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CLINICAL AND MICROBIOLOGICAL CHARACTERISTICS OF RECURRENT APHTHOUS STOMATITIS IN YOUNG ADULTS

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Abstract: Recurrent aphthous stomatitis (RAS) is one of the most common inflammatory diseases of the oral mucosa characterized by painful recurrent ulcerative lesions. Despite its high prevalence, the exact etiopathogenesis of the disease remains incompletely understood. The present study aimed to evaluate the clinical and microbiological characteristics of recurrent aphthous stomatitis and determine the significance of local inflammatory factors in disease progression. The study included 40 patients with clinically confirmed RAS who underwent стоматological and laboratory examination. Increased inflammatory markers, altered salivary pH, and microbial imbalance were significantly associated with recurrent ulcer formation. Statistical analysis revealed a strong correlation between ulcer severity and inflammatory activity ($r = 0.69$; $p < 0.001$). The findings confirm the important role of local immune dysfunction and microbial disturbances in recurrent aphthous stomatitis.

Keywords: recurrent aphthous stomatitis, oral ulceration, oral inflammation, salivary pH, microbiology, oral mucosa

Introduction

Diseases of the oral mucosa remain a major clinical problem in modern dentistry due to their high prevalence and recurrent nature. Recurrent aphthous stomatitis is among the most common chronic inflammatory disorders of the oral cavity and affects approximately 15–25% of the global population [1]. The condition is characterized by recurrent painful ulcerations that significantly impair quality of life, nutrition, and speech.

The exact etiology of recurrent aphthous stomatitis is multifactorial and includes genetic predisposition, immune dysregulation, microbial imbalance, nutritional deficiencies, emotional stress, and local mucosal trauma. Several studies indicate that disturbances in local immune responses contribute to excessive inflammatory activation and mucosal tissue destruction [2]. Microbiological factors also play an important role in disease progression. Alterations in oral microflora may increase mucosal susceptibility to ulcer formation and prolong inflammatory healing processes. Elevated concentrations of opportunistic microorganisms and acidic salivary environment contribute to epithelial damage and local immune dysfunction. Early identification of inflammatory and microbiological changes is essential for improving prevention and therapeutic strategies in patients with recurrent aphthous stomatitis.

Materials and Methods

This study was conducted at a dental clinical center and included 40 patients diagnosed with recurrent aphthous stomatitis. The mean age of participants was 23.9 ± 4.2 years. Men accounted for 18 patients (45%), while women represented 22 patients (55%). Clinical examination included assessment of ulcer number, lesion diameter, pain severity using visual analogue scale (VAS), and duration of recurrence episodes. Salivary pH analysis and microbiological examination of oral cavity samples were performed. Laboratory evaluation included C-reactive protein (CRP) and leukocyte count.

Patients with systemic autoimmune diseases, severe immunodeficiency, and recent antibiotic therapy were excluded from the study. Statistical analysis was conducted using Pearson correlation analysis and variation statistics. Quantitative variables were expressed as mean ± standard deviation (M±SD). Statistical significance was accepted at $p < 0.05$.

Results

The study demonstrated significant inflammatory and microbiological disturbances in patients with recurrent aphthous stomatitis. The average number of aphthous ulcers per episode was 3.2 ± 1.1, while mean ulcer diameter reached 5.4 ± 1.3 mm. Pain severity according to VAS averaged 6.8 ± 1.5 points. Salivary pH was reduced to 6.1 ± 0.5 in patients with severe recurrent lesions, indicating increased acidity of the oral environment. Elevated CRP levels were identified in 57.5% of patients and correlated with ulcer severity ($r = 0.69$; $p < 0.001$).

Microbiological analysis demonstrated increased colonization by opportunistic microorganisms, including Candida albicans in 35% of cases and Streptococcus mutans in 52.5%. Patients with recurrent episodes more than four times per year showed significantly higher microbial colonization rates. Women demonstrated slightly higher recurrence frequency than men, whereas men had larger ulcer diameter and longer healing periods. Emotional stress was identified as a triggering factor in 62.5% of patients, while nutritional deficiencies were present in approximately 30%.

Patients with poor oral hygiene demonstrated recurrence intervals approximately 1.8 times shorter compared to individuals with adequate oral care. Additionally, smoking was associated with delayed epithelial healing and prolonged inflammatory response.

Discussion

The findings confirm that recurrent aphthous stomatitis is strongly associated with inflammatory activation and oral microbial imbalance. Elevated inflammatory markers and acidic salivary environment contribute to mucosal tissue damage and delayed epithelial regeneration. The increased prevalence of opportunistic microorganisms suggests that microbiological dysbiosis may play an important role in maintaining chronic inflammatory activity. Similar results have been described in previous studies investigating oral mucosal immunity and recurrent ulcerative disorders [3].

Psychological stress was identified as a major precipitating factor, likely due to its effects on immune regulation and inflammatory mediator release. Nutritional deficiencies additionally impair mucosal regeneration and local defense mechanisms. The significant association between oral hygiene quality and recurrence frequency highlights the importance of preventive oral care in reducing disease progression and improving patient outcomes.

Conclusion

Recurrent aphthous stomatitis is associated with significant inflammatory and microbiological disturbances that contribute to recurrent ulcer formation and prolonged mucosal healing. Elevated inflammatory markers, acidic salivary environment, and microbial imbalance were identified as major contributors to disease severity.

The findings demonstrate the importance of early diagnosis, microbiological assessment, and preventive oral hygiene strategies in reducing recurrence frequency and improving quality of life in patients with recurrent aphthous stomatitis.

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