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Study of Histopathological Variants Among Non-Neoplastic Skin Lesions at a Tertiary Hospital

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ABSTRACT
Many of the skin lesions are diagnosed clinically based on history and examination of the lesions. Skin biopsy followed by histopathological study is needed for accurate diagnosis identifying etiological agent with special stains wherever feasible and to help clinicians to decide the appropriate management. Present study was aimed to study histopathological variants among non-neoplastic skin lesions at a tertiary hospital. Present study was Prospective observational study, conducted in non-neoplastic skin lesions biopsy received in the department of pathology. Majority of study subjects were from age group 30- 39 yrs. contributing 33 (27.5%) followed by 20-29 yrs. Male contributed 70 cases (58.34%) and females 50 (41.66%). Most of the study subjects were having symptoms since 1-6 months contributing 60 (50%) followed by 7-12 months 35 (29.16%), >12 months 23 (19.17%) and < 1 month in 2 cases (1.66%) respectively. Non-infectious papulosquamous diseases were the most common presentation in present study contributing 48 cases (40%) followed by infectious skin diseases 26 (21.66%), vesicobullous skin diseases 20 (16.67%), Eczematous diseases 11 (9.17%) and Pigment disorders and Degenerative disorders contributing 7 (5.83%) and 08 (6.66%). Most common non-neoplastic skin disease among study subjects was Psoriasis contributing 29 cases (24.16%) followed by Lichen Planus 18 (15%) and Palmoplantar warts 10(8.33%) respectively. Proportion of non-infectious papulosquamous skin diseases was significantly higher in females as compared to males. A statistically significant association was seen between female gender and non-infectious papulosquamous skin diseases like psoriasis and lichen planus.

INTRODUCTION

Skin disorders are common in all country but spectrum varies greatly. Only few statistical studies are carried out in Indian subcontinent really stating the diseases that require histological examination and aid in clinical diagnosis[1]. Histopathological spectrum of skin disorder is highly variable but the clinical presentation is restricted to only a few changes such as hyper pigmentation, hypo pigmentation maculae's papules nodules, and few others[2]. These diseases range from simple acne and scabies to various serious disorder such as toxic epidermal necrolysis and fatal neoplastic condition[3]. More than 2000 different disorder of the skin exist including neoplastic and non-neoplastic lesions. Multiple factors are involved in etiology of skin tumours like genetic, racial and environmental. Anatomical location number and distribution of lesions provide important clue but histopathology is invaluable in confirmation of diagnosis[4]. Many of the skin lesions are diagnosed clinically based on history and examination of the lesions. However, some of them requires additional simple diagnostic procedures to get added information to make final diagnosis. Some of them are potassium hydroxide preparation for demonstration of fungal elements. Skin biopsy followed by histopathological study is needed for accurate diagnosis identifying etiological agent with special stains wherever feasible and to help clinicians to decide the appropriate management[5]. Present study was aimed to study histopathological variants among non-neoplastic skin lesions at a tertiary hospital.

MATERIALS AND METHODS

Present study was Prospective observational study, conducted in department of Pathology, at XXX medical college and hospital, XXX, India. Study duration was of 2 years (from October 2019 to March 2021). Study approval was obtained from institutional ethical committee.

Inclusion Criteria:

- All the non-neoplastic skin lesions biopsy received in the department of pathology.

Exclusion Criteria:

- Lesion over scalp.
- Leprosy.
- Inadequate biopsy.
- Not willing to participate in study.

Study was explained to patients in local language and written consent was taken for participation and study. Patients were examined by the dermatologist to identify the site, size, colour and distribution of the lesion/lesions. Following the clinical examination and data collection in the department of Dermatology, lesional punch or excisional biopsy is done on the patient clinically diagnosed to have skin lesion of non-infectious etiology. The biopsy techniques are commonly employed are Punch biopsy, Superficial and deep shave biopsy, deep incisional biopsy, Complete excision and Curettage Punch biopsy is the standard procedure for obtaining samples of inflammatory dermatoses. Specimen obtained with a 4-mm biopsy punch is adequate for histologic study. A punch biopsy specimen can be squeezed gently out of its socket or carefully speared with the syringe needle. Immediately after removal it should be placed in fixative, to prevent autolysis. The skin specimen biopsied is fixed in 10% formalin and sent to the department of Pathology. The skin specimen received should be given a proper gross description which should include tissue size, presence or absence of epidermis, colour, presence and absence of hair and alterations to the epidermal surface. The tissue is then thinly sliced, processed and embedded in paraffin blocks, after which sections are cut and affixed on glass slides. The tissue sections are then subjected to hematoxylin and eosin staining, followed by mounting and proper labeling of the slides. The slides are then subjected to meticulous microscopic examination by the reporting pathologist. Routinely, Haematoxylin and Eosin staining is done on the processed skin biopsy sections. All cases reported histopathologically as psoriasis and psoriasi form dermatitis were subjected to CD34 immunohistochemical marker staining, to study the presence of dermal vascular changes. The immunohistochemical staining on the lesional cases was done along with proven positive and negative control. The data were entered in Microsoft Excel and data analysis was done by using SPSS demo version no 21 for windows. The analysis was performed by using percentages in frequency tables, $p<0.05$ was considered as level of significance using the Chi-square test

