International Journal of Scientific Reports
Sarumathi T et al. Int J Sci Rep. 2022 Dec;8(12):396-399
http://www.sci-rep.com
pISSN 2454-2156 | eISSN 2454-2164
DOI: https://dx.doi.org/10.18203/issn.2454-2156.IntJSciRep20223037

Review Article

Oral verrucous leukoplakia progression to malignancy: a case report with review of literature

T. Sarumathi[1], S. Angelinteena[2]*, Aravindhswamy[3]

[1]Departmnet of Oral Medicine, Diagnosis and Radiology, Sree Balaji Dental College and Hospital, BIHER, Chennai, Tamil Nadu, India
[2]Department of Oral Medicine and Radiology, Tagore Dental College and Hospital, The Tamil Nadu Dr. MGR University, Tamil Nadu, India
[3]Department of Oral Medicine and Radiology, Karpaga Vinayaga Institute of Dental Science, The Tamil Nadu Dr. MGR University, Tamil Nadu, India

Received: 31 August 2022
Revised: 29 September 2022
Accepted: 15 October 2022

***Correspondence:**
Dr. S. Angelinteena,
E-mail: teena19121995@gmail.com

ABSTRACT

Oral leukoplakia is one of most prevalent oral potential malignant disorders caused due to smoking. Non homogenous forms of leukoplakia have the higher rates of malignant transformation. Clinical diagnosis of these lesions is essential to avoid the fatality. Hereby, we report a case of verrucous leukoplakia which was histo-pathologically diagnosed as verrucous leukoplakia with moderate dysplasia and managed with surgical excision.

Keywords: Oral leukoplakia, Verrucous, Malignant transformation

INTRODUCTION

Leukoplakia is one of the most common oral medicine, diagnosis and radiology (OPMDs). Leukoplakia is a potentially malignant lesion defined as a 'a white plaque of questionable risk having excluded (other) known diseases or disorders that carry no increased risk for cancer' by WHO 2015.[1]

Leukoplakia are of various types. They are as follows

Homogeneous leukoplakia

Mostly it is characterized by a uniform white lesion, which is either flat or thin in appearance that may exhibits shallow cracks typically 'cracked mud like appearance and also may has a smooth wrinkled or corrugated surface.

Non-homogeneous leukoplakia

Mostly white or red and white lesion that may be irregular, flat, nodular, or corrugated. There are variants of non-homogenous leukoplakia which are verrucous, nodular, speckled.

Variant of verrucous leukoplakia is a proliferative, or corrugated verrucous leukoplakia: It is defined as a distinct form of multifocal oral leukoplakia characterized by having a progressive clinical course, changing clinical and histopathologic features, and is associated with the highest proportion of oral cancer development compared with other OPMDs. Patients with a diagnosis of Non homogenous Leukoplakia may subsequently develop either conventional squamous cell carcinomas or verrucous carcinomas.[2] The purpose of this article is to

enlighten the clinical presentation of verrucous leukoplakia through a case report.

CASE REPORT

A 57-year-old male patient reported to the department of oral medicine and radiology with a chief complaint of pain and mobile tooth in the left lower back tooth region for past 1 month. Patient habit history reveals that he is a chronic smoker for past 35 years, he used to smoke both beedi and cigarettes.

Intraoral examination

On intraoral examination generalized black extrinsic stains present on the labial and lingual surfaces of the teeth. Presence of generalized attrition and periodontitis is noted. Buccal mucosa shows a grey opaque appearance while stretching it disappears suggestive as leukoedema (Figure 1).

Figure 1: Leukoedema-greyish opalescence disappears on stretching.

Figure 2: Smokers palate-greyish white blanched palatal mucosa with inflamed minor salivary gland ductal openings.

Description of the lesion

Palatal mucosa is greyish white in colour with inflamed minor salivary gland ductal openings and diagnosed as smokers' palate (Figure 2). On left palatal region a solitary white exophytic verrucous lesion, which is slightly raised with a granular texture measuring approximately 7×7 mm present in the junction of hard and soft palate, with irregular margins. On palpation it is soft in consistency, non-tender, non-scrapable and did not bleed on touch. Based on the history and clinical examination provisional diagnosis is given as verrucous leukoplakia (Figure 3 A and B).

