



Tooth Morphology

PERMANENT MANDIBULAR MOLARS



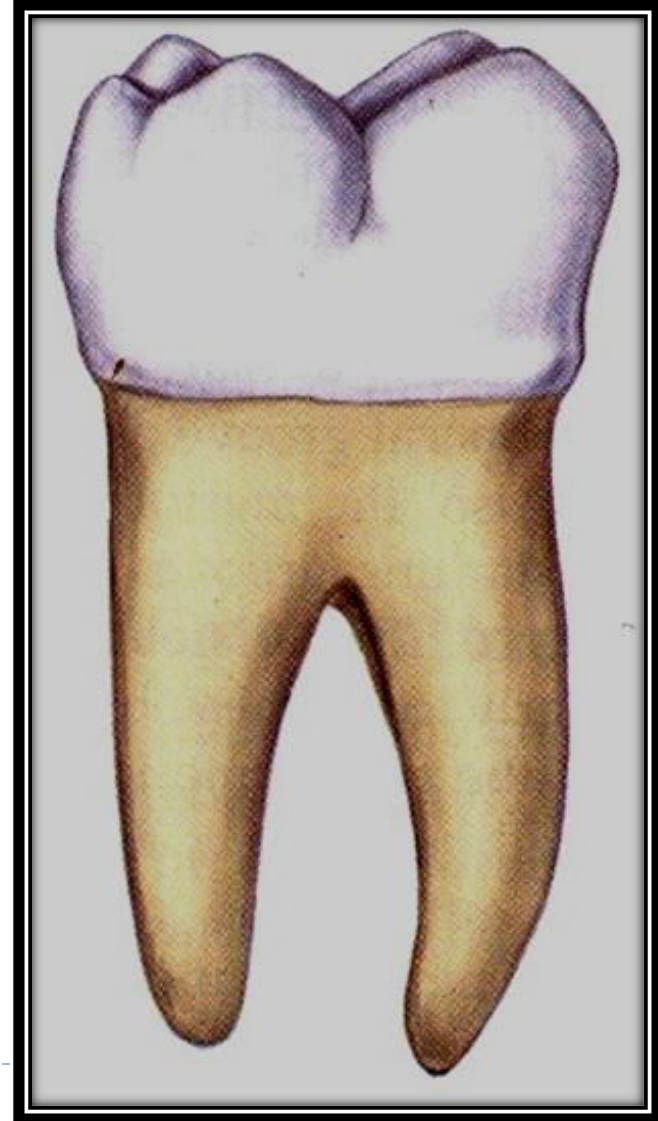
CHRONOLOGY

First evidence of calcification	At birth
Enamel completion	2 ¹ / ₂ to 3 years
Eruption	6 to 7 years
Root completion	9 to 10 years

