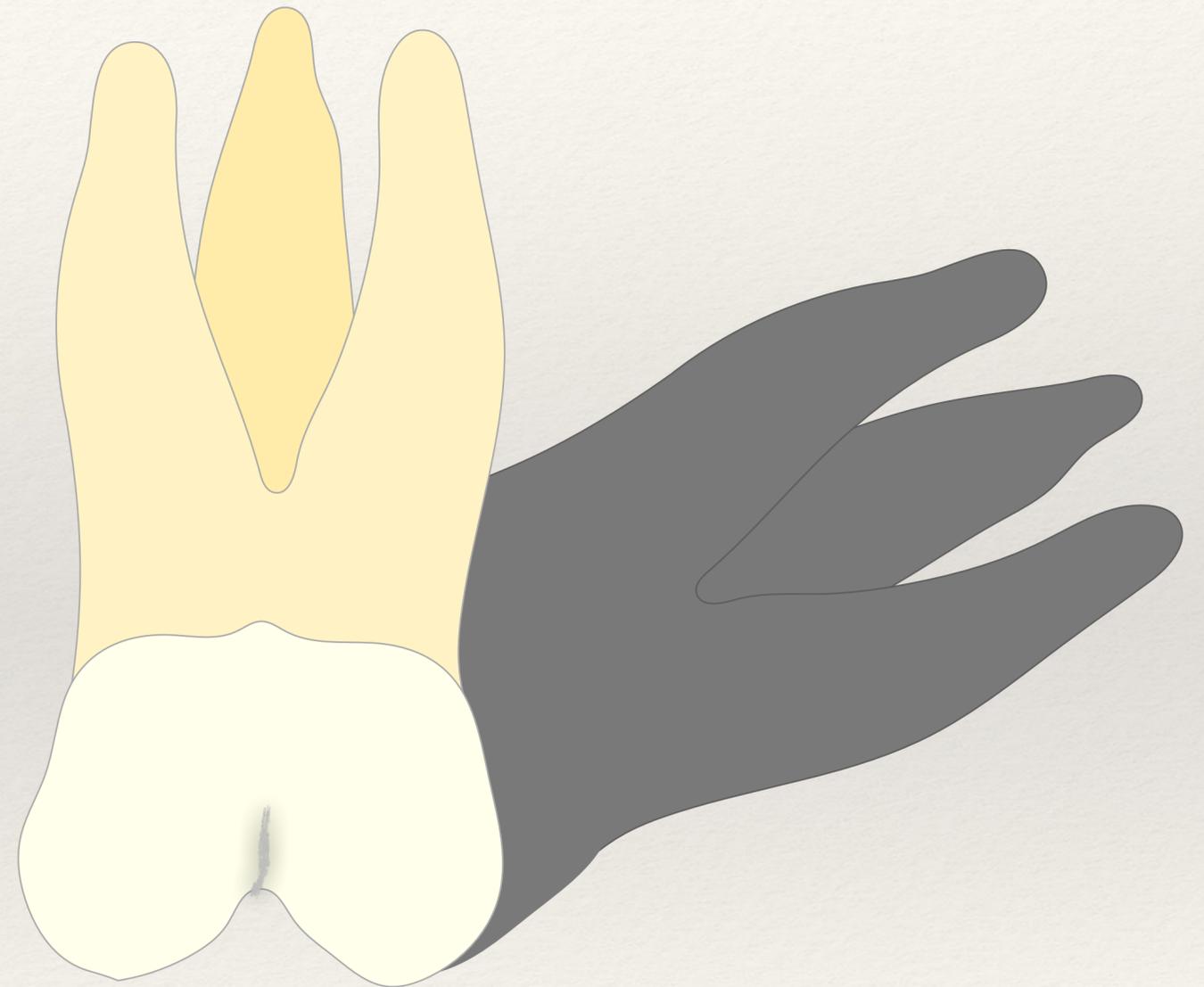


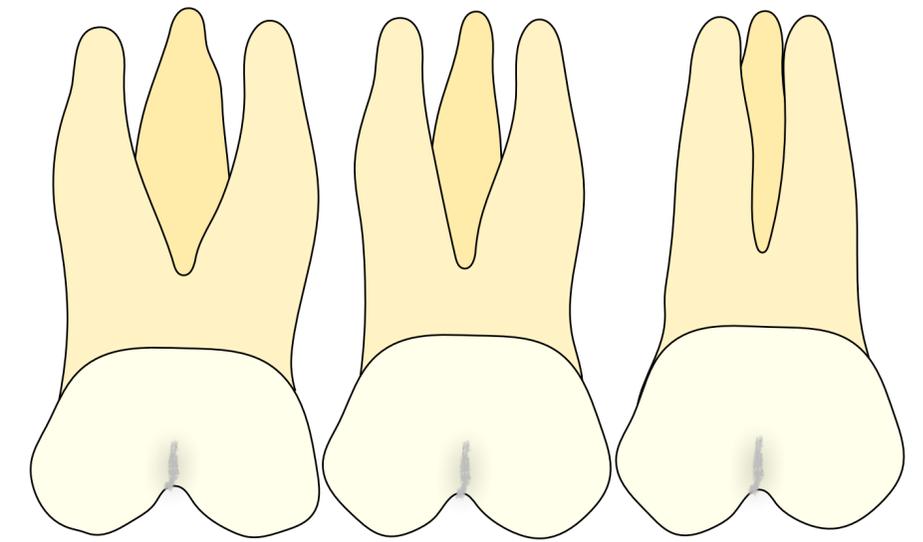
# LECTURE OF MAXILLARY MOLARS

Dr. Sherif Hassan

2025



# Maxillary permanent molars



- ✓ Non-successor teeth.
- ✓ The upper permanent molars have four well-developed cusps.
- ✓ The upper permanent molars have three roots: Mesiobuccal, distobuccal, and palatal roots.
- ✓ Based on the eruption date: The first molar is termed 6<sup>th</sup>-year molars, second molar is termed 12<sup>th</sup>-year molar, and third molar is termed 18<sup>th</sup>-year molar.

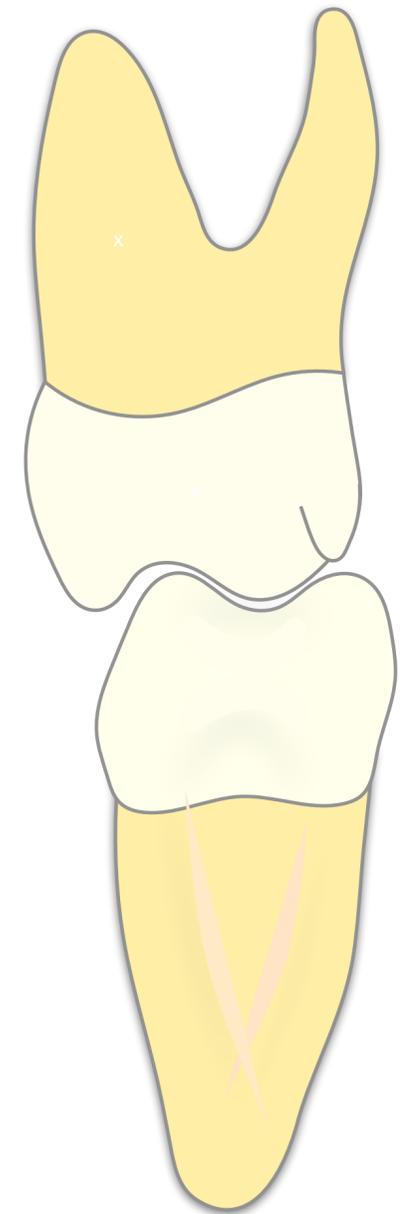
# Key of Occlusion

**Maxillary and mandibular first permanent molars are considered as a key of occlusion.**

**Why?**



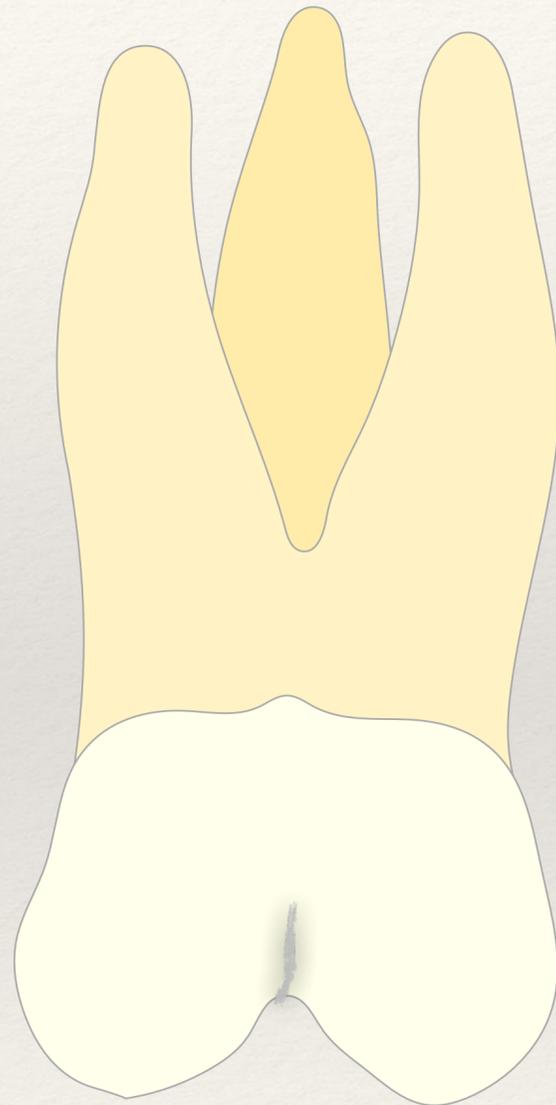
- They are the first permanent teeth erupted in the oral cavity.
- They are the largest teeth in the dental arch.
- Their eruption is not disturbed as they have no predecessors.
- Their positions are guided by the presence of the deciduous molars preceding them.
- Maxillary first molar is considered more accurate than mandibular one as it is attached to the maxilla that fixed to the skull.



