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Multiform Exudative Erythema of the Oral Mucosa: Diagnosis and Comprehensive Treatment

Gurbanov Ramin Yagub[1], Huseynova Mehriban Khalil[2], Ibragimov Elshad Agaveli[3]
[1,2,3]Azerbaijan Medical University, Azerbaijan

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ABSTRACT

***Objective**: This study aims to improve the diagnosis and comprehensive treatment of multiform exudative erythema (MEE) in patients through a developed treatment algorithm, evaluating both subjective and objective criteria of the oral mucosa and local humoral immunity. **Method**: A total of 81 patients with MEE were treated according to a developed treatment protocol, with 30 patients in a comparison group receiving traditional therapy. Patient assessments included clinical examinations, immunological testing (s-IgA, IL-6, phagocytic index), and dental quality-of-life indicators using the OHIP-14-RU questionnaire. The main group received the newly developed therapeutic algorithm, while the comparison group received traditional treatments. **Results**: The main group showed significant improvements in pain reduction, lesion healing, and oral mucosa condition compared to the comparison group. The OHIP-14-RU scores improved by 8 points in the main group, indicating enhanced quality of life. **Novelty**: The study introduces a new therapeutic-hygienic algorithm for MEE treatment, which results in faster healing, improved clinical and immunological parameters, and a significant improvement in oral health-related quality of life.*

INTRODUCTION

The issues of diagnosis and comprehensive treatment of nonspecific diseases of the oral cavity, including multiform exudative erythema (MEE), remain among the most challenging in dentistry [1], [2]. This inflammatory disease of the mucous membranes and skin is characterized by polymorphism of lesion elements (blisters, spots, vesicles). The etiopathogenetic aspects of MEE are not yet fully understood, as numerous factors influence its development.

MEE typically has an acute onset and a prolonged relapsing course, with exacerbations occurring primarily during the autumn–spring period. It is more common in young men aged 20–40 years. Triggering mechanisms include foci of chronic disease, reduced body reactivity, hypovitaminosis, viral infections, hypothermia, stress, and other factors [3], [4].

Etiologically, two types of MEE are distinguished: true (idiopathic), with an infectious-allergic origin, diagnosed in the majority of patients (up to 93%), and toxic-allergic (symptomatic), such as Stevens-Johnson syndrome, which occurs less frequently and essentially represents a hyperergic reaction of the body to medications (antibiotics, salicylates, amidopyrine, etc.). The toxic-allergic form is diagnosed based on medical history regarding drug intake, results of in vitro immunological tests (Shelly basophil degranulation test, lymphocyte blast transformation test, cytopathological test), and

remission following discontinuation of the offending drug. Diagnosis is generally straightforward when skin rashes are present.

MEE often initially manifests in the oral cavity, making it essential in dental practice to promptly recognize its oral manifestations and differentiate them from other oral diseases. Therefore, early diagnosis, oral treatment, and preventive measures during remission remain highly relevant for patients with MEE [5], [6].

Clinical Manifestations and Quality of Life

Subjective symptoms such as halitosis, altered taste perception, severe pain while eating, and pain during speech, as well as objective signs such as excessive salivation, changes in tongue relief, alteration in the color and size of erosions, and dental plaque, negatively affect the emotional state of patients and over time can lead to psychological disturbances, including feelings of inadequacy. Consequently, the quality of life in this patient group is significantly impaired. Assessment of dental parameters using the OHIP-14-RU questionnaire allows for evaluation of both quality of life and oral mucosa (OM) condition in patients with MEE [7], [8].

Aim of the Study

The aim of this study was to improve the effectiveness of diagnosis and comprehensive treatment in patients with multiform exudative erythema.

RESEARCH METHOD

The dental status examination was performed using standard methodologies. The following indices were evaluated: DMF (Decayed, Missing, Filled teeth), PBI (Papillary Bleeding Index), SPITN, OHIP-RU, condition of restorations and prosthetic constructions, occlusion, subjective data (discomfort, stomalgia of varying intensity, halitosis, altered taste perception), and objective data (changes in oral mucosa color, swelling, diffuse or localized erythema, oral dryness, mucosal defects, and dental imprints).

Immunological assessment of humoral factors in the oral cavity (s-IgA, IL-6, phagocytic index) was performed using enzyme-linked immunosorbent assay (ELISA). Dental quality-of-life indicators were assessed using the OHIP-14-RU questionnaire.

