mucogingival surgeries."

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Switch account

* Required

Name *

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Profession

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Email *

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Phone number

PRINCIPAL
Al-Badar Rural Dental College
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1. The distance between the apical extent of the junctional epithelium and the alveolar bone is

_____.

- ○ Constant
- ○ Changing
- ○ Unstable
- ○ Variable

2. What is the distance between the cementoenamel junction (CEJ) to the marginal bone in health?

- ○ 1-3mm
- ○ 1.5mm-2.0mm.
- ○ 1.8 mm.
- ○ 2-4 mm

3. What is the steady rise in GCF amount, from 6:00 am to 10:00 pm and a fall

1ST YEAR BDS 1ST INTERNAL ASSESSMENT

SUB: DADH

LONG ESSEY

1. Enumerate and write in detail about the morphological stages of tooth development.

Ans: Stomodeum or primitive oral cavity is lined by a layer of stratified squamous epithelium. Most of the connective tissue underlying oral ectoderm is made of neural crest cells.

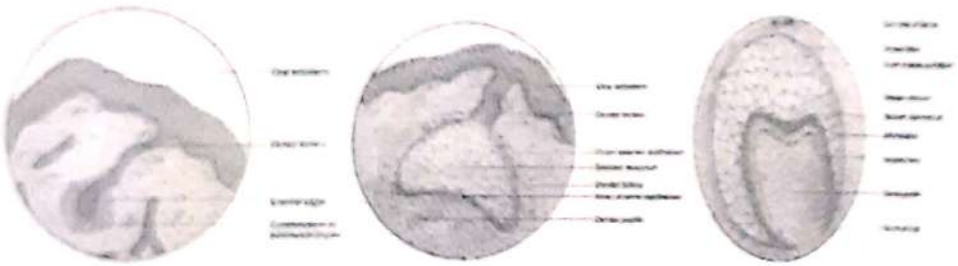
Formation of dental lamina: When embryo is of 6-week-old certain cells of oral ectoderm proliferate rapidly, leading the formation of primary epithelial band [band of epithelia].

During 7th week of development this primary epithelial band divides into two lamina

1> Dentinal lamina: This lamina is responsible for development of tooth.
2> Vestibular lamina: This lamina will get degenerated and forms vestibule of mouth.

Morphological stages of tooth development

1. Bud stage: As the dentinal lamina is formed primordia of oral ectoderm is formed at 10 different points. Know dentinal lamina will give raise to enamel organ. This enamel organ appears to be bud like structure. So this is called bud stage of tooth development. In this stage enamel organ consist of outer peripheral located low columnar cells and centrally located polygonal cells. Now the mesenchymal cells surrounding enamel organ undergo mitosis and condensation of cells around the enamel organ. The layer of cells immediately surrounding the enamel organ are called dental papillae, and the layer enclosing both dental papillae and enamel organ is dental follicle.



2.Cap stage:

The cells of the enamel organ proliferate further resulting in increased size of enamel organ. This results from an invagination that develops at its deeper part.The cells lining the invaginated portion of

enamel organ changes into low columnar cells and are named as inner enamel/inner dental epithelium. This layer is separated from dental papilla by a distinct basement membrane. The cells are attached to each other and to the cells adjacent layers by desmosomal junctions and to the

basement membrane by hemidesmosomes.cap remain cuboidal and are named as outer enamel/outer dental epithelium. This layer is separated from dental follicle by a distinct basement membrane. The cells of this layer are also attached to each other by desmosomal junctions and to the basement membrane by hemidesmosomes.

Stellate reticulum: The central cells are polyhedral in early cap stage and later

turn into star-shaped cells called stellate reticulum.

Dental papilla: The dental papilla cells undergo further proliferation and condensation during

cap stage. As the enamel organ invaginates, the dental papilla becomes partly enclosed in the invaginated portion. Dental papilla also shows active proliferation of blood vessels. At this stage of tooth development, dental papilla is the main source of nutrition to the inner enamel epithelium.

Dental follicle: This layer becomes denser and fibrous, forming a well-formed structure that encloses

the enamel organ and dental papilla.

3.Bell stage: bell stage is divided into early and late/advanced bell stage.
Early bell stage: During this stage the enamel organ enlarges, and the invagination deepens further to resemble a bell. Enamel organ shows 4 different layers of cells.

