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ORTHODONTIC MANAGEMENT CHALLENGES IN PATIENTS WITH ORAL LICHEN PLANUS (OLP) OR MUCOUS MEMBRANE PEMPHIGOID (MMP)

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ABSTRACT

The study aimed to identify and compare the issues of orthodontic management of the patients with Oral Lichen Planus (OLP) and Mucous Membrane Pemphigoid (MMP) regarding the possibility of treatment, complications and tolerability by the patient.

Methods: The study sample was based on 69 patients with orthodontic treatment which was performed at Frontier Medical and Dental College, Abbottabad, and completed between the months of January to December 2023. OLP (39) and MMP (30) were included. The collected raw data of the clinical information was based on the basis of an examination and the history of operations done to patients, and in particular on the type of lesions, the appliance selected and breaks in treatment or variances of them. A comparative analysis was conducted on the basis of chi-square and p-value of less than 0.05 in consideration to statistical significance.

Results: MMP patients experienced more erosive and bullous lesions, which led to discomfort and mucosal trauma during orthodontic therapy. Although fixed appliances were overwhelmingly applied, more MMP patients needed aligners or rather modification of the therapies. There was a statistically significant prevalence of a difference in the rate of treatment interruption ($p = 0.037$) that were higher in the MMP group. Topical corticosteroids and oral rinses were popular among both groups in order to get rid of flare-ups.

Conclusion: Orthodontic care in patients with OLP and MMP requires a cautious, personalized approach. MMP patients, in particular, are more prone to treatment disruptions and may benefit from alternative appliance systems and frequent follow-up. Collaboration between orthodontists and oral medicine specialists is essential to ensure safe and effective care.

Keywords: Oral lichen planus, Mucous membrane pemphigoid, Orthodontic complications, Autoimmune oral lesions, Treatment interruption, Clear aligners, Mucosal management

INTRODUCTION

OLP and MMP are types of chronic inflammatory conditions mainly affecting oral cavity ruling mucous membranes. These disorders are identified by episodes of painful ulceration, blistering and hypersensitivity on the mucosa and would affect oral health of orthodontically treated patients in a big way. The force and friction produced by brackets, wires, and other appliances in the mouth usually result in the development of irritation and outbreak of already existing lesions that present the difficulty of streamlining the treatment and result in the hindrance of patient comfort [1-3].

OLP is a fairly frequently occurring immune-mediated entity with inconsistent clinical manifestations such as reticular, erosive and ulcerative types. It has very strong influence on the gingival and buccal mucosa, which predisposes the problematic outcome of orthodontic procedures. On the contrary MMP, which is less common, is more severe. It is characterised by subepithelial blistering and has the risk of scarring; which in turn can complicate positioning and tolerance of orthodontic devices as well [4-6].

Although there are examples in the literature of the need to address interdisciplinary care in these situations there is a paucity of empirical data comparing the results of orthodontic management between the two different conditions. Alternatives with traditional fixed appliances have proposed clear aligners and low-force mechanics, but they are not thoroughly tested in these populations [6-8]. This study was undertaken to assess the specific difficulties encountered in managing orthodontic treatment in patients with OLP and MMP, explore appliance selection and disease-related interruptions, and identify approaches that may help improve clinical outcomes in these medically complex cases.

METHODOLOGY

This was a comparative observational study that aimed at analyzing the orthodontic management difficulty by patients diagnosed with Oral Lichen Planus (OLP) and Mucous Membrane Pemphigoid (MMP). The investigation was carried out at the Department of Orthodontics in the Frontier medical and Dental College of Abbottabad within the timeframe of one year (January 2023 to December 2023).

This study involved 69 patients diagnosed with either OLP or MMP in the past and in the course of orthodontic care, like orthodontic braces. Selection was done using purposive sampling among those in the outpatient orthodontic department and the oral medicine department. The inclusion criteria ensured that the participating persons should have a minimum age of 15 years, and possess a proven diagnosis of either OLP or MMP through clinical presentation and internal verification by a specialist, and should be receiving active orthodontic therapy. Other mucocutaneous conditions and those patients who had stopped receiving treatment due to other reasons were eliminated.

Patient data were collected through clinical examination, treatment records, and structured interviews. A standardized proforma was used to record demographic details (age, gender, duration of disease), lesion characteristics (type and site of lesion), and the type of orthodontic appliance in use. Additionally, information on treatment duration, interruptions, and modifications due to disease flare-ups was documented. Pain severity and oral discomfort were self-reported using a visual analog scale (VAS).

