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Malignant Oral Melanoma: How to Spot It and How It is Managed

Abstract: Primary oral melanoma (POM) is a rare malignancy affecting primarily the hard palate and maxillary gingivae. Oral melanoma has a poor prognosis due to the frequent delay in diagnosis, the tendency of the tissues to be invaded locally and the potential to metastasize. This article aims to summarize the key clinical features of different types of oral pigmentation that are likely to be encountered by a general dental practitioner (GDP) and to highlight those that should prompt an urgent referral for investigation.

CPD/Clinical Relevance: The aim of this article is to increase awareness of the varying and sometimes atypical features of oral melanoma.

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Primary oral melanoma (POM) is an uncommon malignant neoplasm that presents predominantly on the hard palate and the maxillary alveolar mucosa.[1,2] It is comprised of malignant melanocytes, which are cells derived from the neural crest that form the melanin pigment in the basal layer of the epithelium.[1,2,3] It is most commonly seen in middle-aged patients and the lack of early signs and symptoms usually results in oral mucosal melanoma being diagnosed in the advanced stages.[1,2,3,4] The 5–year survival rate has been quoted at around 15–38%.[1] Unlike its cutaneous counterpart, oral melanomas are not linked to UV exposure.[1,2] Smoking, denture-related irritation and alcohol have been linked to oral melanoma but the correlation is still unconfirmed.[1]

General dental practitioners are well placed to detect suspicious oral pigmentation. An early diagnosis of a malignant melanoma could potentially have an impact on a patient's treatment and prognosis. The aim of this article is to review the salient features of an oral melanoma that differentiate it from other more common localized causes of oral pigmentation.

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Malignant oral melanoma

Cases of primary malignant oral melanoma account for 0.2–8% of all melanomas.[5] Most POMs arise in previously clinically normal mucosa, while approximately 30–50% of cases have had pre-existing oral pigmentation ranging from several months to years.[1] The incidence of POMs is greater in the Asian, African and Hispanic population and the incidence peaks around the age of 60 years. There is no gender predilection.[1]

Patients may present to GDPs with symptoms related to pigmented masses that may become irritated or ulcerated. Patients who present at a late stage may report bleeding, paraesthesia and tooth mobility in the area of the lesions. Signs, such as ill-fitting dentures, particularly the upper denture, may also be a primary complaint of some patients.[6] Most cases of oral melanoma are asymptomatic initially, and their usual location, on the palate and maxillary alveolar mucosa, limits the possibility of the patient detecting the pigmentation first.[7]

A precursor lesion for oral melanoma has not yet been identified but there have been suggestions that atypical presentations of melanocytic hyperplasia and associated melanosis may be predisposing factors. There are reports of pre-existing naevi which have later developed into oral melanoma.[8] It has also been reported that congenital pigmented lesions may develop into melanomas after hormonal changes that occur during puberty, but no other risk factors have been identified.[6]

What to look for

GDPs should document clearly any oral pigmented lesions, including duration, colour, size,

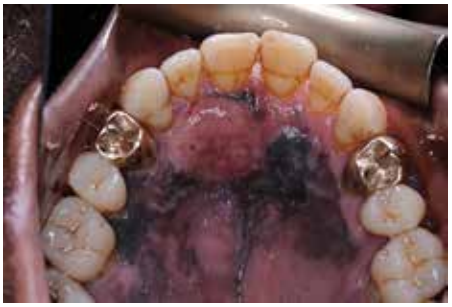

Figure 1. Melanoma on the hard palate with an amelanotic anterior mass.

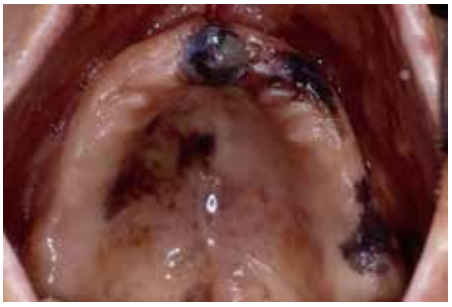

Figure 2. A melanoma presenting as multiple pigmented lesions on the palate/alveolar edentulous ridge.