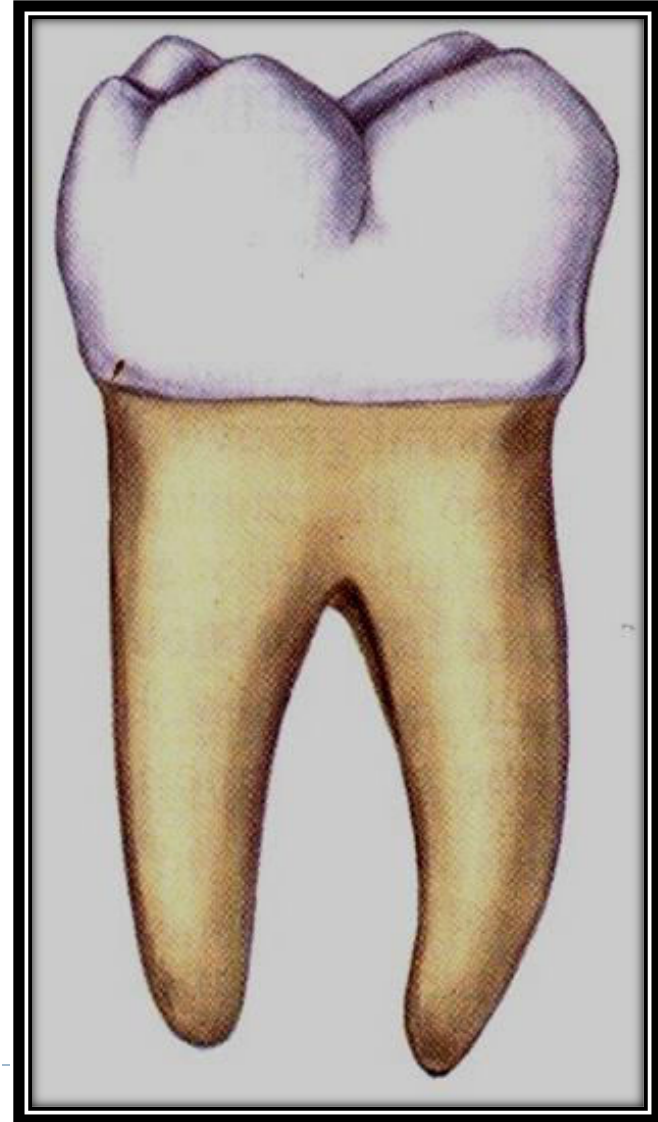


BUCCAL ASPECT

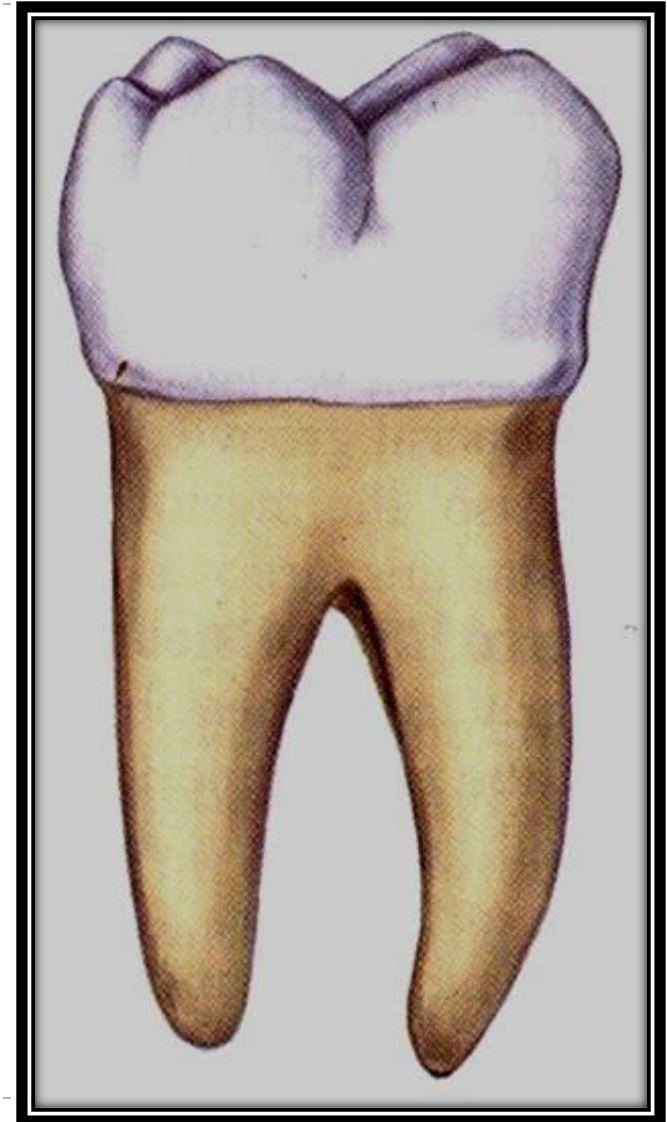
- Has the widest mesiodistal diameter of all of the molar teeth.
- Three cusps separated by developmental grooves.



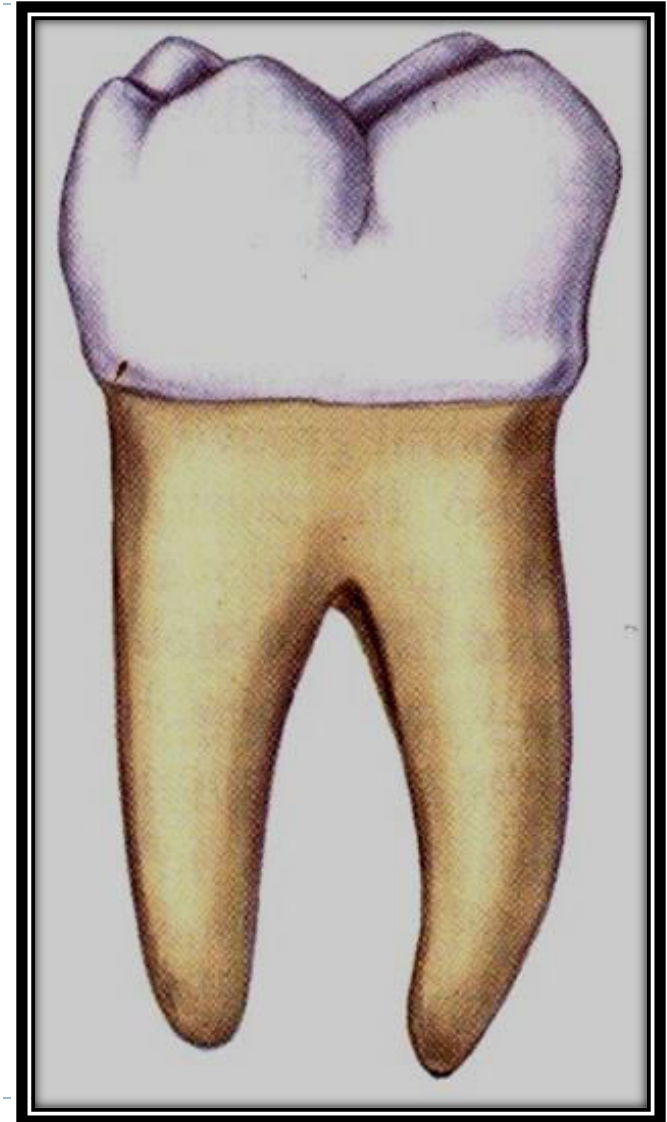
- ▶ Moving from mesial to distal :
mesiobuccal cusp, mesiobuccal
developmental groove,
distobuccal cusp, distobuccal
developmental groove, and the
distal cusp.



