

## Why Pits and Fissures Remain a Challenge in Prevention of Caries Lesion?

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Dental caries is one of the most type of diseases that harm and affect the teeth of human beings. This lesion and its prevention and/or management still a challenge for dental profession [1]. Hujoel describe the lesion of caries as a chronic non-communicable disease, it then continue progressing to become a worldwide harmful disease. This may be due to its uncomfortable painful nature especially in late stages which affect the dentino-pulpal organ [2]. It is not only affected the adult population, but also affected children and elderly patients. Some authors believed that dental caries may be one of the major public health problems [3,4].

Pits and fissures are prominent rough areas most commonly presented in the occlusal surface of posterior teeth in addition to ill-defined sites at lingual surface of anterior teeth. These pits and fissures are favorable areas for bacterial colonization due to their suitability for food retention, enhancement of plaque accumulation and difficulty of removing trapped food by thorough tooth brushing. In children, the percent of caries occurred in pits and fissures at occlusal surface exceed 80% [5]. First and second permanent molars are teeth of the highest risk for caries process. Initiation of caries on the occlusal surface and enhancement of plaque accumulation may be influenced by many factors. Of all contributing factors, two factors may be very important; first: the eruption stage and status of tooth function and the second is the individual tooth morphology [6]. During eruption stage, bacterial invasion increased and need more attention from parents toward their children teeth. Mixed dentation may be considered a difficult time for young child due to missing of some teeth, different in teeth color and presence of crowding, mal-posed teeth. This is a favorable medium for bacterial activities of dental caries [5].

Morphological form and anatomical depth for Pits and fissures increase the caries susceptibility. No doubt that all clinical observation confirmed the high susceptibility of Pits and fissures to caries attack than smooth surfaces because fissure morphology & anatomy favours plaque accumulation and food stuff retention [7]. A pit may be defined as a small pointed depression found in the enamel surface while a fissure may be defined as a developmental line depression with its origin related to genetic factors, which is usually presented in the surface of occlusion

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or chewing and sometimes on the buccal surface of the tooth. Deep pits and fissures become more difficult to clean by tooth brush bristles and subsequently retain more plaque deposits and trap more food remnants that is represented very good habitat or shelter for caries causative bacteria [8]. In the past, the concept of "Drill and Fill" was widely used from dentists and was supported by another concept regarding cavitated carious tooth; that is "Extension for prevention". Nowadays, both concepts considered in the area of rejected techniques as they lead to unnecessary overcutting of brilliant tooth structure. This is replaced by another deep understanding to nature of caries process and the knowledge of alternative periods of demineralization and remineralization that affect the tooth structure. Better knowledge of caries etiology as well as discovering numerous preventive therapeutic mechanisms lead to introduction of new philosophy in caries treatment plane [9].

Different management modalities have been recommended for prevention of caries lesion, including pit and fissure sealants, which has provided a method of protection and prevention for initial occlusal caries [10]. Another preventive method may include topical fluoride application, dietary advice and patient education, as well as recall visits. All efforts are exerted to early diagnosis of pit and fissure caries as it conceded the most prevalence type among all types of caries [11].

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