Tooth discolorations

Lecture

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Tooth discolorations

- Extrinsic:
  - environmental;
  - removable, reversible;
  - metallic/non-metallic origin.
- Intrinsic:
  - before/during tooth eruption;
  - after tooth eruption;
  - irreversible.

Non-metallic tooth discolorations

- Tee, coffee, red wine, red berries, tobacco, spices: curry, saffron, soya sauce, fruit juices, lollipop, candy, food containing chlorophyll;
- Chlorhexidine – oral hygiene
- Gram-positive bacteria - ***Bacteroides Melaninogenicus***

  Black staining – hydrogen sulphide conversion into black ferrous sulphide

  .

Non-metallic tooth discolorations

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Non-metallic tooth discolorations

- Tee, coffee, red wine, red berries, tobacco, ***spices***: curry, saffron, soya sauce, fruit juices, lollipop, candy, food containing chlorophyll;

Ethiopian ethnic group- spices

From: Scully. A Colour Atlas of Orofacial Health and Diseases in Children and Adolescents

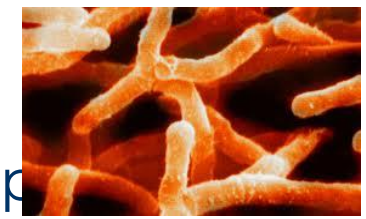
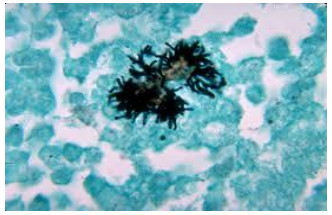
Non-metallic tooth discolorations

- Chlorhexidine;

Discolorations due to chromogenic bacteria

„Black staining”:

- **Actynomyces strains**
- **Bacteroides melaninogenicus**

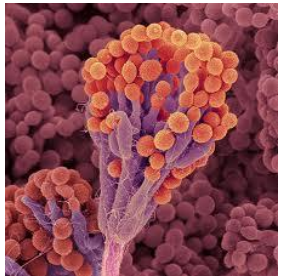
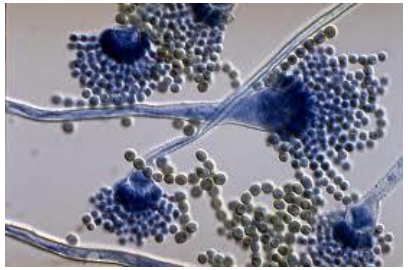



Gram-positive bacteria – hydrogen sulp lack ferrous sulphide

Green:

fluorescent bacteria or fungi:

- **Penicillium,**
- **Aspergillus**

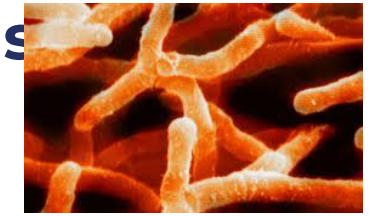
Orange - rare:

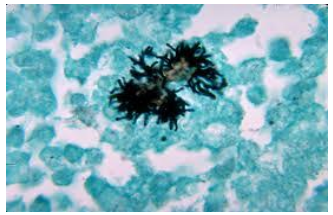
- **Serratia marcescens,**
- **Flavobacterium lutescer**

Discolorations due to chromogenic bacteria

„Black staining”: Actynomyces strains

- **Bacteroides melaninogenicus**





- parallel to gingiva contour, linear black stain
- difficult to remove
- hydrogen sulphide conversion into black ferrous sulphide

Non-metallic tooth discolorations

- ✓Chromogenic bacteria- **Serratia marcescens**
- ✓**Greenish colour**

Presence of Serratia m. and the long-term use of Amoxicillin sol. - extrinsic factor

During tooth development the bacteria alone can cause the discolouration - intrinsic factor

Non-metallic tooth discolorations

- ✓**Greenish colour –** bad mouth hygiene → bacteria + gingivitis, bleeding - haemoglobin
- ✓**Orange colour:** vestibular surface of the front teeth of unknown origin

Metallic tooth discolorations

- ✓Environmental factors – water/air pollution
  Rare occurrence during childhood
- ✓Metallic (zinc, stannous fluoride) mouthwash,
- ✓Medication containing ferrous components.