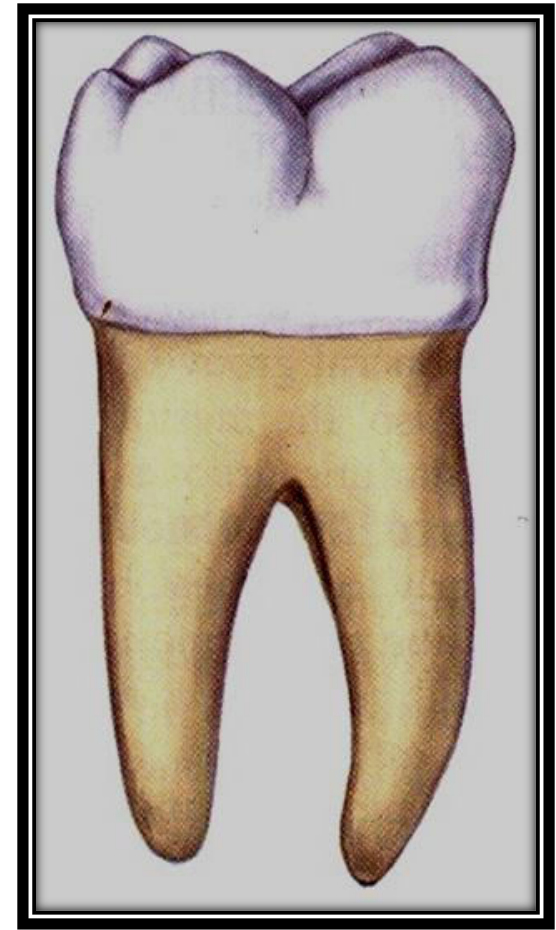
- The mesiobuccal cusp is usually the widest of the cusps & largest of the five cusps.
- The distal cusp is smaller than any of the buccal cusps and it contributes little to the buccal surface.



- ▶ Mesio Buccal groove extends cervically to a point about midway occlusocervically & ends in buccal pit.
- ▶ Buccal cervical ridge is mesiodistally oriented roundness in the cervical 3rd area



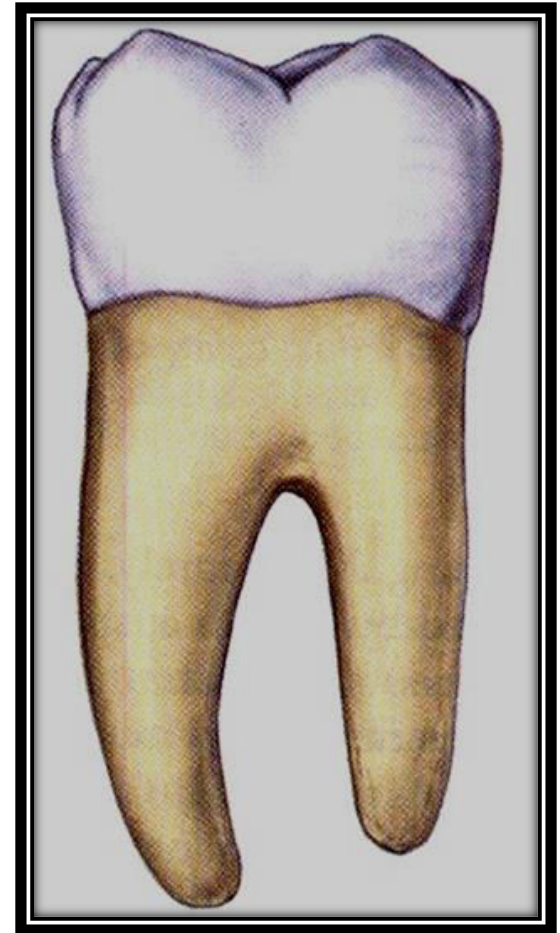
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- Mesial outline is slightly concave from the contact area cervically & is rounded occlusally
 - Distal outline is more rounded
 - Mesial & distal contact area are at junction of occlusal & middle third
 - The distal root is usually less curved than the mesial root.



LINGUAL ASPECT

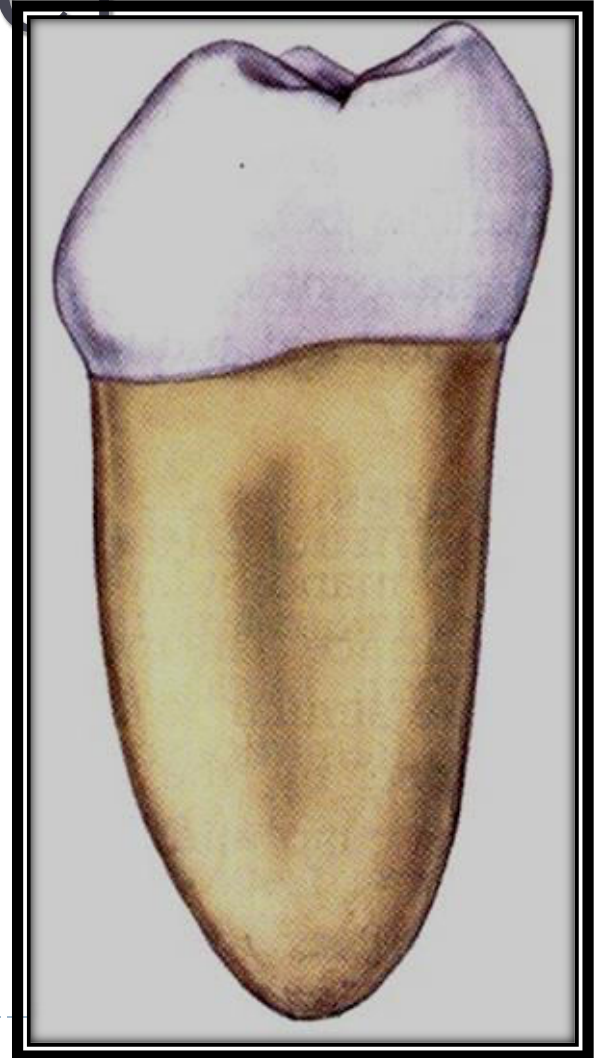
Three cusps :

