ABNORMALITIES OF THE TEETH

م.م.نوار بهجة كامل

ABNOMALITIES OF TEETH

- Developmental alterations
- Environmental alterations

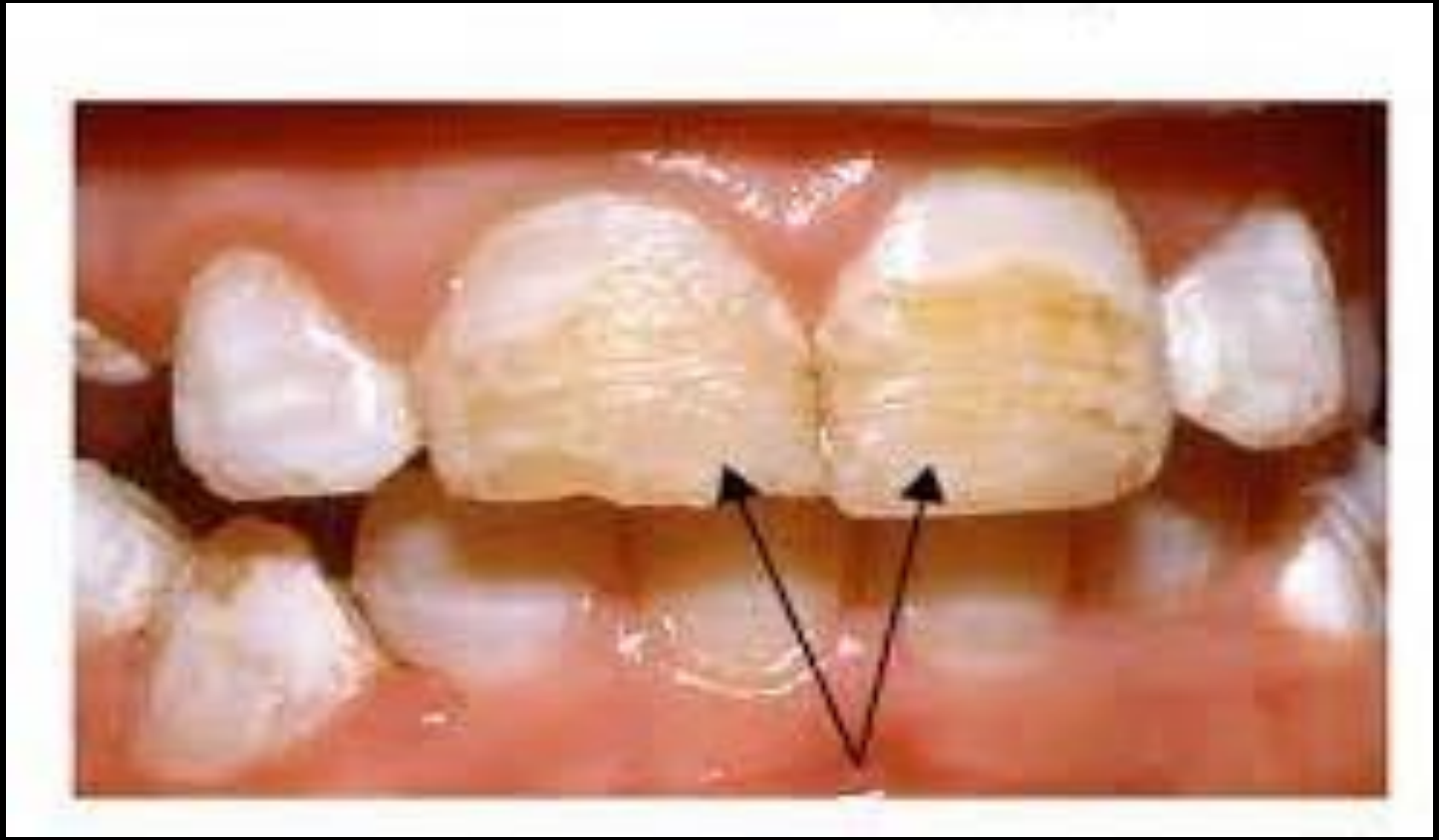
ENVIRONMENTAL ALTERATIONS

- Effects on tooth structure development
  - Localized
  - Systemic
- Postdevelopmental structure loss
- Discoloration of teeth
- Localized disturbances of eruption

LOCAL FACTORS ASSOCIATED WITH ENAMEL DEFECTS

- Trauma
- Local infection
- Irradiation

Enamel Hypoplasia



Enamel Hypocalcification

SYSTEMIC FACTORS ASSOCIATED WITH ENAMEL DEFECTS

- Infections
- Medications
- Inherited diseases
- Metabolic disorders
- Malnutrition
- Birth-related trauma

DENTAL FLUOROSIS

POSTDEVELOPMENTAL TOOTH LOSS

- Tooth wear
- Attrition Caused by tooth to tooth contact
- Abrasion Caused by external agent
- Erosion Caused by chemical process
- Internal resorption
- External resorption

