

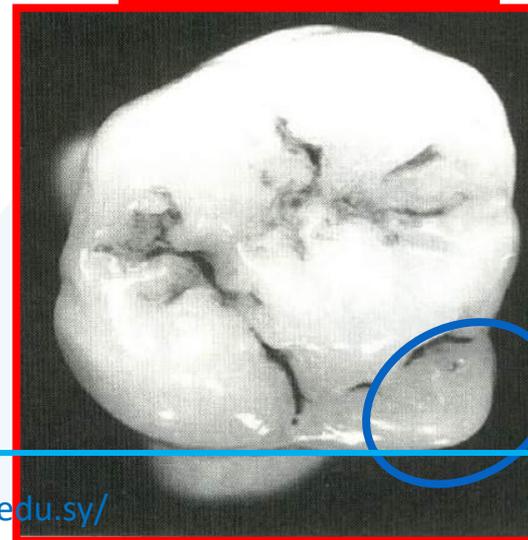
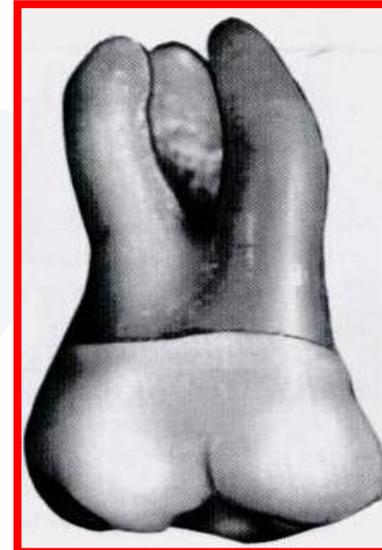
# Maxillary first molar

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# general landmarks

- ***The crown of this tooth is wider buccolingually than mesiodistally .***



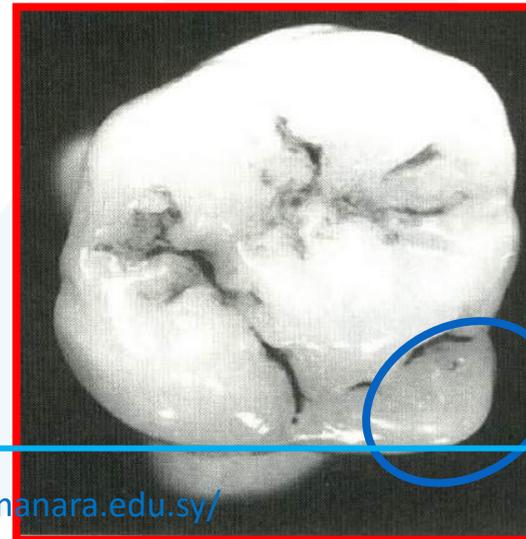
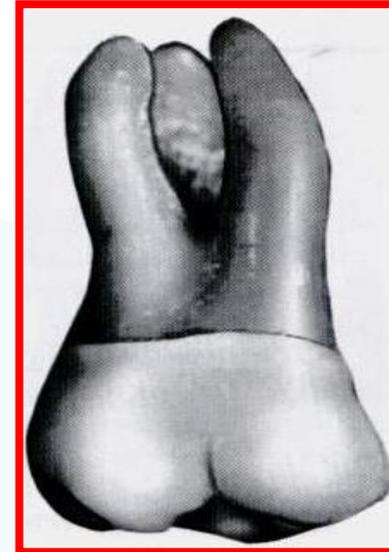
*Carabelli*

- *general landmarks*



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- *It is the largest tooth in the maxillary arch.*
- *It has four well-developed functioning cusps and one supplemental cusp, which called **tubercle of Carabelli**, it is located lingual to the mesiolingual cusp.*
- *It has three roots; mesiobuccal, distobuccal, and lingual, these roots are well separated and well-developed.*
- *The lingual root is the longest root.*

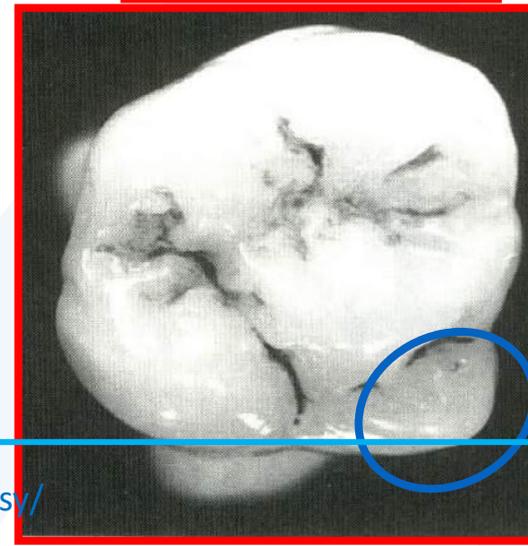
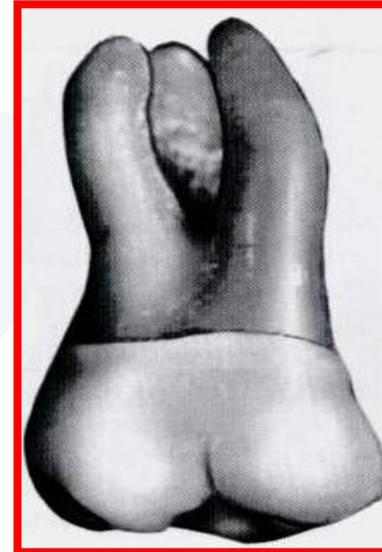


*Carabelli*

# general landmarks

*The mesiobuccal root not as long ,but it is broader buccolingually .*

*The distobuccal root is the smallest of the three roots .*

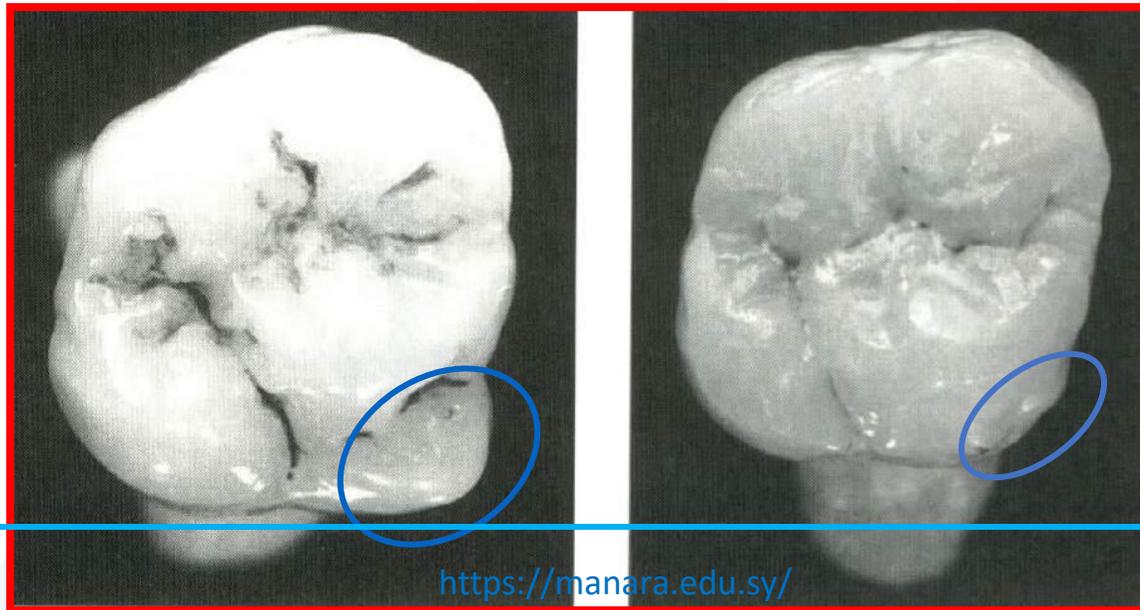


*Carabelli*

# Types and general landmarks

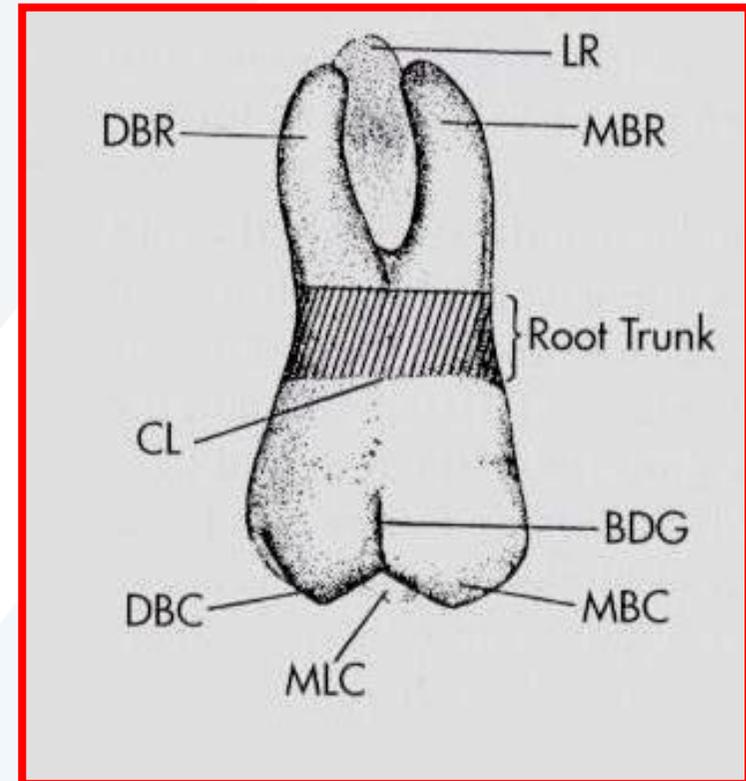
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- *Two types of maxillary first molars comparing the difference in the mesiolingual cusp :  
one has a very large cusp of Carabelli, but the other has a slight depression in the same location .*