- Mesiolingual, distolingual, & distal cusp which is somewhat lower in profile.
- The mesiolingual cusp is usually the widest and highest of the three.
- A short lingual developmental groove separates the two lingual cusps

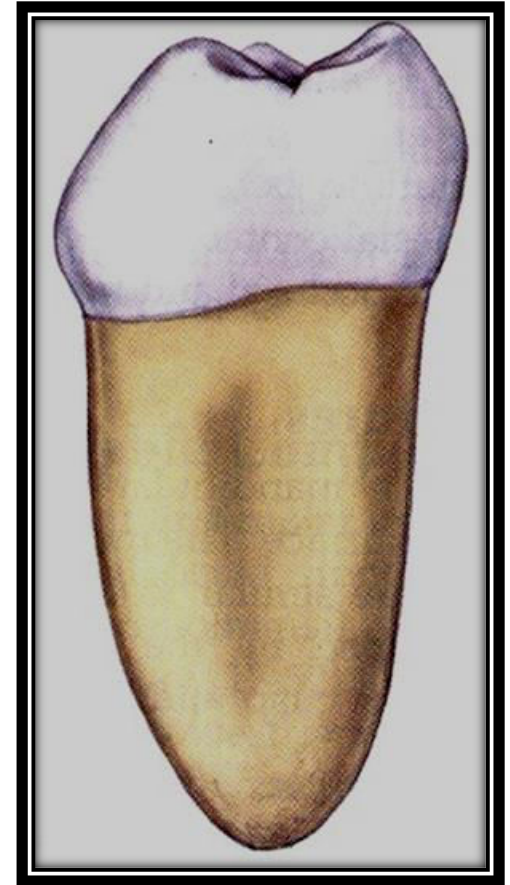


MESIAL ASPECT

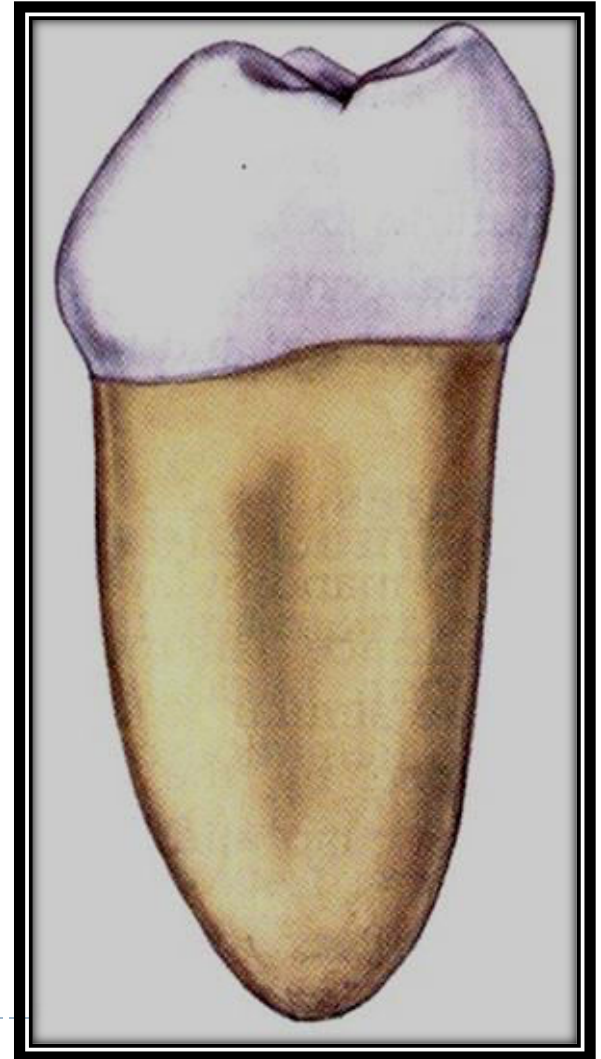
- Mesial profile is inclined lingually
- The distinctive height of curvature seen in the cervical third of the buccal surface is called the cervical ridge.
- The mesial surface may be flat or concave in its cervical third .



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- It is highly convex in its middle and occlusal thirds.
 - The mesial root is the broadest buccolingually of any of the lower molar roots.