# Chronology

	Beginning of tooth germ	Beginning of crown calcification	Crown complete	Eruption	Root complete
$\frac{6}{ }6$	4 MIU	At birth	<b>3 Y</b>	<b>6 Y</b>	<b>9 Y</b>
$\frac{7}{ }7$	At birth	3 Y	<b>8 Y</b>	<b>12 Y</b>	<b>15 Y</b>
$\frac{8}{ }8$	4 Y	8 Y	<b>12 Y</b>	<b>18 Y</b>	<b>21 Y</b>

# MAXILLARY FIRST PERMANENT MOLAR



# BUCCAL ASPECT

**Geometrical shape: Trapezoid.**

**Mesial outline:**

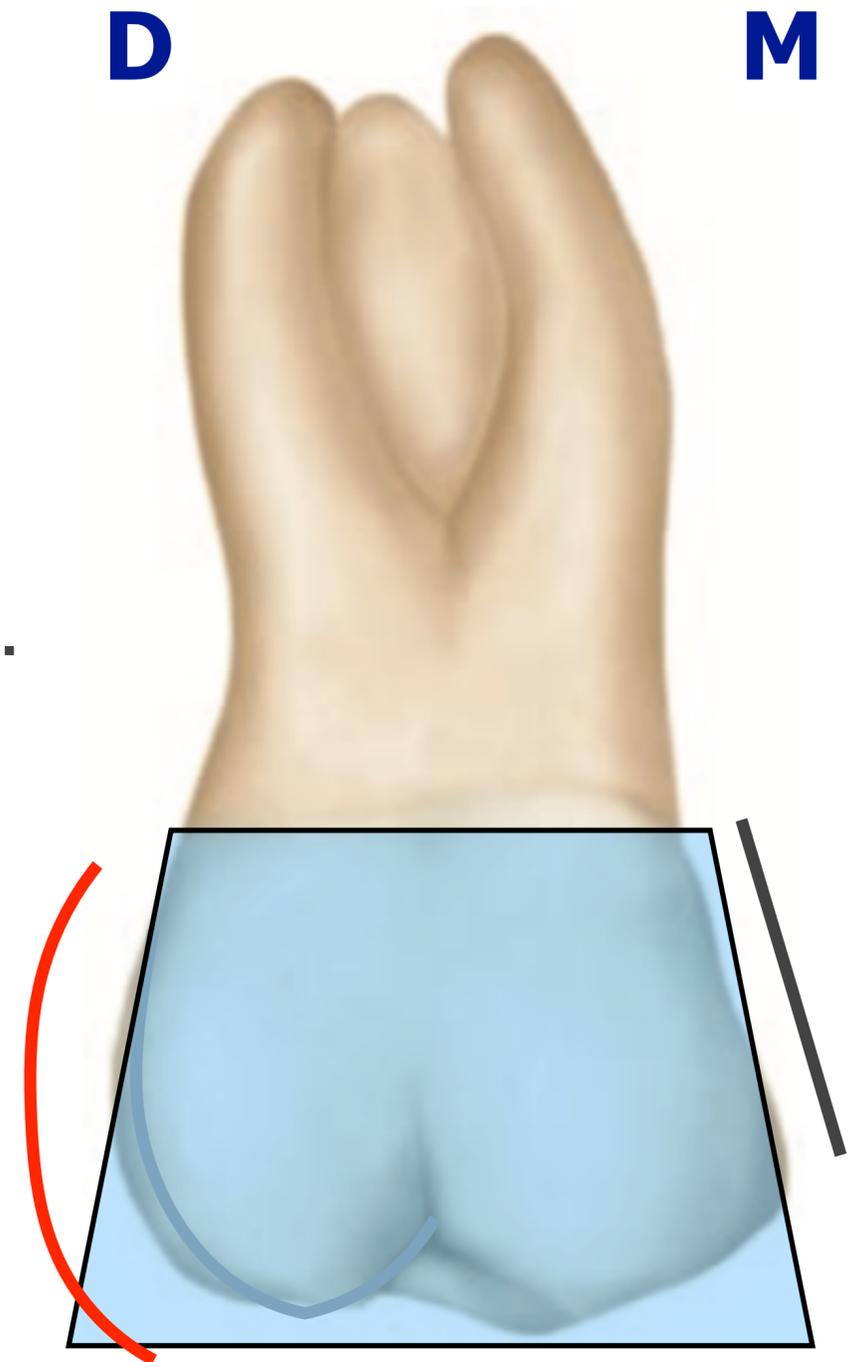
- Straight from cervical line to contact area.
- Mesial contact area set between occlusal and middle 3<sup>rd</sup>.

**Distal outline:**

- Convex from cervical line to contact area.
- Distal contact area set at the middle 3<sup>rd</sup>.

**Cervical line:**

Irregular and slightly convex toward the root.



## Occlusal outline:

- Four cusps are seen (ML, MB, DB, DL).
- Two buccal cusps and parts of two lingual cusps.
- Mesiobuccal cusp is broader, shorter and less sharp than distobuccal cusp.

## Buccal surface:

- Convex, maximum at cervical ridge.
- Buccal groove lie between two buccal cusps.



# Roots

**Root trunk:** Measure about 4 millimetres.

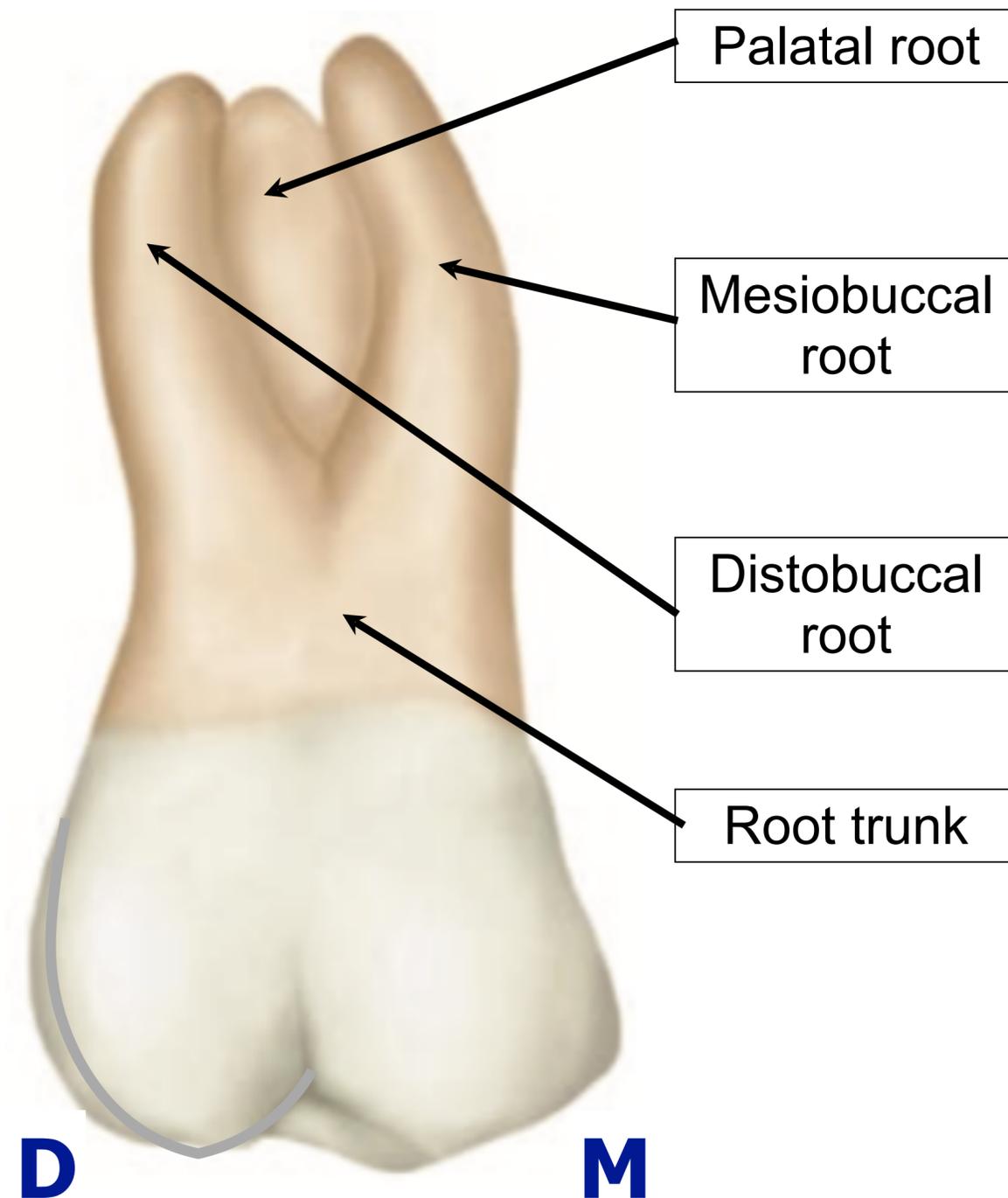
- Deep developmental groove extend on root trunk.

