

Oral Leukoplakia: A Comprehensive Overview

Camila Rodrigues*

Department of Pharmacology, Federal University of Minas Gerais, Brazil

Introduction

Oral leukoplakia is a common yet potentially serious condition characterized by white patches or plaques in the oral mucosa that cannot be rubbed off. While many cases are benign, leukoplakia is considered a potentially malignant disorder, meaning it can develop into oral cancer. Given the implications of this condition, understanding its causes, symptoms, diagnosis, and management is crucial for both healthcare professionals and the general public. Oral leukoplakia is a common yet potentially serious condition characterized by white patches or plaques in the oral mucosa that cannot be rubbed off. While many cases are benign, leukoplakia is considered a potentially malignant disorder, meaning it can develop into oral cancer. Given the implications of this condition, understanding its causes, symptoms, diagnosis, and management is crucial for both healthcare professionals and the general public. The exact cause of oral leukoplakia remains unclear, but it is strongly associated with chronic irritation and lifestyle factors such as tobacco use, alcohol consumption, and mechanical irritation from ill-fitting dentures or broken teeth. The condition is more common in middle-aged and older adults, particularly men, and is often detected during routine dental examinations. Clinically, oral leukoplakia presents as white patches that can appear on the tongue, inner cheeks, gums, or floor of the mouth. These patches may vary in appearance, with some being smooth and uniform, while others have a rough, nodular, or speckled surface. Though typically painless, some individuals may experience discomfort, especially when consuming spicy or acidic foods. Diagnosis involves a thorough clinical examination and, in some cases, a biopsy to rule out dysplasia or malignancy [1,2]. Treatment focuses on eliminating risk factors such as smoking cessation and addressing mechanical irritants. In cases where lesions show signs of dysplasia, surgical removal may be recommended. Regular follow-up is essential, as a small percentage of leukoplakia cases may progress to oral cancer.

Causes and risk factors

The precise cause of oral leukoplakia remains unknown, but it is strongly associated with chronic irritation and lifestyle factors. Key risk factors include:

Tobacco use – Smoking cigarettes, cigars, pipes, and using smokeless tobacco (chewing tobacco or snuff) significantly increase the likelihood of developing leukoplakia [2].

Alcohol consumption – Excessive alcohol intake, especially when combined with tobacco use, has been linked to a higher risk of leukoplakia.

Chronic mechanical irritation – Poorly fitting dentures, broken or sharp teeth, and rough fillings can contribute to persistent irritation and plaque formation.

Human papillomavirus (HPV) infection – Certain strains of HPV, particularly HPV-16, have been associated with an increased risk of oral leukoplakia and oral cancer [4].

Nutritional deficiencies – Deficiencies in vitamins A, B-complex, and iron have been suggested as contributing factors.

Clinical features

Oral leukoplakia can appear anywhere in the oral cavity, including the tongue, inner cheeks, gums, and the floor of the mouth. The patches may be:

Homogeneous (Uniform) – Smooth or slightly raised, with a consistent white appearance.

Non-Homogeneous (Speckled or Verrucous) – Mixed white and red areas or a rough, nodular surface, which carries a higher risk of malignancy.

These patches are typically painless but may cause discomfort if irritated. Some patients may experience sensitivity to spicy or acidic foods [5].

Diagnosis

Diagnosing oral leukoplakia involves a thorough clinical examination, including:

Visual and physical examination – Dentists or doctors assess the lesion's size, texture, and location.

Biopsy – If a lesion appears suspicious or does not resolve after removing potential irritants, a biopsy is performed to rule out dysplasia or malignancy [6,7].

Toluidine blue staining – This method helps highlight potentially malignant areas for targeted biopsy.

Exfoliative cytology and brush biopsy – Non-invasive techniques that collect cells for microscopic examination.

HPV and Other Molecular Tests – Used in selected cases to assess viral involvement [8].

Treatment and management

Management of oral leukoplakia depends on the lesion's severity, size, and histopathological findings. The primary approaches include:

Eliminating risk factors – Patients are advised to quit smoking, reduce alcohol consumption, and address mechanical irritants.