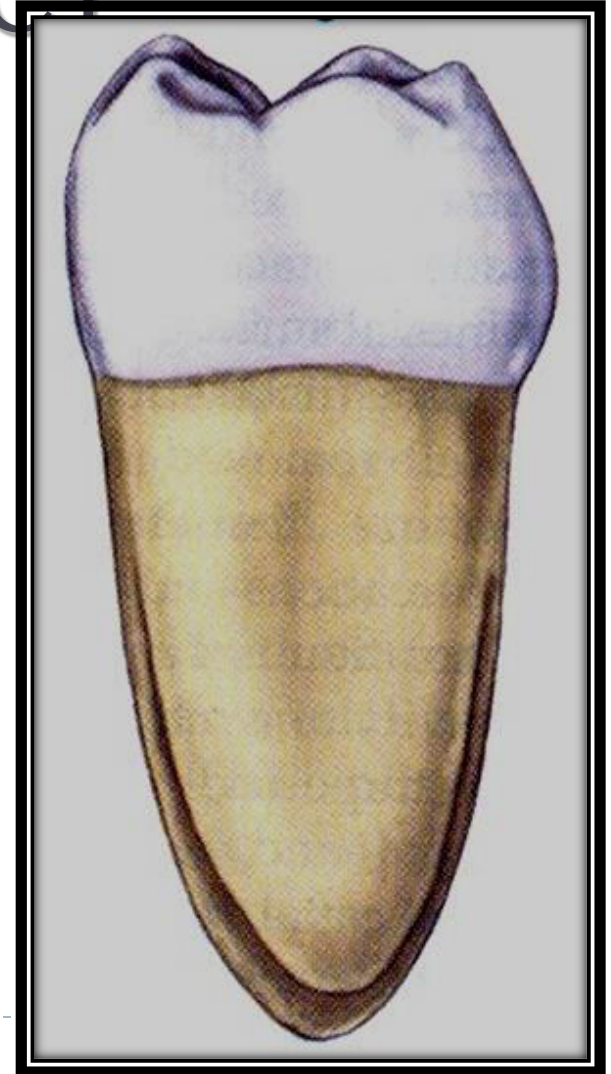


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- The occlusal profile is marked by the mesiobuccal cusp, mesiolingual cusp, and the mesial marginal ridge that connects them.



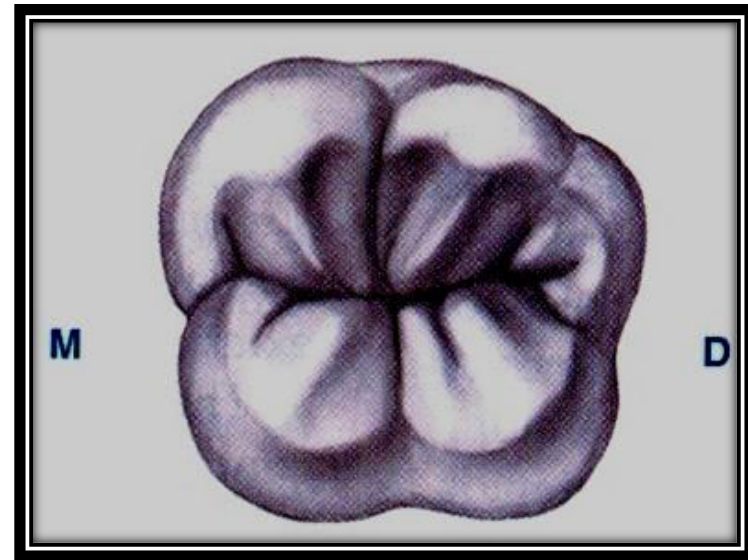
DISTAL ASPECT

- The distal surface of the crown is narrower buccolingually than the mesial surface.
- The cusps seen from the distal aspect are: the distobuccal , the distal cusp, and the distolingual cusp.
- The distal root is narrower.

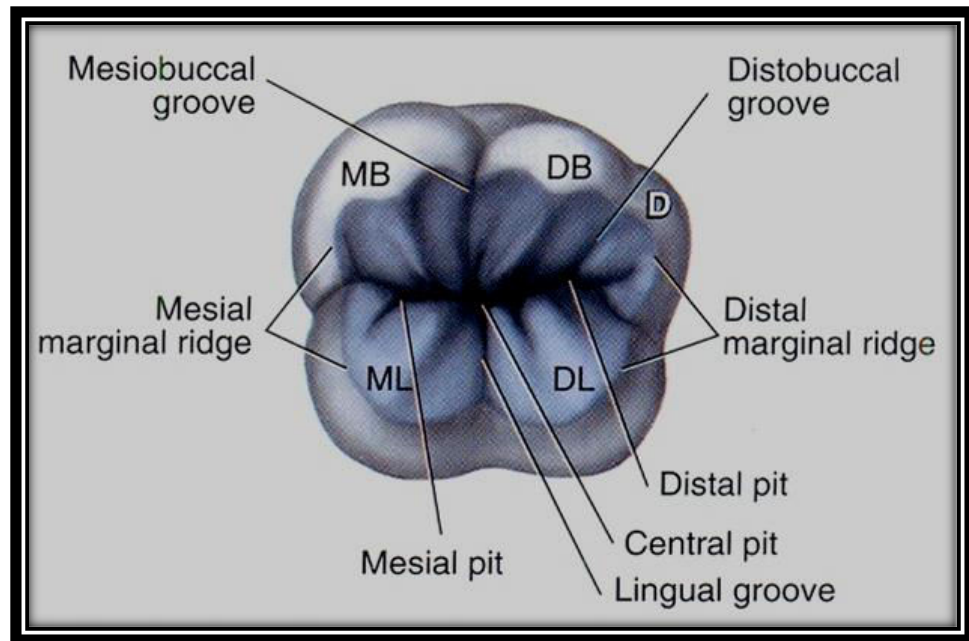


OCCLUSAL ASPECT

- This tooth presents a pentagonal occlusal outline that is distinctive for this tooth.
- There are five cusps.
- The mesiobuccal cusp is the largest, the distal cusp is the smallest.



