DEVELOPMENTAL DISTURBANCES

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DEVELOPMENTAL DISTURBANCES IN SIZE OF TEETH

MICRODONTIA

- teeth which are smaller than normal, i.e. outside the usual limits of variation
- 3 types

(1) true generalized microdontia

(2) relative generalized microdontia

(3) microdontia involving a single tooth

TRUE GENERALIZED MICRODONTIA

- All the teeth are smaller than normal.
- Aside from its occurrence in some cases of pituitary dwarfism, this condition is exceedingly rare.
- The teeth are reportedly well formed, but small.

RELATIVE GENERALIZED MICRODONTIA

- Normal or slightly smaller than normal teeth are present in jaws that are somewhat larger than normal, and there is an illusion of true microdontia.
- Since it is well recognized that a person may inherit the jaw size from one parent and the tooth size from the other parent, the role of hereditary factors in producing such a condition is obvious

MICRODONTIA INVOLVING ONLY A SINGLE TOOTH

- affects most often the maxillary lateral incisor and the third molar.
- Supernumerary teeth are frequently small in size.
- One of the common forms of localized microdontia is that which affects the maxillary lateral incisor, a condition that has been called the 'peg lateral'

- Instead of exhibiting parallel or diverging mesial and distal surfaces, the sides converge or taper together incisally, forming a peg-shaped or cone-shaped crown.
- The root of such a tooth is frequently shorter than usual.

MACRODONTIA

True generalized macrodontia

- all teeth are larger than normal
- has been associated with pituitary gigantism
- extremely rare.

RELATIVE GENERALIZED MACRODONTIA

- presence of normal or slightly larger than normal teeth in small jaws, the disparity in size giving the illusion of macrodontia.
- As in microdontia, the importance of heredity must be considered.

MACRODONTIA OF SINGLE TEETH

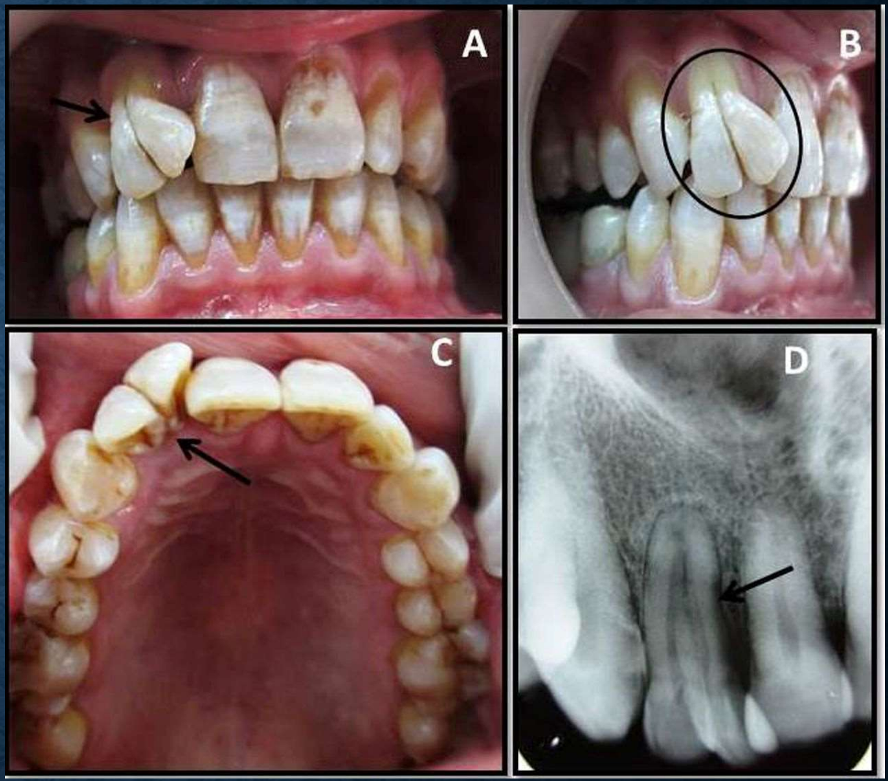
- Relatively uncommon, is of unknown etiology.
- A variant of this localized macrodontia is the type that is occasionally seen in cases of hemihypertrophy of the face, in which the teeth of the involved side may be considerably larger than those of the unaffected side.

DEVELOPMENTAL DISTURBANCES IN SHAPE OF TEETH

GEMINATION

- Anomalies which arise from an attempt at division of a single tooth germ by an invagination, with resultant incomplete formation of two teeth.
- The structure is usually one with two completely or incompletely separated crowns that have a single root and root canal.
- It is seen in deciduous as well as permanent dentition
- appears to exhibit a hereditary tendency.

- It is not always possible to differentiate between gemination and a case in which there has been fusion between a normal tooth and a supernumerary tooth
- The term 'twinning' has sometimes been used to designate the production of equivalent structures by division resulting in one normal and one supernumerary tooth.



