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Original Article

A retrospective analysis of oral autoimmune bullous diseases at a Thai oral medicine center

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Pemphigus vulgaris;
Thai

Abstract *Background /Purpose*: Autoimmune bullous diseases (AIBDs) are rare conditions that can affect daily life and be life-threatening. However, there is scant research on Thai patients with oral AIBDs.
Materials and methods: Retrospective analysis of the characteristics, distribution, and treatment outcomes of oral AIBDs in Thai patients (20-year period).
Results: Eighty-two oral AIBDs patients were diagnosed, mostly female ages ranging from middle-aged to elderly. The most common subtype was pemphigus vulgaris (PV) (59.8 %), followed by mucous membrane pemphigoid (MMP) (26.8 %), bullous pemphigoid (BP) (8.5 %), and linear IgA bullous dermatosis (LABD) (4.9 %). The gingiva was the most affected site. Notably, 81.8 % of MMP patients had only oral lesions (mostly gingiva), while most PV patients had multiple lesions, with oral lesions often appearing first. Corticosteroids (CS) (topical and/or systemic) were the primary treatment. The overall response rate for control of disease activity (CDA) was 73.9 %, with complete remission (CR) in 17.4 %. Patients receiving only topical CS had fewer side effects (66.7 % reported none, others mild) compared with combined therapy (48.6 % reported side effects).
Conclusion: PV was the most prevalent subtype, often presenting with oral and skin lesions, with oral lesions appearing first. Conversely, MMP primarily manifested as isolated oral lesions, often with desquamative gingivitis. Combination therapy with topical and systemic CS was the most common treatment for oral AIBDs. Notably, patients treated with topical CS only experienced significantly fewer and milder side effects compared with those receiving other treatments.

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Introduction

Autoimmune bullous diseases (AIBDs) comprise rare autoimmune diseases characterized by autoantibodies targeting the intercellular-adhesion proteins of keratinocytes or components of the basement membrane and connective tissue, causing blisters and erosions on the skin and mucous membranes.[1,2] AIBDs are classified into two types by their blistering level: intraepithelial blistering diseases (pemphigus)[3,4] and subepithelial blistering diseases (pemphigoid).[5,6]

AIBDs can impact a patient's daily life and pose life-threatening risks. However, there is limited research on oral AIBDs in Thai patients. Iamaroon et al.[7] and Buajeeb et al.[8] investigated oral pemphigus vulgaris (PV) and oral mucous membrane pemphigoid (MMP), respectively, describing their characteristics/treatments in a Thai population. However, these studies had small sample sizes, highlighting the need for a more comprehensive evaluation of oral AIBDs in Thailand.

The aim of this study was to analyze the characteristics, distribution pattern, and treatment outcomes of oral AIBDs among Thai patients treated at the Oral Medicine clinic, Faculty of Dentistry, Chulalongkorn University (FDCU). We collected data on the clinical, histopathological, and immunofluorescence or serological findings, related to AIBD subtypes affecting the oral mucosa.

Materials and methods

This retrospective study was conducted at the Oral Medicine clinic, FDCU, and was approved by the FDCU Ethics Committee (HREC-DCU 2022-104). Patients diagnosed with oral AIBDs during 2003—2022 were included based on predefined inclusion and exclusion criteria. The study protocol (Fig. 1) involved two data-collection phases. In the first phase, patient demographics, medical history, clinical features, and diagnosis were gathered from their medical records. Information on how the disease impacted their daily activities and oral hygiene was also recorded. The second phase documented the treatment details, outcomes, and any side effects encountered at 1-, 3-, 6-, and 12-month follow-up appointments. To be included, the patients needed to have $\geq$6 months of follow-up post-treatment initiation. Data on disease relapse and the mean duration of disease control were collected.

Treatment effectiveness was assessed using standardized terms from the global consensus guidelines for PV and MMP.[9,10] These terms were "worsen," "not improve," "control of disease activity (CDA)," "complete remission (CR)," and "relapse." CDA indicates when the existing lesions are healing and no new lesions formed. CR means no new and existing lesions with minimal/no therapy. Minimal therapy was defined as prednisolone (or equivalent) at $\leq$10 mg/d and/or minimal adjuvant therapy, including

