



ANALYSIS AND CLINICOPATHOLOGICAL CORRELATION OF SKIN BIOPSY

Dr. Parmendra Pachori	Associate Professor, Department of pathology, SMS Medical college, Jaipur ,Rajasthan .
Dr. Geeta Pachori	Senior Professor, Department of pathology ,JLN Medical college, Ajmer, Rajasthan.
Dr. Manisha Jain*	Assistant Professor, Department Of Pathology, Geetanjali Medical College , Udaipur , Rajasthan. *Corresponding Author
Dr. Tushar Bayla	Senior Demonstrator, Department of Biochemistry, Government Medical college, Bhilwara ,Rajasthan.

ABSTRACT

Introduction : Skin is the largest organ of body , is extraordinarily vibrant with regard to the diversity and complexity of the protective functions it serves. Though the spectrum of histopathology of skin disorders is varied , clinical presentation is restricted to only few changes such as hyperpigmentation , hypopigmentation , macules , papules, nodules and few others, thus definitely require histopathology for their confirmation .

Aims : The present study was undertaken to study the burden , histomorphological and clinicopathological correlation with age and sexwise distribution of skin lesions in Ajmer region .

Methods: The study was carried out in the our department over a period of three year (July 2013 to June 2016). Biopsies received in 10% buffered formalin were processed and slides were stained with routine H & E stain and special stains done wherever needed.

Results: A total of 828 skin lesions were analysed histomorphologically.. Maximum no. of 405(49%) cases belong to the category tumors and cysts of epidermis. There was male preponderance with males 466 (56.4%) and females 362 (43.6%) with M: F ratio 1.3:1 .Maximum cases 158 (19.08%) were between age group of 21-30 years with mean age was 39.37 years. 261 (31.5%) cases were Non-Neoplastic and 567(68.5%) were Neoplastic which included tumors and tumor like conditions of skin. Infectious dermatoses 88 cases (45.4%) was the most common non neoplastic skin lesion. Basal cell carcinoma 45(49.5%) was the most common malignant skin tumor. In 538(65%) cases histopathology confirmed diagnosis while in 223 (27%) cases histopathology gave diagnosis and in 67 (8%) cases histopathology was non contributory.

Conclusion: Skin biopsy procedure is important for the clinician to confirm a suspected clinical diagnosis. A close cooperation between the clinician and pathologist is a must for accurate diagnosis and management of the patient.

KEYWORDS : Skin biopsy, clinicopathological correlation, H & E stain**INTRODUCTION**

Skin is the largest organ of body , is extraordinarily vibrant with regard to the diversity and complexity of the protective functions it serves.[1] There are probably at least 2000 different skin conditions that might present to the dermatologist. The conditions seen vary enormously in severity.

In recent years, there has been increasing awareness of the impact of skin diseases on social and leisure activities, work and sexual relationship and questionnaires such as Dermatology Life Quality Index (DLQI) have been employed to measure the impairment of quality of life.[2]

Though the spectrum of histopathology of skin disorders is varied , clinical presentation is restricted to only few changes such as hyperpigmentation , hypopigmentation , macules , papules, nodules and few others.[3] Each clinical presentation is common to different histopathological pictures and thus definitely require histopathology for their confirmation. Separation of each of these become important because the treatment and prognosis tends to be disease specific.[4]

MATERIAL AND METHODS

This cross sectional study was carried out in our both retrospective (July 2013 to June 2014) and prospective (July 2014 to June 2016) over a period of 3 years.

For the retrospective study, blocks were retrieved from the histopathological section and reviewed.

For prospective study we received biopsy specimen in 10% buffered formalin. A properly completed surgical pathology requisition form containing the patient's identification, age, sex, essential clinical data and tissue submitted was checked.

Then the specimen are allowed to fix in 10% buffered formalin for 12-14 hours at room temperature and the gross features like size, shape, colour, external surface, cut surface, consistency, color of cut section are noted. Grossing was done and processed as per standard protocol.

Formalin fixed and paraffin embedded sections were stained routinely with H&E technique. Special stains were done wherever necessary like PAS, Acid fast stain, IHC.

