Predominant Supragingival Plaque Microflora in a Malaysian Population

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ABSTRACT

The tooth provides a non-shedding surface ideal for microbial and plaque accumulation. Despite being exposed to regular environmental perturbations, the microbial composition and proportions in the plaque often remains in homeostasis and is relatively stable over time. Supragingival plaque sampled from various sites on the tooth surface was pooled and conventionally analyzed for its microbial constituent. Classification of microbial isolates was made based on the characteristics exhibited by the growth colonies, Gram-stained cells, as well as biochemical reactions using the API Identification System kit. Observation was also made of the colony forming units on both non-selective and selective agar culture plates. A variety of bacteria, both of the facultative and anaerobic types, were isolated from the supragingival plaque of the Malaysian population. Among those found to predominate the supragingival plaque include the Gram positive and Gram negative cocci and rods from the genera *Streptococcus, Staphylococcus, Actinomyces, Fusobacterium, Corynebacterium, Clostridium, Bacteroides, Veillonella* and *Lactobacillus*. In addition, yeast within the genus Candida was also isolated from the plaque samples.

Key words
plaque, oral cavity, microflora, bacteria, saliva

INTRODUCTION

Dental plaque is made up of 80% water and 20% organic material, 10% of which are bacterial in origin. With respect to its microbial components, it has been generally accepted that the supragingival plaque is dominated by the Gram positive facultative cocci and rods, while the Gram negative anaerobes dominated the subgingival plaque. Although it has been reported that the oral community undergoes frequent changes in its flora due to the many environmental factors within the mouth, variations in the type of flora from one mouth to another, is not expected to be of any different. However, information as to the details on the microbial characteristics are often not included in the references. The aim of the study was to isolate and identify some of the predominant microflora that constitutes the microbial population of the dental plaque found in the Malaysian mouth. Information gathered from the study which includes characteristics of the microbial cells and colonies, will help provide a database on the common types of microorganism, which can be readily isolated from the Malaysian mouth.

MATERIALS AND METHODS

Experimental concept and design

The dental plaque microflora can vary in composition over relatively small distances on the tooth surface. To avoid the possibility of sample collection being made at certain restricted sites, pooled plaque consisting of small samples collected from different sites of the supragingival tooth surface were made. Plaque samples were collected from healthy males and females of various age groups, whose permanent dentition has fully erupted. The subjects were not asked to follow any specific diet or brushing regime prior to the collection. Under these considerations, the plaque samples obtained would best represent the supragingival plaque flora of the Malaysian mouth.

Plaque collection

Sampling of plaque specimen was carried out under strict aseptic techniques using the excavator. Plaque samples were collected from ninety eight patients who