

Histopathological Spectrum of Dermatological Lesions- A Retrospective Study

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ABSTRACT

BACKGROUND

Skin is the largest organ of the human body which protects the internal organs from external environmental stimuli and is vulnerable to a variety of infectious agents and trauma. The spectrum of skin disorders ranges from inflammatory to neoplastic lesions with distinct clinical features and also varies with demographic regions. This study aims to describe the histopathological spectrum of various skin lesions, their frequency, age, sex, and site of distribution of lesions among the outpatients visiting our hospital.

METHODS

The present study is a retrospective study carried out in the Department of Pathology, KIMS & RF, Amalapuram, AP, India. All the skin biopsies received in the histopathology section from January 2017 to December 2019 were included in the study.

RESULTS

Out of 280 cases, 197 cases with a definite histological diagnosis were included in the study. Majority of the cases belong to group VI (82 cases), followed by group II (40 cases), group V (28 cases) and group III (25 cases), group IV (14 cases), group VIII (5 cases) and group VII (3 cases). There were no cases in group I. There were 105 non-neoplastic lesions (53.29%) and 92 neoplasms (46.7%) in this study. Most of the skin lesions were in the 31 - 40 years age group without any obvious gender predilection.

CONCLUSIONS

Histopathological examination of skin biopsy remains the gold standard technique for diagnosing a variety of skin lesions. Histopathological examination of the skin biopsy in correlation with, clinical history, aids in the accurate diagnosis of the majority of the skin lesions.

KEYWORDS

Dermatological, Histopathology, Non-Neoplastic Lesions, Skin Biopsy

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BACKGROUND

Skin is the largest sensory organ of the body, comprising of epidermis, dermis, and subcutis. It is a complex organ with multiple functions, mainly acts as a barrier against various harmful environmental agents,^{1,2} and also maintains homeostasis. It is the most exposed organ to Ultraviolet rays of sunlight and is susceptible to a wide spectrum of disorders ranging from inflammatory conditions to neoplastic lesions.³ These skin disorders usually arise from the normal histological constituents of the skin.

Skin diseases are influenced by multiple factors such as environment, economy, literacy, region, ethnic groups, genetic factors, and social customs. Occasionally, skin diseases may be the sole manifestation of systemic diseases.⁴ Many of the skin lesions can be diagnosed based on clinical presentation & history. However, histopathological examination of the skin lesions by skin biopsy is essential in the majority of the cases. There are various methods of procuring skin biopsies which include punch biopsy, shave biopsy, incisional biopsy, excisional biopsy, scalpel biopsy, and curettage biopsy.⁵ Biopsy of the skin lesion by any of the previous methods followed by histological examination establishes the diagnosis of the lesion and aids in the treatment. This study aims to identify and describe the histopathological spectrum of various skin lesions, their frequency, age, sex, and site of distribution of lesions among the outpatients visiting our tertiary care hospital.

METHODS

This is a retrospective study carried out in the Department of Pathology, KIMS & RF, Amalapuram, AP, India. All the skin biopsies received in the histopathology section from January 2017 to December 2019 were retrieved and reviewed from the archives of the department. Clinical history and relevant data were acquired from the requisition forms. Slides stained with routine haematoxylin and eosin stain were examined under the light microscopy. Re-staining of the slides were done wherever required.

Inclusion Criteria

All skin biopsies received in the histopathology section were included in the study.

Exclusion Criteria

Inadequate skin biopsies, inconclusive biopsies and mesenchymal tumours, nonspecific chronic dermatitis were excluded from the study.

The lesions were classified into eight histological groups based on the site and pattern of involvement.⁶

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

Group II- Neoplastic localized superficial epithelial or melanocytic proliferations.

Group III- Disorders of the superficial cutaneous reactive unit.

Group IV- Epidermal acantholytic, vesicular and pustular disorders.

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

Group VI- Tumours and cysts of the dermis and subcutis.

