

BILATERAL SMOKERS MELANOSIS – RARE SITE OF OCCURRENCE IN AN EDENTULOUS PATIENT – A CASE REPORT

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Abstract:

Tobacco smoking besides being a cause of lung and oral cancer is also associated with certain benign lesions of the oral mucosa that needs to be differentiated to rule out oral cancer. Smoker's melanosis is one such benign lesion that is usually associated with hyperpigmentation of attached gingiva and labial mucosa. However, in completely edentulous patients the pattern of smoking differs from those in dentulous patients. This article presents a rare occurrence of such lesion on the soft palate and adjacent buccal mucosa. Difference in smoking pattern is also discussed.

Keywords: tobacco, melanocyte, melanin, cigarette filter, keratinization.

Introduction

In the sixteenth century, Europe was introduced to a product what we know as tobacco by the Portuguese and Spanish explorers.¹ Since then tobacco related products have become one of the leading businesses in the world and also one of the major health concerns. Tobacco consumption not only affects biologically but it is known to have psychological impact. The smoking of tobacco or its products that contain nicotine is considered an addiction that has associated withdrawal symptoms. Besides harmful effects on the lung tissue and the capillary vessel walls it is known to mutate oral epithelium and cause oral cancer. Less harmful effects on oral mucosa include pigmentation and hyperkeratinization.

Within the oral epithelial cells, smoking of tobacco increases melanin production by melanocytes, which get deposited in the basal cell layer and lamina propria of the oral mucosa. Microscopically the picture is essentially similar to that seen in physiologic pigmentation or a melanotic macule.² The term, smoker's melanosis first coined by Hedin in 1977,³ is hypothesized to be due to physical effect of tobacco smoke due to heat and/or stimulation of melanocytes to produce more melanosome, thus resulting in increased deposition of melanin.^{4,5}

Prevalence of smokers melanosis among cigarette smokers has been estimated in two different studies [21% and 90%]^{6,7} and strong association between melanin pigmentation of the gingiva and smoking have been established.⁸⁻¹⁰ Although smokers melanosis has been reported in various parts

of oral cavity in dentulous patients, rarely it has been reported on the hard and soft palate due to edentulism and altered smoking pattern. This article reports one such rare case of smoker's melanosis.

Clinical Case Report

A geriatric completely edentulous patient, aged 72 years reported to the department of Prosthodontics with chief complaint of inability to eat due to absence of teeth. Medical history was non-contributory. Dental history included loss of natural teeth due to mobility and decay about 8 years back with history of denture wearing in the past. During his edentulousness the patient had been wearing a denture for five years. Denture was lost by the patient about one week back. Social history disclosed patient was living with his children and was still working in his land. Habits included a history of smoking, about 15 to 20 non filtered cigarettes since the age of thirty two with no history of cessation except whenever he was taken ill. The patient would also consume cigarette in the form of a bidi (a local form of smoke) at times for a change. Extra oral examination did not reveal any significant signs of marked pigmentation. Intra oral examination showed evidence of bone resorption in the midline of the palate due to the suction cup that the previous denture had in it (**Fig.1**). Diffuse pigmentation of the pharyngeal wall along with the lateral buccal mucosa was seen in concentrated pockets (**Fig.2**). The lesion on the buccal mucosa was overlaid with white and transparent lesion mimicking leukedema and leukoplakia (**Fig.3 a**). The color of the pigment clinically appeared like brownish black with purple tinge on the pharyngeal wall that measured about 2 by 2 cm on either side with no ulceration. Lymph nodes were non-palpable. An incisional biopsy of the buccal mucosa was done that confirmed the diagnosis of smoker's melanosis. Histologically the sections showed para to

ortho keratotic stratified squamous epithelium with prominent granular layer (**Fig. 3b**). Other features included increased melanin pigmentation, prominent stratum granulosum, bulbous rete ridges, dense and collagenous connective tissue with mild chronic inflammatory infiltrate.

