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Black Pigmentation on Tongue- A Case Report

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Abstract
The oral mucosa color varies from white to red-purple in light-skinned individuals. Pigmented lesions resulting from excess melanin deposition can appear brown, blue, grey, or black, depending on the amount and distribution of melanin in the tissues. To ensure an accurate diagnosis, it's crucial to identify whether the discolored mucosal areas are caused by an adverse drug reaction (ADR) to a particular medication. Patients exhibiting these lesions need to be carefully monitored, and thorough follow-up is necessary to avoid any potential misdiagnosis.

Introduction
The color of the oral mucosa is not uniform; it can change based on various physiological and pathological conditions. The oral mucosa color varies from white to red-purple in light-skinned individuals. In contrast dark-skinned individuals, it typically appears as a uniform black to brown on the gingiva, buccal mucosa, and lips. Physiological pigmentation is frequently observed in individuals of Asian, African, and Mediterranean descent. Such pigmentation may arise from external factors, such as foreign materials like tattoo ink, amalgam used in dental fillings, or pencil lead. Furthermore, endogenous pigmentation can be linked to several physiological conditions and syndromes, including Addison's disease, Peutz-Jeghers syndrome, Laugier-Hunziker syndrome, and, though less commonly, neurofibromatosis type 1. (1,2,7).
Endogenous pigments consist of melanin, hemoglobin, hemosiderin, and carotene. Melanin is generated by melanocytes in the basal layer of the epithelium and is transferred to neighbouring keratinocytes via membrane-bound organelles called melanosomes. Additionally, nevus cells, which are derived from the neural crest and present in the skin and mucosa, also produce melanin. Pigmented lesions resulting from excess melanin deposition can appear brown, blue, grey, or black, depending on the amount and distribution of melanin in the tissues. (5).

Case Report
A 19-year-old male patient visited our outpatient department (OPD) with a complaint of black pigmentation on his tongue. He reported that the pigmentation on the lateral border of his tongue had been present since a young age. The patient underwent homeopathic treatment for asthma over a span of three years. After beginning the homeopathic medication, he noticed that the pigmentation on his tongue gradually increased, covering the entire surface of tongue. Although he stopped taking the homeopathic medication five years ago, the pigmentation has not decreased since. He also stated that homeopathic treatment is in liquid form and has a distinctively strong flavour.

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Fig.1-First visit

Fig.2- Second visit

Upon examination, the entire surface and lateral third of the tongue displayed a black pigmentation, with no changes in texture, no bleeding on probing, and no raised lesions. The central region of dorsum of the tongue's surface appears to be coated white colour. He exhibited pigmented gingiva, and all of his teeth were intact with no restorations present. He does not have any other systemic health issues and is not on any medications. His asthma was confined to his childhood and has resolved since then.

Following the initial examination, we instructed the patient to apply candid mouth paint to his tongue three times a day and arranged a follow-up appointment in one week to determine if the lesion was improving. Upon reassessment after seven days, we found no change in the colour or size of the lesion. Therefore, we chose to keep the patient under observation for another week and recommended a biopsy. An incisional biopsy was taken from the dorsum of tongue and was sent for histopathological analysis.

