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Preleukoplakia with Melanotic Pigmentation: A Rare Clinical Presentation– A Case Report

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Abstract: Oral leukoplakia is the most common oral potentially malignant disorder and presents predominantly as a white lesion of the oral mucosa. Although relatively uncommon, its prevalence is estimated to be less than 1% of the population. Both males and females are affected with similar frequency. The condition is rarely observed during the first two decades of life and occurs more frequently among tobacco users than non-users. Leukoplakia can develop at any site within the oral cavity and is often asymptomatic. Diagnosis is primarily based on careful clinical examination, including visual inspection and palpation, as no adjunctive diagnostic aids have proven sufficiently reliable for establishing a definitive clinical diagnosis. The evaluation of pigmented lesions affecting the oral cavity and perioral tissues remains a diagnostic challenge due to the wide range of possible aetiologies. While epidemiological factors and characteristic clinical features may assist in narrowing the differential diagnosis, histopathological examination is often required to establish a definitive diagnosis. Oral pigmentation may be physiological or pathological in origin and may result from endogenous or exogenous factors. Important diagnostic considerations include the lesion's colour, location, distribution, duration, associated systemic conditions, medication history, family history, and any recent changes in appearance. Darkly pigmented oral lesions may present as focal, multifocal, or diffuse macules and encompass a variety of entities, including physiologic racial pigmentation, melanotic macules, melanocytic nevi, blue nevi, smoker's melanosis, oral melanoacanthoma, foreign-body pigmentation, drug-induced pigmentation, Peutz–Jeghers syndrome, Addison's disease, and oral melanoma.

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Introduction

Pre-leukoplakia represents an early and mild mucosal alteration characterized by a gray or grayish-white area that is not completely white. Clinically, it exhibits a subtle lobular appearance with poorly defined margins that gradually merge with the surrounding normal mucosa.[1] Oral leukoplakia is the most common oral potentially malignant disorder and presents predominantly as a white lesion of the oral mucosa. Although relatively uncommon, its prevalence is estimated to be less than 1% of the population. Both males and females are affected with similar frequency. The condition is rarely observed during the first two decades of life and occurs more frequently among tobacco users than non-users. Leukoplakia can develop at any site within the oral cavity and is often asymptomatic. Diagnosis is primarily based on careful clinical examination, including visual inspection and palpation, as no adjunctive diagnostic aids have proven sufficiently reliable for establishing a definitive clinical diagnosis.[2] The evaluation of pigmented lesions affecting the oral cavity and perioral tissues remains a diagnostic challenge due to the wide range of possible aetiologies. While epidemiological factors and characteristic clinical features may assist in narrowing the differential diagnosis, histopathological examination is often required to establish a definitive diagnosis. Oral pigmentation may be physiological or pathological in origin and may result from endogenous or exogenous factors. Important diagnostic considerations include the lesion's colour, location, distribution, duration, associated systemic conditions, medication history, family history, and any recent changes in appearance. Darkly pigmented oral lesions may present as focal, multifocal, or diffuse macules and encompass a variety of entities, including physiologic racial pigmentation, melanotic macules, melanocytic nevi, blue nevi, smoker's melanosis, oral melanoacanthoma, foreign-body pigmentation, drug-induced pigmentation, Peutz–Jeghers syndrome, Addison's disease, and oral melanoma. A thorough understanding of these conditions is essential for accurate diagnosis and appropriate patient management.[3,5,11] The present case details the clinical presentation and histopathological characteristics of preleukoplakia exhibiting melanotic changes in a male patient with a long-standing history of tobacco smoking. Given the rarity of such a presentation, this report emphasizes the critical role of comprehensive clinical examination, careful evaluation of risk factors, and histopathological investigation in achieving an accurate diagnosis and facilitating appropriate management.[5,9]

Case Report

A 52– Year old male patient reported to the Department of Oral medicine & Radiology, St. Joseph Dental college & hospital Duggirala, Eluru with a chief complaint of broken teeth in right upper back teeth region since 1 Week. Patient gives h/o smoking Chutta since 30 years 6 Chuttas per day and Quitted the habit of smoking chutta 10 years ago. On Intra oral examination, on Inspection a Diffuse Black Greyish Discolouration seen involving Right Buccal Mucosa extending Anterposteriorly 1cm away from the corner of the mouth to 0.5cm in front of the retromolar pad area superioinferiorly 1cm below the level of occlusion .On palpation, all inspectory findings are confirmed. The Lesion is non-tender, soft in consistency, Rough in texture. Not disappearing while stretching the mucosa. No secondary changes are evident. Based on history and clinical findings this case is diagnosed as Pre-Leukoplakia with melanotic changes. Differential Diagnosis Given as Oral melanoacanthoma, Oral Melanoma, Drug-induced pigmentation, Peutz–Jeghers syndrome. As We Advised Blood Investigations. Final diagnosis given as Leukoplakia. Patient was advised to quit the habit of smoking (Chutta).There was no evidence of deep induration, which would raise suspicion for malignant transformation with reactive, not pathological, enlargement.Patientunderwent Excisional Biopsy Done at St .Joseph Dental College, Eluru.