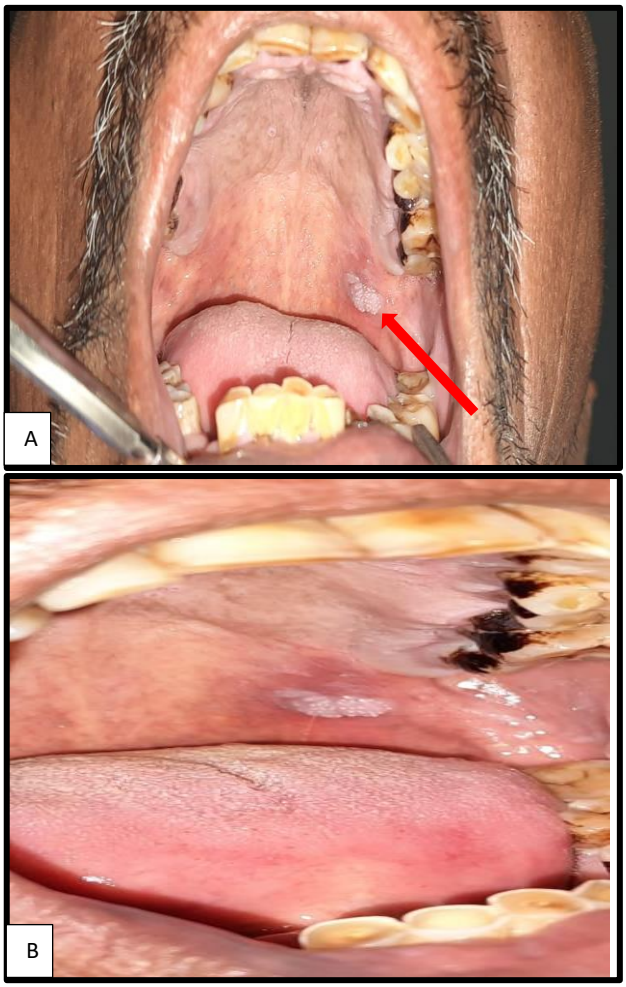

Figure 3 (A and B): Verrucous leukoplakia-white exophytic lesion present on the junction of hard and soft palate.

Differential diagnosis

The following entities were considered as other clinical differential diagnosis: verrucous hyperplasia, chronic hyperplastic candidiasis and papilloma.

Patient was subjected to excisional biopsy.

Histopathological features

Histopathological examination reveals a hyperparakeratotic dysplastic stratified squamous epithelium with underlying connective tissue stroma. The

epithelium shows dysplastic features such as basal cell hyperplasia a, cellular and nuclear pleomorphism, increased nuclear hyper-chromatiosm, increased nuclear cytoplasmic ratio and increased mitosis are seen. The connective tissue is moderately collagenized with mild chronic inflammatory infiltrate. Histologically the lesion was diagnosed as verrucous leukoplakia with moderate dysplasia (Figure 4).

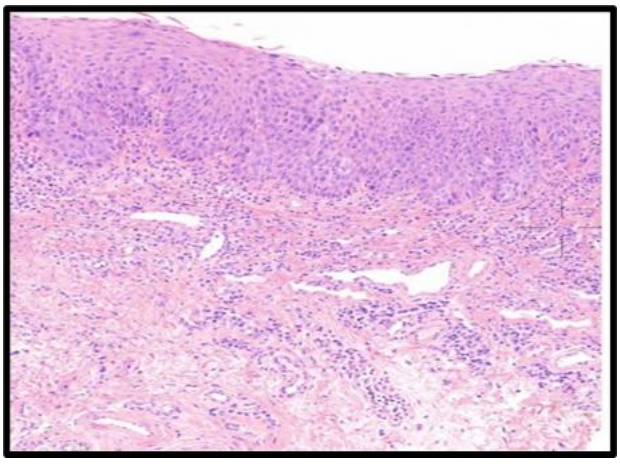

Figure 4: Hyper-parakeratotic epithelium with dysplastic features like increased nuclear cytoplasmic ratio, hyperchromatism.

Treatment and followup

The lesion was entirely removed and patient advised to discontinue smoking. Later the follow-up was not possible as patient did not report back.