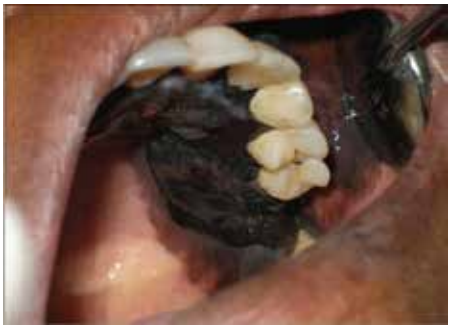

Figure 3. An extensive melanoma affecting the maxilla.

location, localized or multiple, texture and symptoms associated with the lesions. Some of the classic sinister features found in other oral malignant lesions are not typical of oral mucosal melanoma. Rolled margins are generally not present in an oral melanoma due to the atypical melanocytes exhibiting a pagetoid mode of spread, resulting in a uniform epithelial thickening. Induration is not a clinical feature, perhaps explained by the absence of an inflammatory cell response during the growth phase.[4]

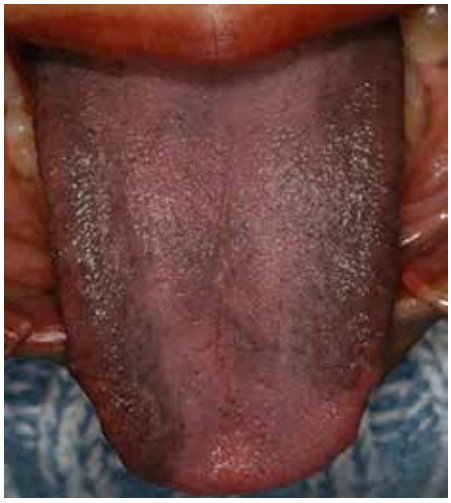

Figure 4. Racial pigmentation on the dorsal aspect of the tongue.

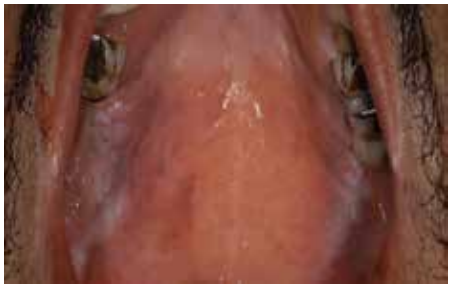

Figure 5. Areas of smoker's melanosis on the palate.

Oral melanoma differs from other localized hyperpigmented lesions in that it is generally not uniform in colour, can increase rapidly in size, change colour, ulcerate and become plaque-like or nodular and can be painful. Regional lymphadenopathy may also be present. Oral melanoma can also present as a nodular amelanotic mass that may have surrounding hyperpigmentation (Figure 1). These amelanotic lesions may simulate pyogenic granuloma. The case illustrated in Figure 1 presented with a pedunculated lesion, which is reportedly an unusual feature.[5,9,10] This variant is also considered to have a better prognosis because the presence of a stalk facilitates complete removal of the melanoma.[5,11] However, in this case, the pedunculated lesion, which showed invasive melanoma, was also surrounded by an extensive area of dense dark pigmentation which histologically was a melanoma *in situ*, indicating that the malignancy was locally widespread. This patient also had other areas of pigmentation of the oral mucosa, which had the appearance of racial pigmentation. The patient was of Afro-Caribbean origin and it has been reported that patients of Afro-Caribbean and African ethnicity have a higher incidence of oral malignant melanoma.[5,9]

Figures 2 and 3 show other presentations of oral melanoma. Figure 2, a melanoma of the palate, shows multiple areas of pigmentation and an area anteriorly that resembles a pyogenic granuloma. Figure 3 shows an extensive area of swelling and pigmentation in the palate and flat pigmentation on the buccal aspect of the alveolus. Figures 1–3 all show very dark intense pigmentation. It is not known whether there were any pre-existing lesions prior to the oral melanoma.