Outer enamel epithelia: The cuboidal cells forming the outer enamel epithelium changes to flattened cells.

Inner enamel epithelial: The inner enamel epithelial cells undergo histodifferentiation to form ameloblasts; the cells that synthesize enamel.

Stratum intermedium: During bell stage a new layer composed of 2-3 layers of squamous cells appear in the enamel organ, immediately above the inner enamel epithelium.

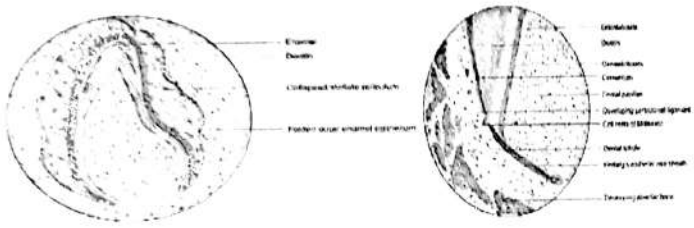
As the tooth development progresses the stellate reticulum collapses and reduce the distance between inner enamel epithelial cells and nutrient capillaries located in dental follicle adjacent to outer enamel epithelium.

Dental lamina that attaches the enamel organ to the oral ectoderm starts to degenerate in early bell stage. The remnants of this dental lamina may persist, which are called 'cell rests of Serres'

Dental papilla In bell stage, the dental papilla becomes completely enclosed in the invagination of enamel organ

The dental follicle becomes more distinct at this stage of tooth development, with denser fibrous component. Three distinct layers, i.e., the inner vascular fibrocellular condensation of two to four cell layer thick, middle loose connective tissue and outer vascular mesenchymal layer.

Late / advanced bell stage: Dentin is the first hard tissue formed in a tooth and enamel formation can be initiated only after a layer of dentin is deposited. As the hard tissue formation continues the outer enamel epithelium becomes more irregular and stellate reticulum collapses further. Dentin deposition by differentiated odontoblasts begins at dentino-enamel junction. The differentiated ameloblasts deposit enamel over dentin. There is formation of reduced enamel epithelium.



Root formation: As the formation of dentin and enamel reach cervical loop formation of root take place. Cells of cervical cap proliferates and forms hertwig's epithelial root sheath [HERS]. This determines the shape, number, size of root. The ruminants of HERS is called as cell rests of malassez.

2. Describe the morphology of permanent maxillary central incisor.

Ans: central incisor is the widest tooth in mesio-distal measurement. Crown lenth is about

10mm -11mm.

Tooth is divided into 5 aspects and thirds.

Labial aspect is view of surface that is facing lip, Lingual is surface that is in contact with tongue, mesial aspect is surface that is towards the medial side of proximate surface, distal surface is surface towards distal side of proximate surface.

Labial aspects: The crown have 4 borders from this aspect. That are mesial, distal, cervical, and incisal edge as medial, distal, superior, and inferior borders respectively. Crown appears as quadrilateral in shape. Crown measures 10mm in height, mesiodistally 8mm - 9mm at incisal edge and 7mm at cervical line.

Mesial outline is only slightly convex, with the crest of convexity towards the incisal edge forming contact point at mesial proximity. Distal outline is more convex than mesial outline, with the crest of convexity positioned more towards the cervical line. This forms the contact point at distal proximity. Mesiolabial angle is sharp than distolabial angle.

Cervical line is semi-circular in shape with curve towards the apex of root. Small tubercle can be found on incisal edge of newly erupting tooth that are called mamelons.

Lingual aspect: Aspect that is facing the tongue is called as lingual aspect. It has a large lobe making cervical third of lingual aspect called as cingulum. Beneath the cingulum there is lingual

fossa. Lingual fossa is bordered by mesiolingual ridge at mesial proximity, by distolingual ridge at distal proximity, by incisal ridge and cingulum as inferior and superior margins respectively. Usully there are developmental groove extending from cingulum to lingual fossa.

Mesial aspect: Mesial aspect appears wedge shaped or triangular in shape. It is about 7mm labiolingualy. The base of triangle is at the cervicle region and apex at the incisal edge. The labial outline of the crown slightly convex. Lingual out line is convex at thepoint where it joins the crest of curvature of cingulum. It then become concave. Cervical line is curved, and convexity of curve is towards the incisal edge. Root appears cone from the measial aspect.