**Number of Roots:** Three roots are seen

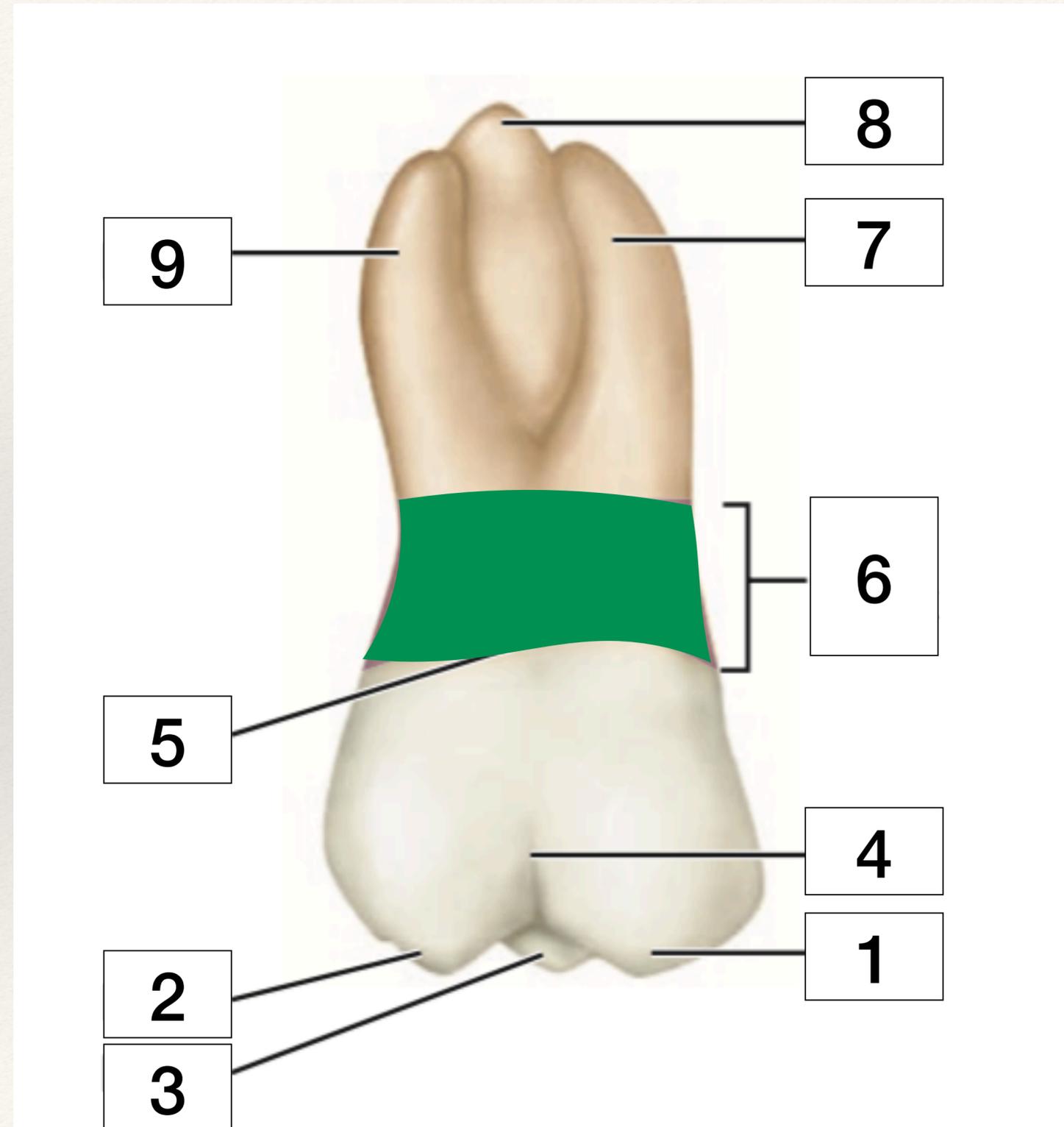
- MBR, DBR, and PR.
- Palatal root is the longest one.

**At apical third:**

- Mesial root curved distally and distal root curved mesially.



# QUESTION NEED TO ANSWER



# Palatal ASPECT

No lingual convergence.\*

Mesial outline and distal outline:

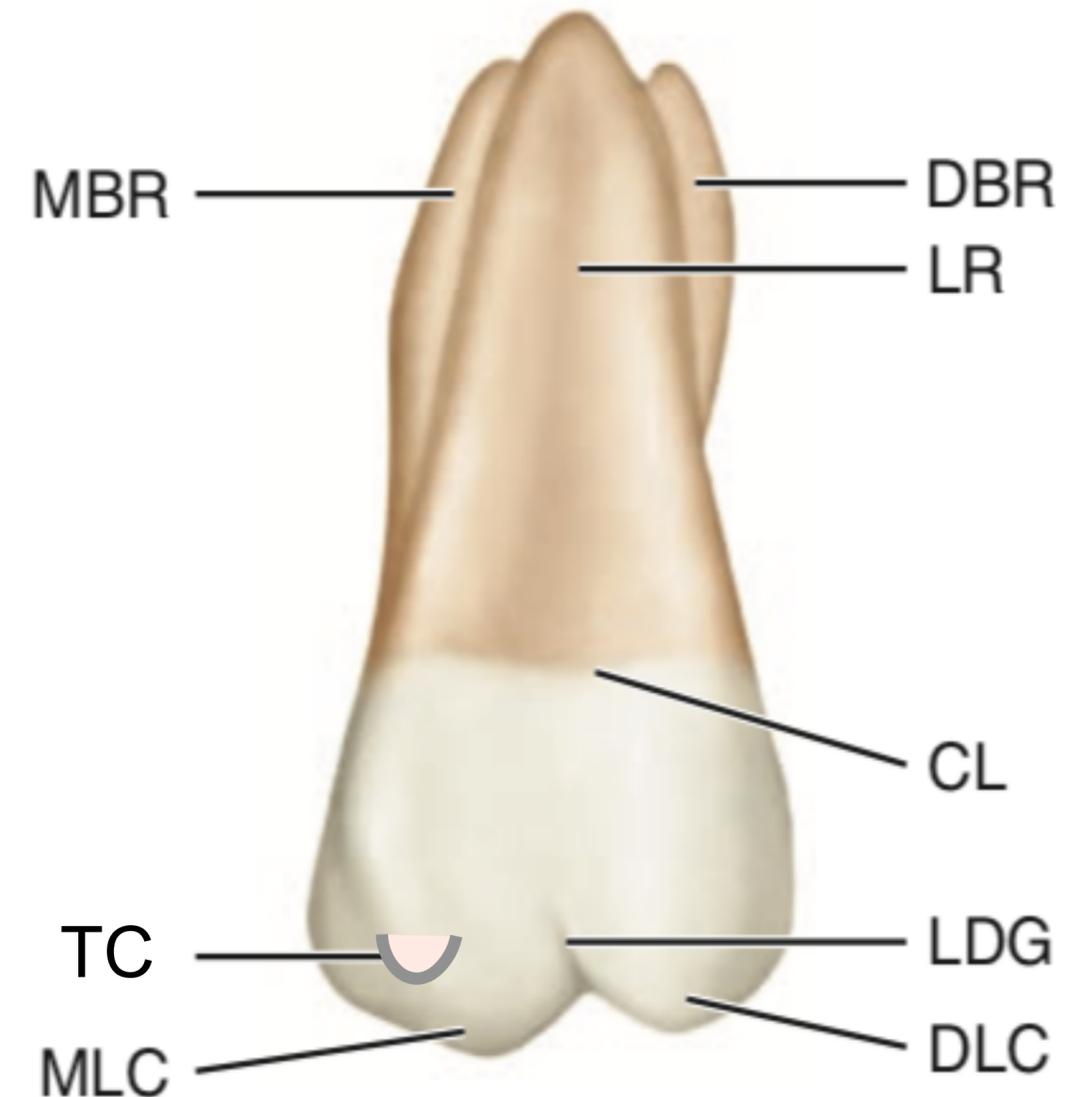
Similar to buccal aspect.

