

Mild epithelial dysplasia: A case report and review

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ABSTRACT

Background: Leukoplakia is an abnormal patch of white tissue that forms on mucous membranes in the mouth and other areas of the body. It may transform to dysplasia or cancer. Epithelial dysplasia is a growth anomaly due to abnormal growth of the epithelium. **Case report:** A 35-year-old Pakistani male was referred by his dentist to the Oral Surgery clinic due to the presence of diffused white patches in the oral mucosa. Medical history is non-significant and for the social history, the patient has used betel nuts. Intraoral examination revealed diffuse white patches in the lower right and left alveolar and buccal mucosa. Incisional biopsy was taken for the mixed white and red lesion which showed a cellular atypia in the basal and parabasal cell layers. The diagnose was mild epithelium dysplasia. **Conclusion:** Dentists and general practitioners are important in detecting leukoplakia early because It's easy to eliminate a potential cause of the condition.

Keywords: Leukoplakia, Epithelial dysplasia, Malignancy, Oral cancer

1. INTRODUCTION

Leukoplakia is defined by the World Health Organization (WHO) as a predominantly white, irreversible, non-scrapable lesion of the oral mucosa that cannot be characterized clinically or histopathologically as any other lesion or disease (Pindborg et al., 1997). The term refers to a clinical description, not to a histopathologic tissue change (Neville et al., 2015). Leukoplakia is considered a precancerous or premalignant lesion because it has a greater chance of developing cancer than normal or unchanged mucosa; 85% of oral precancer lesions are leukoplakia, making it by far the most prevalent condition. Additionally, leukoplakia is present near more than one-third of oral carcinomas. According to estimates, the prevalence of leukoplakia varies between 1.5% and 4.3% globally (Neville et al., 2015). Most of those with leukoplakia are above 40, with a strong preference (70%) for men (Neville et al., 2015). The prevalence increases as they get older (Vázquez-Delgado and Moral, 2022).

Oral leukoplakia (OL) has a multifactorial etiology, with several idiopathic origins (Narayan and Shilpashree, 2016). Leukoplakia and tobacco

use are tightly related (Shah et al., 2018). Along with snuff and other smokeless tobacco products, there are significant risks associated with using areca (betel) nut in various regions around the world, specifically in the south and southeast Asia (Bose et al., 2012). Clinical characteristics of OL might vary and tend to evolve (Neville et al., 2015). The appearance of mild leukoplakia is flat or slightly raised grayish-white plaque that may also be translucent, fissured, or wrinkled (Neville et al., 2015). Leukoplakia may develop into dysplasia or malignancy without changing clinically (Neville et al., 2015). The area's most likely to be dysplastic or cancerous should be biopsied (Neville et al., 2015). For assessing OL, a biopsy is a gold standard. Only 5% to 25% of OL have epithelial dysplasia or cancer (Neville et al., 2015).

Epithelial dysplasia is a growth anomaly due to abnormal growth of the epithelium, resulting in a lesion having disrupted differentiation and maturation (Tilakaratne et al., 2019). Oral squamous cell carcinoma (OSCC) is more prevalent in oral epithelial dysplasia (OED) than in healthy epithelial tissue. OED, now referred to as a premalignant lesion, is a word used in histology to describe an oral epithelial premalignancy. However, not all epithelial dysplasia progress into oral squamous cell carcinoma (Nevanpää et al., 2022). Grading and diagnosis of oral epithelial dysplasia depend on how much the epithelium is impacted by cytological abnormalities and architectural alterations, both of which are considered diagnostic criteria for dysplasia (Tilakaratne et al., 2019). WHO divides oral epithelial dysplasia into four types mild, moderate, severe and carcinoma in situ. Mild epithelial dysplasia refers to changes restricted to the basal and parabasal layers. In contrast, moderate dysplasia shows that the basal layer and the center of the spinous layer are affected. However, severe dysplasia shows Changes in the basal layer up to the middle of the epithelial thickness and carcinoma in situ is described as dysplasia affecting the entire epithelium thickness (Neville et al., 2015).