FUSION

- Fused teeth arise through union of two normally separated tooth germs.
- Depending upon the stage of development of the teeth at the time of the union, fusion may be either complete or incomplete.
- It has been thought that some physical force or pressure produces contact of the developing teeth and their subsequent fusion.

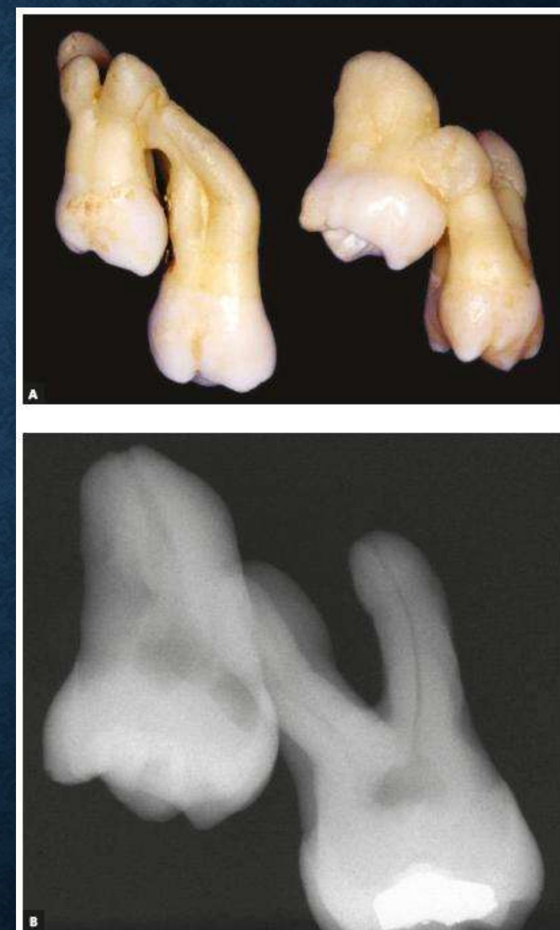
- If this contact occurs early, before calcification begins, the two teeth may be completely united to form a single large tooth.
- If the contact of teeth occurs later, when a portion of the tooth crown has completed its formation, there may be union of the roots only.
- The dentin is always confluent in cases of true fusion.
- The tooth may have separate or fused root canals
- More common in the deciduous than in the permanent dentition.

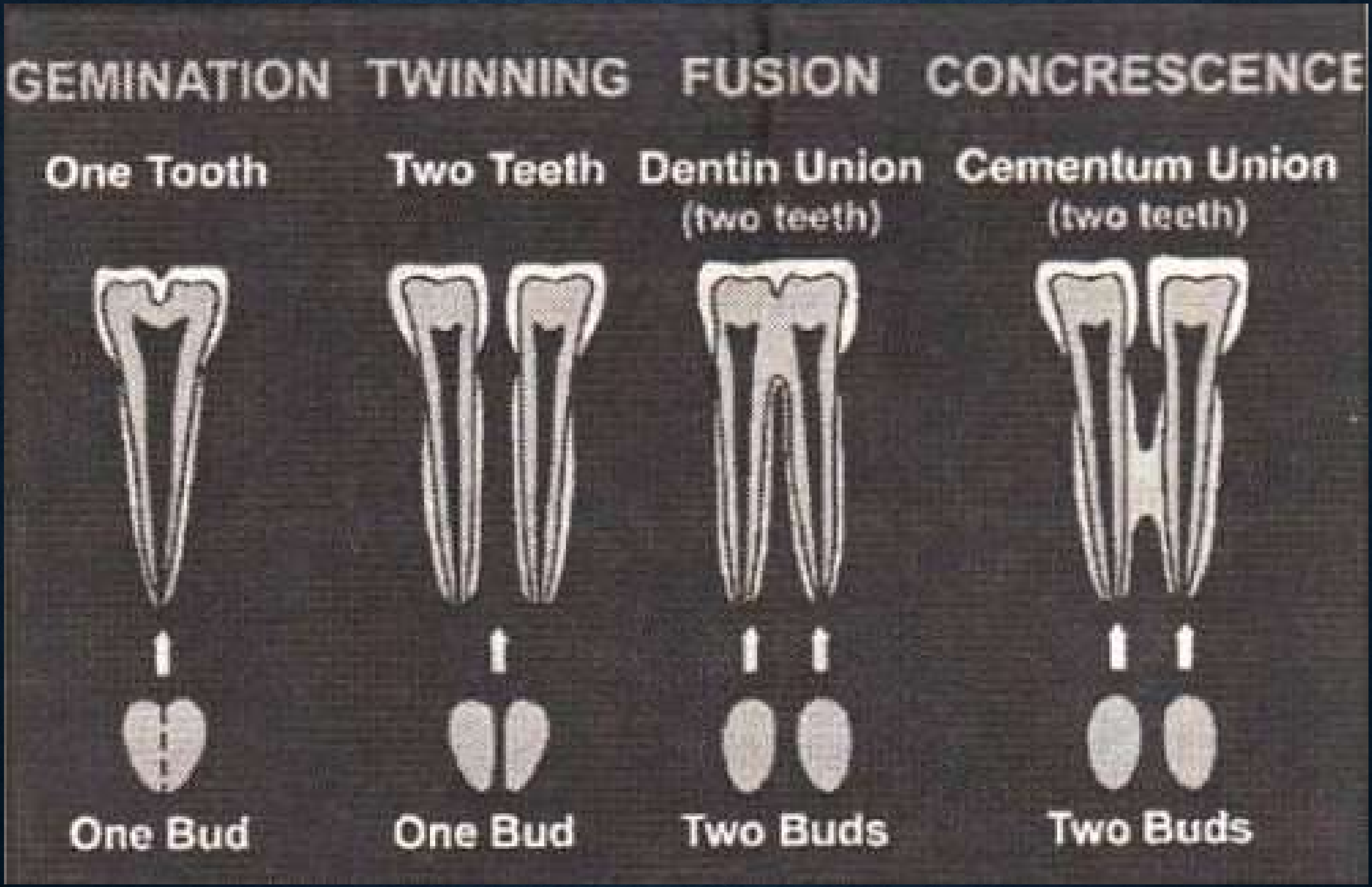
- In addition to affecting two normal teeth, fusion may also occur between a normal tooth and a supernumerary tooth such as the mesiodens or the distomolar
- In some cases the condition has been reported to show a hereditary tendency
- The possible clinical problems related to appearance, spacing, and periodontal conditions brought about by fused teeth

