Formosa Journal of Sustainable Research (FJSR)
Vol.4, No.8, 2025: 1405-1414

The Role of Patient Education and Pharmacological Therapy in the Management of Exfoliative Cheilitis: A Literature Review

Ana Medawati[1*], Hartanti[2], Nika Nur Safitri[3]
[1]Departement of Biomedic
[2]Departement of Periodontic
[3]School of Clinical Dentistry, Faculty of Dentistry, Universitas Muhammadiyah Yogyakarta
Corresponding Author: Ana Medawati ana.medawati@umy.ac.id

A R T I C L E I N F O

Keywords: Exfoliative Cheilitis, Patient Education, Pharmacological Therapy, Topical Corticosteroids, Calcineurin Inhibitors, CBT

Received : 21 June
Revised : 23 July
Accepted: 23 Agustus

A B S T R A C T

Exfoliative cheilitis refers to a chronic inflammatory condition of the vermilion border of the lips, characterized by persistent desquamation, erythema, and crust formation, impacting both the physical and psychosocial aspects of affected individuals. Its etiology is multifactorial, involving environmental, psychological, infectious, and nutritional deficiency factors. This literature review aims to identify the pathogenesis of exfoliative cheilitis and evaluate the role of patient education and pharmacological therapy in its management. Patient education has been shown to be crucial in recognizing and avoiding triggering factors, while pharmacological therapy—such as topical corticosteroids, calcineurin inhibitors, and lip moisturizers—helps reduce inflammation and restore the skin's protective function. Moreover, psychological interventions such as cognitive behavioral therapy (CBT) have shown promising outcomes, particularly in patients experiencing stress and parafunctional habits. A multidisciplinary approach combining education, pharmacotherapy, and psychological therapy is expected to enhance the effectiveness of exfoliative cheilitis management and significantly improve patients' quality of life

DOI: https://doi.org/10.55927/fjsr.v4i8.507
ISSN-E: 2830-6228
https://mryformosapublisher.org/index.php/fjsr/index

INTRODUCTION

Exfoliative cheilitis is a rare inflammatory condition affecting the vermilion of the lip, characterized by persistent peeling and desquamation of the keratin layer1. This chronic condition manifests through a characteristic clinical picture of thick keratin desquamation, erythema, and crusting of the lip surface, creating a cyclic pattern of exfoliation and regeneration2. Unlike most lip conditions, exfoliative cheilitis exhibits persistent desquamation and does not respond to conventional treatment approaches, making it extremely difficult to manage effectively3.

Clinical manifestations typically involve several phases, beginning with dry lips and progressing to the formation of thick scales or crusts that eventually fall off, exposing the erythematous or normal-appearing lip surface underneath4. This condition causes discomfort and functional limitations for affected individuals. Although it can occur at any age, studies demonstrate a higher prevalence among young adults and a slight predilection for women5.

Aside from clinical manifestations, exfoliative cheilitis can impact the social well-being of affected patients. Patients often experience functional impairments such as difficulty eating, especially with spicy or acidic foods, discomfort speaking, and a persistent pain or burning sensation in the lips6. Exfoliative cheilitis can also cause significant aesthetic problems, often leading to psychological distress, decreased self-esteem, and social isolation7. Many patients report feelings of embarrassment during social interactions, which ultimately impacts their quality of life and interpersonal relationships8.

Despite its significant impact on affected individuals, exfoliative cheilitis remains poorly understood in the medical community, with ongoing debate regarding its etiology, classification, and optimal treatment approach9. This condition presents a diagnostic challenge due to its clinical similarity to other lip disorders and the lack of definitive diagnostic criteria or laboratory markers. Although several contributing factors have been proposed, including psychological factors, local irritants, nutritional deficiencies, and microbial infections, the precise pathogenesis mechanism remains incompletely characterized10.

The purpose of this literature review is to identify and elucidate the pathogenetic mechanisms of exfoliative cheilitis based on references from existing journal literature. By synthesizing current evidence, this review aims to provide a comprehensive understanding of the mechanisms underlying this condition, facilitate improved diagnostic accuracy, and inform the development of effective management strategies based on patient education and pharmacological interventions.