According to them systematic review and meta-analysis, the mild OED Malignant transformation occurs at a rate of 1.7% every year and 3.57% for severe OED (Iocca et al., 2020). Furthermore, according to several research, patients with greater OED grade have been found to have increased rates of malignant transformation (Mehanna et al., 2009; Silverman et al., 1984). OED can be treated either conservatively or surgically. For diffused lesions with mild dysplasia and in patients with comprised medical status, conservative therapy, such as close observation and elimination of contributing factors are recommended (Tilakaratne et al., 2019). Although leukoplakia without dysplasia is frequently left untreated, clinical assessment every six months is advised due to the potential for disease development (Neville et al., 2015). In addition, if smoking persists or if the severity of the clinical symptoms worsens, then a biopsy is recommended (Neville et al., 2015). Treatment options for lesions with moderate and severe dysplasia in people who are healthy enough for surgery include either laser surgery or surgical excision (Vázquez-Delgado and Moral, 2022). The reported overall recurrence rate, even after excision, range from 10% to 35% and the appearance of new leukoplakia is common (Neville et al., 2015). The chance of developing cancer may be slightly reduced following surgical removal of leukoplakia; however, this is not certain. Therefore, long-term follow-up is essential even after removal (Neville et al., 2015).

2. CASE REPORT

A 35-year-old Pakistani male patient was referred to the Oral and Maxillofacial Surgery division at Taibah University's Dental College and Hospital by his dentist due to the presence of diffused white patches in the oral mucosa. Medical history is non-significant and for the social history, the patient has used betel nuts for ten years. OPG shows a generalized bone loss (Figure 1). Intraoral examination revealed diffuse white patches in the lower right and left alveolar mucosae and right and left buccal mucosae. It blends gradually into normal mucosa (Figure 2). Gingival inflammation, recession and attrition were observed (Figure 3).

The patient was draped and prepped for an incisional biopsy for the mixed white and red lesion in the left mucosa. To confirm the diagnosis, a biopsy was sent for histological examination. Microscopic examination of the specimen shows a mass surfaced by Para-keratinized stratified squamous epithelium, there is a small area of ulceration and some areas exhibit spongiosis (Figure 4). The underlying submucosa shows multiple areas of hemorrhage. There is chronic inflammatory cell infiltration near the epithelium. There is cellular atypia (pleomorphism, crowding and nuclear hyperchromatism) in the basal and parabasal cell layers (Figure 5).



Figure 1 OPG shows a generalized bone loss.



Figure 2 Intraoral photographs show diffuse white patches in the lower right and left alveolar mucosae.



Figure 3 Intraoral photographs show gingival inflammation, recession and attrition.

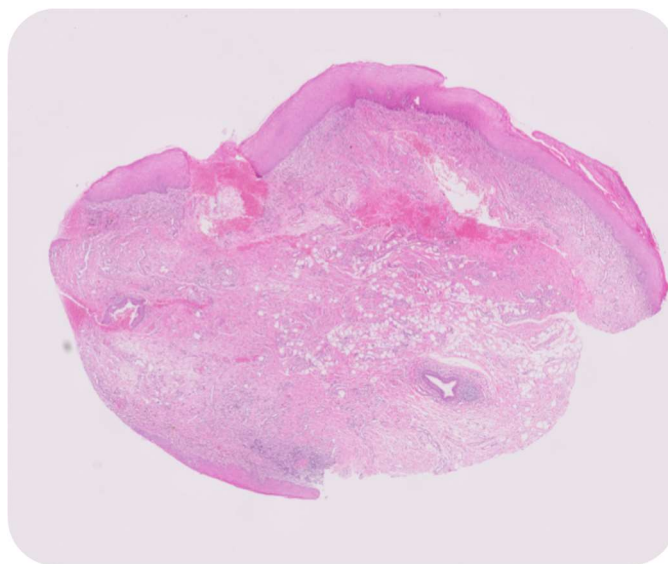


Figure 4 Micrograph shows a mass surfaced by Para-keratinized stratified squamous epithelium.

