

ANATOMY OF THE PRIMARY DENTITION

I. Why be concerned with maintaining the primary teeth?

- A) Freedom from pain and infection
- B) Function
 - 1) eating
 - 2) speech development
- C) Growth and Development
 - 1) function determines form
- D) Space Maintenance
- E) Esthetics (self-image)

II. Generalizations regarding anatomy of the primary dentition

- A) 20 total teeth - no premolars (Primary molars succeeded by Premolars)
- B) smaller than permanent successor: exception - primary molars larger (mesiodistal) than premolars
- C) proportionally shorter crown height
- D) occlusal anatomy shallower - lacks secondary fissures
- E) cervical BULGE (particularly mandibular first primary molars)
- F) primary molars have greater root divergence
- G) primary teeth have GREATER ROOT LENGTH compared to crown

III. Specifics regarding individual primary teeth

- A) Primary teeth have thinner enamel
- B) the pulp chambers are relatively larger and closely mirror the external contours of the teeth
- C) the primary pulp horns extend higher into the respective cusps. Routinely, the mesiobuccal pulp horn is the most liable to exposure during cavity preparation.

IV. Miscellaneous

- A) Because of the large pulp horns, round-ended burs are used to prepare cavities; no sharp line angles - buccal and lingual preparations.
- B) Keys to differentiating primary and permanent teeth are:
 - 1) Color - primary more white and opaque
 - 2) Size and contours (as above)
 - 3) Depth of anatomy
 - 4) Location of teeth

V. Comparison of primary to permanent dentition

- A) Primary pulps reflect external anatomy more closely-big cusp → big pulp horn
- B) Primary pulps relatively larger → internal line angles rounded
- C) Primary roots - very flaring - to allow development of premolars
- D) Primary crowns - bell shaped
- E) Enamel rods - perpendicular to tooth surface - parallel to horizontal at gingival - Especially important in Class II Prep - NO bevel of gingival seat
- F) Primary teeth more white and opaque
- G) Enamel thinner - Dentin less mineralized → Faster caries progression
- H) Shorter Crowns → Restricted occlusal Table - "Bulbous" contours
- I) Shallower Anatomy → Outline form is a "series of gentle arcs and curves". Absence of 2° anatomy (grooves)
- J) Rounded cusps
- K) Relatively larger pulps → rounded line angles and decreased stress concentration
- L) Pulps reflect external anatomy
- M) Enamel rods at gingival parallel to horizontal or gingivally directed (No gingival flare for CI II)
- N) Internal preparation walls parallel external surfaces → "undercut" appearance - due to enamel rod direction

VI. Similarities to permanent teeth

- A) Max 2nd Prim molar and Max Perm 1st molar - most alike
- B) Mand 2nd Prim molar and Mand Perm 1st molar - somewhat
- C) Slight: Max 1st Prim - unique anatomy = large MB bulge

VII. Eruption pattern of primary teeth - "RULE OF FOUR" \pm 6 mo's is normal

- A) - 6-7 mos.
 - B) - (+4) = 11 mos.
 - C) - (+4) = 19 mos.
 - D) - (+4) = 15 mos.
 - E) - (+4) = approx. 2 yrs.
- 1. 1st perm.molar or mand centrals = 6 yrs. (\pm 1yr)
 - 2. Premolars at 10-11
 - 3. If root is $\frac{3}{4}$ formed and crown is not erupted \rightarrow probable impaction

VIII. "Natal" teeth - Present at birth

"Neonatal" teeth - Erupt within 1 month of birth

IX. Spacing

- A) Generalized
- B) Primate - allows canine intercuspatation

X. Radiographic Dating

- * 1. Max Perm. Lat. begins calcification at 10-12 mos.
- ** 2. Premolar crowns comp. at approx. 6 yrs.
- *** 3. Perm. First Molar Roots comp. at 10 yrs.
- ****4. 6's begin calcification prior to birth

XI. Average Dimensions for Primary Molars from Exterior Surface to Periphery of Pulp Chamber:

<i>TOOTH</i>	<i>SURFACE</i>	<i>DISTANCE (mm)</i>
First Molar	Occ	2 $\frac{1}{4}$
First Molar	Prox	1 $\frac{3}{4}$
Second Molar	Occ	2 $\frac{3}{4}$
Second Molar	Prox	2 $\frac{1}{4}$

XII. Bur Dimensions---These may be used as general guides to preparation depth:

<i>BUR #</i>	<i>*DIAMETER (mm)</i>	<i>*LENGTH (mm)</i>
34 Inv. Cone	1.0	1.0
556 X-Cut fissure	1.0	4.0
#330	0.75	1.75
#245	0.75	3.0

* May vary by different manufacturer---check with Boley Gauge