RESULTS AND DISCUSSIONS

The present study was conducted on skin biopsies of 120 clinically diagnosed cases of non-neoplastic skin disorders. Majority of study subjects were from age group 30- 39 yrs. contributing 33 (27.5%) followed by 20-29 yrs. 30 (25%), 10-19 yrs. 23 (19.16%), 40-49 yrs. 15 (12.5%) 50-59 yrs. 14 (11.67%) and 03 (2.5%) in >60 yrs. age group respectively. Mean age of study participants was 34.00 years. Male preponderance is seen with M: F ratio of 1.4:1. Male contributed 70 cases (58.34%) and females 50 (41.66%). Most of the subjects were from lower socioeconomic class (III, IV, V) contributing 95 cases (79.16%) and 25 (20.83%) were from upper classes. Majority of patients lesions were present on back contributing 40 (33.33%) followed by right upper limb 30 (25%), left upper limb 20 (16.66%), left lower limb 15 (12.5%), right lower

Table 1: General Characteristics

	No. of patients	Percentage
Age groups (in years)		
0-9	2	1.67
10-19	23	19.16
20-29	30	25
30-39	33	27.5
40-49	15	12.5
50-59	14	11.67
>60	03	2.5
Gender		
Male	70	58.34
Female	50	41.66
socioeconomic status		
I	6	5
II	19	15.83
III	62	51.66
IV	25	20.83
V	08	6.66
Location of lesion		
Back	40	33.33
Right upper Limb	30	25
Left upper limb	20	16.66
Left Lower Limb	15	12.5
Right lower Limb	10	8.33
Abdomen	5	4.16

Table 2: Distribution of Study Subjects as Per Duration of Symptoms (n=120)

Duration (months)	Frequency	Percentage
<1 month	2	1.66
1-6 month	60	50
7-12 months	35	29.16
>12 months	23	19.17

Table No. 3: Classification of Non -Neoplastic Skin Diseases

Broad category	Frequency	Percentage
Infectious diseases	26	21.66
Eczematous	11	9.17
Non-infectious papulosquamous	48	40
Vesicobullous	20	16.67
Pigment disorders	07	5.83
Degenerative disorders	08	6.66

Table 4: Histopathological Diagnosis of Non-Neoplastic Skin Diseases (n=120)

Broad group	Subgroup	Male	Female	Total	%
Infectious Bacterial	Lupus Vulgaris	4	3	7	5.83
Viral	M.contagiosum	2	1	3	2.5
	Verruca vulgaris	4	1	5	4.16
	Palmoplantar warts	9	1	10	8.33
Fungal	Aspergillosis	1	0	1	0.83
Eczematous	Chronic dermatitis	4	4	8	6.66
	Prurigo nodularis	1	1	2	1.66
	Lichen simplex chronicus	1	0	1	0.83
Non-infect papulo- squamous	Lichen Planus	8	10	18	15
	Psoriasis	11	18	29	24.16
	Pityriasis Rubra pilaris	0	1	1	0.83
Vesicobullous	Pemphigus vulgaris	3	2	5	4.16
	Bullous pemphigoid	2	1	3	2.5
	Epidermolysis bullosa	2	4	6	5
	Erythema Nodosum	1	2	3	2.5
	DLE	2	1	3	2.5
Pigment disorder	Nevus	7	0	7	5.83
Degenerative	Morphea	5	0	5	4.16
	Lichen sclerosis	3	0	2	1.66

Table 5: Association Between Age and Non-Neoplastic Skin Diseases

Age (yrs.)	Male		Female			
	N	%	N	%	Total	P-value
<40 yrs.	60	68.18	28	23.33	88	0.00028
=40 yrs.	10	8.33	22	18.33	32	