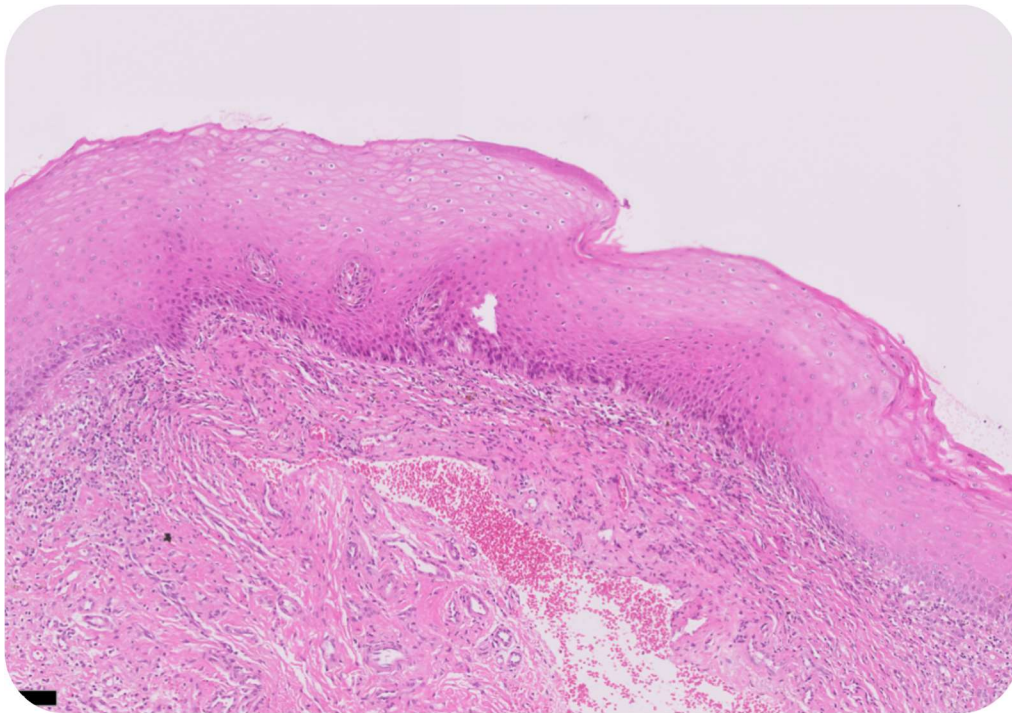


Figure 5 Micrograph (200x) shows cellular atypia (pleomorphism, crowding and nuclear hyperchromatism) in the basal and parabasal cell layers, multiple areas of hemorrhage and chronic inflammatory cell.

3. DISCUSSION

Around 600 million people chew betel nut (Pankaj, 2010), Therefore, it ranks as one of the most important commercial crops grown in Southeast Asia (Khan et al., 2013). It has been reported that using betel nuts frequently or excessively significantly affects health (Sharan et al., 2012). In this case, the patient has used betel nuts for ten years. There is enough evidence to indicate that betel nut products, including those that do not contain tobacco, are linked to a higher risk of oral cancer (Sharan et al., 2012). Most people who use betel nut exhibit precancerous clinical symptoms, such as oral leukoplakia and oral submucous fibrosis (Sharan et al., 2012). Chewing betel nuts, whether it contains tobacco or not, usually causes clinically noticeable whitish patches to appear as an early sign of oral mucosal damage known as leukoplakia (Sharan et al., 2012).

The term "leukoplakia" referred to a clinical diagnosis determined by ruling out other white lesions, such as candidiasis, oral lichen planus, leukoedema, white sponge nevus, etc. (Warnakulasuriya et al., 2007). Detecting and preventing malignant transformation is the primary goal of treatment for OL (Parlatescu et al., 2014). In the beginning, it is advised to stop the risk factors like smoking. Moreover, a histological examination is required (Parlatescu et al., 2014).

Several microscopic characteristics, such as changes in the tissue's architecture and cytologic abnormalities—most prominently nuclear pleomorphism and hyperchromatism, as well as loss of nuclear polarity—are used to diagnose dysplasia (Ranganathan and Kavitha, 2019). For instance, as shown in (Figure 5) the basal and parabasal cell layers displayed cellular pleomorphism, crowding, and nuclear hyperchromatism, which are also indicative of moderate dysplasia. The type of treatment will be determined by the degree of dysplasia (Parlatescu et al., 2014). The decision to remove OL with minimal malignant risk (no dysplasia or mild dysplasia) should consider its site, thickness, also the patient's cooperation in quitting smoking in the case of smokers (Napier and Speight, 2008). Another strategy is to maintain histological and clinical surveillance and adopt a "wait and see" attitude of OL by repeated checkups and without further treatment (Parlatescu et al., 2014). Through monitoring an early malignant change can be seen and therapy can be administered (Lodi and Porter, 2008).

4. CONCLUSION

Dentists and general practitioners are important in detecting leukoplakia early. because it is easy to eliminate a potential cause of the condition and the likelihood that it may progress to malignancy. There is currently no effective cure for leukoplakia. Therefore, leukoplakia should generally be eradicated, if feasible, and patients should be monitored regularly for any mucosal change. Patients should also be instructed to avoid the major risk factors for OED, such as the use of alcohol and tobacco.

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Authors' Contributions

All authors contributed to the research and/or preparation of the manuscript. IA: Study design, data collection, writing–original draft preparation, writing–review and editing. HZ: Study design, data collection, statistical analysis, writing review and editing. HB, BA, AO, SA, RA, LM, AA and RA contributed to the study design, data collection, data review and editing. All authors read and approved the final version of this manuscript.

Ethical approval

The study was approved by Taibah University, College of Dentistry Research Ethics Committee (Ethical approval code: TUCDREC/071122/HZaki).

Informed consent

Written & Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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