SDM
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"EVALUATION OF DIFFUSED LIGHT ILLUMINATION (MICROLUX DL) AND METHYLENE BLUE VITAL STAINING IN THE DETECTION OF ORAL DYSPLASTIC LESIONS - A PROSPECTIVE COMPARATIVE STUDY"

BY

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ABSTRACT

BACKGROUND & OBJECTIVE: Light based detection systems and in vivo stains are the prompt resources which have emerged in recent years so as to aid as clinical diagnostic tools in detecting early potentially malignant and malignant lesions.

Chemiluminescence has been used for many years as an adjunct in the examination of the cervical mucosa for "acetowhite" premalignant and malignant lesions. Recently, this technology has been adapted for use in the oral cavity and is currently marketed under the names ViziLite Plus and Microlux DL. These products are intended to enhance the identification of oral mucosal abnormalities. With both systems, the patient must first rinse with a 1% acetic acid solution followed by direct visual examination of the oral cavity using a blue-white light source.

Toluidine blue, by its property of retaining in the increased DNA and RNA cellular activity areas, aids in delineating the suspicious areas. However, it is hazardous if swallowed, and was shown to have toxicity to fibroblasts. Methylene blue has a similar chemical structure and exhibits similar physicochemical properties to toluidine blue. It is less toxic to the human body and has recently been proposed for screening some gastrointestinal or prostate tumors. The application of this material in detecting oral lesions has so far not been addressed.
The objective of this study was to evaluate the sensitivity and specificity of Microlux DL and in vivo staining with Methylene blue as a diagnostic adjunct in screening for oral potentially malignant lesions.

METHODS: The present study involved the examination of 50 patients suspected of having oral potentially malignant lesions by Microlux DL and Methylene blue vital staining. The

results of Microlux DL illumination and Methylene blue uptake were compared with a simultaneous biopsy of these lesions. The pathologically confirmed dysplastic lesions were the positive targets of this screening, while non dysplastic lesions were sorted as negative subjects of screening.

RESULTS: With Microlux DL examination, 32 lesions turned out to be positive. 29 of 32 lesions which were positive with Microlux DL showed dysplastic changes histopathologically, with a over all sensitivity of 93% and specificity of 84%. The positive predictive value was 90.6% and negative predictive value was 88.88%.With Methylene blue vital staining 12 lesions showed positive results. 10 of 12 lesions which were positive with Methylene blue vital staining showed dysplastic changes histopathologically . The overall sensitivity was 32.25% and specificity was 89% . The positive predictive value was 83% and negative predictive value was 44.73%.

CONCLUSION: We consider that Microlux DL and Methylene blue vital staining are useful diagnostic adjuncts in a large, community-based oral cancer screening program for high-risk individuals, Microlux DL is a better diagnostic aid than Methylene blue in the detection of potentially malignant lesions.

Further studies with more number of cases and longitudinal studies are required to draw substantial conclusion.

KEY WORDS: Microlux DL and Methylene blue, oral potentially malignant lesions.