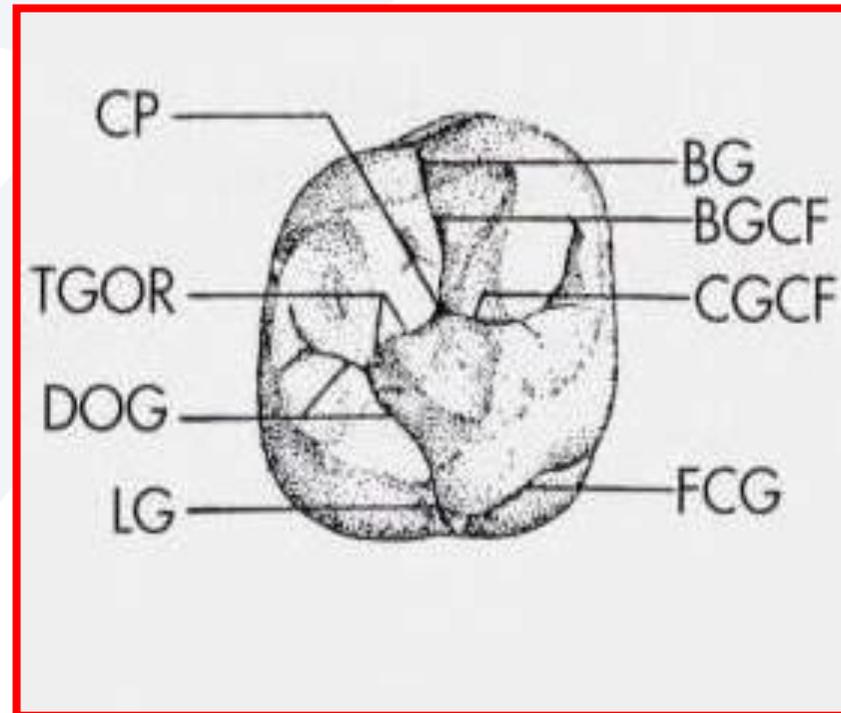
# *Buccal Aspect general landmarks*

- **DBR** :distobuccal root .
- **LR** : lingual root.
- **MBR** : mesiobuccal root .
- **CL** :cervical line .
- **DBC** : distobuccal cusp .
- **MLC** :mesiolingual cusp.
- **MBC** : mesiobuccal cusp .
- **BDG** :Buccal developmental groove.



# developmental grooves

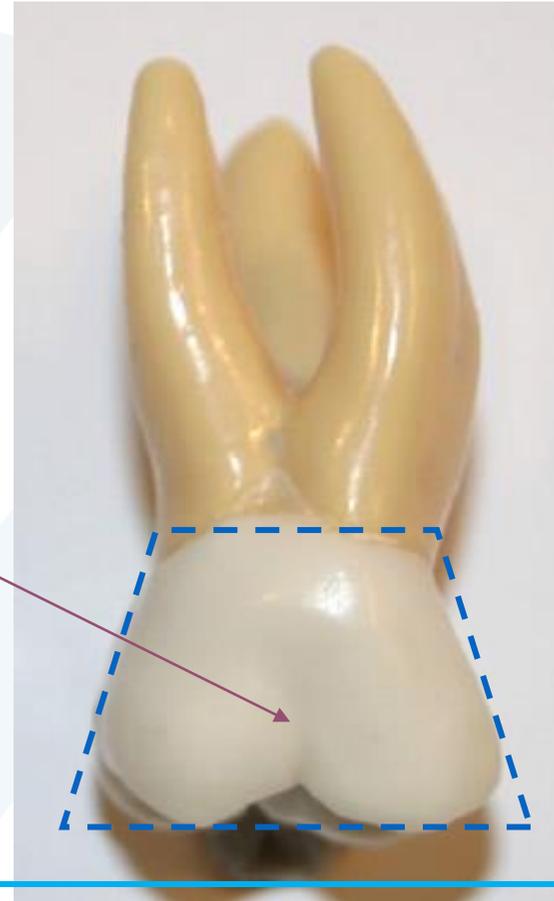
- **CP** :central pit.
- **TGOR**:transverse groove of oblique ridge.
- **DOG** :distal oblique groove .
- **LG** :Lingual groove .
- **FCG** : fifth cusp groove .
- **CGCF** :central groove of central fossa.
- **BGCF** :buccal groove of central fossa .
- **BG** :Buccal groove.



# Buccal aspect

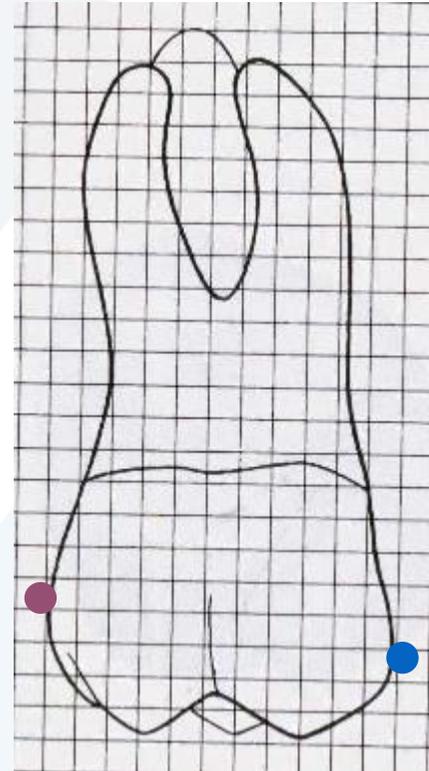


- *The crown is roughly trapezoidal .*
- *The buccal developmental groove divides the two buccal cusps .*



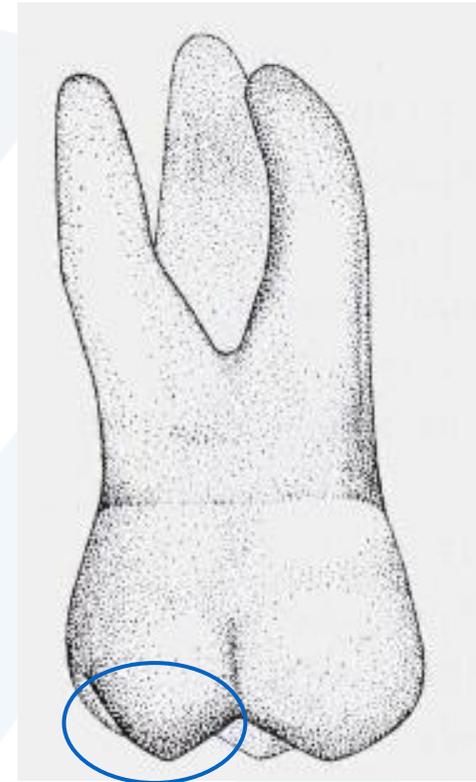
# Buccal aspect

- ***Distal crest of curvature is slightly gingival to the mesial crest in the middle of the middle 1/3 .***
- ***Mesial crest of curvature at the junction of the occlusal and middle 1/3.***



