

# An evaluation of histopathological findings of skin biopsies in various skin disorders

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## Abstract

**Background** - Skin conditions are among the most common health problems in India. Skin biopsy is most common diagnostic technique for diagnosing skin disease. The interpretation of a skin biopsy requires clinicopathological correlation.

**Methods:** The present study was undertaken in the Department of Pathology, M.G.M Medical College and M.Y. Hospital, Indore (M.P) to determine the incidence and age-sex distribution of various skin diseases, to study the various histopathological changes encountered in the course of the study and to establish clinicopathological correlation. A total number of 262 biopsies retrieved from the archives during the period of January 2007 to June 2008 along with skin biopsies sent for histopathological evaluation during June 2008 – June 2010 were included in the study. On the basis of histopathological classification the skin disorders are divided into eight groups.

**Result:** Maximum number of cases belonged to group V disorders i.e. disorders showing perivascular, diffuse and granulomatous infiltrates of the reticular dermis 65(24.8 %), followed by group VI disorders that is tumors and cysts of the dermis 28(10.7 %). Out of 262 skin biopsies which came for Histopathological evaluation, 137 (52.3 %) cases were given definite diagnosis by microscopic examination of slides. Amongst 216 cases, clinico-histopathological correlation was seen in 95(44 %) cases. Highest number of cases 68(25.95 %) were observed in the age group of 21-30 years, with majority of the cases were male 149(56.9 %) while 113(43.1 %) cases were female.

**Conclusion:** Leprosy is still most prevalent, thereby emphasizing stronger measures to control it.

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## Introduction

Skin conditions are among the most common health problems in India. Skin biopsy is a biopsy technique in which a skin lesion is removed and sent to the pathologist to render a microscopic diagnosis. The histological diagnosis in turn is used by the clinicians to aid in the management of patients. The most accurate diagnosis is the one that most closely correlates with the clinical features and helps in planning the most appropriate clinical intervention. Thus there is a close relationship between diagnosis and prognosis. The interpretation of a skin biopsy requires clinicopathological correlation. The biopsy has four dimensions, namely length, breadth, depth and time. Pathologist sees the first three dimensions. Clinician has advantage of fourth dimension, namely the Time, as only he can follow up the lesion. Hence clinicopathological correlation and multiple biopsies provide all the four dimensions. Much work on skin disorders has been done by investigators outside India. Lesser study has been done in our country especially central India in the field of dermatopathology. Hence this work has been undertaken, covering patients in and around Indore, to study the spectrum of various skin disorders that affect our population.

## Materials and Methods

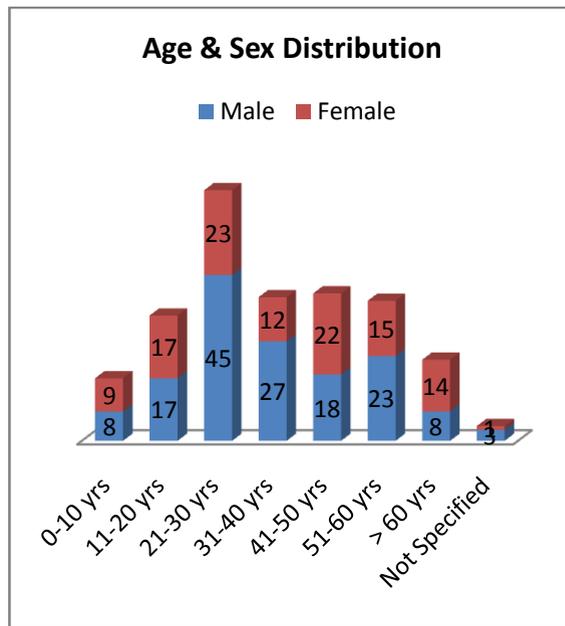
The study was undertaken in the department of Pathology, M.G.M Medical College and M.Y hospital, Indore (M.P). The study is both retrospective and prospective in nature. The cases retrieved from the archives during the period January 2007- June 2008 along with the cases sent for histopathological evaluation during the period July 2008- June 2010 have been included in the study. The Histopathological slides of skin biopsies of all the cases were evaluated and those which came in the department will be evaluated. Slides were stained with Hematoxylin and Eosin (H&E) stain, and were also subjected to Ziehl-Neelsen (ZN) stain where indicated.