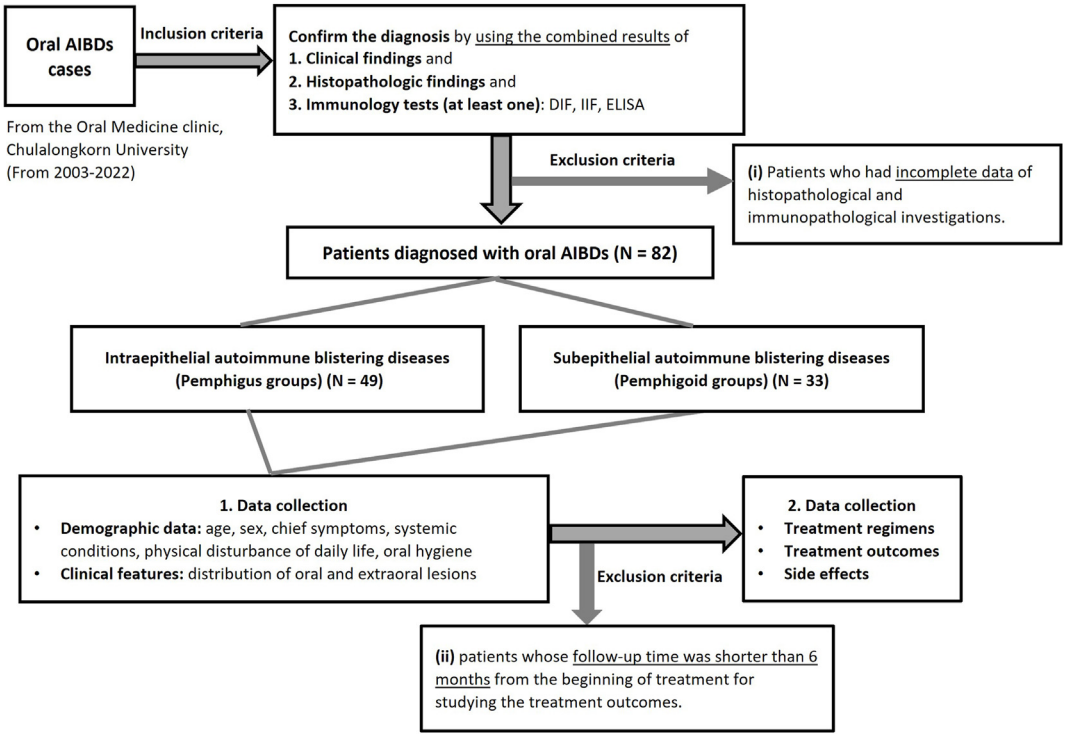

Figure 1 Conceptual framework. Abbreviations: DIF, direct immunofluorescence microscopy; ELISA, enzyme-linked immunosorbent assay test; IIF, indirect immunofluorescence microscopy; Oral AIBDs, Oral autoimmune bullous diseases.

topical CS 1x/day. When a patient achieved CR, a relapse was defined as the emergence of >2 new lesions within a month that failed to heal within one week. The demographic data was analyzed using descriptive statistics (percentages/means/standard-deviation) with SPSS version 20 (IBM Inc.) at a 0.05 significance level.

Results

Eighty-two patients were diagnosed with oral AIBDs during the study period. The patients comprised 59 females (72 %) and 23 males (28 %) (2.6:1 female-to-male ratio). The mean age at disease onset was 51.9 years-old (SD ± 14.4 years). PV was the most prevalent subtype (49 patients/59.8 %), followed by MMP (22 patients/26.8 %), bullous pemphigoid (BP) (7 patients/8.5 %), and linear IgA bullous dermatosis (LABD) (4 patients/4.9 %). All patients in the pemphigus group presented with PV. In the pemphigoid group (n = 33), most were female (21 patients/63.6 %) (1.8:1 female-to-male ratio). The mean age in this group was 59.9 years-old (SD ± 15.8 years). Oral ulceration (67.5 %) was the most frequently reported symptom, while difficulty eating/dysphagia (25.6 %) was the primary impact on daily activities. Regarding oral hygiene, the distribution was: fair (40.2 %), poor (29.3 %), and good (2.4 %) (Table 1).

Oral AIBDs subtypes

Pemphigus vulgaris (PV)

Forty-nine patients were diagnosed with PV, exhibiting a notable female predominance (3.5:1 female-to-male ratio) and a mean age of 46.5 years-old (SD ± 10.5 years). PV patients frequently presented with lesions at multiple sites, including oral and skin involvement (46.9 %) and other mucosal areas (24.5 %). Oral lesions often developed first (62.9 %), with a mean duration of 2.7 months (SD ± 2.1 months) before additional lesions appeared. The most common locations for oral lesions in the PV patients was the gingival region (93.9 %), followed by the buccal mucosa (61.2 %), tongue (55.1 %), and palate (49 %) (Tables 2–4).

Mucous membrane pemphigoid (MMP)

Twenty-two patients (26.8 %) were diagnosed with MMP (1.4:1 female-to-male ratio), and a mean age of 61.3 years-old (SD ± 10.1 years). A substantial proportion of MMP patients (81.8 %) presented with oral lesions only (Table 2). The MMP lesions primarily affected the gingival region (100 %), with less frequent involvement in other oral areas. Desquamative gingivitis was the most prevalent clinical feature in MMP patients (90.9 %) (Table 4).

Bullous pemphigoid (BP)

Seven female patients (8.5 %) received a diagnosis of BP with a mean age of 65.4 years-old (SD ± 23.2 years). Most BP patients (71.4 %) exhibited oral and skin lesions. The gingival region remained the most affected oral site (100 %) in BP patients, followed by the palate (57.1 %), buccal mucosa (28.6 %), retromolar mucosa (28.6 %), tongue (14.3 %), and lip (14.3 %) (Tables 2–4).

Table 1 Demographics and characteristics of oral AIBDs patients.

	Sex		Age (mean ± SD)	Symptoms, N (%)					Physical disturbances in life activities N (%)				Oral hygiene, N (%)		
	Male N (%)	Female N (%)	year	Discomfort	Burning	Pain	Oral ulceration	Oral blister	Oral bleeding	Difficulty eating/ Dysphagia	Weight loss	Difficulty brushing	Fatigue	N/A	Good	Fair	Poor	N/A
Oral AIBDs (N = 82)	23 (28)	59 (72)	51.9 ±14.4	2 (2.5)	47 (58.8)	47 (58.8)	54 (67.5)	24 (30)	25 (31.3)	21 (25.6)	5 (6.1)	6 (7.3)	3 (3.7)	57 (69.5)	2 (2.4)	33 (40.2)	24 (29.3)	23 (28)
PV (N = 49)	11 (22.4)	38 (77.6)	46.5 ±10.5	2 (4.1)	26 (53.1)	31 (63.3)	37 (75.5)	14 (28.6)	12 (24.5)	19 (38.8)	4 (8.2)	3 (6.1)	1 (2)	29 (59.2)	1 (2)	20 (40.8)	16 (32.7)	12 (24.5)
MMP (N = 22)	9 (40.9)	13 (59.1)	61.3 ±10.1	–	15 (68.2)	10 (45.5)	10 (45.5)	7 (31.8)	9 (40.9)	1 (4.5)	1 (4.5)	2 (9.1)	2 (9.1)	19 (86.4)	1 (4.5)	9 (40.9)	4 (18.2)	8 (36.4)
BP (N = 7)	–	7 (100)	65.4 ±23.2	–	3 (42.9)	3 (42.9)	5 (71.4)	1 (14.3)	3 (42.9)	1 (14.3)	–	–	–	6 (85.7)	–	2 (28.6)	2 (28.6)	3 (42.9)
LABD (N = 4)	3 (75)	1 (25)	42.3 ±18.8	–	3 (75)	3 (75)	2 (50)	2 (50)	1 (25)	–	–	1 (25)	–	3 (75)	–	2 (50)	2 (50)	–

