Developmental Abnormalities of Teeth

Classification

- Anomalies of Number
- Anomalies of Size
- Anomalies of Shape
- Anomalies of Structure
- Anomalies of Color

Anomalies of Number

1. Anodontia: a complete absence of one or both dentition.
2. Hypodontia (partial anodontia): a deficiency in tooth number.
3. Hyperdontia (Supernumerary Teeth): an excess in tooth number.
   a. Mesiodens  b. Distomolar

Anomalies of Size

1. Microdontia
2. Macrodontia
Anomalies of Shape

1. Gemination
2. Fusion
3. Concrescence
4. Dilaceration
5. Enamel Pearl (enameloma)
6. Talon Cusp
7. Taurodontism
8. Dens in Dente (dens invaginatus)
9. Dens Evaginatus
10. Supernumerary Roots
11. Hypercementosis

Gemination
The partial development of two teeth from a single tooth bud following incomplete division.
An incomplete division of a single tooth bud resulting in a bifid crown with a single pulp chamber.

Fusion
The dentinal union of two embryologically developing teeth.
Fused teeth can contain two separate pulp chamber, may appear as large bifid crowns with one chamber.
**Concrescence**

An acquired disorder in which the roots of one or more teeth are united by cementum alone after formation of the crowns.

<table>
<thead>
<tr>
<th>GEMINATION</th>
<th>FUSION</th>
<th>CONCRESCEENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>One bud</td>
<td>Two buds</td>
<td>Two buds</td>
</tr>
<tr>
<td>One tooth</td>
<td>Two teeth</td>
<td>Two teeth</td>
</tr>
<tr>
<td>One canal</td>
<td>Dentin union</td>
<td>Cementum union</td>
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**Dens Evaginatus**

An extra cusp, usually in the central groove or ridge of a posterior tooth and lateral incisor.

**Dens in Dente (Invaginatus)**

A condition resulting from the invagination of the inner enamel epithelium producing the appearance of a tooth within a tooth.
**Taurodont**

Taurodont teeth are characterized by having a significantly elongated pulp chamber with short stunted roots, resulting from the failure of the proper level of horizontal invagination of Hertwig’s epithelial root sheath.

**Dilaceration**

Dilaceration refers to an abnormal bend of the root during its development and is thought to result from a traumatic Episode.

**Anomalies of Structure**

1. Enamel hypoplasia caused by amelogenesis imperfecta (genetic)

2. Enamel Hypoplasia caused by febrile Illness or Vitamin Deficiency

3. Enamel hypoplasia resulting from local infection or Trauma

4. Enamel hypoplasia resulting from fluoride Ingestion (dental fluorosis)

5. Enamel hypoplasia resulting from congenital syphilis (Treponema pallidum)
   a. Hutchinson's incisors   b. Mulberry molars

6. Enamel hypoplasia resulting from birth injury, premature birth or idiopathic factors

7. Enamel hypocalcification

8. Dentinogenesis imperfecta

9. Dentin dysplasia

10. Regional Odontodysplasia (Ghost teeth)
Amelogenesis Imperfecta

Classification of AI

Type I: hypoplastic
Type II: hypomaturation
Type III: hypocalcified
Type IV: hypomaturation-hypoplastic with taurodontism

Dentinogenesis Imperfecta

Classification of DI

Type I: occurs with osteogenesis imperfecta
Type II: hereditary opalescent dentin
Type III: Brandywine type

Anomalies of Color

Discoloration of teeth

Etiology

✓ Surface deposits (Extrinsic stains)
✓ Changes in structure or thickness of dental tissues
✓ Diffusion of pigments into dental tissues
✓ Pigments incorporated during formation of dental tissues.
Extrinsic stains

- Substances in the diet
- Habitual chewing, tobacco
- Tobacco smoking
- Medicaments
- Chromogenic bacteria

Changes in structure

- Enamel hypoplasias, fluorosis
- Amelogenesis imperfecta, hypocalcified, hypomaturation, and hypoplastic types
- Enamel opacities
- Enamel caries
- Dentinogenesis imperfecta
- Age changes in dental tissues

Diffusion of pigments

- Extrinsic stains
- Endodontic materials
- Products of pulp necrosis
Pigments incorporation

✓ Bile pigments
✓ Porphyrins
✓ Tetracycline

Other disorders of teeth

Attrition
Erosion
Toothbrush abrasion