Morphological Spectrum Of Vesiculobullous Skin Lesions Attending Tertiary Care Centre

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Abstract: Background: Vesiculobullous disorders represent a heterogeneous group of dermatoses with protean manifestations usually associated with fluid filled skin lesions. They usually occur as a part of the spectrum of various infectious, drug-induced, genetic, inflammatory and autoimmune disorders. Material And Methods: It was a cross-sectional study of 300 patients with Vesiculobullous Disorders including all age groups attending a tertiary care centre over a span of 2 years. The diagnosis was made mainly by Clinical findings, Tznack smear and Histopathology. Result: In Vesiculobullous group of disorders, there were 137(45.67%) cases of infections, 111(37%) cases of immune-bullous disorders, 11(3.67%) cases of spongiotic disorders, 5(1.67%) cases of metabolic disorders, 3(1%) cases of genetic disorders, 16(5.33%) cases of bullous drug reaction, 15(5%) cases of inflammatory disorders, 1(0.33%) case of friction blister and of environmental disorder each. The highest incidence of Vesiculobullous disorders was found in age group 51-60 years (17.67%) followed by 21-30 years (16%).Incidence of Vesiculobullous disorders were more common in males (60.33%) and M: F ratio was 1.51:1. Conclusion: Correct diagnosis plays an important role in treatment and counselling about type, duration and prognosis of disease, maintaining remission and avoidance of aggravating or causative factors like drugs in cases of bullous drug reaction and stress in autoimmune Vesiculobullous group. Overcrowding, poor hygiene, low socioeconomic class, favourable environmental factors were mainly responsible for infections being most common in our study. [Gangawala V Natl J Integr Res Med, 2023; 14(3): 31-38, Published on Dated: 18/05/2023]

Key Words: Vesiculobullous Skin Lesion, Vesicle, Infections

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Introduction: Vesiculobullous disorders represent a heterogeneous group of dermatoses with protean manifestations. They have remarkable impact on the patient, their family and have severe economic consequences. The diseases have been the subject of intensive investigation in recent years. Vesiculobullous disorders (VBD) are a type of mucocutaneous diseases characterized by fluid-filled lesions called vesicles (<5–10 mm) and bullae (>5–10 mm), which may rupture, leaving behind erosions and ulcerations[1].

Clinically, all the patients with Vesiculobullous diseases may not present with classical morphology and distribution of the lesions. The number of patients presenting with clinical features like vesicles and bullae, involvement of mucous membranes, Nikolsky's sign and Bulla spread sign is different in various studies conducted in India[2]. They usually have an underlying infectious, autoimmune, or genetic etiopathology, and are diagnosed on clinical, histopathological, and immunological grounds[2].However, overlap in the clinical presentation of these pathologies as well as the time, expenditure, and morbidity associated with biopsy examination engenders the need for better alternatives[1].We have tried to focus on morphological data in our study.

Material & Methods: It was a cross-sectional study of 300 patients with Vesiculobullous Disorders including all age groups attending the outpatient tertiary care centre in Department of Dermatology, Venereology and Leprosy (D.V.L.), admitted in the skin ward and referred from other departments. Patients were subjected to complete clinical evaluation after between august 2019 to September 2021.

This study was conducted with IEC approval. The detailed history was recorded, followed by thorough clinical examination in all the patients. Type and distribution of skin and mucous membrane lesions was particularly noted. Attempts were made to rule out any systemic involvement. All requiring hospitalization was admitted in skin ward. The diagnosis of

Vesiculobullous disease was made mainly by 1) Clinical findings 2) Tznack smear 3) Histopathology (whenever necessary). Routine investigations like complete blood count, urine routine and microscopic examination, renal function tests, liver function tests, serum protein and blood sugar were done in all patients.

Special investigations including Tzanck smear, pus culture and sensitivity were done in indicated cases. In selective cases, punch biopsy was taken from fresh vesicle or bulla and sent for histopathological examination.

