



## HISTOPATHOLOGICAL STUDY OF VESICULOBULLOUS LESIONS OF THE SKIN: A STUDY AT TERTIARY CARE HOSPITAL

**Neha Agrawal**

Junior Resident , Department of Pathology, Government Medical College, Akola, Maharashtra, India

**Dilip Sarate\***

Associate Professor, Department of Pathology, Government Medical College, Akola, Maharashtra, India \*Corresponding Author

**Pradeep Umap**

Professor & Head Department of Pathology, Government Medical College, Akola, Maharashtra, India

### ABSTRACT

**Background:** Vesiculobullous lesions are not uncommon in dermatological practice and present with blister formation which in some instances, are fatal if untreated. They may occur in many dermatosis which include various inflammatory, infective, autoimmune, drug induced as well as genetic conditions. Histopathology study of skin biopsies is one of the useful techniques in the investigation of vesiculobullous lesions.

**Aims and Objective:** To study histopathological features of vesiculobullous lesions and to determine the distribution in age, sex group and the most common subtype in this region.

**Materials and Methods:** A total number of 44 cases of clinically diagnosed blistering disorder were included. In the present study male patients were 25 (56%) & female patients were 19 (43%). Male : female ratio was 1.3:1. The two year retrospective study was carried out in the Department of Pathology in Government Medical college Akola in collaboration with the Department of Dermatology, Venerology & Leprosy. The duration of study was from January 2017 to December 2018.

**Result:** In the present study amongst 44 cases, Pemphigus vulgaris was diagnosed in 62% cases and was detected the most common type, followed by Bullous pemphigoid (18%) and Pemphigus foliaceus (11%), Dermatitis herpetiformis (7%) & erythema multiforme (2%).

**Conclusion:** This emphasizes the importance of skin biopsy in analysing the morphological features along with clinical features in the diagnosis of vesiculobullous disorders of skin.

**KEYWORDS :** Vesiculobullous, Histopathology

### INTRODUCTION

Vesiculobullous disorders constitute a heterogeneous group of skin diseases with protean manifestations. These lesions may occur in many dermatoses including inflammatory, infective, autoimmune, drug induced & genetic etiology<sup>1</sup>. In some instances the outcome is fatal if untreated. They have significant economic impact on the patient & his family.<sup>1</sup> Vesicles (<0.5cm in diameter) and bullae (>0.5cm in diameter) occur in several unrelated conditions but in vesiculobullous disorder these are the primary and most distinctive features<sup>2,3</sup>. Blisters in the various disorders occurs in all layers of epidermis from stratum corneum to basal layers and subepidermally. These lesions can be diagnosed by evaluating minute clinical details & histopathological study is one of the most useful techniques in the investigation of vesiculobullous lesions. However immunofluorescence study is necessary when histopathological study alone is not diagnostic.

Morbidity & mortality varies significantly in bullous lesions.<sup>3</sup> So its very important to arrive at correct diagnosis of these lesion. Histopathological evaluation plays an important role in diagnosis of vesiculobullous lesions of the skin.

Present study was carried out to study histopathological features in vesiculobullous disorders of the skin by light microscopy and to determine the distribution in age, sex group and the most common subtype in this region.

### MATERIAL AND METHODS:

This two year retrospective study was carried out in the Department of Pathology, Govt Medical College Akola during the period January 2017 to December 2018. The skin biopsy samples were received from department of Dermatology, Venerology & Leprosy, Government Medical College Akola.

The pertinent clinical history like age, sex, site of lesion, duration of the lesion, significant family and personal history of associated diseases and other relevant history like drug intake were noted. The biopsy studied included epidermis, dermis, subcutaneous fat as well as the uninvolved perilesional area.

Biopsy specimens were fixed in 10% formalin. After fixation, routine specimens were processed in an automatic tissue processor ( Leica TP1020 tissue processor). Blocks were prepared and sections of 3µm thickness were cut and stained with H and E. Histopathological examination of sections included separation plane whether subcorneal, intraepidermal, suprabasilar, supepidermal or intradermal. The presence or absence of inflammation and type of inflammatory cell infiltrate were noted.

### Observations:

In the present study, 44 skin biopsies which were clinically diagnosed as vesiculobullous lesion, were studied. Pemphigus vulgaris was found to be the most common type of lesion, accounting for 62 % of cases (n=27). Bullous pemphigoid was the 2<sup>nd</sup> most common type and was detected in 8% (n=18) of cases which was then followed by pemphigus foliaceus 11% (n=5) , dermatitis herpetiformis 7% (n=3) & erythema multiforme 2% (n=1) cases.

In the present study, the most common age group of presentation was between 41-50 years and second common age group was between 61-70 years. Pemphigus vulgaris was most commonly detected lesion in 40-70 year agegroup. Bullous pemphigoid was detected most commonly between 60-80 years of age. Patients with pemphigus foliaceus was found in the age group of 30-40 years of age. Table 1. shows number of cases of each lesion studied with their percentage.

In the present study, there was slight male preponderance (n=25) than females (n=19).

**Table 1: Showing distribution of various vesiculobullous disorders**

Vesiculobullous lesions	Total no. of cases	Percentage
Pemphigus vulgaris	27	62
Bullous pemphigoid	8	18
Pemphigus foliaceus	5	11
Dermatitis Herpetiformis	3	7
Erythema multiforme	1	2
Total no. of cases	44	100

Histopathological study of pemphigus vulgaris showed suprabasal blister with acantholytic cells, small number of neutrophils & eosinophils.

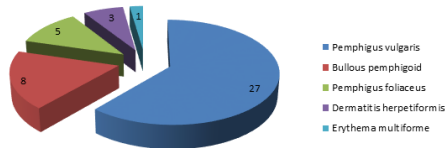
Bullous pemphigoid lesions showed subepidermal blister with predominantly eosinophils & few neutrophils.