Distal aspect: Features of distal aspect is same that of mesial aspect, but the difference is that due to more convexity of distal aspect the incisal edge appears more thick. Cervical line is curved and convexity of curve is towards incisal edge.

Incisal aspect : Incisal aspect shows that the labio lingual length is 7mm-7.5mm. From incisal aspect labial side appears more bulk. Cingulum is seen. Mesial and distal borders more distinctly visualized. Incisal edge is observed, that is dividing lingual and labial surface of tooth.

SHORT ESSEY

Tooth no. System
Ans: There are 3 type of tooth no. System.
Universal system of notation [USN]
Zsigmody / palmer system
FDI [Federation Dentaire Internationale]
USN for the primary dentition uses uppercase letters for each tooth. For maxillary teeth beginning with right second molar, letter A through J, and for mandibular teeth, letters K through T, beginning with the left mandibular second molar.

A B C D E | F G H I J

T S R Q P | O N M L K

For permanent dentition no. Starting from 1 is used to denote teeth. For maxillary permanent teeth starting from right 3rd molar with no.1 through 16, and for mandibular teeth it starts with no. 17 from left 3rd molar. to 32 up to right 3rd molar.

1> Zsigmondy/ palmer: It is a symbolic system, in which arches are divided into 4 quadrants. It starts from centre with upper case letter. For primary dentition symbolic system is as shown,

E D C B A | A B C D

E D C B A A B C D

For single tooth for eg; A is use for maxillary left central incisor. For permanent dentition no. are used. It also starts from center.

8 7 6 5 4 3 2 1 | 1 2 3 4 5 6 7 8

8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

FDI uses no. For denoting dentition. For primary dentition:

55 54 53 52 51 | 61 62 63 64 65
85 84 83 82 81 71 72 73 74 75

Where 5, 6, 7, and 8 indicates maxillary right, maxillary left, mandibular left and mandibular right arches. And 1, 2, 3, 4, and 5 indicates teeth in arch. For permanent dentition:

18 17 16 15 14 13 12 11 | 21 22 23 24 25 26 27 28

48 47 46 45 44 43 42 41 31 32 33 34 35 36 37 38

Here 1, 2,3 and 4 indicates upper right, upper lefr, lower left, lower right arches. And 1,2,3……,8 indicates teeth.

There is another system called Victor Hedera system in which + and - are used for differentiating upper and lower arches and between left and right side. For example, +1 and 1+ indicates left and right maxillary central incisors respectively.

2. Development of face.

Ans: Development of face begins at 4th to 8th week of embryonic development. At the end of 4th week stomodeum and pharyngeal arches develops. These pharyngeal arches are derived from neural crest cells of mesenchyme.

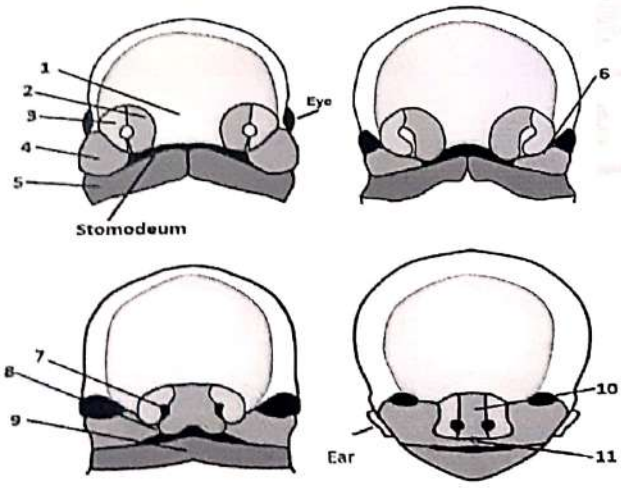
Frontal process is developed from mesenchyme present in front of neural tube. It gives rise to organ like forehead, external nose, nasal cavity, philtrum etc. From first arch a pair of maxillary process develops.

On frontal process surface ectoderm thickens to form olfactory placode. A small pit is formed in nasal oral placodes. This is called olfactory pits or nasal pits, which is continuous with the stomodeum below. Now two horseshoe shaped elevation are produced by mesenchymal activity.

It has the median half called medial nasal process and lateral one called lateral nasal process. Now the medial nasal placodes fuses to form inter maxillary segment. Nasal pits grow deeper to form nasal chamber. Intermaxillary segment forms nasal septa, philtrum, small part of upper labia.