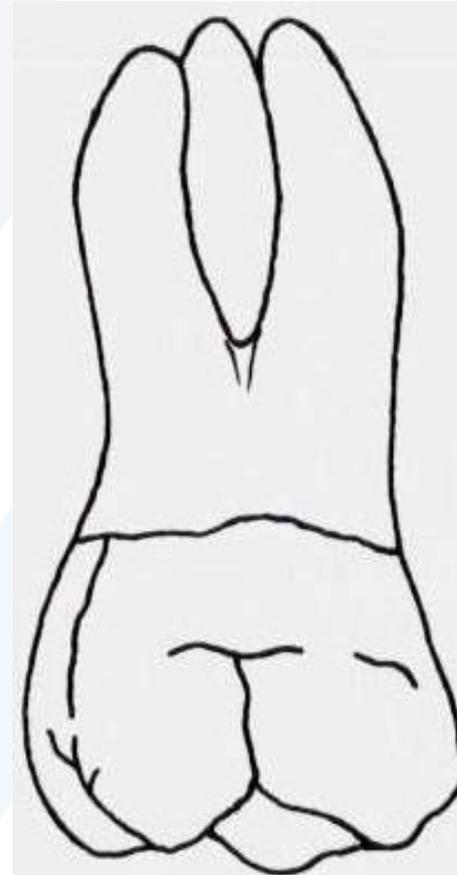
# Buccal aspect

- ***Mesiobuccal cusp is wider mesiodistally than the distobuccal cusp .***
- ***Distobuccal cusp is often sharper than the mesiobuccal cusp , and it is at least as long and often longer .***



# Buccal aspect

- ***Distal surface is more convex and shorter than the mesial surface.***



# Buccal aspect

- ***Buccal groove crosses onto the buccal surface from the occlusal and fades out .***



# Buccal aspect

- *The mesiobuccal cusp is broader than the distobuccal cusp.*



# Buccal aspect

- ***All the three roots may be seen .The axes of the roots are inclined distally.The roots are not straight .***
- ***The buccal roots show an inclination to curvature halfway between the point of bifurcation and apices.***

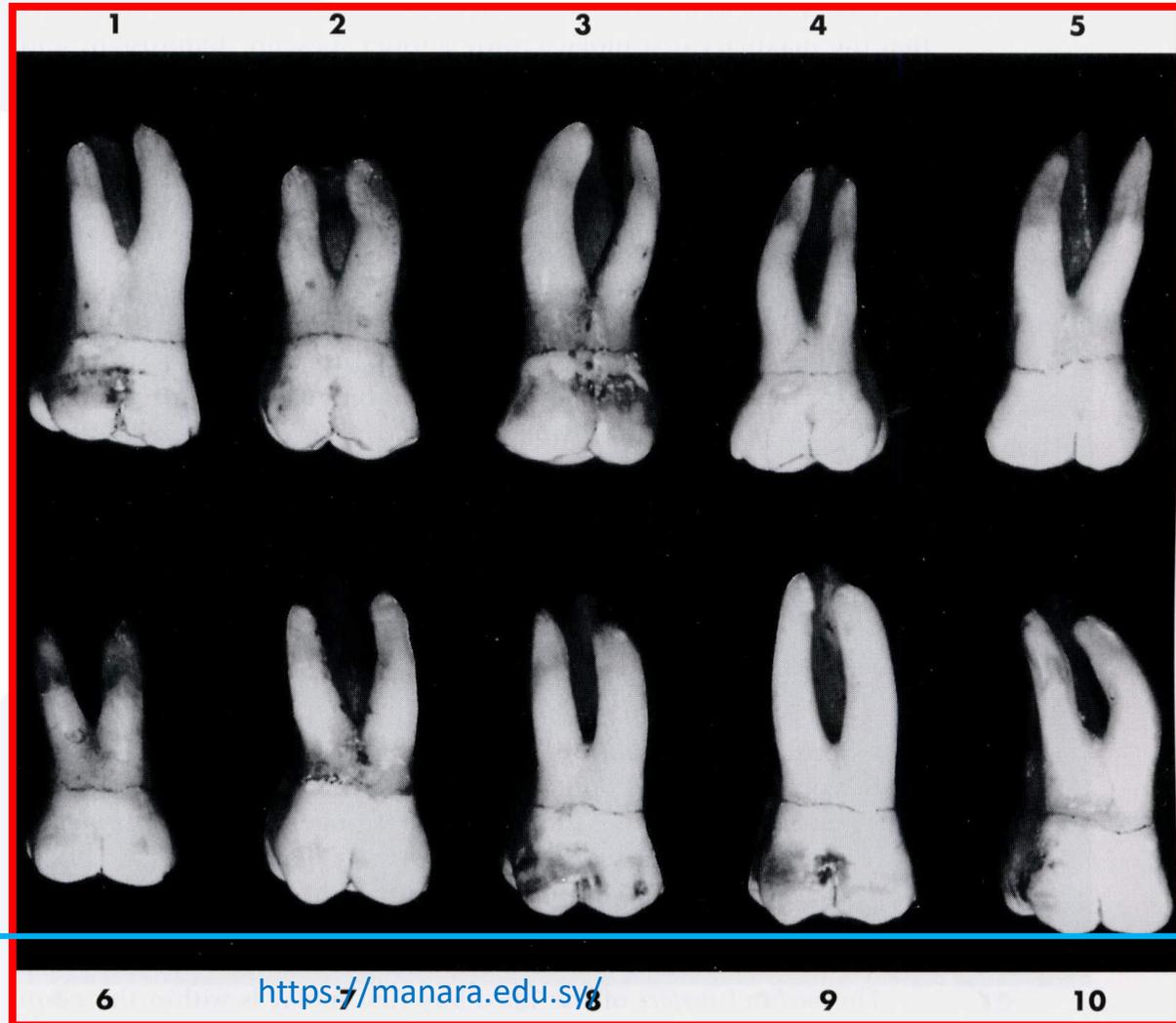


# Buccal aspect

*The mesiobuccal root curves distally starting at the middle third .The distal root is straighter , and it has a tendency toward curvature mesially at its middle third .*



# Ten Typical specimens



- *Labial aspect*

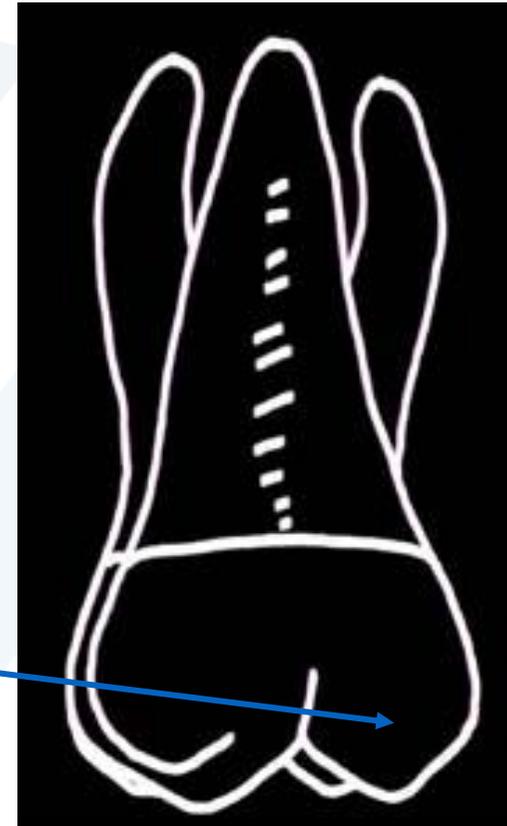
# Palatal aspect

- ***The lingual cusps are the only ones to be seen from this aspect; the mesiolingual cusp is much larger, and it is the longest cusp.***
- ***All three roots are visible from this aspect.***
- ***The lingual root is large and conical, terminating in a bluntly rounded apex.***



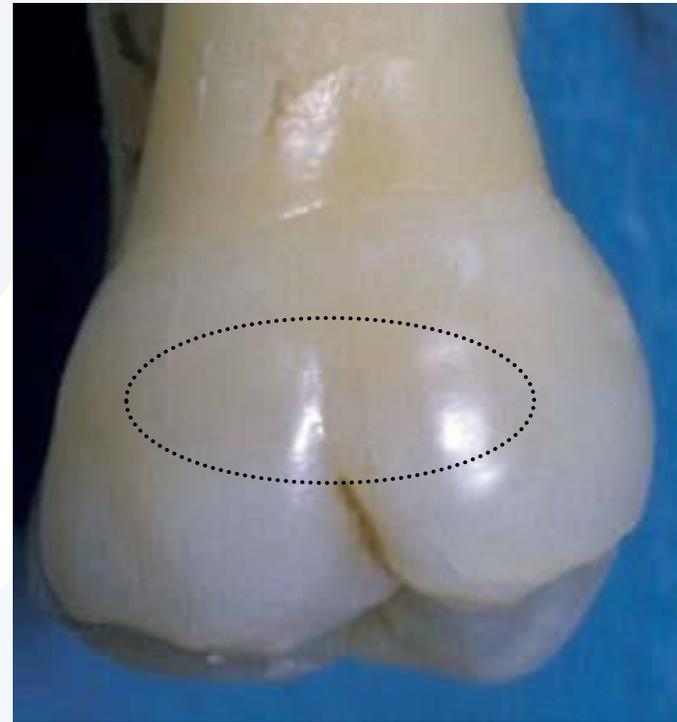
# Palatal aspect

- *The occlusolingual groove (distolingual groove) is often well defined and terminates in a pit on the lingual surface .*
- *Distolingual cusp is clearly the smallest of the lingual cusps.*



