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Review Article **Prosthodontics**

Diagnosis and Management of Angular Cheilitis after Prosthodontic Rehabilitation: An Overview

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Abstract

Angular cheilitis is a prevalent, multifactorial inflammatory lesion at the oral commissures that occurs with notable frequency in patients undergoing prosthodontic rehabilitation. Reduced occlusal vertical dimension, ill-fitting dentures, xerostomia, and Candida overgrowth are the principal predisposing factors. Diagnosis relies on clinical assessment supported by microbiological sampling to differentiate fungal from bacterial etiologies. Management requires a combined approach encompassing antifungal pharmacotherapy, prosthetic correction, including restoration of the occlusal vertical dimension, and optimization of oral and denture hygiene. The published evidence base for specific treatments remains limited, with very few randomized controlled trials available. Prosthodontists should adopt a systematic diagnostic framework that addresses both microbial and mechanical etiologies to reduce recurrence and improve the patient's quality of life.

Keywords: Angular cheilitis; prosthodontic rehabilitation; oral candidiasis; vertical dimension of occlusion; denture stomatitis; oral commissure.

INTRODUCTION

Angular cheilitis (AC) is an inflammatory condition of the lip commissures characterized by erythema, fissuring, ulceration, and crusting, which disproportionately affects elderly, denture-wearing, and immunologically compromised patients [1,2]. It functions both as a primary local infection and as a clinical sign of underlying systemic or local disease, with accumulating evidence linking its occurrence to inadequate prosthodontic rehabilitation [3,4]. Despite its prevalence in general dental practice, its management is frequently empirical, with most clinicians defaulting to antifungal agents without investigating the contributing mechanical or nutritional factors [3]. In the prosthodontic context, a reduced occlusal vertical dimension (OVD), ill-fitting dentures, and poor oral hygiene create conditions that predispose patients to recurrent or treatment-resistant AC [5,6]. The literature on AC in prosthodontic patients remains fragmented, with no dedicated systematic reviews and very limited randomized trial data [3]. This review explores the current evidence on the diagnosis, predisposing factors, and management of AC following prosthodontic rehabilitation, with particular attention to the interplay between prosthetic variables and disease pathogenesis.

Definition, Epidemiology, and Clinical Features

Angular cheilitis is a common inflammatory disorder of the lip commissures that presents as erythema, fissuring, crusting, and scaling, with or without ulceration, at one or both oral angles [1]. The condition has a mixed etiology, most often involving both bacterial and fungal components, and carries two age peaks — one in childhood and a second in adulthood — with its prevalence increasing progressively with age [1]. Clinically, four lesion types have been described. Type I, characterized by superficial erythema at the commissure without fissure formation, is the most

common presentation, whereas Types II–IV involve progressively deeper tissue involvement [7]. Microbiological analysis demonstrates organisms in the majority of cases, with Staphylococcus aureus isolated in 75.5% of positive cultures, Candida species in 48.4%, and Streptococcus in 13.5%, often in mixed culture [7]. In elderly populations who wear prostheses, the burden of denture-related oral mucosal disease is high; approximately 67% of patients presenting with oral lesions are active denture wearers, and AC is among the most prevalent lesions [8]. Older adults are particularly vulnerable because of the interplay between reduced salivary protection, polypharmacy, and prosthesis-related trauma, warranting routine oral examinations as part of prosthodontic recall [2].

Etiopathogenesis and Predisposing Factors in Prosthodontic Patients

The etiopathogenesis of AC in prosthodontic patients is multifactorial. Candida albicans is the primary microbial driver, and denture surfaces facilitate the formation of a protected microenvironment for biofilm formation. Salivary flow beneath the denture base is reduced, and the porous acrylic resin harbors yeast cells that may transition to the invasive hyphal form [10]. Risk factors, including immunosuppression, denture wearing, pharmacotherapeutics such as antibiotics and corticosteroids, advanced age, and decreased salivary flow, are well-recognized precipitants of candidal overgrowth [4]. Among prosthesis-specific factors, complete edentulism, denture instability, and reduced OVD were confirmed as independent predictors of AC in geriatric denture wearers [5]. A decreased OVD allows excessive commissural folding with salivary pooling and maceration at the oral angles, thereby generating a warm, moist environment in which fungal and bacterial co-infections flourish [6]. Xerostomia further amplifies this susceptibility: angular cheilitis is the most common oral mucosal pathology in patients with Sjögren syndrome and dry mouth syndrome, occurring in 18.2–22.2% of those with primary or secondary Sjögren syndrome, often coexisting with candidal infection [9]. Factors favoring AC in these patients include immunosuppression, tobacco use, endocrine disorders, and wearing removable prosthetic appliances, underscoring the close relationship between systemic conditions and prosthetic status [9].

Diagnosis and Management

The diagnosis of AC is primarily clinical and is based on the recognition of erythema, fissuring, crusting, and scaling at one or both lip commissures [1]. Microbiological swabs from the commissural lesion are indicated to distinguish fungal from bacterial etiology and to guide targeted therapy, particularly when first-line treatment has not produced resolution [7]. Broad differential diagnoses, including contact dermatitis, nutritional deficiency, and immune-mediated conditions, should be considered before committing to an antifungal-only regimen [1].

Antifungal agents remain the mainstay of pharmacological management. Topical formulations, including nystatin suspensions, clotrimazole, and miconazole gel, are widely used for Candida-predominant diseases, and oral candidiasis classifications spanning white and erythematous subtypes assist clinicians in selecting appropriate agents [11]. A combination of 1% isoconazole nitrate and 0.1% diflucortolone valerate ointment has demonstrated consistent clinical benefits by targeting both fungal and inflammatory components concurrently [3]. Despite the widespread use of antifungals, supporting randomized evidence is remarkably thin, with only two relevant trials published in the 1970s and the 1980s; well-designed clinical trials with larger patient samples are urgently needed [3]. In patients with coexisting denture stomatitis, management must extend beyond pharmacotherapy to include meticulous oral and denture hygiene, overnight denture removal, replacement or adjustment of ill-fitting prostheses, and smoking cessation [10]. Photodynamic therapy and B-vitamin supplementation have been investigated as adjunctive options and show promise, although neither has sufficient evidence for routine clinical recommendation [3]. From a prosthodontic perspective, restoration of the OVD is an essential mechanical intervention when commissural overclosure is identified as a contributing factor, addressing a root cause that pharmacotherapy alone cannot resolve [4,6].

CONCLUSION

Angular cheilitis in prosthodontic patients represents a clinically significant complication whose resolution demands a systematic, multifactorial diagnostic approach. Accurate identification of the underlying drivers, including fungal overgrowth, xerostomia, reduced OVD, and prosthesis-related factors, must precede treatment selection. A combined strategy that addresses microbial, mechanical, and occlusal etiologies offers the best outcomes for resolution and recurrence prevention. Prosthetic review, encompassing OVD restoration and thorough denture hygiene optimization, is as indispensable as antifungal pharmacotherapy. The current paucity of high-quality randomized evidence underscores the urgent need for well-designed trials to establish evidence-based management protocols specific to AC in prosthodontic rehabilitation.

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