Discussion

Tobacco smoking is the practice of burning tobacco and inhaling its smoke (consisting of particle and gaseous phases). Smokers melanosis is a benign pigmentation of the oral mucosa,¹¹ predominant on the attached mandibular gingiva and rarely found on pharyngeal wall. The macular lesions present in this case are associated to the mucosa of the posterior palate and/or anterior pharyngeal wall along with dense distribution on the buccal mucosa.

Appearance of a lesion at such occurrence can be hypothesized to change in smoking pattern between dentulous and edentulous subjects. In the dentulous subjects, the cigarette is smoked with teeth mostly closed while the smoke is being sucked with the suction force applied mainly by the musculature of the lips. On the other hand, edentulous subjects do not have natural teeth and force of suction is mainly applied by the tongue and buccal musculature with more emphasis of force from pharynx. Even when the dentures are worn, the suction is primarily done by buccal musculature because force from lip musculature makes the denture lose its retention. This alteration in smoking pattern, allows one to take smoke into the oral cavity beyond the position of anterior teeth and the smoke strikes the walls of the pharynx. This explains the lesion on the posterior palatal area rather than anywhere else in the oral cavity.

The brownish discoloration associated with other types of smoking like a pipe, is found on buccal mucosa whereas those who do

reverse smoking the lesions are present on the hard palate.¹²⁻¹⁴ Nicotine a constituent of the tobacco is a polycyclic compound stimulates melanocytes to produce more melanosome which results in pigment deposition as basilar melanosis with varied amount of melanin. Nicotine when used without a filter has higher alkalinity (pH 8.5) is present in ionized form that is readily absorbed through the mucous. Nicotine binds to acetylcholine receptors, thus preventing uptake of acetylcholine thereby increasing the neurotransmitter in the body. These receptors increase heart rate, alertness and fasten reaction times. Nicotine acetylcholine stimulation is indirectly addictive due to its effect on dopamine release.¹⁵

The significance of these lesions is in the differential diagnosis of conditions like racial melanosis, Peutz Jeghers syndrome, Addison's disease and early melanoma. Gradual return to normal pigmentation has been reported after several months of smoking cessation.

Conclusion

Every oral physician who has the responsibility of diagnosing lesions of the mucosa should keep in mind the possibility of lesions associated with smoking on the posterior palate or the anterior pharynx also. A detailed history and absence of natural teeth should be taken into consideration for the possible cause and its related effect.

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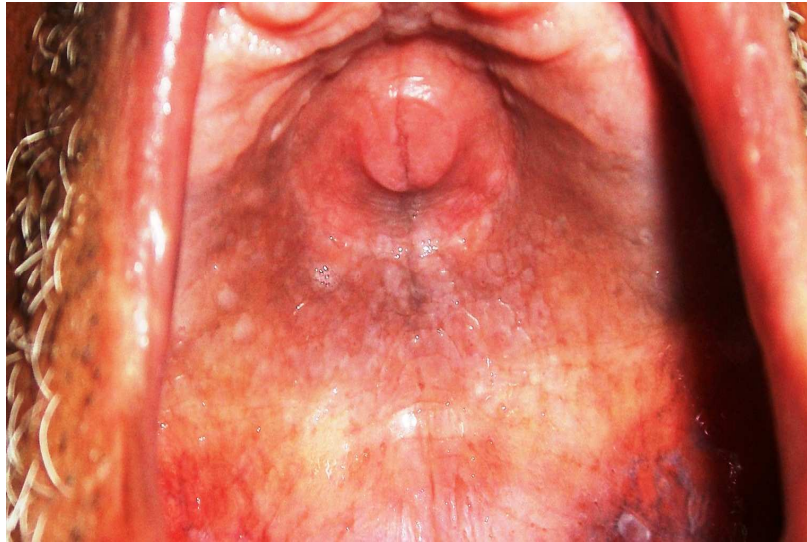


Fig 1.