Group VII- Inflammatory and other benign disorders of skin appendages.

Group VIII- Disorders of the subcutis.

RESULTS

There were a total of 280 skin lesions received during the study period. Out of these 280 cases, 197 cases were found to have a definite histological diagnosis and had been included in the study. The rest of the cases include mesenchymal tumours, chronic nonspecific dermatitis, cases with nonspecific histological findings, inconclusive and inadequate biopsies. Patient age in the study population ranged from 5 to 72 years. The majority of the patients were in the age group of 31-40 years followed by 21-30 years. There is no significant gender-wise predilection for skin diseases. The male to female ratio was 1.18:1 (Table 1). The site-wise distribution of skin lesions is listed in Figure 1. The most frequent site is the upper extremities (23%), followed by trunk and abdomen (22%). Oral cavity, ear, and anogenital region are less frequent sites for skin diseases.

Out of 197 skin biopsies, majority of the cases belong to group VI (82 cases), followed by group II (40 cases), group V (28 cases) and group III (25 cases), group IV (14 cases), group VIII (5 cases) and group VII (3 cases). There were no cases that belong to group I.

Among group II cases, Fibroepithelial polyp was the commonest and constituting 7.61% of the total cases whereas Lichen planus (figure 2) was the commonest reported case in group III accounting to 3.04% of the total cases. Pemphigus vulgaris, Bullous pemphigoid and Darier disease were common among group IV lesions (each lesion accounting to 1.52%) while Leprosy was the most common lesion in group V (2.53%). Among group VI cases, Epidermal cyst was the commonest lesion (20.8%) followed by Squamous cell carcinoma (7.61% of all cases). Erythema nodosum was more frequent among group VIII lesions.

There were 105 non-neoplastic lesions (53.29%) and 92 neoplasms (46.7%) in this study. The most common benign

neoplasm was epidermal cyst (41 cases) while Squamous cell carcinoma (15 cases) was the most common malignant tumour. The most common adnexal tumour was Nodular Hidradenoma (6 cases). The most common non-neoplastic lesion was seborrheic keratosis (11 cases).

Age Group	Male		Female		Total Cases	(%)
	N	%	N	%		
1-10	2	1.01	1	0.50	3	1.51
11-20	6	3.04	7	3.55	13	6.6
21-30	30	15.22	25	12.7	55	27.92
31-40	41	20.81	39	19.8	80	40.61
41-50	18	9.13	14	7.10	32	16.23
51-60	6	3.04	3	1.52	9	4.56
61-70	3	1.52	1	0.50	4	2.02
>70	1	0.50	0	0	1	0.5
Total	107	54.27	90	45.67	197	100

Table 1. Distribution of Cases According to Age and Sex
(N = Number of Cases)

Group II lesions - Molluscum contagiosum 2 (1.01%), Seborrheic keratosis 11 (5.58%), Verruca vulgaris 3 (1.52%), Myrmecia 2 (1.01%), Epidermal nevus 2 (1.01%), compound nevus 2 (1.01%), Intra dermal nevus 3 (1.52%), Fibroepithelial Polyp 15 (7.61%).

Group III lesions - Psoriasis 3 (1.52%), Pityriasis rosea 2 (1.01%), Lichen planus 6 (3.04%), Lichen sclerosis et atrophicus 4 (2.03%), Dowling Degos disease 1 (0.5%), Leukocytoclastic vasculitis 1 (0.5%), Pityriasis rubra pilaris 1 (0.5%), Atopic eczema 2 (1.01%), Contact dermatitis 2 (1.01%), Erythema Multiforme 1 (0.5%), Chronic lichenified eczema 1 (0.5%), Polymorphous drug eruption 1 (0.5%).

Group IV lesions - Bullous pemphigoid 3 (1.52%), Pemphigus vulgaris 3 (1.52%), Pemphigus foliaceus 1 (0.5%), Dermatitis herpetiformis 1 (0.5%), Linear IgA disease 1 (0.5%), Epidermolysis bullosa 1 (0.5%), Bullous lichen planus 1 (0.5%), Darier disease 3 (1.52%).