Other types of oral pigmentation

Generalized hyperpigmentation

Racial pigmentation

This is the most common cause of generalized hyperpigmentation which is caused by melanin. It can appear as patchy areas, typically on the anterior labial gingivae, palatal mucosa and can be seen on the dorsal aspect of the tongue (Figure 4) and is usually distributed symmetrically. It is commonly seen in people of Asian or African heritage but is not exclusive to those groups.[12]

Smoker's melanosis

Smoker's melanosis is a benign pigmentation of the oral mucosa. Melanin is synthesized via stimulation by the heat of smoking products. It can occur on any intra-oral site with diffuse areas of melanosis resulting in brown, flat and irregular areas of pigmentation (Figure 5). Smoker's melanosis may disappear

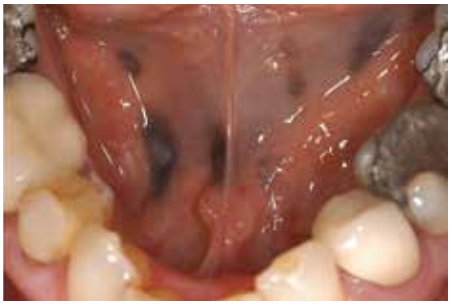

Figure 6. Multiple amalgam tattoos on the floor of the mouth.

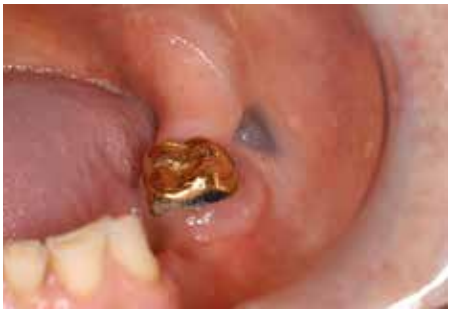

Figure 7. An amalgam tattoo on the posterior left buccal mucosa.

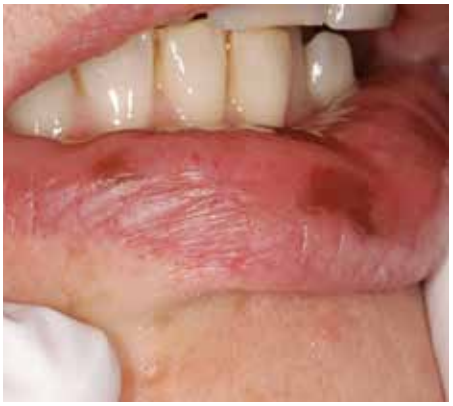

Figure 8. Melanotic macules on the lower lip.

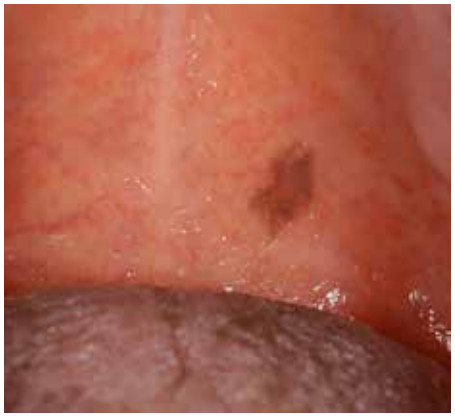

Figure 9. Melanotic maccule on the soft palate.

after smoking cessation but can take up to three years.[13]

Medication-induced pigmentation and other systemic causes

Pigmentation of the oral mucosa may be secondary to medication, such as antimalarials, minocycline or imatinib.[14] Other rare causes of oral pigmentation are Addison's disease, HIV, Peutz-Jegher syndrome or Nelson syndrome. Peutz-Jegher syndrome is a rare autosomal dominant condition characterized by the presence of multiple brown macules on the circumoral skin, as well as the occurrence of small intestinal polyps which have a potential for malignant conversion. Nelson syndrome is caused by an increased production of adrenocorticotrophic hormone (ACTH), which can be secondary to adrenalectomy. ACTH-producing tumours, including bronchogenic carcinoma, are associated with oral pigmentation.[12]