*Chi square =13.16, df=1, P<0.05., significant

Table 6: Association Between Infectious Non-Neoplastic Skin Diseases and Gender

Infectious diseases	Male		Female			
	N	%	N	%	Total	P-value
Present	20	76.92	6	23.07	26	0.029
Absent	50	53.19	44	46.80	94	

Chi square =4.711, df=1, P<0.05., significant

Table 7: Association Between Eczematous Non Neoplastic Skin Diseases and Gender

Eczematous diseases	Male		Female			
	N	%	N	%	Total	P-value
Present	6	54.54	5	45.45	11	0.7891
Absent	64	58.71	45	41.28	109	

Chi square =0.0715, df=1, P> 0.05; Not significant

Table 8: Association between non-infectious papulosquamous skin diseases and gender

Non-infectious Papulosquamous diseases	Male		Female			
	N	%	N	%	Total	P-value
Present	19	38.77	30	61.22	49	0.0030
Absent	51	71.83	20	28.16	71	

Chi square =13.03, df=1, P<0.05., significant at p<.05.

Table 9: Association Between Vesicobullous Non Neoplastic Skin Diseases and Gender

Vesicobullous diseases	Male		Female			
	N	%	N	%	Total	P-value
Present	10	50	10	50	20	0.4076
Absent	60	60	40	40	100	

Chi square =0.6857, df=1, P> 0.05., Not significant

limb 10 (8.33%) and abdomen 5 (4.16%) respectively. Most of the study subjects were having symptoms since 1-6 months contributing 60 (50%) followed by 7-12 months 35 (29.16%), >12 months 23 (19.17%) and <1 month in 2 cases (1.66%) respectively. Non-infectious papulosquamous diseases were the most common presentation in present study contributing 48 cases (40%) followed by infectious skin diseases 26 (21.66%), vesicobullous skin diseases 20 (16.67%), Eczematous diseases 11 (9.17%) and Pigment disorders and Degenerative disorders contributing 7 (5.83%) and 08 (6.66%). Most common non-neoplastic skin disease among study subjects was Psoriasis contributing 29 cases (24.16%) followed by Lichen Planus 18 (15%) and Palmoplantar warts 10(8.33%) respectively. In present study, proportion of non neo-plastic skin lesions were significantly higher in <40 yrs. (68.18%) males as compared to females (28%). A statistically significant association was seen between age and non-neoplastic skin lesions in accordance with gender. In present study, proportion of non-neoplastic skin lesions was significantly higher in (76.92%) males as compared to females (23.07%). A statistically significant association was seen between male gender and infectious non neoplastic skin diseases. In present study, proportion of eczematous non neoplastic skin diseases was higher in (76.92%) males as compared to females (23.07%). However no statistically significant association was seen between male gender and eczematous non neoplastic skin diseases in present study. (P>0.05). In present study, proportion of non-neoplastic skin lesions was significantly higher in (61.22%) females as compared to males (38.77%). A statistically significant association was seen between female gender and non-infectious papulosquamous skin diseases. In present study, proportion of vesicobullous non neoplastic skin diseases was same (50%) among males and females. No statistically significant association was seen between gender and vesicobullous non neoplastic skin diseases in present study. (P> 0.05).

(Case 1):

Fig. 1: Psoriasis

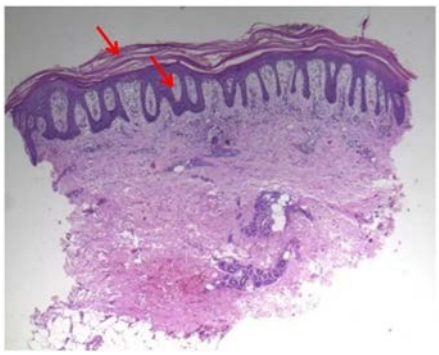


Fig. 2: 10x, Parakeratosis, Hyperkeratosis, Akanthosis and Elonganion of Rete Ridges

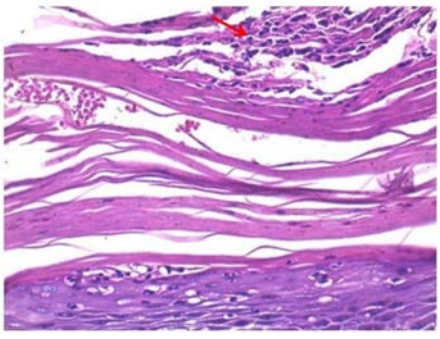


Fig. 3: 40x, Showing Munro's Microabscess

(Case 2):