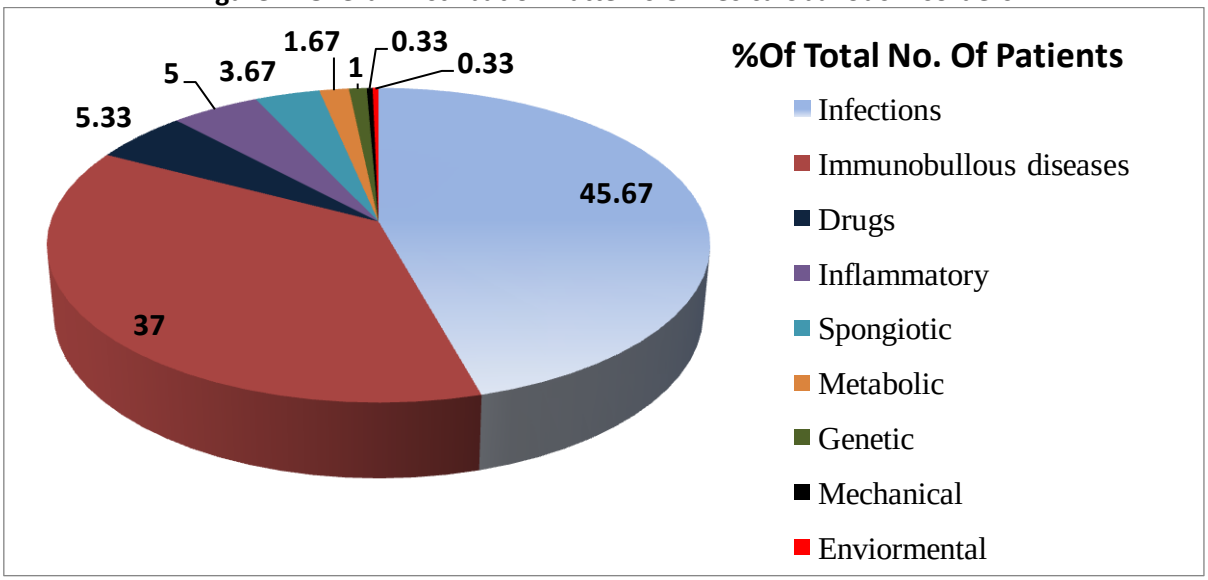
All the patients treated according the requirement and counselling like avoiding trauma in mechanobullous disorders such as Epidermolysis bullous, avoidance of culprit drugs in drug induced bullous dermatoses was done.

Inclusion Criteria: All patients with complaint of Vesiculobullous lesions at any age group came to opd or referred from other departments were included.

Exclusion Criteria: Patients who were not willing to participate were excluded.

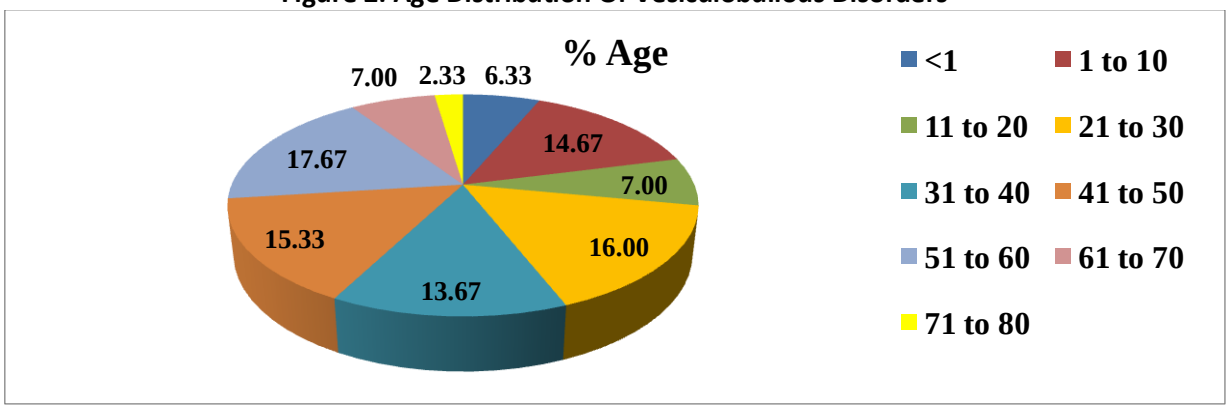
Results: A total of 9 groups in Vesiculobullous disease were detected in the present study comprising a total of 300 patients. There were 137(45.67%) cases of infections, 111(37%) cases of immune-bullous disorders,11(3.67%) cases of spongiotic disorder, 5(1.67%) cases of metabolic disorder, 3(1%) cases of genetic disorder, 16(5.33%) cases of bullous drug reaction,15(5%) cases of inflammatory disorder, 1(0.33%) case of friction blister and of environmental disorders each(Figure 1).