2 maxillary processes develop from 1st pharyngeal arch. Now this process fusses with lateral nasal processes. Maxillary process forms lateral part of upper labia and maxillary area of face. By the maxillary process and lateral nasal process there is formation of naso-lacrimal duct.

2 mandibular process from 1st pharyngeal arches forms the mandibular portion, lower lip, and upper part of neck. Stomodeum forms oral cavity. Eye placodes come in front as maxillary process starts to fuse with lateral nasal placodes.



Development of Face

1. Frontonasal process
2. Medial nasal process
3. Lateral nasal process
4. Maxillary process
5. Mandibular process
6. Fusion of lateral process with maxillary process
7. Nasal pit
8. Fusion of maxillary process with medial nasal process
9. Fusion of mandibular processes
10. Intermaxillary process (fused medial nasal processes
11. Philtrum of nose

3. Hypo calcified structures of tooth.

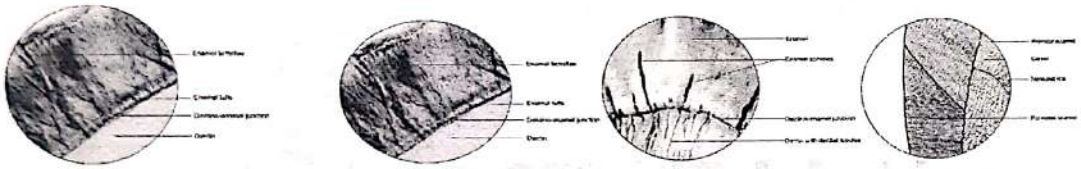
Ans: hypo calcified structures are formed because of defects in calcification process. Hypo calcification of enamel leads to the formation different structures in enamel. Like enamel lamellae, enamel spindles, enamel tufts, neonatal line.

Enamel lamellae: enamel lamellae are thin leaf like structures that extends from enamel surface towards the DEJ. They may sometimes penetrate DEJ and enters the dentin.

There are 3 type of enamel lamellae 1, Type 2,Type B, Type C

1> Type A: Enamel consist of poorly calcified enamel rods.
2> Type B: Enamel lamellae consist of degenerated cells.
3> Type C: Enamel lamellae arising in erupted teeth where the cracks are filled with organic matter presumably originating from saliva.

Type B and Type c may enter dentin, but Type A is constricted to enamel.



Enamel tufts: Enamel tufts develop where enamel matrix proteins migrate to fill in the faulting voids, which therefore contain reduced minerals and enhanced organic matrix concentration. Early faulting leads to formation of enamel tufts while late faulting produces enamel lamellae .

Enamel tufts are hypocalcified structures extending from the DEJ to the enamel, to a distance of about 1/5th or 1/3rd of enamel thickness. These structures are better appreciated in transverse sections of enamel. In ground sections they appear as tuft of grass, therefore the name enamel tuft is given. Enamel tufts are ribbon shaped structures with free ends \undulating to the sides.

Enamel tufts are seen in the region where the prism sheath is prominent, and these structures contain more of organic contents.

Enamel spindles: These are the spindle shaped structures, extending from the DEJ into the enamel to a distance 10 microns. These structures are the odontoblastic processes that are entrapped in enamel matrix. They are found mainly in the incisal orcuspal region. Enamel spindles are arranged perpendicular to the dentinal surface and may not follow the direction of enamel rods. The enamel spindles are responsible for increased sensitivity at DEJ. These structures are found more in incisal or cuspal region and thought to be improving the attachment between enamel and dentin.

Neonatal lines: In the deciduous teeth and permanent first molars, enamel is deposited partly before birth and partly after birth. The incremental line separating the enamel deposited before birth (prenatal enamel) and enamel deposited after birth (postnatal enamel) becomes accentuated because of disturbance in formation that has occurred at the time of birth due to the abrupt change in environment. This accentuated incremental line is called neonatal line. The prenatal enamel is more homogeneous than the postnatal enamel, probably due to more

constant surroundings and good nutritional supply. This variation in nature of pre- and postnatal enamel also may contribute to making neonatal line prominent.

4. Elevations and depressions on tooth surface.

Ans: A cusp is an elevation or mound on the crown portion of a tooth making up a divisional part of the occlusal surface.

A tubercle is a smaller elevation on some portion of the crown produced by an extra formation of enamel.