Medical therapy – While no specific medication cures leukoplakia, retinoids, beta-carotene, and vitamin A derivatives have been studied

*Corresponding author: Camila Rodrigues, Department of Pharmacology, Federal University of Minas Gerais, Brazil, Email: camila759@gmail.com

Received: 01-Jan-2025, Manuscript No: omha-25-161200, **Editor Assigned:** 03-Jan-2025, Pre QC No: omha-25-161200 (PQ), **Reviewed:** 17-Jan-2025, QC No: omha-25-161200, **Revised:** 22-Jan-2025, Manuscript No: omha-25-161200 (R), **Published:** 29-Jan-2025, DOI: 10.4172/2329-6879.1000559

Citation: Camila R (2025) Oral Leukoplakia: A Comprehensive Overview. Occup Med Health 13: 559.

Copyright: © 2025 Camila R. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

for their potential benefits [9].

Surgical removal – Excision using scalpel surgery, laser therapy, or cryotherapy is recommended for lesions showing dysplasia or high-risk features.

Regular monitoring – Even if a lesion is benign, periodic follow-ups are essential to detect any malignant transformation early [10].

Prognosis and malignant potential

The overall prognosis of oral leukoplakia depends on its nature and risk factors. While many cases remain benign, approximately 3–17.5% may progress to oral squamous cell carcinoma (OSCC). The risk is higher in:

Non-homogeneous leukoplakia.

Lesions on high-risk sites like the floor of the mouth and tongue.

Long-standing, untreated cases.

Patients with a history of heavy smoking and alcohol consumption.

Conclusion

Oral leukoplakia is a potentially serious condition that necessitates careful evaluation and management. While many cases remain benign, the risk of malignant transformation underscores the importance of early detection, lifestyle modifications, and regular monitoring. Public awareness and preventive strategies can significantly reduce the burden of this condition and its progression to oral cancer. Public health initiatives focused on educating individuals about the risks associated with tobacco use and the importance of oral health can contribute to a reduction in cases. By taking proactive measures and seeking professional advice when necessary, individuals can significantly lower their chances of developing serious complications related to

oral leukoplakia. Overall, a combination of lifestyle changes, regular medical supervision, and early intervention can effectively manage oral leukoplakia and reduce the risk of malignant transformation, ultimately improving oral health outcomes.

References

1. Einarsen S, Hoel H, Notelaers G (2009) Measuring exposure to bullying and harassment at work: validity, factor structure and psychometric properties of the negative acts questionnaire-revised. *Work Stress* 23:24-44.
2. Nielsen M, Hetland J, Matthiesen S, Einarsen S (2012) Longitudinal relationships between workplace bullying and psychological distress. *Scand J Work Environ Health* 38:38-46.
3. De Cuyper N, Baillien E, De Witte H (2009) Job insecurity, perceived employability and targets' and perpetrators' experiences of workplace bullying. *Work Stress* 23:206-224.
4. Reknes I, Einarsen S, Knardahl S, Lau B (2014) The prospective relationship between role stressors and new cases of self-reported workplace bullying. *Scand J Psychol* 55:45-52.
5. Greenberg J (2006) Losing sleep over organizational injustice: attenuating insomniac reactions to underpayment inequity with supervisory training in interactional justice. *J Appl Psychol* 91:58-69.
6. Karasek RA (1979) Job demands, job decision latitude, and mental strain - implications for job redesign. *Adm Sci Q* 24:285-308.
7. Nielsen M, Einarsen S (2012) Outcomes of exposure to workplace bullying: a meta-analytic review. *Work Stress* 26:1-24.
8. Tsutsumi A, Kawakami N (2004) A review of empirical studies on the model of effort-reward imbalance at work: reducing occupational stress by implementing a new theory. *Soc Sci Med* 59:2335-2359.
9. Colquitt JA (2001) On the dimensionality of organizational justice: a construct validation of a measure. *J. Appl Psychol* 86:386-400.
10. Salin D (2003) Ways of explaining workplace bullying: a review of enabling, motivating and precipitating structures and processes in the work environment. *Hum Relat* 56:1213-1232.