LITERATURE REVIEW

Pathogenesis of Exfoliative Cheilitis

1. **ETIOLOGY**

Exfoliative cheilitis is an inflammatory condition characterized by peeling of the surface keratin on the lips, which can be triggered by various environmental factors such as sun exposure and allergies11, 12. Exposure to sunlight, particularly UVB, can cause damage to the skin layer of the lips and trigger an inflammatory response. Research suggests that UVB contributes to skin damage and the development of chronic dermatitis, including exfoliative cheilitis11. UV radiation can increase the production of reactive oxygen species (ROS) in the lip epithelium, leading to oxidative stress and cell damage that trigger an inflammatory response and alter the normal keratinization process13. Various allergens and environmental irritants have also been identified as potential etiologic factors in the development of exfoliative cheilitis. Environmental allergens play a role in the etiology of exfoliative cheilitis. Individuals with a history of atopic dermatitis or allergic reactions to certain substances such as food, dust, or skin care products are more susceptible to this condition14. Chemicals in lip care products, toothpaste, food, and cosmetics can trigger hypersensitivity reactions that contribute to the pathogenesis of exfoliative cheilitis5.

According to a case-control study conducted on 56 patients with exfoliative cheilitis and 112 healthy controls, contact allergies to preservatives in lip care products (22%), food colorings (18%), and mint flavors in toothpaste (15%) were found to be significantly higher in the exfoliative cheilitis group compared to the control group ($p<0.01$)15.

Environmental factors frequently interact with an individual's predisposition to developing exfoliative cheilitis. The increased prevalence of allergies associated with air pollution and high allergen exposure may be triggers for exfoliative cheilitis16,17.

Other factors that can contribute to exfoliative cheilitis include emotional stress, anxiety disorders, and depression, which are often associated with parafunctional habits such as lip licking or biting. Emotional stress can affect overall mental health, which can trigger bad habits. Research exhibits that individuals experiencing stress are more likely to engage in lip licking as a way to cope with anxiety or discomfort18,19. This action is often unconscious, but it can become a repetitive habit, potentially causing damage to lip tissue and triggering exfoliative cheilitis20.

Furthermore, psychological conditions such as anxiety disorders and depression are also recognized as closely linked to parafunctional habits. In this context, various studies have shown that patients with anxiety disorders frequently engage in behaviors such as lip biting or licking, which can contribute to the development of exfoliative cheilitis. Many patients with these habits also exhibit signs of depression and anxiety, which worsen their lip condition21,22. Lip licking can cause damage to the protective barrier of the lips, largely due to digestive enzymes in saliva. When lips are repeatedly licked, saliva containing enzymes such as amylase and lipase can contribute to irritation of the lip epithelium. These enzymes are designed to break down food, so continued

exposure to these enzymes can damage the protective keratin layer lining the lips, increasing the likelihood of irritation and inflammation that can contribute to exfoliative cheilitis23.

Fungal infections, particularly those of the genus Candida, are a common cause of secondary infections that can be associated with exfoliative cheilitis. One study suggests that fungal infections can trigger an inflammatory response that worsens damage to the lip epidermis24. Bacterial infections, on the other hand, can also play a significant role as a secondary factor in exfoliative cheilitis. Studies have demonstrated that various bacteria, including Staphylococcus aureus, can cause secondary infections in already irritated skin tissue, although not all references support the involvement of this specific pathogen in cases of exfoliative cheilitis25. The presence of these bacteria on the damaged lip surface can exacerbate the condition, causing greater discomfort and slowing the healing process. With bacterial infection, symptoms such as redness, pain, and swelling can increase, making the management of exfoliative cheilitis more difficult26.

Exfoliative cheilitis is principally an inflammatory condition of the lips that can be triggered or worsened by nutritional deficiencies, particularly vitamin deficiencies, such as vitamin B12 and iron, as well as systemic conditions such as Sjögren's syndrome. Research suggests that vitamin B12 deficiency can cause papillary atrophy and changes in the oral surface, which can affect lip health. Vitamin B12 deficiency can also cause glossitis and other conditions affecting the oral mucosa, in which the lips become more susceptible to damage and peeling27,28. Iron is also an important component in maintaining the integrity of the mucosal epithelium. Iron deficiency anemia, which is often associated with poor nutritional status, can reduce the body's ability to cope with stress and irritation to the mucosa, including the lips. Research shows that individuals with iron deficiency may develop mucosal lesions, including cheilitis, caused by compromised tissue quality and resilience26,29.