OBSERVATION AND RESULTS

A total of 828 cases were studied during the study period which were classified into different groups [Table/ Fig-1]. Maximum no. of skin lesions 158 (19.08%) was between the age range 21-30 years followed by 152(18.35%) cases in age range of 31-40 years . Only 11(1.3%) cases were seen in the age range 81-90 years.[Table/Fig-2] .Youngest patient was of 28 days old and oldest was 90 years of age. Mean age for skin disorders was 39.37 years. Out of 828 cases neoplastic 567(68.5%) were common which included tumors and tumor like conditions of skin and 261 cases (31.5%) were non neoplastic .Both Non Neoplastic and Neoplastic lesions (male to female ratio of 1.3:1) was more common in males than females and overall male to female ratio was 1.3:1. Out of 828 cases tumors and cysts of epidermis 405 (49%) were the most common skin lesions followed by infectious dermatoses 88 (10.5%) , 62 (7.5%) cases of tumors of dermis, 50 (6%) cases each of tumors of epidermal appendages and melanocytes, 45(5.4%) cases of vesiculobullous diseases, 38 (4.6%) cases of non infectious inflammatory dermatoses, 3(0.4%) cases each of congenital diseases and pigmentary disorders. Miscellaneous disorders 17(2%) included corn, calcinosis cutis etc. In 67 (8.15%) cases there was no specific pathology. Among non neoplastic skin lesion (194 cases) most common was infectious dermatoses 88 cases (45.4%) followed by 45 cases (23.2 %) of vesiculobullous diseases, non infectious inflammatory dermatoses 38 cases (19.6%), There were 3 cases (1.5%) each of congenital diseases and pigmentary disorders. Out of 88 cases of infectious dermatoses, maximum 71 (80.6%) cases belong to bacterial dermatoses followed by viral infection 10(11.4%) cases. Only 7 (8%) cases of fungal infection were seen. The commonest vesiculobullous disease was pemphigus vulgaris 18 (40%) cases [Table/ Fig-3]. followed by 13(28.9%) cases of bullous pemphigoid , 7 (15.5%) cases of pemphigus foliaceus , 4(8.9%) cases of dermatitis herpetiformis ; 3 (6.7%) cases of erythema multiforme. out of 405 cases of tumors and cysts of epidermis, epidermal keratinous cyst 261 (64.3%) cases was the most common followed by papilloma 26 cases

(6.4%); dermoid cyst 24 cases (6%) and only 2 cases (0.5%) of verrucous nevus. The most common malignant lesion was BCC 45(11.1%) cases followed by squamous cell carcinoma 29 cases (7.1%). Out of 50 SAT's hair follicle tumors 22 cases (44%) were the most common followed by tumors with eccrine and apocrine differentiation 19(38%) cases and the least common were tumors with sebaceous differentiation 9 (18%) cases. 50 cases of skin adnexal tumors most common was nodular hidradenoma 13cases (26%) followed by 12 (24%) cases of pilomatricoma [Table/ Fig-4].; 3 (12%) cases of trichellemal cyst; 4 (8%) cases of nevus sebaceous; 2 (4%) cases each of trichoepithelioma, cylindroma, sebaceous hyperplasia, sebaceous adenoma and 1 (4%) case each of trichoblastoma, trichofolliculoma, apocrine hydrocystoma, and chondroid syringoma [Table/ Fig-5]. Among malignant adnexal tumors there were 1 (2%) case each of sebaceous carcinoma, microcystic adnexal tumor and paget's disease. most common melanocytic tumor were benign melanocytic nevi 41(82%) cases followed by dysplastic nevi 5 (10%) cases; 4 (8%) cases of malignant melanoma. [Table/ Fig-6]. Out of 567 neoplastic skin lesions that epidermal tumors 405(71.4%) cases, both benign (88.4%) and malignant (3.05%) were the most common tumors of the skin, followed by dermal tumors 62(10.8%). Adnexal and melanocytic tumors constituted 50 (8.9%) cases each. Only 3(0.5%) cases of malignant adnexal tumor were seen. [Table/Fig-7]. Out of 91 cases of malignant skin tumors commonest was basal cell carcinoma 45 (49.5%) cases followed by squamous cell carcinoma 29(31.5%) cases, 10 (10.9%) cases of dermatofibrosarcoma protuberans, 4(4.4%) cases of malignant melanoma and 1 (1.09%) cases each of sebaceous carcinoma, microcystic adnexal carcinoma and paget's disease [Table/Fig-8]. In 538(65%) cases histopathology confirmed diagnosis while in 223 (27%) cases histopathology gave diagnosis and in 67 (8%) cases histopathology was non contributory years. [Table/Fig-9]