Abbreviations: BP, Bullous pemphigoid; LABD, Linear IgA bullous dermatosis; MMP, Mucous membrane pemphigoid; N/A, not applicable; Oral AIBDs, Oral autoimmune bullous diseases; PV, *Pemphigus vulgaris*; SD, standard deviation.

Table 2 Clinical distribution of oral AIBDs patients.

	Oral lesions Only N (%)	Oral & other mucosal lesions N (%)	Oral & skin lesions N (%)	Mucocutaneous lesions (oral &other mucosa &skin) N (%)	Period of oral lesions before other mucosal/ cutaneous lesions (month), mean ± SD
PV (N = 49)	14 (28.6)	0	23 (46.9)	12 (24.5)	2.7 ± 2.1 (N = 22)
MMP (N = 22)	18 (81.8)	0	3 (13.6)	1 (4.5)	14.5 ± 12.0 (N = 2)
BP (N = 7)	0	0	5 (71.4)	2 (28.6)	4.0 ± 0.0 (N = 1)
LABD (N = 4)	3 (75)	0	1 (25)	0	(N = 0)

Abbreviations: BP, Bullous pemphigoid; LABD, Linear IgA bullous dermatosis; MMP, Mucous membrane pemphigoid; Oral AIBDs, Oral autoimmune bullous diseases; PV, *Pemphigus vulgaris*; SD, standard deviation.

Linear IgA bullous dermatosis (LABD)

LABD was the rarest subtype of oral AIBDs identified in this study, diagnosed in 4 patients (4.9 %). The female-to-male ratio within this group was 1:3, with a mean age of 42.3 years-old (SD ± 18.8 years). Three patients (75 %) presented with oral lesions, while the remaining patient (25 %) exhibited oral and skin involvement, with oral lesions appearing ~2 months after the skin lesion developed. The gingival region was most commonly involved in LABD patients (100 %), followed by the tongue (25 %) and retromolar mucosa (25 %). No LABD patients displayed lesions in other mucosal areas (Tables 2–4).

Treatment outcome and adverse effects

Treatment regimens and outcomes

Fifty-six patients with oral AIBDs completed ≥6 months of follow-up post-treatment initiation. The primary treatment approach for controlling oral AIBDs was a combination of topical and systemic CS (41.1 %). This was followed by treatment with topical CS alone (37.5 %), a combination of topical CS, systemic CS and immunosuppressive therapy (IS) (14.3 %), and a combination of topical CS with systemic CS, IS, and rituximab (7.1 %). Table 5 summarizes the treatment regimen distribution and corresponding clinical outcomes.

Adverse effects

The combined use of topical CS, systemic CS, IS, or rituximab was associated with a higher incidence of adverse effects (48.6 %). The reported side effects comprised oral candidiasis, moon face (facial puffiness), weight gain, hirsutism (excessive facial hair growth in women), buffalo hump (fat accumulation on the upper back), acneiform eruption (pimple-like skin lesions), and pitting edema (fluid retention causing swelling). However, patients treated solely with topical CS experienced markedly fewer side effects. The majority (66.7 %) reported no adverse effects, while the remaining patients (33.3 %) experienced only mild side effects, primarily oral candidiasis (Table 6).

Discussion

Oral AIBDs are a rare group of disorders.[11–13] However, research specifically focused on Thai patients with oral AIBDs remains limited.[7,8,14] This retrospective analysis investigated oral AIBDs in Thai patients treated at the Oral Medicine clinic, FDCU, over two decades. The clinic had an average of 4.1 new cases annually. Most patients were female (2.6:1 ratio), and the mean age of onset was 51.9 years-old.

PV constituted all pemphigus cases, demonstrating a significant female predominance (3.5:1 ratio) with a mean age of 46.5 years-old, aligning with prior studies.[11,15] The pemphigoid group displayed a female majority (1.8:1 ratio) and a higher mean age (59.9 years-old) than the pemphigus group. Although the LABD group had fewer patients, a notable male predominance (3:1 ratio) emerged, mirroring a previous study on LABD in Thai children.[16]

PV was the most prevalent oral AIBD subtype (59.8 %), followed by MMP (26.8 %). This aligns with previous studies identifying PV as the dominant subtype.[11,12,17,18] As a tertiary oral medicine center, all our oral AIBDs patients presented with oral lesions, either isolated or accompanied by skin or other mucosal involvement. Among PV patients, most exhibited oral and skin lesions. Oral lesions often developed first, with a mean duration of 2.7 months before additional lesions appeared. This corresponds with studies demonstrating that mucocutaneous PV is more prevalent than mucosal-dominant PV,[2] and oral lesions typically precede cutaneous involvement by several weeks or months.[13,19]

Our findings indicated that MMP was the most common subtype in the pemphigoid group, with 81.8 % of

Table 3 Lesion sites of oral AIBDs patients.