Occlusal outline:

- Two lingual cusps seen from this aspect (ML, DL)
- Mesiolingual cusp: largest and longest cusp.
- Distolingual cusp: spheroidal.

Cervical line:

Irregular and slightly convex toward the root.



## Lingual surface:

- Convex at middle 3<sup>rd</sup>.

## Lingual developmental groove

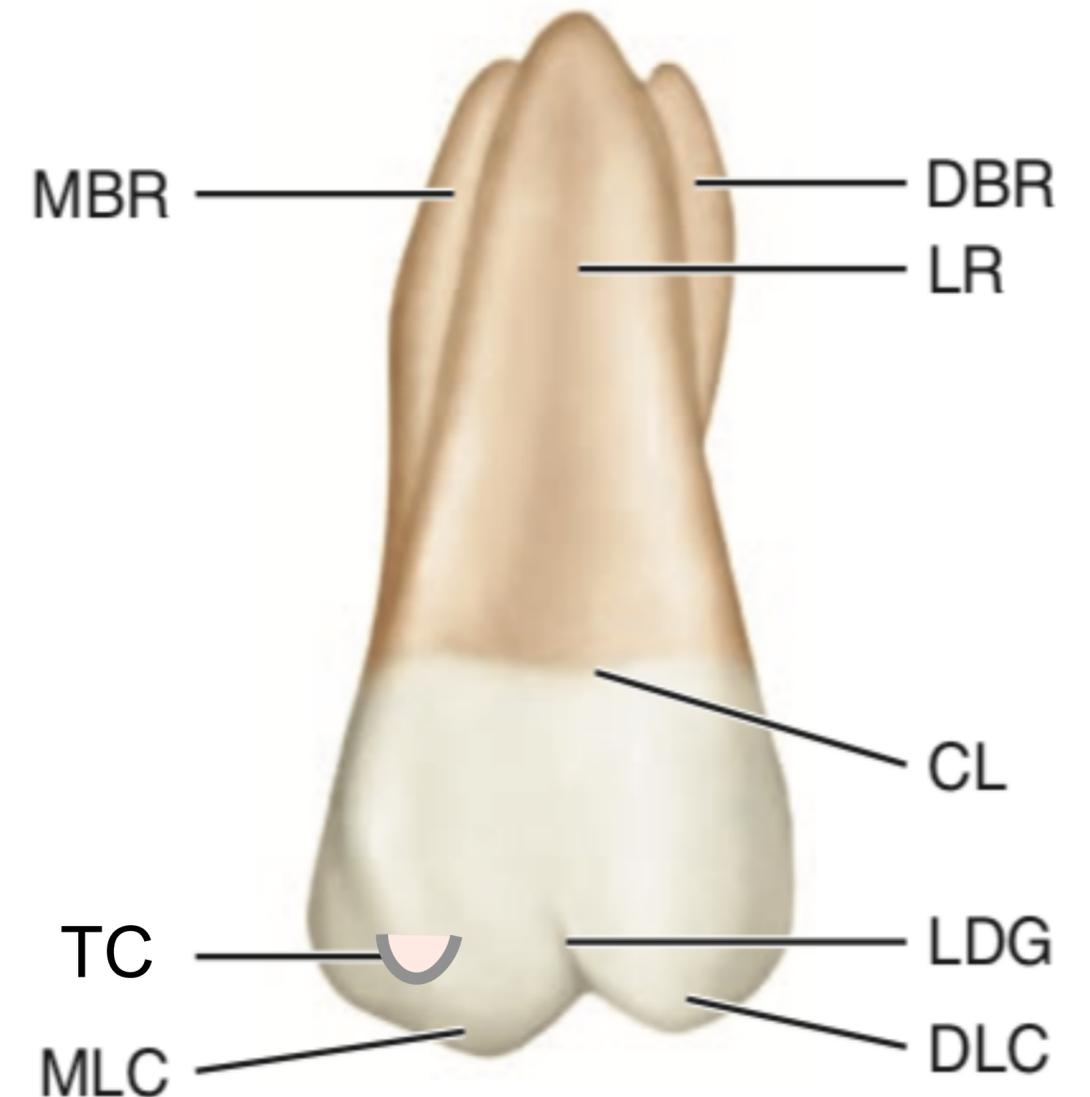
lie between the two lingual cusps.

## Tubercle of Carabelli:

Found on mesiolingual cusp.

## Roots:

- Lingual root is straight and long.
- Parts of the two buccal roots are seen.



# Mesial aspect

Geometric shape: Trapezoid, The small side is directed occlusally.

Buccal outline: Convex at cervical 1/3, concave at the middle 3<sup>rd</sup> then convex at the occlusal 3<sup>rd</sup>.

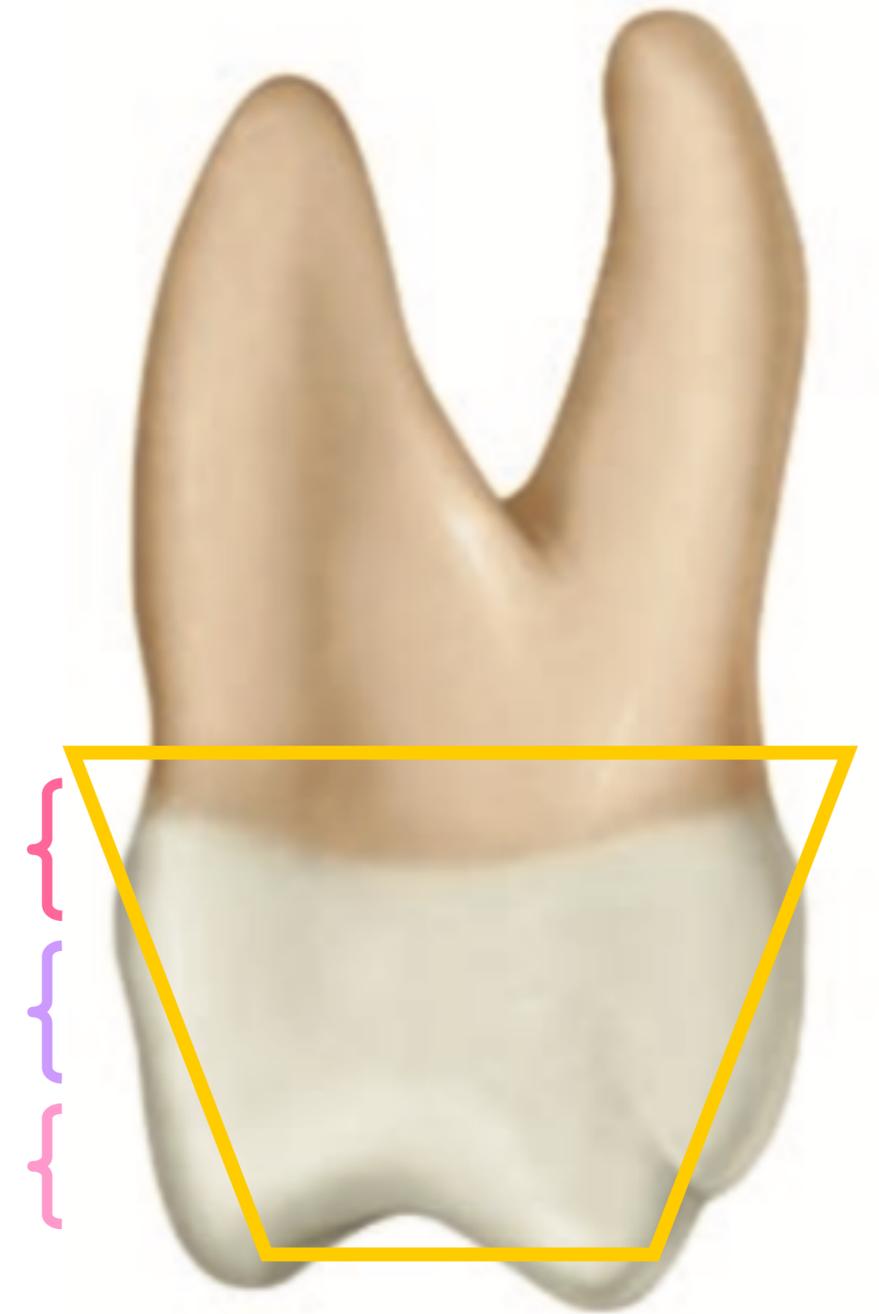
Lingual outline: Convex with the crest of curvature at the middle 3<sup>rd</sup>.

Occlusal outline: ML is wider than MB cusps are seen.

Tubercle of Carabelli: On mesiolingual cusp.

Mesial marginal ridge: Irregular, curved cervically.

Cervical line: Irregular and convex occlusally.



## Contact area:

- Located at the junction between middle and occlusal 3rd.
- Located buccal to the center of the crown.

