Non-smokers with oral precancerous lesions at increased risk of cancer

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UBC dentistry PhD candidate Leigha Rock found that oral precancerous lesions in non-smokers are more than twice as likely to progress to cancer. Credit: Moss/Flickr

Precancerous lesions in the mouths of non-smokers are more likely to progress to cancer than those in smokers, new research from the University of British Columbia has found.

Although tobacco use is still one of the strongest risk factors associated with mouth cancers, UBC dentistry PhD candidate Leigha Rock found that oral precancerous lesions in non-smokers are more than twice as likely to progress to cancer. Furthermore, lesions in non-smokers progressed to cancer faster than smoking-associated lesions. The study was published this week in *Oral Oncology*.

"This is the first published study where the main focus was to examine the difference in risk of progression to oral cancer between non-smokers and smokers with oral precancerous lesions," said Rock, lead author of the study. "While other studies have also reported a higher rate of transformation among non-smokers, we looked at multiple risk factors including genetic markers."

Rock and colleagues looked at case history of 445 patients with oral epithelial dysplasia (OED), a type of precancerous oral lesion, enrolled in the B.C. Oral Cancer Prediction Longitudinal study. One-third of the patients were non-smokers.

"As smoking rates decline, we are seeing an increase in the proportion of these types of lesions in non-smokers," said Rock.

Among the scientists' findings were that lesions on the floor of the mouth in non-smokers were 38 times more likely to progress to cancer than in smokers. The study is also the first to report on quicker progression to cancer in non-smokers: both three-year and five-year rates of progression were seven per cent and 6.5 per cent higher than smokers, respectively.

The researchers suggest that the marked difference in outcomes is due to a difference in the root causes of the lesions. In smokers, the OED is likely the result of environmental factors, whereas in non-smokers, genetic susceptibility or mutations are likely to blame.

"Our findings show that molecular genomic markers can identify high risk lesions, regardless of risky habits like smoking, and should be an important consideration in patient management," said Rock.

The study's results stress the importance of taking oral lesions seriously, especially when they occur in non-smokers: "If you see a lesion in a smoker, be worried. If you see a lesion in a non-smoker, be very worried. Don't assume it can't be cancer because they're a non-smoker; our research indicates non-smokers may be at higher risk."

More information: L.D. Rock et al, Characterization of epithelial oral dysplasia in non-smokers: First steps towards precision medicine, *Oral Oncology* (2018). DOI: 10.1016/j.oraloncology.2018.01.028

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