	Oral lesions sites, N (%)								Other mucosal lesions sites, N (%)					Cutaneous lesions sites, N (%)					
	Gingiva	Buccal mucosa	Labial mucosa	Floor of the mouth	Retromolar mucosa	Palate	Tongue	Oropharynx	Lip	Eye	Nose	Throat	Eso phagus	Anogenital region	Face	Trunk	Extremities	Scalp	Neck	Axilla	N/A
PV (N = 49)	46 (93.9)	30 (61.2)	11 (22.4)	22 (44.9)	14 (28.6)	24 (49)	27 (55.1)	20 (40.8)	10 (20.4)	2 (4.1)	2 (4.1)	3 (6.1)	1 (2)	7 (14.3)	13 (26.5)	22 (44.9)	15 (30.6)	13 (26.5)	4 (8.2)	1 (2)	-
MMP (N = 22)	22 (100)	5 (22.7)	3 (13.6)	1 (4.5)	2 (9.1)	2 (9.1)	1 (4.5)	-	-	-	-	-	-	1 (4.5)	3 (13.6)	2 (9.1)	2 (9.1)	3 (13.6)	1 (4.5)	-	-
BP (N = 7)	7 (100)	2 (28.6)	-	-	2 (28.6)	4 (57.1)	1 (14.3)	-	1 (14.3)	-	-	-	-	2 (28.6)	2 (28.6)	5 (71.4)	6 (85.7)	3 (42.9)	-	-	-
LABD (N = 4)	4 (100)	-	-	-	1 (25)	-	1 (25)	-	-	-	-	-	-	-	-	-	-	-	-	-	1 (25)

Abbreviations: BP, Bullous pemphigoid; LABD, Linear IgA bullous dermatosis; MMP, Mucous membrane pemphigoid; N/A, not applicable; Oral AIBDs, Oral autoimmune bullous diseases; PV, *Pemphigus vulgaris*.

MMP patients exhibiting oral lesions only. This aligns with previous studies demonstrating a high prevalence of oral lesions in MMP.[20–22] In BP patients, 85.7 % developed skin lesions before oral involvement, consistent with BP's known tendency for earlier cutaneous lesions.[23]

The current study aligns with prior studies[7,20] finding that oral lesions in AIBDs frequently affect the gingiva, followed by the buccal mucosa, palate, and tongue. PV often presents with extensive involvement of multiple oral sites and may simultaneously affect the skin and other mucosal areas (Fig. 2). Conversely, MMP tends to primarily target the gingiva with a more localized manifestation (Fig. 3). Despite the limited number of BP and LABD cases, these patients exhibited oral lesions predominantly affecting the gingiva (Figs. 4 and 5). Thus, gingival involvement may be a characteristic feature of these oral AIBDs. Consequently, the clinical presentation frequently manifests as desquamative gingivitis. Oral conditions with overlapping features are diagnostically challenging for dentists.[2,21,24] Therefore, meticulous evaluation of the patient's medical history, clinical presentation, and diagnostic tests is crucial for accurate diagnosis and effective management.

The treatment approach for oral AIBDs is tailored to disease severity and extent. Topical CS are commonly used, particularly for mild cases with localized oral involvement (Figs. 3 and 5). Here, 71.4 % of the patients treated solely with topical CS achieved CDA, and 19 % achieved CR. For mild-moderate MMP cases, topical CS in mouthwash or paste, applied directly or via custom-made dental trays, is recommended.[21,24] A study demonstrated that MMP patients responded well to topical CS.[20] However, for PV patients, treatment initiation with systemic CS and/or IS are generally advised, gradually reducing the systemic CS dosage as symptoms improve, followed by maintenance with topical CS.[20] Another study demonstrated success in managing some mild oral PV patients with topical CS.[15] However, we advocate combining systemic therapy with topical CS for PV to address the potential for widespread lesions, as suggested by the updated guidelines.[9,13,19] In contrast, MMP usually presents with more localized lesions, especially in the gingiva. Although topical CS may suffice for limited oral involvement in some AIBDs cases, tailoring treatment plans to individual needs remains crucial.

Our oral medicine clinic furnishes patients with different topical CS formulations and potencies, including triamcinolone acetonide 0.1 % (oral paste/mouthwash), dexamethasone 0.05 % mouthwash, fluocinolone acetonide 0.1 % (solution/oral paste/mouthwash), fluocinolone acetonide 0.1 %/clotrimazole 1 % gel combination, and clobetasol 0.05 % oral paste. For patients presenting with limited oral lesions and mild disease severity, we typically initiate treatment using topical CS. The specific topical CS depends on the oral lesions' location and distribution. For easily accessible, localized lesions, we recommend using an oral gel or paste applied 3x/day, with a gradual reduction in frequency as the condition improves. For more widespread lesions or those in difficult-to-reach areas, a mouthwash is a better option. In cases involving severe or widespread lesions encompassing the skin and

Table 4 Oral clinical features of oral AIBDs patients.