CONCRESCENCE

- form of fusion which occurs after root formation has been completed.
- teeth are united by cementum only
- arise as a result of traumatic injury or crowding of teeth with resorption of the interdental bone so that the two roots are in approximate contact and become fused by the deposition of cementum between them
- The diagnosis can frequently be established by radiographic examination
- Complications: Extraction

CONCRESCENCE

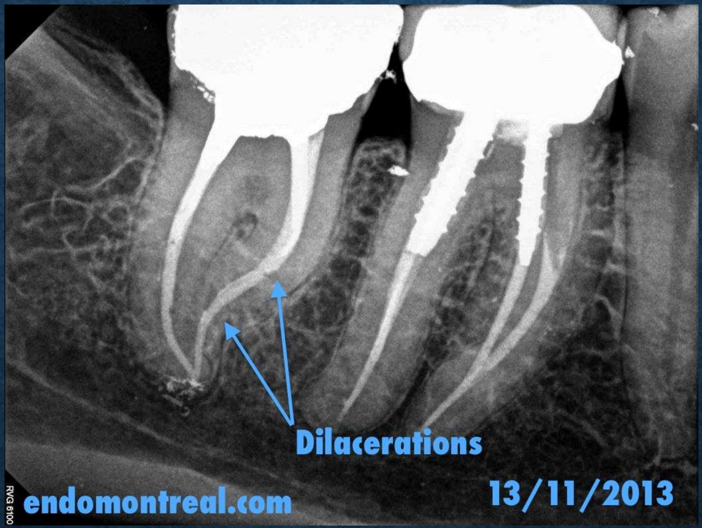



GEMINATION
TWINNING
FUSION
CONCRESCENCE
One Tooth
Two Teeth
Dentin Union
(two teeth)
Cementum Union
(two teeth)
One Bud
One Bud
Two Buds
Two Buds

DILACERATION

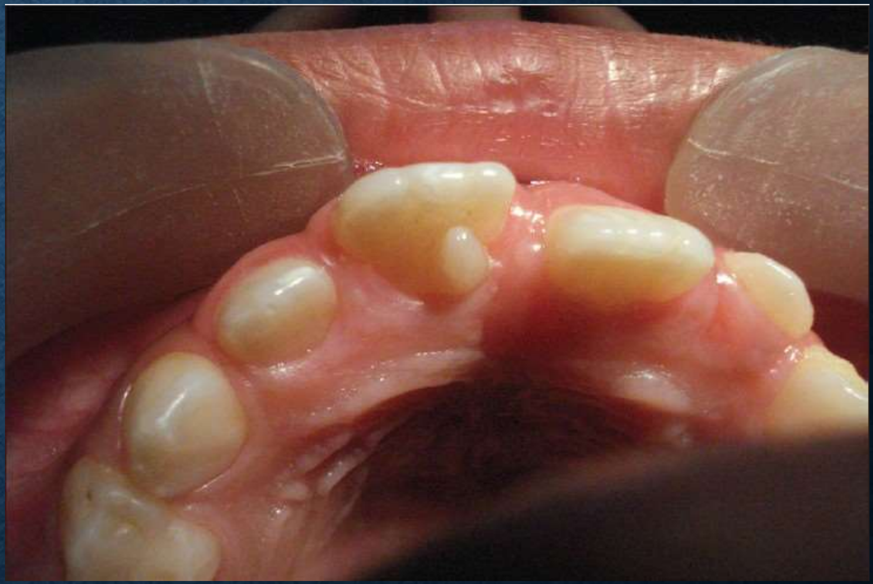
- ‘dilaceration’ refers to an angulation, or a sharp bend or curve, in the root or crown of a formed tooth
- Arises due to trauma during the period in which the tooth is forming
- The position of the calcified portion of the tooth is changed and the remainder of the tooth is formed at an angle
- Dilacerated teeth frequently present difficult problems at the time of extraction