Further, Sjögren's syndrome, an autoimmune disease that affects saliva and tear production, can worsen exfoliative cheilitis. In this condition, dryness of the mouth and lips can occur, which increases the likelihood of irritation and damage to the lips due to a lack of moisture. This disorder can worsen susceptibility to infection and inflammation, which can ultimately contribute to exfoliative cheilitis26.

METHODOLOGY

Clinical Manifestations

Exfoliative cheilitis has several clinical manifestations that include several important characteristics, encompassing thick keratinized desquamation, fissures, erythema, edema, and the formation of bleeding crusts on the lips. Thick keratinized desquamation occurs due to damage and sloughing of the upper layer of the lip epithelium, resulting in a rough and raised appearance on the surface. This process is often accompanied by fissures, which are cracks or fissures that appear on the lips, which can be caused by dryness or irritation26. Fissures on the surface of the lips are a common clinical manifestation of exfoliative cheilitis. In a cross-sectional study conducted by Mani and Shareef of 52 patients with exfoliative cheilitis, lip fissures were found in 76% of cases, with variations in size, depth, and distribution. Fissures are frequently localized in areas with thick crusts and can serve as entry points for microorganisms, leading to secondary infections30.

Erythema in exfoliative cheilitis is a manifestation of the underlying inflammatory response and can be prominently seen after the keratin layer is removed, often with a clear border against the normal perioral skin. Erythema or redness of the lips is a consistent clinical sign in exfoliative cheilitis, particularly noticeable after the keratin layer has been removed31. Edema or swelling of the lips is also frequently seen in exfoliative cheilitis, although with varying degrees of severity. Edema in exfoliative cheilitis results from the exudation of inflammatory fluid and increased capillary permeability, which contributes to the discomfort and aesthetic changes experienced by patients32.

Crust formation, especially bloody crusts, is another significant clinical manifestation in many cases of exfoliative cheilitis. The crusts of exfoliative cheilitis have a characteristic appearance, often yellow-brown or blackish if there is a hemorrhagic component, and have a tendency to adhere firmly to the underlying epithelium33.

Subjective symptoms of exfoliative cheilitis often include itching, burning, and pain experienced by the individual. These symptoms represent an inflammatory response that can contribute to discomfort and interfere with daily functions, such as speaking and eating. Itching in the lip area may indicate irritation caused by the inflammatory skin condition, while a burning sensation is often felt when the lesions worsen or when exposed to irritants such as saliva or environmental components8.

Exfoliative cheilitis has distinctive histopathological features, with key findings including parakeratosis, acanthosis, mild lymphocytic infiltration, and bacterial colonies on the epithelial surface. Parakeratosis, characterized by the presence of incompletely desquamated keratinized cells, indicates a delay in epithelial regeneration. This is often seen in chronic inflammatory conditions, where the growth of keratinized cells does not keep pace with the normal process of cell destruction. Acanthosis, which describes thickening of the epidermal layer, may be indicated by an increase in the number of keratinocytes in the stratum basale and an increase in the thickness of the stratum spinosum34.

Also, mild lymphocytic infiltration is a common inflammatory response seen in conditions such as exfoliative cheilitis. The presence of lymphocytes in

the papillary dermis and between epithelial cells indicates that an immune process is taking place, with lymphocytes serving to defend the tissue from infection and further damage that may be induced by external factors35. In addition, bacterial colonies on the epithelial surface indicate the presence of secondary infection that may contribute to the inflammation and condition of exfoliative cheilitis. An increased bacterial population on the surface of the lips, especially after desquamation and erosion of the epithelium, may make the area more susceptible to infection, which may further increase the symptoms and severity of the condition36.

RESULTS AND DISCUSSION

Diagnosis

A detailed history and clinical examination are often sufficient to diagnose exfoliative cheilitis, making this approach crucial in establishing the diagnosis. A thorough history includes gathering information about the patient's medical history, including the chief complaint, such as itching, burning, or pain of the lips, and any habits that may contribute to the condition, such as lip licking or biting. The clinical examination, on the other hand, is crucial for identifying characteristic physical signs. In exfoliative cheilitis, the examination may reveal keratinized desquamation, fissures, erythema, and possibly even bleeding crusts around the vermilion border of the lips. The presence of thick keratinized desquamation and fissures can be clearly seen on examination, providing a strong clue to the diagnosis without the need for advanced diagnostic techniques8.