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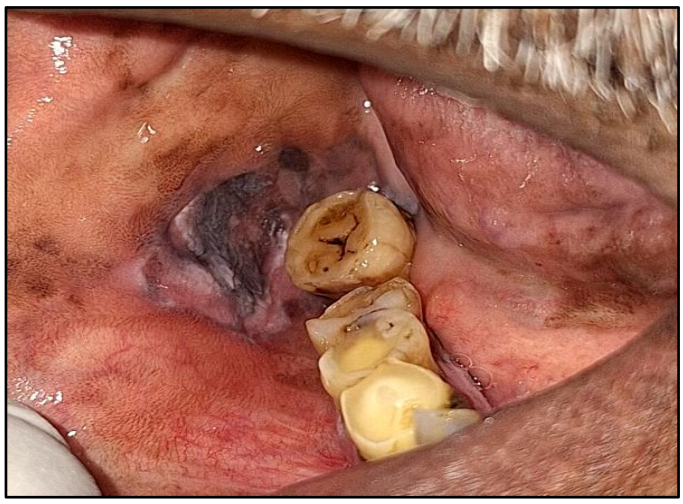
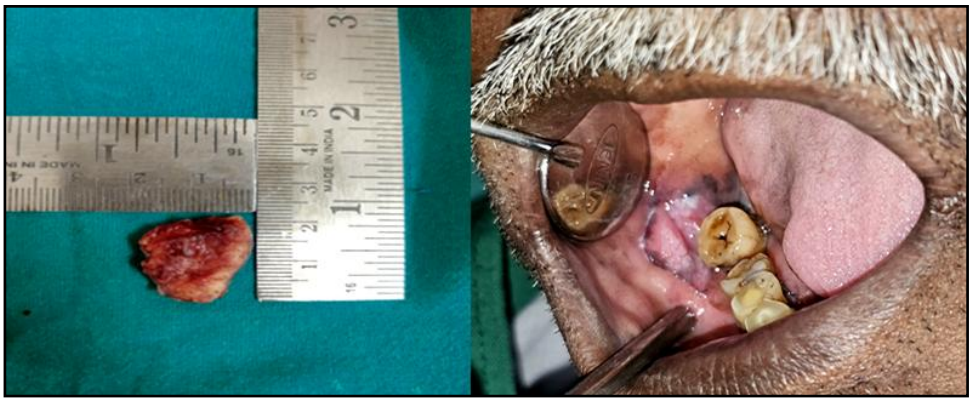


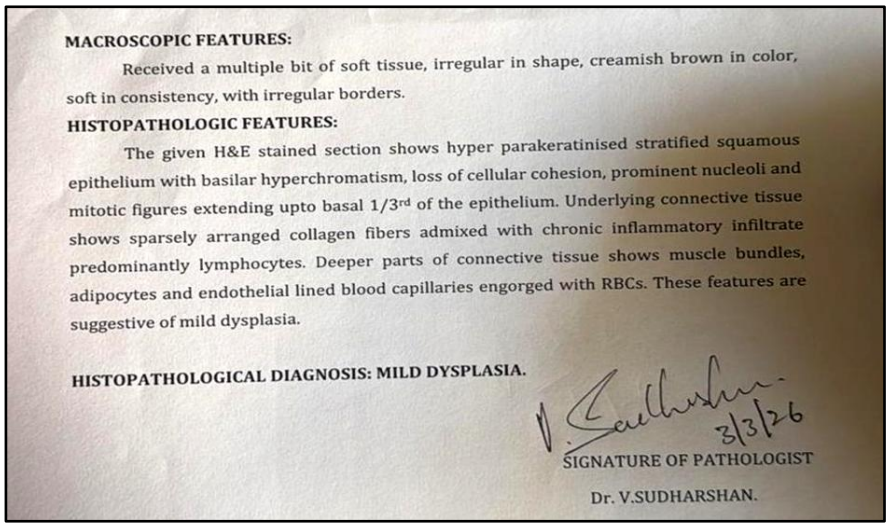
The Above Picture Shows pre Leukoplakia With Melanin Changes Involving Right Buccal Mucosa



Excisional Biopsy of the Specimen biopsy Site after Healing

Histopathology Report

The given H&E stained section shows hyper para-keratinised stratified squamous epithelium with basilar hyperchromatism, loss of cellular cohesion, prominent nucleoli and mitotic figures extending up to basal 1/3rd of the epithelium. Underlying connective tissue shows sparsely arranged collagen fibres admixed with chronic inflammatory infiltrate predominantly lymphocytes. Deeper parts of connective tissue shows muscle bundles, adipocytes and endothelial lined blood capillaries engorged with RBCs. These features are suggestive of mild dysplasia.