DILACERATION



TALON CUSP

- An anomalous structure resembling an eagle's talon.
- Projects lingually from the cingulum areas of a maxillary or mandibular permanent incisor.
- This cusp blends smoothly with the tooth except that there is a deep developmental groove where the cusp blends with the sloping lingual tooth surface
- It is composed of normal enamel and dentin and contains a horn of pulp tissue.



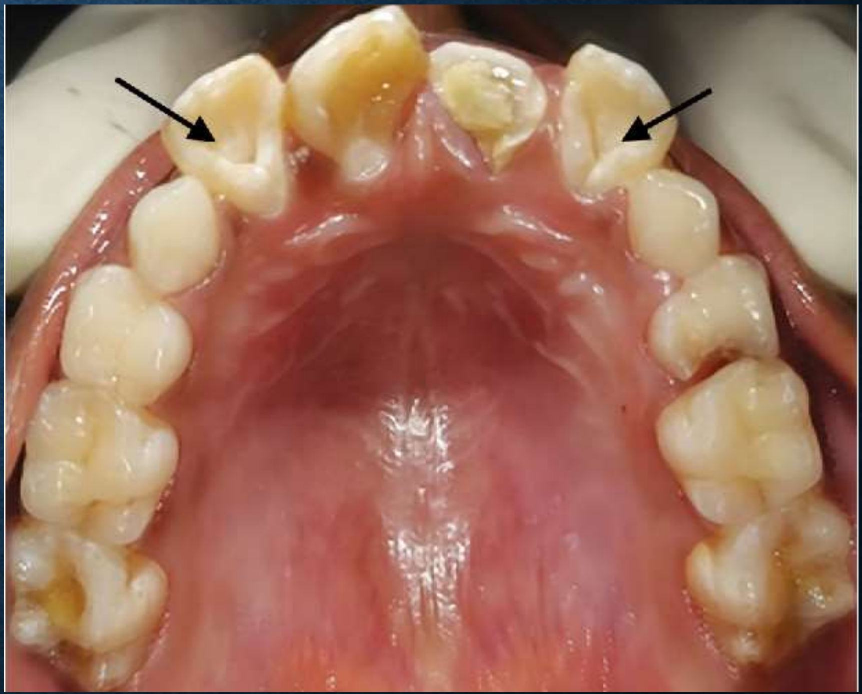
TALON CUSP

- Complications: esthetics, caries control, and occlusal accommodation

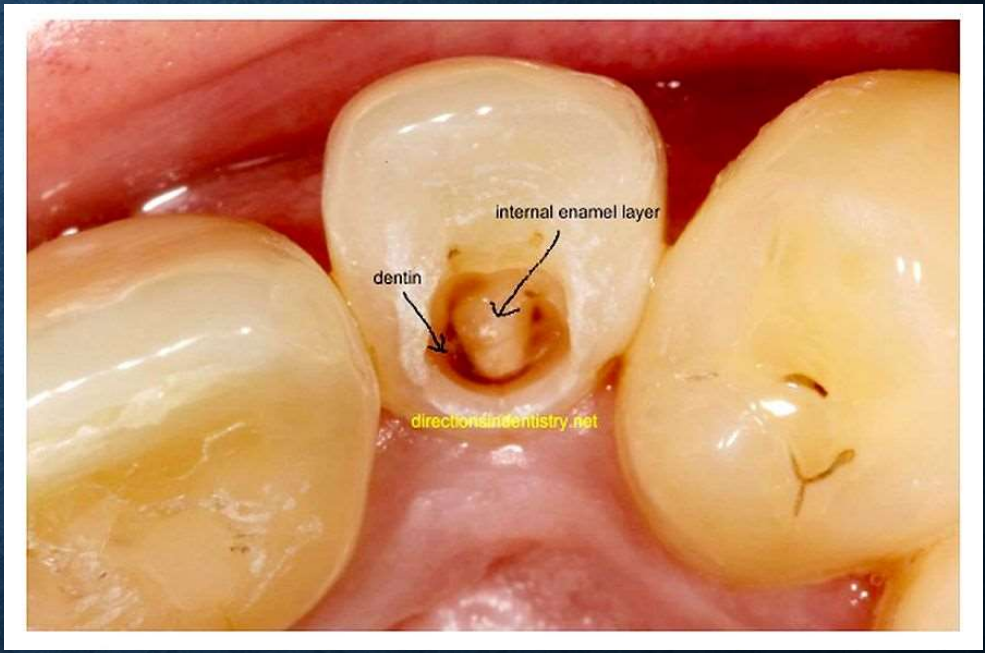
- appears to be more prevalent in persons with the Rubinstein-Taybi syndrome (developmental retardation, broad thumbs and great toes, characteristic facial features, delayed or incomplete descent of testes in males, and stature, head circumference, and bone age below the fiftieth percentile)

