The Impact of Oral Lesions on Children with Lichen Planus: A Comprehensive Analysis

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Abstract

Lichen planus (LP) is a long-term inflammatory condition of the skin and mucous membranes, particularly the oral mucosa. Although oral lichen planus (OLP) is more frequently seen in adults, juvenile instances pose particular difficulties for diagnosis, treatment, and overall quality of life (QoL). This paper examines the psychosocial implications and clinical characteristics of OLP in children, highlighting the substantial burden associated with oral lesions. Through a detailed analysis of pediatric cases, this study aims to shed light on the profound impact of these lesions on both physical and emotional well-being in young patients.

Keywords: "pediatric oral lichen planus","oral erosions","atrophic","oral mucosa","quality of life","psychosocial impact","multidisciplinary approach".

1. Introduction

Lichen planus (LP) is a relatively rare but chronic autoimmune disorder that primarily affects the skin and mucous membranes. OLP is the term used to describe the disease when it appears in the oral cavity. Although OLP is most frequently observed in adults, pediatric cases, while

less common, can have a significant impact on the affected child's quality of life. Oral lesions associated with OLP, particularly erosive and atrophic forms, are often painful and recurrent, leading to considerable discomfort and emotional distress. [1,2]

This article aims to provide a comprehensive understanding of the clinical and psychosocial impacts of OLP in children, focusing on the role of oral lesions in influencing quality of life. The manifestations of OLP in pediatric patients are underresearched, making this analysis critical for improving clinical outcomes and providing supportive care for affected children.

2. CLINICAL MANIFESTATIONS OF OLP IN CHILDREN

Children with OLP can have a variety of lesions, but erosive, atrophic, and reticular patterns are the most prevalent types. The erosive form is often the most debilitating, as it results in painful ulcers or sores that interfere with the child's ability to eat, speak, and maintain oral hygiene. [3,4]

- Erosive Lesions: These lesions are characterized by open sores or ulcers on the oral mucosa, which are often accompanied by significant pain. Children with erosive OLP may have difficulty eating, leading to poor nutrition and weight loss. The chronic pain associated with these lesions can also interfere with regular activities, including school attendance and social interaction. [3,5,6]

- Atrophic Changes: Atrophic OLP in children manifests as thinning of the mucosal surfaces, often accompanied by erythema (redness) and a burning sensation. While less severe than the erosive form, atrophic lesions still result in considerable discomfort, particularly when consuming acidic or spicy foods. [1,7]

- Reticular Patterns: Reticular OLP is typically asymptomatic but presents as interlacing white lines or striae on the oral mucosa. While less painful, these lesions can become irritated, leading to mild discomfort. Reticular lesions, though visually noticeable, may not significantly impact the child's day-to-day activities unless secondary complications arise. [1,8]

3. PSYCHOSOCIAL IMPACT

The presence of painful and visible oral lesions can have profound psychological and emotional effects on children. Chronic discomfort, social isolation, and anxiety about the appearance of oral lesions often exacerbate the overall burden of the disease.

- Psychological Distress: Children with OLP may experience heightened levels of anxiety and stress due to the recurrent nature of the disease and the visibility of lesions in the mouth. Social situations, particularly those involving eating or speaking, can become sources of embarrassment, leading to a decrease in self-esteem and reluctance to engage in normal activities. [9,10]

- Social Isolation: The chronic nature of OLP and the associated pain can cause children to withdraw from social activities. School performance may suffer due to absences related to flare-ups of oral lesions or difficulties concentrating in class due to pain. The visible nature of

oral lesions can also lead to teasing or bullying, further compounding the child's sense of isolation. [3,11]

• Functional Limitations: Oral lesions, particularly erosive and atrophic forms, can impair basic functions such as eating, speaking, and oral hygiene. Difficulty maintaining oral health may increase the risk of secondary infections, further exacerbating the child's discomfort and distress. In severe cases, nutritional deficiencies and weight loss may occur, affecting the child's overall growth and development. [3,12]

4. QUALITY OF LIFE CONSIDERATIONS

The overall quality of life (QoL) for children with OLP is significantly compromised due to the chronic, recurrent nature of the disease, particularly when erosive or atrophic lesions are involved. Pain, discomfort, and psychosocial challenges contribute to a decreased QoL in these young patients. The Oral Health Impact Profile (OHIP) has been used to assess the functional and psychosocial impact of oral health conditions, including OLP, in children.