Histopathological study of Pemphigus foliaceus showed presence of cleft within subcorneal keratinocytes at the level of granular cell layer. A dyskeratotic acantholytic granular cell layer is characteristic feature of this lesion.

Dermatitis herpetiformis showed papillary microabscesses & plenty neutrophils on histopathological examination.

Erythema multiforme showed epidermal or dermal blister, basal cell vacuolation & necrosis of basal keratinocytes.

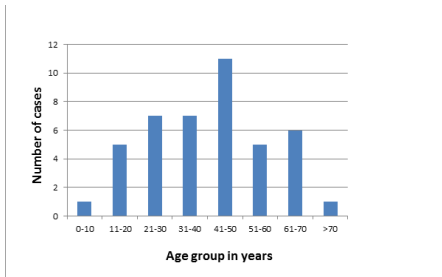
**Fig 1. Shows distribution of cases studied.(n=44)**



**Table 2: Age wise distribution of vesiculobullous lesions**

Age group in years	Number of cases	Percentage
0-10	01	2.27
11-20	05	11.36
21-30	07	15.90
31-40	07	15.90
41-50	11	25
51-60	06	13.63
61-70	06	13.63
>70	01	2.27

**Fig 2. Shows agewise distribution of cases**



**DISCUSSION**

Vesiculobullous lesions present with different etiology, pathogenesis, severity & prognosis. They share a common feature, the formation of blister cavities within different layers of the epidermis or beneath the epidermis. Morbidity & mortality varies significantly in bullous lesions. So its very important to arrive at correct diagnosis of these lesion. Histopathological evaluation plays an important role in diagnosis of vesiculobullous lesions of the skin.

The histopathological examination is an important tool in the diagnosis of these lesions only when an intact bulla is included in the biopsy specimen.

In the present study, 44 cases of clinically diagnosed blistering disorder were included. Male patients were 25 (56%) & female patients were 19 (43%). Male to female ratio was 1.31:1.

In the present study, we observed highest incidence of pemphigus vulgaris. This group included 27 cases (62%). Arundhati et al, Khan W A et.al showed similar results.<sup>1,3,6</sup> Bullous pemphigoid cases were 8 (18%), followed by pemphigus foliaceus 5(11%) cases, dermatitis herpetiformis 3 (7%) & erythema multiforme 1 case (2%). This may be due to geographic distribution of bullous diseases. In the study carried out by Leena J.B et al most predominant lesion was found to

be pemphigus vulgaris followed by bullous pemphigoid<sup>4,5</sup>. Similar results were found in this study.

In the present study the most affected age group observed was between 41-50 years. Similar results were observed by AKA Nurul Kabir, Leena JB et al.<sup>5,9</sup> While in study by Prashant R Patel et al the maximum numbers of subjects were in 3<sup>rd</sup> and 4<sup>th</sup> decades<sup>3</sup>. There was slight male predominance in the present study which was similar to Anirudha Vasantacharya Khushtagi et al.<sup>7</sup>

Bullous pemphigoid was detected in the age group between 60-80 years of age. The result correlate with studies carried out by Sachin Parhe & Joost M. Meijer et al<sup>8,10</sup>

**CONCLUSION:**

This emphasizes the importance of skin biopsy in analysing the morphological features along with clinical features in the diagnosis of vesiculobullous disorders of skin. It is important investigation in situations, where the immunofluorescence technique is not available.

**REFERENCES:**

1. Arundhati S., Ragunatha S, Mahadeva K.C.: A cross sectional study of clinical, histopathological & direct immunofluorescence spectrum of vesiculobullous disorders. J Clin Dign Res.2013 Dec;7(12):2788-2792
2. Cotran R S , Kumar V, Robbins S L. Robbins & Cotran's Pathologic basis of disease. 8th edition, Philadelphia: Saunders Elsevier; 2010. p 112-28
3. Patel P.R., Patel P.B., Chiplonkar S.G. Histopathological study of vesiculobullous lesions of the skin : A study at tertiary care hospital. Int J Med SCI Public Health 2014;3:738-40
4. Thejaswi Krishnamurthy et al, Histopathological study of vesiculobullous lesions of skin, Int. Biol. Med Res 2015;6(2):4966-72
5. Kabir A.K., Kamal M, Chaudhury A.M. Clinicopathological correlation of blistering diseases of skin. Bangladesh Med Res Council Bull 2008;34: 48-53
6. Khan W.A., Valand A.G. Pattern of non infectious vesiculous & vesicopustular skin disease in a large tertiary care hospital. Bombay Hospital Journal 2010;52:172-6
7. Anirudha Vasantacharya Khushtagi, Vijayashree Shivappa Neeravari, Sidhlingreddy, Pratima S. Clinical & Histopathological spectrum of vesiculobullous lesions of skin- A study of 40 cases. Ind j of Path & Oncology, apr-june 2016;3(2);152-158
8. Sachin Parhe. Study of frequency & pattern of vesiculobullous lesions of the skin in Maharashtrian population. Ind J of B & applied Medical Resrch 2017;vol 6, issue 2, p. 559-62
9. Leena J.B., Chandrashekhar M., Vijaya B., Sunila R., Manjunath G.V. A clinicopathological study of immunobullous lesions of the skin. Advance Laboratory Medicine International 2012;2(2):49-60
10. Joost M. Meijer, Gills F.H. Diercks, Emma W.G.de Lang. Assessment of diagnostic strategy for early recognition of bullous & non bullous variants of pemphigoid. JAMA dermatol 2019;doi:10.1001/jamadermatol.2018.4390