



ORIGINAL RESEARCH PAPER

Pathology

HISTOPATHOLOGICAL SPECTRUM OF SKIN DISEASES WITH CLINICOPATHOLOGICAL CORRELATION IN A TEACHING HOSPITAL , IMPHAL

KEY WORDS: Dermatological lesions, clinicopathological correlation

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ABSTRACT

Introduction: Skin disorders have a wide spectrum of presentations ranging from inflammatory conditions to highly malignant neoplasms. Many of them are diagnosed easily by their clinical features while others which present with atypical or overlapping features require detailed work up skin biopsy. The present study was carried out to analyse the various patterns of skin diseases presented in our hospital and to assess the concordance of clinical and histopathological diagnosis.

Materials and Methods: The present study is a retrospective study carried out in the department of Pathology, Jawaharlal Nehru Institute of Medical Science, Porompat, Imphal from Jan 2017-Dec 2018.

Results: Total 605 cases were studied of which maximum number of cases consisted of non-infectious erythematous papular and squamous disease (31.2%) followed by melanocytic tumours (11%), tumours and cyst of epidermis (7.1%). There was an equal prevalence of infectious diseases and pigmentary disorders of skin of 7.4% each. There was a positive clinicopathological correlation of 81.2%.

Conclusion: Specific histopathological features and a positive clinicopathological correlation give a definitive conclusive diagnosis. The quality, completeness and clarity of clinical information provided in the requisition form has a large impact on the diagnostic confidence and diagnostic accuracy of the pathologist.

INTRODUCTION

Dermatological diseases are common in all countries but the pattern of diseases varies from one country to another country and various region within the same country¹. The skin can be affected by wide range of diseases ranging from inflammatory to malignant neoplasms². Sometimes skin diseases can be a same manifestation of systemic diseases.³. The aim of this study is to analyse the various pattern of skin diseases presented in our hospital and to assess the concordance of clinical and histopathological diagnosis

MATERIALS AND METHODS

Retrospective study was carried out at the department of pathology, Jawaharlal Nehru Institute of Medical Sciences, Porompat, Imphal from 2017 to 2018. All cases were diagnosed on histological examination on hematoxylin and eosin stained tissue section. Special stains were used whenever needed.

Inclusion criteria: All the cases related to skin and subcutaneous tissue were included.

Exclusion criteria: Inadequate specimen and cases with no specific pathology were excluded.

RESULTS

A total of 605 cases were studied, out of which, maximum number of cases were found in the age group of 21 to 30

years [Fig. 1]. Patient's age ranged from 1 years to 90 years. 248 cases (41%) were males and 357 cases (59%) were females [Fig. 2]. The distribution of cases according to group of disorders are shown in Table 1.

Figure 1. Age and sex distribution.

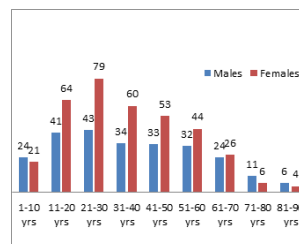


Figure 2.: Distribution of cases according to the sex

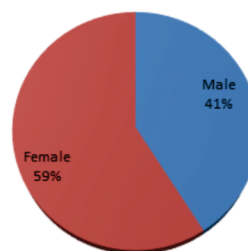


Table 1: Histopathological classification of skin lesions.

Disease category	Skin diseases- HPE report	No. of case	Total	%
D).Non-infectious erythematous, papular & squamous diseases	1. Erythema Annulare Centrifugum	2	18	31.2%
	2. Prurigo Simplex	3		
	3. Prurigo Nodularis	9		
	4. Psoriasis	84		
	5. Pityriasis Rosea	1		
	6. Lichen Planus	35		
	7. Lichen Nitidus	2		
	8. Lichen Striatus	8		
	9. Lichen Planus Actinicus	1		
	10. Lichen Planus Pigmentosus	18		
	11. Lichen Planopilaris	8		
	12. Pityriasis rubra pilaris	1		
	13. Pityriasis Lichenoides	3		

