

ORAL MICROBIOME PROFILES IN ORAL POTENTIALLY MALIGNANT DISORDERS AND ORAL CANCER - A DIAGNOSTIC PERSPECTIVE

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Oral Squamous Cell Carcinoma (OSCC) is a multi-factorial disease linked to conventional risk factors like tobacco, alcohol and betel quid. However, Oral cancer cases are also reported in young adults without any habit history. Therefore, a need arises to investigate other potential risk factors that contribute to oral carcinogenesis, one of which is the oral microbiome. The relationship between oral microbiome and oral cancer is influenced by host genetics, diet, oral hygiene and environmental factors. This study profiled the oral microbiome in Leukoplakia, Oral Submucous Fibrosis and Oral Squamous Cell Carcinoma. Fifty subjects were included in this study, the normal, Leukoplakia, OSMF, and OSCC groups. Bacterial genomic DNA was extracted, and 16S rRNA gene sequencing of the V4 region was carried out using the Illumina MiSeq system followed by Bioinformatics data analysis. This study identified variations in the composition of the oral microbiome across all study groups, and noted significant differences in certain microbial taxa. Certain bacterial taxa were found only in OSCC. The relative abundance of Gram-negative bacteria was found to be increased in OSCC. There are very few studies reported in literature on oral microbiome in oral pre-cancer and cancer. This study generated a baseline data which may provide a guideline for future functional and integrative research on the oral microbiome. The variations in oral microbiome may be used as biomarkers and provide signatures during the progression from normal to pre-cancer to cancer.

