



Universitatea de Medicină și Farmacie "VICTOR BABEȘ"
Facultatea de Medicină Dentară
Clinica de Pedodonție - Ortodonție



Specific dental pathology in pediatric dentistry

Titular curs: Șef de Lucrări Dr. Mălina Popa

Dental pathology → complex

Source → most often dental caries in the specific forms of temporary teeth, but also structural and qualitative changes of enamel and dentin



- morpho-structural peculiarities of temporary teeth;
- the behavior of children



slows the therapeutical act → failure rate increasing



Decay = the most common childhood disease.

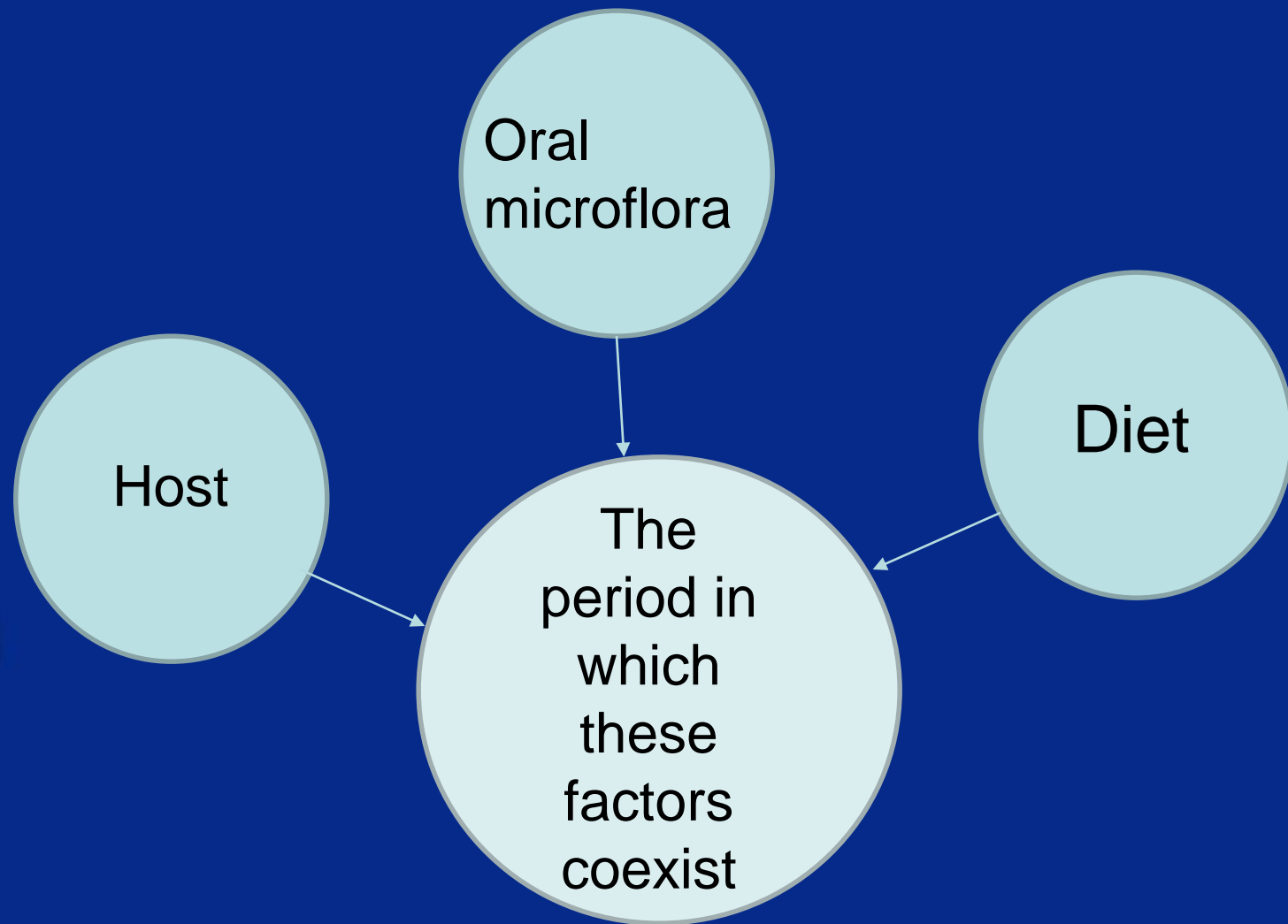
- *Dental caries = the most common childhood illness.*

Dental caries = dynamic process performed at the interface between the bacterial plaque and the tooth.