- The two buccal grooves and the single lingual groove form the "Y" pattern distinctive for this tooth.
- The five cusp and "Y" pattern is important in dental anthropology.



CONTACT POINTS

- Height of Curvature: The mesial contact is centered buccolingually just below the marginal ridge.
- The distal contact is centered over the distal root, but is buccal to the center point of the distal marginal ridge.



ROOTS

- Lower molars have mesial and distal roots.
- In the first molar, the mesial root is the largest. It has a distal curvature.
- The distal root has little curvature and projects distally.



VARIATION

- Most lower first molars have five cusps. Occasionally the distal cusp is missing.
- More rarely, in large molars, the distal cusp is joined by a sixth cusp, the 'cusp six' or tuberculum sextum.
- Two mesial roots are seen on occasion.

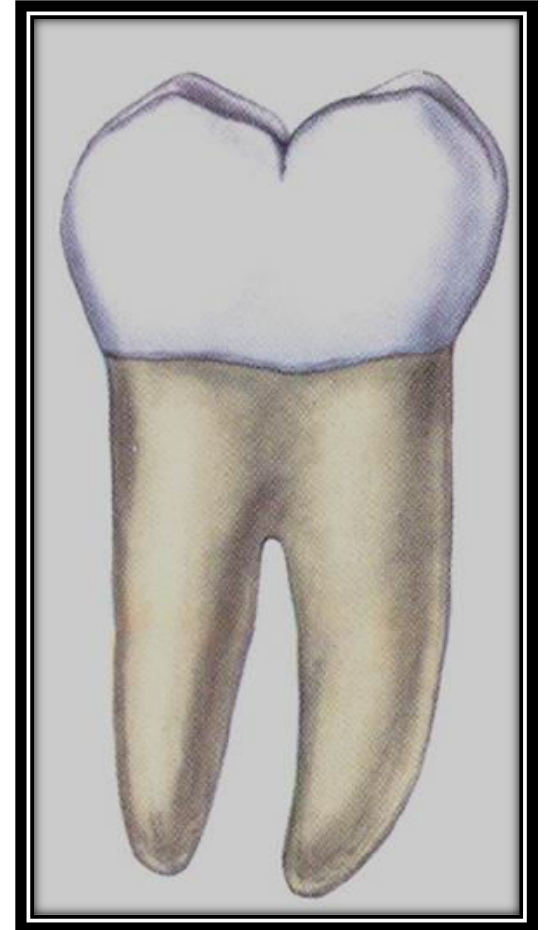


PERMANENT MANDIBULAR SECOND MOLARS

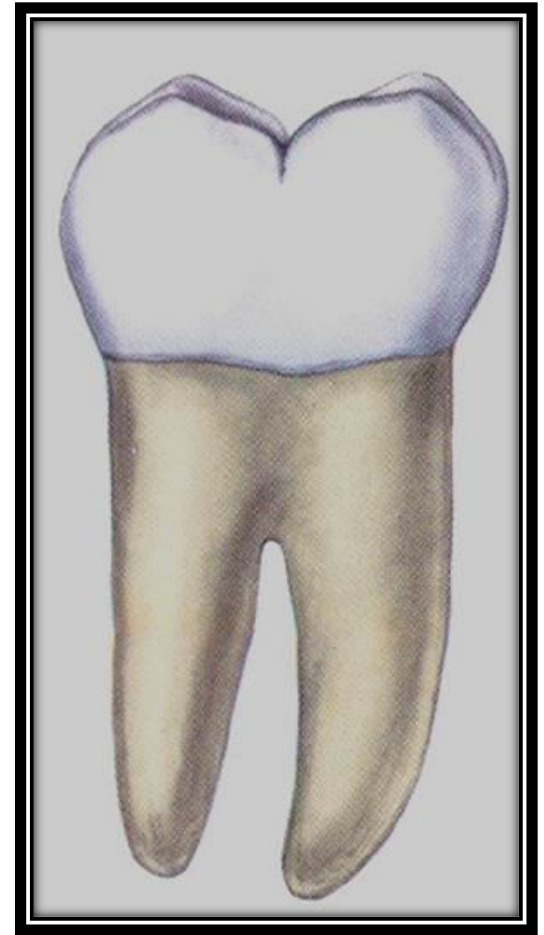
First evidence of calcification	2 ½ to 3 years
Enamel completed	7 to 8 years
Eruption	11 to 13 years
Root completed	14 to 15 years

FACIAL ASPECT

- The 2nd molar crown is shorter both mesiodistally and cervico-occlusally to the 1st molar.
- The two well-developed buccal cusps form the occlusal outline.



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- There is no distal cusp as on the first molar.
 - A buccal developmental groove appears between the buccal cusps and passes midway down the buccal surface towards the cervix.