Group V lesions - Morphea 4 (2.03%), Leprosy 5 (2.53%), Necrobiosis lipoidica 1 (0.5%), keloid 3 (1.52%), Lupus Vulgaris 1 (0.5%), calcinosis cutis 1 (0.5%), Granuloma annulare 4 (2.03%), Tuberculous verrucosa cutis 1 (0.5%), Pseudoxanthoma elasticum 1 (0.5%), Polymorphous light eruption 3 (1.52%), DLE 4 (2.03%).

Group VI lesions - Epidermal cyst 41 (20.8%), Trichofolliculoma 1 (0.5%), Trichoepithelioma 1 (0.5%), Trichilemmal cyst 3 (1.52%), Sebaceous epithelioma 1 (0.5%), Nodular Hidradenoma 6 (3.04%), Chondroid syringoma 2 (1.01%), Syringocystadenoma papilliferum 1 (0.5%), Pilar sheath acanthoma 1 (0.5%), Pilomatricoma 3 (1.52%), Malignant nodular Hidradenoma 1 (0.5%), Spiradenoma 1 (0.5%), Milia 1 (0.5%), Nevus Sebaceous 1 (0.5%), Basal cell carcinoma 3 (1.52%), Squamous cell carcinoma 15 (7.61%).

Group VII lesions - Hidradenitis suppurativa 1 (0.5%), Alopecia areata 1 (0.5%), Lichen striatus 1 (0.5%).

Group VIII lesions - Erythema nodosum 3 (1.52%), Panniculitis 2 (1.01%).

DISCUSSION

Skin lesions are heterogeneous with a wide clinical and histopathological spectrum. Histopathological examination of the skin biopsy is the gold standard technique for diagnosing skin lesions. Skin biopsy is a simple outpatient procedure that helps in the confirmation of the clinical diagnosis.⁷ This study included 197 cases; the majority of the patients were in the age group of 31-40 yrs. (40.18%). This was similar to Megha Bansal et al⁸ and Ram Chandra Adhikari et al.⁹ The age range of patients was between 5 to 72 years. There is no significant gender predilection in this study, however, female predominance was reported in studies of Bezbaruah R et al, Dayal S et al and Kumar V et al and male predominance in other studies.¹⁰⁻¹²

Skin lesions were categorized into 8 groups depending on the histomorphological features. Out of 197 skin biopsies, majority of the cases belong to group VI (82 cases), followed by group II (40 cases), group V (28 cases) and group III (25 cases), group IV (14 cases), group VIII (5 cases) and group VII (3 cases). This is in contrast to Mamatha K et al¹³ who observed maximum cases in group V followed by group III. In our study, we did not encounter any lesion that belongs to group I. However, a study done by Narang et al¹⁴ reported 3 cases in group I.

There were 105 non-neoplastic lesions (53.29%) and 92 neoplasms (46.7%) in this study. Non-neoplastic lesions outnumbered neoplasms in the current study. Non-neoplastic cases were found in 54% of cases by Giresh V. Achalkar et al¹⁵ and in 67.9% by Megha Bansal et al While Adhikari RC et al and Giresh V. Achalkar et al observed neoplasms in 19.7% and 24% of cases respectively.

