

# Significance of early detection of oral malignant melanoma: Some reasonable facts

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## ABSTRACT

In literal terms, the melanoma is malignant tumors comprising of melanocytes in which cells are derived from the neural crest that basically constitute the melanin pigment in the basal and supra basal layers of the epithelium. The oral malignant melanoma (OMM) is seen with maxillary gingiva of males was previously considered as a fatal disease; however, in recent literature search illustrates the biological nature and behavior of the disease at the molecular levels. Even if these lesions are biologically aggressive, they often go unnoticed since, they are clinically asymptomatic in the early stages and usually present merely as a hyperpigmented patch on the gingival surface. These lesions if diagnosed at a nearly *in situ* stage are potentially curable and definitely have a better prognosis, but unfortunately as they are clinically asymptomatic, it results in delayed diagnosis thus making the prognosis extremely poor.

**Key words:** Oral malignant melanoma, prognosis, survival rate

## INTRODUCTION

Pigmented mucosal entities are comparatively common in the oral mucosa and frequently arise from intrinsic and extrinsic sources. Conditions such as melanotic macules, smoker's melanosis, amalgam, graphite tattoos, racial pigmentation, and vascular blood-related pigments are not very uncommon. Oral pigmentations may range from light brown to blue-black, red or purple.<sup>[1]</sup> The World Health Organization has defined mucosal malignant melanoma as a malignant neoplasm of melanocytes or of melanocyte pre-cursors. The oral malignant melanoma (OMM) is one of the rarer diseases that account for 0.8% of all melanomas and 8% of head and neck melanomas and up to 0.5% of all oral malignancies known until date. The life time risk of developing invasive melanoma was only one in 500; in 1960, one in 600; in 1992, one in 105; in 1996, One in 88; in

1998 and the life time risk would be one in 75 by the year 2000.<sup>[2]</sup> The first sign of melanoma is often a change in the size, shape or color of a mole. However, melanoma can also appear on the body as a new mole. Currently, global climatic change is a major source for ultraviolet radiation exposure and increasing trend of sun beds; which emits ultraviolet radiation to produce a cosmetic brunette.<sup>[3]</sup> That is why the world-wide occurrence of freshly diagnosed melanomas is observed up to 3-8% and is increasing day by day. Mucosal melanomas are characterized by an aggressive biological behavior leading to a 5-year survival rate of less than 25%.<sup>[4]</sup> Some of the other prominent causes for OMM includes; ill-fitting dentures, betel nuts chewing, tobacco usage, formaldehydes exposures, amalgam tattoo due to iatrogenic deposit of dental amalgam and nevi.

## DIAGNOSTIC SIGNIFICANCE OF OMM

Like any other cutaneous counterparts, primary oral melanomas are believed to arise either from nevus, pre-existing pigmented areas or *de novo* (30% cases).<sup>[5-8]</sup> The diagnosis of OMM often remains difficult. A diagnosis of melanoma depends on the identification of the melanin pigment that is confirmed by the Fontana-Masson silver stain and the appropriate immune-histochemical staining

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that includes beta-hydroxy-beta-methylbutyrate (HMB-45) antibodies, Melan-A, tyrosinase, and anti-microphthalmia transcription factor. S-100 protein is always positive in melanomas.<sup>[9]</sup> Asymmetry, border irregularities, color variegations, diameter greater than 6 mm, and elevation on a raised surface criteria used in detection of cutaneous melanoma could also be helpful in the diagnosis of oral melanomas.<sup>[10]</sup> Differential diagnoses should include benign as well as malignant lesions and exogenous pigmentations can also be found. It also needs to be borne in mind that a melanotic malignant melanoma can affect the mouth, comprising one-third of all OMMs. The histological spectrum of benign pigmentations is wide: Macular hyperpigmentation caused by junctional proliferation with or without cellular atypica, melanocytic naevi, such as junctional, compound, sub epithelial, blue and combined naevi. Other causes of oral pigmentation include: Race, Peutz-Jeghers syndrome, Laugier-Hunziker syndrome, Addison's disease, patients with pulmonary diseases, especially in lung cancer and hemosiderosis.

Literatures have well-evidenced that at some stage in the embryologic development, melanocytes travel from the neural crest; in to the epithelial lining of the skin and in the developed skin, they inhabit in the basal epithelial layer. Likewise, the melanocytes develop in the basal layer of oral epithelium and proliferate; as it encounter with cytotoxic stimulant.<sup>[11]</sup> Even if, dendritic cells derived from neural crest produce the melanocytes, but the exact mechanism of proliferation of these cells in melanoma is not known. The OMM represents a variety of morphologic and microscopic distinctiveness and lack of pain is one of the reasons of delay in its early detection and medical intervention.<sup>[12]</sup> Most of the clinical characteristics of oral melanomas resemble to cutaneous and other pigmented lesions like dark brown or black color, irregular surface, and asymmetrical margins etc. So the pigmented lesions of the oral cavity; which does not possess clinical specificity should be viewed with suspicion.

Melanoma is well disreputable for its unpredictable and wide spread metastasis. Metastatic spread to bone, usually the vertebrae, is a frequent finding in terminal disease and may be accompanied by multiple metastases to the lymph nodes, central nervous system, lungs, and liver. Metastasis to the oral regions is uncommon and usually involves soft-tissues, notably the tongue.<sup>[13]</sup> Often an excisional biopsy can be accomplished. However, an incisional biopsy is acceptable for large lesions and must be performed in the darkest and thickest area of the lesion. As said by Batsakis, "there is no evidence that a preliminary biopsy of the primary lesion increases the risk of metastatic dissemination or unfavorably affects the prognosis." Any pigmented

growth that may appear innocuous needs to be biopsied at the earliest.<sup>[14]</sup> Greene *et al.* suggested the following criteria for a lesion to be considered as primary malignant melanoma of the oral cavity: (1) demonstration of malignant melanoma both histologically and clinically; (2) the presence of junctional activity; and (3) the inability to demonstrate any other primary site.<sup>[15]</sup>

## SUMMARY AND FUTURE PROSPECTS

During the course of the lesion, the pre-operative investigations, such as chest X-ray, kidney function test and abdominal ultrasound, must be performed for the identification of any metastasis. In case of bone metastasis, computed tomography should be carried out to reveal the extent of invasion into structures adjacent to the mouth, such as the nasal cavity or eye, and a possible recurrence of metastasis in regional lymph nodes.<sup>[16,17]</sup> Health-care professionals should be attentive to pigmented lesions in the mucosa as well as skin, as and when carrying out detailed, discerning exams. Mucosal melanoma, especially in the oral cavity, is rare, but is more aggressive and has a poorer prognosis. The prognosis of oral melanoma is poor with a 5-year survival of 0-55% of cases. The median survival for all oral mucosal melanomas is slightly more than 2 years from the time of diagnosis.<sup>[18]</sup> However, if diagnosed early, complete cure is possible. A melanotic melanomas can be diagnosed by immunohistochemical examination of tissue from the lesion. In addition, public education about self-examination of the oral cavity with periodic oral check-up is important for early detection of such lesions.<sup>[19]</sup> This review is an effort to draw the attention of researchers toward the imperative role of early diagnosis and treatment planning that could successfully prevent its early onset and progression.

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