[Table/Fig -2] : Age-wise distribution of different skin lesions

Lesion	Age Group in Years										Total
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	90	
Congenital diseases	1	1	1	-	-	-	-	-	-	-	3
Infectious dermatoses	1	12	21	17	13	11	10	3	-	-	88
Non infectious inflammatory dermatoses	2	9	11	7	6	2	1	-	-	-	38
Vesiculobullous diseases	2	4	4	6	16	5	1	4	3	-	45
Pigmentary disorders	-	1	-	-	2	-	-	-	-	-	3
Tumors and cysts of epidermis	21	48	64	75	65	60	44	21	7	-	405
Tumors of epidermal appendages	3	7	4	5	10	9	7	4	1	-	50
Melanocytic tumors	5	2	10	12	8	7	3	3	-	-	50
Tumors of dermis	7	8	18	12	8	4	4	1	-	-	62
Miscellaneous	-	3	4	2	1	3	3	1	-	-	17
Non specific pathology	5	10	21	16	4	6	3	2	-	-	67
Total	47	105	158	152	133	107	76	39	11	828	

[Table/Fig-7]: Distribution of Benign and Malignant skin tumors :

Tumor	Benign(%)	Malignant (%)	Total.(%)
Epidermal	331(88.4)	74(3.05)	405 (71.4)
Adnexal	47 (8.3)	3(0.5)	50(8.9)
Melanocytic	46(8.1)	4(0.7)	50(8.9)
Dermal	52(9.1)	10(1.7)	62(10.8)
Total	476	91	567

[Table/Fig-8]: Distribution of Malignant tumors of skin in present study

S.No.	Type of tumor	No. of cases	Percentage (%)
1.	Squamous cell carcinoma	29	31.9
2.	Basal cell carcinoma	45	49.5
3.	Malignant melanoma	04	4.4
4.	Sebaceous carcinoma	01	1.09
5.	Microcystic adnexal carcinoma	01	1.09
6.	Paget's disease	01	1.09
7.	Dermatofibrosarcoma protuberans	10	10.9
	Total	91	100

[Table /Fig-9]: Comparison of clinical diagnosis with histopathological diagnosis:

Description	No. of cases	Percentage (%)
Histopathology confirmed diagnosis	538	65
Histopathology gave diagnosis	223	27
Histopathology non contributory	67	08
Total	828	100

[Table/Fig-10] : Showing relative distribution of Non- Neoplastic and Neoplastic skin lesions in different studies

S.No.	Author's name	Non –Neoplastic (%)	Neoplastic (%)
1.	Najla M. Alghanmi et al	57.5	42.5
2.	Neetu Goyal et al	66	34
3.	Present study	31.5	68.5

[Table/Fig-14] Comparison of clinicopathological correlation with other studies

S. No.	Authors	Clinicopathological correlation (%)
1.	Chrysovalantis Korfitis et al	68
2.	Aslan C et al	76.8
3.	Bin Yap FB	92
4.	Abhilasha Williams et al	71.8
5.	Present study	65

DISCUSSION

In our study we observed that majority of skin lesions 166(20.04%) were in the age group 21-30 years (third decade) similar to findings of SG Dayal et al[5], Dr. Baijayanti Baur et al [6], Sanjeev Narang et al [7], Memet Ersan Bilgili et al[8]. In the present study we observed that most of the skin lesions were neoplastic (68.5%) which included tumors and tumor like conditions of skin. Najla M. Alghnmni et al [9] found that most of the skin lesions were non neoplastic (57.5%) [Table/Fig-10]. In another study done by Neetu Goyal et al [1] also found that most of the skin lesions were Non Neoplastic (66%). The present study shows slight predilection for male (56.4%) than female (male to female ratio 1.3:1) which is similar to study done by Najla M. Alghanmi et al [9] and Abbas Zamanian et al [10]. Some studies have shown predilection for females. Abdulrehman Y. et al [11] and D.D. Atraide et al [12] have shown high predilection for females. The incidence of infectious dermatoses in present study (10.6%) was comparable to studies done by Najla M. Alghanmi et al [9] and Sandhya Panjeta Gulia et al [13] and lower than studies done by A. Souissi et al [14], Abdulrehman Y. et al [11], D.D. Atraide et al [12] while study done by Dr. Baijayanti Baur et al [6] shows higher incidence than present study.

