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5 | **Noninvasive diagnostic adjuncts for the evaluation of potentially premalignant oral epithelial lesions: current limitations and future directions.**

Yang EC, Tan MT, Schwarz RA, Richards-Kortum RR, Gillenwater AM, Vigneswaran N.

ABSTRACT

Potentially premalignant oral epithelial lesions (PPOELs) are a group of clinically suspicious conditions, of which a small percentage will undergo malignant transformation. PPOELs are suboptimally diagnosed and managed under the current standard of care. Dysplasia is the most well-established marker to distinguish high-risk PPOELs from low-risk PPOELs, and performing a biopsy to establish dysplasia is the diagnostic gold standard. However, a biopsy is limited by morbidity, resource requirements, and the potential for underdiagnosis. Diagnostic adjuncts may help clinicians better evaluate PPOELs before definitive biopsy, but existing adjuncts, such as toluidine blue, acetowhitening, and autofluorescence imaging, have poor accuracy and are not generally recommended. Recently, in vivo microscopy technologies, such as high-resolution microendoscopy, optical coherence tomography, reflectance confocal microscopy, and multiphoton imaging, have shown promise for improving PPOEL patient care. These technologies allow clinicians to visualize many of the same microscopic features used for histopathologic assessment at the point of care.