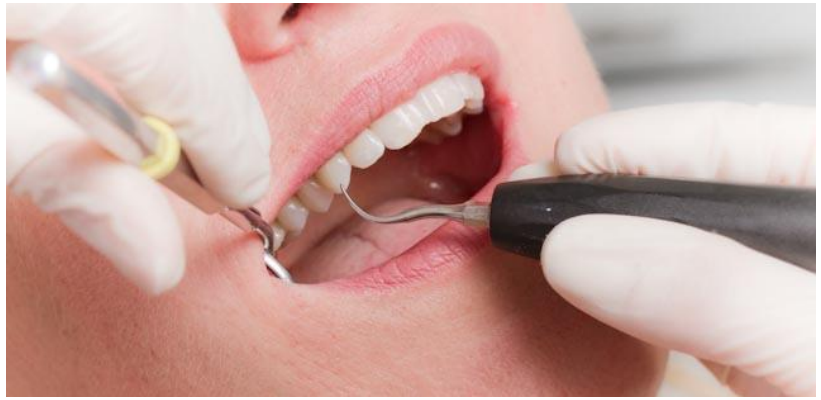
Metallic tooth discolorations

- Fe, Mg, Ag – silver
- Mercury – grey/green
- Lead – grey
- Copper – brown /green
- Brome – brown
- Nickel – green
- Cadmium – yellow
- Potassium – purple

Discolorations of extrinsic origin

Therapy:

- ✓ Polishing
- ✓ Cleaning
- ✓ Dental hygiene improvement



Discolorations of intrinsic origin
Before/during tooth eruption

- ✓Turner-tooth
- ✓Tetracycline - Xanthodontia
- ✓Fluorosis
- ✓MIH
- ✓Perinatal hyperbilirubinemia
- ✓Erythroblastosis fetalis
- ✓Porphyria
- ✓Amelogenesis imperfecta
- ✓Dentinogenesis imperfecta
- ✓Thalassaemia

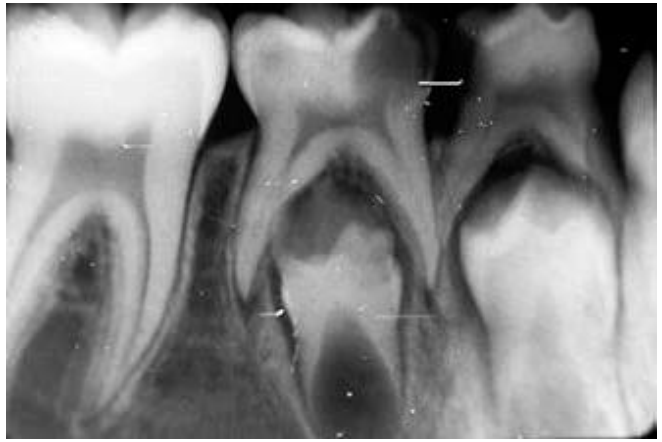
Turner-teeth

- Permanent incisors and premolars, rarely canines,
- mineralisation and form anomaly

Due to:

✓Inflammation of adjacent primary teeth – molars – bifurcation area

✓Traumatic injuries of primary incisors (subluxation, intrusion, luxatio lateralis)

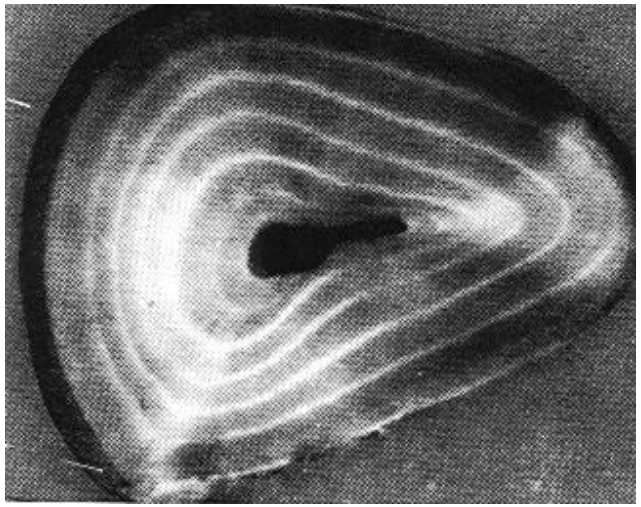


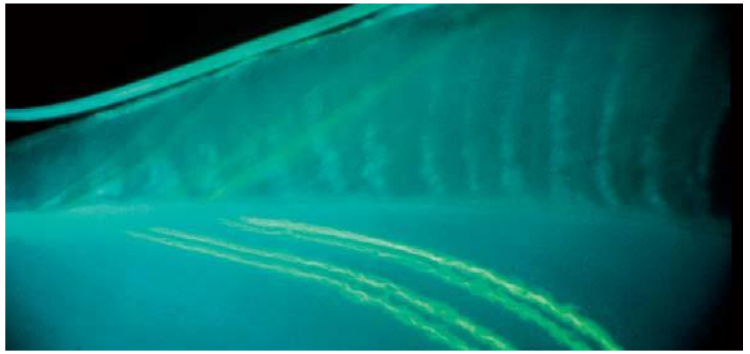
Turner-teeth

Tetracycline discoloration - Xanthodontia

- 2nd trim. of pregnancy- partially the crowns ***primary and permanent teeth***
- Postnatal, during young childhood
- ***Irreversibile,*** dose dependent - hypoplasia
- Ca-, Mg-, Fe-, Al-ion, chelate
- Discoloration intensity increases to light
- ***Contraindication of Tetracycline administration during pregnancy and childhood until the age of 8 years!***
- Puberty – third molars
- Tetracycline/chlortetracycline – ***different colours***!