	Clinical features of oral lesions, N (%)					
	Erythema	Erosive	Ulcer	Bleeding	Desquamative gingivitis	Blister/Bulla
All oral AIBDs (N = 82)	55 (67.1)	31 (37.8)	56 (68.3)	29 (35.4)	67 (81.7)	35 (42.7)
PV (N = 49)	34 (69.4)	23 (46.9)	39 (79.6)	20 (40.8)	39 (79.6)	18 (36.7)
MMP (N = 22)	14 (63.6)	3 (13.6)	10 (45.5)	5 (22.7)	20 (90.9)	12 (54.5)
BP (N = 7)	5 (71.4)	3 (42.9)	5 (71.4)	1 (14.3)	5 (71.4)	2 (28.6)
LABD (N = 4)	2 (50)	2 (50)	2 (50)	3 (75)	3 (75)	3 (75)

Abbreviations: BP, Bullous pemphigoid; LABD, Linear IgA bullous dermatosis; MMP, Mucous membrane pemphigoid; Oral AIBDs, Oral autoimmune bullous diseases; PV, *Pemphigus vulgaris*.

Table 5 Treatment regimen and clinical outcomes in oral AIBDs.

	Type of treatment regimen	Clinical outcome, N (%)				Relapse case from CRN (%)	Time to control of disease activities in months. (mean ± SD)
		Worsen	Not improve	CDA	CR		
PV (N = 29)	**Topical CS alone** (N = 3)	1 (33.3)	–	2 (66.7)	–	–	4.3 ± 2.3 (N = 25)
	Topical CS + systemic CS (N = 17)	2 (11.8)	–	13 (76.5)	2 (11.8)	2 (100)	
	Topical CS + systemic CS + IS (N = 5)	1 (20)	–	2 (40)	2 (40)	1 (50)	
	Topical CS + systemic CS + IS + rituximab (N = 4)	–	–	2 (50)	2 (50)	0 (0)	
MMP (N = 18)	**Topical CS alone** (N = 13)	–	1 (7.7)	9 (69.2)	3 (23.1)	1 (33.3)	3.9 ± 3.5 (N = 17)
	Topical CS + systemic CS (N = 4)	–	–	3 (75)	1 (25)	0 (0)	
	Topical CS + systemic CS + IS (N = 1)	–	–	1 (100)	–	–	
BP (N = 5)	**Topical CS alone** (N = 2)	–	–	2 (100)	–	–	3.2 ± 1.8 (N = 5)
	Topical CS + systemic CS (N = 2)	–	–	1 (50)	1 (50)	0 (0)	
	Topical CS + systemic CS + IS (N = 1)	–	–	1 (100)	–	–	
LABD (N = 4)	**Topical CS alone** (N = 3)	–	–	2 (66.7)	1 (33.3)	0 (0)	5.0 ± 1.7 (N = 3)
	Topical CS + systemic CS	–	–	–	–	–	
	Topical CS + systemic CS + IS (N = 1)	1 (100)	–	–	–	–	
Total Oral AIBDs (N = 56)	**Topical CS alone** (N = 21)	1 (4.8)	1 (4.8)	15 (71.4)	4 (19)	1 (25)	3.2 ± 2.0 (N = 19)
	Topical CS + systemic CS (N = 23)	2 (8.7)	–	17 (73.9)	4 (17.4)	2 (50)	4.6 ± 3.5 (N = 21)
	Topical CS + systemic CS + IS (N = 8)	2 (25)	–	4 (50)	2 (25)	1 (50)	5.5 ± 1.2 (N = 6)
	Topical CS + systemic CS + IS + rituximab (N = 4)	–	–	2 (50)	2 (50)	0 (0)	3.8 ± 1.5 (N = 4)

Abbreviations: BP, Bullous pemphigoid; CDA, Control of disease activity; CR, Complete remission; CS, Corticosteroids; IS, Immunosuppressive agents; LABD, Linear IgA bullous dermatosis; MMP, Mucous membrane pemphigoid; Oral AIBDs, Oral autoimmune bullous diseases; PV, *Pemphigus vulgaris*; SD, standard deviation.

Table 6 Treatment regimen and associated side effects in oral AIBDs.

	Treatment regimens	Side effects, N (% of cases)								
		No side effects	Oral candidiasis	Weight gain	Moon face	Hirsutism	Buffalo hump	Acneiform eruption	Pitting edema	Rituximab-related adverse events (AEs)
All oral AIBDs (N = 56)	Topical CS alone (N = 21)	14 (66.7)	6 (28.6)	1 (4.8)	–	–	–	–	–	–
	Topical CS + systemic CS (N = 23)	13 (56.5)	8 (34.8)	2 (8.7)	3 (13)	1 (4.3)	1 (4.3)	1 (4.3)	1 (4.3)	–
	Topical CS + systemic CS + IS (N = 8)	3 (37.5)	3 (37.5)	1 (12.5)	2 (25)	1 (12.5)	–	–	–	–
	Topical CS + systemic CS + IS + rituximab (N = 4)	2 (50)	1 (25)	1 (25)	–	–	–	–	–	1 (25)[a]

Abbreviations: CS, Corticosteroids; IS, Immunosuppressive agents; Oral AIBDs, Oral autoimmune bullous diseases.
[a] An allergic reaction, along with symptoms, such as fever, chills, and nausea.

other mucosal areas, we refer patients to a dermatologist for appropriate systemic therapy. This collaborative approach ensures comprehensive patient management.