Amongst the infectious dermatoses bacterial infection 71(80.6%) cases was the most common followed 10(11.4%) cases of viral infection and 7 (8%) cases of fungal infection. Leprosy 48 (67.6%). [Table/ Fig-11]. being the most common among bacterial dermatoses followed by tuberculosis 22(31%) .Only 1(1.4%) case of actinomycosis. [Table/ Fig-12]. was seen. The incidence of vesiculobullous diseases in present study was 5.4% similar to observation made by Sanjeev Narang et al [7] and Sandhya Panjeta Gulia et al [13] while Najla M. Alghanmi et al [9] showed higher incidence than present study.

Most of the cases 16(35.5%) were seen in the age group of 41-50 years. Pemphigus vulgaris 18(40%) was the most common vesiculobullous disease. In the present study it was found that basal cell carcinoma 45 (49.5%) cases [Table/ Fig-13]. was the commonest malignant tumor of skin while other studies done by Budhraj SN et al [15], Deo SV et al [16]

Vaibhav Bari et al [17] and Rajinder Kaur et al[18] showed higher incidence of squamous cell carcinoma. Other studies done by Khalid et al[19], Soomero et al [20] and zohreh et al [21] showed BCC was the commonest malignant tumor of skin. The incidence of malignant melanoma was comparable to study done by Vaibhav Bari et al[17].

BCC 13 (28.8%) cases and SCC 8(27.6%) cases were most common in age group 61-70 years In the present study it was observed that most of the SAT were benign (94%) which is similar to other studies done by Sirsat and Kail[22], Vaishnav and Dharkar[23] and Reddy et al[24]

Maximum no. of tumors 11 (22%) were seen in the age group 41-50 years. In the present study it was observed that clinicopathological correlation was found in 65% cases which is comparable with studies done by Chrysovalantis Korfittis et al [25], Aslan C et al [26] and Abhilasha Williams et al [27]. However another study done by Bin Yap FB [28] found clinicopathological correlation of 92%..[Table/Fig-14]

CONCLUSION

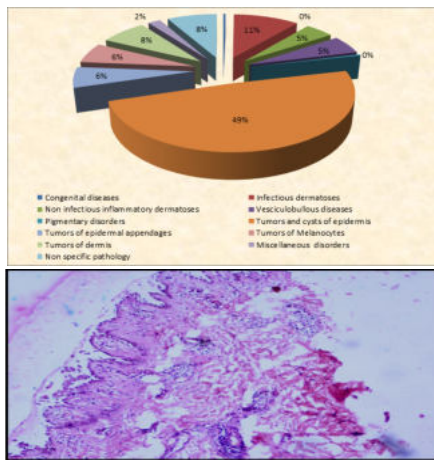
A total of 828 skin lesions were analysed histopathologically. Maximum no. of cases 405(49%) belong to the category tumors and cysts of epidermis. The sexwise distribution of skin lesions showed male preponderance with males 466 (56.4%) and females 362 (43.6%) Maximum cases 158 (19.08%) were between age group of 21-30 years. Age of patients varied from 28 days to 90 years. Mean age was 39.37 years. Out of 828 cases of skin lesions 261 (31.5%) were Non-Neoplastic and 567(68.5%) were Neoplastic which included tumors and tumor like conditions of skin. Most common non neoplastic skin lesion was infectious dermatoses 88 cases (45.4%). Leprosy 48 (67.6%) being the most common among bacterial dermatoses. The commonest vesiculobullous disease was pemphigus vulgaris 18 (40%) cases.

Among neoplastic skin lesions 476(84%) were benign and 91(16%) were malignant. Tumors and tumor like conditions of epidermis 405(71.4%) were the most common neoplastic skin lesions. Basal cell carcinoma 45(49.5%) was the most common malignant skin tumor. Hair follicle tumors 22 (44%) cases were the most common skin adnexal tumor followed by tumors with eccrine and apocrine differentiation 19(38%) cases and the least common were tumors with sebaceous differentiation 9 (18%) cases. Nodular hidradenoma 13(26%) was the most common skin adnexal tumor.

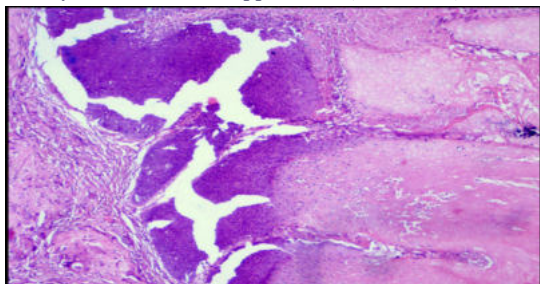
Out of 828 cases of skin lesions 538(65%) cases histopathology confirmed diagnosis while in 223 (27%) cases histopathology gave diagnosis and in 67 (8%) cases histopathology was non contributory.