**Selection of cases:** This study included all the patients residing in and around Indore who came to Dermatologic Clinics at M.Y Hospital having skin disorders.

## Result

The study was spread over 3.5 years period from January 2007 to June 2010. The Histopathological slides of skin biopsies of all the cases were evaluated and those which came in the department either to confirm diagnosis of leprosy or to rule out leprosy, in

addition to H & E stain, were also subjected to ZN stain. The following observations were made from analysis of 262 cases included in the study.



**Figure 1: Graphical presentation of age and sex wise distribution**

Figure 1 shows the age and sex wise distribution of 262 cases of skin biopsies. Amongst males, maximum cases belonged to 21-30 years followed by 31-40 years. Similarly in females, maximum number of cases belonged to 21-30 years followed by 41-50 years. Out of 262 cases, only 216 cases were clinically diagnosed. Rest of the biopsies were either inadequate for histopathological diagnosis or no clinical diagnosis was given to them. Amongst 216 cases; clinicohistopathological correlation was seen in 95 (43.98%) cases. Most common symptom is loss of sensation (n=20), followed by erythematous lesions/plaques (n=19).

Skin diseases were classified into eight groups:

Group I. Disorders mostly limited to the epidermis and stratum corneum

Group II. Localized superficial epidermal or melanocytic proliferations

Group III. Disorders of the superficial cutaneous reactive unit

**TABLE 2: Group wise distribution of cases**

Groups	Disease	Number (%)	Groups	Disease	Number (%)
Group I	Corn	2(1.45%)	Group V	Scrofuloderma	2(1.45%)
	Vitiligo	1(0.72%)		Sarcoidosis	1(0.72%)
Group II	Seborrhoeic Keratosis	2(1.45%)		Necrobiosis	1(0.72%)
	Benign Squamous keratitis	1(0.72%)		Granulomatous lesion	3(2.18%)
	Junctional Naevus	1(0.72%)		FB type of giant cell reaction	2(1.45%)
	Wart	14(10.21%)		Keloid	2(1.45%)
	Molluscum Contagiosum	3(2.18%)		Scleroderma	2(1.45%)
	Condyloma Accuminata	1(0.72%)		Radiation induced dermatitis	1(0.72%)
	Benign Papillomatous lesion	1(0.72%)		Calcinosis cutis	1(0.72%)
	Prurigo Nodularis	1(0.72%)		Group VI	Squamous Cell Carcinoma
	Basal cell Carcinoma	1(0.72%)	Basisquamous cell Carcinoma		1(0.72%)
	Verrucous carcinoma	1(0.72%)	Melanocytic compound naevus with atypia		1(0.72%)
Group III	Lichen Sclerosis et atrophicus	2(1.45%)	Naevus		1(0.72%)
	Psoriasis	1(0.72%)	Eccrine dermal cylindroma		1(0.72%)
	Lichen Planus	2(1.45%)	Clear cell Myoepithelioma		1(0.72%)
Group IV	Pemphigus Foliaceus	1(0.72%)	Chondroid syringoma		1(0.72%)
	Exposure dermatitis	1(0.72%)	Pilomatrixoma		1(0.72%)
	Pemphigus Vulgaris	4(2.91%)	Metastatic deposits		3(2.18%)
	Bullous Pemphigoid	1(0.72%)	Xanthoma		1(0.72%)
Group V	Burnt Out leprosy	23(16.78%)	Inflammatory pseudotumor	1(0.72%)	
	Lepromatous leprosy	1(0.72%)	Capillary hemangioma	2(1.45%)	
	Histoid leprosy	1(0.72%)	Glomus tumor	1(0.72%)	
	BT leprosy	4(2.91%)	Angiokeratoma	1(0.72%)	
	Tuberculoid leprosy	17(12.40%)	Sebaceous cyst	8(5.83%)	
	Lupus Vulgaris	2(1.45%)	Group VII	Discoid Lupus Erythematosus	2(1.45%)
	Tuberculosis	2(1.45%)		Group VIII	Erythema leprosum Nodosum

Group IV. Acantholytic, vesicular, and pustular disorders

Group V. Perivascular, diffuse, and granulomatous infiltrates of the reticular dermis

Group VI. Tumors and cysts of the dermis and subcutis

Group VII. Inflammatory disorders of skin appendages

Group VIII. Disorders of the subcutis

Table 2 shows diagnosis wise distribution of cases. Leprosy is most prevalent amongst all skin disorders (Burnt out leprosy 16.78%, tuberculoid leprosy 12.40%), followed by wart (10.21%) & sebaceous cyst (5.83%).