MACROSCOPIC FEATURES:

Received a multiple bit of soft tissue, irregular in shape, creamish brown in color, soft in consistency, with irregular borders.

HISTOPATHOLOGIC FEATURES:

The given H&E stained section shows hyper parakeratinised stratified squamous epithelium with basilar hyperchromatism, loss of cellular cohesion, prominent nucleoli and mitotic figures extending upto basal 1/3rd of the epithelium. Underlying connective tissue shows sparsely arranged collagen fibers admixed with chronic inflammatory infiltrate predominantly lymphocytes. Deeper parts of connective tissue shows muscle bundles, adipocytes and endothelial lined blood capillaries engorged with RBCs. These features are suggestive of mild dysplasia.

HISTOPATHOLOGICAL DIAGNOSIS: MILD DYSPLASIA.

3/3/26

SIGNATURE OF PATHOLOGIST

Dr. V.SUDHARSHAN.

Histopathology Report

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Discussion

Diagnosis of pigmented lesions of the oral cavity can be challenging due to their diverse clinical presentations and aetiologies. While many lesions can be diagnosed based on clinical examination, histopathological evaluation is often necessary to establish a definitive diagnosis, particularly when malignancy is suspected.[3,9,6] Biopsy is recommended for lesions exhibiting suspicious features such as asymmetry, irregular borders, colour variation, large size, or palatal location. In selected cases, immunohistochemical markers such as HMB-45 and CD68 may aid in distinguishing melanocytic lesions from other pigmented conditions.[1,2,10] Common solitary melanocytic lesions of the oral cavity include melanotic macules, melanoacanthoma, melanocytic nevi, atypical melanocytic proliferations, and melanoma. Among these, melanotic macules are the most frequently encountered lesions, predominantly affecting the lips and gingiva.[1,4] Oral pigmentation may also be associated with systemic disorders such as Laugier–Hunziker syndrome, Carney complex, and HIV infection. Additionally, chronic inflammatory conditions including oral lichen planus, pemphigus, pemphigoid, and chronic periodontal disease may result in increased melanin deposition and mucosal pigmentation.[6,12,1,] A thorough clinical assessment, including evaluation of lesion size, colour, distribution, and patient history, is essential for formulating an appropriate differential diagnosis. Early recognition and timely biopsy of suspicious lesions are critical for excluding malignancy and ensuring optimal patient management.[8,9,10,12]

Conclusion

Pre-leukoplakia represents an early clinical stage of oral potentially malignant disorders and may occasionally present with unusual features such as melanotic pigmentation, posing a diagnostic challenge to clinicians. The present case highlights a rare presentation of pre-leukoplakia with melanotic changes in a 52-year-old male with a long-standing history of chutta smoking. The coexistence of diffuse black-grey pigmentation with subtle leukoplakic alterations necessitated careful clinical evaluation and consideration of several differential diagnoses, including oral melanoacanthoma, oral melanoma, drug-induced pigmentation, and syndromic causes of oral pigmentation. A comprehensive diagnostic approach involving detailed habit history, thorough clinical examination, appropriate laboratory investigations, and histopathological assessment was essential in establishing the final diagnosis of mild epithelial dysplasia. The absence of clinical features suggestive of malignant transformation, such as deep induration, ulceration, fixation, or cervical lymphadenopathy, supported the diagnosis of an early-stage lesion. Nevertheless, the presence of epithelial dysplasia emphasizes the biological significance of such lesions and their potential for progression if left untreated. Histopathological confirmation through biopsy played a pivotal role in excluding more serious pigmented lesions, particularly oral melanoma, and in guiding appropriate patient management. This case underscores the importance of maintaining a high index of suspicion when evaluating pigmented oral lesions, especially in individuals with a history of tobacco exposure. Early recognition, prompt biopsy, elimination of risk factors, and regular long-term follow-up are crucial for preventing disease progression and ensuring favorable outcomes. Furthermore, this report expands the clinical spectrum of pre-leukoplakia and highlights the need for clinicians to consider atypical pigmented presentations among oral potentially malignant disorders to facilitate timely diagnosis and intervention.

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