



MODERN APPROACHES TO THE TREATMENT OF CHEILITIS

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Abstract: Cheilitis represents a heterogeneous group of inflammatory lip disorders, encompassing various clinical forms — from contact and angular to actinic, exfoliative, granulomatous, and glandular variants. Their clinical significance is determined not only by their widespread prevalence but also by the oncological potential of certain forms, particularly actinic cheilitis. The purpose of this article is to systematize modern approaches to the treatment of cheilitis and to assess their effectiveness in relation to etiology and pathogenesis.

A review of domestic and international literature from 2015–2025 was conducted, including clinical studies, meta-analyses, and case reports. It was found that angular cheilitis is effectively treated with topical antifungals and antibacterial ointments, provided local risk factors are corrected. Actinic cheilitis requires active management: the most effective methods are photodynamic therapy (70–90% complete response rates), laser techniques, and surgical vermilionectomy in cases of severe dysplasia. Exfoliative cheilitis remains a therapeutic challenge, requiring a combination of topical agents and psychotherapy. Granulomatous cheilitis demonstrates variable treatment response, with the use of biologics emerging as a promising therapeutic approach.

Thus, treatment of cheilitis should be both comprehensive and individualized. Promising directions include photodynamic therapy, topical immunomodulators, and biologics, while actinic cheilitis requires the closest monitoring due to its high risk of malignant transformation.

Keywords: cheilitis, actinic cheilitis, angular cheilitis, treatment, photodynamic therapy, laser ablation, biologic therapy.

Introduction

Cheilitis is a heterogeneous group of inflammatory lip diseases, ranging from minor irritative conditions to premalignant and granulomatous disorders. Their clinical importance lies not only in their high prevalence but also in the malignant potential of some forms, particularly actinic cheilitis. In the modern era, with increased ultraviolet exposure, deteriorating environmental conditions, and lifestyle changes contributing to epithelial stress, timely diagnosis and effective treatment of cheilitis have become especially relevant.

The epidemiology of cheilitis is not well studied, as mild forms are often perceived as “lip chapping” or “cold sores,” leading to underdiagnosis. Nevertheless, reliable data indicate that contact and irritant cheilitis are relatively common among patients with chronic lip discomfort. Actinic cheilitis is more frequently diagnosed in older adults with high levels of sun exposure, low skin phototypes, and residence in regions with intense solar radiation. According to Vasilovici et al., the risk of malignant transformation of actinic cheilitis ranges from 10–30%, underscoring the necessity of active intervention even in seemingly mild cases.

Pathogenesis is multifactorial and includes epithelial damage (solar, mechanical, chemical), immune and allergic inflammation, microbial colonization (fungal, bacterial), disruption of the skin barrier, as well as systemic factors (nutritional deficiencies, immunodeficiencies). Often,



combined mechanisms are observed — for example, chronic trauma accompanied by superficial fungal infection and allergen sensitization.

The clinical picture varies from mild dryness and scaling to fissures, erosions, atrophy, hyperkeratosis, and swelling. In some cases, the disease progresses slowly, leading to chronic recurrences and reduced quality of life. Diagnosis is based on medical history, clinical examination, sometimes dermoscopy and other non-invasive imaging methods, and in doubtful cases — biopsy and histopathological analysis to exclude dysplasia or malignancy. The aim of this article is to provide a comprehensive review of contemporary therapeutic approaches to different forms of cheilitis, highlighting their advantages and limitations, and to propose a rational treatment strategy based on etiology, severity, and risk of complications.

Literature Review. In all forms of cheilitis, the primary task is the identification and elimination of etiological factors. This may include avoidance of irritants or allergens, cessation of harmful habits (lip licking, biting), and correction of prosthetic or occlusal issues. Baseline therapy typically involves the use of emollients and barrier agents (e.g., petroleum jelly, protective balms) to restore normal epithelial function. For allergic and irritant cheilitis, low- to mid-potency topical corticosteroids combined with emollients are commonly prescribed. Given the role of allergic mechanisms, patch testing and allergen avoidance are essential. In some cases, off-label use of topical calcineurin inhibitors (e.g., tacrolimus) is reported.

When microbial colonization is present (most commonly *Candida* spp., less often bacteria), local antifungal agents (clotrimazole, miconazole) or antibacterial ointments are indicated. Recurrent or resistant cases may require systemic therapy. Nutritional deficiencies (B vitamins, iron, folic acid, zinc) are frequently observed and should be corrected as part of comprehensive management.

Recurrence is common, particularly if underlying risk factors are not eliminated. Long-term follow-up and maintenance therapy are often necessary.