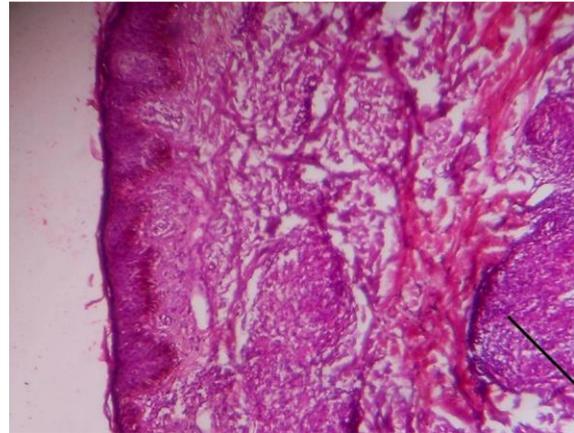
Out of 137 cases which were given definite diagnosis, maximum belonged to Group V disorders i.e perivascular, diffuse and granulomatous infiltrates of reticular dermis followed by, Group VI disorders i.e tumors and cysts of dermis and subcutis and Group II disorders i.e localized superficial epidermal or Melanocytic proliferations. Least number of cases was of Group VIII disorders i.e disorders of the subcutis.

## Discussion

This being an analysis of clinical presentation and its histopathological correlation. Biopsy specimen is expected to provide a fairly good estimate of patterns of skin disorders. The study is retrospective and prospective in nature. A total number of 262 biopsies were included in the study. In the present study, maximum number of cases belonged to 21-30 years age group with males predominating the group (30.20%). (Graph 1) This is different in comparison to study conducted by Grover et al<sup>1</sup> in which 11- 20 years age group suffered most from skin disorders with males comprising the majority of the group (68%). In the present study, skin diseases were classified into 8 groups based on the Histopathological features (Table 1). Group V diseases showing perivascular, diffuse and granulomatous infiltrates of reticular dermis, were most common (24.80%). Amongst group V diseases, Leprosy was the most common (70.76%). Group VI i.e tumors and cysts of dermis and subcutis constituted next most common group (10.68%). This is different from study done by Das S et al<sup>3</sup> in which they classified the skin diseases into 13 groups based on etiology and clinical features with infective dermatoses (Group I, 36.41%) being the commonest, followed by allergic disorders of the skin (Group II, 29.88%). Among Group I diseases. In the present study, only 3 cases were reported, out of which 2 were diagnosed as corn and 1 as vitiligo. In Group II diseases, Verruca Vulgaris (Wart) was most commonly diagnosed amongst group II disorders (5.34%), followed by Molluscum contagiosum.

This is quite low as compared to findings of Das KK et al<sup>4</sup> in which Verruca Vulgaris (Wart) (41.44%) was the commonest disorder due to viral infections. Among group-III diseases, these disorders were rare constituting about 3.64% of cases with only 1 case of

Psoriasis (0.72%). This is quite low as compared to findings of Rao GSet al<sup>5</sup> in which Psoriasis and other papulosquamous disorders constituted 2.43% of the cases. Group-IV diseases, in the present study, Vesicobullous diseases were diagnosed in 2.67% of cases, out of which Pemphigus vulgaris was the most common (57.14%), followed by Bullous pemphigoid (14.28%) and Pemphigus foliaceus (14.28%).



