

Patient Acceptability and Clinical Healing Trends with Metronidazole Gel and Oxygen-Releasing Gel in the Management of Oral Ulcers: A Retrospective Observational Study

Lanka Mahesh¹, Meenu Taneja Bhasin^{2*}, Nilesh Rathi³ and Dr. Gaurav Mathpal⁴

¹Adjunct Professor, Department of Periodontology, Dr. D.Y. Patil Dental College and Hospital, Vidyapeeth, Pimpri, Pune, Maharashtra, India, ORCID ID: 0000-0003-0672-9639.

²Professor, Department of Periodontology, Sudha Rustagi College of Dental Sciences and Research, Faridabad, Haryana, India, ORCID ID: 0000-0001-9529-9452.

³Professor and Head, Department of Pediatric and Preventive Dentistry, Dr. D.Y. Patil Dental College and Hospital Vidyapeeth, Pimpri, Pune, Maharashtra, India.

⁴MDS Prosthodontist, Private Practice, New Delhi, India.

*Correspondence:

Meenu Taneja Bhasin, Professor, Department of Periodontology, Sudha Rustagi College of Dental Sciences and Research, Faridabad, Haryana, India, Tel: +91 98710 44433.

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ABSTRACT

Background: Oral ulcers are common, self-limiting lesions that cause pain and functional discomfort. Topical gels are frequently prescribed to improve healing and patient comfort; however, patient acceptability and compliance may influence clinical outcomes.

Aim: To evaluate patient acceptability and clinician-observed healing trends associated with metronidazole gel and an oxygen-releasing gel in the management of oral ulcers.

Materials and Methods: This retrospective observational study included 27 patients with clinically diagnosed oral ulcers managed in routine dental practice. Patients received either metronidazole gel or an oxygen-releasing oral gel as part of standard care. Outcomes assessed descriptively included patient acceptability, compliance, symptom relief, and time to clinical healing.

Results: Complete healing was observed in all cases. Metronidazole gel was associated with modest reductions in healing time but showed reduced patient acceptability due to unpleasant taste in some patients, leading to early discontinuation. The oxygen-releasing gel demonstrated better patient acceptability, improved comfort, and favorable clinical healing trends during follow-up.

Conclusion: Within the limitations of this retrospective observational study, the oxygen-releasing gel demonstrated superior patient acceptability and favorable healing trends compared with metronidazole gel. These findings highlight the importance of patient-centred outcomes in topical oral ulcer management and warrant further prospective studies.

Keywords

Oral ulcers, Metronidazole gel, Oxygen-releasing gel, Topical therapy, Wound healing.

Introduction

Oral ulcers are among the most frequently encountered lesions in dental practice and are commonly associated with pain, discomfort, difficulty in eating, and impaired quality of life. Management is largely symptomatic, focusing on pain relief, inflammation

control, prevention of secondary infection, and promotion of wound healing [1].

Topical antimicrobial agents are often prescribed to promote ulcer healing and reduce microbial load. Metronidazole-based gels are widely used for their antimicrobial and anti-inflammatory properties [2]; However, patient adherence may be influenced by taste, texture, and application comfort.

Oxygen-releasing oral care products have gained attention for their potential role in wound healing and antimicrobial activity. Adequate oxygen availability is essential for angiogenesis, collagen synthesis, fibroblast proliferation, and epithelial regeneration. Increased oxygen tension at wound sites has also been shown to create unfavorable conditions for anaerobic microorganisms [3-6].

Blue®m gel is an oxygen-based topical formulation designed to enhance tissue oxygenation and support physiological wound healing processes. While experimental and limited clinical studies suggest potential benefits of oxygen-releasing agents in oral wound management, evidence from routine dental practice remains limited [7].

This article presents a retrospective observational clinical series derived from routine dental practice, focusing on patient acceptability and clinician-observed healing trends following the use of metronidazole gel and blue®m gel in the management of oral ulcers.

Materials and Methods

This retrospective observational case series utilized routine clinical records from a private dental clinic. Outcomes are reported for 27 consecutive patients with clinically diagnosed oral ulcers who received topical gel therapy as part of standard clinical care. Clinical case records were screened to include patients who met the predefined inclusion criteria. Patients included in the study presented with one or more clinically diagnosed oral mucosal ulcers, including minor aphthous, traumatic, or mixed ulcers as encountered in routine practice. Patients received topical management with either metronidazole gel (Metrohex® or equivalent) or blue®m oxygen-releasing oral gel and had at least one documented follow-up visit within 1–2 weeks.

Patients were excluded if their records lacked important baseline or follow-up information, if their ulcers were caused by serious diseases needing specialist care, or if they had major procedures like biopsies or surgery that could affect the results.

All patients received standard supportive advice, including dietary avoidance of irritants, oral hygiene maintenance, and ulcer precautions. Concomitant medications such as analgesics, vitamins, and mouth rinses were recorded when available. As this was an observational case series, outcomes were described using clinical notes and patient feedback.