Transformation of the non-cavitory reversible initial carious lesion into a cavitory lesion = consequence of disturbing the balance between the permanent processes of

demineralization <-> remineralization.





decay -> multifactorial etiology

1. Host



Local factors	General factors
<p>1. Saliva salivary flow below 0,7-1 ml/min antibacterial factors (lysozyme, peroxidases, immunoglobulins) buffering capacity salivary protective factors</p> <p>2. Retentive dental morphology</p> <p>3. Quality of dental tissues Carrie grafted on structural defects (MIH) Posteruptive acquired defects (dental wear)</p> <p>4. Low level of oral hygiene</p>	<p>1. The predisposition of the host</p> <p>2. Age</p> <p>3. Sex (girls are more prone)</p> <p>4. Socio-economic factors (cariogenic diet, low oral hygiene, reduced or absent fluoridation, access to medical services, etc.)</p> <p>5. General illness (AIDS, diabetes, Sjogren syndrome, nerve and mental disorders)</p>

2. The cariogenic microbial flora

-several types of microorganisms appear to be at least potentially cariogenic (Streptococcus mutans, Lactobacillus casei, Gram-positive actinomycetes)

3. Nutritional substrate – diet

- Sucrose *monosaccharides* = the most cariogenic metabolisable substrate by high acid production
- the quantity and frequency of meals, the consistency of food and its solubility
- *Proteins, fats, foods containing calcium or phosphorus* → *carioprotector effect*



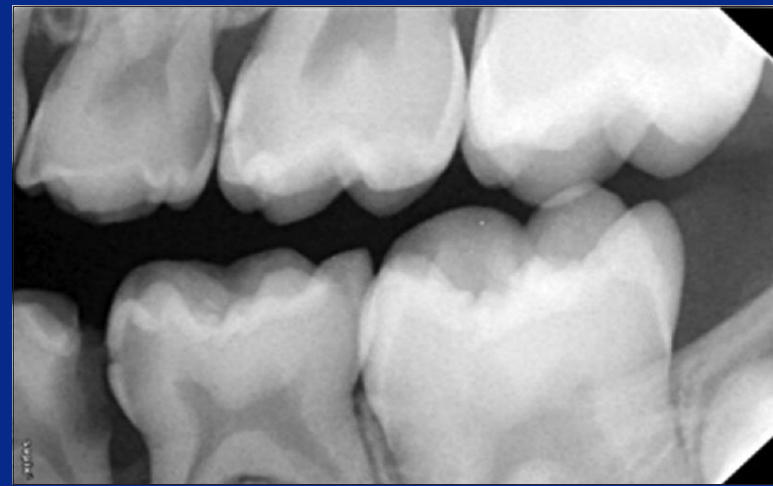
4. The time when the three factors act

The coexistence of the three etiological factors over a period of time, at times when the body's defense mechanisms are diminished → → *favorable to dental caries.*



Characteristics	Evolutionary decay	Stationary decay
Location	Proximal surfaces	Occlusal surfaces (molars) Vestibular and proximal surfaces (incisors, canines)
Extent	Less important in enamel Propagation in depth, forming cavities and subsequent pulp necrosis	Propagation area to the surface Great destruction of the crowns
React dentine	no	yes
Hard tissue staining	No coloration	Brown-black coloration
Mineralized tissue	No resistance	Hard tissue
Sensitivity	Painful	No pain

Evolutionary decay



➤ spreads rapidly in depth → reaching primary tooth pulp. Touching can be asymptomatic, evolution towards necrosis, finally setting up as apical periodontitis and osteitis;

➤ Systemic radiation detection enables early treatment and preservation of these deciduous teeth pulp. In this case, the beginning of the lesions, tooth has a normal color, decayed tissue and dentin sensitivity is perceptible.

Baby bottle decay

- appears primarily on the vestibular faces of the upper incisors, molar 1, canine, rarely on the molar 2, having a circumferential pattern at the level of the cervical third, then extending to incisal / occlusal.
- appears symmetrically if the breastfeeding is done in a lying position on the back and asymmetric if during breastfeeding the child is on a side.



- **Causes:** malnutrition of the infant, prolonging the use of the bottle, the use of sweetened liquids, and sucking overnight, the use of the pacifier with impregnated substances, the vitamin syrup or the fruit juices (potentially cariogenic and erosive)



- *Natural breast-feeding* that projects the posterior milk to the pharynx is healthier than breastfeeding with the bottle that projects the milk forward on the teeth. However, prolonged breastfeeding for 1 year is harmful, being cariogenic

MIH Syndrome

Molar-incisor-hypomineralisation



In **2003**, at the 6th Congress of the EAPD (European Academy of Pediatric Dentistry) it was established that the current terminology used will be MIH (Molar-Hypomineralization)

