



## Oral Leukoplakia – Homogenous and Non-Homogenous Existing in Same Patient

Authors

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### Abstract

White lesions on the oral mucosa are chronic reaction to local irritation and are able to transform into malignancy. One of the common lesion that is associated with tobacco is oral leukoplakia, the features of which are not attributed to any lesion. Clinical appearance has been described as either homogenous or non-homogenous type. Rarely they are found in same individual. This case presentation is of a middle aged patient who wanted to restore a mandibular molar with a crown after having undergone endodontic treatment. The patient presented with a homogenous and a non-homogenous oral leukoplakia, one of which had undergone dysplasia. The mandibular first molar was grossly decayed, and was restored with a cast post two unit sliding system, fabricated through an indirect technique. The non-homogenous oral leukoplakia was treated through surgical excision while the homogenous type was left as such, with patient educated and motivated to stop tobacco chewing. The mandibular molar was covered with a metal ceramic crown.

**Keywords:** *dowel, premalignant conditions, lichen planus, carcinoma, tumour.*

### Introduction

Tobacco is a product of plant leaves (genus *nicotiana*) which contain an addictive drug nicotine. When used in controlled amount it can act as a stimulant and a sedative.<sup>1</sup> It is one of the largest industries of the world, which was introduced to Europe in 16<sup>th</sup> century by Spanish explorers.<sup>2</sup> It can be generally divide into two categories smoked and smokeless. Smokeless tobacco (SLT) has received major attention since evidence suggested that oral cancer is closely associated with SLT.<sup>3</sup> As stated by Robinson, it is mandatory that all dentists irrespective of their speciality must be familiar with oral cancer so that it can be recognized as early as possible.<sup>4</sup> Oral cancers of any sort especially

malignant have poor prognosis and cause extreme debilitation irrespective of surgery is done or not. The cancer can decompose oral tissue and organs to such extent that will look unaesthetic on human face. No other cancer in the body other than oral cancer is thought to have strong social and psychological implications on the patient.<sup>5</sup> Even early diagnosis requires excavation of normal tissues which may leave a large scar on the face,<sup>6</sup> thus posing psychological challenges in the patient. Among diverse oral cancers, leukoplakia is a common premalignant lesion of oral mucosa which presents itself as a white lesion that cannot be clinico pathologically categorized as any other definable lesion.<sup>7</sup> The incidence of leukoplakia

varies among different countries. In India which has higher number of people chewing tobacco, reported prevalence is from 0.2 % to 5 %.<sup>8</sup> For a prosthodontist, oral rehabilitation of a patient who has had oral cancer or who has had a radical surgery, becomes difficult especially when mandible is involved. Despite advances in surgical techniques and procedures, more than 50% of reconstructed head and cancer patients have been found to still suffer impaired masticatory function.<sup>9</sup> Leukoplakia is seen frequently in middle ages, affecting more men than women.<sup>10</sup> Clinically it may present as a solitary or multiple lesion, appear on any site (common being buccal mucosa), surface be homogenous or non-homogenous or even both.<sup>11,12</sup> A proliferative type of Leukoplakia indicates aggressive behaviour which invariably develops into malignancy.<sup>13</sup> This article presents a case of a middle aged male patient who was a tobacco chewer. This case contains both homogenous and non-homogenous leukoplakia on either side of buccal mucosa making this case report as unique.

### Case Report

A male patient aged 52 years reported to the department of prosthetic dentistry with a will to restore an endodontically treated mandibular right first molar. Patient had undergone endodontic treatment in relation to the tooth about 1 year back and was advised to restore it with a crown, which was ignored by him. The patient was also diagnosed to have a bilateral white lesion on the buccal mucosa which was clinically representative of leukoplakia. Histopathological results were awaited when diagnosis of prosthodontic problem was undertaken. Patient did not have any medical problem but his social and personal history revealed that he was addicted to tobacco chewing and beedi smoking since last 25 years. Patient was also used to consume alcohol frequently (minimum twice per week). The patient had developed burning while consuming hot and spicy food on the left side of the oral cavity.



Figure 1: (a) Homogenous oral leukoplakia on right buccal mucosa (b) Non-homogenous oral leukoplakia on left buccal mucosa (c) Histopathology showing dysplastic features in oral mucosa

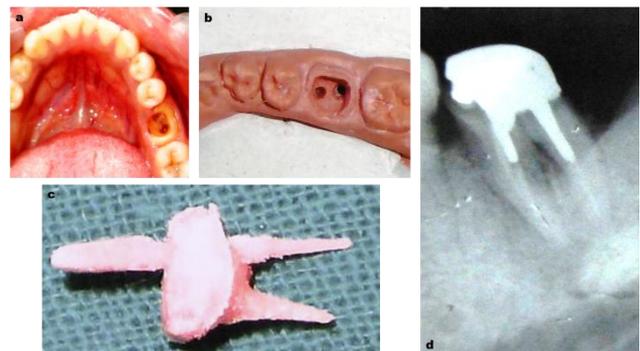


Figure 2: (a) Removal of caries (b) Working cast (c) Pattern resin for cast post core - two unit (d) Radiographic verification of margins

