



Histopathological Study of Vesiculo-bullous Lesions of the Skin in Ajmer Region (Rajasthan)

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ABSTRACT

Background: Histopathology of skin biopsies is a useful technique in the investigation of various skin diseases out of which vesiculo-bullous lesions form one of the predominant groups.

Methods: A histopathological study of vesiculo-bullous lesions of skin of 45 cases was carried out on skin biopsies received in Department of Pathology, Jawaharlal Nehru Medical College, Ajmer. The total number of skin biopsies received inclusive of vesiculo-bullous lesions was 828 over a period of two years. Among them the number of patients with vesiculo-bullous lesions was 45. Histologic examination of H & E-stained sections of the same were done. The level of split of lesions, mechanism of blistering and nature of infiltrate noted.

Result: In the present study 45 cases of vesiculo-bullous lesions of the skin were diagnosed histopathologically. The commonest lesion overall was Pemphigus Vulgaris followed by Bullous Pemphigoid. Maximum number of cases were seen in age range of 41-50 years.

Conclusion: Clinical examination along with histopathological examination of skin both together form an important diagnostic ancillary technique in the management of patients with vesiculo-bullous lesions of skin where the immunofluorescence technique is not available.

Keywords: Vesiculo-Bullous Lesions, H & E, Pemphigus Vulgaris, Bullous Pemphigoid

Introduction

Histopathology of skin biopsies is a useful technique in the investigation of various skin diseases out of which vesiculo-bullous lesions form one of the predominant groups. Vesicles and bullae are fluid filled cavities formed within or beneath the epidermis. Vesicles are blisters less than 0.5 cm in diameter and bullae are blisters greater than 0.5 cm in diameter.^[1,2]

For the diagnosis of vesiculo-bullous lesions Punch biopsy is most commonly employed technique. Punch Biopsy is a simple, inexpensive, safe OPD procedure without any major complications, causing minimal discomfort to the patient and no scarring.^[3] Present study was carried out to study histopathological changes by Light microscopy in vesiculo-bullous disorder of the skin and to correlate clinical and histopathological aspects of vesiculo-bullous disorder of skin.

Pathologic evaluation of blisters involves systematic analysis, which includes the blister separation plane, the mechanism of blister formation and the character of the inflammatory infiltrate, including its presence or absence.^[4]

Materials and Methods

A histopathological study of Vesiculo-bullous lesions of skin of 45 cases was carried out on skin biopsies received in Department of Pathology, Jawaharlal Nehru Medical

College, Ajmer. Skin biopsies were carried out with the help of 6 mm punch. All tissues were sent in 10% buffered formalin immediately after procedure to histopathology section. It was kept for 24 hours for proper fixation, subsequently dehydration, clearing, embedding in paraffin wax were carried out. Blocks were made and sections of 3-micron thickness were cut and stained with H & E stain. All the slides were examined microscopically and diagnosed.

Result

The total number of skin biopsies received inclusive of vesiculobullous lesions was 828. Among them the number of patients with vesiculobullous lesions was 45 accounting for around 5.43 % of total number of skin biopsies. In the present study 45 cases of vesiculo-bullous lesions of the skin were diagnosed histopathologically.

The commonest vesiculo-bullous disease was Pemphigus Vulgaris 18 cases (40%) Table 1 in which oral lesions were predominant with skin involvement showing flaccid bulla of varying sizes. This was followed by Bullous Pemphigoid 13 (28.9%) occurring as multiple, tense bullae of varying sizes common in adults. Cases of Pemphigus Foliaceous 7 (15.5%) which had characteristic positive Nikolsky's sign, cases of Dermatitis Herpetiformis 4 (8.9%) which occurred along with gluten sensitive enteropathy with skin involvement showing vesicles on erythematous bases.

Cases of Erythema Multiforme were 3 (6.7%) presenting as popular erythematous eruptions caused by a variety of unrelated stimuli. (Figure 1).

Maximum number of cases were seen in age range of 41-50 years (Table 2). There were 16 cases (35.5 %) in this group. This was followed by 6 cases in age range of 31 to 40 years. Only one patient was seen in the age range of 61 to 70 years. Particularly Bullous Pemphigoid and Pemphigus Vulgaris showed maximum cases in 41–50-year age group (5 and 8 cases respectively) (Table 3)

17 cases were seen in males and 28 cases were seen in females making Male: Female ratio 17:28. (Table 4). These diseases were more common in females.