Table 1 MIH/HSPM clinical data recording sheet (for clinical status, defect extent and tooth eruption status)—first permanent molars, permanent incisors and second primary molars (short form)

	UPPER RIGHT						UPPER LEFT	
	16	55	12	11	21	22	65	26
Tooth								

	LOWER RIGHT						LOWER LEFT	
	46	85	42	41	31	32	75	36
Tooth								

Table 2 MIH/HSPM clinical data recording sheet (for clinical status, defect extent and tooth eruption status)—permanent and primary dentitions (long form)

[illegible]

Differential diagnosis

- teeth with **various developmental defects of enamel** may be affected similarly, even if the etiology is different, so they can be confused with MIH.
- MIH syndrome must be differentiated from disorders such as **fluorosis, imperfect amelogenesis and enamel hypoplasia**.



Clinical Management of MIH = difficult:

Methods of treatment depend on the severity of the clinical situation:

- desensitising toothpaste - products with CPP-ACP (amorphous casein phosphate, calcium phosphate) - remineralization with fluorapatite formation, more resistant to acid attack: **Tooth Mousse GC topical cream**;
- Gels and fluorine topical varnish - **Duraphat** with 50 mg NaF / mL (2.26% F); **Gelkam** 0.4% SnF - topical application with a cotton swab;
- **CIS-based sealants.**



Treatment

Caries of primary teeth

In preparation cavities - Black's principles are followed, modified by Ireland as follows:



- to increase retention, it is recommended that the cavities → with walls converging towards the free areas, so with bases wider than the opening;
- edges cavities → to carry out contacts with antagonists, maximum pressures will exert on the filling materials;
- Bevel the edges is not recommended because the tilting of the enamel prisms is favorable to the pressures and additional would diminish retention.

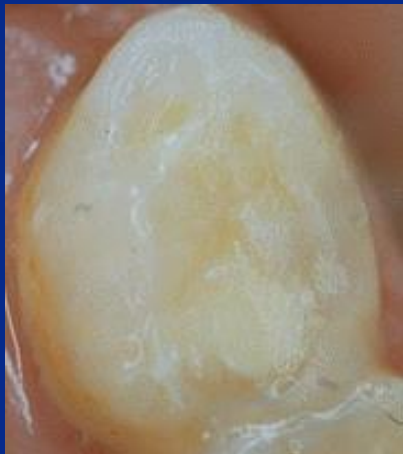
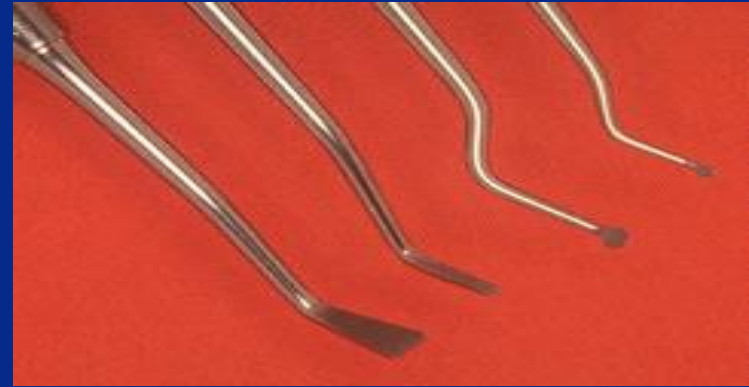


Classification of cavity

- Class I
 - Class II
 - Class III
 - Class IV
 - Class V
 - Class VI(Simon)
- G.V.Black



Atraumatic restorative treatment



- Atraumatic restorative process = an alternative to conventional therapeutic option. It has both meanings preventive and therapeutic.
- ART → refers to the preparation cavities exclusively with hand tools and their restoration with adhesive cements, glass ionomer.
- In normal conditions, ART requires more preparation time than technique rotary cavities.
- The technique is extremely simple and does not require complex dental equipment, can be successfully applied in rural areas, in schools, or in therapeutic centers with minimal dental equipment.

Bibliography

- Elisabeta Bratu, Florica Glăvan (coord.) – ***Practica Pedodontică***, Ed. Orizonturi Universitare, Timișoara, 2005
- Paul S. Casamassimo DDS MS, Henry W. Fields Jr. DDS MS MSD, Dennis J. McTigue DDS MS, Arthur Nowak DMD, ***Pediatric Dentistry: Infancy through Adolescence, 5e*** ISBN-10: 0323085466 | ISBN-13: 978-0323085465
- 5. Angus C. Cameron BDS (Hons) MDS (Syd) FDSRCS(Eng) FRACDS FICD, ***Handbook of Pediatric Dentistry, 4e***, ISBN-10: 0723436959 | ISBN-13: 978-0723436959





MYRON WALDMAN