Clinical examination was carried out using sterilized instruments under adequate illumination. Lesion types were categorized as erosive, reticular, or bullous based on visual findings. The oral hygiene status of each patient was also assessed using the Plaque Index and Gingival Index.

All participants provided written informed consent prior to inclusion. The study was approved by the Institutional Ethical Review Committee of Frontier Medical and Dental College, Abbottabad. Confidentiality and anonymity of patient information were strictly maintained throughout the research.

Data were entered and analyzed using SPSS version 25.0. Categorical variables were presented as frequencies and percentages. Comparative analysis between the OLP and MMP groups was performed using the Chi-square test, with a p-value < 0.05 considered statistically significant.

RESULTS

The study included a total of 69 patients undergoing orthodontic treatment, of whom 39 were diagnosed with Oral Lichen Planus (OLP) and 30 with Mucous Membrane Pemphigoid (MMP). The demographic distribution revealed no significant differences in gender or age between the two groups. While females were slightly more prevalent in both groups, and most patients fell in the 30–50 age range, the differences were not statistically significant.

Table 1: Demographic Profile of Study Participants

Variable	OLP (n=39)	MMP (n=30)	p-value
Gender (Male)	16	13	0.531
Gender (Female)	23	17	0.260
Age < 30	5	2	0.245
Age 30–50	22	15	0.179
Age > 50	12	13	0.825

In terms of lesion characteristics, erosive lesions were the most commonly observed form in both OLP and MMP groups. Reticular and bullous lesions were less frequent, with bullous lesions slightly more prominent in the MMP group. However, these differences were not statistically significant.

Table 2: Clinical Characteristics of Oral Lesions

Variable	OLP (n=39)	MMP (n=30)	p-value
Erosive Lesions	24	16	0.416
Reticular Lesions	10	6	0.589
Bullous Lesions	5	8	0.143

When comparing the types of orthodontic appliances used, fixed appliances were the most commonly employed in both groups. However, a higher proportion of MMP patients were managed using clear aligners, possibly due to their gentler impact on soft tissues. Despite these trends, the observed differences across appliance types were not statistically significant.

Table 3: Orthodontic Appliance Distribution

Variable	OLP (n=39)	MMP (n=30)	p-value
Fixed Appliances	25	15	0.398
Removable Appliances	10	8	0.709
Clear Aligners	4	7	0.112

A significant finding was observed in treatment continuity. Treatment interruption due to lesion exacerbation or patient discomfort was notably higher among MMP patients (50%) compared to OLP patients (30.8%). This difference was statistically significant (p = 0.037), suggesting greater challenges in maintaining uninterrupted orthodontic care in MMP. Additionally, most patients in both groups required topical corticosteroids and oral rinses, but their usage was not statistically different.

Table 4: Treatment Outcomes and Supportive Care

Variable	OLP (n=39)	MMP (n=30)	p-value
Treatment Interrupted	12	15	0.037
Treatment Completed	27	15	0.037
Use of Topical Corticosteroids	34	26	0.614
Use of Oral Rinses	30	27	0.189

