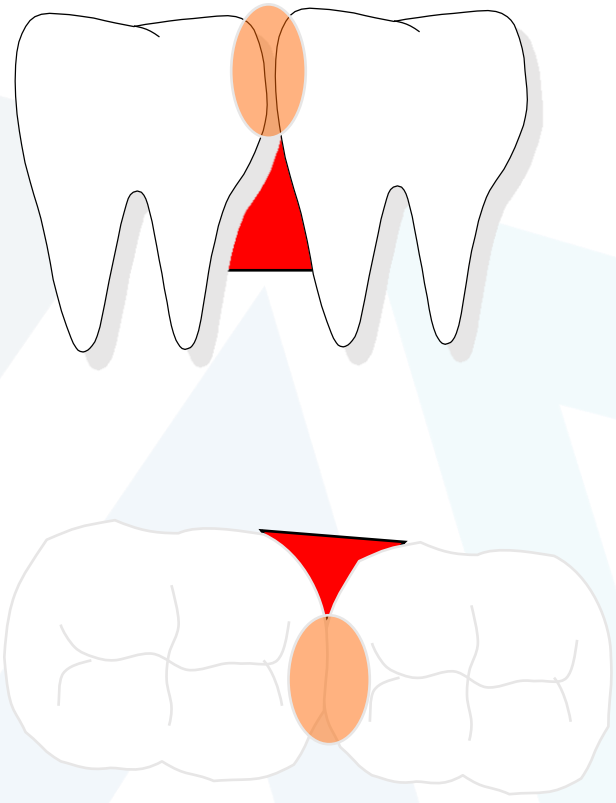
Buccal Embrasures

- Contact: a point or area where one tooth is in contact (touching) its neighbor.

Proximal surfaces - mesial or distal surface of a tooth lying next to another tooth.

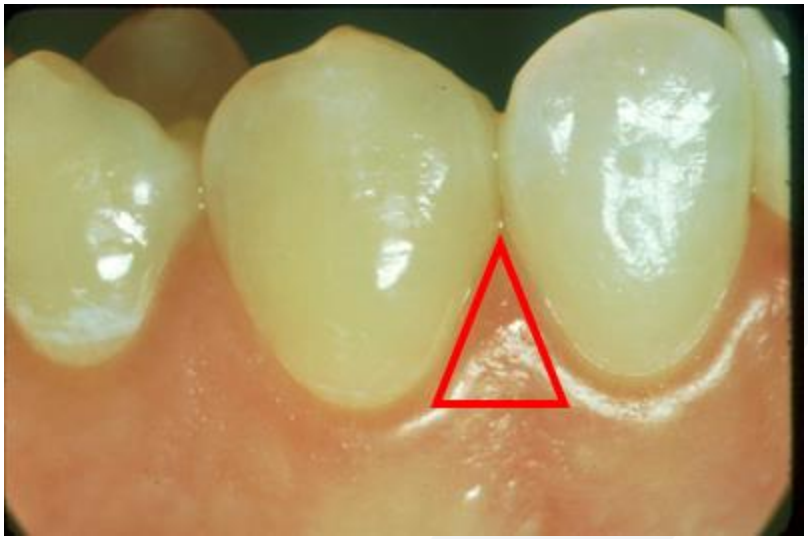
Interproximal space : (formed by proximal surface in contact)

(embrasure) the interproximal spaces between teeth are triangularly shaped spaces normally filled by gingival tissue soft tissue (interdental papilla)



- Interproximal space: The triangular space between the adjacent teeth cervical to the contact point.
  - The base of the triangle is the alveolar bone;
  - The sides are the proximal surfaces of the adjacent teeth.
  - The interproximal space is normally filled by the gingival papillae.

Interdental Areas



Triangular in shape

Base=alveolar bone

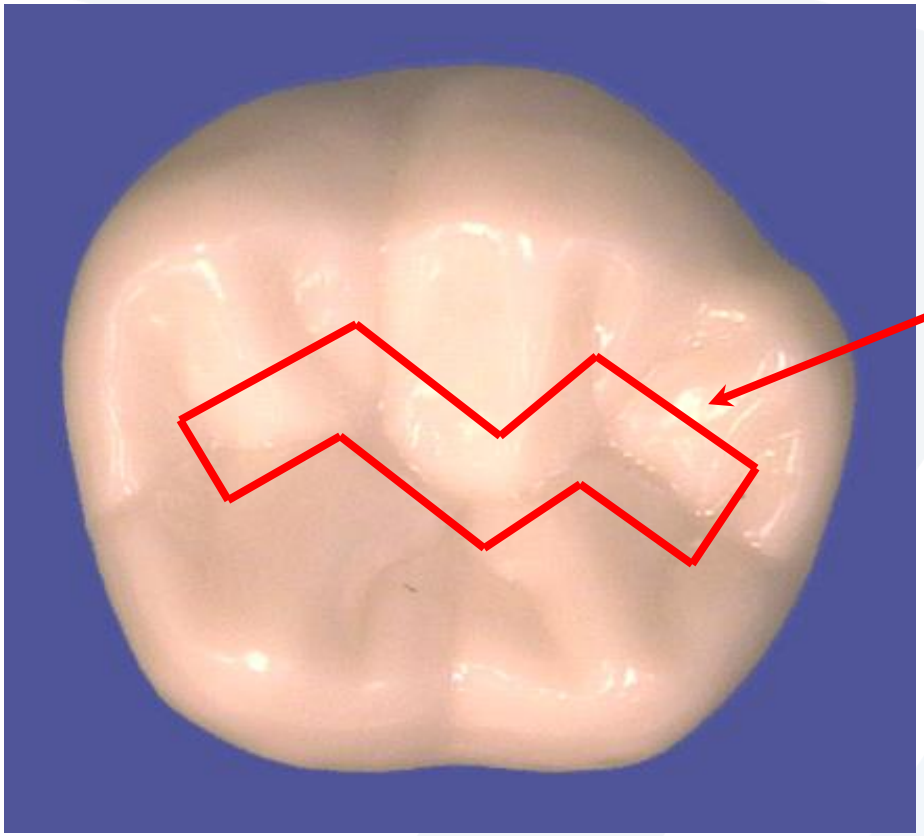
Sides=prox. surfaces of teeth

Apex=proximal contact area

These triangular shaped areas are normally filled with gingival tissues

The Landmarks :

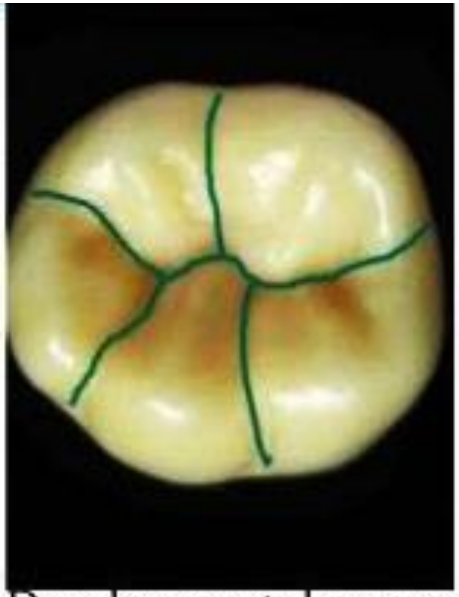
A Sulcus : is a long depression or valley in the surface of a tooth between ridges and cusps.


Sulcus

Groove- is a shallow linear depression on the surface of a tooth.