A cingulum is the lingual lobe of an anterior tooth. It makes up the bulk of the cervical third of the lingual surface. Its convexity mesiodistally resembles a girdle encircling the lingual surface at the cervical third.

A ridge is any linear elevation on the surface of a tooth and is named according to its location.

Marginal ridges are those rounded borders of the enamel that form the mesial and distal margins of the occlusal surfaces of premolars and molars and the mesial and distal margins of the lingual surfaces of the incisors and canines .

Triangular ridges descend from the tips of the cusps of molars and premolars toward the central part of the occlusal surfaces. They are so named because the slopes of each side of the ridge are inclined to resemble two sides of a triangle. They are named after the
cusps to which they belong, for example, the triangular ridge of the buccal cusp of the maxillary first premolar.

When a buccal and a lingual triangular ridge join, they form a transverse ridge. A transverse ridge is the union of two triangular ridges crossing transversely the surface of a posterior tooth.

The oblique ridge is a ridge crossing obliquely the occlusal surfaces of maxillary molars and formed by the union of the triangular ridge of the distobuccal cusp and the distal cusp ridge of the mesiolingual cusp.

A fossa is an irregular depression or concavity. Lingual fossae are on the lingual surface of incisors. Central fossae are on the occlusal surface of molars. They are formed by the convergence of ridges terminating at a central point in the bottom of the depression where there is a junction of grooves. Triangular fossae are found on molars and premolars on the occlusal surfaces mesial or distal to marginal ridges . They are sometimes found on the lingual surfaces of maxillary incisors at the edge of the lingual fossae where the marginal ridges and the cingulum meet.

A sulcus is a long depression or valley in the surface of a tooth between ridges and cusps, the inclines of which meet at an angle. A sulcus has a developmental groove at the junction of its inclines.

A developmental groove is a shallow groove or line between the primary parts of the crown or root. A supplemental groove, less distinct, is also a shallow linear depression on the surface of a tooth, but it is supplemental to a developmental groove and does not mark the junction of primary parts. Buccal and lingual grooves are developmental grooves found on the buccal and lingual surfaces of posterior teeth.

Pits are small pinpoint depressions located at the junction of developmental grooves or at terminals of those grooves. For instance, central pit is a term used to describe a landmark in the central fossa of molars where developmental grooves join.

A lobe is one of the primary sections of formation in the development of the crown. Cusps and mamelons are representative of lobes. A mamelon is any one of the three rounded protuberances found on the incisal ridges of newly erupted incisor teeth.

5. Difference between deciduous teeth and permanent teeth.

Ans: Primary dentition

• Duration of dentition lasts from 6 months to 6 years. Primary teeth begin to erupt at 6 months. By 21/2 to 3 years of age, a child would have his/her complete set of deciduous teeth. Permanent dentition 12 years and beyond. Eruption of permanent teeth begins at 6 years and completes at 12-13 years except for 3rd molars.
Primary dentition Size: Primary teeth are smaller in overall size and crown dimensions when compared to their permanent counterparts.

• Color: Lighter in color. They appear bluish white (milky white) & are also called as milk teeth. Their refractive index is comparable to that of milk. Permanent dentition Larger in overall dimension. Permanent teeth are darker in color. They appear yellowish, white or greyish white.

• Thus, for primary resin restorations, lighter shades should be select Shape: Crowns of primary teeth are wider mesiodistally in comparison to their crown height.

• Cervical constriction: more constrocted at the cervical portion of the crown,i.e. narrower at their necks. Permanent dentition Crowns of permanent anterior teeth appear longer as their cervicoincisal height is greater than mesiodistal width.

Crowns not so constricted at their necks. Cervical ridge: on buccal aspect of deciduous crown are more prominent (especially on 1 st molars).

• Incisors- primary incisors do not exhibit mamelons. Primary incisors wider mesiodistally than they are long cervicoincisally. Permanent dentition Cervical ridges on permanent crowns are flatter. Newly erupted permanent incisors exhibit mamelons. Permanent incisors longer cevicoincisally than they are wider mesiodistally Canines- tend to be more conical in shape & cusp tip is more pointed & sharp.

• No premolars in deciduous dentition. Only 2 molars in each quadrant. No 3rd molars in deciduous dentition. Permanent dentition Permanent canines are less conical; their cusp tips are less pointed.