	14. Ashy Dermatitis 15. Pityriasis Alba 16. Pityriasis vesicolor 17. Psoriasiform dermatitis 18. Subacute pruritus	1 2 1 5 5	189	31.2%
II). Vascular Disease	1. Leukocytoclastic Vasculitis 2. lymphocytic vasculitis 3. . Urticarial vasculitis	6 7 1	14	2.3%
III). Non-infectious vesiculobullous and vesiculopustular diseases	1. Spongiotic Dermatitis 2. Atopic Dermatitis 3. Lichen Simplex Chronicus 4. Seborrheic Dermatitis 5. Pemphigus vulgaris 6. Erythema Multiforme 7. Dyshidrotic Dermatitis	8 2 9 4 1 2 2	28	4.6%
IV). Connective tissue diseases	1. Discoid Lupus Erythematosus 2. Morphea 3. Lichen Sclerosus et atrophicus	11 6 18	35	5.7%
V). Photosensitivity Disorders	1. Polymorphic light eruption 2. Actinic Prurigo	3 2	5	0.8%
VI). Non-infectious granulomas	1. Granuloma annulare	4	4	0.6%
VII). Degenerative disorders and perforation disorders	1. Kyrle's disease	1	1	0.16%
VIII). Cutaneous manifestation of gastrointestinal disease	1. Pyoderma Gangrenosum 2. Phrynoderma	2 1	3	0.5%
IX). Metabolic diseases of skin	1. Acanthosis nigricans 2. Ochronosis	1 1	2	0.3%
X). Inflammatory diseases of skin appendages	1. Keratosis Pilaris 2. Acne Vulgaris 3. Acne varioliformis 4. Pseudopelade of brocq 5. Rosacea 6. Granulosis rubra nasi	4 1 1 2 1 1	10	1.5%
XI). Inflammatory diseases of subcutaneous fat	1. Erythema Nodosum	12	12	1.9%
XII). Infectious diseases	1. Folliculitis 2. Lupus Vulgaris 3. Leprosy 4. Tuberculosis verrucosa cutis 5. Fungal infection 6. Verruca Vulgaris 7. Verruca Plana 8. Epidermadysplasia verruciformis 9. Condyloma accuminata 10. Bowenoid papulosis 11. Molluscum contagiosum	1 1 8 2 21 7 1 1 1 1 1	45	7.4%
XIII). Pigmentary disorders of skin	1. Melasma 2. Postinflammatory Hyperpigmentation 3. Postinflammatory Hyporpigmentation 4. Idiopathic guttate hypomelanosis 5. Vitiligo	2 2 4 1 36	45	7.4%
XIV. Melanocytic tumour	1. Nevi of Ota 2. Becker's melanosis 3. Junctional Nevus 4. Intradermal Nevus 5. Compound Nevus 6. Nevus depigmentosus 7. Actinic lentigo 8. Malignant melanoma	1 3 2 39 15 5 1 1	67	11%
XV. Tumours and cyst of epidermis	1. Nevus Comedonicus 2. Seborrheic keratosis 3. Epidermal cyst 4. Keratoacanthoma 5. Steatocystoma Multiplex 6. Actinic keratosis 7. Cutaneous Horn 8. Bowen's disease 9. Squamous cell carcinoma 10. Basal cell carcinoma 11. Actinic cheilitis	1 17 6 4 3 1 1 1 3 9 1	47	7.7%

XVI. Tumours of epidermal appendages	1. Pilomatricoma	4	21	3.5%
	2. Nevus Sebaceous	4		
	3. Sebaceous Hyperplasia	1		
	4. Sebaceous adenoma	2		
	5. Eccrine Spiradenoma	1		
	6. Trichoepithelioma	4		
	7. Hyperplastic vulvar dystrophy	3		
	8. Nodular hidradenoma	1		
	9. Syringocyst adenoma papilliferum	1		
XVII. Cutaneous toxicities of drugs	1. Acute generalized exanthematous pustulosis	1	1	0.16%
XVIII. Tumours of fibrous tissue involving skin	1. Dermatofibroma	12	22	3.6%
	2. Fibroepithelial polyp	9		
	3. Giant cell tumour of tendon sheath	1		
XIX. Vascular tumour	1. Capillary hemangioma	2	13	2.1%
	2. Cavernous hemangioma	1		
	3. Sclerosing hemangioma	1		
	4. Pyogenic granuloma	4		
	5. Glomus tumor	3		
	6. Portwine stain	1		
	7. Lymphangioma	1		
XX. Tumours of neural tissue	1. Neurofibroma	5	9	1.5%
	2. Schwannoma	4		
XXI. Tumours of fatty, muscular, osseous and cartilaginous differentiation	1. Lipoma	1	2	0.3%
	2. Fibrolipoma	1		
XXII. Congenital diseases (Genodermatoses)	1. Xeroderma pimentosum	1	2	0.3%
	2. Palmoplantar keratoderma	1		
XXIII. Miscellaneous	1. Non specific dermatitis	25	28	4.6%
	2. Hyperplastic skin lesion	2		
	3. Trachonychia	1		

Majority of the cases were found in the category of non-infectious erythematous, papular and squamous diseases with 189 cases (31.2%) and in these psoriasis (Fig. 3A) was the most common lesion reported followed by lichen planus (Fig. 3B).