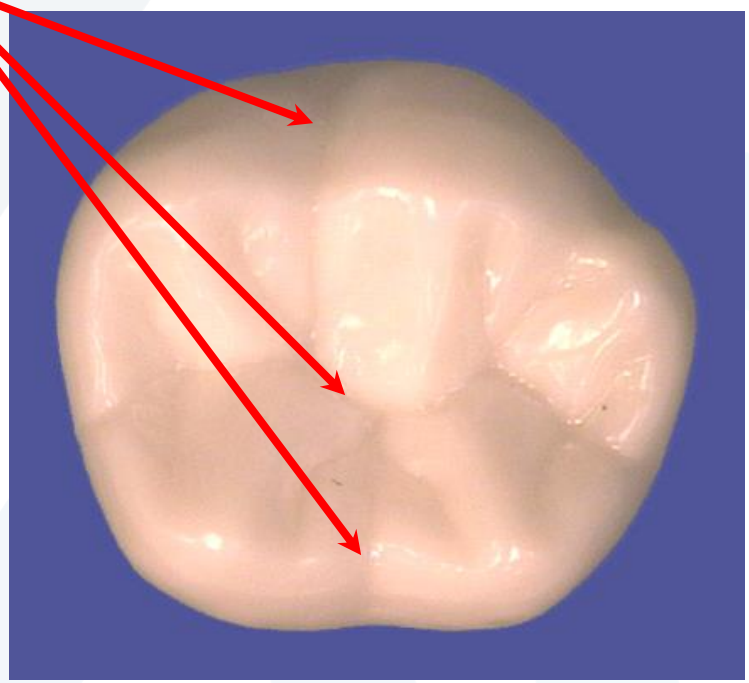
A *developmental groove* is a shallow groove or line between the primary parts of the crown or root.

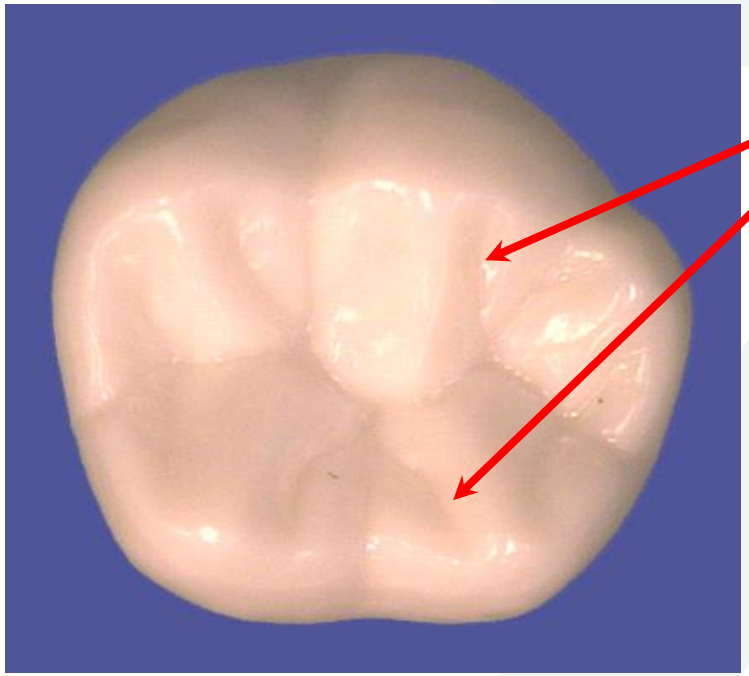
A *supplemental groove* is less distinct and does not mark the junction of primary parts.



Developmental grooves

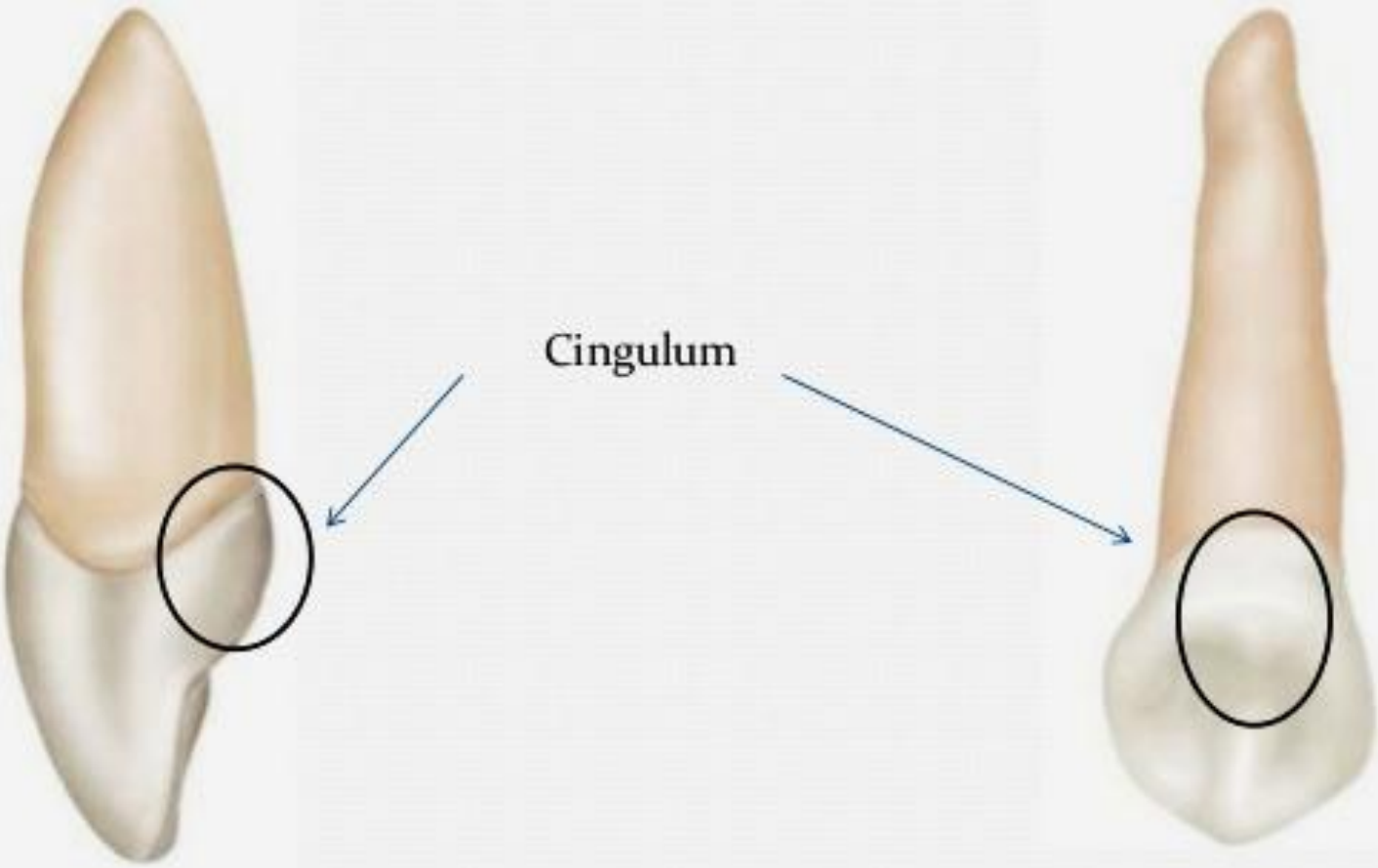
Developmental Groove - formed during tooth development separating lobes or a major portion of a tooth



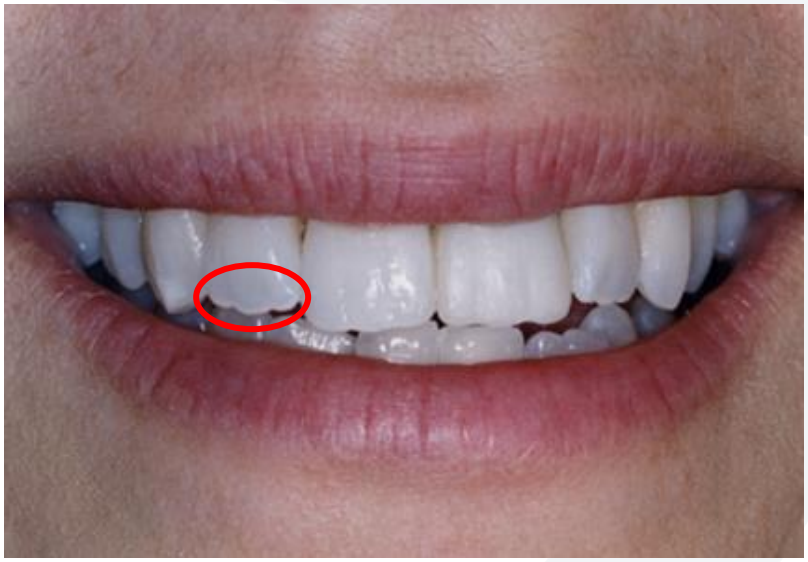


Supplemental Groove

2. Cingulum: is the lingual lobe of an anterior tooth and makes up the bulk of the cervical third of the lingual surface



Mamelon : is any one of the three primary rounded projections in the incisal ridge of *newly erupted* incisors teeth .



