

# Are the imaging-based techniques for early diagnosis of oral potentially malignant lesions effective?

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## A Commentary on

**Mazur M, Ndokaj A, Venugopal D C et al.**

In Vivo Imaging-Based Techniques for Early Diagnosis of Oral Potentially Malignant Disorders-Systematic Review and Meta-Analysis. *Int J Environ Res Public Health* 2021; **18**: 11775.

## Abstract

**Design** The study was a systematic review and meta-analysis conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement and the guidelines from the *Cochrane handbook for systematic reviews of interventions*.

**Data sources** Literature searches of free text and MeSH terms were performed using Medline (PubMed), Scopus, Google Scholar and the Cochrane Library (from 2000 to 30 June 2020). The search strategy was: (“oral screening devices” or “autofluorescence” or “chemiluminescence” or “optical imaging” or “imaging technique”) and (“oral dysplasia” or “oral malignant lesions” or “oral precancerosis”).

**Data analysis** After identification of 1,282 potential articles, an analysis applying the eligibility criteria to the research identified 43 articles for qualitative evaluation and 34 for quantitative analysis.

**Results** The results presented were inconsistent, both in the whole and in technique groups. There was evidence of high risk of bias in the evaluated studies. Moreover, the results were homogeneous across studies, which makes it challenging to carry out a reliable comparison of measures like specificity or positive/negative predictive values.

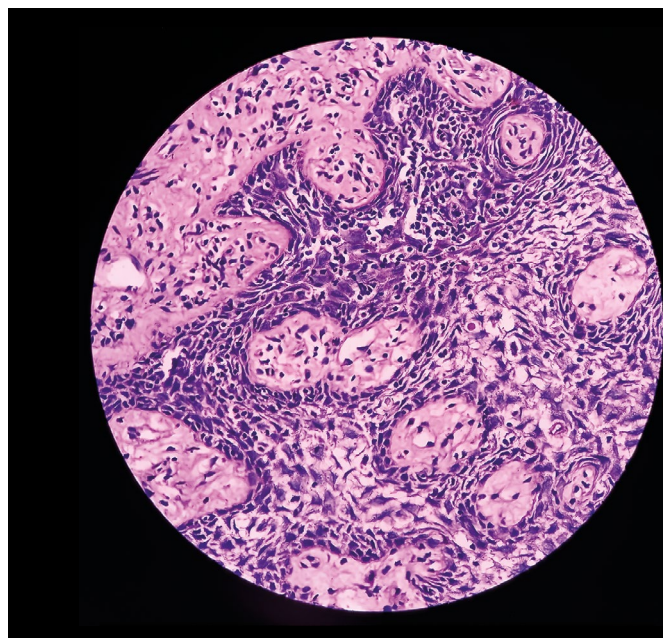
**Conclusions** Imaging-based techniques for early diagnosis of potentially malignant oral lesions must improve technology and accuracy. In addition, none of the evaluated methods can substitute the oral biopsy.

## Commentary

The early diagnosis of malignant lesions is a relevant topic nowadays due to the increase in the incidence in the world population.<sup>1</sup> Therefore, the importance of quickly and efficiently identifying and diagnosing potentially malignant lesions is a significant concern among healthcare specialists. In addition, erythroplakia (red) and leukoerythroplakia (white and red) lesions in the oral cavity may provide clinical signs of potentially malignant lesions.<sup>2</sup>

## Practice points

- It is possible to observe that the technology for early diagnosis of oral potentially malignant lesions is evolving. However, none of these imaging-based techniques are 100% accurate/safe to guarantee the possibility of following the evolution of potentially malignant disorders.
- The specialist must evaluate the case and identify possible differential diagnoses. In the case of potentially malignant lesions, perform an incisional (lesions  $\geq 2$  cm) or excisional (lesions  $< 2$  cm) biopsy, always taking into account the lesion site and the specialist's experience.



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Since the early 1980s,<sup>3</sup> vital colourants have been used as one of the methods to diagnose oral cancer. Among the main dyes, toluidine blue and toloum stand out. However, these materials are inconclusive and may generate faintly or false-positive cases.<sup>4</sup>

More recent evaluation methods, such as autofluorescence, high-resolution microendoscope, optical spectroscopy and narrow banding imaging, present some clinical studies that help in the evaluation/identification process of potentially malignant lesions.<sup>5,6,7</sup> However, these materials can be expensive in addition to specialised training. In addition, they may have false positives for dysplastic or inflammatory lesions.<sup>8</sup>

The recent review published by Mazur *et al.*<sup>9</sup> is a relevant study that evaluates these imaging-based techniques for early diagnosis of oral potentially malignant lesions. In this research, it is possible to observe that all these methods have limitations, regardless of the degree of technology used. The decision to use these methods as a substitute for the surgical procedure (incisional/excisional biopsy) followed by

**GRADE rating**



histopathological evaluation can have severe consequences for the patient, such as the evolution of the pre-malignant lesion to oral cancer resulting in an unfavourable prognosis.

The main question that should be on experts' minds is whether they would risk using inaccurate or non-100% accurate methods on their family members and/or friends.

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