DENS IN DENTE (DENS INVAGINATUS, DILATED COMPOSITE ODONTOME)

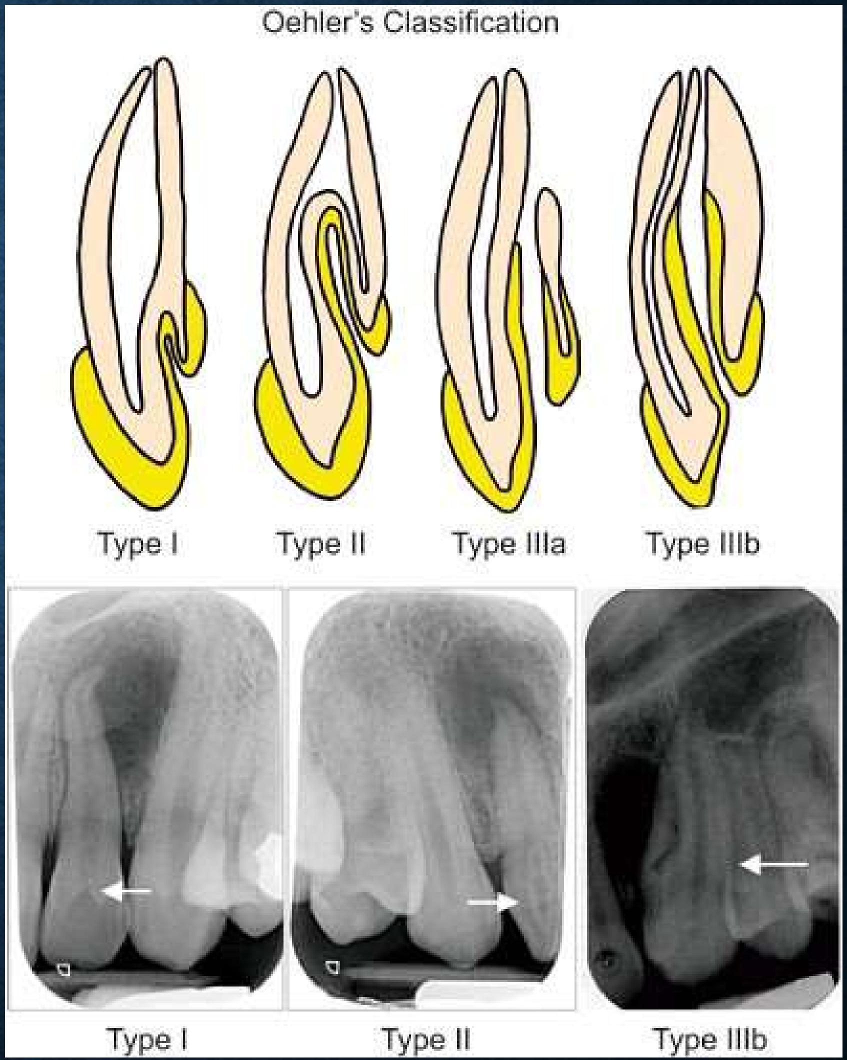
- thought to arise as a result of an invagination in the surface of tooth crown before calcification has occurred
- Etiology: an increased localized external pressure, focal growth retardation, and focal growth stimulation in certain areas of the tooth bud.
- maxillary lateral incisors are the teeth most frequently involved
- frequently bilateral
- in the majority of cases the 'dens in dente' appears clinically as an accentuation in the development of the lingual pit



- Radiographically, it is recognized as a pear-shaped invagination of enamel and dentin with a narrow constriction at the opening on the surface of the tooth and closely approximating the pulp in its depth.


internal enamel layer
dentin
directionsindentistry.net

- Complications: Food debris may become packed in this area with resultant caries and infection of the pulp
- More severe forms of ‘dens in dente’ may exhibit an invagination that extends nearly to the apex of the root



DENS EVAGINATUS (OCCLUSAL TUBERCULATED PREMOLAR, LEONG'S PREMOLAR, EVAGINATED ODONTOME, OCCLUSAL ENAMEL PEARL)

- appears clinically as an accessory cusp or a globule of enamel on the occlusal surface between the buccal and lingual cusps of premolars
- thought to develop only in persons of Mongoloid ancestry: Chinese, Japanese, Filipinos, Eskimos, and American Indians

- Pathogenesis - the proliferation and evagination of an area of the inner enamel epithelium and subjacent odontogenic mesenchyme into the dental organ during early tooth development.
- Thus, it has been considered to be the antithesis of the mechanism of development of the dens in dente or dens invaginatus

- clinical significance of the condition is similar to that of the talon cusp
- may contribute to incomplete eruption, displacement of teeth and/or pulp exposure with subsequent infection following occlusal wear or fracture.

