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CLINICO-EPIDEMIOLOGICAL STUDY OF VESICULO-BULLOUS DISORDERS - A TWO YEAR RETROSPECTIVE STUDY IN A TERTIARY CARE CENTRE

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ABSTRACT

Background: Autoimmune vesiculobullous disorders constitute a diverse category of skin ailments where autoantibodies target cell adhesion molecules, crucial for maintaining the integrity of the skin and oral mucosa. Clinically, these disorders are identified by the presence of vesicles, bullae, or erosions on the skin and/or mucosa, depending on the specific antibodies involved. They are categorized as intraepidermal or subepidermal based on the location of bulla. Pemphigus vulgaris (PV) stands out as the most prevalent among intraepidermal bullous disorders, while bullous pemphigoid (BP) claims the top spot among subepidermal bullous disorders. Despite their global occurrence, the incidence exhibits geographical variability. A retrospective study was conducted to analyze clinical and demographic characteristics of patients with autoimmune vesiculobullous disorders, focusing on those attending a tertiary care teaching hospital.

Methods: This is a hospital based Retrospective observational study. Medical records of all patients with Autoimmune vesiculobullous disorders during the study period from January 2022 to December 2023 were collected and various clinical and dempographic factors were tabulated, compiled and analysed.

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Results: Out of the 63 cases studied, intraepidermal autoimmune vesiculobullous disorders accounted for 58.7% of cases, and subepidermal autoimmune vesiculobullous disorders accounted for 41.2% of cases. Out of the 63 cases, 36 patients (57.14%) were females, and 27 patients(42.8%) were males with a M:F ratio of 1:1.3.Majority of the patients were in the age group 41-60years(49.2%), followed by 21-40years (28.5%).
Conclusion: Among intraepidermal autoimmune vesiculobullous disorders, Pemphigus vulgaris emerged as the predominant condition, while among subepidermal autoimmune vesiculobullous disorders, Bullous pemphigoid claimed the highest prevalence.

Key words: Pemphigus vulgaris, Bullous pemphigoid intraepidermal, Subepidermal

1. INTRODUCTION

The epidermis represents a remarkably dynamic structure, intricately connected by adhesion molecules that play a crucial role in facilitating cell-cell and cell-matrix adhesion. These adhesion molecules, characterized as transmembrane proteins, exhibit homophilic extracellular domains, with their intracellular segments intricately linked to the cytoskeleton of cells. The four principal families of adhesion molecules namely cadherins, integrins, selectins, and the immunoglobulin family are concentrated within two specialized intercellular junctions referred to as desmosomes and adherens junctions.[1]
Autoimmune vesiculobullous disorders constitute a diverse group of skin diseases wherein autoantibodies target cell adhesion molecules crucial for the integrity of the skin and oral mucosa. Clinically, these disorders are identified by the presence of vesicles, bullae, or erosions on the skin and/or mucosa, depending on the specific antibodies involved. Various mechanisms contribute to blister formation, including acantholysis, spongiosis, reticular degeneration, cytolysis, and disruption or destruction of the basement membrane zone.[2]
Classification is based on clinical, histomorphological, and immunological criteria, resulting in the categorization into intraepidermal and subepidermal disorders based on the location of bulla. Pemphigus vulgaris (PV) stands out as the most common among intraepidermal bullous disorders[3], while Bullous pemphigoid (BP) claims the top spot among subepidermal bullous disorders[4]. Despite their global occurrence, the incidence exhibits geographical variation, with limited epidemiological data from India. Notably, Pemphigus vulgaris is more commonly encountered than Bullous pemphigoid in India.[5]
The diagnosis of autoimmune vesiculobullous disorders hinges on clinical and histopathological features, with confirmation typically achieved through direct immunofluorescence. Nevertheless, for individuals unable to cover the diagnostic costs, reliance is heavily placed on clinical and histopathological assessments. In light of this, a retrospective study was conducted with the aim of analyzing the clinical and demographic profiles of patients grappling with autoimmune vesiculobullous disorders. The study focused on individuals seeking medical attention at a tertiary care teaching hospital.

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2. MATERIALS AND METHODS

The study was presented before Institutional Research Board and Institutional Ethical committee and cleared.