**Figure 2: Tuberculoid Leprosy (H & E stain, 10x)**

This is similar to the findings of Das KK et al<sup>4</sup> in which Vesicobullous diseases constituted 0.68% of the cases with Pemphigus vulgaris constituting 40.83% of the cases, followed by Dermatitis Herpetiformis (36.22%) and bullous pemphigoid (15.91%). Group-V diseases. In the present study, Leprosy was diagnosed in 17.55% of the total cases.(Figure 2).This disagrees with the findings in the study by Das S et al<sup>3</sup>, in which Leprosy accounted for 5.64% of the total cases. Group VI diseases. In the present study, malignant disorders of the skin constituted 3.05% of the cases with Squamous cell carcinoma being most common followed by metastatic deposits in the skin. This disagrees with the findings in the study by Das et al<sup>3</sup> in which malignant diseases of the skin constituted 0.94% of the cases. Ziehl Neelsen stain was done on 123 biopsies out of which 117(95.12%) biopsies were negative for acid fast bacilli while 6(4.87%) biopsies were positive for acid fast bacilli.This is slightly lower as compared to findings of Veena S et al<sup>6</sup> in which AFB were found in 2 (6.45%) out of 31 skin biopsies. Clinico histopathological correlation: Out of 262 cases, only 216 cases were clinically diagnosed. Rest of the biopsies were either inadequate for histopathological evaluation or no clinical diagnosis was given to them. Amongst 216 cases, clinico histopathological corre-

lation was seen in 95(43.98%) cases while in 121(56.01%) cases, clinico histopathological correlation was not seen. (Graph Two)

This is lower as compared to findings of Dcosta Grace F et al<sup>7</sup> who conducted the study in pediatric age group and found clinic histopathological correlation in 56.07% patients.

The variations in the present study as compared to studies carried out elsewhere in the past could be due to difference in the geographical distribution of the several etiological factors responsible for causation of these conditions.

## Conclusion

Skin biopsy is an effective technique if proper precautions are taken. If properly done, it is most specific test to diagnose skin disorder especially in cases of infectious diseases where it is a confirmatory test. In the present study, leprosy is still most common disease thereby emphasizing the need for stronger measures for control of disease. Though in the past decade, the incidence and prevalence of disease has drastically reduced, yet it is still prevalent especially in rural areas and poorer sections of our society. Other diseases are comparatively less but nevertheless cannot be ignored. Our present study is unique on account of the fact that for the first time histopathological classification was used to analyze the pattern of the skin diseases while previous studies have used clinical and etiologic classification.

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## Competing Interests

None declared

## References

1. Grover S, Ranyal RK, Bedi MK. A cross section of skin diseases in rural Allahabad. *Ind J Derm*2008;53:179-81.
2. Elder DE et al in Elder DE, Editor in chief. *Lever's Histopathology of the skin*. 10<sup>th</sup> ed. Lippincott Williams and Wilkins; 2009. p 103-132.
3. Das S, Chatterjee T. Pattern of skin diseases in a peripheral hospital's skin OPD. *Ind J Derm*2007; 52:93-5.
4. Das KK. Pattern of dermatological diseases in Gauhati Medical college and hospital. *Ind J Derm Venereo Leprol* 2003;69:16-18.
5. Rao GS, Kumar SS, Sandhya. Pattern of skin diseases in an Indian village. *Ind J Med Sci*2003; 57:108-10.
6. Veena S, Kumar P, Shashikala P, Gurubasavaraj H, Chandrashekhar HR, Murugesh. Significance of Histopathology in leprosy patients with 1-5 skin lesions with relevance to therapy. *J Lab Physicians* 2011; 3:21-4.
7. Grace DF, Bendale KA, Patil YV. Spectrum of pediatric skin biopsies. *Indian J Dermatol* 2007;52:111-5.
8. Thapa DM. *Textbook of Dermatology, Venereology & Leprology*. 3<sup>rd</sup> edition Elsevier 2009
9. Mysore V. *Fundamentals of pathology of skin* .3<sup>rd</sup> edition. B.I Publications 2008
10. WHO, weekly epidemiological record, no 35, 27<sup>th</sup> Aug 2010.
11. Beliaeva TL. The population incidence of warts. *Vestn Dermatol Venerol*. 1990;2:55-8.
12. Kruger C, Schallreuter K U. A review of worldwide prevalence of vitiligo in children/adolescents & adults. *Int J Derma* 2012
13. Parisi R, Symmons DP, Griffiths CE, Ashcroft DM. Global epidemiology of psoriasis: a systematic review of incidence and prevalence. *J Invest Dermatol*. 2013;133:377-85.