Fig 3- Post OP

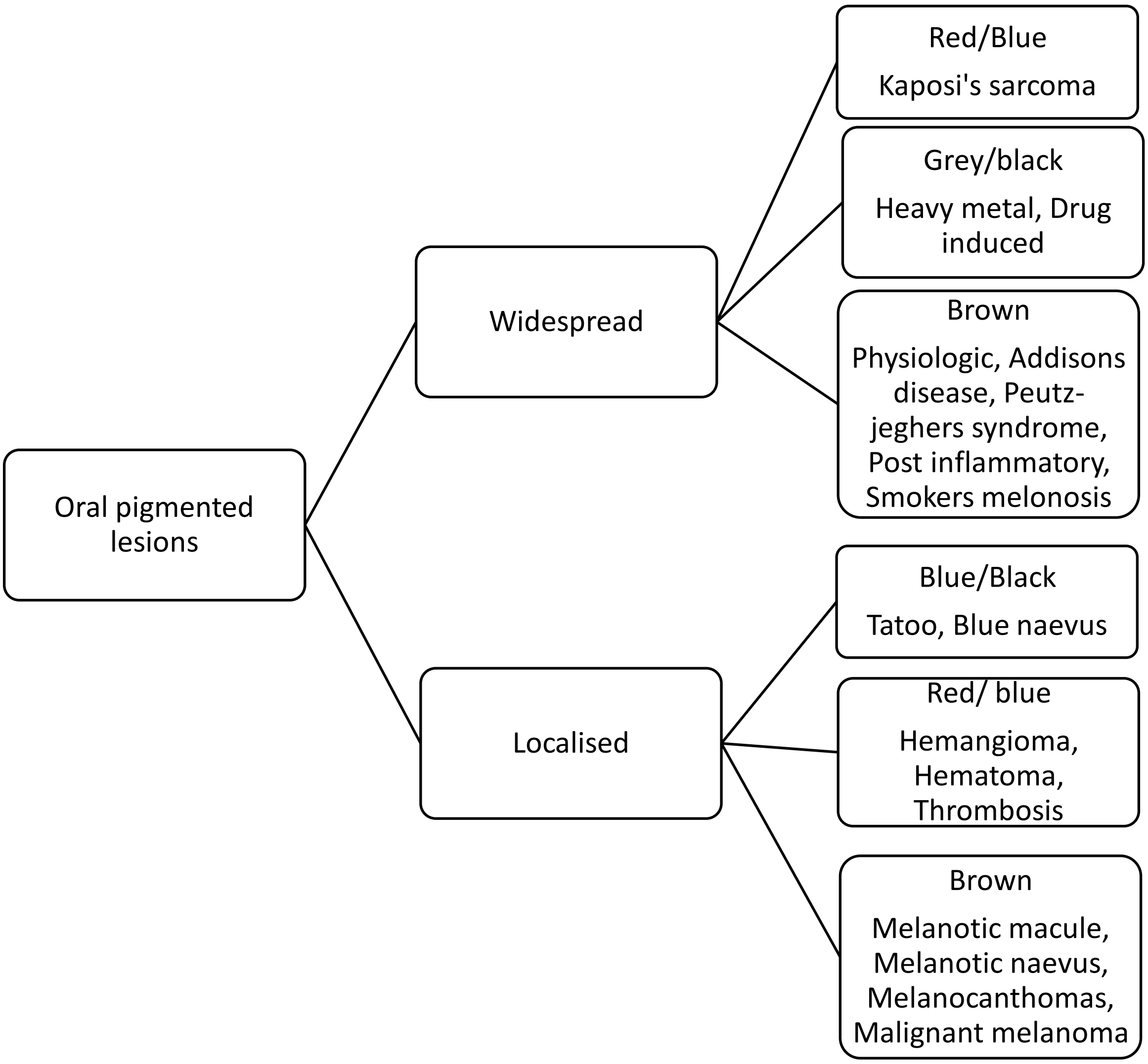
Fig 4- Post OP 1 month

Biopsy section showed tissue lined by stratified squamous epithelium with elongation of the filiform papillae and marked hyperkeratosis. Sub epithelium show moderate inflammation composed of lymphocytes. Superficial site had showed numerous basophilic bacterial colonies. Results suggests hairy tongue.

Discussion

Discoloration of the tongue can be a sign of an underlying health issue. White patches may indicate conditions such as thrush, lichen planus, or leukoplakia, among others. Red or purple hues are often linked to benign conditions like geographic tongue but can also point to vitamin deficiencies, scarlet fever, or Kawasaki disease. Yellowing of the tongue is typically associated with bacterial overgrowth, dietary habits, or tobacco use, but in rare instances, it may signal more serious issues like psoriasis or jaundice. (8)

Classification of oralpigmented lesion modified by kauzman etal (11)



A dark brown or black appearance, referred to as black hairy tongue, can occur in some individuals. Despite its name, this condition does not involve any actual hair on the tongue. It arises when bacteria, food particles, and metabolic debris build up in the filiform papillae of the tongue. The likelihood of developing black hairy tongue increases when multiple contributing factors are present. (8)

To ensure an accurate diagnosis, it's crucial to identify whether the discoloured mucosal areas are caused by an adverse drug reaction (ADR) to a particular medication. Patients exhibiting these lesions need to be carefully monitored, and thorough follow-up is necessary to avoid any potential misdiagnosis. (6)

Kaposi's sarcoma (KS) is a multifocal vascular malignancy that primarily presents in individuals infected with HIV. The occurrence of this tumor serves as a critical indicator of AIDS progression. The etiology of KS is associated with a human herpesvirus, specifically Kaposi's sarcoma-associated herpesvirus (HHV-8).

Within the oral mucosa, KS predominantly affects the hard palate, gingiva, and tongue. Early-stage lesions typically manifest as flat or slightly elevated brown to purple macules, frequently appearing bilaterally. In more advanced stages, lesions evolve into dark red or purple plaques or nodules, which may exhibit ulceration, bleeding, or necrosis.A definitive diagnosis of Kaposi's sarcoma necessitates a biopsy, which demonstrates a proliferation of spindle-shaped cells surrounding poorly formed vascular spaces or slits, accompanied by numerous extravasated red blood cells. (9)

Treatment options differ depending on the severity of the condition. For localized asymptomatic lesions, no treatment may be needed. Other options include local or regional surgery, injections of intralesional vinblastine, and radiotherapy for advanced invasive lesions. Adjustments to immunosuppressive treatment, as well as starting antiretroviral therapy and/or systemic chemotherapy, may also be necessary. Healthcare providers should remain attentive to the possibility of pigmented lesions in high-risk individuals, such as those who have undergone transplants or are HIV-positive. It is advisable to make urgent medical referrals for these patients. (10)

Systemic conditions like Addison's disease, hyperthyroidism, and polyostotic fibrous dysplasia may lead to pigmentation in the oral mucosa. When these pigmented lesions are associated with an underlying systemic disorder, specific treatment is generally not required, as the lesions often fade after effective medical management of the primary condition. It's essential to refer patients for appropriate medical evaluation to monitor for possible internal malignancies. (10)

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