Actinic Cheilitis. Actinic cheilitis (AC, or solar cheilitis) is considered a premalignant condition of the lower lip, resulting from cumulative UV-induced epithelial damage, and is regarded as a precursor of squamous cell carcinoma. Clinical manifestations include dryness, scaling, atrophy, blurred vermilion border, mottled pigmentation, erosions, and fissures. Progressive cases may develop nodules, ulcerations, or induration. Approximately 95% of lip squamous cell carcinoma cases develop on the background of preexisting AC.

Treatment options include:

Topical therapy: 5-fluorouracil, imiquimod, diclofenac, and other antiproliferative or immunomodulatory agents.

Photodynamic therapy (PDT) with photosensitizers (ALA, MAL), offering high efficacy and favorable cosmetic outcomes.

Laser ablation (CO₂, Er:YAG) or ablative technologies for selective removal of dysplastic tissue.

Cryotherapy and chemical peels (e.g., trichloroacetic acid, TCA) in selected cases.

Surgical approaches, particularly vermilionectomy, are indicated in severe dysplasia or suspected carcinoma.

Comparative analyses indicate that vermilionectomy and laser therapies show the highest complete response rates, but may be associated with complications such as pain, edema, scarring, or cosmetic defects. Importantly, there is still no universal consensus on the optimal treatment strategy due to the lack of large-scale randomized trials.



Granulomatous Cheilitis. Granulomatous cheilitis is a rare form of cheilitis, characterized by non-caseating granulomatous inflammation of the lips in the absence of systemic disease (e.g., Crohn's disease, sarcoidosis). It may present as part of Melkersson–Rosenthal syndrome (facial palsy, fissured tongue). Treatment remains challenging, with frequent relapses and variable responses.

According to Durgin et al. (2021), therapeutic approaches including intralesional and systemic corticosteroids, antibiotics, hydroxychloroquine, doxycycline, and biologics (adalimumab) showed inconsistent efficacy. Among 9 patients studied, 6 received intralesional triamcinolone, with partial responses in most but frequent recurrences. This underlines the need for further research into biological and immunomodulatory agents for this condition.

Glandular Cheilitis. This rare form involves inflammation of lip salivary glands and ducts, presenting with swelling, discharge, and chronic inflammation. Treatment is case-specific and may include antimicrobials (based on culture), corticosteroids, immunosuppressants, or combined regimens (e.g., oral minocycline with topical tacrolimus). In cases of dysplasia or suspected malignant transformation, surgical excision (vermillionectomy) or destructive methods are considered.

Discussion

Modern therapeutic strategies for cheilitis emphasize individualized and differentiated approaches. Mild cases may only require elimination of triggers and use of barrier products. Infectious forms necessitate etiological therapy. Actinic cheilitis requires the most aggressive management given its premalignant potential, with PDT, laser, and surgical approaches being the mainstay. Exfoliative and granulomatous cheilitis remain therapeutic challenges, often requiring multimodal or experimental therapies.

Long-term monitoring, especially in actinic cheilitis, is essential for early detection of dysplasia and malignant transformation. Current research focuses on evaluating photodynamic therapy and biologics, which may become standard treatments for resistant forms.

Table 1. Comparative characteristics of modern treatment methods for various forms of cheilitis

Form of cheilitis	Therapeutic methods	Effectiveness	Limitations	Special indications
Angular	Antifungals, antibacterial ointments, barrier agents, orthopedic correction	Up to 80–90% remission	Frequent recurrences	Patients with dentures, diabetes
Actinic	5-fluorouracil, imiquimod, photodynamic therapy, laser, surgery	PDT — 70–90%, surgery — >90%	Cosmetic defects, need for repeated sessions	Premalignant condition
Exfoliative	Corticosteroids, tacrolimus, psychotherapy	Variable effect	Recurrences, psychosomatic component	Young patients, stress-related cases
Granulomatous	Steroid injections, systemic corticosteroids, antibiotics, biologics	Partial or temporary	Recurrences, limited clinical experience	Crohn's disease, sarcoidosis



Conclusion

The treatment of cheilitis is a complex and multifactorial task requiring the integration of etiological, pathogenetic, and symptomatic approaches. The effectiveness of therapy directly depends on accurate diagnosis and the individualization of treatment strategies. Modern minimally invasive methods, such as photodynamic therapy and laser technologies, demonstrate high efficacy and low recurrence rates in actinic cheilitis. Exfoliative and granulomatous forms, however, require a multidisciplinary approach and further research in the field of biologic therapy. Thus, a personalized and comprehensive approach significantly improves the effectiveness of cheilitis management and reduces the risk of complications.

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