Fig. 4: Lichen Planus

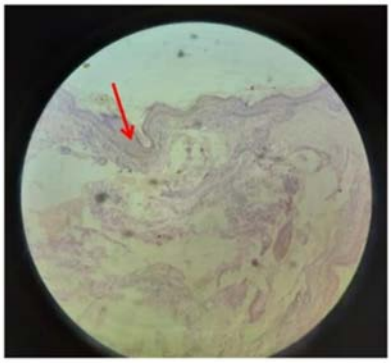


Fig. 5: 10x, Hyperkeratosis, Akanthosis and Band of Lyphocytic Infiltrate at Epidermal Dermal Junction

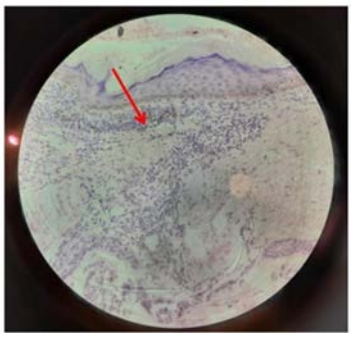


Fig. 6: 40x, Hyperkeratosis, Akanthosis and Band of Lyphocytic Infiltrate at Epidermal Dermal Junction

(Case 3):

Fig. 7: Nevus

Fig. 8: 10x, Pigmented Cells at the Tip of Rete Ridges

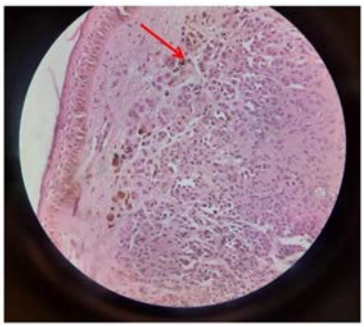
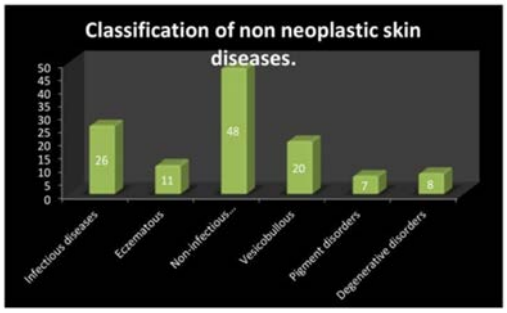


Fig. 9: 40x, Pigmented Cells at the Tip of Rete Ridges



Graph 1: Classification of Non-Neoplastic Skin Diseases Among Study Participants(n=120)

Above graph shows that, non-infectious papulosquamous diseases were the most common presentation In present study contributing 48 cases (48%) followed by infectious skin diseases 26 (21.66%), vesicobullous skin disease 20 (16.67%), Eczematous disease 11 (9.17%) and pigment disorders and degenerative disorders contributing 7(5.83%) and 08 (6.66%). This observational study was done among 120 study subjects to study histopathological findings and factors associated with non-neoplastic skin diseases at tertiary care hospital for the period of 2 years. Consecutive sampling method was used for selection of study subjects. It was observed that, proportion of non-neoplastic skin lesions was significantly higher in <40 yrs. (68.18%) males as compared to females (28%). A statistically significant association was seen between age and non-neoplastic skin lesions in accordance with gender. Similar result found in the study conducted by