Biopsy can help identify specific histopathological changes that may provide clues to the correct diagnosis. Studies have exhibited that histopathological examination can reveal features such as parakeratosis and lymphocytic infiltration, which are common in exfoliative cheilitis, but can also differentiate it from other conditions such as cheilocandidiasis, which is characterized by fungal colonization and other specific manifestations37. In the context of actinic cheilitis, where sun damage to the lips can cause lesions similar to exfoliative cheilitis, a biopsy is also needed to assess for precancerous changes such as dysplasia or squamous cell carcinoma. This examination serves to ensure that no underlying lesions require further medical attention, especially in the elderly population, who are at high risk for actinic damage38.

Treatment Challenges

Treatment of exfoliative cheilitis often involves the use of topical corticosteroids as a primary strategy to reduce inflammation and improve lip health. Topical corticosteroids are effective in reducing inflammation and irritation caused by this condition, as well as aiding in the recovery of the lip epidermis. The use of topical corticosteroids, such as triamcinolone acetonide, can generally provide significant improvement in patients with inflammatory skin conditions, including the lips, based on literature demonstrating the effectiveness of corticosteroids in suppressing inflammation and reducing symptoms such as itching, pain, and desquamation38. In this case, topical corticosteroid therapy can help manage the consequences of inflammation in the area39.

Treatment of exfoliative cheilitis may involve the use of immunomodulatory agents such as calcineurin inhibitors, as well as lip balms to support the healing process and reduce symptoms. Topical calcineurin inhibitors, such as tacrolimus and pimecrolimus, have been shown to be effective in managing chronic inflammatory conditions, including atopic dermatitis, and may also be used in the treatment of exfoliative cheilitis. These agents work by inhibiting T-cell activity and reducing inflammation, without the side effects common with corticosteroids, making them an attractive alternative for patients who are sensitive to hormonal therapy or do not respond well to corticosteroids40.

Using lip moisturizer is also essential in managing exfoliative cheilitis. Moisturizers help maintain moisture in the affected area, repair the skin barrier, and soothe irritation that can worsen the condition. Studies have demonstrated that moisturizers formulated with ingredients like natural extracts or carrageenan can increase lip hydration and support the repair of epithelial damage41,42.

Combining pharmacological therapy with psychotherapy often provides better results in managing recurrent exfoliative cheilitis. In this context, pharmacological therapy may include the use of topical corticosteroids to reduce inflammation and irritation, while psychotherapy, such as cognitive-behavioral therapy (CBT), can help patients manage stress and maladaptive behaviors that contribute to the condition43.

CONCLUSION AND RECOMMENDATION

Exfoliative cheilitis is a chronic inflammatory condition of the lips characterized by persistent desquamation, erythema, and crusting, which has not only physical but also psychosocial impacts on sufferers. Its etiology is multifactorial, involving environmental, psychological, infectious, and nutritional deficiencies. The diagnosis is based on a thorough history and clinical examination, with histopathological support if necessary.

Management of exfoliative cheilitis requires a multidisciplinary approach. Patient education is key in identifying and avoiding triggers, while pharmacological therapies, such as topical corticosteroids, calcineurin inhibitors, and lip balms, play an important role in reducing inflammation and improving skin barrier function. Combination with psychological therapies such as cognitive behavioral therapy (CBT) has been shown to be more effective in reducing recurrence, especially in patients with stress and parafunctional habits.

With a thorough understanding of the pathogenesis and a comprehensive treatment approach, exfoliative cheilitis can be managed more effectively, significantly improving the patient's quality of life.

FUTHER STUDY

This research still has delays, so it is necessary to conduct further research related to the topic The Role of Patient Education and Pharmacological Therapy in the Management of Exfoliative Cheilitis: A Literature Review in order to improve this research and add insight for readers.

REFERENCES

Agustina D, Subagyo G. Exfoliative Cheilitis dan Penatalaksanaannya. Majalah Kedokteran Gigi Indonesia. 2012 Dec 30;19(1):49.

Agustina D, Subagyo G. Exfoliative Cheilitis dan Penatalaksanaannya. Majalah Kedokteran Gigi Indonesia. 2012 Dec 30;19(1):49.