The group treated with topical CS only reported a markedly lower incidence and milder severity of side effects compared with other treatment regimens. In this group, 66.7 % of the patients experienced no adverse effects, while the remaining 33.3 % reported only mild side effects, primarily oral candidiasis. Conversely, patients receiving a combination of systemic CS and IS exhibited the highest incidence of side effects (62.5 %). A study reported weight gain and Cushingoid features in almost all patients receiving 1.5 mg/kg/day systemic prednisone for 1–3 months.[15] Consistent with these findings, systemic CS use is associated with various long-term side effects.[19,25] Therefore, for low-risk or mild cases of oral AIBDs limited to the oral cavity, topical CS are often the preferred initial or adjunctive therapy to minimize steroid-related adverse effects.[26–28]

Patients who develop oral candidiasis during treatment can be effectively managed with antifungal medication/antiseptic prophylaxis. The antifungal medication selection is tailored to the severity and distribution of the candidiasis. Nystatin oral suspension (1:100,000 IU) is the first-line treatment, with clotrimazole troches (10 mg tablets) as an alternative. For extensive lesions, fluconazole 100 mg once daily for two weeks may be considered.

We also recommend incorporating antiseptic prophylaxis using 0.12 % chlorhexidine mouthwash once daily before bedtime 2-3x/week. The frequency can be gradually reduced as the risk of candidiasis subsides. Topical chlorhexidine mouthwash has demonstrated efficacy in controlling secondary infections and reducing plaque accumulation in patients with oral lesions.[8,29] Furthermore, comprehensive patient education on the correct oral hygiene practices is essential to control plaque deposition, prevent oral inflammation, and reduce the risk of oral infections.[30,31] To manage pain, we may also provide topical supportive care options, e.g., lidocaine oral gel/spray or benzydamine mouth rinse.

For optimal treatment outcomes in managing oral AIBDs, dentists should closely collaborate with dermatologists and other healthcare professionals. This collaborative approach is crucial for devising effective treatment plans, accurately evaluating disease severity, assessing treatment effectiveness, and managing any complications or adverse effects.[8,19,24] Although clinical guidelines recommend systemic CS, IS, and biologic therapies like rituximab for treating oral AIBDs, these treatment options can lead to negative side effects.[9,19]

Our study suggests that for specific oral AIBDs cases with mild/localized oral lesions, using topical CS alone effectively controls the disease, while potentially minimizing side effects. However, there is a paucity of comprehensive research on the long-term treatment outcomes of using topical CS alone. We suggest conducting well-designed prospective studies to improve treatment