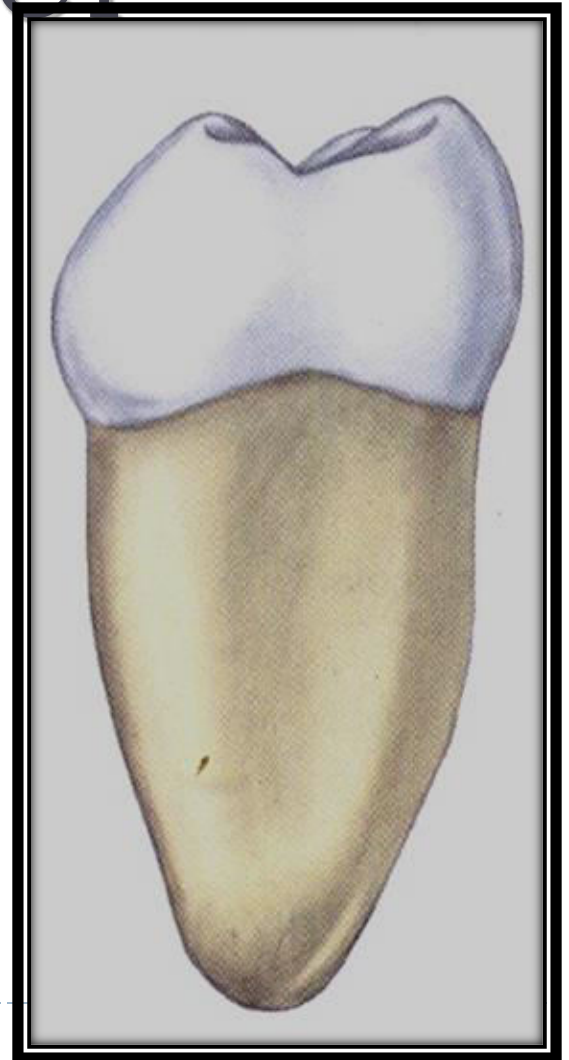
LINGUAL ASPECT

- The crown is shorter than that of the first molar.
- The occlusal outline is formed by the mesiolingual and distolingual cusps.



MESIAL ASPECT

- The mesial profile resembles that of the first molar.



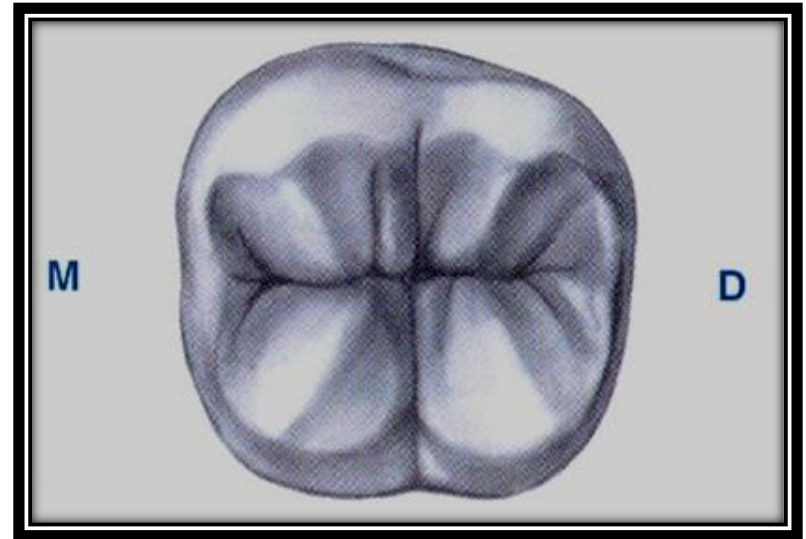
DISTAL ASPECT

- The distal profile is formed by the distobuccal cusp, distal marginal ridge, and the distolingual cusp.
- Unlike the first molar, there is no distal fifth cusp.



OCCLUSAL ASPECT

- There are four well developed cusps with developmental grooves that meet at a right angle to form the distinctive "+" pattern characteristic of this tooth



PERMANENT MANDIBULAR THIRD MOLARS

First evidence of calcification	8 to 10 years
Enamel completed	12 to 16 years
Eruption	17 to 21 years
Root completed	18 to 25 years



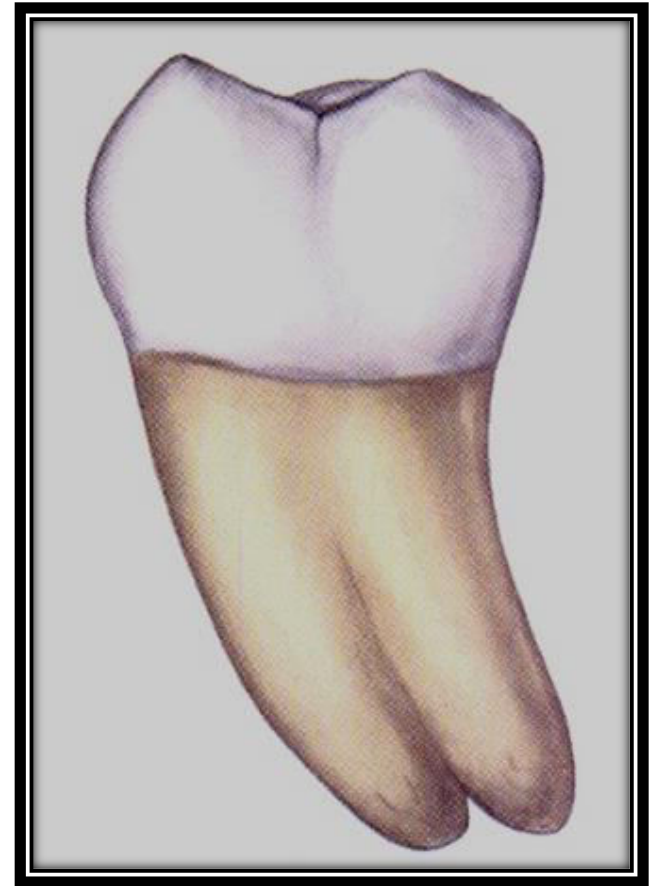
FACIAL ASPECT

- The crown is often short and has a rounded outline.