ENAMEL PEARL: ECTOPIC ENAMEL

TAURODONTISM

- dental anomaly in which the body of the tooth is enlarged at the expense of the roots.
- The term means ‘bull-like’ teeth and its usage is derived from the similarity of these teeth to those of ungulate or cud-chewing animals.

- possible causes of taurodontism

(1) a specialized or retrograde character

(2) a primitive pattern

(3) a mendelian recessive trait

(4) an atavistic feature (ancestral feature)

(5) a mutation resulting from odontoblastic deficiency during dentinogenesis of the roots

- failure of Hertwig's epithelial sheath to invaginate at the proper horizontal level.
- The condition appears to be genetically controlled and familial in nature

CLINICAL FEATURES

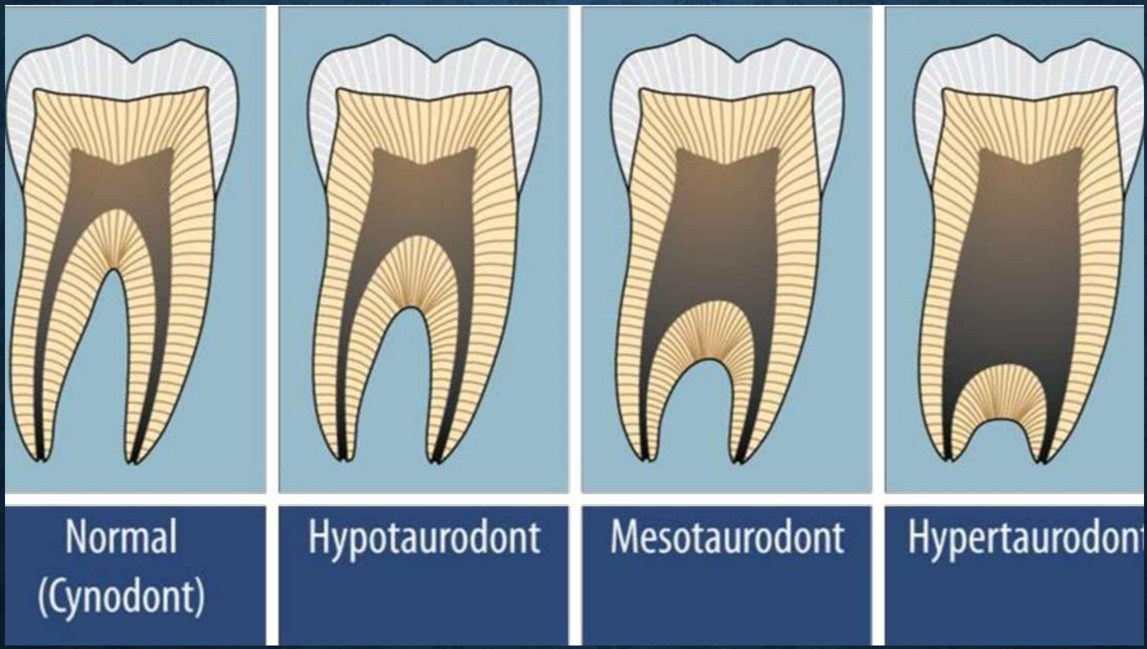
- may affect either the deciduous or permanent dentition, although permanent tooth involvement is more common
- The teeth involved are almost invariably molars
- may be unilateral or bilateral