Extra oral examination revealed clinically normal findings except a developing angular cheilitis on the right angle of mouth (Fig 1A). Intraoral examination presented two clinical pictures of oral leukoplakia, a homogenous type on the patients right buccal mucosa extending along the occlusal plane from angle of mouth to the last molar (Fig 1A) and a non-homogenous type on the patients left buccal mucosa with similar extension (Fig 1B). The lesion on the left side had more of white surface that was diffusely dispersed with pink mucosa. The diagnosis of the lesion was confirmed by histopathological features (Fig 1C). Some of the prominent histopathological features on the left lesion were non-polar basal cells, increased nuclear cytoplasm ratio, irregular stratification and nuclear hyperchromatism. Infection control guidelines and managing prosthodontic patients during the COVID 19 pandemic guidelines were strictly adhered during the course of all clinical and laboratory procedures.<sup>14</sup> Prosthodontic treatment was initiated by evaluation of the tooth in question after removal of caries (Fig 2A). Since no coronal tooth structure

was left, the only way the tooth could be restored was using a cast post core (Wiron 99; Bego, Bremen, Germany). The endodontic treatment was considered to be satisfactory and removal of gutta percha was achieved using gates glidden drills (Nordin, stainless steel, Switzerland) followed by post space preparation using peso reamers (Nordin, stainless steel, Switzerland). Indirect technique of cast post core was done by making an impression (Affinis; Coltene AG, Altstätten; Switzerland) and pouring a cast with die stone (Ultrarock, Kalabhai Dental, India) (Fig 2B). In the laboratory, pattern resin (LS; GC America) was used to form a two unit cast post core as described in the literature.<sup>15</sup> After evaluating the fit of two components of the sliding cast post core (Fig 2C), the pattern was individually cast into base metal alloy. Before cementation (Poly F Plus; Dentsply DeTrey GmbH, Konstanz, Germany) of the cast post core, the final fit was verified with an intra oral periapical radiograph (Fig 2D). A porcelain (VMK-95 Metall Keramik; Vita Zahnfabrik, Bad Säckingen, Germany) fused to metal crown was then fabricated over the cast post core and the patient was referred back to oral medicine for continued treatment for oral leukoplakia.

### Discussion

A completely dentulous patient seeking restoration of right mandibular molar with a bilateral oral leukoplakia has been presented in this case report. The main feature of the article being presence of two dissimilar form of leukoplakia white lesions in the same person. The occurrence of such lesions is more in middle aged and geriatric age group which comprises a vast majority of patients seeking prosthodontic care, therefore a prosthodontist needs to be well aware of the risks associated with such cases. Oral leukoplakia has been attributed to both local and systemic factors as potential etiology. In some patients however, it appears to be basically a mucosal response to local irritation which may be mechanical (frictional through denture flange) or chemical (tobacco).<sup>16</sup> Nutritional and hormonal factors are contributory to its development.

Malignant transformation of the lesion occurs mostly when candida infection is the cause or if the local lesion becomes excessively proliferative.<sup>1,17</sup> It has been seen that oropharyngeal cancers are sixth most common cancers in the world,<sup>18</sup> due to widespread alcohol and tobacco abuse. Before proceeding with any oral treatment one should diagnose the condition since there are some white lesions that may be innocuous while some may have high potential to become malignant. Lichen planus, oral lichenoid lesions (silver amalgam associated), lupus erythematosus, leukoedema and smoker's palate are some of the white lesions that may resemble mild form of oral leukoplakia.<sup>19,20,21</sup> To rule out oral lichen planus, one must look out for skin lesions accompanying oral lesions.<sup>22</sup> Buccal mucosa ridging was also present in this case on the right side, which presents clinically as linea alba is not a pathological condition and is differentiated by absence of pain, erosions or ulcers.<sup>23</sup> To rule out malignancy one should always go for histopathological investigation to see any dysplastic features which are highly indicative of malignancy. Treatment carried out by the oral medicine and diagnosis department which included eliminating local irritant which in this case was tobacco (through patient education). Since histopathology revealed dysplastic features on the left side, the lesion was recommended for surgical excision. Any leukoplakia can transform into carcinoma even the one on the right side which did not show any signs of dysplasia. Regular check-up was advised to the patient as part of preventing recurrence.

### Conclusion

Oral leukoplakia has high potential for malignant transformation despite the lesion not showing dysplasia. All dentists should closely observe oral epithelium during routine clinical examination of the patient. Preventing oral cancer is everyone's responsibility and obligation towards his patients

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