Localized pigmented lesions

Amalgam tattoo/other material tattoos

An amalgam tattoo frequently presents as a single localized pigmented patch, however, it is not uncommon to see several patches, sometimes in close proximity to each other (Figure 6). They are caused by deposits of dental amalgam restoration material entering the oral mucosa during dental treatment. The grey/black/blue asymptomatic flat macules are most commonly found on the mandibular gingivae, but may occur on other areas of the oral mucosa close to the tooth restored with amalgam (Figure 7). When no amalgam-restored tooth is present, a thorough history should determine if an amalgam restoration was previously replaced, if there is an amalgam core restoration under an indirect restoration, or if an apicectomy procedure has been carried out, with placement of a retrograde root filling with dental amalgam. Amalgam tattoos do not change in size or colour over time. Radiography may confirm the presence of radio-opaque particles in the area of the tattoo. Graphite tattoos typically occur in the palate and the history is frequently of a child who habitually inserts a pencil in the mouth. Fragments from the pencil lead may break off and puncture the palatal mucosa, giving rise to the pigmentation. Other examples include carbon and ink tattoos, which are practised in some tribal communities in Africa and other parts of the world. A thorough history can usually confirm the diagnosis.[13]

Ephelis

An ephelis (freckle) is a common, asymptomatic, generally small (1–3 mm), well circumscribed flat macule which occurs peri-orally, due to sun exposure of the facial skin. Ephelides frequently appear as multiple separate brown pigmented lesions.[12]

Melanoacanthoma

These are larger hyperpigmented lesions that typically occur on the buccal mucosa and measure around 5 mm to 2 cm in diameter. They affect mainly adults of African descent and may increase rapidly in size. For that reason, a biopsy is usually indicated. They are probably reactive lesions linked with chronic trauma or irritation.[1]

Melanotic macule

These small flat lesions, typically smaller than 1 cm, are brown homogeneous pigmentations caused by a collection of melanin-containing cells. They are asymptomatic and commonly appear on the vermillion border of the lips (Figure 8) and on the palate (Figure 9). They do not change rapidly in size or colour, but if there is any doubt about the clinical diagnosis, a biopsy is required. They may be linked with trauma.[12]

Naevi

Naevi are benign proliferations of melanocytes which result in a brown/black or blue asymptomatic flat or papular lesion, commonly seen in the palate, buccal/labial mucosa and gingivae.[12,13]

They are classified as blue naevi, compound or junctional. In some rare circumstances, the junctional type may progress to a melanoma.[12] A biopsy may be required, unless the history confirms that the lesion is longstanding and without any changes. They are usually less than a centimetre in size and can be raised.

Management of oral melanoma

If a dental practitioner suspects an oral melanoma, an urgent referral for investigation and management should be made to the appropriate hospital department. Typically, a biopsy and staging scans are carried out. POM is known to have a poor prognosis; however, the results of studies have varied. A review of the literature indicates a 5-year survival from 4.5% to 48%, with a cluster at 10–25%.[15] Metastasis is associated with an extremely poor prognosis and is commonly seen at lymph nodes, the liver and the lungs.[5] Mucosal melanoma is similar to the nodular pattern of the cutaneous melanoma. Patients with lesions of less than 2mm thickness have a significant survival advantage compared to those with lesions that are greater than 2mm thickness.[1] Surgery is the main treatment, although chemotherapy with dacarbazine for metastatic melanoma has been reported.[16] Radiotherapy has been used as primary treatment in cases with poor prognosis; however, this is usually avoided due to the low radiosensitivity of melanomas.[17] Patients with oral melanoma continue to have a poor prognosis, therefore early recognition of the common and uncommon features can lead to earlier treatment, thus improving the prognosis.[17]

Conclusion

Dental clinicians must remain vigilant for the detection of pigmented lesions with a sinister potential. Pigmented lesions that have shown evidence of growth should be referred promptly to an appropriate specialist for management. Lesions that appear benign, such as where there is a long history with no change, should be monitored. Careful record-keeping is therefore important in dental practice, particularly if a different dentist takes over the patient's care. Photographic records and measuring of any lesion are therefore useful tools. Those found incidentally on examination should be monitored if they appear benign. Any subsequent changes that hint at possible suspicious features should trigger prompt referral. There should be a high index of suspicion for pigmented lesions in sites of 'high risk', such as the palate and maxillary alveolar ridge/gingivae.

Patients should also be encouraged to report pigmented lesions as soon as they detect them, regardless of whether or not they are symptomatic. Dental practitioners should be aware of the variable presentations of oral melanomas and the difficulty this can present in clinical assessment.

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