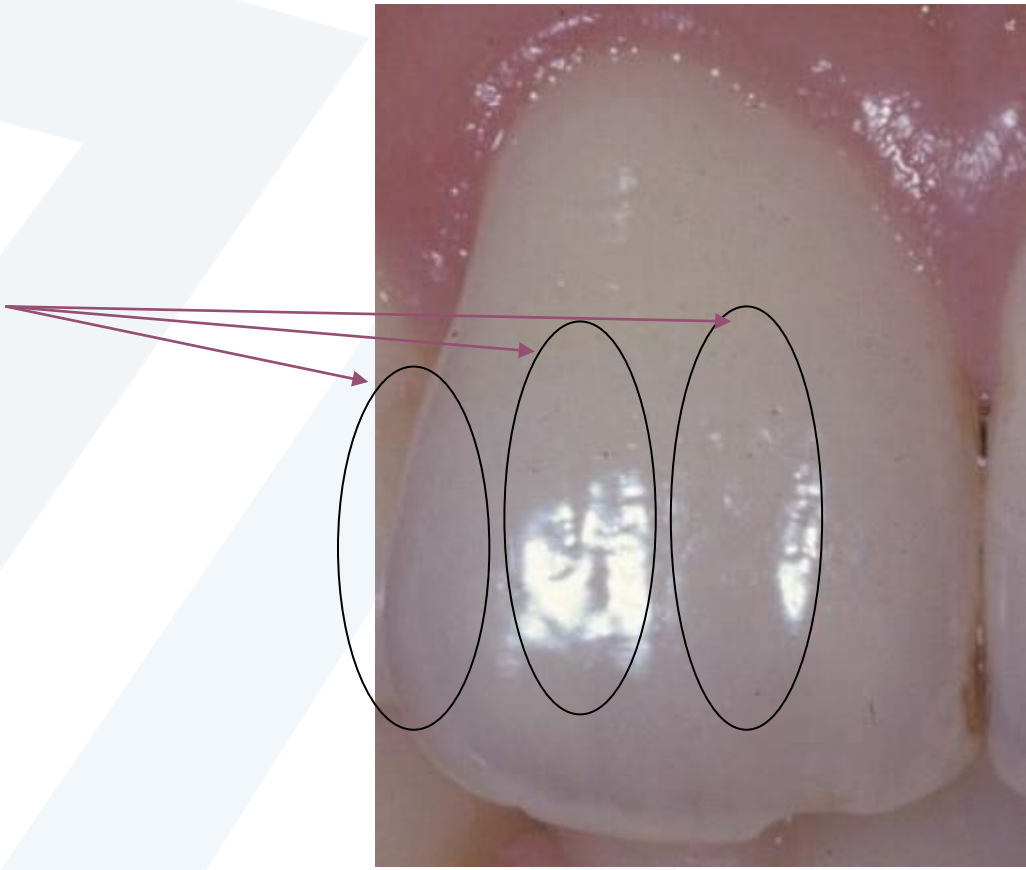
The incisal outline of maxillary central incisor is usually regular and stright in a mesiodistal direction after the tooth has been in function long enough to obliterate the mamelons .

Incisal aspect (maxillary central incisor)

- Mesial, central and distal lobes often well defined .

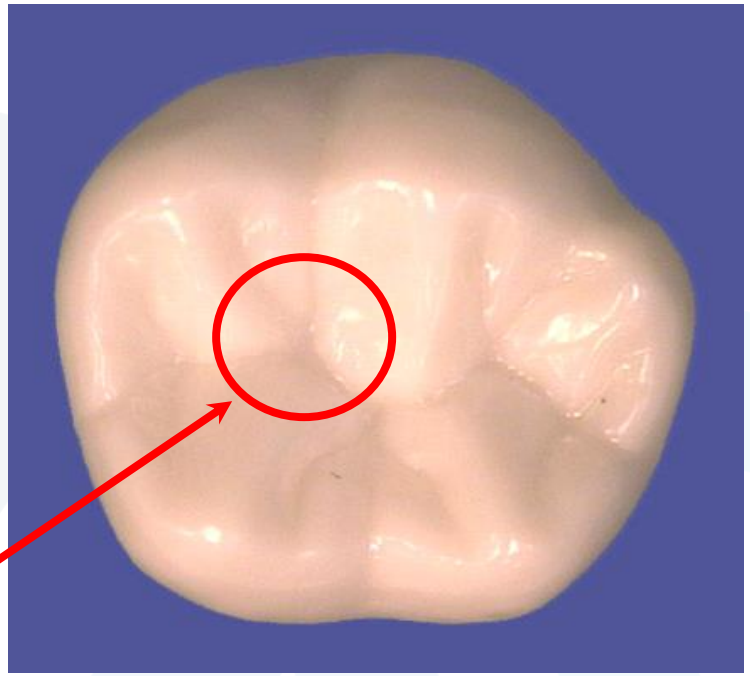
Labial aspect (maxillary central incisor)

- Developmental depressions separate the 3 labial lobes.



- **Fossa:** An irregular, rounded depression or concavity found on the surface of a tooth.
  - **A lingual** fossa is found on the lingual surface of anterior teeth .
  - **A central** fossa is found on the occlusal surface of a molar.