## Roots:

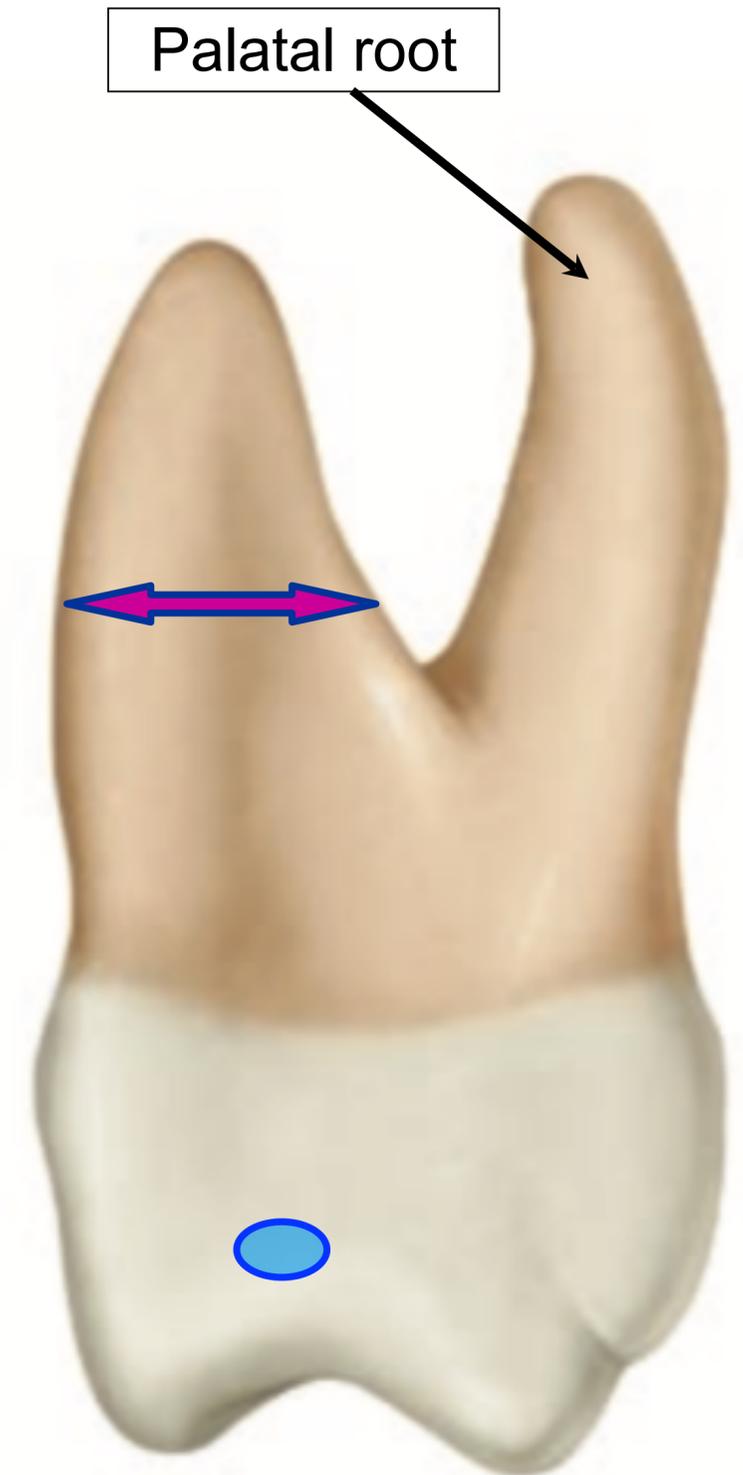
- Two roots are seen from mesial aspect, (MBR and PR).

## Palatal root:

- Longer, curved buccally so it termed banana root.

## Mesiobuccal root:

- wider, straight.



# Distal ASPECT

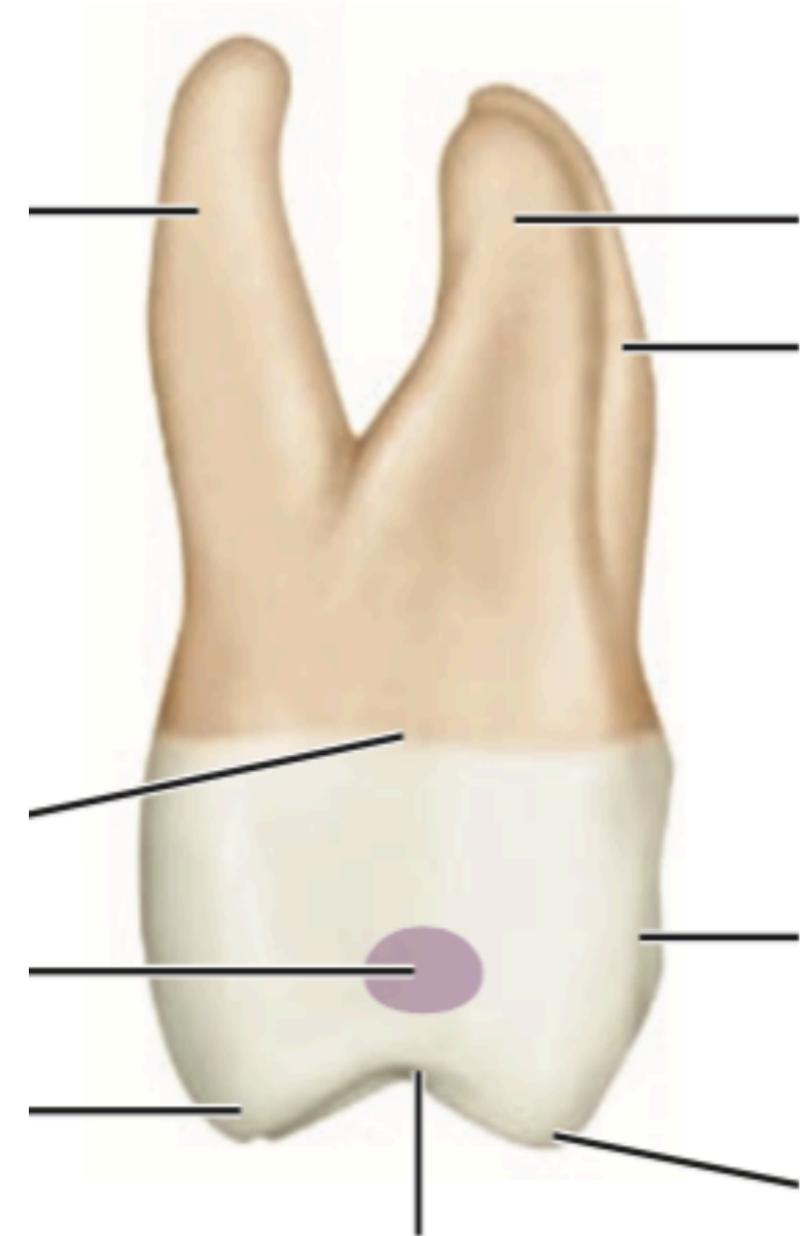
## Differs from mesial aspect in :

### # Crown:

- 1- The crown converges distally.
- 2- Distal marginal ridge is located more cervically.
- 3- The cervical line is irregular or straight.
- 4- The contact area is broader than the mesial and located at the middle third.

### # Roots:

- Three roots are seen from distal aspect.
- Root trunk is longer than that in the mesial.



# OCCLUSAL ASPECT

\*Geometric shape: Rhomboidal.

-ML, BD angles are obtuse.

-MB, DL angles are acute.

\*Crown Elevations:

I- Four cusps arranged from largest:

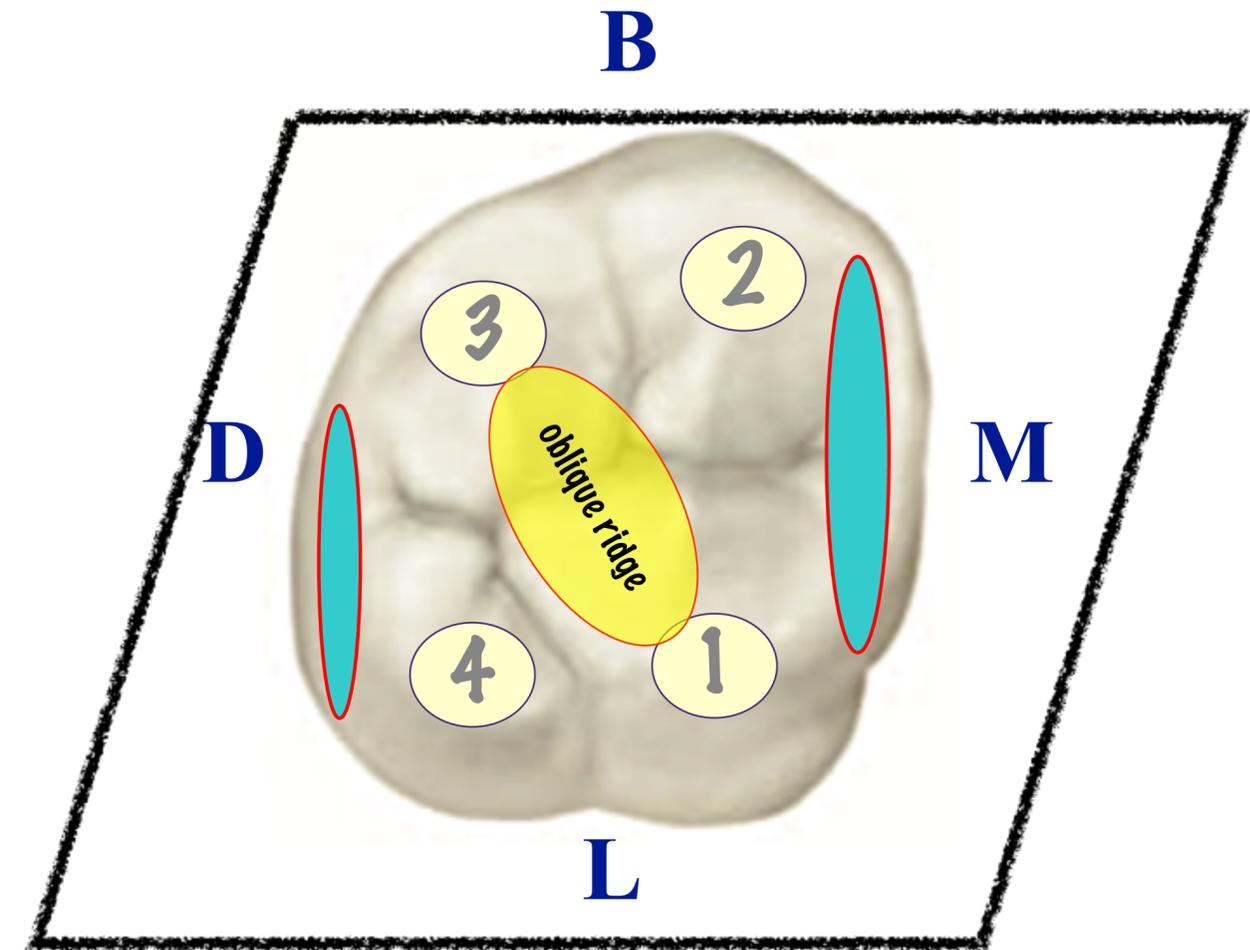
ML, MB, DB then DL.

II- Tubercle of carabelli:

III- Mesial and Distal marginal ridges:

Mesial marginal ridge is longer and broader than the distal marginal ridge.

IV- Oblique ridge:



# Crown Elevations

◆ **Cusps:** Four in number from largest to smaller — ML, MB, DB, DL

◆ **Tubercle of Carabelli:**

**Site:** Mesiolingual cusp of maxillary 1<sup>st</sup> permanent molar and maxillary 2<sup>nd</sup> deciduous molar.

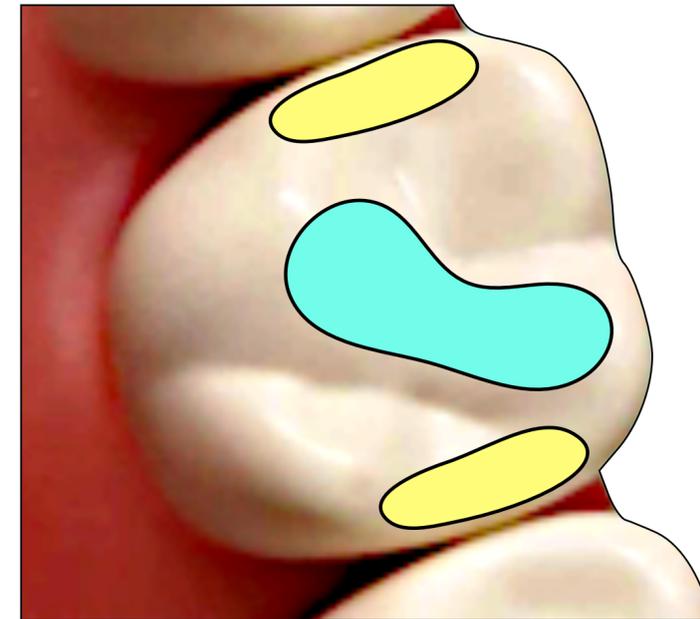
◆ **Cervical ridge**

◆ **Mesial and distal marginal ridges**

◆ **Oblique ridge:**

This ridge cross the occlusal surface obliquely and Result from Union of two triangular ridges of mesiolingual cusp and distobuccal cusp.

**Site:** Occlusal surface of maxillary molars (permanent and deciduous).



## Crown Depressions:

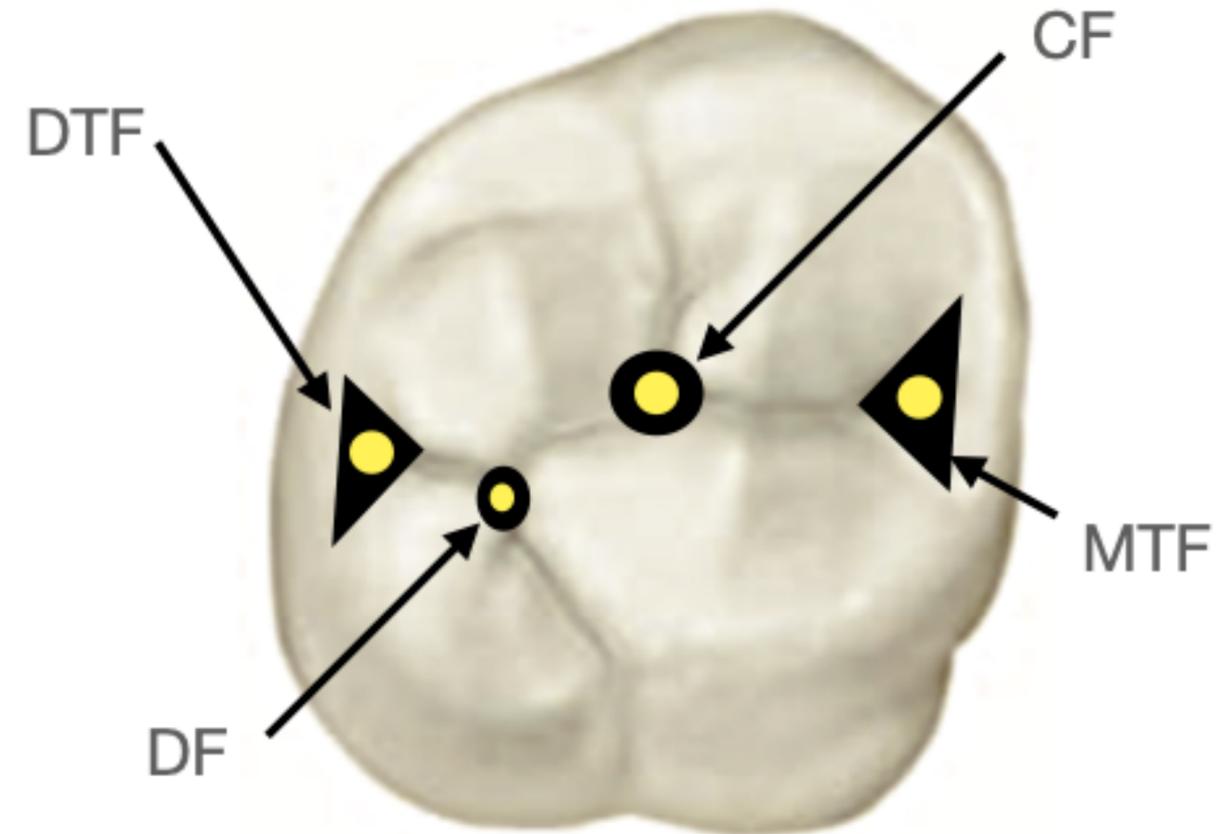
### I-Developmental grooves:

- Central DG, Distal DG, Buccal DG, Lingual DG.
- Transverse DG cross the oblique ridge.