Agustina D, Subagyo G. Exfoliative Cheilitis dan Penatalaksanaanya. Majalah Kedokteran Gigi. 2012 Jun;(19):49–52.

Almazrooa SA, Woo SB, Mawardi H, Treister N. Characterization and management of exfoliative cheilitis: a single-center experience. Oral Surg Oral Med Oral Pathol Oral Radiol. 2013 Dec;116(6):e485–9.

Aydin E, Gokoglu O, Ozcurumez G, Aydin H. Factitious cheilitis: A case report. J Med Case Rep. 2008 Jan 29;2.

Blagec T. Association between Allergic Reactions and Lip Inflammatory Lesions (Cheilitis). Acta Clin Croat. 2023;

Cox S V., Ambrosio DS, Firetag B, Lundquist K, Moore JB. Presence of Incipient Fungal Infection in Atypical Squamous Lesions of the Lip. Am J Dermatopathol. 2021 Jul;43(7):489–92.

Dominica D, Sari DK, Handayani D, Zulkarnain D, Simanjuntak AT, Khairunisah D, et al. FORMULASI PELEMBAB BIBIR ALAMI DARI SARI BUAH JERUK KALAMANSI (Citrofortunella microcarpa) DAN EKSTRAK BUNGA ROSELLA (Hibiscus sabdariffa). Journal of Pharmaceutical and Sciences. 2023 Jan 8;6(1):26–36.

Eltoureini A, Alharbi H, Saleh W. A Rare Presentation of Chronic Exfoliative Cheilitis: Case Report. Clin Med Insights Case Rep. 2025 Jan 13;18.

Fonseca A, Jacob SE, Sindle A. Art of prevention: Practical interventions in lip-licking dermatitis. Int J Womens Dermatol. 2020 Dec;6(5):377–80.

Georgakopoulou E, Loumou P, Grigoraki A, Panagiotopoulos A. Isolated lip dermatitis (atopic cheilitis), successfully treated with topical tacrolimus 0.03%. Med Oral Patol Oral Cir Bucal. 2021;e357–60.

Girijala RL, Falkner R, Dalton SR, Martin BD. Exfoliative Cheilitis as a Manifestation of Factitial Cheilitis. Cureus. 2018 May 2;10(5):e2565.

Girijala RL, Falkner R, Dalton SR, Martin BD. Exfoliative Cheilitis as a Manifestation of Factitial Cheilitis. Cureus. 2018 May 2;

Idris IS, Purnamasari AB, Suryani AI. Case of Erythroderma Skin Disorder Caused by Drug Eruption. Jurnal Biologi Tropis. 2024 Jun 8;24(2):530–4.

Kunwar A, Sahu AK, Sahoo S. Factitious cheilitis presenting as exfoliative cheilitis: A rare case report. Indian J Psychiatry. 2024 May;66(5):477–80.

Leyland L, Anne Field E. Case Report: Exfoliative Cheilitis Managed with Antidepressant Medication. Dent Update. 2004 Nov 2;31(9):524–6.

Leyland L, Anne Field E. Case Report: Exfoliative Cheilitis Managed with Antidepressant Medication. Dent Update. 2004 Nov 2;31(9):524–6.

Lopes MLD de S, Silva Júnior FL da, Lima KC, Oliveira PT de, Silveira ÉJD da. Clinicopathological profile and management of 161 cases of actinic cheilitis. An Bras Dermatol. 2015 Aug;90(4):505–12.

M, Radiono S, - E, Danarti R. TERAPI ISOTRETINOIN ORAL PADAPSORIASIS ERITRODERMA YANG MENYERUPAI IKTIOSIS

HEREDITER: LAPORAN KASUS DAN TELAAH PUSTAKA. MediaDermato-Venereologica Indonesiana. 2019 Jul 26;46(2).

Mani SA, Shareef BT. Exfoliative cheilitis: report of a case. J Can Dent Assoc. 2007 Sep;73(7):629–32.

Mani SA, Shareef BT. Exfoliative cheilitis: report of a case. J Can Dent Assoc. 2007 Sep;73(7):629–32.

Mersil S, Limanda Ni. Management of Exfoliative Cheilitis. e-GiGi. 2022 Jul 27;10(2):214.