Figure 1: Overall Distribution Patterns Of Vesiculobullous Disorders



The highest incidence of Vesiculobullous disorders was found in age group 51-60 years 53(17.67%) cases followed by 48(16%) cases in 21-30 years (Figure2). The Vesiculobullous disorders were more common in 181(60.33%)males and Male: Female ratio being 1.51:1.

Figure 2: Age Distribution Of Vesiculobullous Disorders



Viral infections in 122 (40.67%) cases were most common among infections followed by bacterial 7(2.33%) cases, fungal 6(2%) cases and parasitic 2(0.67%) cases.89 (72.95%) males were predominantly affected with Male: Female ratio being 2.51:1. Among viral infections, Herpes Zoster was most common in 74cases (24.67%).

Most common age group (in years) affected in herpes zoster was 21-30 in 23(31.08%)cases, followed by 51-60 in 15(20.27%) cases, 31-40 in 13(17.57%) cases, 11-20 in 9(12.16%) cases, 41-50 in 8(10.81%)cases, 61-70 in 3(4.05%)cases, 71-80 in 2(2.70%) cases and 1-10 in 1(1.35%)case.

Male: Female ratio was 2.7:1.Most common dermatome to be involved in Herpes zoster was thoracic in 41(55.41%) cases, followed by cervical in 12(16.22%) cases and lumber in 12(16.22%) cases, trigeminal in 8(10.81%) cases and sacral in single case (1.35%).There were 7 cases(9.45%) of Herpes zoster with HIV (Figure 3).

Figure 3: Oral Involvement In Herpes Zoster In Patient With Hivinection

The highest incidence of chicken pox was in the age group 1-10 years in 11(73.33%)cases with maximum age for chicken pox in the study was 30 years and minimum being 4 years. 8(53.33%) males were affected with Male: Female ratio was 1.14:1 in chicken pox. In Herpes Simplex most common age group affected was 21- 40 years in 12(44.44%) cases with Male: Female ratio 8:1.In hand foot and mouth diseases total 6 (2%) cases; youngest child was 3 month old in our study with equal sex distribution.

In bacterial infection, Bullous impetigo in 5 cases (1.67%) was seen maximally in age group 0-5 years in 4(80%) cases and Male: Female ratio was 1:1.5. There was single case (0.33%) of Staphylococcal Scalded Skin Syndrome and 1(0.33%) interesting case of congenital syphilis was seen in our study.

Candidiasis in 6(2%) cases was seen more frequently in 5-9 years in 3(50%) cases with Male: Female rato of 5:1.

There were 2 cases (0.67%) of scabies in parasitic infection.

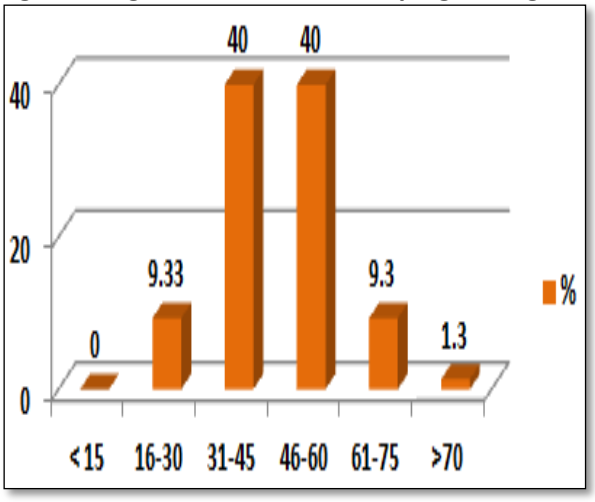
Pemphigus group covered 88(29.33%)cases majority in immunobullous group followed by Subepidermal group of disorders 23(7.67%) cases. Females were more commonly affected with Male: Female ratio being 1:1.09.There were total 88 cases of pemphigus group of disorders out of which 75 cases (85.33%) were of pemphigus vulgaris, which contributed most common group.