Dermatitis herpetiformis showed equal distribution in males and females (2 cases each). On the other hand, Bullous Pemphigoid, Pemphigus Vulgaris, Pemphigus Foliaceous, Erythema Multiforme showed female preponderance (Table 5)

Mechanism of Blister formation (Table 6) - In the present study, epidermal basement destruction leading to subepidermal bullae formation was most common mechanism involved (21 cases), followed by acantholysis (14 cases). Other mechanisms like spongiosis (7 cases) and keratinocyte degeneration and cytolysis (3 cases) were also observed.

Discussion

Light microscopy of vesiculo-bullous disease reveals relatively some of the basic types, one of the simplest and most consistent method for diagnosis and classification of vesiculo-bullous diseases. All the vesiculo-bullous diseases show specific histopathological changes which are demonstrated only when early intact vesicle or bulla is included in the biopsy specimen.

The incidence of vesiculo-bullous diseases in present study was 5.4% similar to observation made by Sanjeev Narang et al 2.67% [5] and Sandhya Panjeta Gulia et al 4.8% [6]

Table 1: Distribution of cases.

Distribution of cases			
S.No	Lesions	No of cases and	Percentage
1.	Bullous Pemphigoid	13	29%
2.	Dermatitis Herpetiformis	4	9%
3.	Pemphigus Foliaceous	7	15%
4.	Pemphigus Vulgaris	18	40%
5.	Erythema Multiforme	3	7%
	Total	45	

Table 2: Age wise distribution of vesiculo-bullous lesions.

Age wise distribution of vesiculo-bullous lesions			
S. No.	Age group in years	No of cases	Percentage
1.	0-10	2	4.4%
2.	11-20	4	8.8%
3.	21-30	4	8.8%
4.	31-40	6	13.3%
5.	41-50	16	35.5%
6.	51-60	5	11.1%
7.	61-70	1	2.2%
8.	71-80	4	8.8%
9.	81-90	3	6.6%

Table 3: Age distribution of vesiculo-bullous disease.

S. No.	Lesion	Age group in years									No of cases (%)
		0-10 years	11-20 years	21-30 years	31-40 years	41-50 years	51-60 years	61-70 years	71-80 years	81-90 years	
1.	Bullous Pemphigoid	-	2	-	1	5	1	1	1	2	13 (28.9%)
2.	Dermatitis Herpetiformis	1	-	1	-	1	1	-	-	-	4 (8.9%)
3.	Pemphigus Foliaceus	-	1	-	1	1	2	-	2	-	7(15.5%)
4.	Pemphigus Vulgaris	1	1	2	4	8	1	-	-	1	18(40%)
5.	Erythema Multiforme	-	-	1	-	1	-	-	1	-	3(6.7%)
	Total	2	4	4	6	16	5	1	4	3	45

Table 4: Sex-wise distribution of vesiculo-bullous diseases.

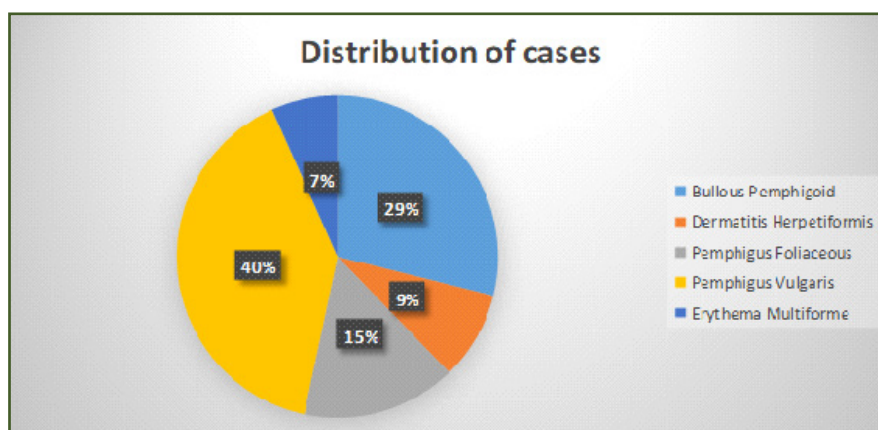
S. No.	Sex	Number of cases
1.	MALE	17
2.	FEMALE	28

Table 5: Sex wise distribution percentage of individual Vesiculo-bullous diseases.