Histopathology was helpful in making the definitive diagnosis of skin disorders in 92% cases. This emphasizes the importance of histopathology in diagnosing skin lesions.

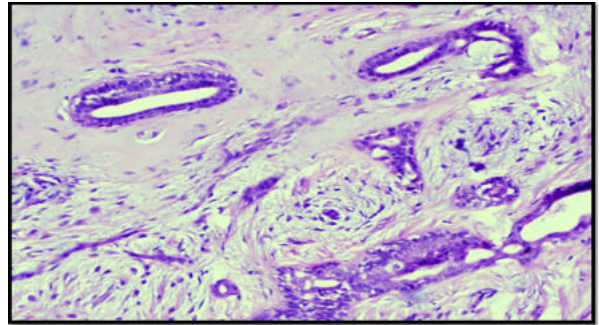
[Table/Fig-1]: Distribution of skin lesions



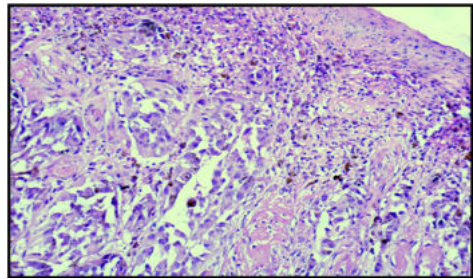
[Table/Fig-3]: Pemphigus Vulgaris- Showing suprabasal blister, acantholysis and tombstone appearance. (H&E,100X)



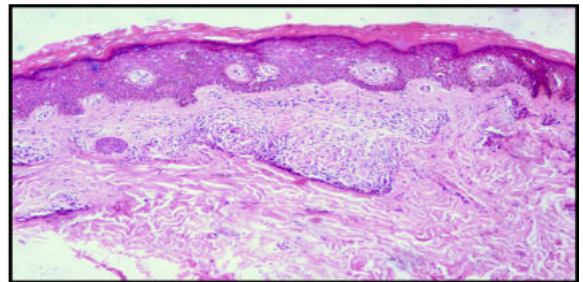
[Table/Fig-4]: Pilomatricoma- Showing large , irregularly shaped tumor islands containing basaloid cells and shadow or ghost cells with intervening stroma. (100X,H&E)



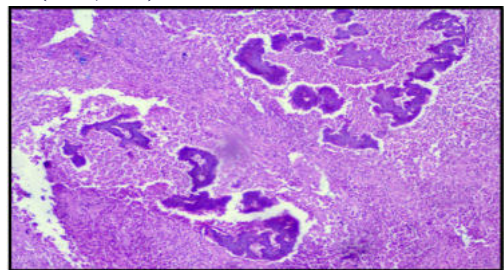
[Table/Fig-5]: Chondroid Syringoma – Showing proliferating ductoglandular eccrine epithelium in chondromyxoid stroma. (H&E,200X)



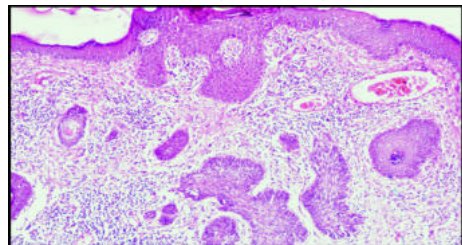
[Table/Fig-6]: Malignant Melanoma- Showing irregular nested and single-cell growth of melanoma cells with large nuclei with irregular contours, coarse melanin pigment and prominent red (eosinophilic) nucleoli.(200X,H&E



[Table/Fig-11]: Tuberculoid leprosy:Showing stratified squamous epithelium with underlying dermis showing epithelioid cells arranged in compact granulomas along with neurovascular bundles. (H&E,100X)



[Table/Fig-12]. Actinomycosis- Showing the organisms tangled together in a matted colony surrounded by polymorphs , granulation tissue and fibrosis.(100X,H&E)



[Table/Fig-13]: Basal Cell Carcinoma, nodular type-Showing basaloid cells with hyperchromatic nuclei and scant cytoplasm and peripheral palisading.(100X ;H&E)

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