• There are two premolars in each quadrant. 3 molars in each quadrant. Size- crown of 2nd molar is larger than the crown of 1st molar.

• Deciduous molars are more bulbous & with marked cervical constriction. Permanent dentition

• 1 st permanent molar is larger than 2nd & 3rd molars. Size of crown gradually decreases from 1 st to 3rd molars. Permanent molars have less constriction of neck. Occlusal table: buccal & lingual surfaces of primary molars, especially that of 1st molars converge sharply occlusally, thus forming narrow occlusal table in buccolingual dimension. Permanent dentition There is less convergence of buccal & lingual surfaces of molars towards occlusal surface. Thus, have broader occlusal table. Supplementary grooves are more. Primary molars are more caries prone due to easy food lodgement.

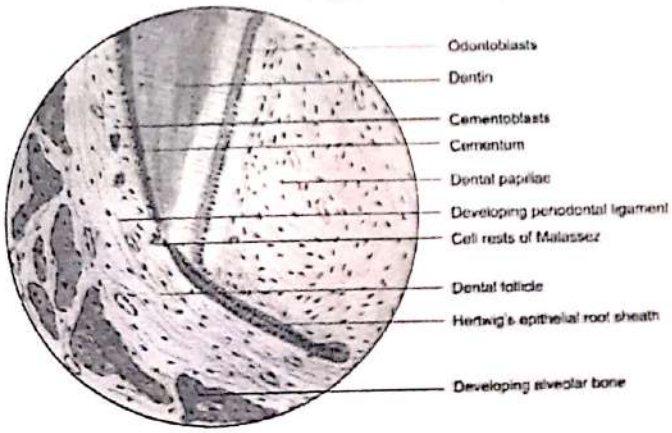
6. Root formation.

Ans: Root formation (Fig. 3.7) begins in advanced bell stage after the enamel and dentin formation reaches the cervical region at future cemento-enamel junction. At this stage, the enamel organ at the cervical loop proliferates giving rise to a structure called Hertwig's epithelial root sheath (HERS).This Hertwig's epithelial root sheath determines the number, size and shape of the root. As it is developing from a bilayered cervical loop, the Hertwig's epithelial root sheath has only two layers; inner layer of columnar cells derived from inner enamel epithelium and outer layer of cuboidal cells derived from outer enamel epithelium.

This structure extends between dental papilla and dental sac separating both, except for a small portion at the center. This part is the future apical foramen. These odontoblasts begin to secrete

dentin and once a layer of radicular dentin is formed, in that region HERS loose continuity due to invasion by proliferating dental follicle cells.

Degeneration of HERS allows the dental follicle cells to come in contact with newly formed dentin. These dental follicle cells that come in contact with newly formed dentin differentiate into cementoblasts and begin to deposit cementum on the outer surface of dentin.



♦ Ameloblast enters formative stage after first layer of dentin is formed. The presence of dentin is necessary for beginning of enamel matrix formation. During formation of enamel matrix the ameloblasts retain as same length and arrangement. There are changes in organization and number of cytoplasmic organelles and inclusions which are related to initiation of secretion of enamel matrix. The earliest apparent change is development of blunt cell processes on ameloblasts surface.

Maturative Stage

♦ Enamel maturation begins after most of thickness of enamel has been formed in incisal and occlusal area. In cervical parts of crown enamel matrix formation also progresses at this time.

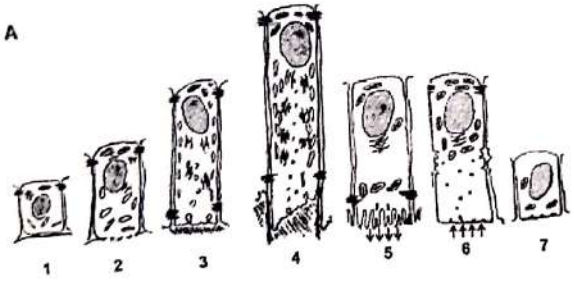
♦ During enamel matrix maturation these ameloblasts are reduced in length and closely attached to enamel matrix. Cells of stratum intermedium use their cuboidal shape and regular arrangement and assume spindle shape. During maturation the ameloblasts display microvilli at distal extremities.