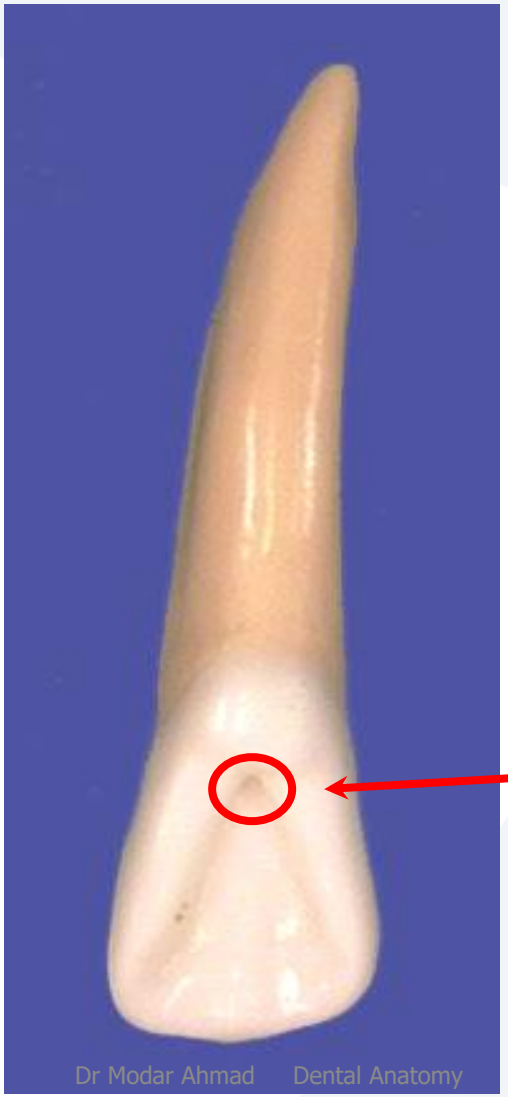
Fossa



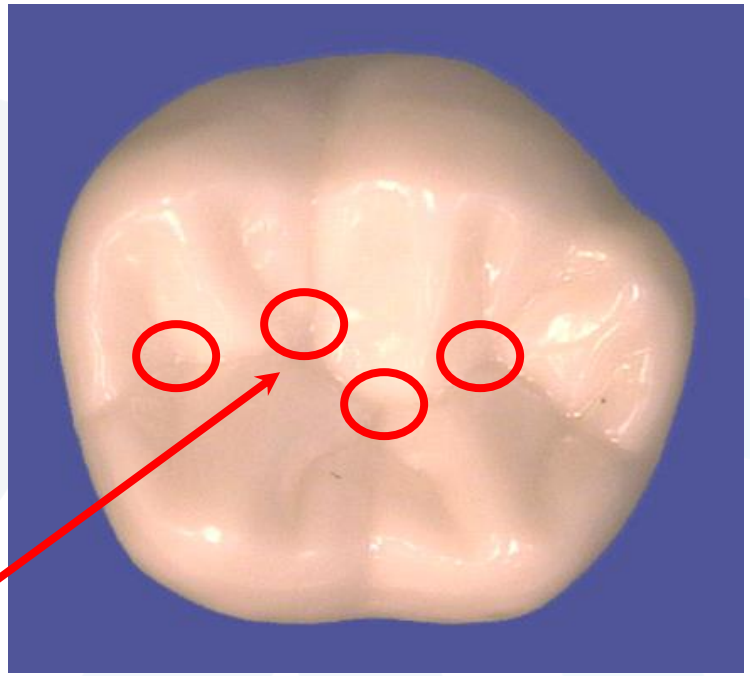
The Landmarks :

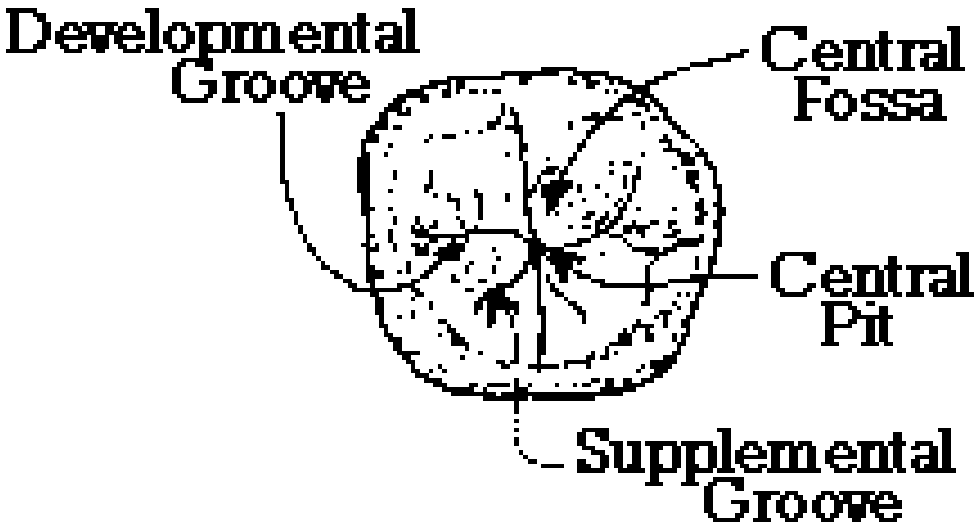
Pits: are small pinpoint depressions located at the junction of developmental grooves or at terminals of those grooves .

A central pit: is found in the central fossa on the occlusal surfaces of molars where developmental grooves join.