Studies have shown that children with OLP tend to have higher OHIP scores, indicating a greater degree of physical and psychological burden. The severity of the lesions, the duration of the disease, and the child's environment (urban vs. rural) all influence the overall impact on their QoL. Children from rural areas may experience more significant challenges due to delays in diagnosis and limited access to specialized care.

The physical, emotional, and social burdens of the disease can disrupt normal daily activities, such as eating, speaking, and interacting with peers. In children, these impacts may be even more pronounced due to their developmental stage, making early intervention and comprehensive management essential. Understanding the full extent of these impacts on QoL helps clinicians provide tailored treatment plans that address both physical symptoms and psychosocial well-being.

A. Physical Impact of Oral Lesions

The physical manifestations of OLP in children are largely driven by the type of lesions, most notably erosive and atrophic lesions. These lesions often result in significant discomfort, leading to functional limitations.

• Pain and Discomfort: Erosive lesions cause painful sores in the oral cavity, which can interfere with basic activities like eating, drinking, and speaking. The burning sensation often associated with atrophic lesions exacerbates the discomfort, making it difficult for children to maintain a normal diet. Consequently, some children may experience weight loss or nutritional deficiencies if the pain is not adequately controlled. [13,14]

• Difficulty in Oral Hygiene: Maintaining proper oral hygiene can become challenging for children with OLP due to the sensitivity of the mucosa and the presence of painful ulcers. Fear of causing more pain may lead to poor brushing habits, increasing the risk of secondary infections, such as oral candidiasis, and exacerbating the inflammation.

• Impact on Nutritional Intake: Because oral lesions make eating painful, children may avoid certain types of food, particularly those that are spicy, acidic, or hard, which can trigger or worsen symptoms. Over time, this avoidance may lead to inadequate nutritional intake, further affecting their overall health and development.

B. Psychological Impact

The psychological impact of OLP is a critical consideration, as the chronic and often painful nature of the disease can affect a child's emotional well-being and mental health.

• Anxiety and Depression: Children with OLP often experience anxiety related to their condition, especially during flare-ups when lesions are visible and painful. The recurrent nature of the disease can cause feelings of helplessness and frustration, contributing to symptoms of depression. This emotional burden is especially concerning when children feel isolated from peers due to their condition. [15,16]

• Fear of Social Situations: Visible oral lesions can cause embarrassment or self-consciousness in social settings, leading to avoidance of group activities or public speaking. This can be particularly difficult for school-aged children, as they may withdraw from normal social interactions and develop a sense of alienation. The emotional toll of social exclusion or bullying can be severe, and it can further exacerbate the psychological burden of OLP. [17,18]

• Impact on Self-Esteem: OLP, especially when it involves visible oral lesions, can significantly affect a child's self-esteem. Children may become overly concerned about their appearance, leading to a lack of confidence and reluctance to engage in normal childhood activities, such as participating in sports, school events, or peer group interactions. [19,20]

C. Functional Impact on Daily Life

Oral lesions associated with OLP can create functional limitations that affect a child’s ability to perform everyday activities.

• Interference with Eating: The pain and discomfort caused by oral lesions can make eating a difficult and unpleasant task for children. In severe cases, the child may avoid meals altogether, leading to malnutrition, poor growth, and diminished energy levels. Additionally, certain food textures or temperatures may exacerbate the pain, leading to further dietary restrictions.

• Impaired Speech: Painful oral lesions can hinder a child's ability to speak clearly, especially if the lesions are located on the tongue or inner cheeks. This can cause frustration and impact their ability to communicate effectively in both academic and social settings. Speech issues related to OLP can also contribute to feelings of isolation and a reluctance to participate in classroom discussions or social conversations. [21-23]

D. Social and School-Related Impacts

Children with OLP often experience challenges in school and other social environments, which can have lasting effects on their development and social integration.