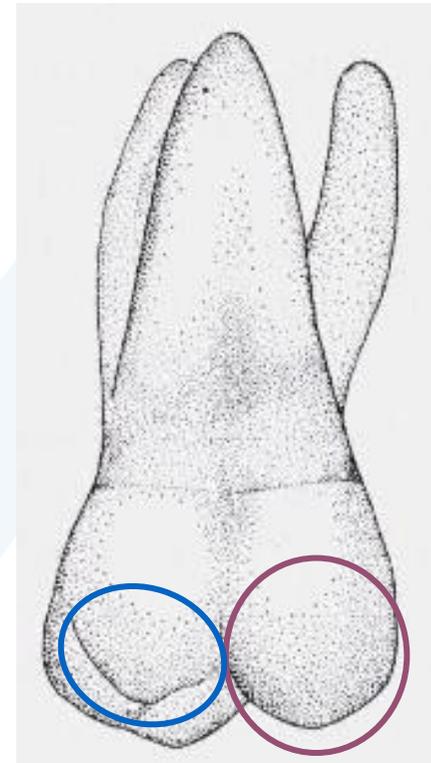
# Lingual aspect

- ***Lingual height of contour in the middle 1/3 of the lingual surface .***



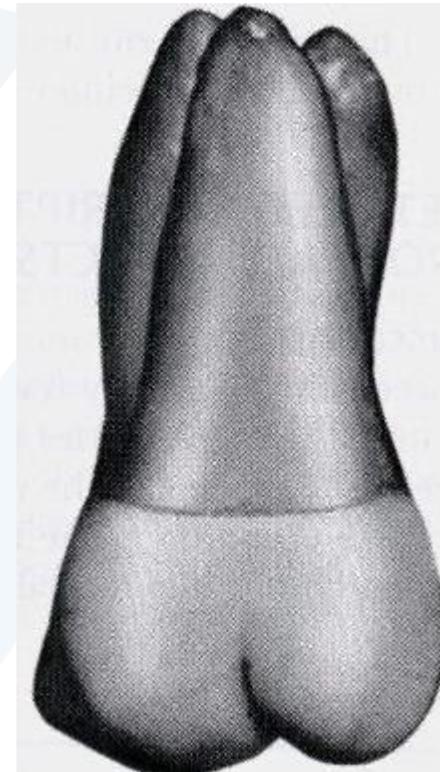
# Lingual aspect

- *The distolingual cusp is **spheroidal and smooth**.*
- ***Cusp of Carabelli** may be well defined at the mesiolingual line angle .*
- *A **Cusp of Carabelli groove** may be present.*



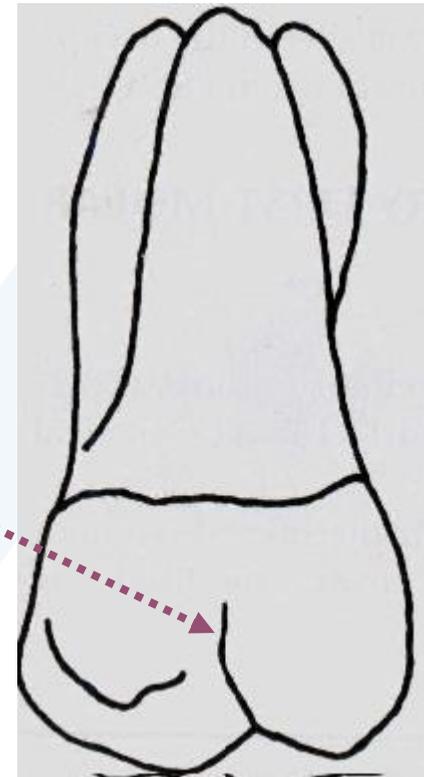
# Lingual aspect

- *In this type Cusp of Carabelli may be absent.*
- *The occlusolingual groove (distolingual groove) is often well defined .*



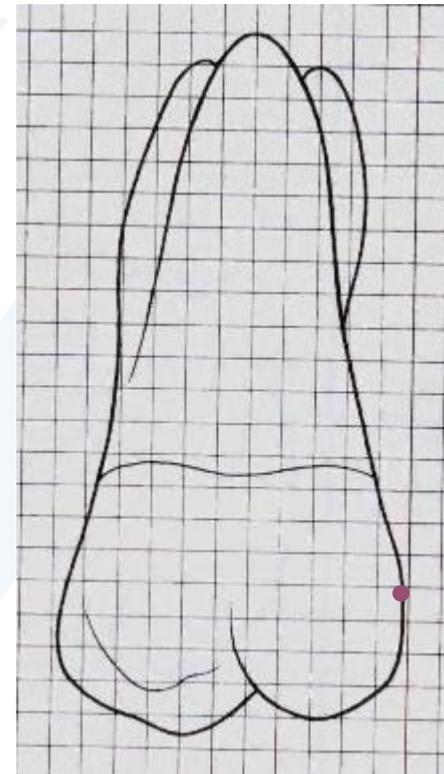
# Lingual aspect

- ***the lingual developmental groove starts approximately in the center of the lingual surface mesiodistally, curves sharply to the distal as it crosses between the cusps, and continuous on to the occlusal surface .***



# Lingual aspect

- ***Distal height of contour in the middle 1/3 of the distal surface.***



# Mesial aspect

- ***Mesial height of contour located buccal of center and at the junction of the occlusal and middle 1/3 of the mesial surface .***



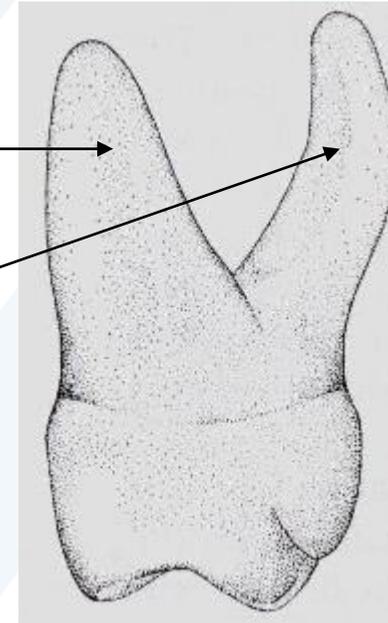
## Mesial aspect

- *The **mesial marginal ridge** ,which confluent with mesiobuccal and mesiolingual cusp ridges is irregular .*
- *Well developed occlusal spillway(s) may be seen crossing the mesial marginal ridge.*
- *The cervical line is irregular , curving occlusally , but as a rule not more than 1mm.*



# Mesial aspect

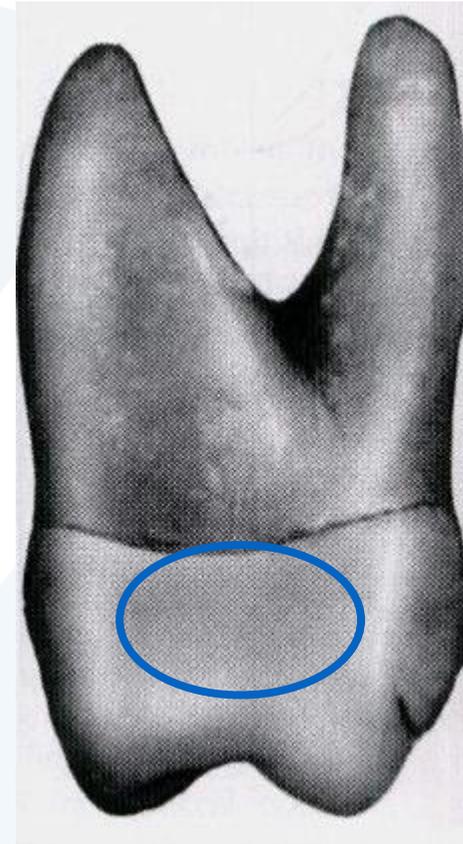
- ***The mesiobuccal root is broad and flattened on its mesial surface .***
- ***The lingual root is longer, but is narrower from this aspect. This root is a banana –shaped .***



