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A Comprehensive Guide to Diagnosing Oral Mucosal Lesions: Part IV. Neoplasms

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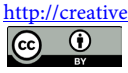

Abstract

Oral cavity lesions range from benign reactive growths to aggressive malignancies. As a result of trauma or irritation, benign tumors like fibrous hyperplasias, mucoceles, and hemangiomas frequently require straightforward treatment. Oral squamous cell carcinoma, on the other hand, is the most prevalent and serious cancer and must be detected early due to its invasive nature. Clinical and histological evaluation is crucial for accurate diagnosis and effective treatment planning.

Subject Areas

Dentistry

Keywords

Oral Diagnosis, Neoplasms, Oral Neoplasm

1. Introduction

Lesions of the oral cavity represent a wide variety of conditions, ranging from reactive and benign growths to potentially life-threatening malignancies. Local irritants, trauma, or physiological changes frequently lead to benign tumors like vascular anomalies, inflammatory hyperplasias, and salivary gland lesions. While these growths are non-neoplastic and lack metastatic potential, they may still affect a patient's comfort, function, or appearance, and therefore require proper identification and management.

However, due to their high morbidity and invasive nature, malignant tumors, particularly oral squamous cell carcinoma, require prompt treatment. Understanding the clinical behavior, histological characteristics, and diagnostic challenges associated with both benign and malignant oral tumors is essential for dental and medical practitioners involved in early detection and treatment planning.

2. Benign Neoplasms

2.1. Inflammatory Hyperplasia

2.1.1. Fibrous Inflammatory Hyperplasias (FIH) and Traumatic Fibroma (TF)

FIH, also known as epulis fissuratum, is a non-malignant, slow-growing oral lesion. It may present as a pedunculated or sessile growth, commonly found in the buccal vestibule of the anterior maxilla. However, it can develop on any mucosal surface in contact with the border of a denture, including the lingual aspect of the mandible. These lesions result from chronic irritation or trauma caused by ill-fitting dentures, leading to excess tissue formation that often splits, with one part under the denture and the other between the lip or cheek and the denture's outer surface [1] [2] (**Figure 1**).

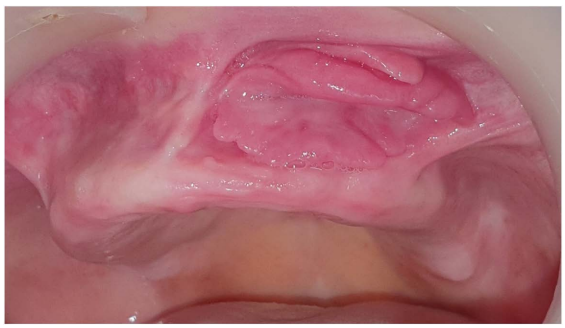

Figure 1. Fibrous inflammatory hyperplasia on the buccal mucosa of the maxillary arch due to ill-fitting dentures.

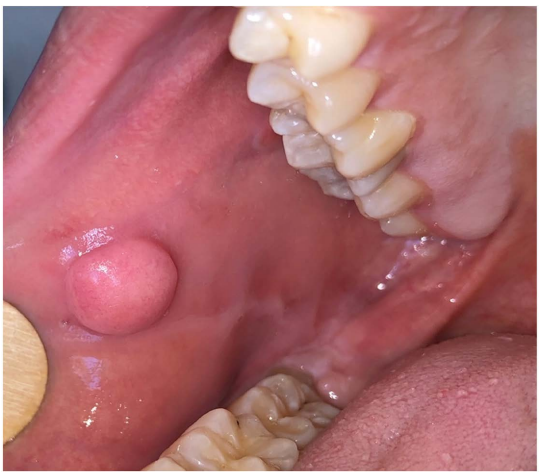

Figure 2. Trauma fibroma on the jugal mucosa caused by continuous sucking on the jugal mucosa.

As for TF, they are common, dome-shaped soft tissue lesions typically found on the buccal mucosa along the line of occlusion, but may also occur on the lips and tongue. They match the color of surrounding mucosa, have a soft consistency, and often remain unchanged for months or years. And they are most commonly due to accidental biting or sucking [2] (**Figure 2**).

These hyperplasias lack malignant potential, and recurrences after excision typically result from unresolved chronic irritation [3].

Diagnosis is concluded from clinical examination and confirmed with biopsy. The differential diagnosis includes true papilloma, verrucous carcinoma, virus-induced warts, or salivary gland tumors for TF [1].