Treatment: No special treatment is necessary for this anomaly

RADIOGRAPHIC FEATURES

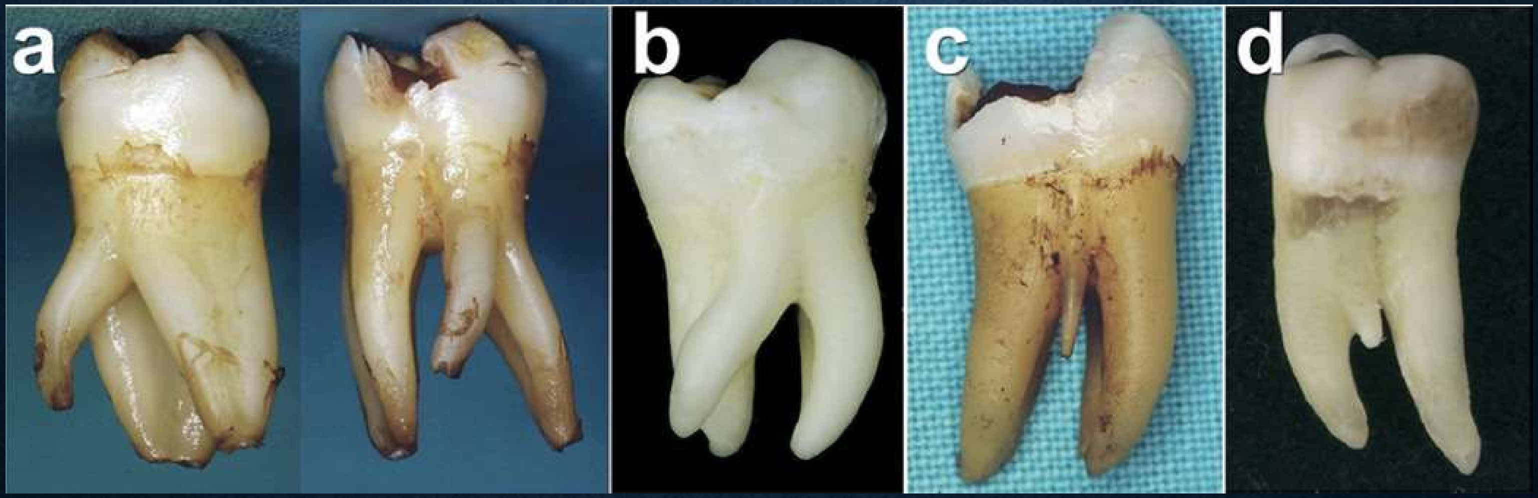
- Involved teeth frequently tend to be rectangular in shape rather than taper toward the roots.
- The pulp chamber is extremely large with a much greater apico-occlusal height than normal.
- Pulp lacks the usual constriction at the cervical of the tooth and the roots are exceedingly short.
- The bifurcation o trifurcation may be only a few millimeters above the apices of the roots