DISCUSSION

Oral squamous cell carcinomas are the most common of head and neck neoplasm. According to the 2020 IARC GLOBOCAN database, lip and oral cavity cancers represents 377,713 new cases and 177,757 deaths in the year of 2020 in both genders.[3] They have a high morbidity and 5-year survival rate of <50%, which is strongly associated with late diagnosis. Global prevalence of oral leukoplakia has been estimated at 2.6-3%. The malignant transformation rate of OL is between 1 and 2%, according to the WHO, with values ranging from 0.1 to 36.4%. Warnakulasuriya et al in his systematic review states the malignant potential of OL is more in, leukoplakia exceeding 200 mm^2, non-homogeneous type and lesions with the higher grades of dysplasia.[4] Epithelial dysplasia is one of the most vital indicators of malignant transformation. Studies have been concluded that dysplastic oral leukoplakia have potent risk of malignant transformation than that of nondysplastic oral leukoplakia. Throughout the emerging technologies, it has been recommended that DNA content (DNA ploidy) is an essential indicator to assess the risk for malignant transformation of leukoplakia.[5] Certain Biomarkers can be used for assessing the risk of malignant transformation like DEC1. DEC1 expression was lower in hyperkeratosis without dysplasia (homogenous leukoplakia) than in oral leukoplakia with moderate to severe dysplasia.[6] Among various clinical patterns verrucous type have been proved of high-risk malignancy. Other biomarkers like B lymphoma Mo-MLV insertion region 1 homolog, ATP-Binding Cassette, G2 Subfamily are over expressed in leukoplakia E cadherin will under expressed in oral leukoplakia.[3,8] Verrucous leukoplakia is resistant to various treatments like surgical excision, laser excision, photodynamic therapy, chemotherapy. Their recurrence rate is high. Another marked risk factor for the malignant transformation is association with infection of HPV. There are large types of HPV and are classified as high risk and low risk categories. Those that infect mucosal epithelium have been categorized into high-risk types (e.g., HPV-16, 18, 31, 33, and 35) or into low-risk types (HPV-6, 11, 13, and 32).[9] High risk HPV are more predominantly present in the oral potentially malignant disorders mainly HPV 16 in the oral proliferative verrucous leukoplakia.[10] The pathogenesis behind this is the high-risk HPV genotypes has E6 and E7 oncoproteins which have the capacity to mediate carcinomatous transformation of infected keratinocytes by inactivating cellular p53 and Rb tumour suppressor pathways.[11] The clinical characteristics of oral verrucous leukoplakia are highly variable. and in this case, the possibility of being a high-risk lesion was not initially suspected. On biopsy it was diagnosed as a moderate dysplastic lesion.

CONCLUSION

Among oral leukoplakia verrucous leukoplakia is a rare entity but has high risk of malignant transformation and recurrence. Therefore, it is recommended to have the earliest possible diagnosis and total excision of this lesion. Intention of reporting this case was to report a case with typical clinical and histologic features verrucous leukoplakia so as to sensitize the oral physicians. Special care should be taken for the regular follow-up of these cases for a long time even after surgical management as they have higher recurrence rate and are also known to undergo malignant transformation.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Warnakulasuriya S, Johnson NW, Van der Waal I. Nomenclature and classification of potentially malignant disorders of the oral mucosa. J Oral Pathol Med. 2007;36:575-80.
2. Munde A, Karle R. Proliferative verrucous leukoplakia: An update. J Cancer Res Ther. 2016;12(2):469-73.
3. Statistics from the database of GLOBOCAN 2020. Available at: https://gco.iarc.fr/today/data/factsheets/

cancers/1-Lip-oral-cavity-fact-sheet.pdf4. Accessed on 12 Oct, 2022.
4. Warnakulasuriya S, Ariyawardana A. Malignant transformation of oral leukoplakia: a systematic review of observational studies. J Oral Pathol Med. 2016;45(3):155-66.
5. Bremmer JF, Brakenhoff RH, Broeckaert MA, Beliën JA, Leemans CR, Bloemena E et al. Prognostic value of DNA ploidy status in patients with oral leukoplakia. Oral Oncol. 2011;47:956-60.
6. Mao T, Xiong H, Hu X, Hu Y, Wang C, Yang L et al. DEC1: a potential biomarker of malignant transformation in oral leukoplakia. Braz Oral Res. 2020;34:e052.
7. Sarode GS, Sarode SC, Maniyar N, Sharma N, Yerwadekar S, Patil S. Recent trends in predictive biomarkers for determining malignant potential of oral potentially malignant disorders. Oncol Rev. 2019;13(2):424.
8. Von Zeidler SV, De Souza Botelho T, Mendonça EF, Batista AC. E-cadherin as a potential biomarker of malignant transformation in oral leukoplakia: a retrospective cohort study. BMC Cancer. 2014;14:972
9. Vidal L, Gillison ML. Human papillomavirus in HNSCC: recognition of a distinct disease type. Hematol/ Oncol Clin N Am. 2018;22(6):1125-42.
10. Ostwald C, Rutsatz K, Schweder J, Schmidt W, Gundlach K, Barten M. Human papillomavirus 6/11, 16 and 18 in oral carcinomas and benign oral lesions. Med Microbiol Immunol. 2003;192(3):145-8.
11. Feller L, Wood NH, Khammissa RAG, Lemmer J. Human papillomavirus-mediated carcinogenesis and HPV-associated oral and oropharyngeal squamous cell carcinoma-part 1: human papillomavirus-mediated carcinogenesis. Head Face Med. 2010;6:14.

Cite this article as: Sarumathi T, Angelinteena S, Aravindhswamy. Oral verrucous leukoplakia progression to malignancy-a case report with review of literature. Int J Sci Rep 2022;8(12):396-9.