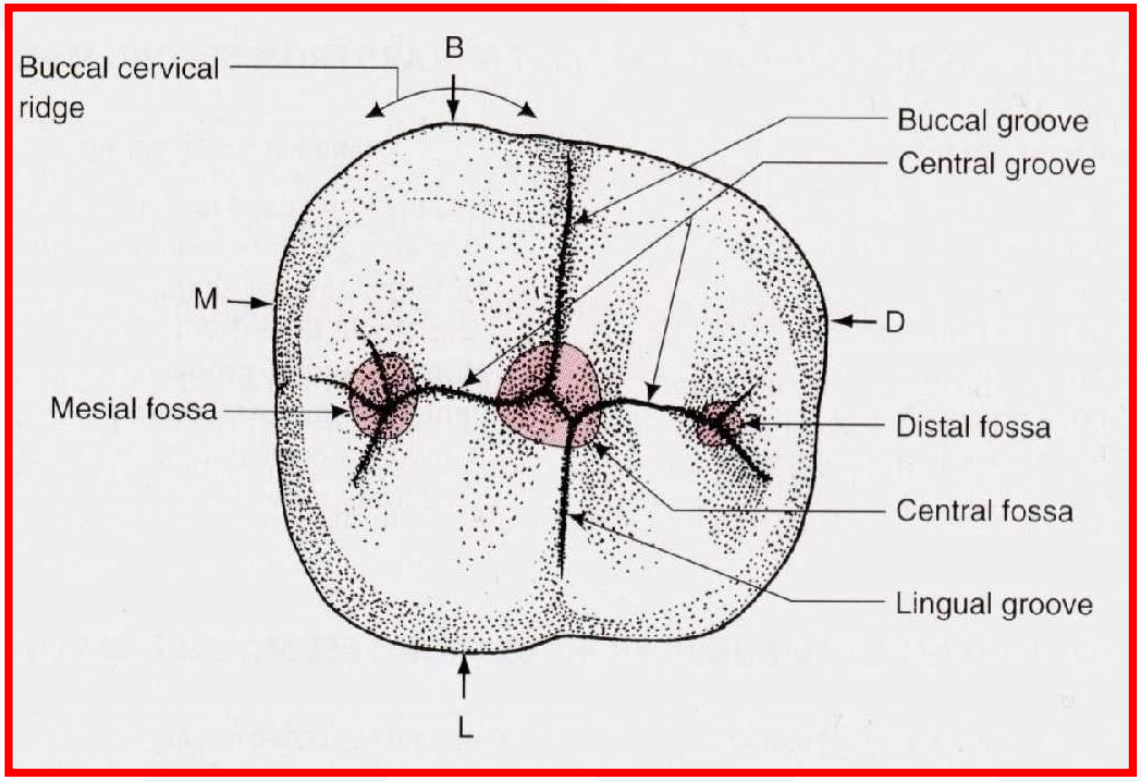


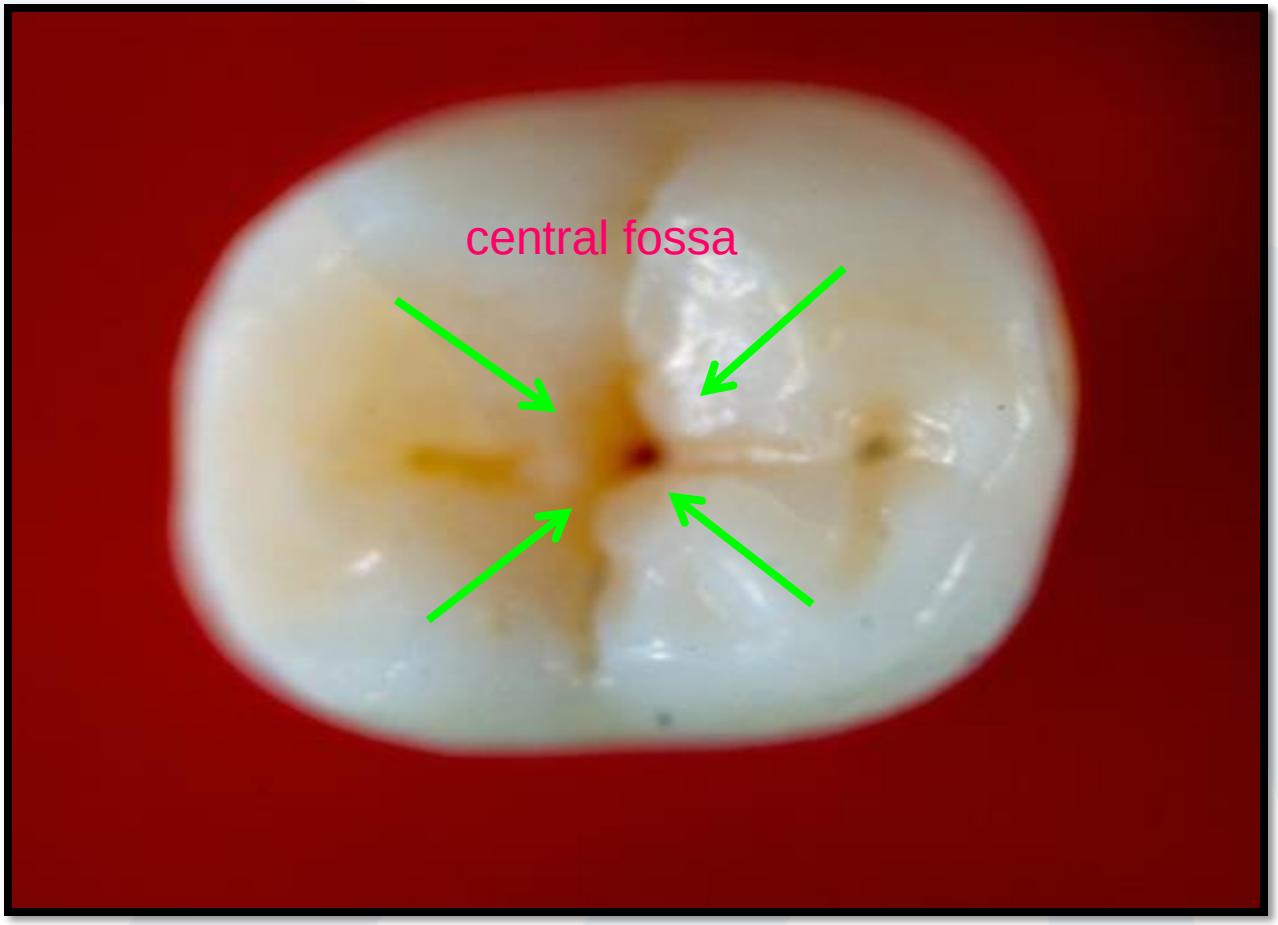
Pits

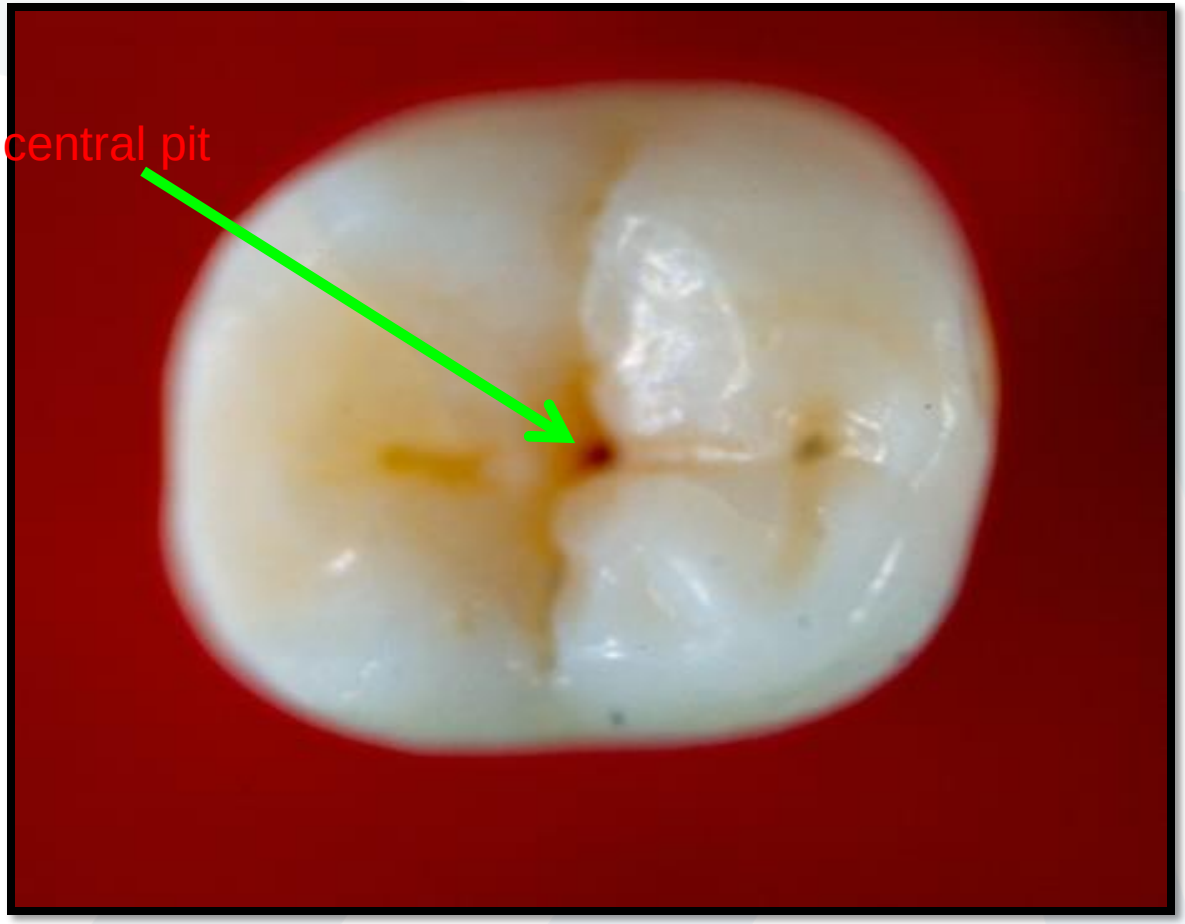



Developmental Groove
Central Fossa
Central Pit
Supplemental Groove

Some landmarks on the mandibular right second molar:




central fossa


A central pit

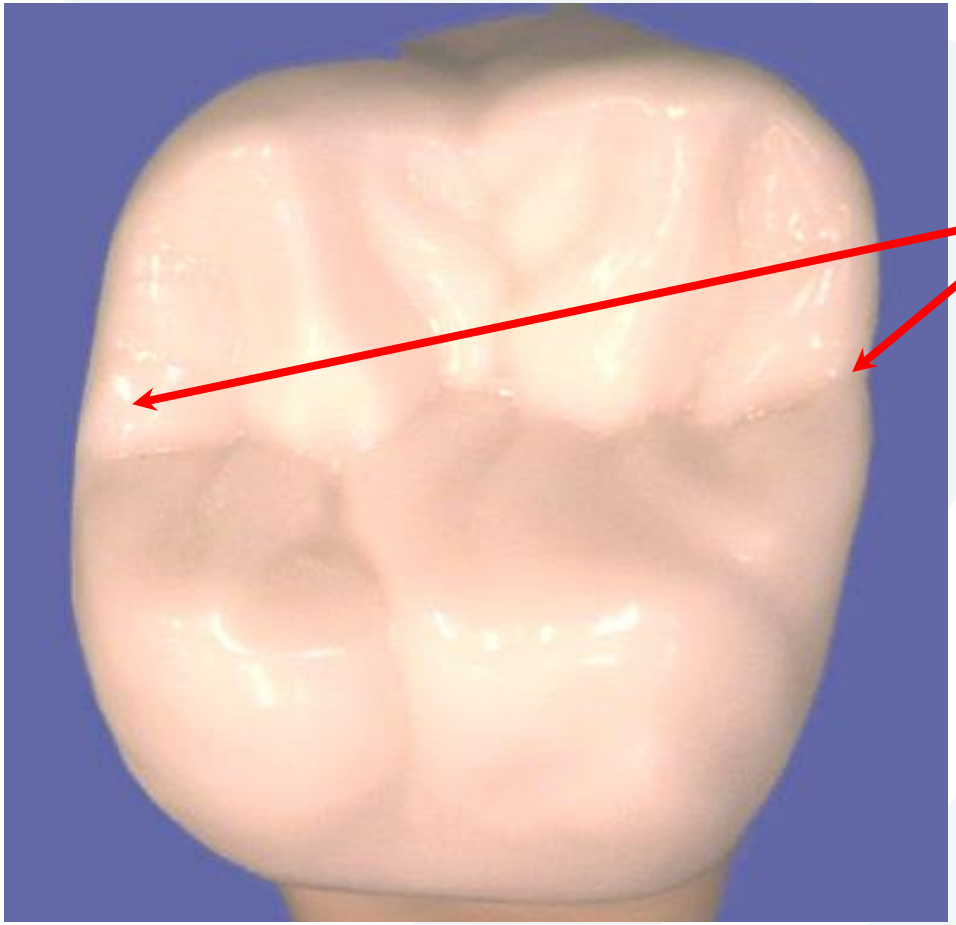
The Landmarks :

A ridge: is any linear elevation on the surface of a tooth and is named according to its location(buccal,triangular or marginal ridge)

- Marginal ridges are those rounded borders of enamel which form the margins of the surfaces of premolars and molars, mesially and distally, and the mesial and distal margins of the incisors and canines lingually.

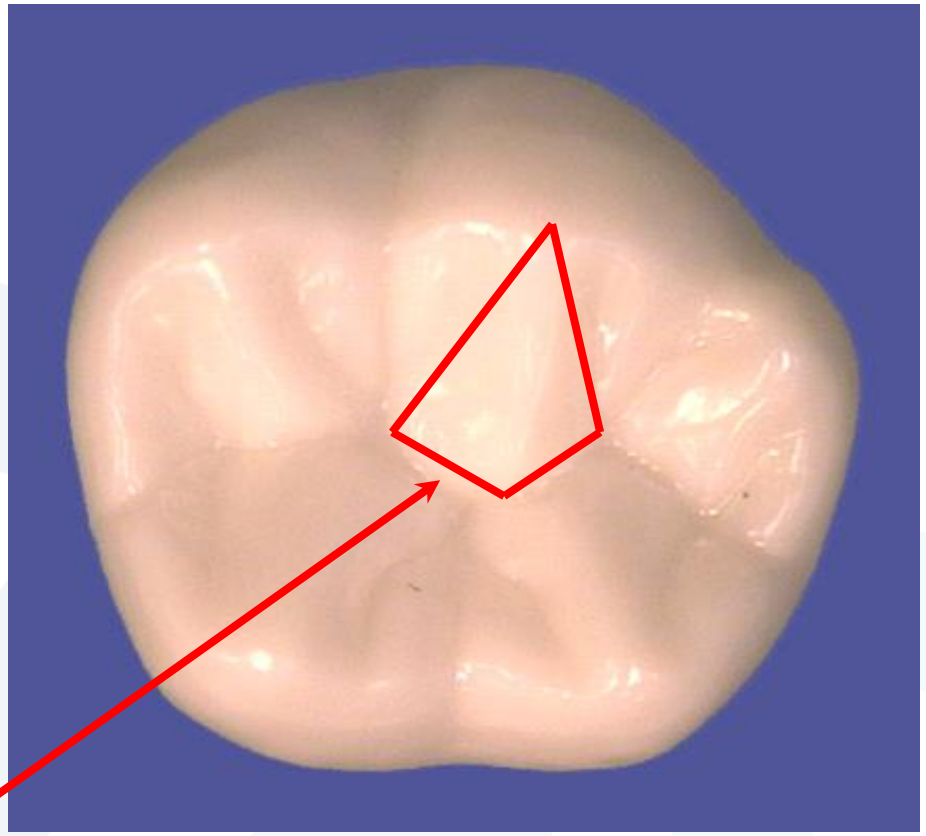
- Triangular ridges are those ridges which descend from the tips of the cusps of molars and premolars toward the central part of the occlusal surface.

- Transverse ridges are created when a buccal and lingual triangular ridge join. It is the union of two triangular ridges crossing transversely across the surface of a posterior tooth.



Marginal Ridge - on posterior teeth located on the mesial and distal border of the occlusal surface

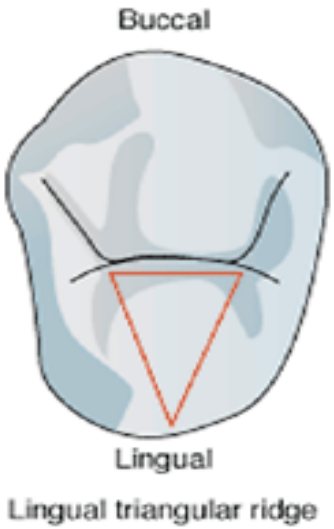
Marginal Ridge - on incisor and canine located on the mesial and distal border of the lingual surface

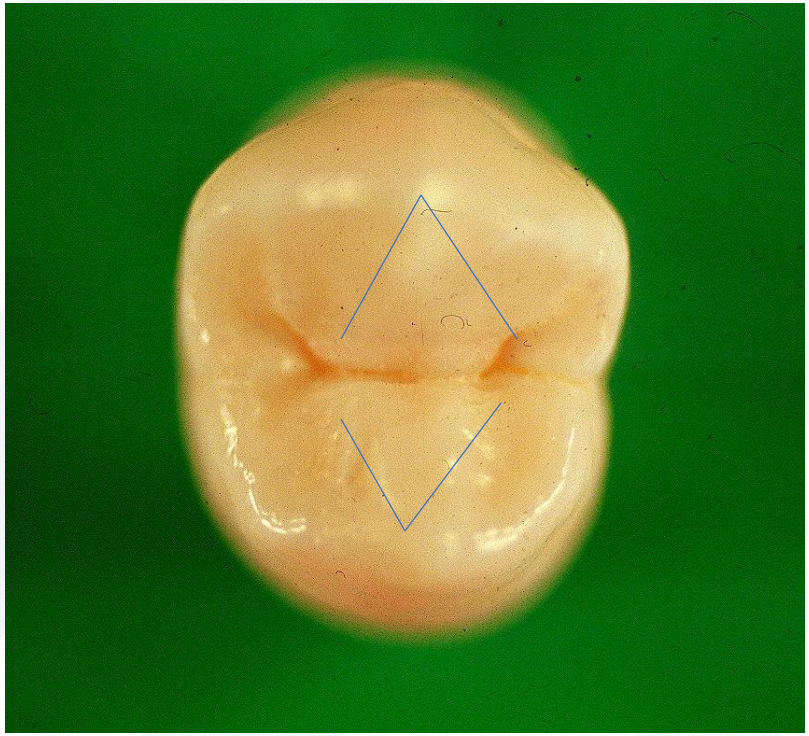


Triangular Ridge - on the occlusal surface of posterior teeth, is the ridge from any cusp tip to center of the occlusal surface