Tetracycline discoloration - Xanthodontia





Tetracycline discoloration - Xanthodontia

Severity:

1. Light brown, brown and grey on the main parts of the crown - bleaching
2. Intensive discoloration - bleaching
3. Dark blue or grey bands – limitation of bleaching.

Tetracycline discoloration - Xanthodontia

Tetracycline discoloration - Xanthodontia

From: Scully. A Colour Atlas of Orofacial Health and Diseases in Children and Adolescents
Quelle: Scully. A Colour Atlas of Orofacial Health and Diseases in Children and Adolescents

Fluorosis endemica dentium

- Ameloblasts - Developmental defect
- Intensity:

✓Amount of fluoride

✓Exposition time

✓Developmental stage

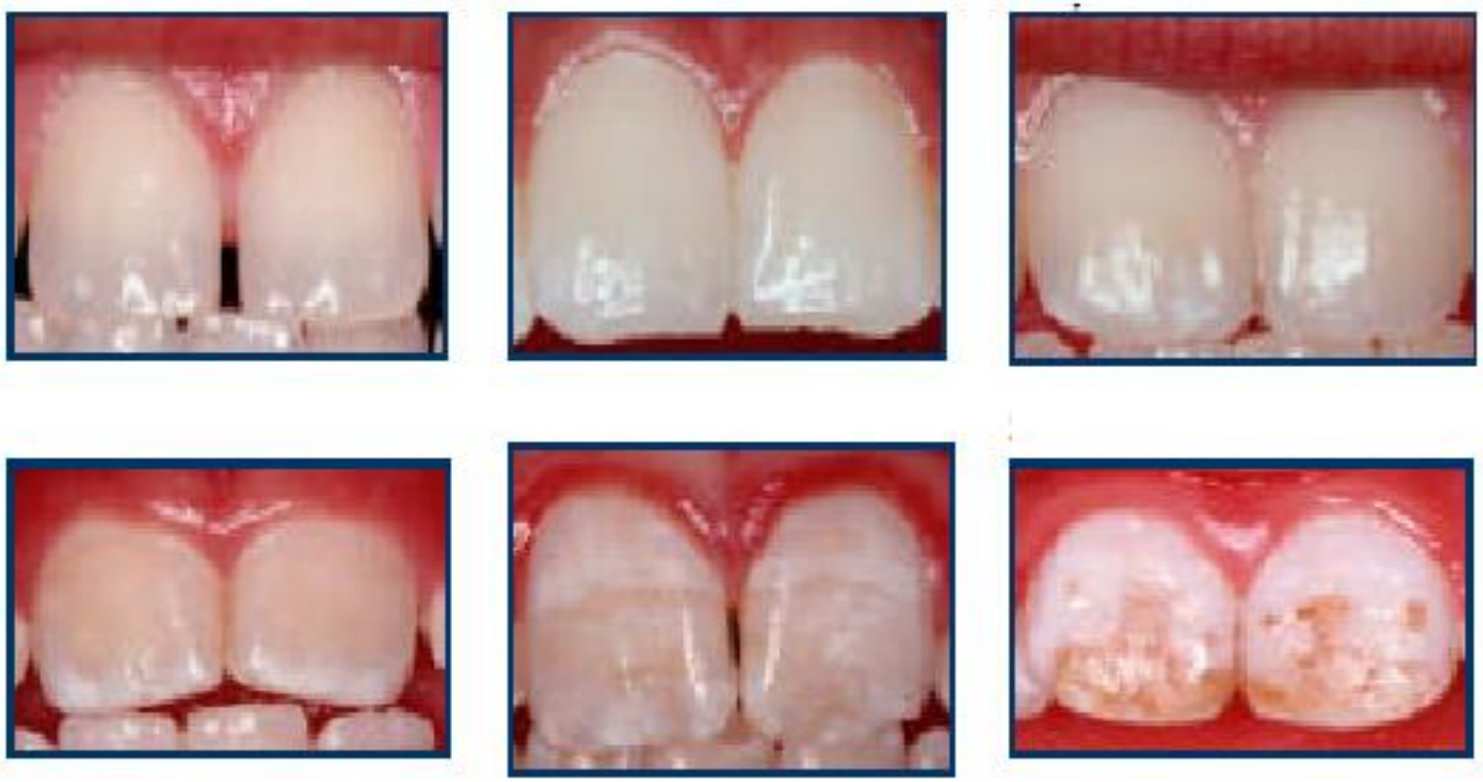
✓Individual sensibility, affinity

Fluorosis endemica dentium

Etiology due to:

- Toothpaste use not according to age
- Foods: mushrooms, fish (salt water)
- Mineral water, black tee
- Systemic fluoride – per os
- Amoxicillin can increase the risk up to 2,5x.

Fluorosis endemica dentium



Fluorosis endemica dentium

Fluorosis endemica dentium

Fluorosis endemica dentium

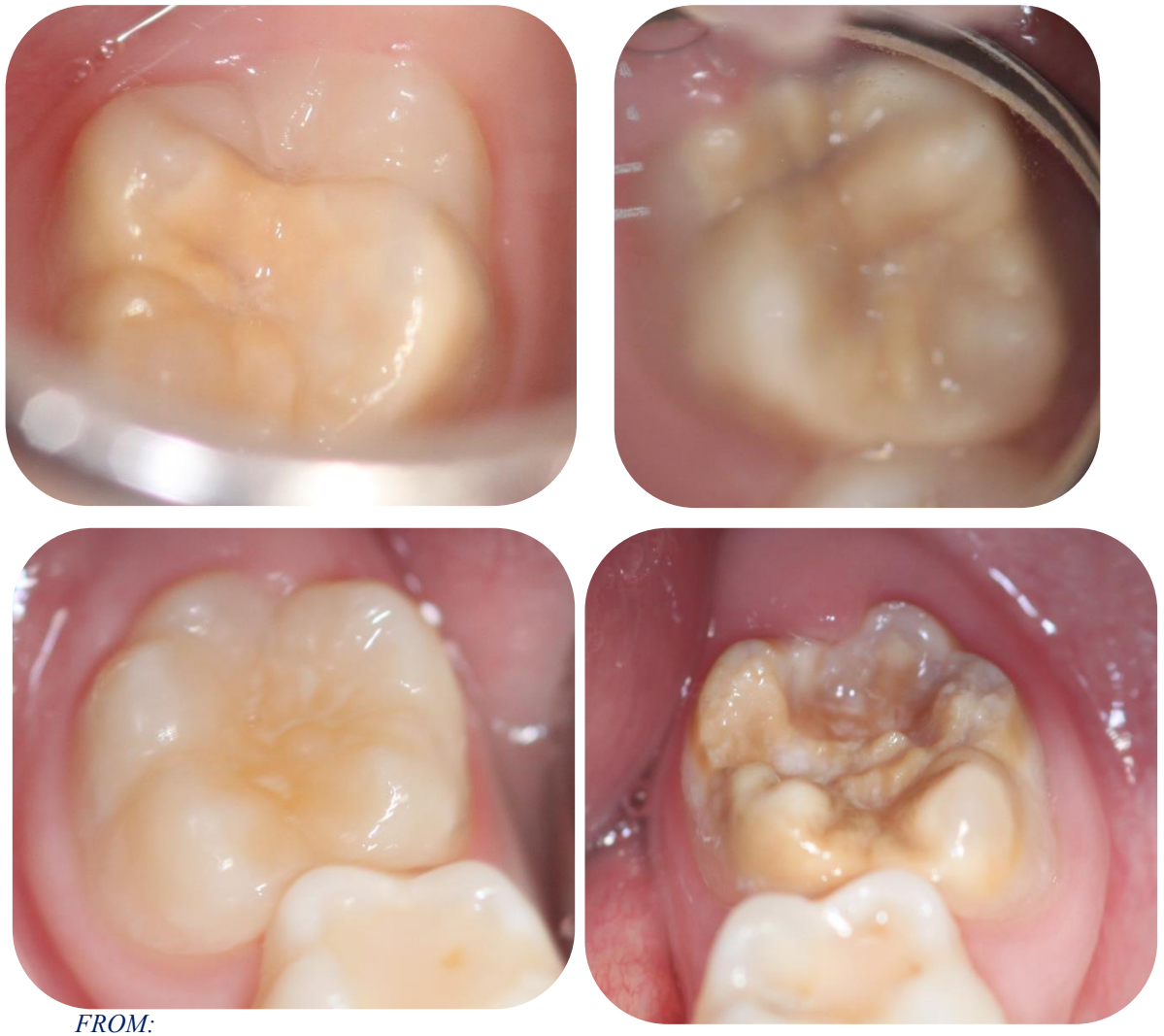
Microabrasion

12 years, ♀ - Fluorosis?