There were 9 cases(10.23%) of Pemphigus Foliaceous,2 cases(9%)of Pemphigus Vegetans(2%), single case(1.14%) of Pemphigus Erythematosus and IgA pemphigus each.Most common age group affected was 41-60 years in 47 cases(53.4%) followed by 15-40 years in 29 cases (32.95%) and >60 years in 12 cases(13.63%).

Females were more commonly affected in 49 cases (55.68%) with Male: Female ratio being 1:1.25.

The most common age group(in years) affected in pemphigus vulgaris was 31-45 in 30 cases(40%) and 46-60 in 30 cases(40%).There were slight female predominance with Female: Male ratio of 1.34: 1[Figure 4].

Figure 4: Age Distribution In Pemphigus Vulgaris



In pemphigus vulgaris 72 cases (96%) had skin involvement,70 cases (93.33) had oral involvement, 48 cases(64%) had genital involvement and 8 cases (10.66%) had conjunctival involvement. Initial mucosal invovment in 41 cases (54.66%) was seen maximally followed by skin and mucosa involved simultaneously in 33 cases (44%).

Most common finding in nail was paronychia, which was seen in 11 cases (14.66%) followed by onychomadesis in 8 cases (10.66%).

Tznack smear showed acantholytic cells in all 75 cases (100%).On histopathology, suprabasal cleft was seen in all 75 cases (100%) with raw of tombstone appearance seen in 45 cases(60%).

Dsg 3 and Dsg 1 done in 2 patients. Mortality was observed in 2 cases. In pemphigus Foliaceous, there were 3 cases (33.33%) in 21-40 years and 41-60 years each followed by 2 cases(22.22%) in 1-20 years and a single case (11.11%) in >60 years. Males were more commonly affected with Male: Female ratio being 2:1.Tznack smear showed acantholytic cells in all 9 cases (100%).

On histopathology examination, subcorneal cleft seen in all 9(100%) cases. There were two cases of pemphigus vegetans with equal sex distribution. A single female patient with pemphigus erythematosus had photosensitivity along with ANA 1:160 titer positive and single female patient with IgA pemphigus.

There were 23 cases (7.67%) in subepidermal group. In bullous pemphigoidmost common age group affected was 61-70 years in 7 cases (36.83%) followed by 51-60 years in 6 cases (21.05%),<50 years in 5 cases (26.30%) and 71-80 years in 1 case (5.26%). There was an interesting case of 35 years old male affected with bullous pemphigoid.

Males were more commonly affected with Male: Female ratio being 1.71:1.Oral mucosa was involved in 2 cases (10.52%).Lesions started from lower abdomen in half (50%) of cases. Histopathological examination reveled all 19 cases (100%) had subcorneal cleft.

There was single case (0.33%) of Chronic bullous dermatosis of childhood (CBDC),Pemphigoid gestationis, Linear IGA disease and Dermatitis herpatiformis each(Figure 5).

Figure5: Tense Bullae Started From Periumbalical Area In Pemphigoid Gestationis

Irritant contact dermatitis in 5 cases (1.67%) and allergic contact dermatitis in 6 cases (2%) were included in spongiotic group with Male: Female ratio being 1.75:1. Most common age group affected was 41-60 years in 5 cases (45.45%).

Most common causative factor was chemicals and building material in 3 cases(27.27%) each, followed by bandage in 2 cases (18.8%) ,metals in 2 cases (18.8%) and plants in 1 case(9.09%).Most patient had lesion over exposed areas, Hands in 7 cases(63.63%) being most common.

In metabolic group, There were 2 cases (0.67%) of diabetic bulla and 3 cases (1%)of acrodermatitis entropathica. There were 2(0.67%) cases of Epidermolysis simplex and single case (0.33%) of hailey-hailey disease in genetic group. Drugs were responsible in 16 (5.33%) of cases, among them Bullous FDE(Figure 6) in 10 cases (3.33%),Erythema Multiforme in and SJS/TEN in 3 cases(1%)each.