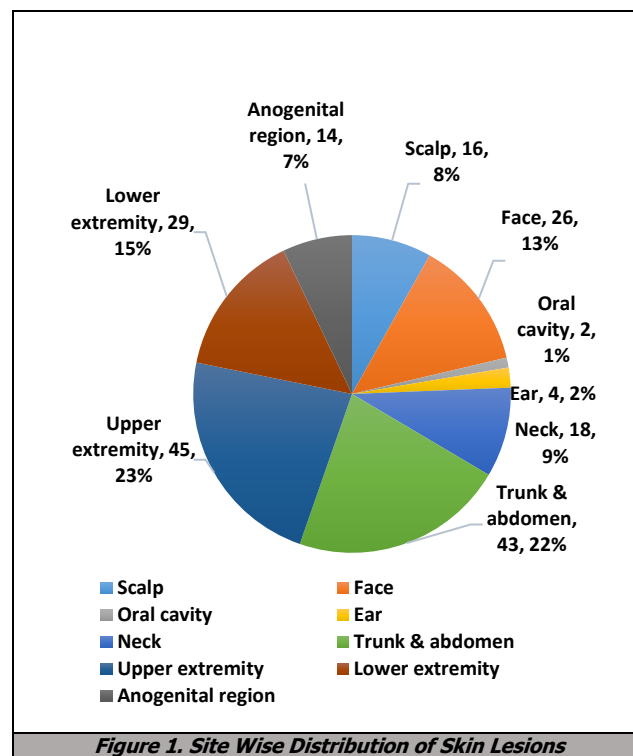


Figure 1. Site Wise Distribution of Skin Lesions

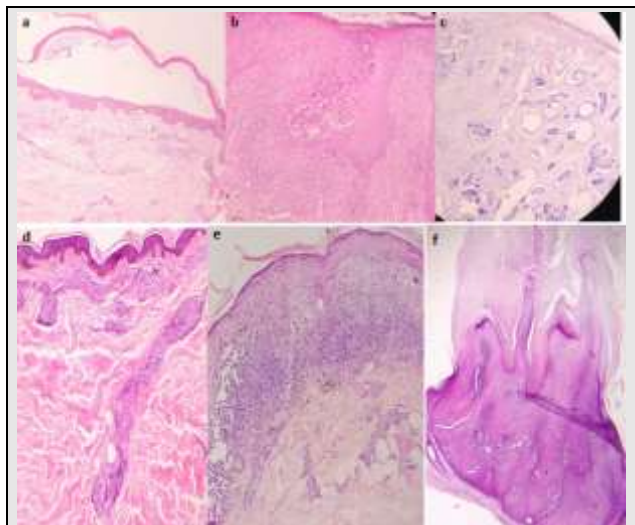


Figure 2. a. Pemphigus Vulgaris. b. Psoriasis with Munro's Microabscess. c. Trichoepithelioma. d. Borderline Tubercloid Hansen's. e. Lichen Planus. f. Seborrhic Keratosis (H&E images, 40X)

Among neoplasms, epidermal cyst was the most frequent lesion (53.2%) followed by squamous cell carcinoma (19.48%). A study by Sheela L. Gaikwad et al (23%) and Gireesh V Achalkar et al (37.5%) reported epidermal cyst as the commonest neoplasm.

Among malignant neoplasms, squamous cell carcinoma was the most common lesion (19.48%). Squamous cell carcinoma was reported as the most common malignancy by Megha bansal et al (11.4%) Sheenam et al¹⁶ and Gundalli et al¹⁷ which was comparable to our study.

Among adnexal tumours, Nodular hidradenoma was the most common lesion of all neoplasms. Radhika et al and Sharma et al also reported nodular hidradenoma as the most common benign adnexal neoplasm.^{18,19} Most of the adnexal tumours were observed in the head & neck region similar to Ankit Sharma et al.²⁰

CONCLUSIONS

This study has evaluated the prevalence of various skin diseases in our hospital. Most of the skin lesions were in the 31 - 40 years age group without any obvious gender predilection. Non-neoplastic lesions outnumbered neoplasms. Histopathological examination of skin biopsy remains the gold standard technique for diagnosing a variety of skin lesions. The histological spectrum of skin lesions is very heterogeneous and diverse as seen in our study. Histopathological examination of the skin biopsy in correlation with, clinical history, aids in the accurate diagnosis of the majority of the skin lesions.