Molar-incisal hypomineralisatio-sindrome (MIH)

- Developmental defect of the enamel matrix
- First permanent molars, permanent incisors
- Indicator: second primary molars

MIH – „Molar-incisor hypomineralisation”

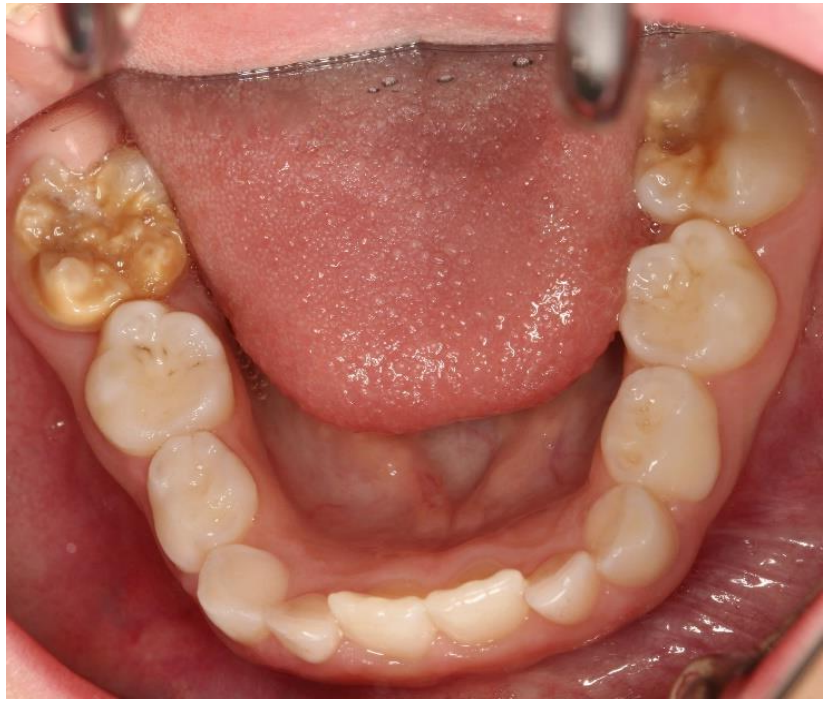


- LIGHT
- MEDIUM
- SEVER

FROM:

- Weerheijm et al. **Molar-Incisor Hypomineralisation.** *Caries Research 2001; 35:390-391.*
- SE-FOK Gyermekfogászati és Fogszabályozási Klinika képanyaga , dr. Rózsa N.

MIH – Molaris-incisivus hypomineralisatio



FROMs: SE-FOK Gyermekfogászati és Fogszabályozási Klinika, dr. Mlinkó É.

MIH – Molaris-incisivus hypomineralisatio

Etiology:

- Perinatal complications,
- low birth weight;
- premature birth;
- airways;
- mineralisation problems;
- diseases during childhood: measles, rubella etc.;
- Antibiotics (Amoxicyllin).

Forrás: Weerheijm et al. **Molar-Incisor Hypomineralisation.** *Caries Research 2001; 35:390-391.*

MIH – Molar-incisive hypomineralisatio?

Perinatal hyperbilirubinaemia

- Conversion of bilirubin to biliverdin,
- Primary dentition
- Grey – intensity decreasing with age.

Erythroblastosis fetalis (Chlorodontia)

- Rhesus factor incompatibility - haemolysis
- Hemosiderin - dentine, brown-blue
- Morbus haemoliticus neonatorum – syndrome:

Icterus gravis, anaemia neonatorum and hydrops universalis;

Porphyria (Haematoporphiria, porphyrodontia)

- Haemoglobin - genetic
- Primary and permanent dentition
- Brown – UV light - purple.

D-vitamine defficiency, rachitis

Amelogenesis imperfecta hereditaria

- Genetic
- Enamal developmental defect
- Dentin of normal structure
- 3 types:

✓hypoplastic

✓hypocalcification

✓hypomaturation

Amelogenesis imperfecta

Hypoplastic:

- Organic matrix
- thin enamel, abrasion
- No approximal contact

Amelogenesis imperfecta

Hypoplastic

Quelle: Scully. A Colour Atlas of Orofacial Health and Diseases in Children and Adolescents

Amelogenesis imperfecta

Hypocalcification

- Thin or normal enamel
- Smooth, fractures
- white opaque to brown
- mineralisation defect of the organic matrix