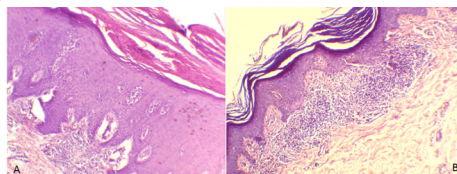


Fig.3: A. Psoriasis. Epithelial hyperplasia with Munro abscess in cornel layer and capillary dilatation in papillary dermis. B. Lichen planus. Band like lymphocytic infiltration with basal cell vacuolar degeneration. H&E X100

Among vascular diseases 14 (2.3%), leucocytoclastic vasculitis constituted majority of the cases, followed by Lymphocytic vasculitis. 4.6% of the skin lesions belonged to vesiculobulbous lesion of which, Lichen simplex chronicus comprised of maximum diagnosis followed by Spongiotic dermatitis. In connective tissue diseases, majority of the cases reported was Lichen sclerosus et atrophicus 18 (2.9%), followed by Discoid lupus erythematosus 11 (1.8%) and Morphea 6 (1%).

Infectious diseases comprised of 7.5% of the total skin lesion with fungal infection (Fig. 4A) being the most common cases reported followed by leprosy (Fig. 4B). Vitiligo 36 (5.9%) was the most common pigmentary disorder of skin followed by Post inflammatory hypopigmentation.

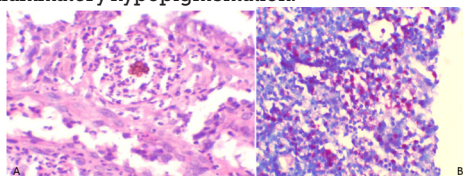


Fig.4: A. Chromoblastosis. Classical copper penny bodies against a background of mixed inflammatory cells. B. Lepromatous leprosy. Globi of lepra bacilli. Wade Fite stain. H&E X400

In melanocytic tumours 67 (11%), intradermal nevus 39 (6.4%) was the commonest lesion encountered (Fig. 5A) followed by compound nevus.

Seborrheic keratosis 17 (2.8%), comprised majority of benign tumors of epidermis while Basal cell carcinoma (Fig. 5B) was the most frequently reported malignant skin tumor

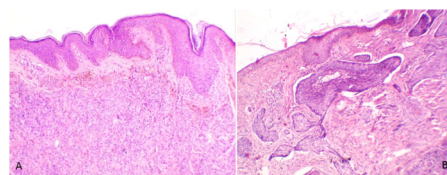


Fig.5: A. Intradermal nevus. Nest of melanocytes with few pigmented cells and no junctional activity. B. Basal cell carcinoma. Nest of malignant basaloid cells with peripheral palisading and presence of clefting separating the tumor cells from the stroma. H&E X100

Clinicopathological correlation:

Out of 605 cases studied, clinicopathological consistency was observed in 491 (81.2) cases while the discordant rate was 14.2% [Table 2]

Table 2: Clinicopathological correlation

Correlation	Number	Percentage
Clinicopathological concordance	491	81.2
Clinicopathological discordance	86	14.2
Inconclusive	28	4.6
Total	605	100.00

DISCUSSION

In the retrospective study of 605 cases of skin lesion, male to female ratio is 1:1.4. Youngest patient was 1 year old and oldest patient was 90 years old. Maximum number of cases were found in the age group of 21 to 30 years. Similar age group prevalence were observed by Narang et al⁴, however Mamatha K et al⁵ in their study showed that 51-60 years was the most common age group involved with predominance of females.

In this study a positive clinicopathological correlation [Table

2] was found in 81.2%,with 14.2% discordance between the clinical and histopathological diagnosis. 4.6% of the 605 cases had an inconclusive diagnosis. Goyal N et al⁶ conducted a clinicopathological correlation study in non neoplastic skin diseases and found clinicopathological agreement in 63% cases, 21.4% cases disagreement and 15.6% inconclusive. Also in a similar study conducted by Haugstvedt A et al⁷, found positive correlation in 57.5% cases, final diagnosis offered by histopathology in 20.5% cases and 22% cases non conclusive. Mohammed Yonus et al⁸ and Kusum Mathur et al⁹ had a high positive clinicopathological correlation of 73.30% and 80% respectively, which was similar to our findings.

