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The Clinical Basis and Narrative Review of Differential Diagnosis of Pigmented Lesions in the Oral Mucosa

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Introduction

The clinical examination of pigmented lesions in the oral mucosa plays a critical role in diagnosing various pathologies, from benign to potentially malignant conditions. These lesions, which can present as a wide variety of colors and textures, often raise concern due to their aesthetic implications and potential association with systemic diseases. The differential diagnosis of these lesions is complex, requiring careful evaluation of clinical features, patient history, and in some cases, histopathological analysis. This article provides a narrative review of the clinical basis and differential diagnosis of pigmented lesions in the oral mucosa, highlighting the common and rare conditions that may present in the oral cavity [1].

Pigmented lesions in the oral mucosa can be classified into two major categories: endogenous and exogenous. Endogenous pigments are produced within the body, often as a result of metabolic processes, while exogenous pigments are introduced from external sources. Endogenous pigmented lesions include those caused by melanin, hemosiderin, or other biological pigments, whereas exogenous lesions can result from the deposition of materials such as tattoos, foreign particles, or drugs. Melanin, produced by melanocytes in the basal layer of the epithelium, is the most common endogenous pigment found in the oral mucosa. The most frequent pigmented lesions resulting from melanin deposition include physiologic pigmentation, melanotic macules, and melanocytic nevi. Other endogenous sources of pigmentation, like hemosiderin, can be seen in conditions such as hematomas or oral manifestations of systemic disorders, like hemochromatosis [2].

Description

Pigmentation in the oral cavity may arise from pathological processes such as melanocytic tumors, both benign and malignant. Melanocytic nevi are common benign lesions characterized by the proliferation of melanocytes. Clinically, they typically appear as well-defined, pigmented spots that are brown to black in color, and their size may vary. While these nevi are generally harmless, in rare cases, they can undergo malignant transformation into melanoma, a dangerous form of skin cancer that can also affect the oral mucosa. Malignant melanoma in the oral cavity is rare but is associated with high mortality due to its aggressive behavior and late detection. These lesions are usually darker in color and may exhibit irregular borders, asymmetry, and changes in size or shape over time, all of which should raise suspicion for malignant transformation [3].

Exogenous causes of oral pigmentation are primarily due to foreign substances or drugs. One common exogenous pigment is that caused by the use of certain medications, such as antimalarials or chemotherapeutic agents, which can lead to oral pigmentation as a side effect. For instance, minocycline, an antibiotic, has been implicated in causing a blue-black discoloration of the oral mucosa. Other drugs, like certain antihypertensive medications, can also cause drug-induced pigmentation in the oral cavity. Moreover, patients who smoke may develop smoker's melanosis, a condition characterized by the darkening of the oral mucosa due to the deposition of melanin stimulated by tobacco use. The intensity and extent of the pigmentation are often related to the duration and amount of tobacco consumption [4].

Diagnosis of pigmented lesions in the oral mucosa requires a thorough clinical evaluation, including a detailed patient history, physical examination, and, when necessary, biopsy and histopathological analysis. A comprehensive patient history is essential to distinguish between physiological pigmentation and pathological lesions. The duration of the pigmentation, any associated symptoms (such as pain or tenderness), and changes in the appearance of the lesion over time can provide valuable diagnostic clues. Furthermore, a history of tobacco use, medication use, and any systemic conditions known to cause pigmentation should be explored [5].

Conclusion

The management of pigmented lesions in the oral mucosa depends largely on the underlying cause. In cases of physiological pigmentation, no treatment is necessary unless the patient desires cosmetic correction. However, in cases where the pigmentation is associated with a pathological condition, treatment is focused on addressing the underlying cause. For example, if a lesion is determined to be a benign melanocytic nevus, regular monitoring may be all that is required. In contrast, if a lesion is diagnosed as malignant melanoma or another aggressive form of cancer, surgical excision, followed by further treatment such as chemotherapy or radiation, may be necessary.

In conclusion, the differential diagnosis of pigmented lesions in the oral mucosa is a crucial aspect of oral and maxillofacial clinical practice. A thorough understanding of the various causes of oral pigmentation, both endogenous and exogenous, is essential for distinguishing between benign and malignant lesions. Early detection and accurate diagnosis are critical for ensuring appropriate management and improving patient outcomes, particularly in cases where the pigmentation is indicative of a systemic or malignant disease. By integrating clinical examination with patient history and, when needed, histopathological investigation, healthcare professionals can effectively manage and treat these lesions, ensuring the health and well-being of their patients.

Acknowledgement

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Conflict of Interest

None.

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