Amelogenesis imperfecta

Hypocalcification

From: Scully. A Colour Atlas of Orofacial Health and Diseases in Children and Adolescents

Amelogenesis imperfecta

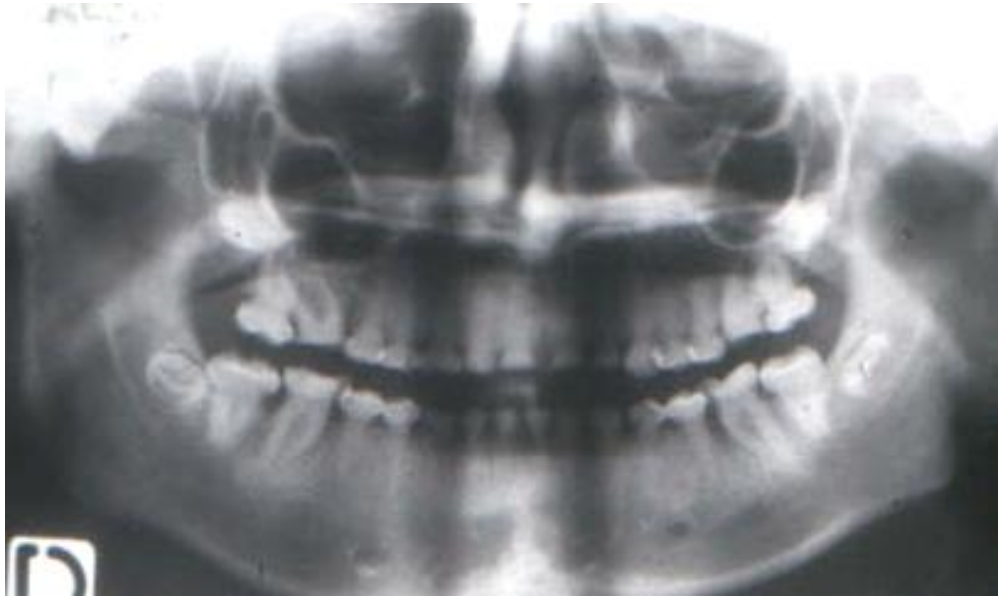
Hypomaturation

From: Scully. A Colour Atlas of Orofacial Health and Diseases in Children and Adolescents