Gupta[6] revealed that, the most common age group was between 31-40 years and the least affected was between 0-10 yrs. Another study reported similar result by Reddy[7] on noninfectious papulosquamous lesions, males were more affected and the most common age group was between 31-40 years. Our study agrees with findings of these studies. Male preponderance is seen with M:F ratio of 1.4:1. Male contributed 70 cases (58.34%) and females 50 (41.66%). Similar results were seen in study by Reddy[7]. It was seen that, males were more affected. Our study agrees with finding of this study. A study by Vaghela[8] revealed similar finding with current study. It was revealed that, the ratio of males: females were 1.08:1. Also there were 52 males and 48 females. Our study agrees with findings of this study. Most of the study subjects were having symptoms since 1-6 months contributing 60 (50%) followed by 7-12 months 35 (29.16%), >12 months 23 (19.17%) and <1 month in 2 cases (1.66%) respectively. A study by Vaghela[8] was done. In this study, most cases presented within 0–6 months duration of lesions (i.e., 44%) followed by more than 1 year of duration of lesions (i.e., 33%), >6 to 12 months duration of lesions (i.e., 23%), whereas study carried out by Rajput[9] showed that most cases presented with >1 year duration of lesions (i.e., 45%) followed by 0–6 months duration of lesions (i.e., 35%). Current study agrees with these findings. Majority of patients lesions were present on back contributing 40 (33.33%) followed by Right upper Limb 30 (25%). A study by Vaghela[8] revealed similar findings. It was seen that., the limbs were involved in the maximum numbers of cases. Non-infectious papulosquamous diseases were the most common presentation in present study contributing 48 cases (40%) followed by infectious skin diseases 26 (21.66%), vesicobullous skin diseases 20 (16.67%), Eczematous diseases 11 (9.17%) and Pigment disorders and Degenerative disorders contributing 7 (5.83%) and 08 (6.66%). Association between infectious non neoplastic skin diseases and gender among study subjects was studied. It was seen that., proportion of non-neoplastic skin lesions was significantly higher in (76.92%) males as compared to females (23.07%). A statistically significant association was seen between male gender and infectious non neoplastic skin diseases. This might be due to higher exposure of males to infectious agents as compared to females. Association between eczematous non neoplastic skin diseases and gender among study subjects revealed that, no statistically significant association was seen between male gender and eczematous non neoplastic skin diseases in present study. (P>0.05). This indicated both sexes are equally vulnerable to eczematous skin diseases. Association between non-infectious papulosquamous skin diseases and gender among study subjects in present study showed that, proportion of non- neoplastic skin lesions was significantly higher in (61.22%) females as compared to males (38.77%). A statistically significant association was seen between male gender and non-infectious papulosquamous skin diseases. Psoriasis contributed highest among non-infectious papulosquamous skin diseases in current study. A similar study by Rajput[9] found that maximum number of cases were of infectious disease (i.e., 38.33%) followed by non-infectious erythematous, popular and squamous disorders (i.e., 25%), non-infectious vesiculobullous and vesiculopustular disorders (i.e., 6.66%). A study by Vaghela[8] showed that, most common lesions were inflammatory disease of the dermis and epidermis (51%), followed by infectious disease of skin (25%), vesiculobullous lesions (22%) and nonneoplastic disease of hair (2%). Most common non neoplastic skin disease among study subjects was Psoriasis contributing 29 cases (24.16%) followed by Lichen Planus 18 (15%) and Palmoplantar warts 10 (8.33%) respectively. A similar study by Gupta[6] revealed that, Among the papulosquamous disorders, the next common category of disease, Psoriasis accounted for the highest percentage of the cases (54.5%). These findings are similar to the study by Reddy[7] on Noninfectious erythematous papulosquamous lesions, in which maximum cases were of Psoriasis (42.5%).

CONCLUSION

Most common non neoplastic skin disease among study subjects was psoriasis followed by Lichen Planus and palmoplantar warts. Proportion of non-neoplastic skin lesions was significantly higher in Lower class males as compared to females. Proportion of non-infectious papulosquamous skin diseases was significantly higher in females as compared to males. A statistically significant association was seen between female gender and non-infectious papulosquamous skin diseases like psoriasis and lichen planus.

REFERENCES

1. Mehar, R., R. Jain, C.C.V. Kulkarni and S. Narang, 2014. Histopathological study of dermatological lesions-A retrospective study. Intern jou med sci pub hea., 3: 1082-1085.
2. Veldurthy, V.S., C. Shanmugam and N. Sudhir, 2015. Pathological study of non neoplastic skin lesion by punch biopsy. Intern jou Rese med scie., 3: 1985-1955.
3. Adhikari, R.C., M. Shah and A.K. Jha, 2019. Histopathological spectrum of skin diseases in a tertiary skin health and referral centre. J. Pathol. Nepal, 9: 1434-1440.
4. Shrivastava, V., A. Tangde, A. Joshi and R. Bindu, 2019. Clinicopathological study of skin tumours. Intern jou Rese med scie., 7: 1712-1719.
5. Mamatha, K., S. Susmitha, S.P. Vijayalaxmi and K.V. Sathyashree, 2018. IP Archives of cytology and Histopathology Research. 0 3: 83-88.

6. Gupta, P., V. Karuna, K. Grover, M. Rathi and N. Verma, 2018. The histopathological spectrum of skin diseases with emphasis on clinicopathological correlation: A prospective study. IP Jou Diag Path Onc., 3: 19-95.
7. Reddy, R. and N. Krishna, 2014. "Histopathological spectrum of non-infectious erythematous, papulo-squamous lesions". Asian Pac J Health Sci., Vol. 1.
8. Vaghela, P.G. and B.M. Jha, 2016. Histomorphological analysis of nonneoplastic skin lesions. Int J Med Sci Pub Health., 5: 638-641.
9. Rajput, J.S., K. Singh and S. Singh, 2014. Clinicopathological study of non-neoplastic skin disorder. Med Plus Int Med J., 1: 367-372.