***A smooth depression congruent with the bifurcation extends occlusally and lingually to the cervical line .***

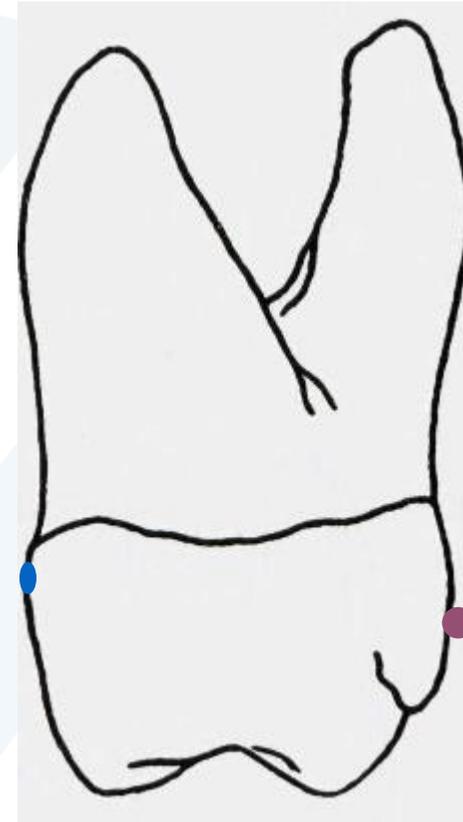
# Mesial aspect

- *A shallow concavity is usually found above the contact area .*
- *The level of the bifurcation is little closer to the cervical line than found between the roots buccally .*

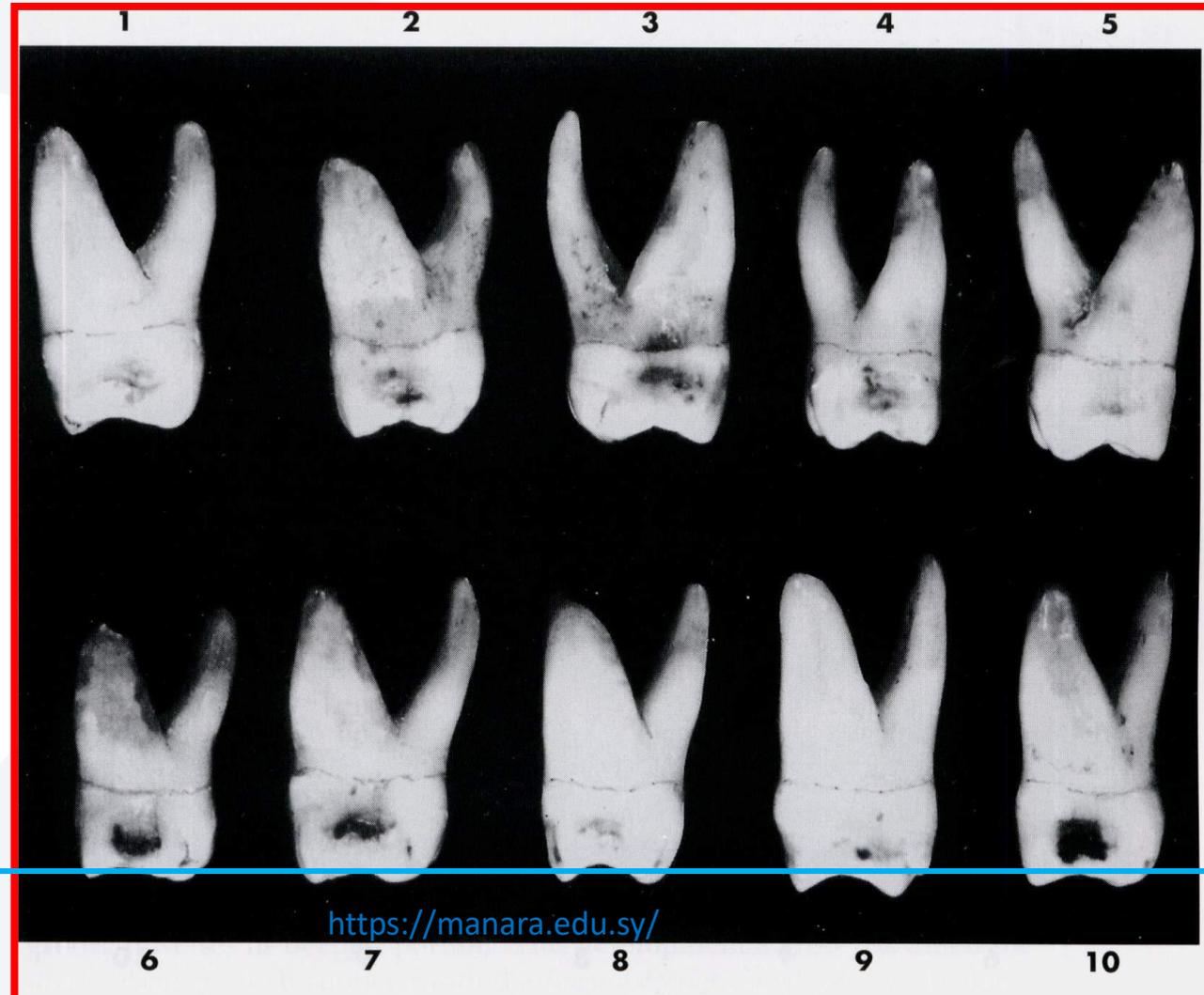


# Mesial aspect

- *buccal height of contour clearly seen in the gingival 1/3*
- *lingual height of contour clearly seen in the middle 1/3.*



# Ten Typical specimens



- *Mesial aspect*

# Distal aspect

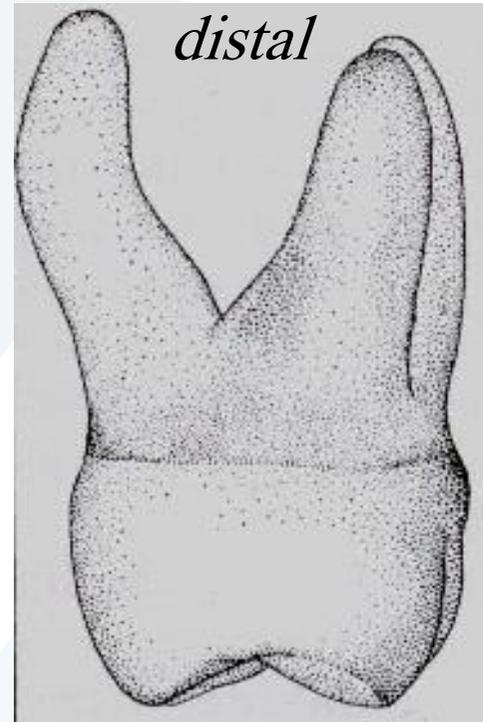
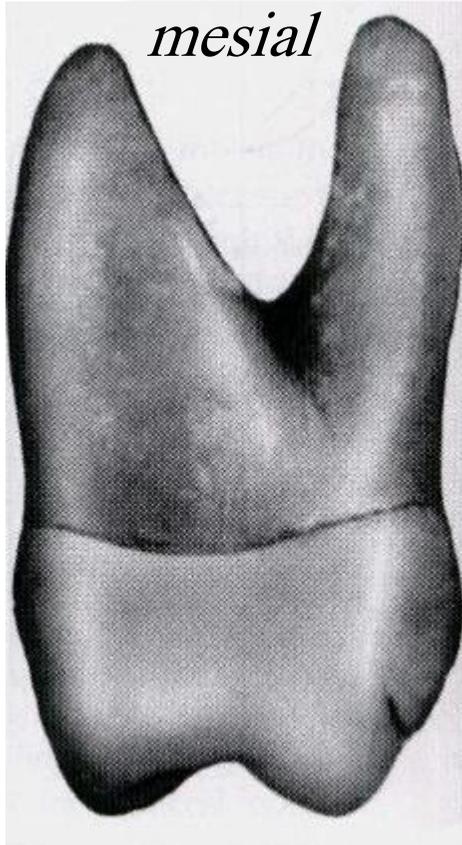
- ***This aspect is similar to that of the mesial aspect.***
- ***The distal surface of the crown is generally convex .***



# Distal aspect

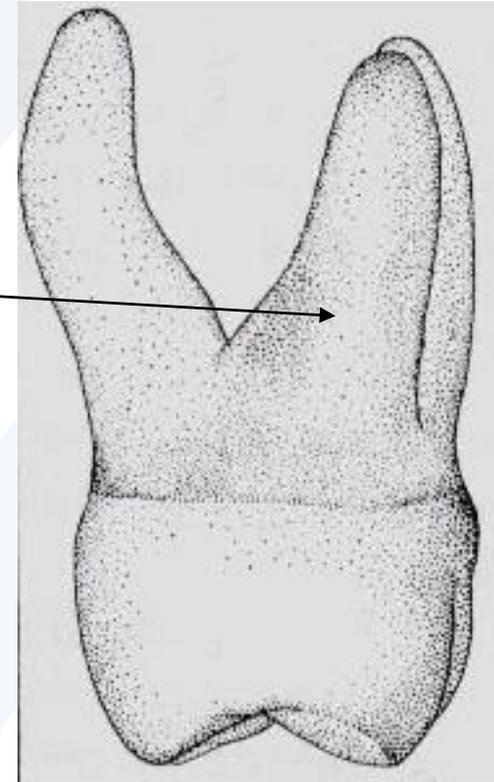
- ***Distal contact area is located buccal of center on the distal surface .***
- ***The cervical line is almost straight across from buccal to lingual .***