- **AMELOGENESIS IMPERFCTA HEREDITARIA;**

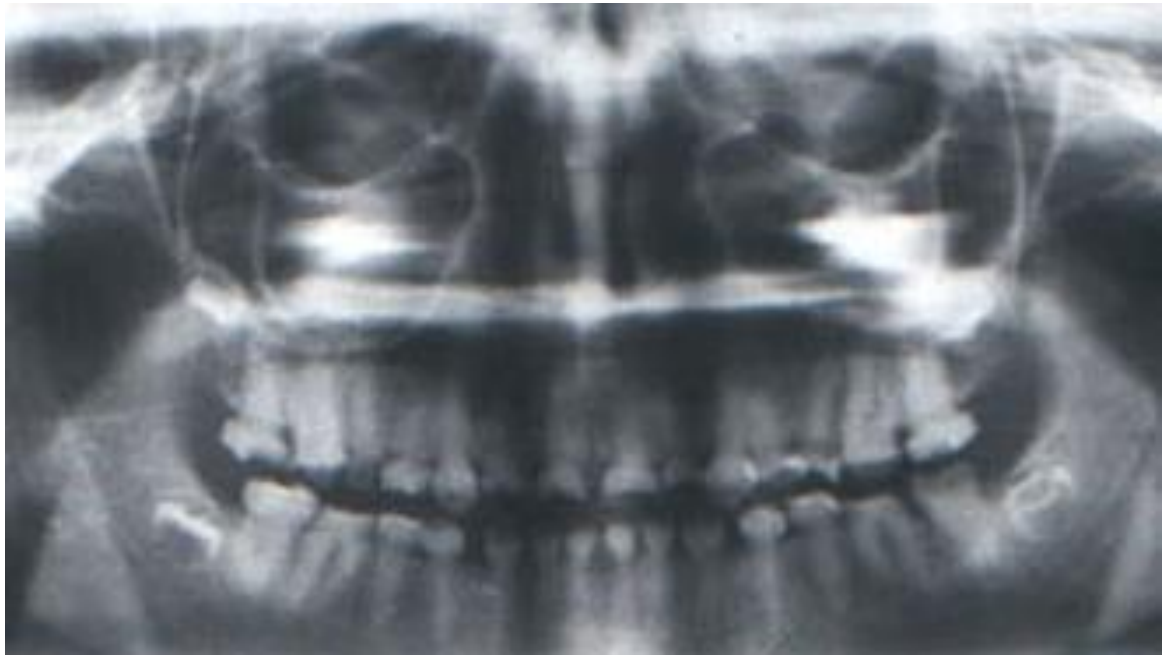
AMELOGENESIS IMPERFECTA HEREDITARIA

:♀, 14 years



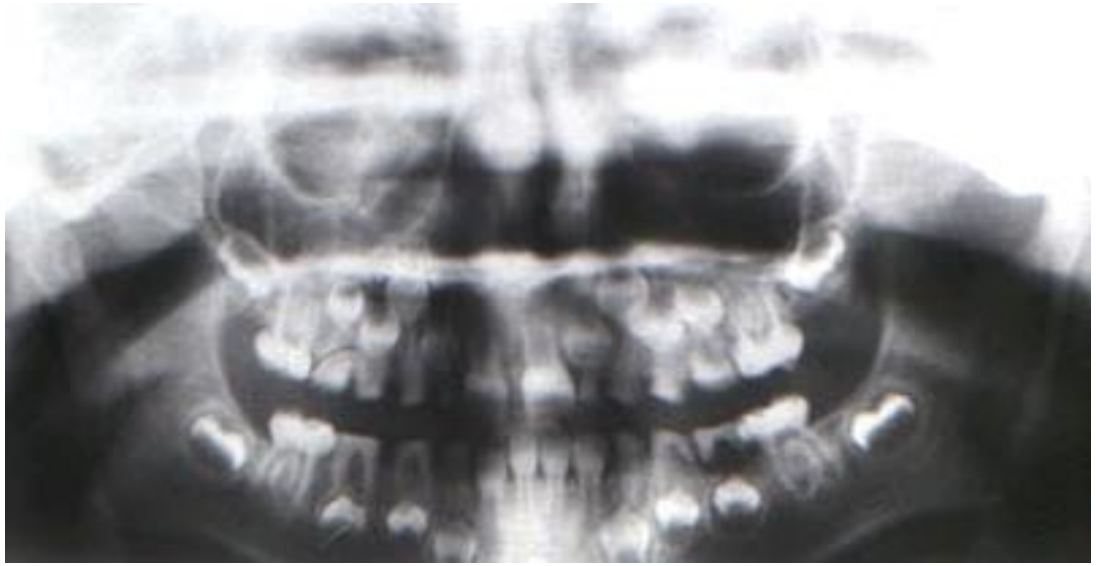
AMELOGENESIS IMPERFECTA HEREDITARIA

♀, *12 years*



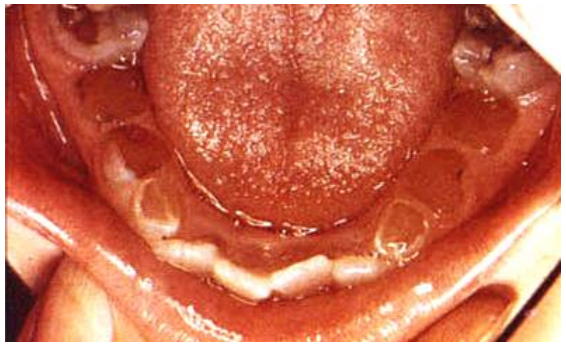
AMELOGENESIS IMPERFECTA HEREDITARIA

♂, *7 years*



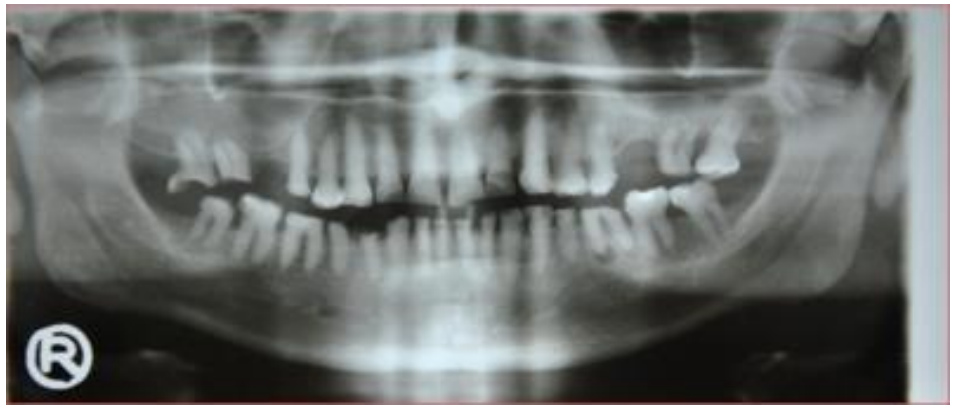
Dentinogenesis imperfecta

- Dominant inherited, genetic disease
- Poor quality of the dentin causes teeth to discolour and enamel to peel off easily
- Exposed dentin wears and decays easily
- More common in deciduous teeth
- Teeth reddish, brownish or bluish in colour
- 3 types



Dentinogenesis imperfecta

- father



Forrás? B Neeti. *Dentinogenesis Imperfecta – "A Hereditary Developmental Disturbance of Dentin"*. The Internet Journal of Pediatrics and Neonatology. 2010 Volume 13 Number 1.