A total of 81 patients with multiform exudative erythema (MEE) underwent comprehensive treatment according to approved protocols. Local therapy was conducted traditionally in the comparison group (n = 30) and according to a developed algorithm in the main group (n = 51) [9].

Treatment protocols:

Comparison group (traditional therapy):

1. Analgesia with 1% lidocaine
2. Frequent, small meals of non-irritating, calorie-rich food
3. Oral antiseptic treatment with 0.02% chlorhexidine solution
4. Application of 1% methylene blue to erosions
5. Dexamethasone ointment 3–4 times/day for 3 days
6. Application of sea buckthorn or rosehip oil 3 times/day for 14 days

7. Use of regenerative dental hygiene toothpaste for 30 days

Main group (developed algorithm):

1. Analgesia with 1% lidocaine
2. Frequent, small meals of non-irritating, calorie-rich food
3. Oral antiseptic treatment with 0.02% chlorhexidine bigluconate
4. Dexamethasone ointment 3–4 times/day for 3 days
5. Application of Raporef ointment for 5–7 minutes, 7-day course
6. Topicrem CICA for the red border of the lips once daily, 1-month course
7. Comprehensive hygiene care with Splat-Professional toothpaste and mouthwash for 30 days at home to support oral immunity

RESULT AND DISCUSSION

In a study of 161 patients with MEE, the caries prevalence was 88.5%, with a mean DMF index of 17.0 ± 3.25. Oral hygiene was unsatisfactory in all patients; 100% required professional cleaning, with a mean OHIP-RU index of 3.68 ± 0.88.

Periodontal tissue changes, indicative of chronic gingivitis, were observed in 100 patients (62%): mild in 65 patients (65%), moderate in 24 (24%), and severe in 11 (11%), according to the PBI index. Dental arch defects requiring rational prosthetics were found in 77 patients (48%). Malocclusion was identified in 28 patients (17%). According to SPITN, all patients required professional oral hygiene and comprehensive periodontal treatment [10], [11].

Oral mucosa assessment:

a. Subjective symptoms: 70% discomfort, 40.5% stomalgia, 35.5% halitosis, 9.5% altered taste perception
b. Objective signs: 66% mucosal color changes, 45.5% swelling, 30.5% diffuse or localized erythema, 12.5% mucosal defects (blister, erosion, ulcer), 10% dryness, 9.7% dental imprints

Quality of life (OHIP-14-RU):

a. Highest scores: “Psychological discomfort” 4.8, “Psychological distress” 4.2, indicating significant patient concern regarding aesthetic and psychological factors
b. Overall OHIP-14-RU score: 23.0 ± 0.18

Immunological findings:

a. s-IgA: 0.140 ± 0.06 g/L (significantly lower)
b. IL-6: 1.70 ± 0.10 pg/mL (significantly lower)
c. Phagocytic index: significantly reduced

These results indicate oral mucosal dysfunction, reflecting impaired migration of blood cells responsible for effective phagocytic defense of the oral mucosa.

The effectiveness of the traditional and newly developed algorithms for treating the oral mucosa (OM) was evaluated based on patient-reported complaints (pain) and healing time between groups. A reduction in pain was observed by day 6 in the comparison group and by day 3 in the main group.

When evaluating the epithelialization of desquamated areas of the OM, partial healing (PH) of pathological lesions began on day 3 in the main group and on day 7 in the comparison group. Complete epithelialization (CE) occurred on days 7–8 in the main group and days 12–13 in the comparison group. Statistically significant differences in healing times of oral lesions between the main and comparison groups were observed at 14 days ($\chi^2 = 52.58$) and 28 days ($\chi^2 = 50.31$).