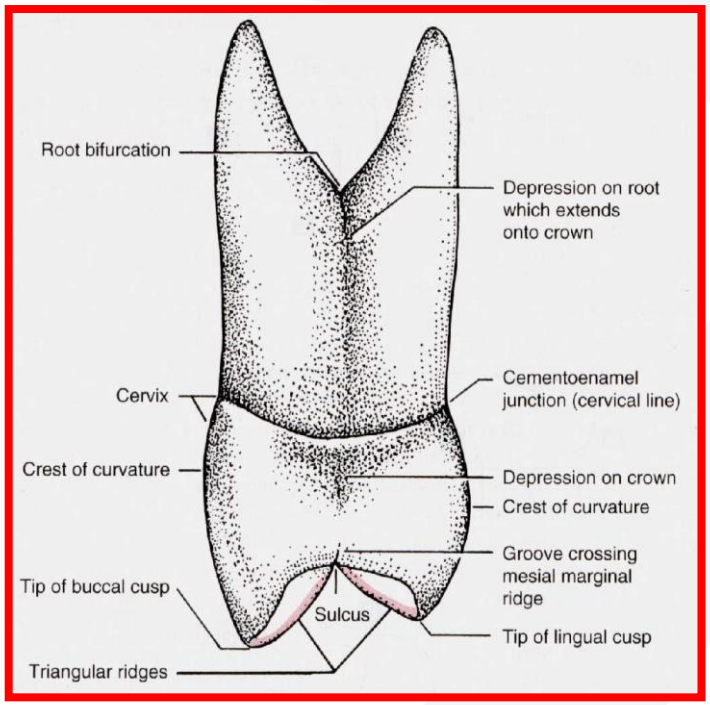
According to shape:

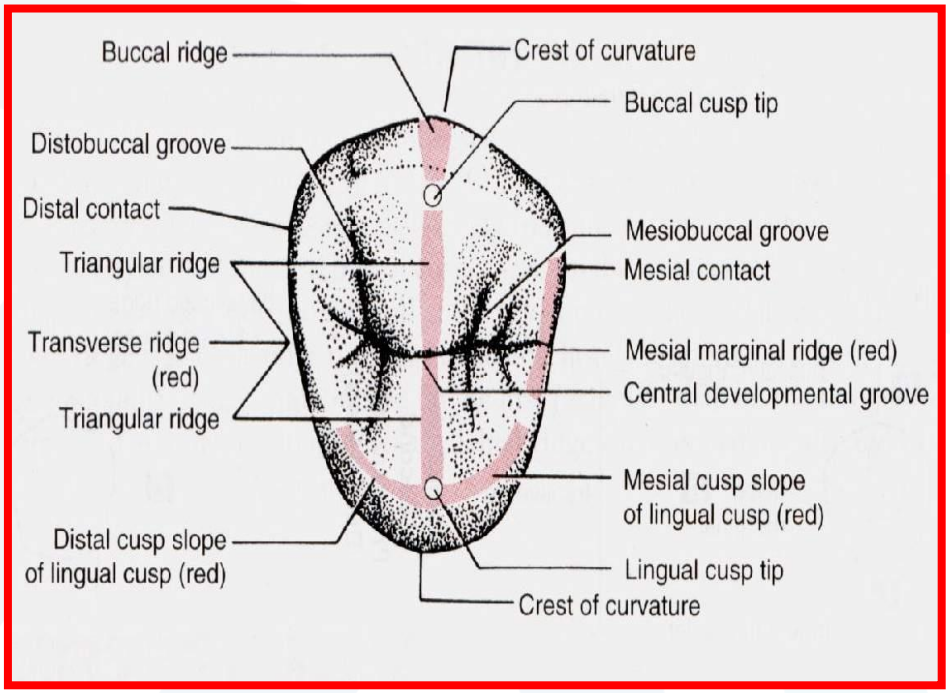
a. Triangular (occlusal) ridge : it descend from the cusp tip of posterior teeth toward the central part of occlusal surface . It is formed as the occlusal sides of the cusp ridge meet together to form line angle .



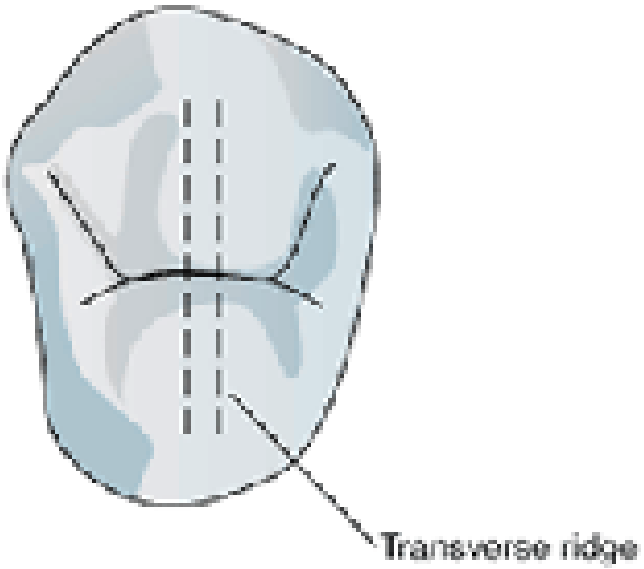


Some landmarks on the maxillary Right first Premolar:



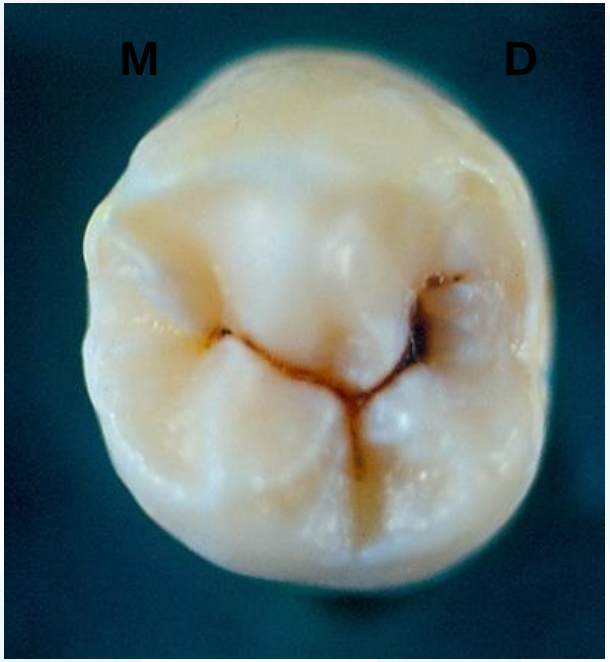


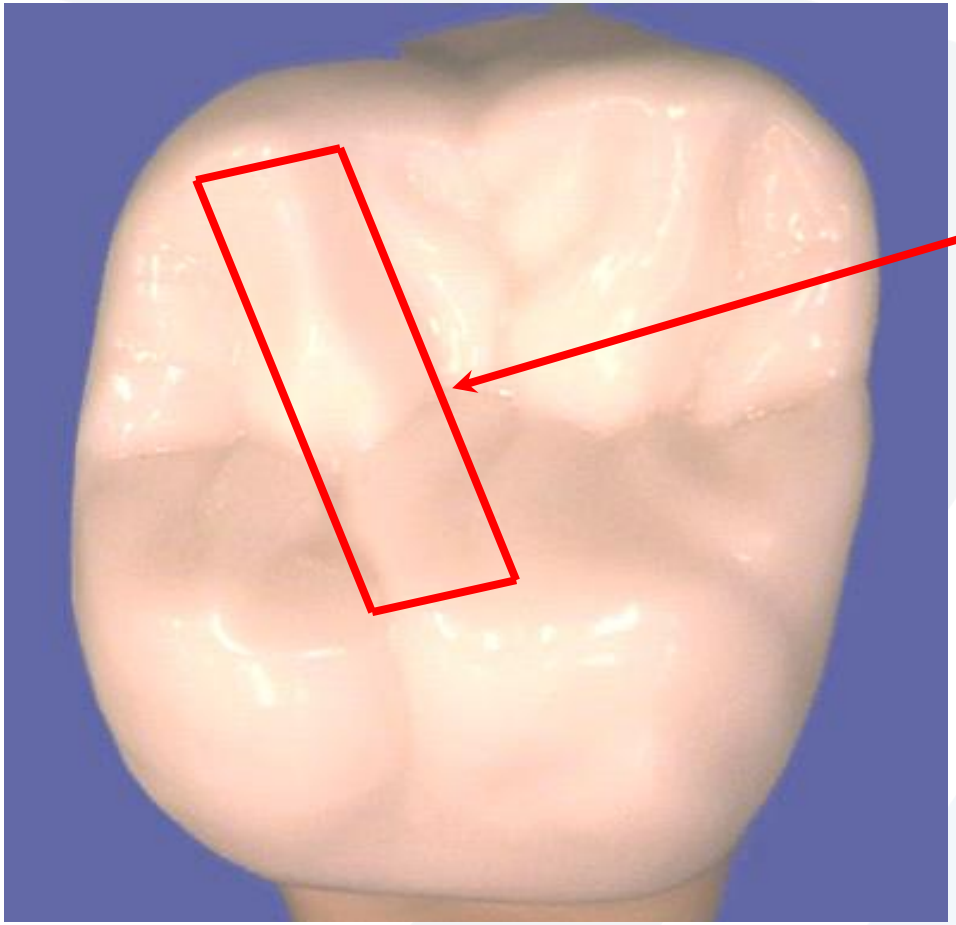
b. Transverse ridge : is the union of the directly opposing buccal and lingual triangular ridges buccolingually crossing the occlusal surface of posterior teeth .



- Oblique ridges are seen on maxillary molars (extends from distobuccal cusp to mesiolingual cusp)
- Cervical ridges are the height of contour at the gingival portion, on certain deciduous and permanent teeth.

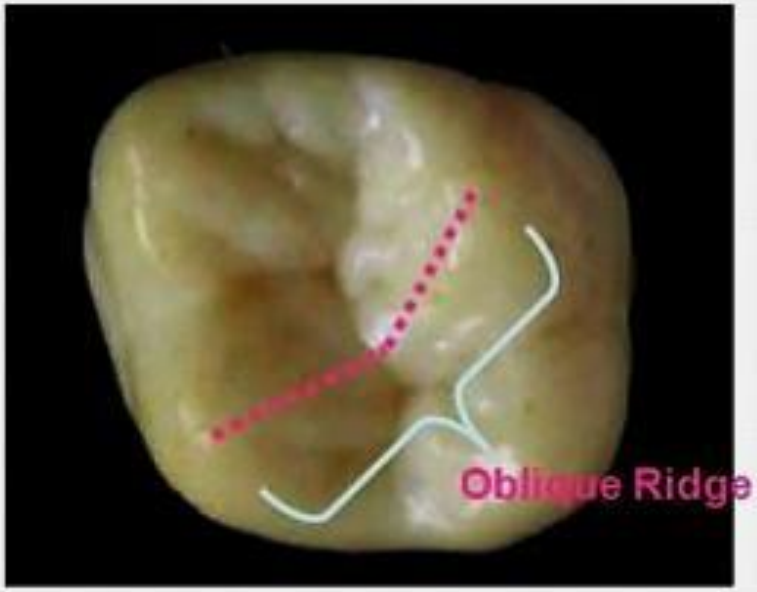
Cervical ridge :





Oblique Ridge - found only on maxillary molars made of the triangular ridges of the mesiolingual and distobuccal cusps

D. Oblique ridge: is a ridge obliquely crossing the occlusal surfaces of maxillary molars



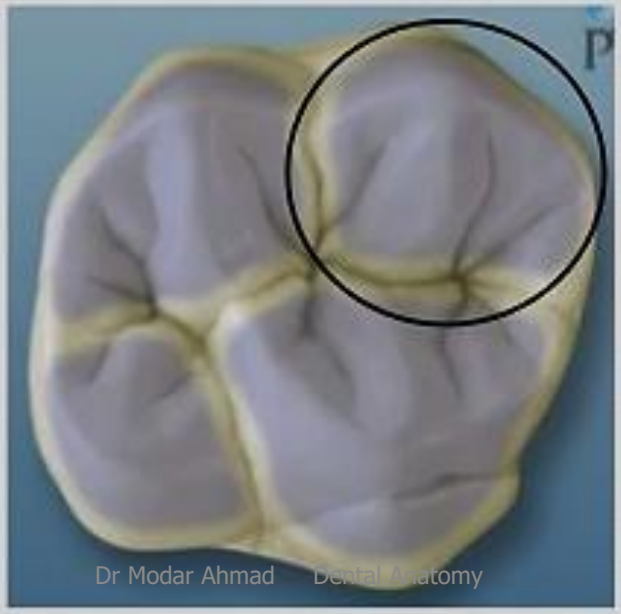
The Landmarks :

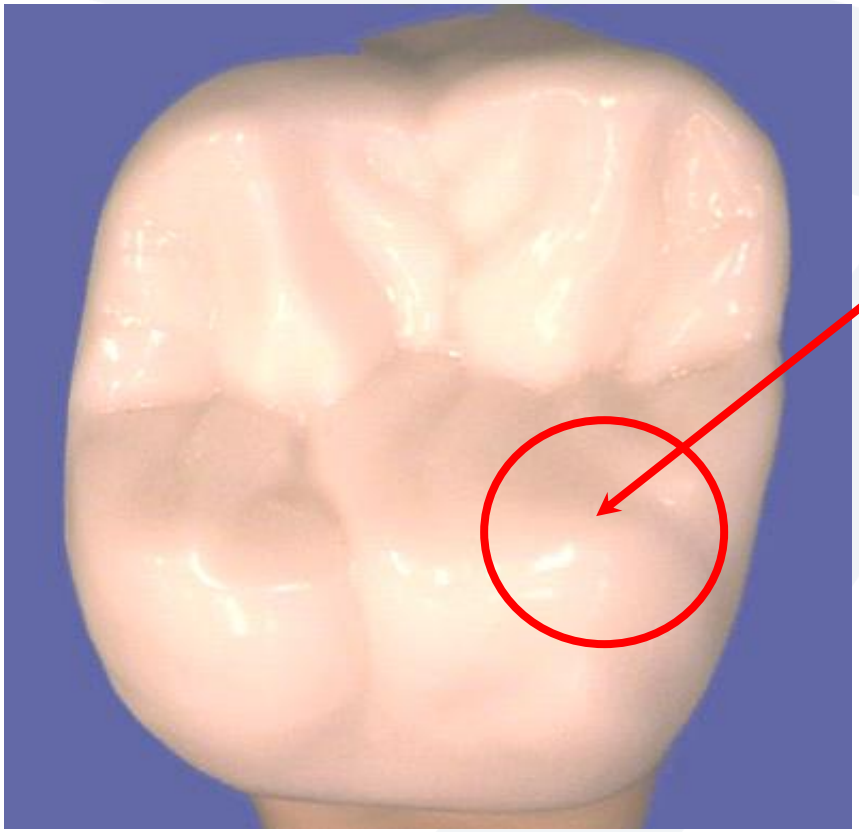
-A Cusp: is an elevation or mounted on the crown portion of a tooth making up a divisional part of the occlusal surface.

Also it is defined as a point or peak on the occlusal surface of molar and premolar teeth and on the incisal edges of canines.

Elevations on tooth surface

1. Cusp: An elevation or mound on the crown of a tooth





Cusp - is a point, or peak on the chewing surface of premolar or molar tooth

Cusp Slopes Or Ridges - are the inclined surfaces that form an angle at the cusp tip