• School Absenteeism: The chronic and recurrent nature of OLP, especially during flare-ups, may lead to frequent absences from school. The physical discomfort and emotional distress caused by the lesions can make it difficult for children to focus on their studies or maintain regular attendance. This can result in academic underperformance and a sense of falling behind their peers. [11,24]

• Impact on Peer Relationships: Social relationships can be particularly challenging for children with visible oral lesions. They may feel self-conscious about their appearance, leading to withdrawal from social interactions. Additionally, the visible nature of the disease may invite unwanted attention or bullying from peers, which can further damage a child's confidence and social integration.

• Participation in Extracurricular Activities: OLP may discourage children from engaging in extracurricular activities due to fear of pain or embarrassment. Participation in sports, art, music, or other hobbies that typically contribute to a child's social and emotional development may be reduced, limiting opportunities for building self-esteem and forming peer relationships.

E. Long-Term Quality of Life Considerations

The long-term impact of OLP on a child's quality of life is substantial, particularly if the condition is not well managed. While OLP is chronic and often lifelong, early diagnosis and intervention can help mitigate the most severe effects.

• Developmental Impact: Prolonged pain and discomfort from oral lesions can interfere with a child's overall growth and development. Poor nutrition, stress, and social isolation all contribute to a diminished quality of life and may result in developmental delays if not addressed promptly.

• Long-Term Psychological Effects: The emotional toll of dealing with a chronic illness like OLP in childhood can have long-term effects on mental health. Children who experience bullying, social isolation, or ongoing anxiety due to their condition may be more likely to develop depressive disorders or chronic anxiety in adulthood. [25,26]

5. TREATMENT AND MANAGEMENT OF PEDIATRIC OLP

Pediatric oral lichen planus (OLP) presents unique challenges due to the chronic, inflammatory nature of the disease and the profound impact it can have on a child's quality of life. The management of pediatric OLP requires a multidisciplinary (involving pediatricians, dermatologists, dentists, and mental health professionals) approach to address both the physical and psychological aspects of the disease. Treatment goals for pediatric OLP are primarily aimed at reducing symptoms, controlling inflammation, preventing secondary infections, and managing any associated psychological distress. Topical corticosteroids remain the mainstay of treatment for reducing inflammation and controlling symptoms. However, long-term management should also include psychological support and counseling, particularly for children experiencing anxiety or social withdrawal. Given that OLP is a long-term condition, treatment strategies must also account for the potential recurrence of lesions. [3,6,20]

A. Topical Corticosteroids

Topical corticosteroids are the cornerstone of treatment for OLP in both adults and children. These medications work by reducing inflammation, decreasing the severity of lesions, and alleviating associated pain. In severe cases, systemic therapies may be required, though these are less commonly prescribed for pediatric patients. [27-29] Commonly used topical corticosteroids include:

- Clobetasol propionate or fluocinonide: These are potent corticosteroids often applied to affected areas of the oral mucosa.
- Triamcinolone acetonide: Another common corticosteroid used in dental pastes that adhere to the mucosal surface for targeted relief.

In pediatric cases, topical corticosteroids are preferred over systemic treatments due to their localized effect and reduced risk of systemic side effects. The use of corticosteroids should be monitored closely to prevent potential side effects such as oral candidiasis (thrush), thinning of the mucosa, or development of steroid resistance.

B. Topical Immunomodulators

In cases where corticosteroids are insufficient or contraindicated, topical immunomodulators, such as tacrolimus or pimecrolimus, may be considered. These agents are often used as steroid-sparing alternatives, working by inhibiting T-cell activation and cytokine production, thus reducing inflammation. [6,27,28]

- Tacrolimus (0.1% ointment): Has shown efficacy in reducing lesion severity in some pediatric patients, particularly in steroid-resistant cases. However, long-term safety in children remains under investigation, and its use should be cautiously monitored.

C. Systemic Therapies

Systemic therapies are generally reserved for severe, recalcitrant cases of pediatric OLP where topical treatments have failed. These include:

- Systemic corticosteroids: Short-term courses of oral corticosteroids (e.g., prednisolone) may be prescribed in severe cases to rapidly control inflammation.
- Retinoids: Oral retinoids such as isotretinoin or acitretin have been used in some resistant cases, but they are less commonly prescribed in children due to potential side effects such as teratogenicity and mucocutaneous dryness.
- Hydroxychloroquine: An antimalarial drug with immunomodulatory properties, sometimes considered for refractory cases.