Study centre: Department of Dermatology, Venereology and Leprology in a tertiary care hospital, Vijayawada

Study design: Retrospective observational study

Study period: January 2022-December 2023

Inclusion criteria:

All autoimmune vesiculobullous disorders with concordant clinical, histopathological and DIF diagnosis.

Exclusion criteria:

Vesiculobullous disorders other than autoimmune origin; histopathologically discordant cases were excluded from the study.

A total of 63 patients with autoimmune vesiculobullous disorders during the study period from January 2022 to December 2023 were included in our study.Details regarding the patient's age, gender, duration of the disease (at the time of consultation), Tzanck smear, Histopathological and Direct Immunofluorescence findings were collected and tabulated in master charts, analysed and discussed.

3. RESULTS

In this study, the data was analysed for the clinical and demographic profile of 63 patients with autoimmune vesiculobullous disorders. Out of the 63 cases studied, intraepidermal autoimmune vesiculobullous disorders accounted for 58.7% of cases, and subepidermal autoimmune vesiculobullous disorders accounted for 41.2% of cases. Out of the 63 cases, 36 patients (57.14%) were females, and 27 patients (42.8%) were males (Figure 1).

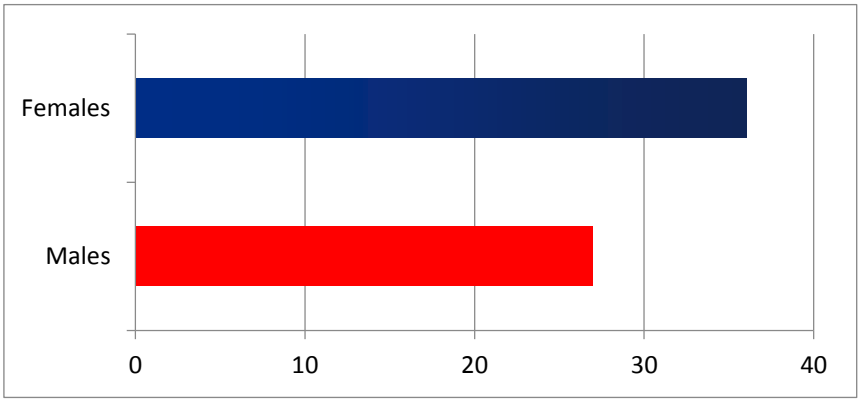

Figure 1: Gender wise distribution of Autoimmune Vesiculo Bullous disorders

Overall, there was female preponderance in our study with a male to female ratio of 1:1.3. In this study, the age of the patients ranged from 6 years (a female child with childhood pemphigus vulgaris) to 75 years (a male with bullous pemphigoid). Majority of the patients

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were in the age group of 41-60 years (49.2%), followed by 21-40 years (28.5%) and 61-80 years (20.6%). Only one patient was less than 20 years of age, and had Childhood pemphigus vulgaris. Out of the 37 patients of pemphigus group, 29 patients had pemphigus vulgaris (78.3%), 5 patients had pemphigus foliaceous (13.5%), one each had IgA pemphigus, Childhood pemphigus and localized pemphigus (2.7%) (Figure 2).