REFERENCES

- [1] Li M, Urmacher CD. Normal skin. In: Mills SE, ed. Histology for pathologists. 3rd edn. Philadelphia: Lippincott Williams & Wilkins 2007:1-1272.
- [2] Montagna W, Parakkal PF. The structure and function of the skin. 3rd edn. New York: Academic Press Inc 1974:1-448.
- [3] Gaikwad SL, Kumawat UD, Sakhare NA, et al. Histopathological spectrum of skin lesions- experience at rural based hospital. Int J Cur Res 2016;8(8):36223-36227.
- [4] Gulia SP, Wadhai SA, Lavanya M, et al. Histopathological pattern of skin diseases in a teaching hospital Puducherry. Int J Recent Trend Sci Technol 2014;11:45-50.
- [5] Goyal N, Jain P, Malik R, et al. Spectrum of non-neoplastic skin diseases: a histopathology based clinicopathological correlation study. Sch J App Med Sci 2015;3(1F):444-449.
- [6] Elder DE, Elenitsas R, Rosenbach M, et al. Outline of skin disease. Chap- 5. In: Lever's histopathology of the skin. 11th edn. Lippincott Williams and Wilkins 2014:127-129.
- [7] Singh S, Debnath A, Datta D, et al. Histopathological evaluation of skin lesions with special reference to skin adnexal tumors in a tertiary centre of north-eastern india- a three year study. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 2016;15(2):34-39.
- [8] Bansal M, Sharma HB, Kumar N, et al. Spectrum of skin lesions including skin adnexal tumors in a North Indian tertiary care hospital. IP Journal of Diagnostic Pathology and Oncology 2019;4(1):67-71.
- [9] Adhikari RC, Shah M, Jha AK. Histopathological spectrum of skin diseases in a tertiary skin health and referral centre. Journal of Pathology of Nepal 2019;9(1):1434-1440.
- [10] Bezbaruah R, Baruah M. Histopathological spectrum of skin lesions- a hospital based study. Indian Journal of Applied Research 2018;8(7):51-52.
- [11] Dayal SG, Gupta GD. A cross section of skin diseases in Bundelkhand region, UP. Indian J Dermatol Venereol Leprol 1977;43(5):258-261.
- [12] Kumar V, Goswami HM. Spectrum of non-neoplastic skin lesions: a histopathological study based on punch biopsy. Int J Cur Res Rev 2018;10(6):43-48.
- [13] Mamatha K, Susmitha S, Patil VS, et al. Histopathological spectrum of dermatological lesions - an experience at tertiary care centre. IP Archives of Cytology and Histopathology Research 2018;3(2):83-88.
- [14] Narang S, Jain R. An evaluation of histopathological findings of skin biopsies in various skin disorders. Annals of Pathology and Laboratory Medicine 2015;2(1):A42-A46.
- [15] Achalkar GV. Clinico-pathological evaluation of non-neoplastic and neoplastic skin lesions: a study of 100 cases. Indian Journal of Pathology and Oncology 2019;6(1):118-122.
- [16] Azad S, Acharya S, Kudesia S, et al. Spectrum of skin tumors in a tertiary care centre in Northern India. J Evol Med Dent Sci 2014;3(64):14044-14050.

- [17] Gundall S, Kolekar R, Pai K, et al. Histopathological study of skin tumors. *Int J Healthcare Sci* 2015;2(2):155-163.
- [18] Radhika K, Phaneendra BV, Rukmangadha N, et al. A study of biopsy confirmed skin adnexal tumors: experience at a tertiary care teaching hospital. *J Clin Sci Res* 2013;2(3):132-138.
- [19] Sharma A, Paricharak DG, Nigam JS, et al. Histopathological study of skin adnexal tumours- institutional study in South India. *J Skin Cancer* 2014;2014:1-4.
- [20] Ankit Sharma, Deepak G. Paricharak, Jitendra Singh Nigam, Shivani Rewri et al. Histopathological study of skin adnexal tumours - Institutional study in South India. *Journal of skin cancer*.2014;2014:543756.