

A Modern thought to Dental Caries

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Caries is considered as a biofilm-mediated, diet modulated, multifactorial, non-communicable, dynamic disease which results in a net mineral loss of dental hard tissues. It is influenced by biological, behavioral, psychosocial, and environmental factors [1]. This process is evident throughout life, both in primary as well as permanent teeth, causing damage to the clinical as well as exposed anatomical part of the tooth. Caries involving primary dentition is termed as early childhood caries, which involves the presence of one or more decayed (cavitated lesions or noncavitated), missing (due to caries), or filled tooth surfaces in a child under 6 years of age [2]. Dental caries usually results from microbiota especially *S. mutans* and *S. sobrinus* as initiating and *Lactobacillus* as progressing species which cause metabolization of the sugars to produce acid, lowering the intra-oral pH, leading in a shift of balance towards loss of minerals of involved tooth structure [3]. Other factors include improper dietary and feeding practices, developmental enamel defects (enamel hypoplasia), systemic diseases (juvenile diabetes mellitus) and medications (containing sugar), socioeconomic and ethnic factors. These situations which prolong the event of demineralization eventually leads to breakdown hence, cavitation.

A sociodemographic attribution analysis performed by Wen PYF et al 2021 stated that the burden of caries remains a global public health challenge. They revealed that dental caries comprises of 64.6 million and 62.9 million which are accounted for 3.2% and 12.1% of the global number of prevalent cases in permanent and primary teeth respectively [4]. In order to decrease the prevalence of caries, major challenge for the dental professional is detection of carious lesions at an early stage and provide awareness and appropriate intervention in the clinical or community settings. Various methods for evaluation and diagnosis of dental caries involve application of visual-tactile method, radiographs, chemical methods. Other methods include, magnifying loupes, digital radiography, fiberoptic illumination (FOTI), digital fiberoptic illumination (DIFOTI), electric caries monitor, diagnodent, cone beam computed tomography (CBCT), magnetic resonance imaging (MRI), tuned aperture computed tomography (TACT), optical coherence tomography (OCT) with most recent being, detection of non-cavitated lesions using risk assessment methods, calcivis and sporolife. The traditional restorative procedure for management of dental caries involved an invasive surgical strategy. However, with time a paradigm shift has occurred in focus towards preventive measures with active monitoring and minimal intervention [5]. Management of carious lesions is dependent on the extent, severity, and stage of carious lesion [6]. If the lesion is in the initial stage, non-operative care through preventive methods leading to promotion of re-mineralization over demineralization should be considered by using fluoride gel, varnishes, sealants, dietary and oral hygiene modifications. Surgical invasiveness can be considered only if the initial lesion has advanced to a large extent, detected using risk assessment techniques. Current paradigms also emphasize the significance of maintaining a healthy and stable oral plaque biofilm by limiting or excluding the refined sugars from the diet for achieving a long-term disease control [7]. Hence, we can conclude that the ultimate aim of protecting the primary as well as permanent dentition from developing caries is to establish a protocol about the patient needs, recall visits depending upon the age as well as risk status of the patient. If the patient is of low-risk status, the next visit can be postponed for a longer period (12 months) while in moderate-to-high risk situation, the recall period can be shortened (6 months or less). After a suitable risk-based recall interval, the cycle of the caries management starts again.

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