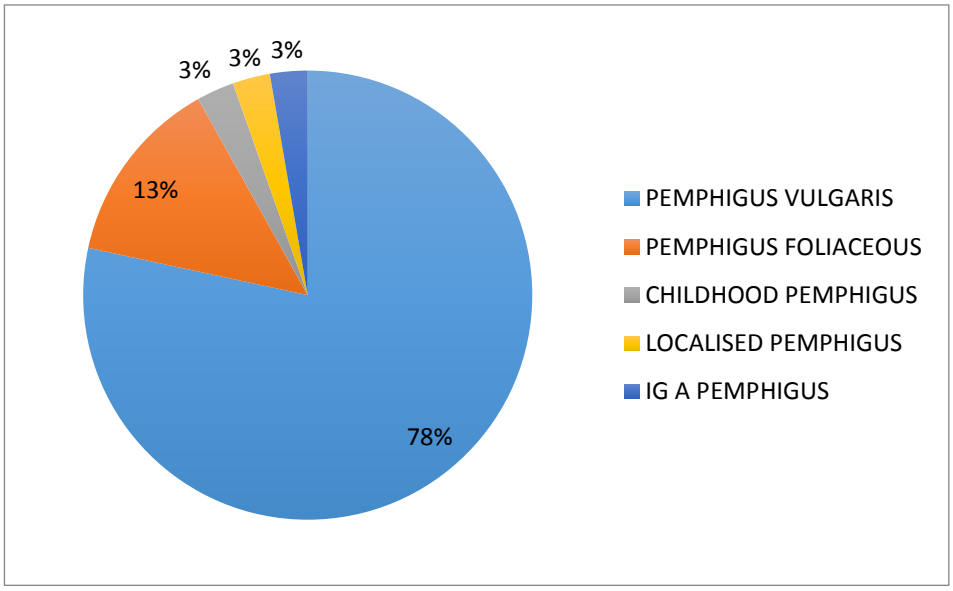

Figure 2: Distribution of Intra epidermal blistering disorders

Among the 29 patients with pemphigus vulgaris subtype, the commonest age group affected was 41-60years (17 patients, 58.6%), followed by 21-40years (9 patients, 31%), 61-80 years (3 patient, 10.3%). Tzanck smear was consistent in all 29 patients of pemphigus (all types) with predominant acantholytic cells.

In patients with pemphigus vulgaris, oral lesions were seen in all patients. Itching and burning sensation of the eroded skin were the common symptoms.

One patient had localized pemphigus- lesions limited only to the arm and upper back- diagnosis was confirmed by Tzanck smear, histopathology and direct immunoflourescence. One patient had IgA pemphigus, diagnosis of which was confirmed by DIF. None of the patients in our study had drug history prior to the onset of pemphigus or any associated malignancies.

Bullous pemphigoid (76.9%) was the most common among the sub-epidermal autoimmune blistering disorders (Figure 3).

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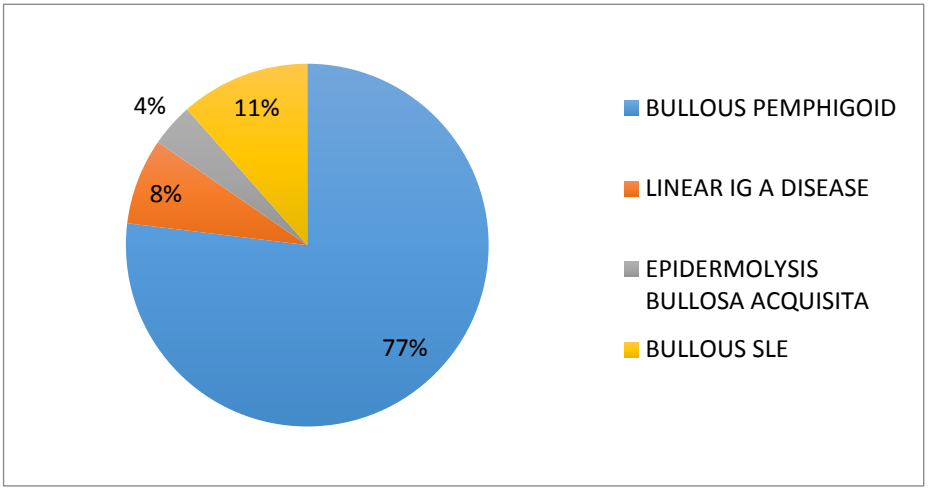

Figure 3: Distribution of Sub epidermal Blistering disorders

Bullous pemphigoid was common in the age group of 61- 80 years (10, 50%). Seven patients (35%) were in the age group of 41-60 years. None of the patients with bullous pemphigoid were below 20 years of age. We had only one patient with localized bullous pemphigoid with lesions localized to ankle and feet. Severe pruritus was present in all the patients with bullous pemphigoid group. In the present study, we had one male patient with epidermolysis bullosa acquisita with tense vesicles over the extremities. Lesions healed with scarring and milia formation in that patient with mucosal involvement. We had three cases of Bullous SLE with blisters in photo-exposed and photo protected areas and ANA positivity. None of the patients had associated internal malignancy in subepidermal group.

