

## The Permanent Posterior Teeth

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### Characteristic features of the posterior teeth:

1. Greater relative faciolingual measurement as compared with the mesiodistal measurement.
2. Broader contact area.
3. Contact areas nearly at the same level.
4. Less curvature of the cervical line mesially and distally.
5. Shorter crown cervicoocclusally when compared with anterior teeth.

## The Permanent maxillary premolars

The maxillary premolars are four in number: two in the right maxilla and two in the left maxilla.

The premolars are so named because they are anterior to the molars in the permanent dentition. In zoology, the premolars are those teeth that succeed the deciduous molars regardless of the number to be succeeded.

They also called bicuspid (having two cusps) but this name is not widely used because the mandibular first premolars may show a variation in the number of cusps from one to three cusps. The crown of premolars is shorter than that of the canine by 1.5 to 2 mm on the average (Table 9-1). Although this tooth resembles the canine from the buccal aspect, it differs in that the contact areas mesially and distally are at about the same level. The root is shorter.

The maxillary first premolar is larger than the maxillary second premolar. The premolars are in the center of the dental arch. They erupt after the exfoliation of the deciduous molars.

Most maxillary first premolars have two roots and two pulp canals. When only one root is present, two pulp canals are usually found anyway.

### Maxillary first premolar

Eruption time 10-11 years

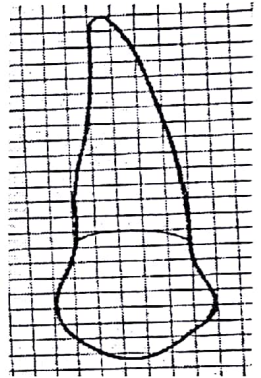
Root complete time 12-13 years

## Principal identifying features:

1. Two sharply defined cusps, the buccal cusp about 1 mm longer than the lingual one.
2. Mesial slope of the buccal cusp is longer than the distal slope.
3. Two roots buccal and lingual . the bifurcation is at the middle third of the root.
4. Developmental depression on mesial surface of the crown extending to the root.
5. Central developmental groove interrupts the mesial marginal ridge.
6. The occlusal outline is angular.

## Buccal aspect

1. The crown is roughly trapezoidal. The crown exhibits little curvature at the cervical line.
2. The buccal surface of the crown is convex with a strongly developed middle Buccal ridge which is continuous from the tip of the cusp to the cervical line (center of middle third).
3. Mesial and distal to the buccal ridge, at or occlusal to the middle third, developmental depressions are usually seen that serve as demarcations between the middle buccal lobe and the mesiobuccal and distobuccal lobes. Although the latter lobes show less development.
4. The mesial outline of the crown is slightly concave above the contact area. The contact area is represented by a relatively broad curvature, the crest of which lies immediately occlusal to the halfway point from the cervical line to the tip of the buccal cusp.
5. The distal outline of the crown is almost straight line above the contact area.
6. A pointed buccal cusp tip with a long straight mesial slope and a short distal slope , the mesial slope of the buccal cusp is sometimes notched. This arrangement places the tip of the buccal cusp distal to a line bisecting the buccal surface of the crown.
7. The width of the crown of the maxillary first premolar mesiodistally is about 2 mm less at the cervix than at its width at the points of its greatest mesiodistal measurement.

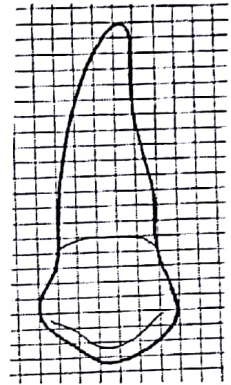


8. The contact areas are nearly at the same level with each other.
9. The root 3-4 mm shorter than root of canine. Its form bears a close resemblance (cone shape)

## Lingual aspect

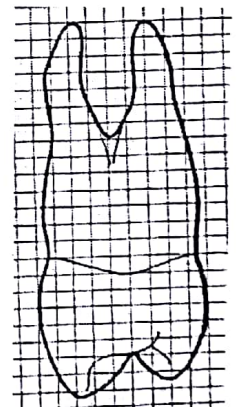
From the lingual aspect, the gross outline of the maxillary first premolar is the reverse of the gross outline of the buccal aspect.

1. The crown tapers toward the lingual because the crown is narrower mesiodistally in the lingual aspect.
2. The lingual cusp is smooth and spheroidal, the cusp tip is pointed with mesial and distal slopes meeting at an angle of 90 degrees.
3. The lingual cusp is shorter than the buccal cusp. Because the lingual cusp is not as long as the buccal cusp, the tips of both cusps, with their mesial and distal slopes, may be seen from the lingual aspect.
4. The lingual portion of the root, or the lingual portion of the lingual root if two roots are present, is smooth and convex at all points. The apex of the lingual root of a two root specimen tends to be more blunt than the buccal root apex.



## Mesial aspect

1. The mesial aspect of the crown of the maxillary first premolar is roughly trapezoidal. However, the longest of the uneven sides is toward the cervical portion and the shortest is toward the occlusal portion.
2. Another characteristic is that the tips of the cusps are well within the confines of the root trunk.
3. The cervical line may be regular in outline or irregular, has less curvature than in any anterior teeth.



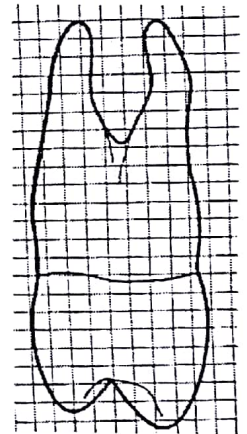


4. The buccal outline is convex, the crest of curvature is within the cervical third and then less curved to the cusp tip.
5. The lingual outline of the crown is convex, the crest of curvature is within the middle third.
6. The mesial marginal ridge is at the level of the junction of the middle and occlusal thirds and is crossed by mesial developmental groove.
7. The root is bifurcated for half its length.
8. The mesial developmental depression starts from the contact area to the bifurcation area.
9. Buccal outline of buccal root is straight above cervical line with a tendency to lingual inclination above bifurcation . lingual outline of lingual root is straight from cervical line to root apex without inclination.