Protective Stage

♦ When the enamel is completely developed and fully calcified the ameloblasts cease to be arranging in well-defined layer and can no longer be differentiated from cells of stratum intermedium and outer enamel epithelium. These cell layers then form stratified epithelial covering of enamel called as reduced enamel epithelium. The function of reduced enamel epithelium is to protect mature enamel by separating it from connective tissue until tooth erupts. If connective tissue comes in contact with enamel before tooth erupts anomalies may develop If such condition occurs enamel may be resorbed or covered by the layer of cementum. During this stage the epithelial enamel organ may interact from cervical edge of enamel.

Desmolytic Stage

♦ Reduced enamel epithelium proliferates and induces atrophy of connective tissue separating it from oral epithelium so that fusion of two epithelia can occur. It is probable that epithelial cells release enzymes that are able to destroy connective tissue fibers by desmolysis. If premature degeneration of reduced enamel epithelium occurs it may lead to delayed eruption.



7. Development of tongue.

Ans: The tongue develops from four pharyngeal lobes. In first arch a tubercle called tubercle impar is developed medially. On each side of two lateral swellings called lateral lingual lobes are formed. In second arch there is a foramen called foramen cecum. This foramen give rise to thyroglossal duct. From second, third, fourth pharyngeal arch hypobrachial eminence is formed.

Now the lateral lingual swellings forms the anterior twothird of tongue. Fusion of two lobules is marked by median sulcus. Tubecle impar fusses with lingual swellings.

Cranial part of hypobrachial eminence give rise to posterior one third of tongue. Sulcus terminalis is a groove that marks the line of fusion of anterior and posterior thirds of tongue. Posterior most part and epiglottis are derived from caudal portion of hypobrachial eminence.

8. Life cycle of ameloblast.

Ans : There are six stages in life cycle of ameloblasts, namely:

1. Morphogenic 2. Organizing 3. Formative 4. Maturative 5. Protective 6. Desmolytic.

The differentiation of ameloblasts is most advanced in region of incisal edges and tips of cusps. It is least advanced in region of cervical loop.

Morphogenic Stage

♦ Ameloblasts interact between adjacent mesenchymal cells which determine the shape of DEJ. During this stage, cells are short and columnar with large oval nuclei which almost fill the cell body. Golgi apparatus and centrioles are located in proximal end of cell and mitochondria are dispersed in cytoplasm. During differentiation of ameloblasts, terminal bars appear along with margin of mitochondria to basal region of cell. Terminal bars are points of close contact between cells.

Organizing Stage

♦ In this stage of development, inner enamel epithelium interact with adjacent connective tissue cells which differentiate to odontoblasts. This stage is characterized by change in appearance of cells of inner enamel epithelium. Cells become longer and nucleus free zones and distal end of cells become as long as proximal parts. During terminal phase of organizing stage, the formation of dentin by odontoblasts begin. The first appearance of dentin seems to be critical phase in life cycle. As long as inner enamel epithelium is in contact with connective tissue of dental papillae it receive nutrient material from blood vessels of this tissue. When dentin forms it cut off ameloblasts from their original source of nourishment. From then on they are supplied by capillaries that surround and may penetrate inner enamel epithelium. This reversal of nutritional source is characterized by proliferation of capillaries of dental sac and by gradual reduction and disappearance of stellate reticulum. Thus, distance between capillaries, stratum inter-medium and ameloblasts layers shorten. Dental Histology

Formative Stage

9. Cell rest of serres.
Ans: Dental lamina that attaches the enamel organ to the oral ectoderm starts to degenerate in early bell stage. The remnants of this dental lamina may persist, which are called 'cell rests of serres' .

10. Neural crest cells.
Ans: Neural crest cells are the cells that are having capability of pleury potency.

These cells are migratory in nature. The ectomesenchyma is made of these cells. They are formed during the formation of neural tube during embryonic period.

11. Line angles and point angles.
Ans: A line angle is formed by the junction of two surfaces and derives its name from the combination of the two surfaces that join.

A point angle is formed by the junction of three surfaces. The point angle also derives its name from the combination of the names of the surfaces forming it.

12. Dental formula.
Ans: Dental formula is the method of calculating no. Of teeth in deciduous and permanent teeth.

For deciduous: I2 C1 PM0 M2
I2 C1 PM0 M2

And for permanent: I2 C1 PM2 M3
I2 C1 PM2 M3

13. Meckel,s cartilage.
Ans: Meckel's cartilage acts as a jaw support during early development, and a template for the later forming jaw bones.

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