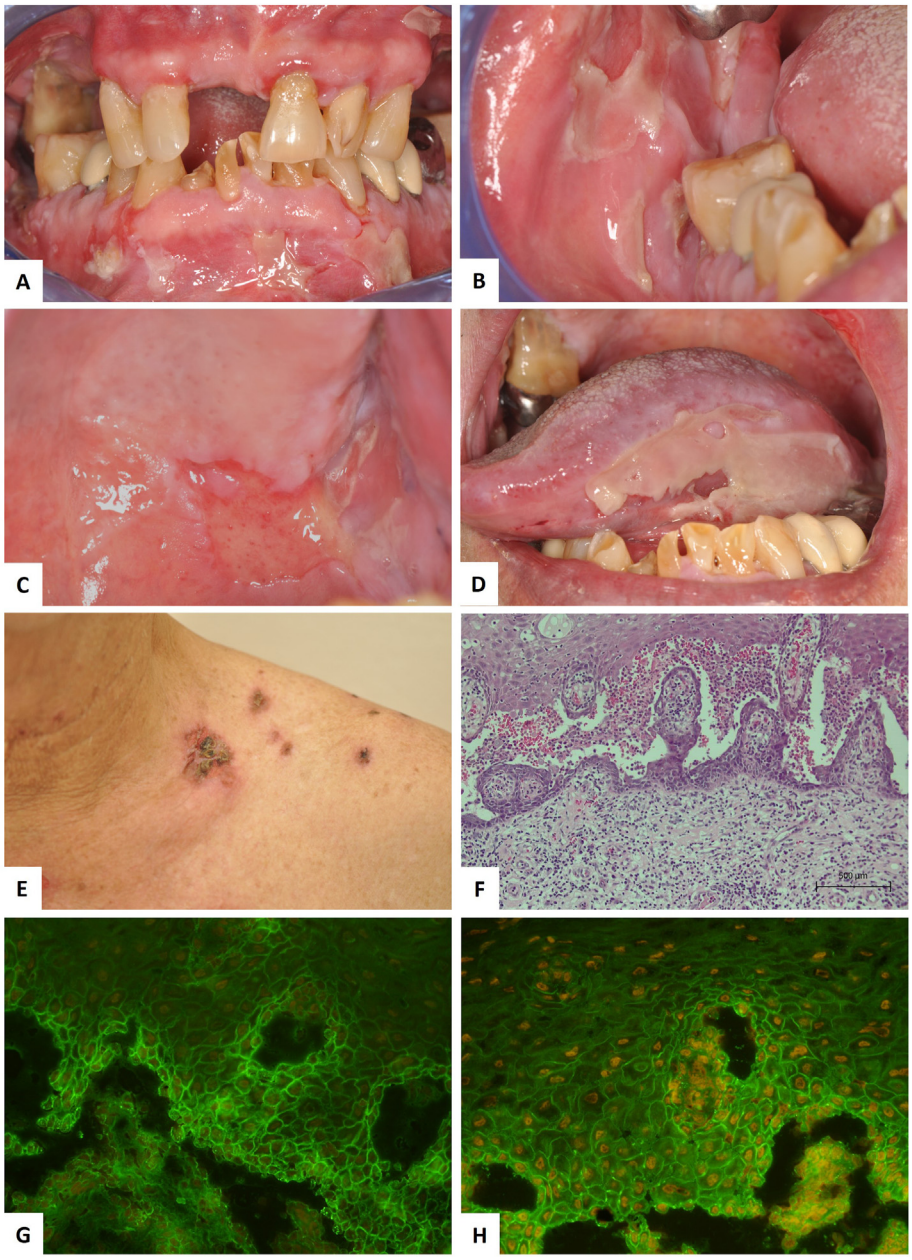

Figure 2 Clinical presentation and microscopy examination of a patient with PV. (A, B, C and D) A 74-year-old male with PV presented with extensive erosions and ulcers on the oral mucosa. (E) The same patient, who has lesions exhibiting crusted erosions on the shoulder. *Image courtesy of Associate Professor Pornpan Piboonratanakit, Oral Medicine Department, FDCU.* (F, G and H) Microscopy examination of a 56-year-old female with PV. (F) Histopathological examination shows suprabasal split formation. (G and H) DIF microscopy shows intercellular deposition of C3 (G) and IgG (H) (Chicken wire pattern) in the epithelium of the oral mucosa. *Image courtesy of Dr.Keeratika Wongtim, Oral Medicine Department, FDCU.* Abbreviations: C3, complement 3; DIF, direct immunofluorescence; FDCU, Faculty of Dentistry, Chulalongkorn University; IgG, immunoglobulin G; PV, pemphigus vulgaris.

evaluation and optimize management strategies for oral AIBDs.

In conclusion, PV was the most prevalent AIBD subtype, often presenting with oral and skin lesions, with oral lesions frequently preceding cutaneous involvement. Conversely, MMP primarily manifested as isolated oral lesions, with desquamative gingivitis commonly observed. Combination therapy with topical

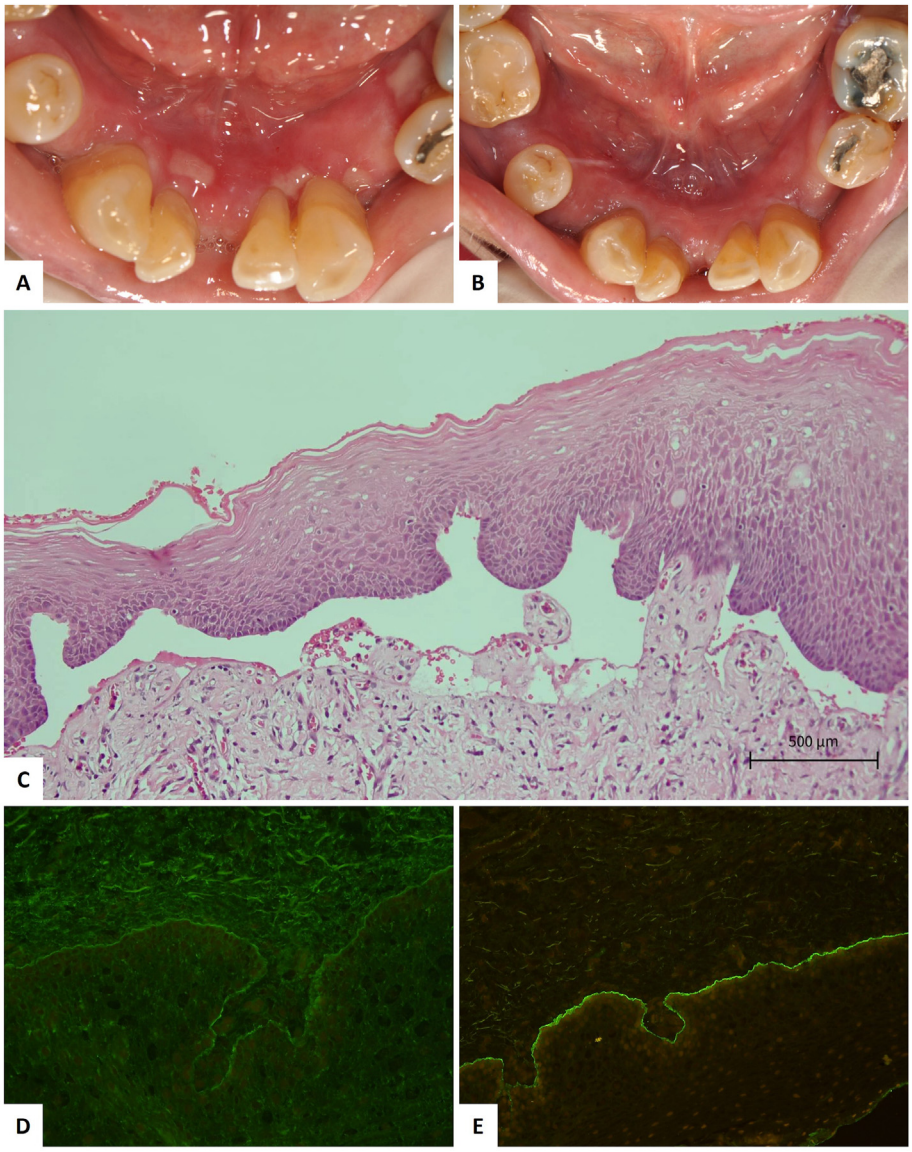

Figure 3 Clinical presentation and microscopy examination of a 57-year-old male with oral MMP. (A) At the first visit, localized ulcerations were observed on the lingual gingiva of the lower teeth. (B) Complete remission of lesions after treatment with only topical CS (Initial treatment with triamcinolone acetonide 0.1 % mouthwash, followed by a combination of fluocinolone acetonide 0.1 %/clotrimazole 1 % gel). The oral status after 12-month follow-up. (C) Histopathological examination shows sub-basilar split formation. (D and E) DIF microscopy shows linear IgG (D) and C3 (E) along the BMZ. *Image courtesy of Emeritus Professor Kobkan Thongprasom, Oral Medicine Department, FDCU*. Abbreviations: BMZ, basement membrane zone; C3, complement 3; CS, corticosteroids; DIF, direct immunofluorescence; FDCU, Faculty of Dentistry, Chulalongkorn University; IgG, immunoglobulin G; MMP, mucous membrane pemphigoid.

