



SPECTRUM OF LESIONS OF NON NEOPLASTIC LESION OF SKIN PUNCH BIOPSIES: A HISTOPATHOLOGICAL STUDY

Pathology

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ABSTRACT

Introduction: Skin disorders, presenting clinically, have wide spectrum of distributions with some of them diagnosed quickly by their clinical features, while other requires detailed investigational work up like skin biopsy. In our study we focused on the clinico-pathological pattern of various non-neoplastic lesion and find out the consistency between clinical diagnosis and histopathological examination. **Methods:** A total of 118 cases of non-neoplastic skin lesions were studied with punch biopsy. Clinical diagnosis was correlated by histopathological examination with H and E stain. Special stains were used whenever required. **Results:** Maximum number of cases showed infectious diseases consisting 36 cases of 118 non-neoplastic skin punch biopsies, followed by 31 cases of non-infectious erythematous, papular and squamous disease, 23 cases of non-infectious vesiculobullous and vesiculopustular disease, 9 cases of connective tissue disorders, 4 cases of genodermatoses, 3 cases of panniculitis/folliculitis and 12 cases with non-specific histology. **Conclusions:** In establishing a diagnosis, investigational work up and clinicopathological correlation is always desired; skin biopsy remains the cornerstone for aforementioned.

KEYWORDS

INTRODUCTION

Skin is the largest organ in body. It forms external body surface and provides protection against a wide variety of external threats including mechanical, biological, and chemical, ultra-violet and water loss. Imbalance in factors, affecting delicate homeostasis that exists among skin cells, may results skin disorder. Skin disorders divided into two group- Neoplastic skin disorders and Non-neoplastic skin disorders. The Non-neoplastic skin disorders include Infectious diseases, Non infectious erythematous, papular and squamous disorders, Connective tissue diseases, Non infectious vesiculobullous and vesiculopustular disorders, Genodermatoses, Folliculitis / panniculitis And Nonspecific dermatoses.^[1] Many non-neoplastic skin disorders can be quickly diagnosed by their clinical features and need no investigations, while some patients need detailed investigations to confirm the diagnosis.^[2] Commonly used skin biopsy techniques are punch biopsy, superficial and deep shave biopsy, deep incisional biopsy and complete excision and curettage.^[3,4]

The analysis of many skin biopsies requires the identification and integration of two different morphological features which are 1) the tissue reaction pattern like lichenoid reaction, psoriasiform reaction, spongiotic reaction, vesiculobullous reaction, granulomatous reaction and vasculopathic reaction 2) the pattern of inflammation. Various patterns of inflammation can be discerned in biopsies characterized on the basis of distribution of inflammatory cells within the skin. These are superficial perivascular inflammation, superficial & deep dermal inflammation & panniculitis. This study was done to find the histopathological patterns of non neoplastic skin lesions.

MATERIAL AND METHODS

This was a descriptive type of observational study, done in department of pathology NIMS Medical College, Jaipur from January, 2019 till June 2020 on 118 skin punch biopsies attained. In the study, detail patient's clinical history was recorded with particular reference to age, sex, mode of onset, characteristics and anatomic distribution of the lesions and associated symptomatology. Patients were selected regardless of their age and gender. Clinical diagnosed cases of non neoplastic lesion were included in this study. Patients who were unwilling to undergo punch biopsy, had incomplete data, neoplastic lesion and not willing to give written consent were excluded from the study. Punch biopsies were taken according to inclusion criteria. Histological section fixed in formalin and processed, stained with H and E stain, Special stain such as Reticulin stain, Zeel-Neelson, GIMSA, Periodic acid shift and Gram stains used if required. A systematic analysis of the biopsies was done starting from keratin layer, epidermis, dermoepidermal junction, the superficial and deep dermis, the fat and finally the blood vessels. Histomorphological

observations were recorded and histopathological diagnosis was made wherever possible.

Result

Out of 118 cases the maximum number of cases were in age group of 30-39 yrs (23.72%) closely followed by age group of 40-49 yrs (21.18%). Least number of cases were from the age group of 0-9 yrs i.e. 2.54% of the total cases. The youngest patient was a 7 year old and the oldest patient was a 79 year old (Table- 1)

The gender distribution pattern revealed maximum number of cases were males 73 (61.86%), females were 45 (38.13% of cases) (Table 2).