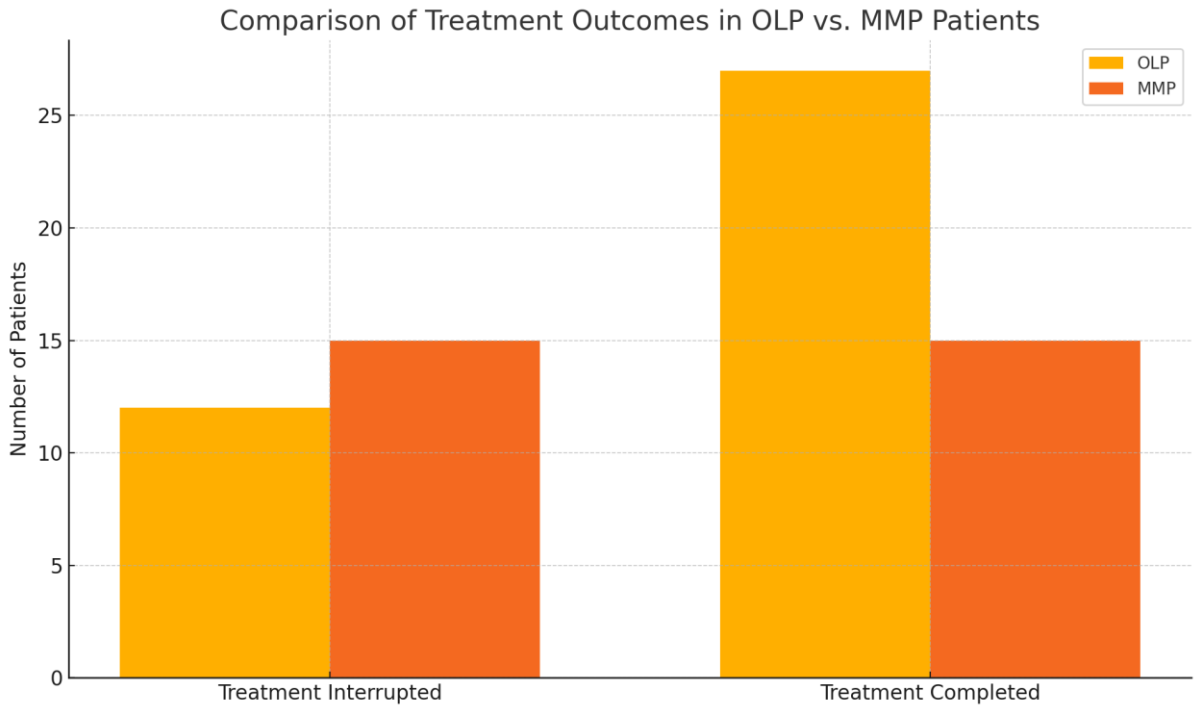

Figure 1: bar graph comparing treatment outcomes between OLP and MMP patients, showing the number of treatment interruptions and completions in each group.

DISCUSSION

Managing orthodontic treatment in patients with chronic autoimmune mucosal diseases such as Oral Lichen Planus (OLP) and Mucous Membrane Pemphigoid (MMP) presents distinct clinical challenges. These conditions not only compromise the integrity of the oral mucosa but can also be exacerbated by mechanical irritation from orthodontic appliances [9-11].

In the current study, although demographic features such as age and gender distribution were similar across both groups, notable differences were observed in treatment outcomes. A significantly higher proportion of MMP patients experienced treatment interruptions compared to those with OLP. This may be attributed to the more aggressive nature of MMP, particularly its tendency to cause widespread blistering and desquamation in response to even minor trauma. These findings are consistent with those of Bagan et al., who reported increased mucosal fragility and reduced tolerance to fixed appliances in patients with pemphigoid-type lesions [11-13].

Lesion type also influenced treatment planning. Erosive and bullous lesions, particularly prevalent in the MMP group, were associated with greater discomfort and a higher risk of tissue damage during active orthodontic movement. These observations align with the studies which emphasized the need for gentle mechanics and frequent monitoring in patients with mucosal autoimmune conditions [14-16].

The type of appliance used played a key role in treatment feasibility. Although fixed appliances were the most commonly used modality, a notable number of MMP patients were treated with clear aligners or removable appliances. These options tend to exert lighter forces and reduce direct contact with inflamed mucosa. As noted in previous studies such alternatives can improve patient compliance and reduce lesion exacerbation [17-19].

Regardless of these adaptations, almost a half of MMP patients were subjected to treatment interruptions, which highlights the erratic nature of the disease and its effect on long-term planning. Conversely, OLP cases, especially those reticular or those with a mild erosive pattern, tended to respond well to treatment without much alteration.

Both groups indulged in the use of topical corticosteroids and medicated oral rinses to deal with inflammation and mucosal healing. Nevertheless, even though these enhanced comfort, it was not sufficient to eliminate the possibilities of relapse or pains caused by orthodontic hardware [20].

Overall, these findings highlight the importance of individualized treatment planning. Close coordination between orthodontists, oral medicine specialists, and patients is essential to minimize complications, adjust force levels appropriately, and ensure that therapy remains adaptable to disease fluctuations.

CONCLUSION

Patients diagnosed with Oral Lichen Planus and Mucous Membrane Pemphigoid need special Orthodontic method because both of these cases are chronic and reactive, i.e., mucosal lesions. Although a significant proportion of clients are able to go successfully through the treatment, particularly, the representatives of milder forms of the disease, the representatives of MMP have a higher risk of treatment interruption and oral discomfort. Clear aligners and removable appliances may offer advantages in select cases. Comprehensive care, including the use of anti-inflammatory therapies and regular monitoring, is crucial in achieving favorable outcomes without exacerbating the underlying condition.

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