and systemic CS was the most common treatment approach for oral AIBDs. Notably, patients treated solely with topical CS experienced significantly fewer and milder side effects compared with those receiving other treatment regimens.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used Gemini (Gemini Trust Company, LLC, New York, NY, USA) to

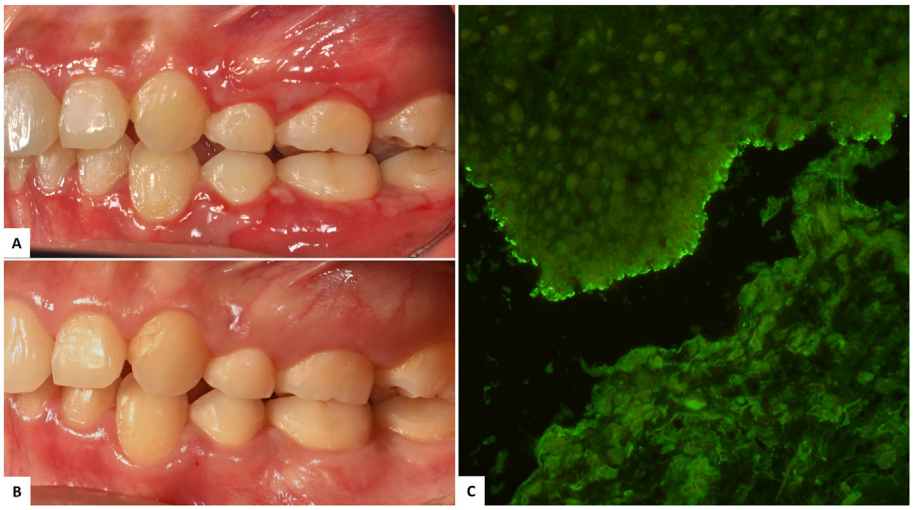

Figure 4 Clinical presentation and DIF examination of a 22-year-old female with oral BP. (A) At the first visit, erosions and ulcers were observed on the buccal gingiva of upper and lower posterior teeth. (B) Complete remission of lesions after treatment with topical and systemic CS. The oral status after 12-month follow-up. (C) DIF microscopy demonstrates a linear deposition of C3 along the BMZ. *Image courtesy of Emeritus Professor Kobkan Thongprasom, Oral Medicine Department, FDCU.* Abbreviations: BMZ, basement membrane zone; BP, bullous pemphigoid; C3, complement 3; CS, corticosteroids; DIF, direct immunofluorescence; FDCU, Faculty of Dentistry, Chulalongkorn University.

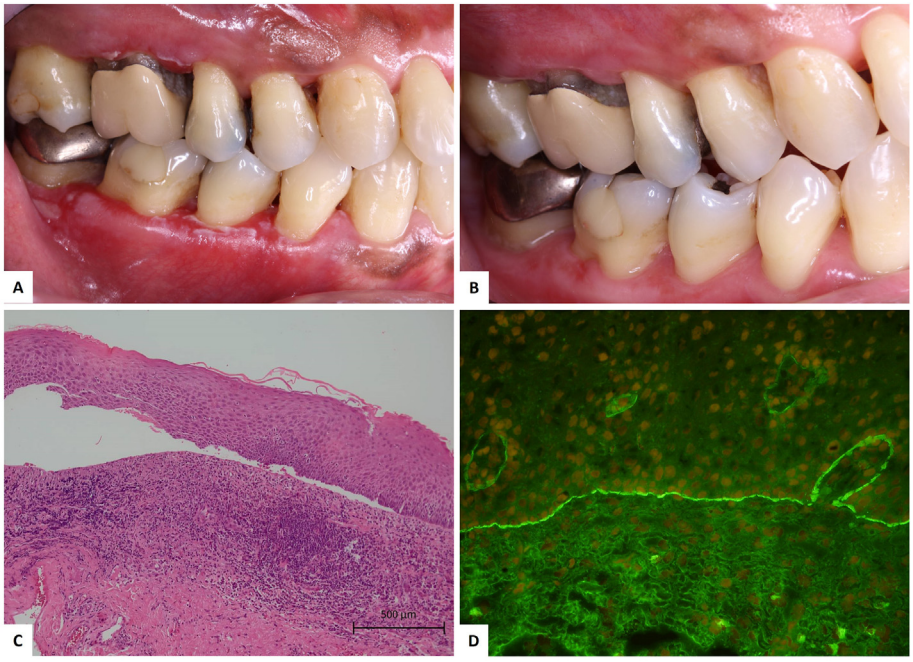

Figure 5 Clinical presentation and microscopy examination of a 46-year-old male with oral LABD. (A) At the first visit, desquamative gingivitis and ruptured bullae were observed. (B) Complete remission of lesions after treatment with only topical CS (fluocinolone acetonide 0.1 % mouthwash). The oral status after 6-month follow-up. (C) Histopathological examination indicates sub-basilar separation. (D) DIF microscopy demonstrates linear IgA deposition along the BMZ. *Image courtesy of Assistant Professor Titipong Prueksrisakul, Oral Medicine Department, FDCU.* Abbreviations: BMZ, basement membrane zone; CS, corticosteroids; DIF, direct immunofluorescence; FDCU, Faculty of Dentistry, Chulalongkorn University; IgA, immunoglobulin A; LABD, linear IgA bullous dermatosis.

enhance the clarity and accuracy of the language. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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