2.1.2. Pyogenic Granuloma (PG)

A PG is a benign, rapidly growing vascular-inflammatory lesion triggered by local irritation, trauma, or pregnancy-related hormonal changes. It appears as a smooth, erythematous papule or nodule, usually on the gingiva, but can also occur on the lips, tongue, or buccal mucosa. These non-painful lesions, bleed easily especially after trauma and range from a few millimeters to a couple of centimeters and can be sessile or pedunculated [4] [5].

Surgical excision is often sufficient, with low recurrence if irritants are removed. In pregnancy, observation is preferred, as many lesions resolve postpartum, though excised lesions may recur due to hormonal effects [6] (**Figure 3**).

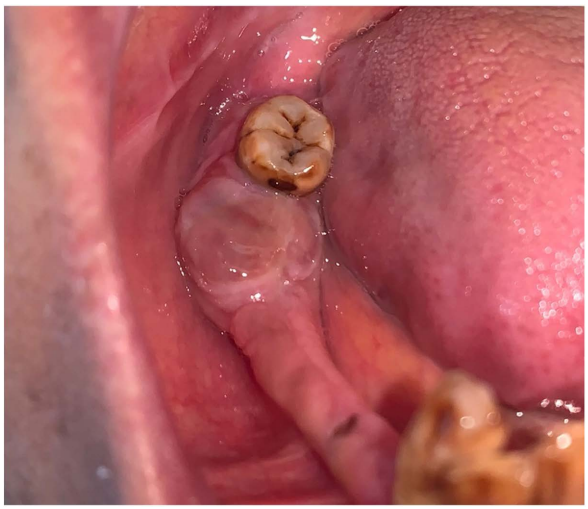

Figure 3. Pyogenic granuloma on the mandibular right alveloar ridge.

2.1.3. Peripheral Ossifying Fibroma (POF)

POF is a solitary gingival swelling found exclusively on the gingiva, most often in the anterior maxilla and interdental papilla of young females. It is firm, pink to red, sometimes ulcerated, and sessile. Radiographs may show calcifications, mild crestal bone resorption, or tooth displacement. Histologically, it features calcifications and ossifications in a hypercellular fibroblastic stroma [7]. Common in pregnant women, it shares similarities with pyogenic granulomas but has a higher recurrence risk (16% - 28%). Standard treatment involves complete excision with a 2-mm margin, removing affected periodontal tissue, and possibly tooth extraction to reduce recurrence [4]. The differential diagnosis includes pyogenic granuloma and peripheral giant cell granuloma. Histologic examination is necessary to distinguish between them [2].

2.1.4. Peripheral Giant Cell Granuloma (PGCG)

PGCG is a reactive, non-neoplastic lesion exclusive to the gingiva, often triggered by local trauma, chronic irritation, poor oral hygiene, ill-fitting appliances, or dental extractions. Hormonal influences may also contribute, given their prevalence among women aged 40 - 60.

Typically located on the mandibular anterior gingiva, it presents as a firm, epulis-like nodule with a sessile base and a surface that appears smooth or slightly granular [7]. The lesion's color varies from pink to bluish-purple, and while generally asymptomatic, larger lesions can encroach on adjacent teeth, causing displacement and esthetic concerns. Radiographic features include characteristic superficial "cupping" resorptive radiolucencies of the alveolar bone [2] (**Figure 4**).

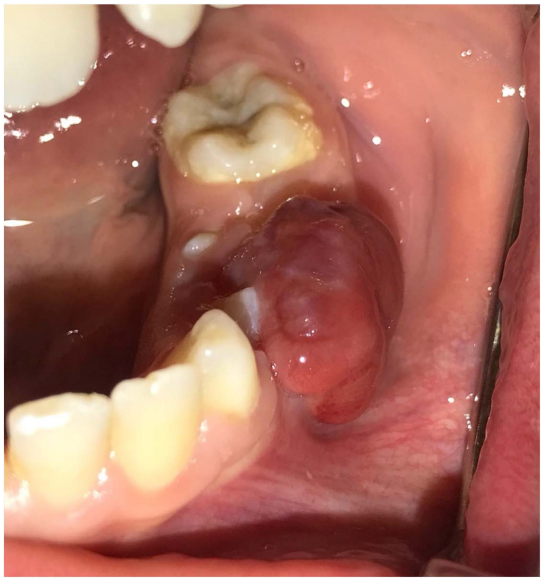

Figure 4. Peripheral giant cell granuloma.

Diagnosis is based on clinical and histopathological findings, with differential diagnoses including PG (more vascular and prone to bleeding), POF (calcifications in a fibrous stroma), and gingival fibroma (non-vascular fibrotic tissue without giant cells). Treatment involves surgical excision with curettage of underlying bone and removal of irritants, ensuring low recurrence rates. Regular follow-up is advised to monitor for potential recurrence [4].