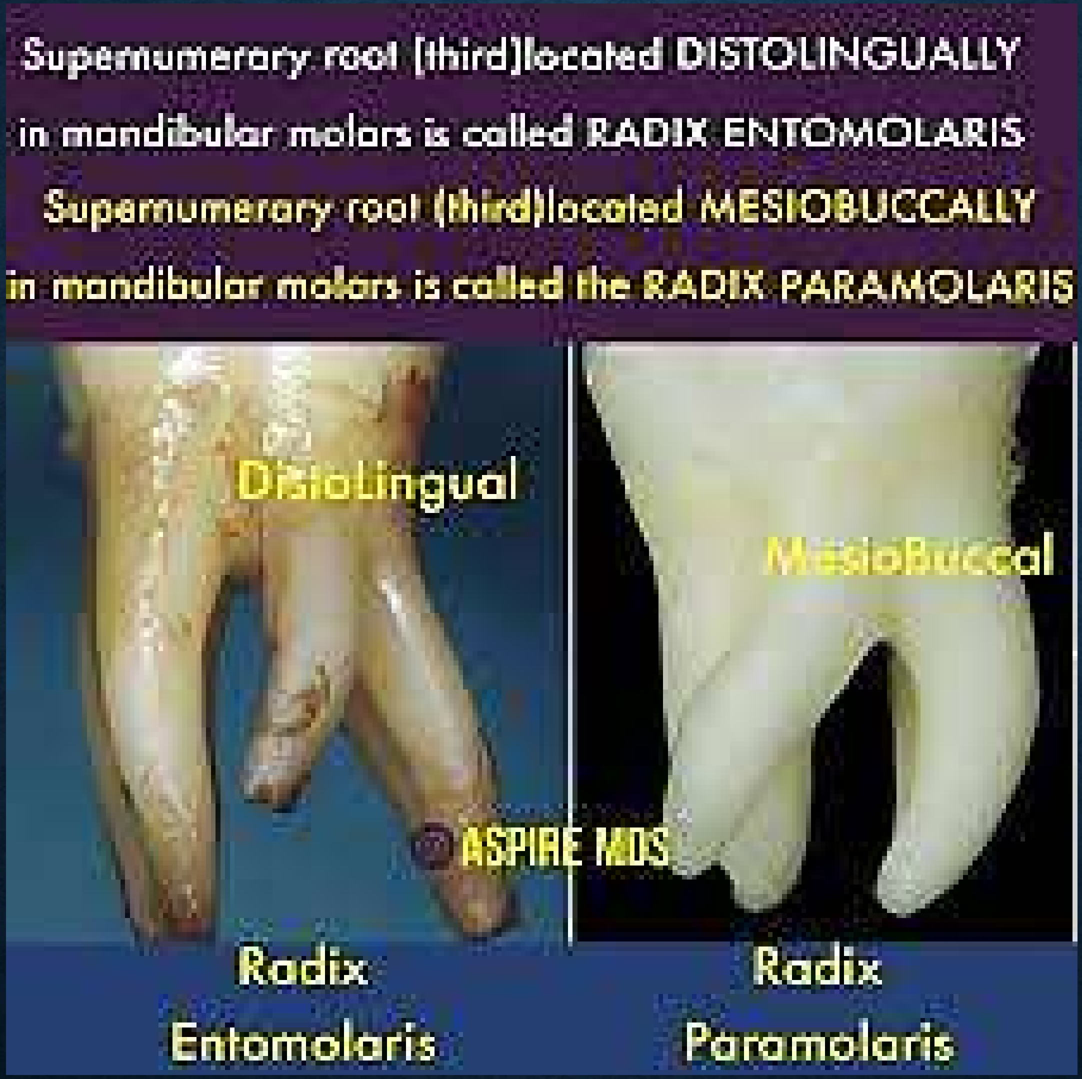
TAURODONTISM

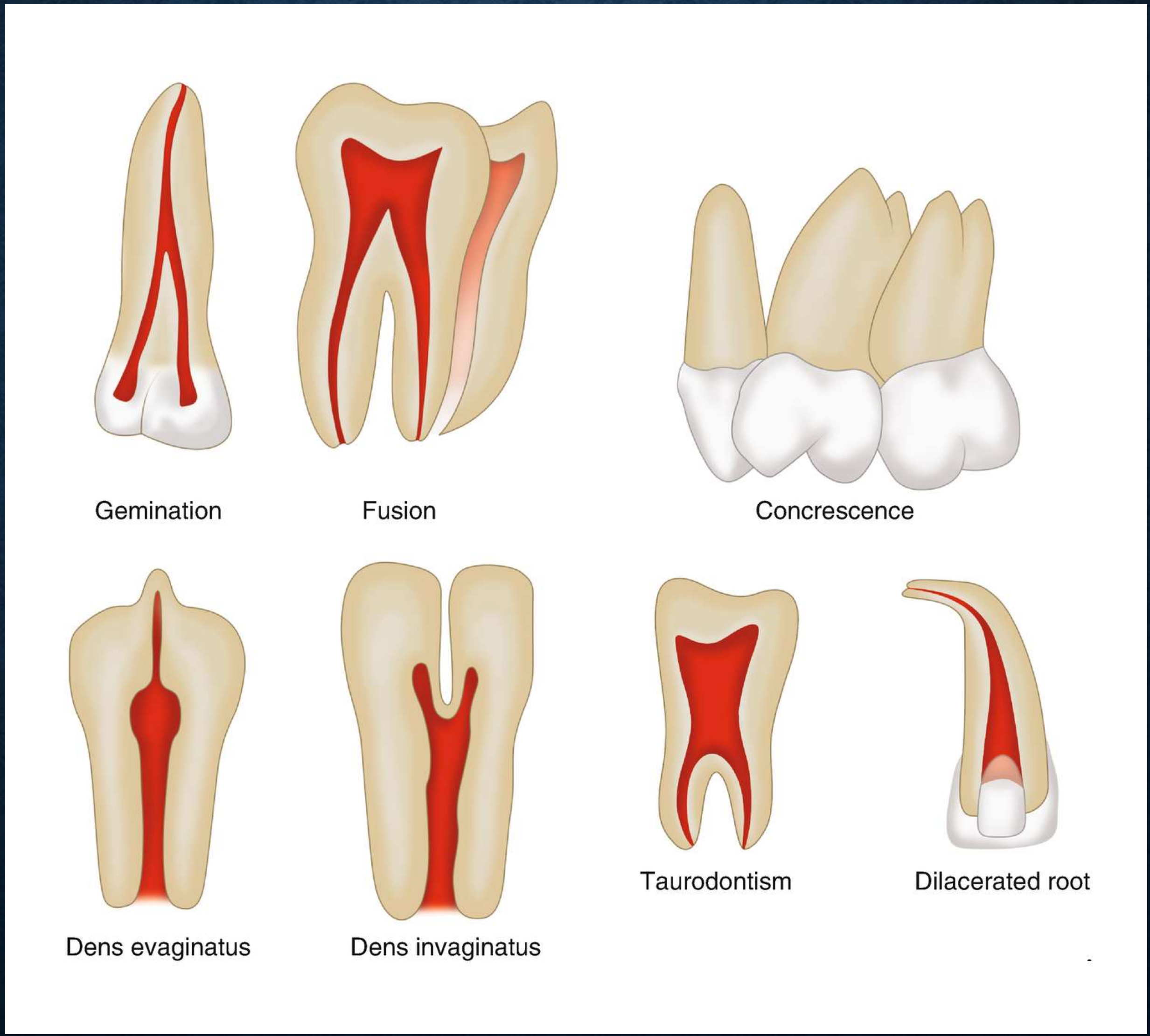


SUPERNUMERARY ROOTS

- not uncommon and may involve any tooth
- Clinical significance in exodontia and endodontics




Supernumerary root [third]located DISTOLINGUALLY
in mandibular molars is called RADIX ENTOMOLARIS
Supernumerary root (third)located MESIOBUCCALLY
in mandibular molars is called the RADIX PARAMOLARIS
DistoLingual
MesioBuccal
ASPIRE MDS
Radix
Entomolaris
Radix
Paramolaris


Gemination
Fusion
Concrescence
Dens evaginatus
Dens invaginatus
Taurodontism
Dilacerated root