CATEGORY	0-20	20-40	40-60	60-80	TOTAL
Pemphigus Vulgaris	0	9	17	3	29
Pemphigus Foliaceous	0	1	4	0	5
Childhood Pemphigus Vulgaris	1	0	0	0	1
IgA Pemphigus	0	1	0	0	1
Localised Pemphigus	0	1	0	0	1
Bullous Pemphigoid	0	3	7	10	20
Linear IgA Disease	0	1	1	0	2
Bullous SLE	0	2	1	0	3
Epidermolysis Bullosa Acquisita	0	0	1	0	1
Total	1 (1.5%)	18 (28.5%)	31 (49.2%)	13 (20.6%)	63

Table 1: Age wise distribution of Autoimmune Vesiculobullous Disorders

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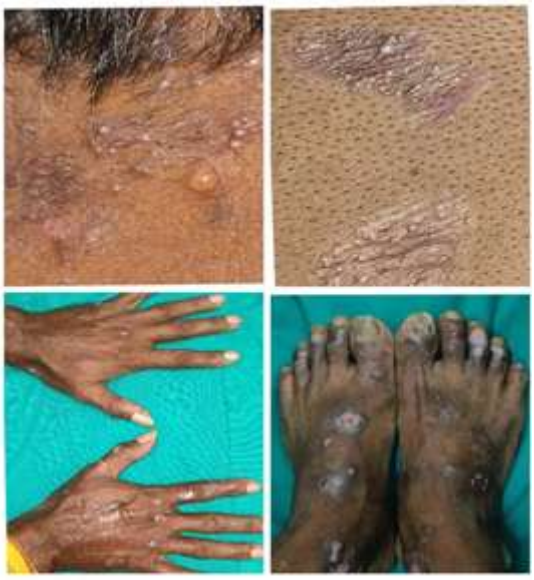

Image 1: Epidermolysis Bullosa Acquisita

Image 2: Childhood Pemphigus Vulgaris with scarring and milia formation

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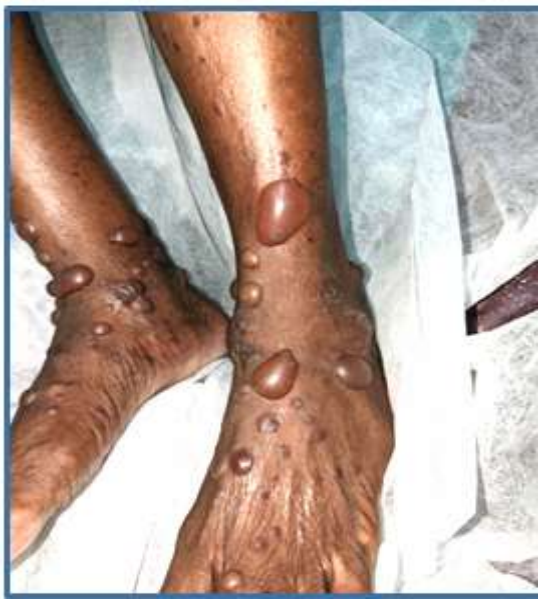