Figure 6:Bullous FDE Due To Nimesulide

Most common age group affected was 16-30 years in 5 cases (50%), followed by 1-15years in 4 cases (40%), 46-60 years in 1 case (10%). Males were mainly affected with Male: Female ratio being 2.33:1. In inflammatory group 15 cases (5%) mainly comprised 5 and below 5 years of age group patients. Females were slightly more affected than males with Male: Female ratio being 1:1.33 In present study there was 8 cases (2.67%)of miliria rubra,6 cases(2%) of miliria crystallina and an interesting case of erythema toxicum neonatorum. Single case (0.33%) of friction blister was seen in 3 years old male in mechanical group. A single case (0.33%) of bulla over hand due to burns was seen in 23 years old female in environmental group.

Discussion: Blisters are an obvious sign of disease that always draw the attention of the patient and the physician. Vesiculobullous disorders are one of the common disorders with which the patient presents to the Dermatology OPD. The disorders range from benign conditions like suction blisters to life threatening conditions with systemic involvement like toxic epidermal necrolysis (TEN).

Also, few vesiculobullous disorders like the autoimmune group which includes pemphigus group of disorders present with near similar clinical features. Hence the diagnosis of vesiculobullous disorders can be challenging to the dermatologist.

Maximum number of patients belonged to age group 51-60 years (17.67%) followed by 21-30 years (16%). Present study was comparable with Ramalingam R, 51-60 years (29.9%) being most common age group[3]. This can be attributed to the difference in exposure rates, outdoor activities and hormonal influences.

The incidence of vesiculobullous disorders were more common in males including 60.33% while Anupama Raj at el[4] study showed female dominancein 52% patients. Males were more commonly affected due to higher chance of exposure to sunlight as they are indulged in outdoor activity, pesticide exposure as well as accessibility to medical care.

Infections (45.67%) being most common entity in our study which is correlated well with Sardana et al found infections and infestations (47.15%)as most common entity[5].Overcrowding, poor hygiene, low socioeconomic class, favourable environmental factors, malnutrition, irrational use of antibiotics are mainly responsible for infections being most common in our study. Viral infections 40.67% cases were most common among infections followed by bacterial 2.33% cases and fungal 2% cases which correlated with Devendra at al[6] where viral infections were most common see n in 43.65% of children followed by bacterial infections seen in 19.80% and fungal infections seen in 4.06%. The variation among infective disorders can possibly be attributed to the region of study, prevalent environmental factors, type of population studied, hygiene, nutritional status etc.

All cases of impetigo presented with only skin involvement, with face being the most common site followed by extremities[7].