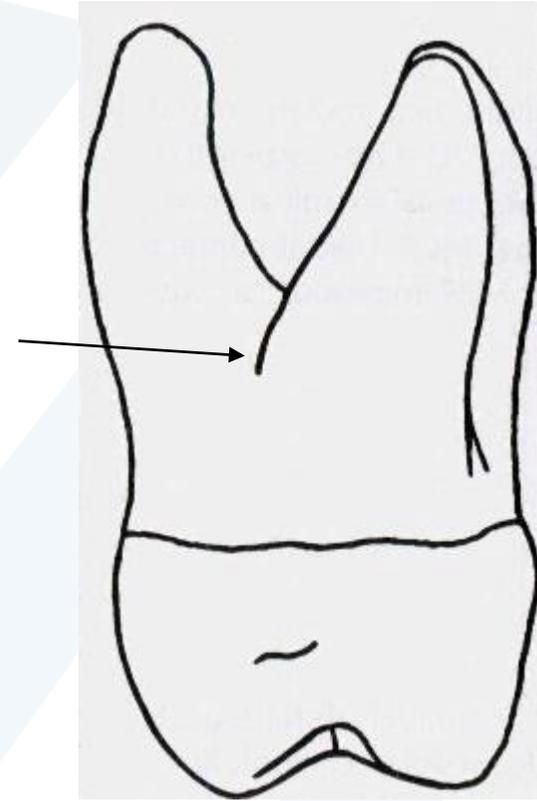
# Distal aspect

- ***the distobuccal root is narrower at its base than either of the others .***



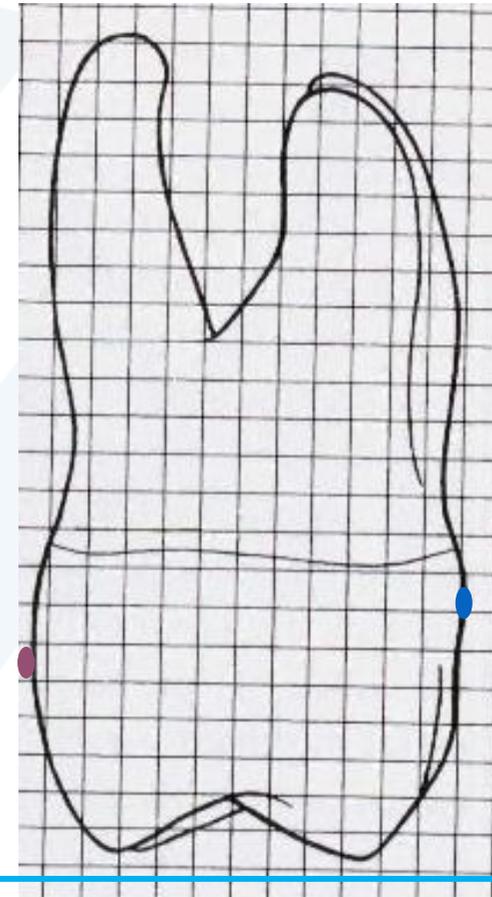
# Distal aspect

- ***the bifurcation is more apical than either of the other two areas on this tooth.***



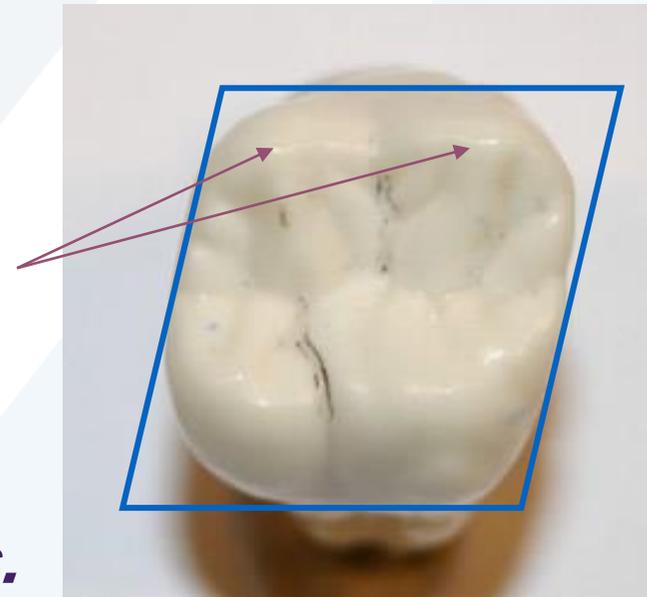
# Distal aspect

- ***Buccal height of contour in the gingival 1/3.***
- ***Lingual height of contour in the middle 1/3.***



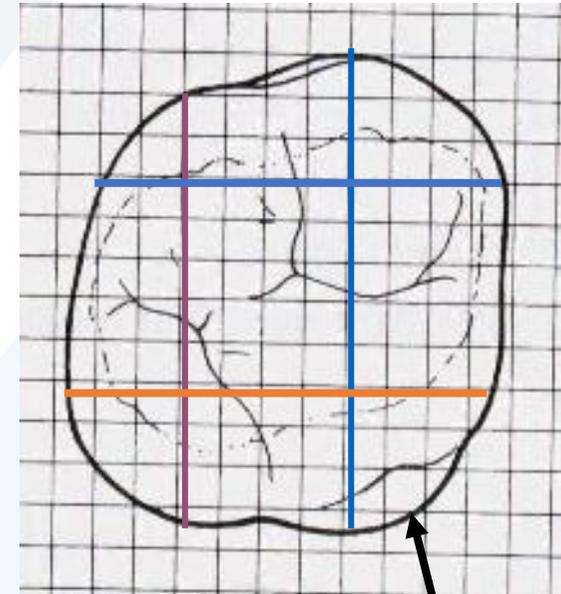
# Occlusal aspect

- *It is somewhat **rhomboidal** shape .*
- ***Buccal cusp tips** are sharper than **lingual cusp tips**.*
- ***All cusp ridges** have shallow **saddlings** adjacent to the **cusp tips**.*



# Occlusal aspect

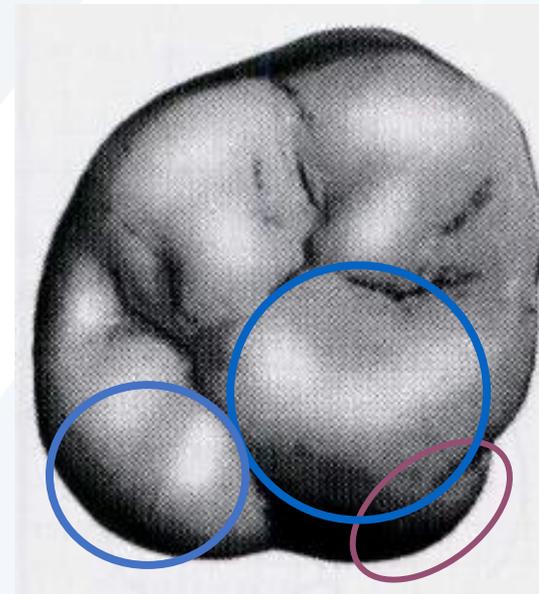
- *The crown is wider **mesially** than **distally** and wider **lingually** than **buccally** .*

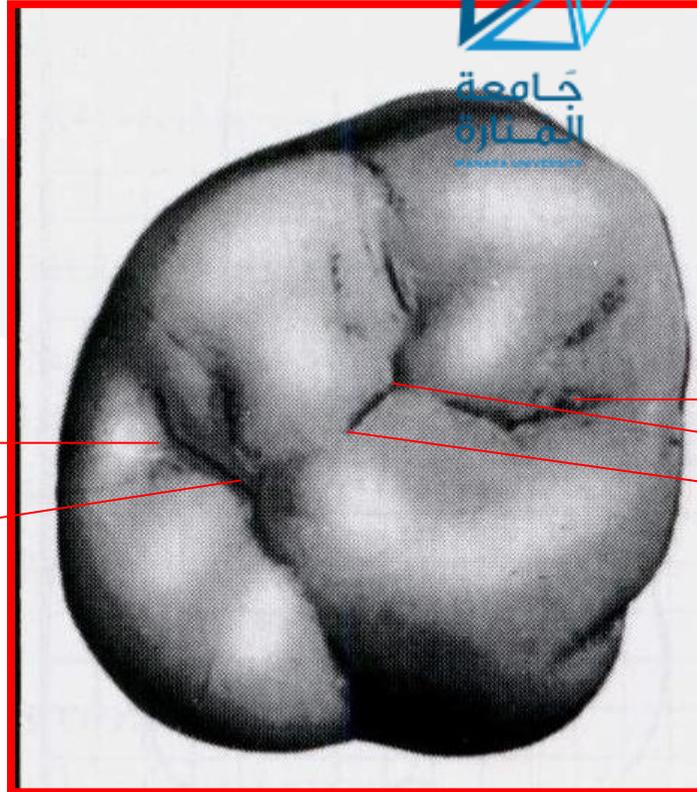


*carabelili*

# Occlusal aspect

- *The four cusps are well developed with the small minor; or fifth cusp on the lingual surface.*
- *The mesiolingual cusp is the largest.*
- *Distolingual cusp clearly the smallest of the cusps.*