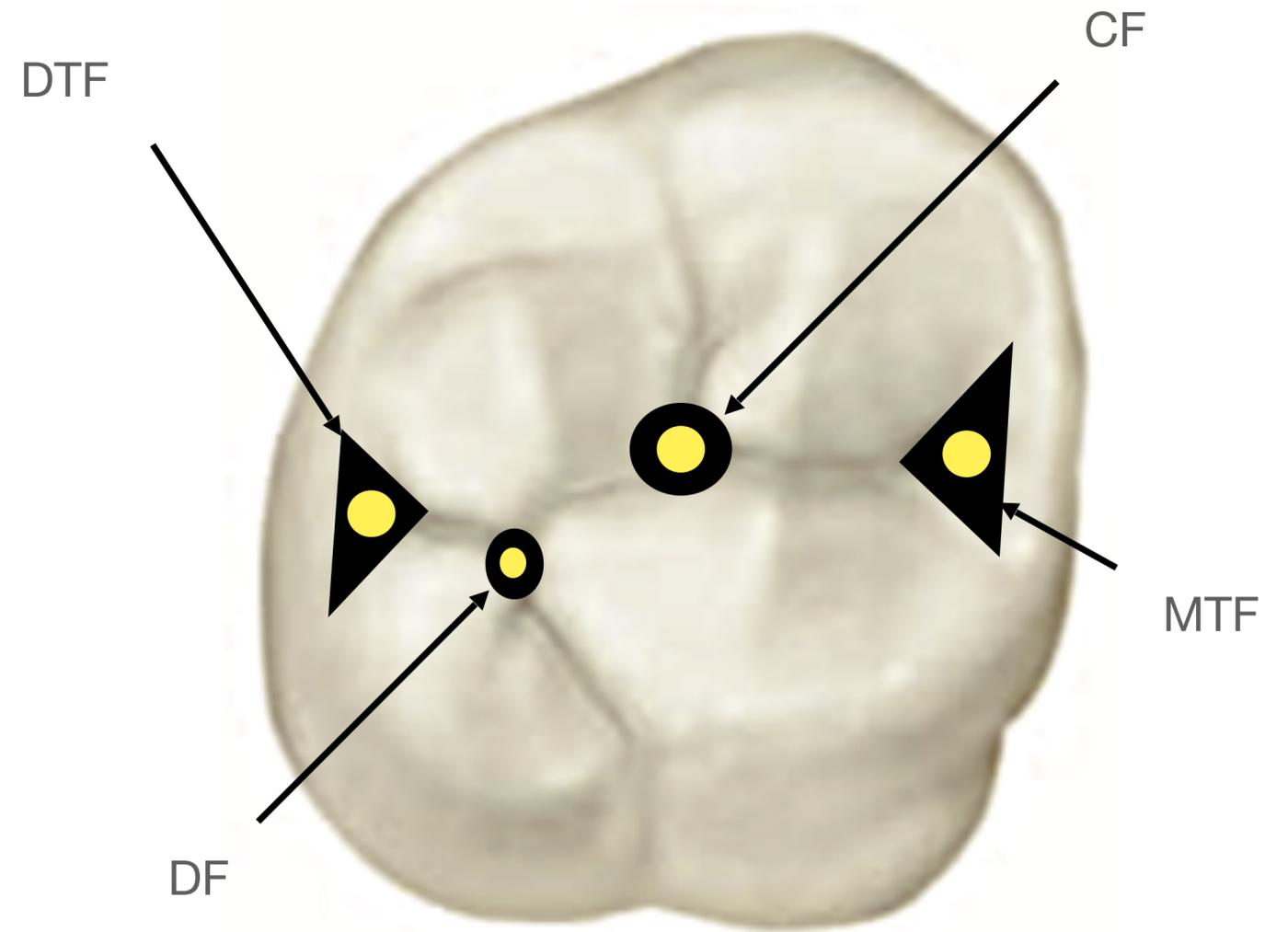
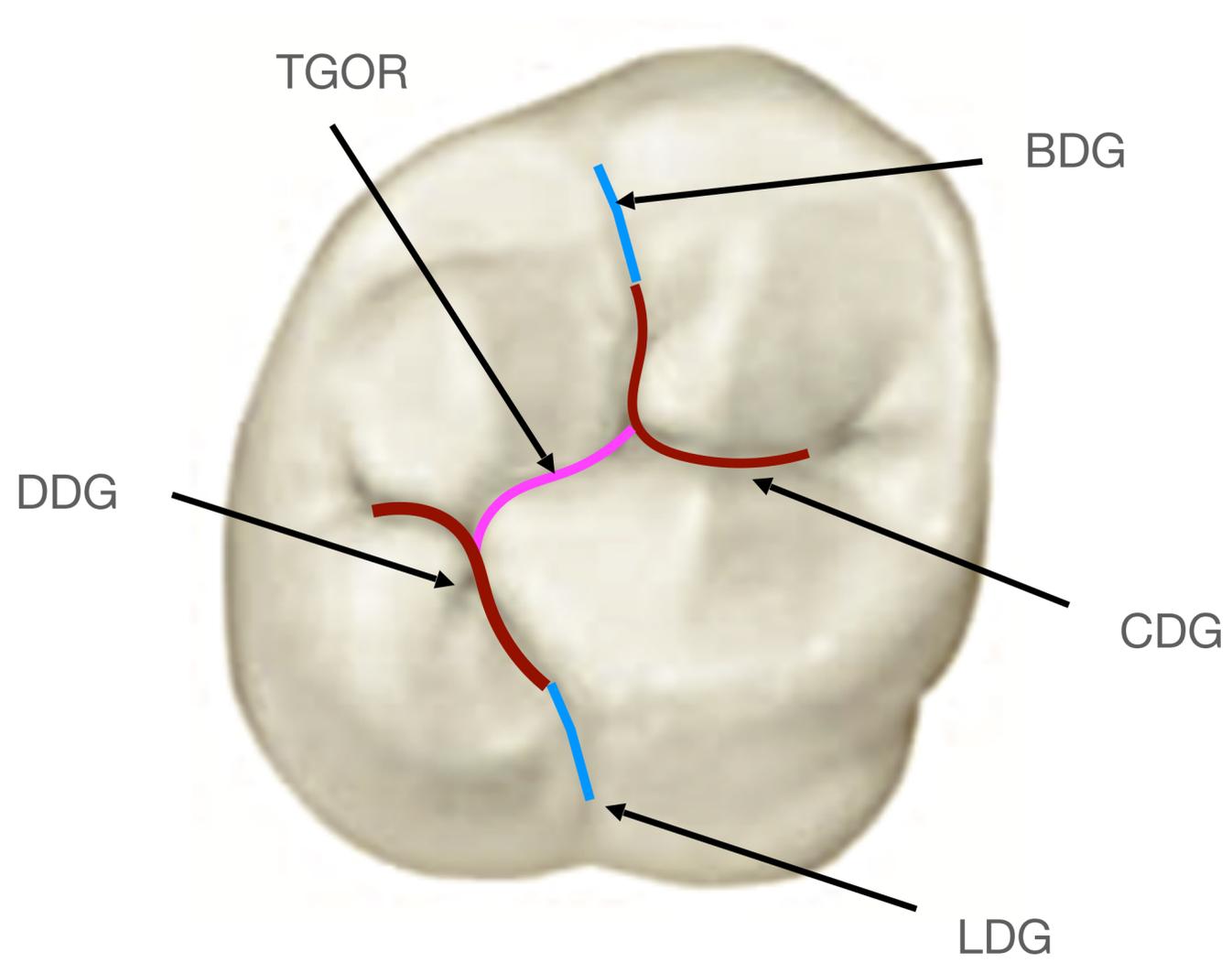
Note: distal groove with lingual groove make a kidney shaped groove.

### II- Fossae:

1. Central fossa: lie mesial to oblique ridge
2. Distal fossa: lie distal to oblique ridge.
3. Mesial and distal triangular fossae).



## II- Depressed Landmarks



# MAXILLARY SECOND PERMANENT MOLARS

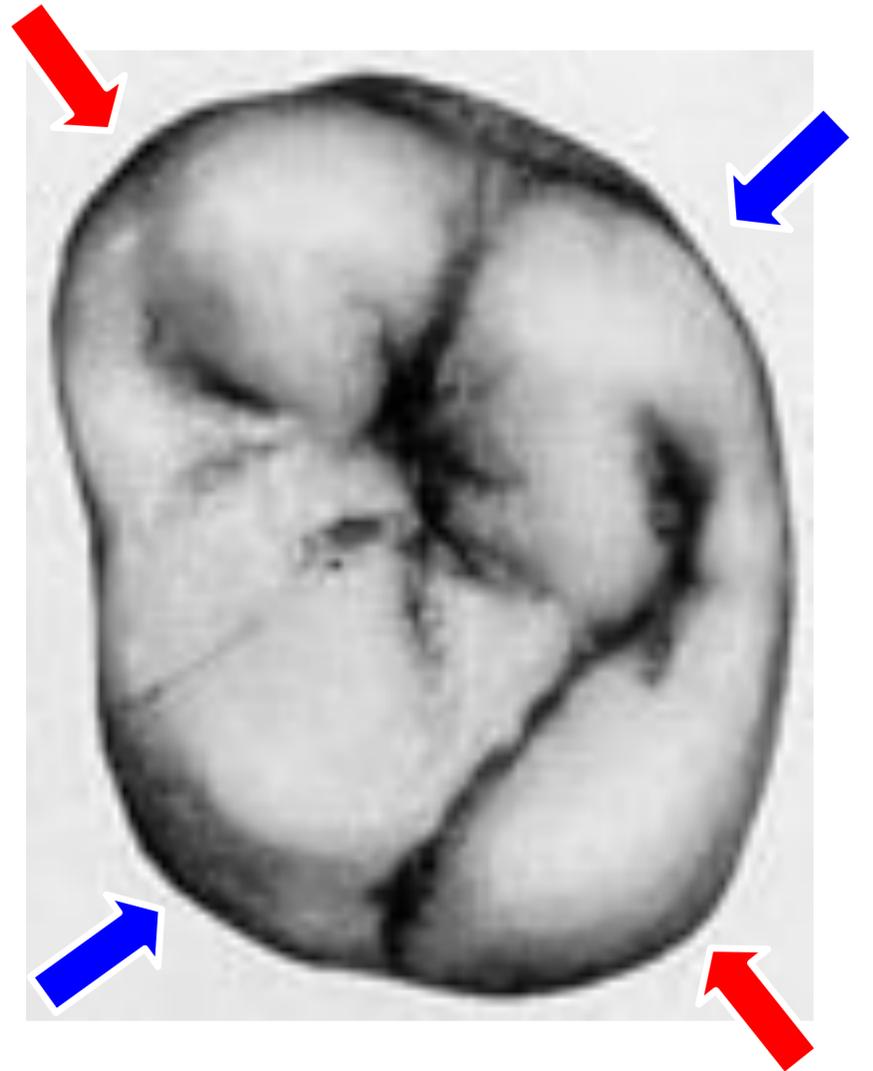
Similar to maxillary first permanent molar but differs in:

1. The crown is shorter cervico-occlusally.
2. The distobuccal cusp is less developed.
3. The distolingual cusp is smaller.
4. No tubercle of Carabelli.
5. The roots are similar to upper first permanent molar but parallel .
6. The roots curved distally.