ATTRITION

DENTAL EROSION

INTERNAL RESORPTION

EXTERNAL RESORPTION

ENVIRONMENTAL DISCOLORATION

- Extrinsic
- Bacteria
- Iron
- Tobacco
- Food and beverage
- Restorative materials
- Medication

IRON STAIN

ENVIRONMENTAL DISCOLORATION

Intrinsic

- Erythropoietic porphyria
- Hyperbilirubinemia
- trauma
- medications

ERYTHROPOIETIC PORPHYRIA

- Autosomal recessive disorder of porphyrin
- metabolism that results in increased synthesis and excretion of porphyrins
- Diffuse discoloration of dentition results Teeth appear red-brown and exhibit a red fluorescence when exposed to UV light
- Prophyrin present in enamel and dentin of deciduous teeth so discoloration worse

ERYTHROPOIETIC PORPHYRIA

HYPERBILIRUBINEMIA

- Excess levels of bilirubin in blood
- Bilirubin can accumulate in interstitial fluid, mucosa, skin and developing teeth
- Causes include-
- Erythroblastosis fetalis
- A hemolytic anemia of newborns secondary to blood incompatibility
- Biliary atresia
- A sclerosing process of the biliary tree
- Premature birth
- Internal hemorrhage

Figure 1. Intraoral view showing all teeth pigmented by bilirubin.

LOCALIZED DISTURBANCES OF ERUPTION

- Ankylosis
- Natal teeth

ANKYLOSIS

- Cessation of eruption after emergence
- occuring from an anatomic fusion of tooth cementum or dentin to alveolar bone
- Etiology unknown-trauma, local change of metabolism, thermal irritation, and genetic
- Peak prevalence- 8-9 years of age

ANKYLOSIS

- Primary molars are most commonly
- involved teeth with most cases in mandible

NATAL TEETH

- Usually prematurely erupted primary teeth
- Present at birth
- Prevalence- 1 in 2000
- Neonatal teeth erupt within first month
- 85% are lower incisors, 11% maxillary incisors

DEVELOPMENTAL ALTERATIONS

- Number
- Size
- Shape
- Structure

DEVELOPMENTAL ALTERATIONS

- Number
- Hypodontia: Lack of development of one or more teeth
- Anodontia: Total lack of tooth development
- Hyperdontia: Development of an increased number of teeth

HYPODONTIA

- Common dental anomaly
- 3.5%-8% (excluding third molars)
- Female predominance about 1.5:1
- Uncommon in primary dentition (<1%)
- About 20-23% of population missing third molars
- After third molars, second premolars and laterals most frequent

HYPERDONTIA

- Prevalence of supernumerary teeth is about
- 1%-3%
- Single tooth hyperdontia represent 75%-85% of cases
- More common in permanent dentition
- Almost 90% in maxilla
- Maxillary incisor region most common site then premolars and canines, usually in mandibular premolar region

DEVELOPMENTAL ALTERATIONS

- Size
- Microdontia
- Macrodontia

MICRODONTIA

- Teeth are smaller that usual
- Relative microdontia=macrognathia
- Diffuse true microdontia is uncommon but may occur in Down syndome and pituitary dwarfism
- Prevalence of isolated microdontia is between 1% and 8%
- Maxillary lateral incisor most frequently affected

MICRODONT-
PEG LATERAL

MACRODONTIA

- Teeth are larger than usual
- Relative macrodontia=micrognathia
- Diffuse involvement very rare
- Has been noted in association with
- pituitary gigantism and hemifacial hyperplasia

DEVELOPMENTAL ALTERATIONS

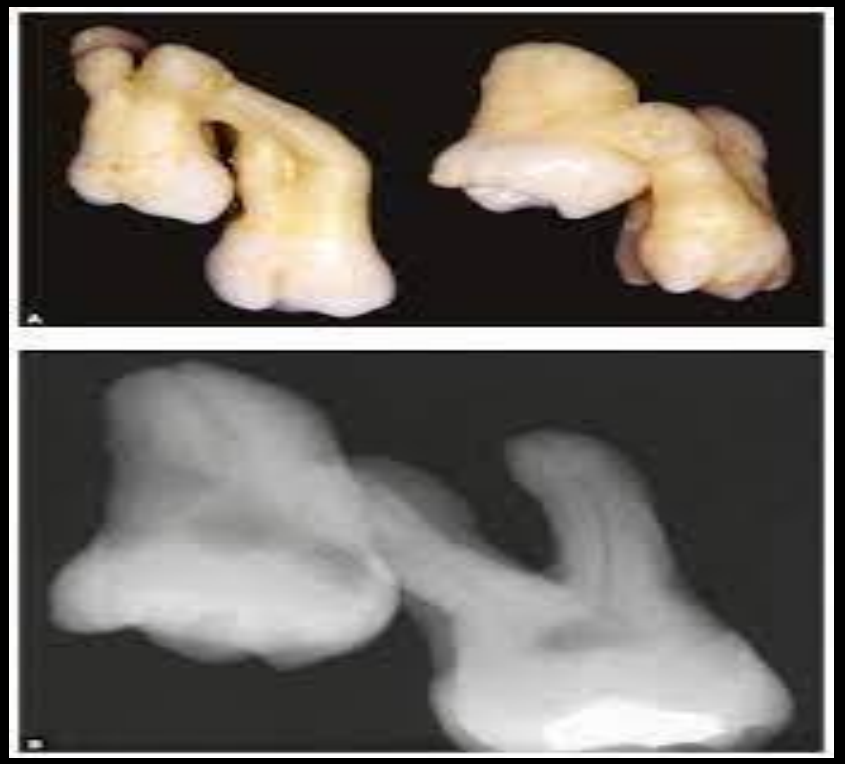
- Shape
- Gemination
- Fusion
- Concrescence
- Talon cusp
- Dens evaginatus
- Dens invaginatus
- Taurodontism
- Dilaceration

