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Oral Verruca Vulgaris: An Overview of Diagnosis and Management for Dental Clinicians

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Abstract: Oral verruca vulgaris is an uncommon manifestation of human papillomavirus (HPV) infection in the oral cavity, predominantly associated with HPV types 2, 4, and 40. Although these benign epithelial proliferations typically affect cutaneous surfaces, intraoral presentation warrants careful diagnostic evaluation and appropriate management to prevent potential complications. This review synthesizes the current evidence regarding the clinical characteristics, diagnostic approaches, differential considerations, and therapeutic modalities for oral verruca vulgaris, emphasizing the importance of histopathological confirmation and surgical excision as the primary treatment approach for dental clinicians managing these lesions in clinical practice.

Keywords: Verruca Vulgaris, Papillomavirus, Oral Warts, Viral Lesions.

Review Paper

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INTRODUCTION

Verruca vulgaris, commonly known as the common wart, is one of the most frequently encountered skin growths caused by human papillomavirus infection, although its occurrence in the oral cavity remains relatively uncommon [1]. The etiological agents primarily implicated in oral verruca vulgaris include HPV types 2, 4, and 40, distinguishing these lesions from other HPV-associated oral diseases [2]. Intraoral transmission typically occurs through autoinoculation, where individuals transfer the virus from cutaneous warts on their hands to the oral mucosa through habitual behaviors such as nail biting or finger chewing [3]. The incubation period for oral verruca vulgaris varies considerably, ranging from six weeks to one year following viral exposure [2]. Understanding the clinical presentation, diagnostic features, and management strategies for oral verruca vulgaris is essential for dental practitioners to provide optimal care.

Clinical Presentation

Oral verruca vulgaris has distinct clinical characteristics that aid in the preliminary diagnosis. These lesions typically manifest as sessile, circumscribed, exophytic growths with a characteristic papillomatous or cauliflower-like surface appearance [1]. The color of oral verruca vulgaris lesions ranges from white to pink, depending on the degree of keratinization and surface vascularization [4]. The most common intraoral sites are the hard palate, lips, tongue, and buccal mucosa, with gingival involvement being relatively rare [1]. These lesions typically present as small growths, generally measuring less than five millimeters in diameter, although larger variants have been documented [3]. Oral verruca vulgaris occurs across all age groups with equal sex distribution, although the peak incidence is observed in individuals between the third and fifth decades of life [1]. Most patients are asymptomatic, and lesions are discovered incidentally during routine dental examinations [4].

Diagnosis

The definitive diagnosis of oral verruca vulgaris requires histopathological examination combined with clinical correlation. Histological features include hyperkeratotic stratified squamous epithelium arranged in finger-like projections, each containing a central connective tissue core. A characteristic diagnostic finding is the convergence of elongated rete ridges toward the center of the lesion, creating a distinctive

cupping effect [5]. Koilocytes, representing HPV-altered epithelial cells characterized by perinuclear clearing and nuclear pyknosis, are frequently identified in the superficial spinous layer [6]. Prominent hypergranulosis with coarse keratohyalin granules is typically observed in the granular cell layer [5]. Molecular detection methods, including polymerase chain reaction and in situ hybridization, can confirm the presence of HPV DNA and identify specific viral genotypes [7]. Immunohistochemical staining for p16 may serve as a surrogate marker for HPV infection, although its utility varies across different oral lesion types [8].

Differential Diagnosis

Oral verruca vulgaris must be differentiated from other clinically similar oral lesions. Squamous papilloma is the primary differential diagnosis; however, it typically presents with more delicate, finger-like projections and lacks the cupping effect seen in verruca vulgaris [4]. Focal epithelial hyperplasia, which predominantly affects younger populations, manifests as multiple clustered lesions rather than solitary growths [9]. Condyloma acuminatum, associated with HPV types 6 and 11, may present with similar papillomatous features but typically exhibits broader lesions with more extensive mucosal involvement [6]. Verrucous carcinoma, a low-grade variant of squamous cell carcinoma, must be excluded through adequate biopsy sampling, as it demonstrates more aggressive histological features, including deeper tissue invasion [4]. Oral lichen planus and leukoplakia may occasionally mimic verruca vulgaris clinically but demonstrate distinct histopathological patterns [6].

Table 1: Differential Diagnosis of Oral Verruca Vulgaris

Lesion	HPV Types	Clinical Features	Histological Features
Verruca vulgaris	2, 4, 40	Sessile, papillomatous, palate	Cupping effect, hypergranulosis, koilocytes
Squamous papilloma	6, 11	Pedunculated, finger-like	Delicate projections, no cupping
Condyloma acuminatum	6, 11	Multiple, broad-based	Acanthosis, koilocytes
Focal epithelial hyperplasia	13, 32	Multiple, clustered	Acanthosis, minimal keratinization

Management

Conservative surgical excision with adequate margins is the treatment of choice for oral verruca vulgaris [1]. Complete excision extending to the submucosa should be performed to minimize the recurrence risk, as the viral concentration is highest at the base of the lesions [7]. Carbon dioxide laser ablation offers an alternative approach, providing precise tissue removal and excellent hemostatic control [3]. Cryotherapy using liquid nitrogen has demonstrated efficacy in treating cutaneous warts; however, its application for oral lesions remains limited owing to accessibility challenges [11]. Electrosurgical methods can be employed for smaller lesions; however, care must be taken to achieve complete viral eradication [3]. Topical agents, including trichloroacetic acid, have shown promise as nonsurgical alternatives, although multiple applications are typically required [10]. Spontaneous regression occurs in approximately two-thirds of cases within two years, particularly in pediatric patients, although intervention is typically warranted in adults due to lower regression rates [4]. Recurrence following treatment remains uncommon when complete excision is achieved [3].

Table 2: Treatment Modalities for Oral Verruca Vulgaris

Treatment Method	Advantages	Considerations
Surgical excision	Definitive, histopathology	Requires anesthesia
CO2 laser	Precise, hemostatic	Equipment cost
Cryotherapy	Nonsurgical	Limited oral access
Trichloroacetic acid	Non-invasive	Multiple sessions

CONCLUSION

Oral verruca vulgaris is an uncommon yet clinically significant manifestation of HPV infection that requires accurate diagnosis and appropriate management. Dental clinicians should be aware of the characteristic clinical and histopathological features that distinguish verruca vulgaris from other oral papillary lesions. Histopathological examination remains essential for definitive diagnosis, allowing differentiation from potentially malignant conditions. Conservative surgical excision with adequate margins continues to be the gold standard treatment, offering high success rates with minimal recurrence. Although spontaneous regression may occur in select cases, prompt treatment is generally recommended to prevent potential complications and address patient concerns regarding lesions. Understanding current diagnostic and management principles enables dental practitioners to provide evidence-based care for patients with oral verruca vulgaris.

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