2.2. Salivary Gland Tumors

Mucocele is a collection of saliva in the oral mucosa caused by trauma to salivary ducts, leading to saliva escaping into the surrounding tissue. These lesions are soft, fluctuant, asymptomatic, and range in color from normal mucosa to light blue or white.

Patients often report that the lesion changes in size over time, which is a key diagnostic feature. While most are found on the lower lip and buccal mucosa, mucoceles can occur anywhere in the intraoral salivary glands. Superficial mucoceles

may resolve on their own, but deep-seated ones typically require surgical removal [1] [2] [7].

2.3. Vascular Benign Tumors

Oral hemangiomas are common benign vascular tumors, most frequently occurring in infants and children, with a higher prevalence in females. They typically appear as soft, compressible, bluish to red lesions that blanch under pressure, making this a key diagnostic feature. Common sites include the lips, tongue, buccal mucosa, and palate. While most oral hemangiomas are asymptomatic, larger lesions can cause discomfort, bleeding, or functional issues such as difficulty speaking or eating [4] [7] (**Figure 5**).

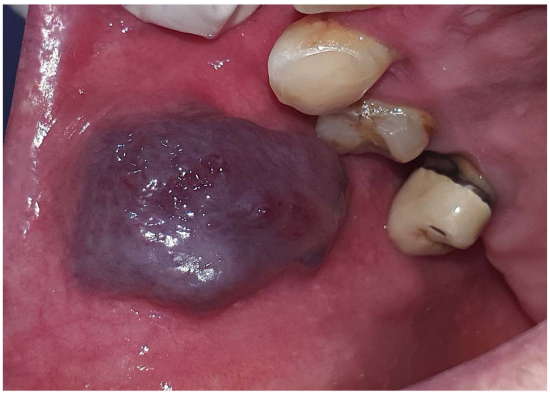

Figure 5. Oral hemangiomas on the jugal mucosa.

3. Malignant Tumors

Oral squamous cell carcinoma (OSCC) is the most common oral malignancy, accounting for over 90% of oral cancers, typically affecting adults over 40, with a higher incidence in males (2:1 ratio). Common sites include the lateral tongue, gingiva, alveolar mucosa, floor of the mouth, and ventral tongue. Risk factors include alcohol and tobacco use, betel quid/areca nut chewing, and HPV infection [5].

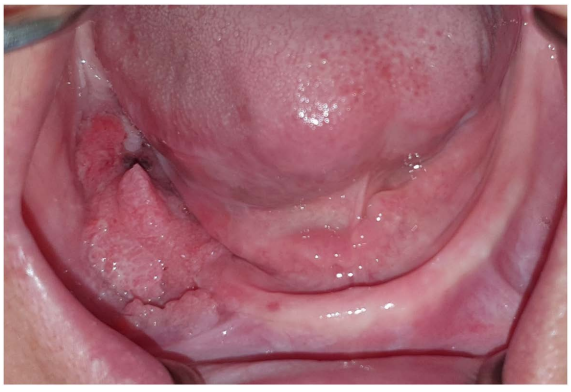

Figure 6. Squamous cell carcinoma in a 56-year-old female patient on the right mandibular ridge.

OSCC often presents as variable lesions, with more than 90% erythroplakic and around 60% having a leukoplakic component. Lesions may appear red and white, verrucous, exophytic, infiltrative, or ulcerated, suggesting epithelial instability. Early lesions are asymptomatic and slow-growing, but advanced cases show diffuse, ragged borders, induration, fixation, and ulceration, often causing persistent sores, numbness, mobile teeth, swelling, or difficulty speaking/swallowing. Delayed treatment allows extensive tissue invasion (**Figure 6**) [2] [5] [7].

Biopsy is crucial for lesions lasting over 2 - 3 weeks without apparent cause, especially in high-risk areas, to ensure early diagnosis and treatment [2].

4. Conclusion

In summary, oral tumors range from benign, reversible lesions to aggressive malignancies, each requiring a tailored clinical approach. Benign lesions, though often limited in their progression, can persist or recur without the removal of causative factors. Malignant tumors, however, pose a serious threat and must be detected and managed without delay. Accurate clinical examination, supported by histopathology, plays a key role in establishing the correct diagnosis and guiding treatment. A clear understanding of the spectrum of oral tumors not only aids in preserving oral health but can also be life-saving when malignancies are identified early.

Conflicts of Interest

The authors declare no conflicts of interest.

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