

Dental Caries: A Hygiene-Related Disease

Prevention is Better Than Cure

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Dental caries, also called tooth decay, are a microbial disease of the teeth that results in decalcification of calcified tissue and dissolution of uncalcified tissues (Soft Tissue) of the teeth.

The word 'caries' derives from Latin meaning 'rot' or 'decay'. It is considered a disease of modern civilization. Pre-historic humans rarely suffered from it due to their fibrous, unprocessed diet.

Causes of Dental Caries

Dental carriers have multifactorial causes in initiation and progression. It is a dynamic and complex process. Many theories have been proposed for the cause of dental caries but most widely accepted one is Miller's acidogenic theory. According to Miller's acidogenic theory, dental caries is a chemo-parasitic process. The microorganisms, diet and tooth surface play a role.

Role of Microorganism

The mouth is full of bacterial species and many of them play a role in causing dental caries. The main role is by bacteria *Streptococcus mutans* which initiates the caries process. The other bacteria, *Lactobacillus acidophilus* plays a role in caries progression and *Actinomyces* is implicated in root caries.

Role of Diet

Carbohydrate foods are the main substrates for microorganisms. Sticky food like

chocolates and other carbohydrates are more caries produced than any other food.

Role of Tooth Surface

Retentive and difficult areas to clean like pit and fissure, grooves, crowded and mal-aligned teeth, sides of the teeth which contact other teeth and partially erupted impacted tooth (wisdom tooth) can cause food retention and these areas of the teeth are more prone for dental caries.

Caries-an acidogenic process

Any retentive carbohydrate food left for reasonable time in the teeth surfaces are attacked by the bacteria of the mouth. Bacteria by the fermentation process produces acid from the food (refined and sticky carbohydrates), usually the major acid produced is lactic acid. These acids act upon the teeth to produce dental caries (cavitation).



Dental plaque is a biofilm made of bacteria and salivary proteins. It is formed on the teeth that are not adequately cleaned. It plays a role in dental caries by locating the bacteria and carbohydrate on the tooth surface so that fermentation and acid formation takes place.

Dental caries affects all age groups with teeth, both the age groups with teeth, both genders in all races and all socio-economic groups. Poor oral hygiene and food habits play a major role. Sticky carbohydrate foods, especially junk food and snacks get stagnated in the tooth surfaces. If they are left retained for long time, it can initiate dental caries. Children do get more dental care because of carving sweets and chocolates.

The types of dental caries can be Acute caries and Chronic caries based on duration, Smooth surface caries, Pit and fissure caries & Root caries based on surfaces, Infant-Nursing bottle caries, Adolescent caries & Senile caries-old age based on age, Enamel caries, Dentinal caries & Cemental caries based on location of the tissue involved.

In the initial stages caries are chalky white because of decalcification. Later, it becomes dark either black or brown because of accumulation of debris and staining of the surface.

Caries activity starts from the surface and starts involving the deeper tissues which results in loss of the decayed tissue causing cavity.

When caries involve only enamel there is no pain, when it reaches dentine causes sensitivity and when reaches pulp which has

nerve fibers there will be pain because of inflammation of pulp. It is called pulpitis.

Signs and Symptoms of Dental Caries

An individual must do self-examination of teeth in front of the mirror and look out for any changes like discoloration of teeth especially black or brown color. If there is stagnation of food or any other obvious cavity on the surface of tooth can be dental caries. Sensitivity and pain are felt in the later stages if the caries is deep. In advanced stages the tooth itself will be grossly destroyed with only root stumps remaining.

Dental caries is a disease of modern civilization. Pre-historic humans rarely suffered from dental caries because of their food habits. They ate raw uncooked foods which were mostly fibrous. Even now studies in primitive tribals show low incidence of dental caries. Refined and sticky carbohydrate food which forms the diet in modern society is the main cause of dental caries.

If any changes in the teeth as mentioned in signs and symptoms of dental caries are noticed, then it is better to seek a professional approach by visiting a dentist.

Dental caries results in loss of teeth. The functions of teeth are for good appearance, speech and chewing. All these functions get affected. Healthy teeth are needed for a pleasant smile which is foremost for self-confidence and appearance. A person without teeth cannot pronounce words accurately. For digestion of food, it must be chewed before swallowing. A person without teeth cannot chew food, leading to indigestion.

Treatment

Teeth with caries cavity and not involving the pulp can be treated conservatively by doing filling. Various materials are used like silver amalgam, cements and resins. Cosmetic fillings can restore the tooth to its original color, shape and function. If the caries involves the pulp, then Root Canal Treatment (RCT) must be done to relieve the pain and save the tooth. The RCT treated tooth must be protected by an artificial crown. If the caries is extensive and grossly destructive then the tooth must be extracted and replaced by artificial teeth.

Prevention

Maintenance of oral hygiene is vital to prevent dental caries and for overall general health. Brushing teeth with standardized toothbrushes and toothpastes to be done both in the morning and night. Rinsing the mouth after every meal and drinking water helps to remove the food debris. Chlorhexidine mouth washes, interdental

brushes and dental flosses can be used in selected cases. Sugarless chewing gums containing xylitol helps to prevent dental caries. Fluorinated toothpaste helps to reduce caries attack in children. Overall good oral hygiene is mandatory to prevent dental caries.

"Poor oral hygiene and sticky junk food habits are the primary drivers of dental caries in modern society and they are entirely preventable."

Conclusion

Prevention is better than cure. Efforts and care should be taken from childhood to prevent dental caries by maintaining good overall oral hygiene. Healthy fibrous food should be taken. Minimize or avoid the intake of sticky junk food. Everyone should do self-examination to notice any changes like black discoloration and cavity in the tooth. If there is any suspicion of dental caries, it is better to visit a dentist to restore and save the tooth.

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