## Occlusal aspect

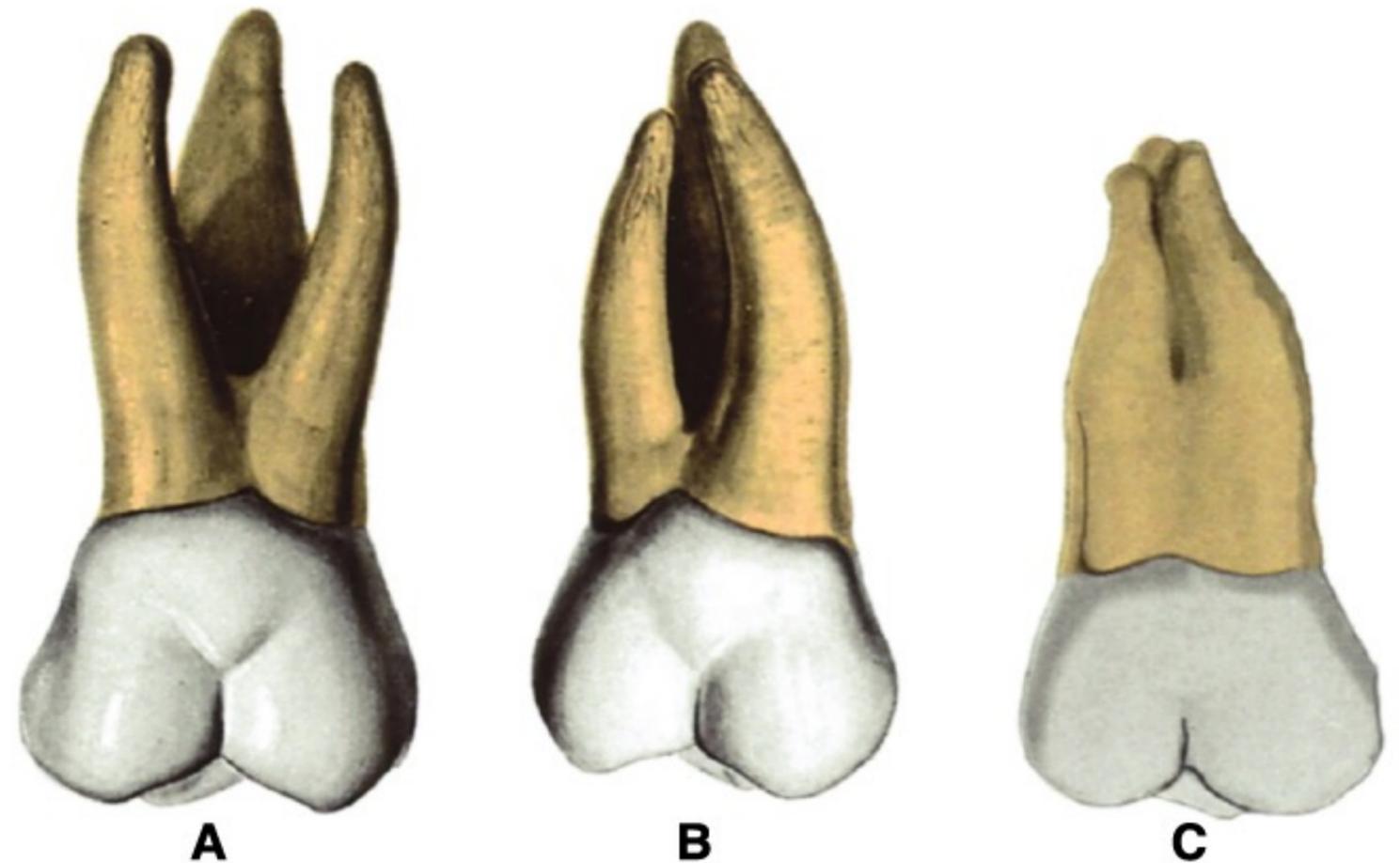
1. Rhomboid shape.
2. The acute angles are more acute.
3. The obtuse angles are more obtuse.
4. The distolingual and distobuccal cusps are less developed.
5. More supplemental grooves.



## Maxillary third molars

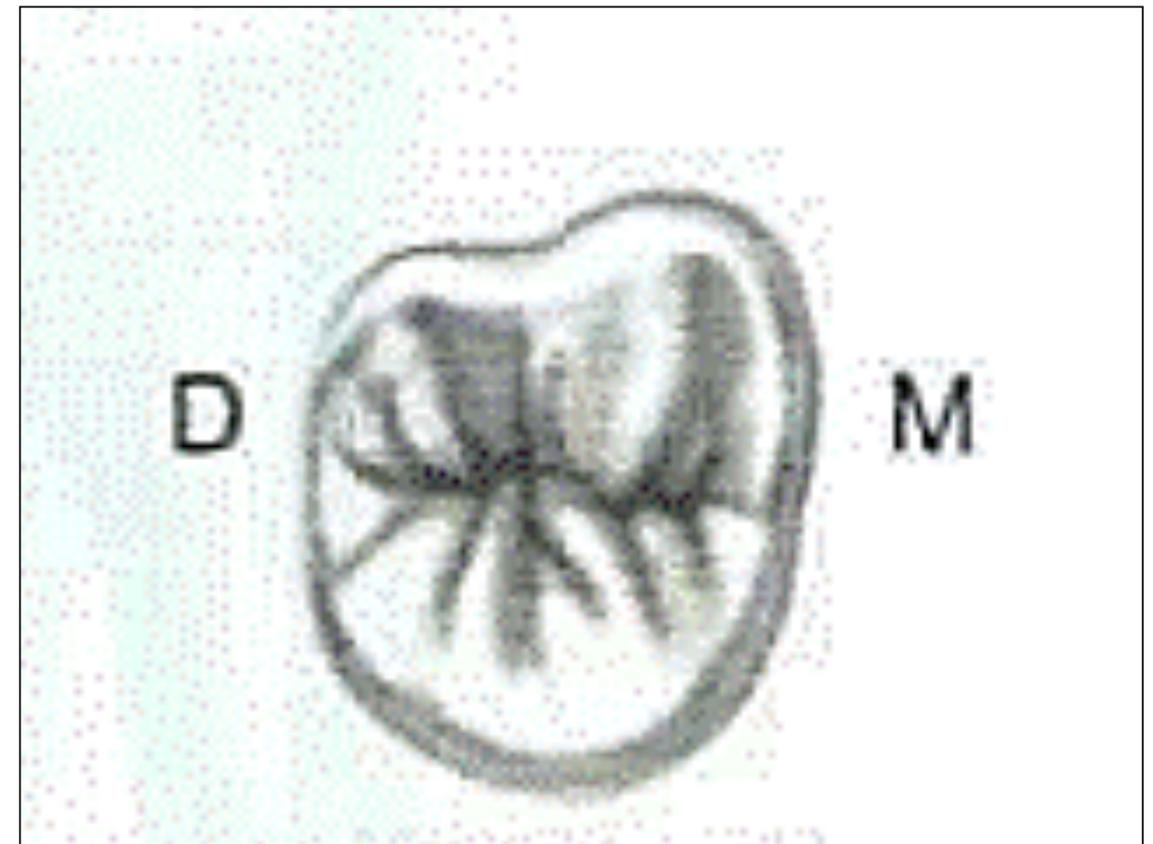
Similar to maxillary second permanent molar but differs in:

1. The crown is smaller in all surfaces.
2. The crown may contain three cusps only with the absence of **distolingual cusp.**
3. No distal contact area.
4. The three roots are fused together .
5. The roots curved distally.



## Occlusal aspect

1. Three cusp type is heart shaped occlusal geometry.
2. Four cusp type is rhomboidal in shape similar to maxillary 2nd molar.
3. No cusp of carabelli.
4. Has numerous supplemental grooves.



**WELCOME**