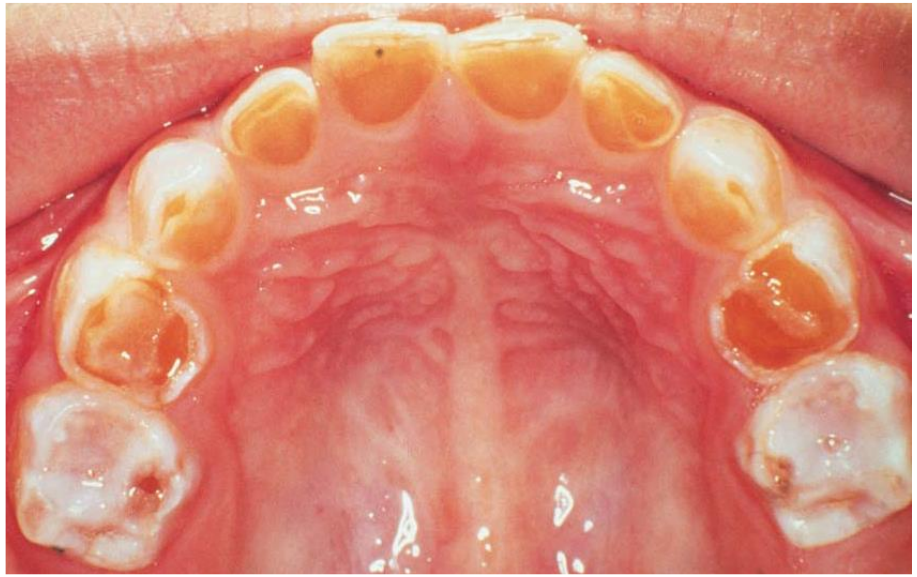
Dentinogenesis imperfecta

- child

B Neeti. *Dentinogenesis Imperfecta – "A Hereditary Developmental Disturbance of Dentin"*. The Internet Journal of Pediatrics and Neonatology. 2010 Volume 13 Number 1.

Dentinogenesis imperfecta

4 years



From: Scully. A Colour Atlas of Orofacial Health and Diseases in Children and Adolescents

Dentinogenesis imperfecta

- Eruption of the permanent incisors

↳ Rapid attrition

From: Scully. A Colour Atlas of Orofacial Health and Diseases in Children and Adolescents

Dentinogenesis imperfecta

OPG - Pulpaobliteration

From: Scully. A Colour Atlas of Orofacial Health and Diseases in Children and Adolescents

Thalassaemia

- Autosomal, recessiv
- haemolytic anaemia

- Blue/brown/green

Intrinsic tooth discolorations

<u>After tooth eruption</u>

✓Gangraena

✓Traumatic injuries

✓Internal pulp reoptions

✓Internal granuloma

✓Chemicals

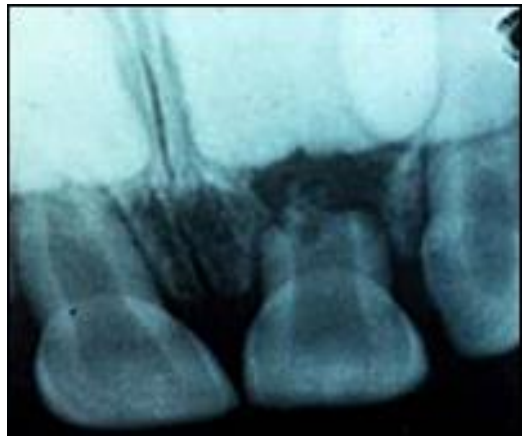
Pulp necrosis - gangraena

- Grey

Traumatic injuries

- Due to traumatic injuries and intrapulpal bleeding – revesible pink colour
- Pulpal necrosis – grey/brown
- Primary teeth: „pink spot disease” – granuloma internum

Pulpitis chronica granulomatosa



Traumatic injuries

- Therapy:

Root canal treatment, bleaching (only permanent teeth!)

Chemicals - dental materials

- Amalgam, N2, Endomethason, AH, Iodoform, Ledermix

Plaqueindicators