DOUBLE TEETH

- Gemination and fusion
- May have very similar clinical appearance
- Higher frequency in anterior and maxillary regions
- Rate is about 0.1% in permanent dentition and 0.5% in deciduous
- Etiology unknown but trauma has been suggested

CONCRESCENCE

- Union of two adjacent teeth by
- cementum alone
- May occur before or after eruption
- Seen most commonly posterior and
- maxillary regions
- Etiology believed to be trauma or overcrowding



TALON CUSP

- Well-delineated additional cusp on the surface of an anterior tooth and extends 1/2 the distance from CEJ to incisal edge
- Vast majority on lingual surface
- Prevalence studies vary from <1% to 8%
- 3/4 found in permanent dentition, most commonly maxillary lateral then central
- In deciduous dentition, maxillary central most common site
- Has been associated with other dental anomalies

DENS EVAGINATUS

- Also known as a central tubercle
- A cusp like elevation located in the central groove
- Typically occurs in permanent mandibular premolars Usually bilateral

DENS INVAGINATUS

- Dens in dente
- Deep surface invagination of crown that is
- lined by enamel
- Represents an accentuation of the lingual pit
- Depth varies
- Prevalence studies vary from <1% to 10%
- Lateral incisors most commonly affected
- Bilateral involvement common

TAURODONTISM

- Enlargement of the body and pulp chamber of a multirooted tooth with apical displacement

of the pulpal floor

- More commonly seen in permanent dentition

DILACERATION

- Abnormal angulation or bend in the root
- Thought to be related to trauma during
- root development
- Permanent maxillary incisors most
- commonly affected followed by
- mandibular incisors
- Rare in primary dentition
- Treatment depends on severity

AMELOGENESIS IMPERFECTA

- A heterogeneous group of hereditary disorders that demonstrate developmental alterations in the structure of enamel in the absence of a systemic disorder
- Both dentitions involved

AMELOGENESIS IMPERFECTA

- Hereditary defects of enamel formation usually classified as:
- Hypoplastic
- Hypocalcified
- Hypomaturative

HYPOPLASTIC

- Teeth erupt with insufficient amounts of enamel
- Amount of enamel varies greatly
- Teeth may have abnormal shape and open contacts
- Open bite may be present

HYPOCALCIFIED

- Proper amount of enamel matrix is formed but it doesn't mineralize properly
- Teeth shaped normally upon eruption but enamel is soft and easily lost
- Enamel yellow-brown upon eruption but quickly becomes brown to black
- Accumulate calculus
- Enamel and dentin have similar density on radiographs

HYPOMATURATIVE

- Enamel matrix is laid down properly and
- begins to mineralize but there is a defect in
- maturation of enamel's crystal structure
- Affected teeth normal in shape
- Mottled appearance-white, brown or yellow
- Enamel soft and chips away from dentin
- Enamel has similar radiodensity to dentin

DENTINOGENESIS IMPERFECTA

- Hereditary developmental disturbance of dentin
- Autosomal dominant
- All teeth in both dentitions affected
- Deciduous teeth affected most severely followed by permanent incisors and first molars
- Yellow-brown to blue-gray translucent, opalescent appearance
- Enamel frequently separates easily from dentin
- Once exposed, dentin exhibits rapid attrition
- Bulbous crowns with cervical constriction
- Thin roots
- Early obliteration of pulp chambers and root canals

REGIONAL ODONTODYSPLASIA

- ‘Ghost teeth’
- Localized, non-hereditary developmental abnormality with extensive adverse effects on formation of enamel, dentin and pulp
- Occurs in region or quadrant
- Etiology unknown
- Occurs in both dentitions and if present in primary dentition, permanent teeth in area usually affected
- Erupted teeth have small irregular yellow-brown crowns, Short roots, enlarged pulp and open apical foramina

Thank you