In the present study, majority of the cases were found in non-infectious, papular & squamous diseases with 31.2% followed by melanocytic tumours 11%, tumours of cyst of epidermis 7.7%, infectious diseases 7.4% and pigmentary disorders of skin 7.4%. In the study of Sandhya PG et al¹⁰ 24% cases were found in non infectious erythematous papulosquamous diseases followed by leucocytoclastic vasculitis 16% , connective tissue disorders and infectious diseases 12% each.

In the study conducted by Bijayanti et al¹¹ eczema was the most common disorder followed by infectious diseases. Also eczema and infectious diseases predominate in the study conducted by Asokan N¹². Most common histopathological diagnosis in our study is psoriasis 13.8% followed by intradermal nevus 6.4% , vitiligo 5.9% and lichen planus 5.7%.

In the study of Reddy R et al¹³ psoriasis (42.5%) was the most common histopathological diagnosis followed by lichen planus. Whereas in the study conducted by D'Costa G et al¹⁴ lichenoid lesions were most common (46.57%) followed by psoriasis (19.88%). In our study the prevalence of psoriasis was found equally in both male and female and 40 to 60 years age group being most commonly affected. Braun Falco O et al¹⁵ observed that the clinical differential diagnosis between psoriasis vulgaris and seborrheic dermatitis of scalp may be difficult. The histopathological finding within the epidermis in psoriasis is characterized by dermatitis-like and in seborrheic dermatitis by psoriasis -like alterations resulting in a difficulty to make a definite histopathological diagnosis. Often the clinical manifestation in psoriasis is misleading due to varied clinical presentations. An overlap in both clinical pattern and distribution of these papulosquamous lesions is seen leading to diagnostic difficulty. Distinct histopathological features and clinical correlation gives a definitive diagnosis.

Among the malignant disorders of skin, basal cell carcinoma was predominant which constituted 9(1.5%) cases followed by Squamous cell carcinoma 3(0.5%) in which two were well differentiated and one basaloid variant of squamous cell carcinoma, and 1(0.16%) malignant melanoma. Gaikwad SL et al¹⁶ reported squamous cell carcinoma as the predominant malignant disorders of skin with 11 cases out of 113 (9.7%) followed by malignant melanoma 2 (1.7%). We observed a female predominance of malignant disorders with male to female ratio of (1:5.5) and affected more commonly 70 to 80 years of age groups.

Among Infectious diseases, fungal infection constituted the most common diagnosis and that included tinea, chromoblastomycosis , onychomycosis and sporotrichosis. Among the bacterial infection leprosy constituted maximum number of cases.

Vitiligo was found to be the most common skin lesion among the pediatric age group accounting for about 27.7% of the total vitiligo patients. In various studies the prevalence of childhood vitiligo (age < 12 yrs) has been found to be around one quarter of vitiligo presentations of all ages. In a Chinese study Hu Z et al¹⁷ found 24.1% belonged to the pediatric age

group. Among the Korean patients 16% of the vitiligo patients were children¹⁸. In two Indian studies ,the prevalence of childhood vitiligo was reported to be 26%(south India)¹⁹ and 23.3%(North India)²⁰.

In a critical review by Sina B et al²¹ a detailed, completed pathology request form is one of the most overlooked but significant aspect of skin biopsy procedure. A detailed clinical information with an accurate macroscopic description of the skin lesion will be of great aid to the dermatopathologist with interpretation and assist in arriving at an accurate diagnosis, which correlates with the clinical impression. Without this the pathologist may report a differential diagnosis that is discordant with the clinical impression leading to confusion and delay in correct treatment.

In a study by Comfere NI et al²² they stated that the quality, completeness and clarity of clinical information provided within the requisition form has a large impact on the dermatopathologist's diagnostic confidence, diagnostic accuracy, specificity of diagnosis, need for additional communication with the clinician and their ability to provide a report with meaningful clinical guidance.

CONCLUSION

Different patterns of skin lesions were encountered in our study, of 605 clinically diagnosed skin disorders. The analysis revealed that maximum number of cases belonged to Non-infectious erythematous, papular & squamous diseases followed by melanocytic tumors. Out of the infectious disorders, fungal infection constituted the largest number of cases. Basal cell carcinoma was the commonest malignant skin neoplasm reported.

There was a good clinicopathological correlation in 81.2%, however 14.2% of the cases had a pathological diagnosis inconsistent with the clinical diagnosis.

Many of the skin lesions can be easily diagnosed based on the history and clinical examination of the lesions. However, histopathology plays an important role in rendering an accurate diagnosis for conditions which have atypical or overlapping clinical features.

A great emphasis must be given to a detailed and complete pathology request form by a dermatologist which will be of immense aid to the pathologist in interpretation and arriving at an accurate diagnosis

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