*distal triangular fossa*

*Distal Fossa*

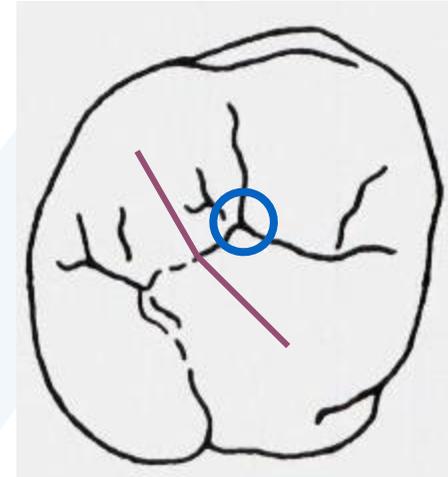
*mesial triangular fossa*  
*Central Fossa*

*The oblique ridge*

*Occlusal aspect : There are two major fossae and two minor fossae. The major fossae are the central fossa and the distal fossa. The two minor fossae are the mesial triangular fossa and the distal triangular fossa. The oblique ridge is a ridge that crosses the occlusal surface obliquely. The union of the triangular ridge of the distobuccal cusp and the distal ridge of the mesiolingual cusp forms it.*

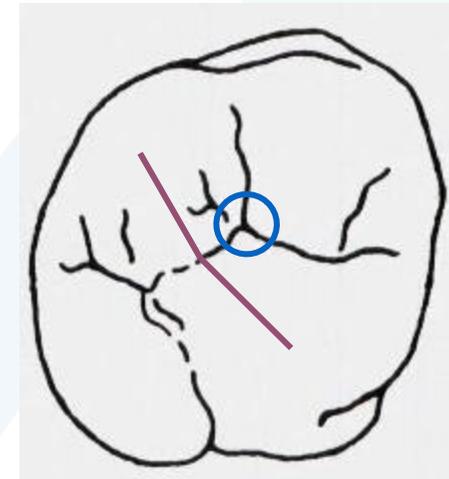
# Occlusal aspect

- ***There are two major fossae and two minor fossae. The major fossa is the central fossa, which is mesial to oblique ridge .And the second major fossa is the distal fossa, which is distal to the oblique ridge .***



# Occlusal aspect

- ***The oblique ridge is a ridge that crosses the occlusal surface obliquely .the union of the triangular ridge of the distobuccal cusp and the distal ridge of the mesiolingual cusp forms it.***



# Occlusal aspect

- **Central pit the deepest of the 3 occlusal pits .**
- **Buccal groove well defined.**
- **Central groove fades out over the oblique ridge .**
- **Occlusolingual groove well defined.**



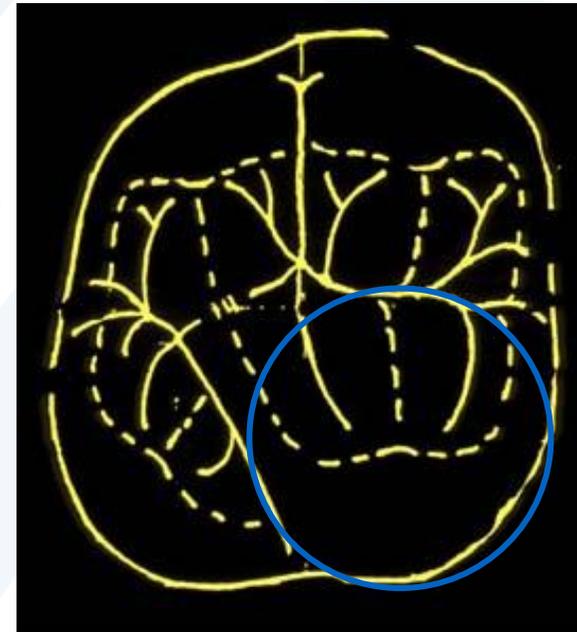
## Occlusal aspect

- *Triangular grooves well developed around all triangular ridges, but deeper around the buccal cusp than on the lingual cusps .*
- *Mesial marginal ridge often crossed by well developed mesial occlusal spillways .*

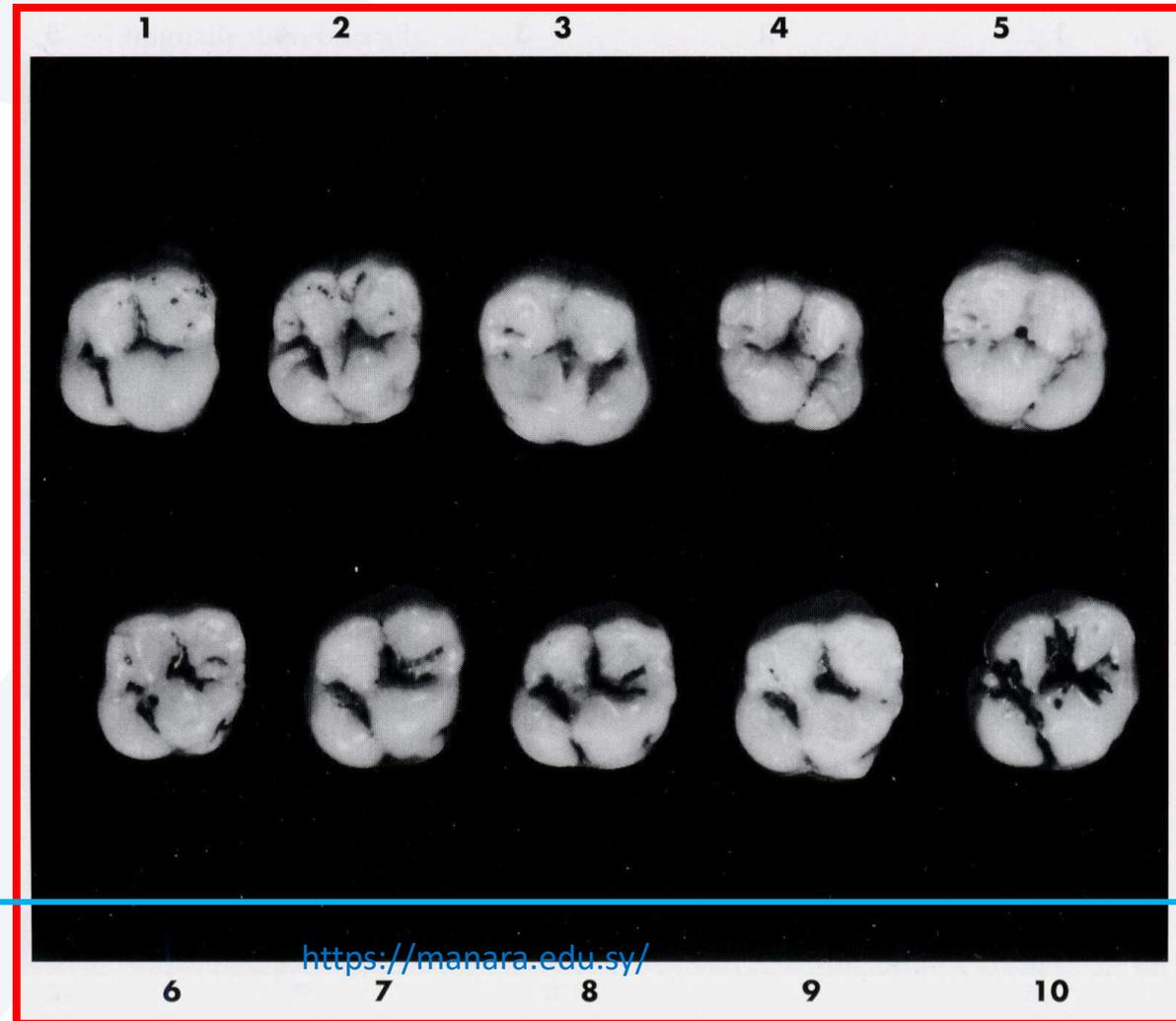


# Occlusal aspect

- *Triangular grooves generally well defined, but are shallow on the **mesiolingual cusp** .*