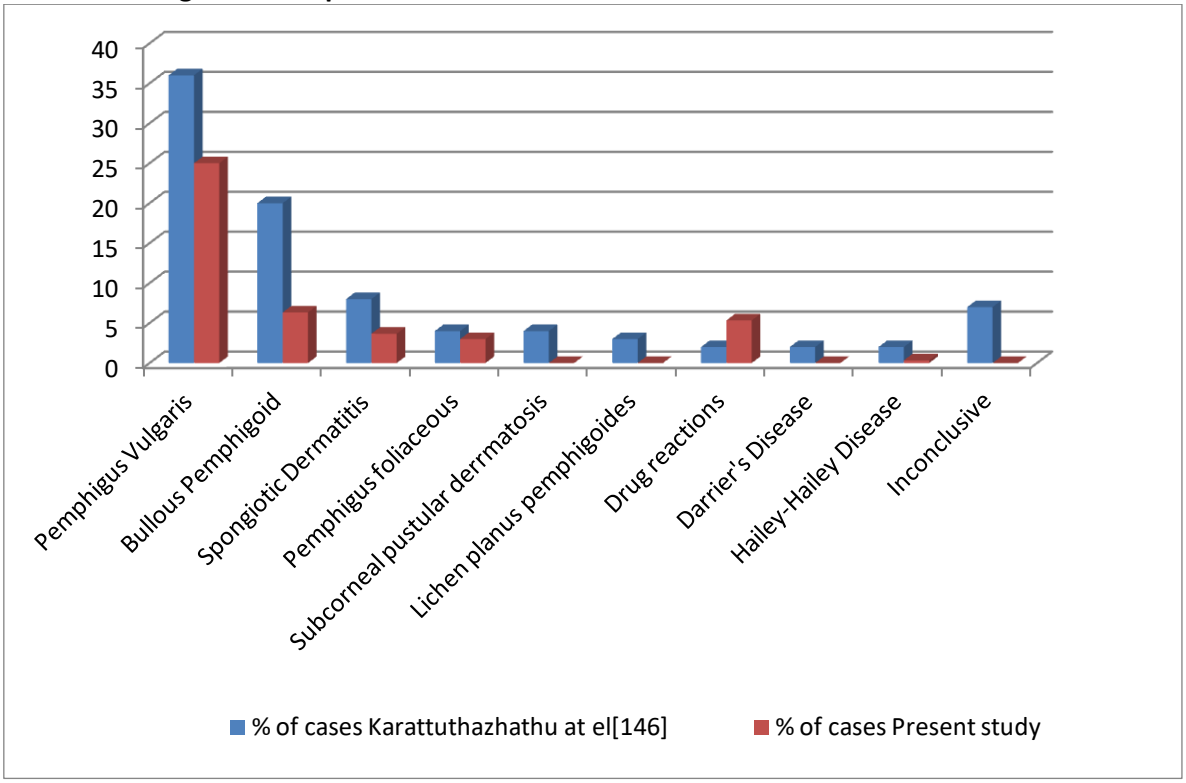
The commonest age group in present study was 21-30(31.08%), compared to Pavithran[8] in which it was 31-40(24%) in herpes zoster. Incidence rates progressively increases with age due to decline in cell mediated immunity. As the incidence of H. zoster was higher in males with Male: Female ratio was 2.7:1 in our study which correlated with pavithran study where Male: Female ratio was 1.3:1.

Most common dermatome to be involved in Herpes zoster was thoracic (55.41%) in present study. This was comparable with dubey et al[9], thoracic (59.81%) dermatome being most commonly involved.

In present study there were 7(9.45%) out of 74 cases of H. zoster were HIV positive. In these patients there was more severe prodrome with hemarragic lesions. Impetigo was most common in preschool and school age group, was supported by other studies[10].This can be attributed to the difference in exposure rates, outdoor activities and lack of awareness in this age group.

There were 70% males affected dur to adverse drug reaction, comparble to Jhaj at al[11] 62% males were affected.In both males were more affected in adverse drug reaction may be due more exposure to over the counter drug. Our study had 85.33% of pemphigus vulgaris which correlated with Karattuthazhathu at el as 36% of pemphigus vulgaris was most common in both the study, which correlated well with information given in literature[4](Figure 7).