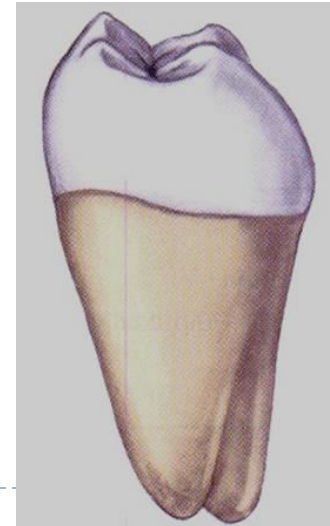
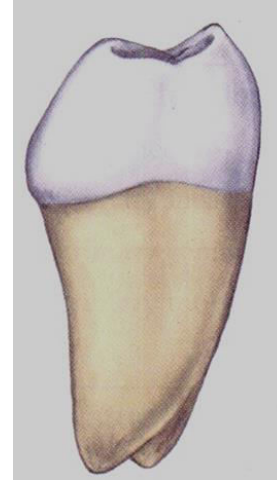
LINGUAL ASPECT

- Similarly, the crown is short and bulbous



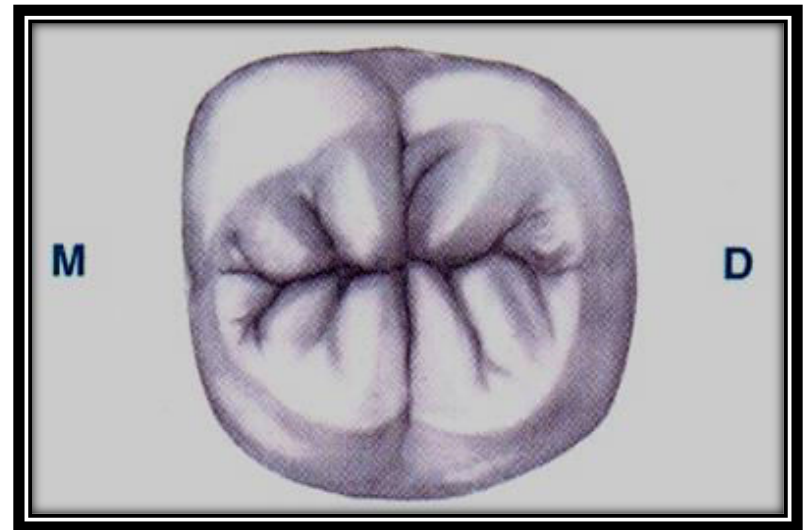
MESIAL AND DISTAL ASPECT

- Mesially and distally, this tooth resembles the first and second molars.
- The crown of the third molar, however, is shorter than either of the other molars.
- Technically, only the mesial surface is a 'proximal' surface.

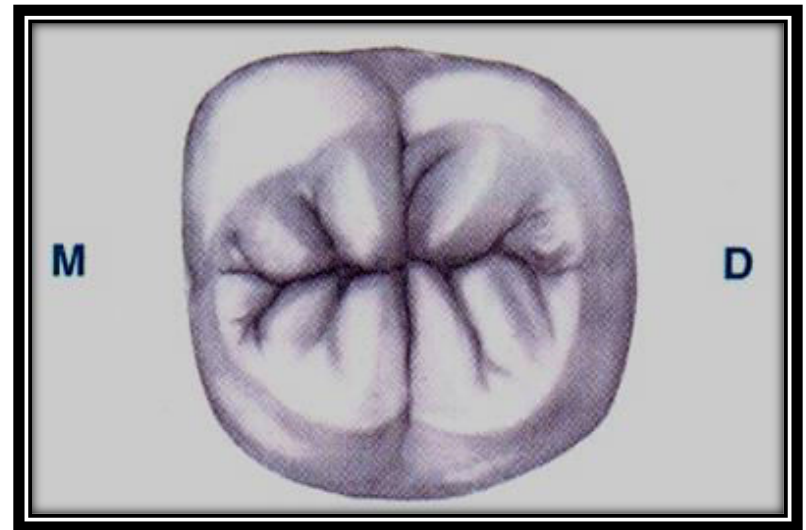


OCCLUSAL ASPECT

- Four or five cusps may be present.
- This surface can be a good copy of the first or second molar, or poorly developed with many accessory grooves.



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- ▶ The occlusal outline is often ovoid and the occlusal surface is constricted.
 - ▶ Occasionally, the surface has so many grooves.



CONTACT POINTS

- Height of Curvature: The rounded mesial surface has its contact area more cervical than any other lower molar.
- There is no tooth distal to the third molar.



ROOTS

- The two roots are usually short, often curved distally, and poorly developed .



VARIATION

- This is an extremely variable tooth and on occasion it is missing.
- While the most common anomaly of upper third molars is that they are undersized, lower third molars can be undersized or oversized.
- Lower third molars fail to erupt in many persons.



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Thank you 😊😊