The following areas were recorded:

1. Patient acceptability / tolerability (primary observation)

- Patient-reported taste perception / comfort during use (as noted in records)
 - Willingness to continue the gel / perceived ease of use (compliance tendency)
2. Clinical healing trend (secondary observation)
 - Time to epithelialization or “clinically resolved” status where documented
 - Symptom relief (secondary observation)
 3. Patient-reported pain reduction (where documented; e.g., verbal report or VAS if used)

As this report describes a retrospective case series from regular care. All patient data were made anonymous, and no personal information was shared. Descriptive analysis was conducted. Continuous variables, such as time to healing where documented, were summarized using mean, median, and range. Categorical outcomes, such as acceptability, were reported as counts and percentages. Inferential statistics were not performed due to the observational design and small sample size.

Results

A total of 27 patients were included in the retrospective review, of whom 11 were male and 16 were female. The age of patients ranged from approximately 15 to 57 years.

Patient acceptability emerged as a key differentiating factor among topical management approaches for oral ulcers. Acceptability was influenced by taste perception, comfort during application, and willingness to continue therapy (Table 1).

Table 1: Patient demographics and observed acceptability outcomes.

Total number of patients	27
Gender distribution	11 males, 16 females
Age range (years)	15–57
Ulcer type	Clinically diagnosed oral ulcers
Topical agents used	Metronidazole gel / blue®m gel
Metronidazole gel – acceptability	Frequently associated with unpleasant taste
Metronidazole gel – compliance	Reduced; 2–3 patients discontinued early
blue®m gel – acceptability	Better taste perception and comfort
blue®m gel – compliance	Improved willingness to continue application
Overall healing outcome	Complete healing in all cases

Patients using metronidazole gel frequently reported unpleasant taste, leading to reduced compliance and early discontinuation in a small subset of cases, although healing continued. In contrast, patients managed with blue®m gel reported better comfort and taste perception, supporting improved compliance and satisfaction. These patients were more willing to continue topical application as advised and expressed greater satisfaction with the treatment experience.

From a patient-centred perspective, improved acceptability translated into better adherence and perceived symptomatic relief

during the healing phase, even though complete healing was ultimately observed across all groups. These observations highlight the importance of patient comfort and compliance when selecting adjunctive topical agents for the management of oral ulcers.

Discussion

Oral ulcers are self-limiting lesions, with spontaneous healing typically occurring in most cases without active topical intervention [1,8]. The present retrospective case series demonstrated complete healing in all patients, regardless of topical gel therapy use.

The clinical relevance of topical agents in oral ulcer management is primarily in reducing healing time, alleviating symptoms, and enhancing patient comfort and compliance during recovery, rather than altering the final healing outcome. The observations from this case series offer practical insights from routine clinical practice [8,9].

Metronidazole gel is commonly used as a topical antimicrobial agent in oral ulcer management because of its efficacy against anaerobic microorganisms and anti-inflammatory effects [2]. In this series, its application resulted in a modest reduction in healing time compared to supportive care alone. However, patient acceptability was limited, as several individuals reported unpleasant taste and a few discontinued use prematurely. Healing continued despite early discontinuation, further supporting the self-limiting nature of oral ulcers.

Blue@m gel, an oxygen-releasing topical formulation, was introduced later in routine practice and prescribed to fewer patients. Oxygen is recognized as critical for wound healing by promoting angiogenesis, fibroblast proliferation, collagen synthesis, and epithelial regeneration. Additionally, oxygen-based therapies possess antimicrobial activity through oxidative mechanisms, potentially reducing microbial burden at the ulcer surface [3-6].

In this case series, patients treated with blue@m gel showed better acceptability and compliance, mainly due to improved taste and comfort during application. Clinically, ulcers treated with blue@m gel appeared to heal more favorably, with earlier reduction in erythema and epithelialization noted during follow-up. While these observations cannot be considered evidence of superiority because of the non-randomized and observational design, they suggest potential advantages related to patient-centered outcomes.

The findings of this report should be interpreted in light of its limitations. The retrospective design, small and unequal group sizes, absence of standardized pain or healing indices, and lack of randomization preclude statistical comparison and definitive

conclusions about efficacy. Variations in ulcer etiology and patient-specific factors may also have influenced healing patterns.

Nevertheless, the strength of this report lies in its real-world clinical relevance, reflecting routine decision-making and patient responses in daily dental practice. Such practice-based observations are valuable in generating hypotheses and guiding the design of future prospective randomized controlled trials.

Conclusion

Within the constraints of this retrospective observational case series, topical gel therapy resulted in modest reductions in healing time and symptomatic relief for oral ulcers. Although metronidazole gel provided anticipated clinical benefits, patient acceptability and compliance were sometimes limited by unfavorable taste perception.

Blue@m oxygen-releasing gel demonstrated greater patient acceptability and favorable clinical healing trends, suggesting its potential as a patient-friendly adjunct in oral ulcer management. Given the self-limiting nature of oral ulcers, rigorously designed randomized controlled trials are required to objectively assess differences in healing time, pain reduction, and patient-reported outcomes among topical agents.

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