Mersil S, Limanda Ni. Management of Exfoliative Cheilitis. e-GiGi. 2022 Jul 27;10(2):214.

Mersil S, Limanda Ni. Management of Exfoliative Cheilitis. e-GiGi. 2022 Jul 27;10(2):214.

Mersil S. Stomatitis sebagai Manifestasi Oral dari Anemia Defisiensi Zat Besi disertai Trombositosis. e-GiGi. 2021 Jul 14;9(2):181–3.

Monaheng Sefotho M, Serjanaj B, Karthik S, Saadati SA. The Psychosomatic Interface of Stress and Skin Disorders: Patient Experiences and Perceptions. Journal of Personality and Psychosomatic Research. 2023;2(2):26–33.

Novak-Bilić G. Irritant and Allergic Contact Dermatitis – Skin Lesion Characteristics. Acta Clin Croat. 2018;

Nurfadilah N, Supit ASR, Pangemanan DHC. Atrophic Glossitis pada Defisiensi Nutrisi. e- GiGi. 2023 May 6;11(2):252–7.

O'Gorman SM, Torgerson RR. Contact allergy in cheilitis. Int J Dermatol. 2016 Jul 6;55(7).

Ohta K, Yoshimura H. Candida- Associated Cheilitis. Am J Med Sci. 2020 Dec;360(6):e17–8.

Putra AP, Mellaratna WP. Penggunaan Kalsineurin Inhibitor Topikal pada Dermatitis Atopik. GALENICAL : Jurnal Kedokteran dan Kesehatan Mahasiswa Malikussaleh. 2023 Nov 12;2(5):27.

Radochová V, Slezák R, Radocha J. Oral Manifestations of Nutritional Deficiencies: Single Centre Analysis. Acta Medica (Hradec Kralove, Czech Republic). 2020;63(3):95–100.

Simbolon BP, Sjabaroeddin S, Irsa L. Penggunaan Kortikosteroid Intranasal Dalam Tata Laksana Rinitis Alergi pada Anak. Sari Pediatri. 2016 Dec 5;8(1):54.

Stone RJ, Labert GM, Norman RA. Lip-Lick Cheilitis and Its Connection to the Brain. Cureus. 2024 Jul 11;

Sujuliyani S, Pebriyanti P, H. Sipahutar Y. Formulasi Kapa dan Iota Karagenan dalam Pembuatan Produk Kosmetik Pelembap Bibir. J Pengolah Has Perikan Indones. 2021 Dec 20;24(3):330–6.

Terra M, Badr A, Baklola M, Hegazy I, Elmanzlawey M, Elrakhawy I, et al. Prevalence of adherence and its impact on quality of life in oral anticoagulant users in Egypt: A cross-sectional study from two Egyptian university hospitals. BMC Cardiovasc Disord. 2025 Feb 8;25(1):88.

Tindas KA, Homenta H, Porotuo J. Pola bakteri aerob yang berpotensi menyebabkan infeksi nosokomial di kamar operasi RSAD Robert Wolter Mongisidi Manado. Jurnal e- Biomedik. 2016 Jul 12;4(2).

Ulusoy E, Abacı A. Exfoliative Cheilitis in Childhood: A Successful Treatment with Tacrolimus. The Journal of Pediatric Academy. 2023 Mar 31;4(1):39–41.

Venugopal DC, S S, Narasimhan M. A Rare Case of Intraoral Psoriasis. Cureus. 2019 Jul 22;

Waspodo NN. Dermatitis Atopik pada Anak. UMI Medical Journal. 2019 Nov 7;3(1):59–67.

Wati DF, Wulan WR. GAMBARAN EFEKTIVITAS PENERAPAN COGNITIVE BEHAVIOR THERAPY PADA KORBAN BENCANA DENGAN PTS (POST-TRAUMATIC STRESS DISORDER). REAL in Nursing Journal. 2018 Dec 28;1(3):95.

Wistiani W, Notoatmojo H. Hubungan Pajanan Alergen Terhadap Kejadian Alergi pada Anak. Sari Pediatri. 2016 Nov 17;13(3):185.

Zhang CH, Ma MS, Wang W, Jian S, Wang L, Li J, et al. [Clinical analysis of 49 cases of non-inflammasome related conditions]. Zhonghua Er Ke Za Zhi. 2022 Dec 2;60(12):1266–70.