S.No	Lesions	Males	Percentage	Female	Percentage
1.	Bullous Pemphigoid	4	31%	9	69%
2.	Dermatitis Herpetiformis	2	50%	2	50%
3.	Pemphigus Foliaceus	3	43%	4	57%
4.	Pemphigus Vulgaris	7	39%	11	61%
5.	Erythema Multiforme	1	33%	2	67%
	Total	17		28	

Table 6: Mechanism of Blister Formation.

Mechanism of Blister Formation		
Mechanism	Number	Percentage
Epidermal basement membrane zone destruction /disruption	21	46.6%
Acantholysis	14	31.1%
Spongiosis	7	15.5%
Keratinocytes degeneration & cytolysis	3	6.6%
	45	100%

**Fig. 1: Distribution of Cases.**

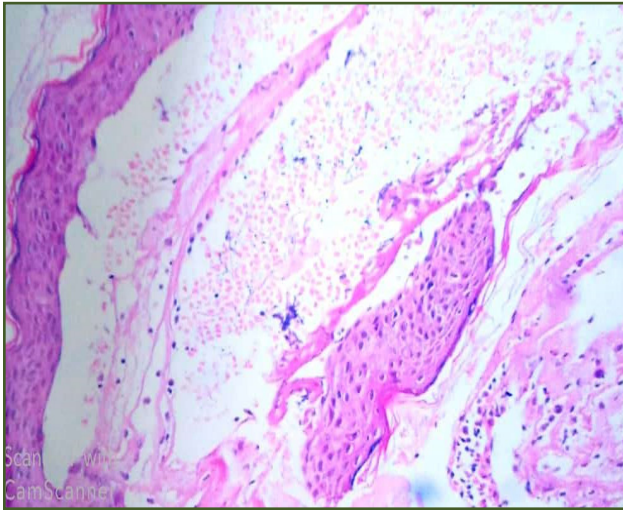


Fig. 2: Pemphigus Vulgaris-showing suprabasal blister, acantholysis and tombstone appearance.(H&E 100X).

while Najla M. Alghanmi et al 12.8% [7] showed higher incidence than present study. In our study, maximum number of patients fall under age group 41-50 years (35.5%) followed by 31-40 years (13.3%). Kabir AK et al showed similar maximum age prevalence in age group 41-50 years (41.17%) [8]. Prashant R Patel et al showed maximum age prevalence (51.55%) in 3rd and 4th decade. [9] Handa F et al showed prevalence of Pemphigus in younger age groups. [10]

There was a slight female preponderance in present study with male to female ratio 17:28. While in study by Leena JB et al there was male predominance with male to female ratio as 1.35:1. [11]

In the present study incidence of pemphigous vulgaris was highest (40%) among all other vesiculobullous diseases. Prashat R Patel, Arundhathi et al and Vasim Khan et al showed similar results with 54.55%, 69.23% and 60.03%. [9,12,13]

Pisanti S et al reported that in 50-70% of patients with pemphigus vulgaris, the disease originated in oral cavity. [14] Out of all 64% patients in our study showed oral lesions. Mostly belonged to pemphigus group. Predominant sites of involvement of vesiculobullous lesions in our study were the trunk and extremities (36%), followed by abdomen and back (33%). Trunk and extremities were frequently involved sites in most of the cases which was also observed by Shafi M et al [15]

Conclusion

Clinical examination along with histopathological examination of skin both together form an important

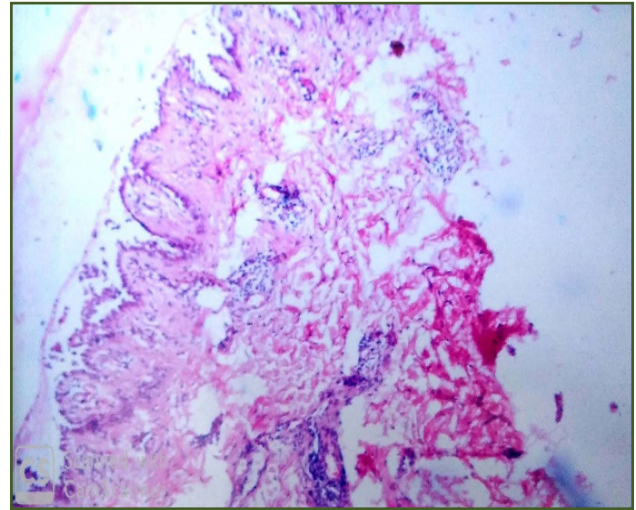


Fig. 3: Bullous Pemphigoid- showing blister at the dermo epidermal junction with inflammatory cells (400X , H&E).

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Competing Interests

None Declared

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