Analysis of subjective and objective criteria after comprehensive treatment revealed differences between the main and comparison groups by day 7. For subjective symptoms in the main group, the following reductions were observed [11], [12], [13]:

a. Discomfort: 70.0% → 4%
b. Stomalgia of varying intensity: 40.5% → 6%
c. Halitosis: 35.5% → 0%
d. Altered taste perception: 9.5% → 0%

In the comparison group:

a. Discomfort: 70.0% → 35%
b. Stomalgia: 40.5% → 22%
c. Halitosis: 35.5% → 12%
d. Altered taste perception: 9.5% → 3.5%

For objective oral mucosa parameters in the main group, the reductions were as follows:

a. Localized lesions: 30.5% → 10.5%
b. OM defects (blister, erosion, ulcer): 72.5% → 25.5%
c. OM dryness: 10.0% → 0%
d. Dental imprints: 29.7% → 9.0%

In the comparison group, reductions were:

a. Oral mucosa color changes: 66.0% → 39.0%
b. Swelling: 45.5% → 20.0%
c. Diffuse and localized erythema: 30.5% → 15.5%
d. OM defects (blister, erosion, ulcer): 72.5% → 45.5%
e. OM dryness: 10.0% → 5.5%
f. Dental imprints: 29.7% → 15.0%

Analysis of immunological parameters in patients with MEE on day 14 of treatment revealed normalization of local humoral defense factors of the oral cavity (s-IgA, g/L; IL-6, pg/mL; phagocytic index) in both the main and comparison groups. However, statistically significant normalization was observed in the main group treated according to the newly developed local therapy algorithm.

Oral Health-Related Quality of Life (OHIP-14-RU) Assessment

Oral health-related quality of life, as assessed by the OHIP-14-RU questionnaire, differed between patients in the main and comparison groups. The overall OHIP-14-RU score improved by 8 points in the main group and by 4 points in the comparison group.

Analysis of individual OHIP-14-RU subscales revealed the following changes:

a. Functional limitation (FL): comparison group — 4.0 ± 0.12 points; main group — 3.1 ± 0.63 points
b. Physical discomfort (PD): comparison group — 3.7 ± 1.02 points; main group — 2.9 ± 0.1 points
c. Psychological discomfort (PsyD): comparison group — 4.0 ± 1.19 points; main group — 3.0 ± 0.61 points
d. Psychological disability (PsyDi): comparison group — 3.7 points; main group — 3.0 ± 0.67 points

As a result of our study, the integral OHIP-14-RU score (ΣOHIP-14-RU) for patients with MEE improved by 5 points in the main group, reaching 18.0 ± 0.13 points, and by 2 points in the comparison group, reaching 21.0 ± 0.12 points.

Analysis of Dental Parameters and Quality of Life

Analysis of dental parameters revealed differences between the study groups. The highest scores in patients prior to comprehensive treatment were observed on the "Psychological Discomfort" (PD) and "Psychological Disability" (PsyDi) scales, indicating that patients suffered due to impaired social interactions and concerns about their own aesthetic appearance [14], [15].

As a result of implementing the oral treatment algorithms, improvements in these parameters were observed in the main group:

a. PD: from 4.8 ± 1.01 to 3.1 ± 1.19 (improvement of 1.7 points)
b. PsyDi: from 4.2 ± 0.97 to 2.1 ± 0.67 (improvement of 2.1 points)

In the comparison group, the improvements were as follows:

a. PD: to 4.1 ± 1.19 (improvement of 0.7 points)
b. PsyDi: to 3.7 ± 0.77 (improvement of 0.5 points)

Across all scales, patients in the main group demonstrated more pronounced improvements in quality of life.

CONCLUSION

Fundamental Finding : This study demonstrates that multiform exudative erythema (MEE) primarily manifests in the oral mucosa, leading to significant reductions in oral health-related quality of life. The application of a developed oral therapeutic-hygienic algorithm significantly improves clinical and immunological indicators in patients with MEE. **Implication** : The findings suggest that early diagnosis and the use of a tailored therapeutic approach can significantly enhance the treatment outcomes for MEE, particularly in improving oral mucosa health and quality of life. These results emphasize the importance of individualized treatment protocols in managing chronic oral conditions. **Limitation** : One limitation of the study is the lack of long-term follow-up data to assess the sustainability of the treatment's effectiveness. Additionally, the study only evaluated short-term clinical outcomes, which may not fully capture the long-term benefits or potential relapses. **Future Research** : Future studies should focus on conducting long-term follow-up evaluations to determine the durability of treatment

effects and explore the potential for integrating other therapeutic innovations. Expanding the sample size and including diverse patient populations could also provide more comprehensive insights into the effectiveness of this approach.

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Gurbanov Ramin Yagub
Azerbaijan Medical University, Azerbaijan

Huseynova Mehriban Khalil
Azerbaijan Medical University, Azerbaijan

Ibragimov Elshad Agaveli
Azerbaijan Medical University, Azerbaijan