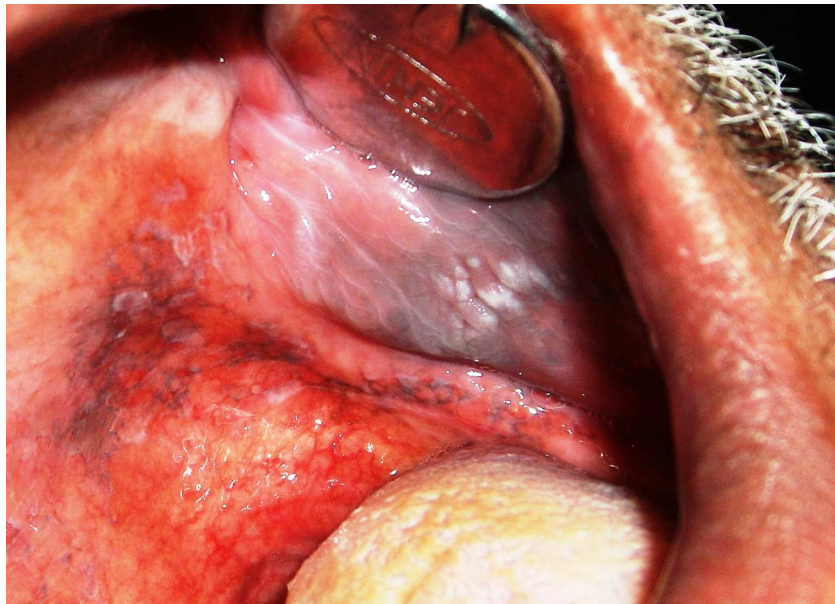


Fig 2

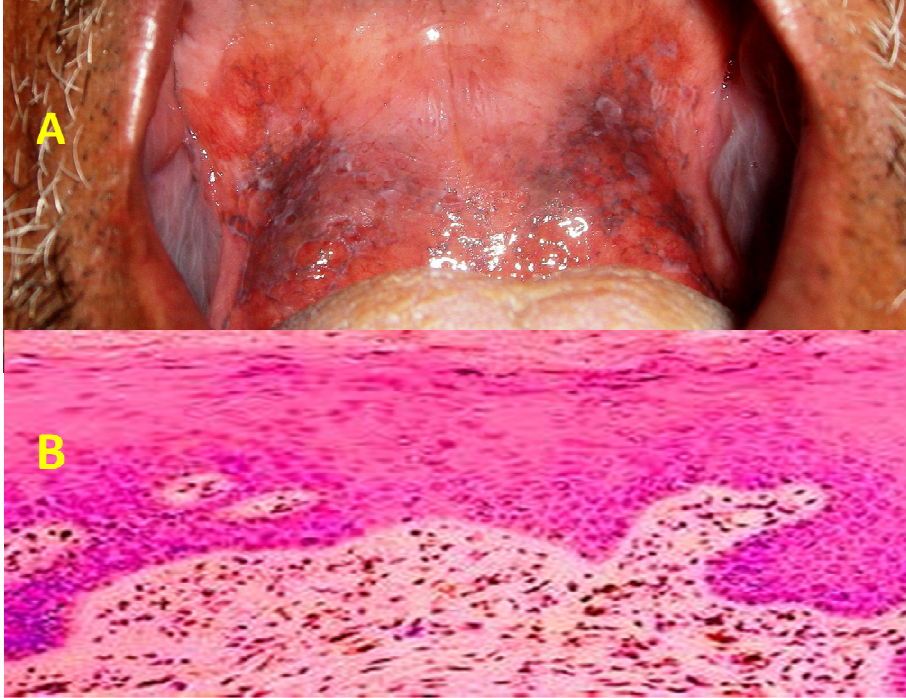


Fig. 3 A & B