## Distal aspect

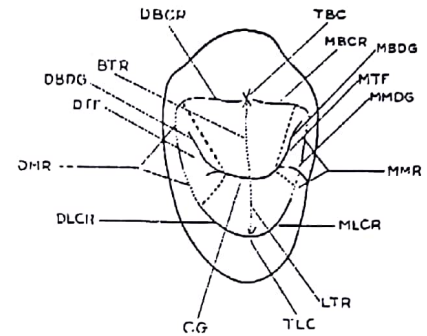
From the distal aspect, the anatomy of crown and root of the maxillary first premolar differs from that of the mesial aspect as follows:

1. The crown surface is convex at all points except for a small flattened area just cervical to the contact area and buccal to the center of the distal surface
2. . The curvature of the cervical line is less on the distal than on the mesial surface.
3. There is no evidence of a developmental groove crossing the distal marginal ridge of the crown. If a developmental groove should be noticeable, it is shallow and insignificant.
4. The root trunk is flattened on the distal surface above the cervical line and does not show developmental depression.
5. The bifurcation of the roots is at a higher level apical than in the mesial side.



## Occlusal aspect

1. The occlusal aspect of the maxillary first premolar resembles roughly a six-sided or hexagonal figure. This hexagonal figure, however, is not equilateral. The two buccal sides are nearly equal, the mesial side is shorter than the distal side and the mesiolingual side is shorter than the distolingual side.
2. The crest of the distal contact area is buccal to the mesial contact area
3. The buccolingual dimension is much greater than mesiodistal dimension.
4. The occlusal surface is circumscribed by the cusp ridges and marginal ridges.
5. A central developmental groove divides the crown bucco-lingually, it crosses from distal side to mesial which joins with the mesial marginal groove.
6. The lingual cusp pointed more sharply than the buccal cusp.
7. Just distal to the mesial marginal ridge, the triangular depression that harbors the mesiobuccal developmental groove is called the mesial triangular fossa. The depression in the occlusal surface, just mesial to the distal marginal ridge, is called the distal triangular fossa.
8. In the mesial and distal triangular fossae, there are two developmental grooves. These grooves are called the mesiobuccal developmental groove and the distobuccal developmental groove. These grooves join the central groove with the junction of the grooves make developmental pit.
9. The buccal triangular ridge of the buccal cusp is prominent. The lingual triangular ridge is less prominent.



## MAXILLARY SECOND PREMOLAR

1. The maxillary second premolar supplements the maxillary first premolar in function. The two teeth resemble each other so closely.
2. The maxillary second premolar is less angular, giving a more rounded effect to the crown from all aspects.
3. It has a single root, Usually the root length of the second premolar is as great, if not a millimeter or so greater, than that of the first premolar
4. The maxillary second premolar may have a crown that is noticeably smaller cervico-occlusally and also mesiodistally.

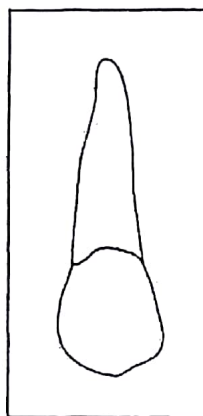
Eruption time: 10-12 years

Root completed time: 12-14 years

### Buccal Aspect

From the buccal aspect:

1. It may be noticed that the buccal cusp of the second premolar is not as long as that of the first premolar and it appears less pointed.
2. The mesial slope of the buccal cusp ridge is usually shorter than the distal slope. The opposite is true of the first premolar.
3. The crown and root of the second premolar are thicker at their cervical portions.

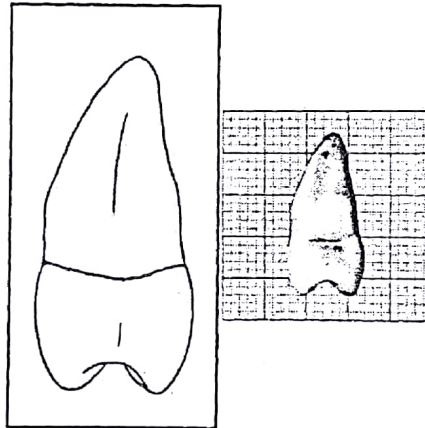


### Lingual Aspect

From the lingual aspect, little variation may be seen except that the lingual cusp is longer, making the crown longer on the lingual side.

## Mesial Aspect

1. The mesial aspect shows the difference in cusp length between the two teeth. The cusps of the second premolar are shorter, with the buccal and lingual cusps more nearly the same length. There may be greater distance between cusp tips a condition that widens the occlusal surface buccolingually.
2. There is no deep developmental depression on the mesial surface of the crown as on the first premolar; the crown surface is convex instead. A shallow developmental groove appears on the single tapered root.
3. There is no deep developmental groove crossing the mesial marginal ridge, and except for the variation in root form.



## Distal Aspect

The distal root depression is deeper than the mesial depression on the maxillary second premolar. This characteristic of the distal root surface is the opposite of that of the maxillary first premolar, in which the depression is on the mesial surface of the root.



## Occlusal Aspect

From the occlusal aspect, some differences are to be noted between the two premolars.

1. The outline of the crown is more rounded or oval, rather than angular.
2. The central developmental groove is shorter and more irregular, and there is a tendency toward multiple supplementary grooves radiating from the central groove. This arrangement makes for an irregular occlusal surface and gives the surface a very wrinkled appearance.

