

Dental caries (etiology, classification, predilection surfaces)

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Dental caries is a sugar dependent infectious disease. Acid is produced as a by product of the metabolism of dietary carbohydrate by plaque bacteria, which result in a drop of pH at the tooth surface. In response, calcium and phosphate ions diffuse out of enamel resulting in DEMINERALIZATION. This process is reversed when the pH rises again. Caries is therefore a dynamic process characterized by episodic demineralization and remineralisation occurring over time. If destruction predominates, disintegration of the mineral component will occur leading to CAVITATION. Remineralisation of the damaged tooth structure occurs as the local pH rises above 5.5. Saliva contains high concentration of calcium and phosphate ions in solution, which serve as a supply of raw material for remineralisation process. Organisms which cause caries are termed cariogenic.

CLASSIFICATION

Can be classified according to severity or rapidity of the attack and different teeth and surfaces are involved depending on severity

- **RAMPANT CARIES:** Used to describe a rapid destruction of many teeth frequently involving surfaces of teeth that are ordinarily relatively caries-free. Most commonly observed in primary dentition of infants (suckle on sugary drinks) and teenagers (too many sweets). Also seen in mouths where there was xerostomia (sudden reduction in salivary flow, dry mouth). This could be due to radiation therapy or therapeutic drugs
- **ARRESTED CARIES:** carious lesions which do not progress. Seen when the oral environment has changed from conditions predisposing to caries to conditions that tend to slow the lesion down (inactive now, they pigment and become solid).
- **ROOTCARIES:** Exposed root surface occur following gingival recession (associated with periodontal disease) which are susceptible to root caries
- **SECONDARY/RECURRENT CARIES:** secondary carious lesions has been described as occurring in 2 parts: an outer lesion formed on the surface of the tooth as a result of a primary attack and a cavity wall lesion which will only be seen as bacteria, fluids or H⁺ ions, originating from plaque, leak into the microspace between the restoration and cavity wall

Susceptible sites: Since caries is caused by bacterial plaque, sites on the tooth surface which plaque RETENTION and STAGNATION are particularly prone to decay

- enamel pits and fissures on occlusal surfaces of molars + premolars
- approximal enamel smooth surfaces just cervical to contact area
- margins of restorations especially when there is a gap or an overhang

MITCHELL, Laura. *Oxford Handbook of Clinical Dentistry*. 5. edition. 2009. ISBN 9780199553303.