Image 3: Localised Bullous Pemphigoid

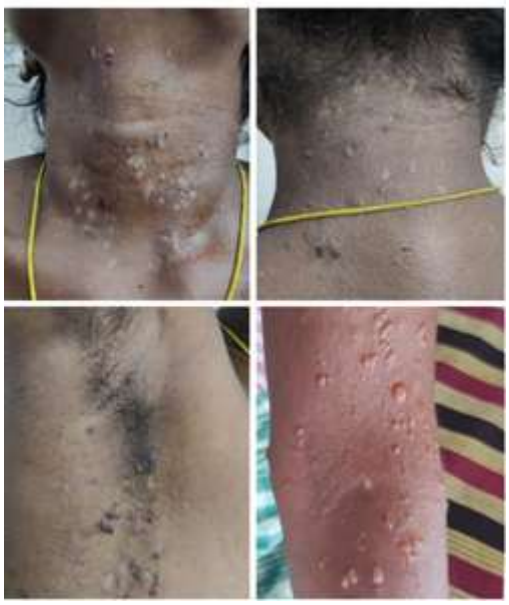

Image 4: Bullous SLE

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4. DISCUSSION

Autoimmune vesiculobullous disorders are characterized by antibody-mediated bullous eruptions affecting the skin and/or mucosa. This category encompasses intraepidermal disorders such as pemphigus vulgaris (PV) and pemphigus foliaceus (PF), as well as subepidermal disorders like bullous pemphigoid (BP), cicatricial pemphigoid (CP), linear IgA disease (LAD), dermatitis herpetiformis, pemphigoid gestationis, lichen planus pemphigoides (LPP), epidermolysis bullosa acquisita, and bullous systemic lupus erythematosus, as identified by Huilgol et al.[6] Light microscopy serves as a straightforward method for the diagnosis of immunobullous disorders, complemented by correlation with clinical findings. However, for a conclusive diagnosis, the immunofluorescence technique is deemed necessary and is considered the gold standard. According to Chhabra et al., direct immunofluorescence (DIF) involves utilizing perilesional skin or mucosa as a substrate, while indirect immunofluorescence (IIF) is conducted using the patient's serum.[7] In the present study, pemphigus vulgaris (46%) emerged as the most prevalent vesiculobullous disorder, followed by bullous pemphigoid (31.7%), aligning with findings from studies by Fatma et al., Nanda et al., and Deepti et al.[2],[8],[9] The proportions of cases with pemphigus vulgaris and bullous pemphigoid were nearly consistent with those observed by Nanda et al.[8] but were higher than those reported in the studies by Fatma et al. and Deepti et al.[2],[9] Pemphigus foliaceous was observed in only 7.9% of patients in our study, contrasting with findings in other studies such as those by Fatma et al. and Deepti et al.[2],[9] Overall, our study showed a female preponderance, with a male-to-female ratio of 1:1.3, aligning with the gender distribution observed in studies by Fatma et al. and Deepti et al.[2],[9] In terms of age distribution, the most commonly affected age group in our study was between 41 to 60 years, which is approximately consistent with the findings of Fatma et al.[2]

Pemphigus stands out as an intraepithelial immunobullous disease affecting the mucocutaneous system. Within the spectrum of intraepidermal autoimmune vesiculobullous disorders, pemphigus vulgaris (78.3%) takes precedence, followed by pemphigus foliaceous (13.5%). Pemphigus vulgaris accounts for approximately 78.3% of cases (29 out of 63 patients) in our study, a rate higher than that reported by Arya but lower than the figures found by Nanda et al. and Mahajan et al. [8],[10],[11] It manifests across all races and genders, typically affecting individuals in their Middle Ages. However, our study revealed a majority of patients in the age group of 41-60 years, which is similar to other studies.

In our study, Pemphigus foliaceous accounted for only 7.9% of cases, the second most common among the pemphigus group of disorders as in studies by Arya and Mahajan et al., which are consistent with our findings.[10],[11]

In our study, bullous pemphigoid was the most common type (76.9%) in intra epidermal type, consistent with findings in studies by De et al. in India [12] and other studies from Kuwait and Singapore, although there was variation in the percentage of cases reported by Wong et al. [13]

In our study, the majority of patients were in the age group of 61-80 years, which contrasts with the mean ages of 59 years and 58.4 years reported in studies by De et al.and Wong et al., respectively.[12],[13]

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The percentage of patients with Epidermolysis Bullosa Acquisita (EBA) in our study was1.5 % almost similar to that observed by De et al. (1.8% vs. 2%), differing from studies in Singapore and Kuwait.[12]In our study there were 3 cases of Bullous SLE(4.7%) which is similar to other studies. No patients with mucous membrane pemphigoid, lichen planus pemphigoides, Chronic Bullous disease of childhood and Dermatitis herpetiformis.

Localized bullous pemphigoid is infrequent but has been documented following radiotherapy, in surgical wounds, secondary to trauma or burns, and peristomal lesions. Our study included one patient with bullous pemphigoid localized to the pretibial region, without a prior history of trauma to that site.

5. CONCLUSION

In our study, intraepidermal autoimmune vesiculobullous disorders constituted 58.7% of cases, while subepidermal autoimmune vesiculobullous disorders made up 41.2% of cases. Overall, there was a female preponderance (1:1.3). Pemphigus vulgaris emerged as the most common autoimmune vesiculobullous disorder in our study. It was predominantly observed in the 41-60 years age group, with a single case of childhood Pemphigus Vulgaris. Bullous pemphigoid ranked as the second most common bullous dermatosis common in 61-80 years age group. It's noteworthy that the clinical and demographic patterns of autoimmune vesiculobullous dermatosis exhibit variation in different populations studied.

Declaration:
Funding: Nil
Conflict of interest: nil
Ethical approval: Study was approved by the Institutional Ethical Committee

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