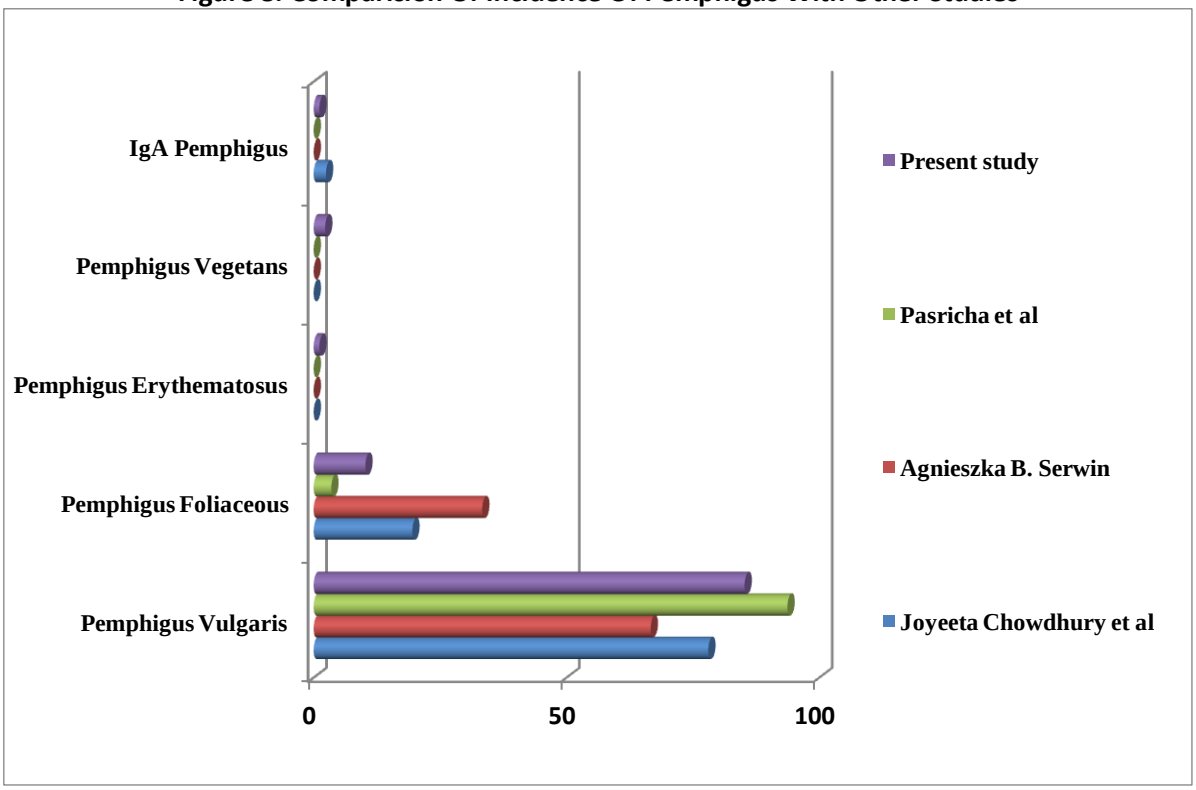
Figure 7: Comparisons Of Overall Patterns Of Vesiculobullous Disorders



Pemphigus vulgaris has a higher incidence in Indian, Southeast European, and Middle Eastern populations[12]. This is in agreement with the study byKhannan et al (53%),Deepti et al(34%) and Buch et al (27%)all of which showed pemphigus vulgaris to be the commonest entity among all vesiculobullous disease[13,14,15]. Pemphigus Vulgaris was the commonest disorder among the pemphigus group in all four studies.

Highest incidence of pemphigus vulgaris 85.22% was seen in present study followed by 78.04% in Joyeeta Chowdhury et al study, 44 cases (66.66%) in Agnieszka B. seewin (Figure 8).

Figure 8: Comparision Of Incidence Of Pemphigus With Other Studies



In pemphigus group, the most common age group affected was 41-60 years 53.4% in our and 41.46% in Joyeeta et al[16],while Pasricha et al had51.04% of cases in age group 15-40 years.

Joyeeta at al (65.85%), Agnieszka B. Serwin[17] (74.24%) and present study(55.68%) the disease was more common in females, where as Pasricha at el[18](45.45%)showed that the disease was more common in males.

In pemphigus vulgaris 96% had skin involvement, 93.33 % had oral involvement, 64% had genital involvement and 8 cases had conjunctival involvement.

Study by Javidi et[19] al showed mucosal involvement in 14% and skin involvement in 21.7% and involvement of both the skin and mucosa in 64.3% of the patients.

Our study correlated with other studies which showed 100% positivity of the Tznack smear in cases of PV and PF were conducted by Selvaraj et al[20].

On histopathology,suprabasal cleft was seen in all 100% comparable to studies conducted by Khannan et al[13] and Selvaraj et al described 100% cases of PV showing suprabasalbulla.All the cases of PF showed subcorneal bulla 100% as shown by Khannan et al.

Early diagnosis with help of morphological data can prevent morbidity and mortality and may improve the quality of life of the patient in vesiculobullous group of disorders.

Conclusion: Various primary cutaneous diseases present clinically with vesiculobullous lesions, their etiology, pathogenesis, severity and course differ. Therefore, accurate diagnosis of these diseases is essential for appropriate management to avoid or to minimize associated morbidity and mortality.

The present study concludes that clinical observations remain the key toward the diagnosis and lab investigations cannot provide any short cut to the diagnosis.

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