# Ten Typical specimens



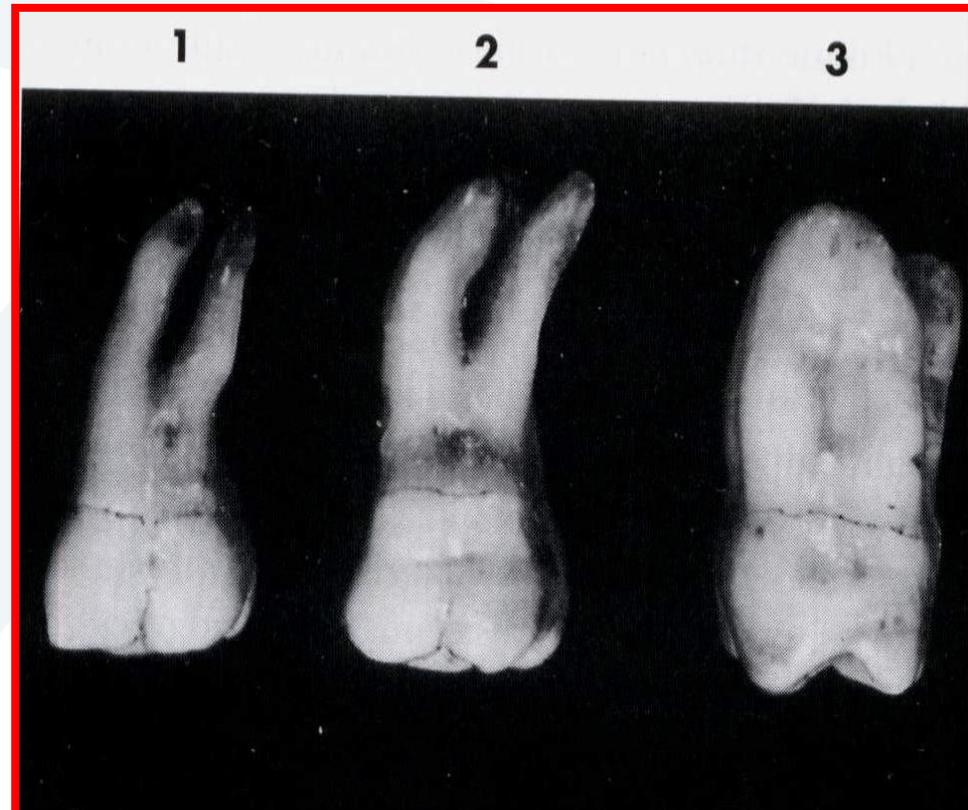
- *Mesial aspect*

# Specimens with uncommon variations

***1- unusual curvature of the buccal roots.***

***2- roots abnormally long with extreme curvature .***

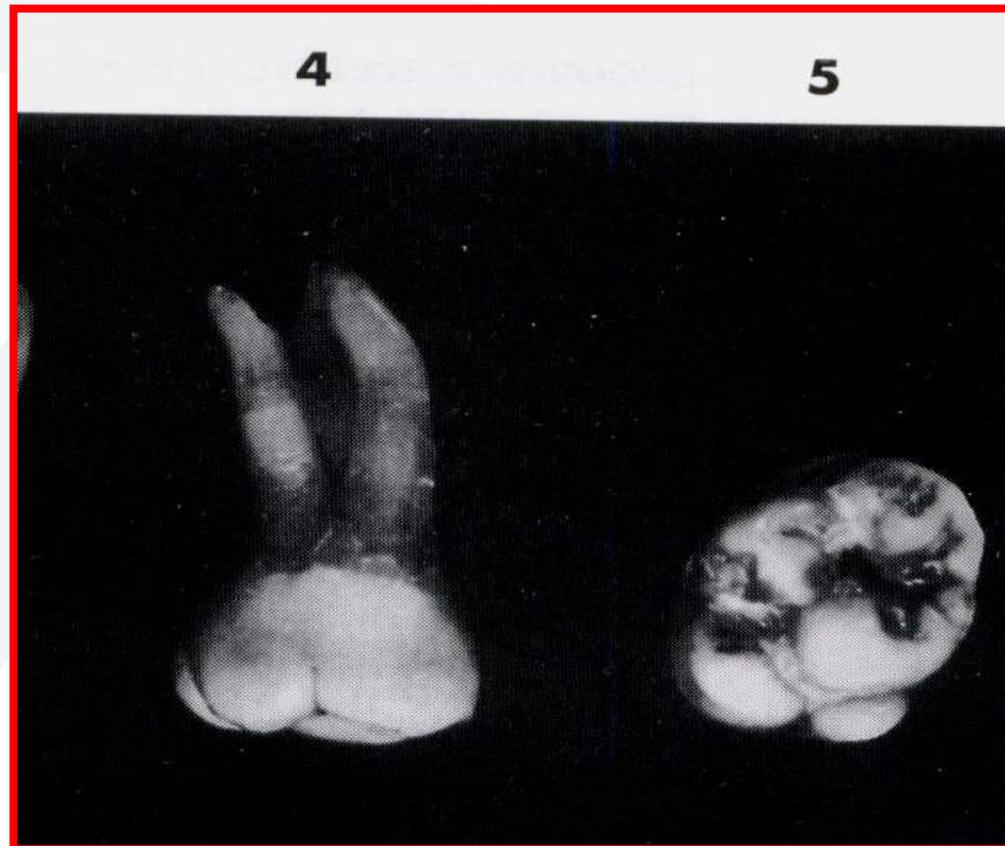
***3- lingual and distobuccal roots fused .***



# Specimens with uncommon variations

***4- Mesiodistal measurement of the root trunk smaller than usual.***

***5-Extreme rhomboidal development of the crown ,fifth cusp with maximum development.***

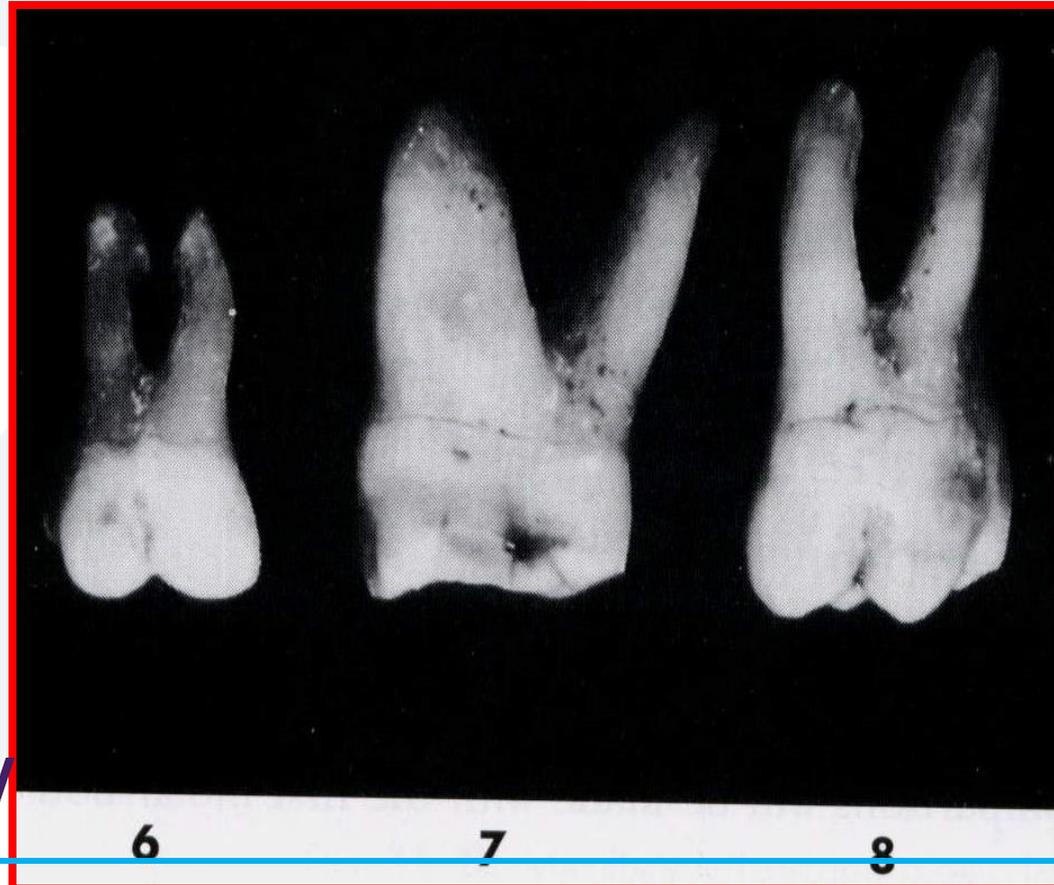


## Specimens with uncommon variations

**6- tooth well developed  
but much smaller than  
usual.**

**7-Extreme buccolingual  
measurement.**

**8-Extreme length  
,especially of the  
distobuccal root ,buccal  
cusps ,narrow  
mesiodistally**



# Specimens with uncommon variations

***9- well developed crown,  
roots poorly developed.***

***10-Extreme development of  
lingual portion of the  
crown when compared  
with the buccal  
development.***