Given the potential side effects of systemic therapies, their use in pediatric populations is often minimized, and these treatments are usually administered under the guidance of a specialist. [3,6,27,30-32]

D. Pain Management

Pain associated with erosive or atrophic lesions is a significant concern for children with OLP, as it can affect eating, speaking, and general comfort. [3,6,27] Pain management strategies include:

- Topical anesthetics: These may include lidocaine gels or mouthwashes to provide temporary relief before meals or other activities that exacerbate pain.
- Systemic analgesics: Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen or acetaminophen, may be recommended for controlling pain and discomfort.

E. Oral Hygiene and Dietary Modifications

Maintaining good oral hygiene is critical in managing pediatric OLP, as it helps prevent secondary infections and minimizes irritation to the lesions. Children should also be advised to avoid foods that may exacerbate pain, such as spicy or acidic foods. [27,33] Key recommendations include:

- Gentle brushing with a soft-bristle toothbrush to avoid aggravating sensitive areas.
- Non-alcoholic mouthwashes or saline rinses to soothe the oral mucosa.
- Avoiding spicy, acidic, or hard foods: These can exacerbate pain and irritate lesions. Soft, bland diets are recommended during flare-ups to reduce discomfort during eating.

F. Psychological Support

The psychological impact of OLP in children can be profound, as the chronic and visible nature of the condition may lead to anxiety, social isolation, and reduced self-esteem. Given the emotional and psychological toll of OLP, children may benefit from counseling or cognitive behavioral therapy (CBT). Psychological interventions are often necessary to support the emotional well-being of pediatric patients. [15,34-36]

- Cognitive-behavioral therapy (CBT): This can help children manage anxiety and stress related to their condition, and it can improve coping mechanisms for dealing with flare-ups, with the social and psychological challenges of the disease.
- Counseling: Family counseling may be recommended to help parents and caregivers understand the psychological burden of OLP and offer emotional support.

G. Monitoring and Follow-Up

Given the chronic and recurrent nature of OLP, regular follow-up appointments are essential for monitoring disease progression, assessing treatment efficacy, and adjusting management plans as needed. Follow-up visits may include:

- Regular clinical examinations to evaluate lesion status.
- Adjustments to topical treatments depend on the severity and extent of lesions.
- Continuous psychosocial assessments to identify any emerging psychological issues.

H. Adjunct Therapies and Emerging Treatments

While corticosteroids and immunomodulators remain the mainstays of treatment, new therapeutic options are being explored to improve outcomes in pediatric OLP:

- Photodynamic therapy (PDT): This non-invasive treatment uses light-activated drugs to target inflammatory cells in the lesions. PDT is showing promise as an alternative for patients resistant to conventional therapies, though its long-term efficacy in pediatric populations requires further study. [37-40]
- Probiotics: Emerging evidence suggests that maintaining a healthy balance of oral microbiota may help reduce inflammation and prevent flare-ups in OLP, though further research is needed. [3,41-44]
- Laser therapy: Low-level laser therapy (LLLT) has been explored as a treatment for reducing pain and inflammation in OLP lesions, offering a non-invasive option for managing symptoms. [30,36,45-49]

6. CONCLUSIONS

Oral lichen planus in children presents a unique set of challenges, with oral lesions significantly impacting both the physical and psychological well-being of young patients. The chronic and often painful nature of the disease requires a comprehensive and multidisciplinary management approach that not only addresses the physical symptoms but also provides psychological support. Early diagnosis and intervention with topical corticosteroids, pain management, dietary modifications, and psychological support are critical to improving outcomes and reducing the long-term impact of OLP on a child's quality of life. Future research should focus on developing tailored treatment strategies for pediatric patients and improving access to care, particularly in rural areas where delays in diagnosis and treatment may exacerbate the disease's impact. Continued research into new therapies, such as photodynamic therapy and immunomodulators, holds promise for improving outcomes in pediatric patients. Additionally, regular follow-up and a personalized treatment plan are essential for managing this chronic condition and enhancing long-term well-being for pediatric patients.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

AUTHOR'S CONTRIBUTION

The authors MP, LL, AL, DEB, and NM had an equal scientific contribution to this research as GS, the first author.

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