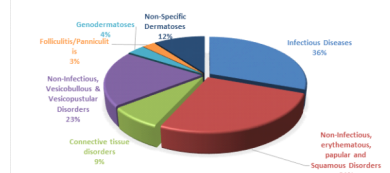
Table-1. Distribution of cases according to age:

AGE (YEARS)	NUMBER OF CASES	PERCENTAGE
0-9	3	2.54%
10-19	14	11.86%
20-29	18	15.25%
30-39	28	23.72%
40-49	25	21.18%
50-59	14	11.86%
60 and above	16	13.55%
TOTAL	118	100.00%

Table-2. Distribution of cases according to gender :

Gender	Number of cases	Percentage
Male	73	61.86%
Female	45	38.13%
Total	118	100%

Figure 1:- Distribution of cases according to Histopathological diagnosis group:



The maximum number of cases showed infectious diseases i.e. 36 cases of all the non-neoplastic skin punch biopsies followed by non-infectious erythematous, papular and squamous diseases consisting of

31 cases, connective tissue disorders having 9 cases, Non-infectious vesicobullous and vesicopustular disorders had 23 cases, genodermatoses had 4 cases while Folliculitis/Panniculitis had only 3 cases and 12 cases were of Nonspecific dermatoses (Figure 1).

Table: 3 – Distribution of cases of infectious diseases :-

Type	Number of cases	Percentage
Leprosy	26	72.22%
Cutaneous tuberculosis	04	11.11%
Fungal infections	02	5.55%
Viral infections	04	11.11%

Out of the total 36 cases of infectious diseases the overwhelming majority of cases constituted of leprosy consisting of 26 cases (72.22%). 4 cases of the cutaneous tuberculosis and 2 cases of fungal infections whereas 4 cases of viral infections were observed.

Table 4 :- Distribution of the cases of Non-infectious erythematous, papular and squamous disorders:-

Types	Number of cases	Percentage
Psoriasis	8	25.80%
Psoriasiform dermatitis	3	9.67%
Lichen planus	9	29.03%
Lichenoid dermatitis	1	3.22%
Pityriasis lichenoides	2	6.45%
Pityriasis rubra pilaris	2	6.45%
Prurigo nodularis	3	9.67%
Erythema annulare centrifugum	2	6.45%
Erythema dyschromicum perstans	1	3.22%

Out of total 31 cases of non infectious erythematous, papular and squamous disorders, most frequently seen lesion was psoriasiform lesions (11 cases) (35.48%) like psoriasis and psoriasiform dermatitis, followed closely by lichenoid lesions like lichen planus, lichenoid dermatitis consisting of 10 cases out of 31 cases (32.25%) (table 4).

DISCUSSION

Punch biopsy is one of the most commonly used diagnostic tests in dermatology. To achieve an accurate and rapid diagnosis, it is important to include clinical knowledge of the disease. Skin disorders in general population in various studies varies from 6.30% to 11.16%. The pattern of skin disorders in India is influenced by many factors like the developing economy, level of literacy, social backwardness, varied climate, level of industrialization, access to the primary health care, as well as different kind of religious, rituals and cultural factors. The present study was a prospective study carried out on 118 untreated cases of non neoplastic skin diseases presenting in the outpatient department of National institute of medical sciences and research, Jaipur.

Most number of cases were seen in the age group of 30-39 years i.e. 28 cases (23.72%) followed by age group 40-49 years i.e. 25 cases (21.18%). The youngest patient in current study was a 7 year old and the oldest was 79 years of age, both of them were males, median age in the study was 38 years.

Aslan et al^[5] in their study in 2010 found similar results, as most number of cases were seen in 40-49 years age group (16 cases) followed by 30-39 yrs age group (14 cases). The youngest patient in that study was 8 year of age and oldest was 68 years of age.

Grace D costa et al^[6] also found most number of cases in 30-40 years age group in their study. Veldurthy et al^[7] in a similar study found the most number of cases in 21-30 years age group.

In the current study the proportion of males was 61.86% (73 cases) while the proportion of females was 38.13% (45 cases). The male to female ratio was 1.62:1. Similarly D' Costa et al^[6] also found a high proportion of males in their study. They found male proportion to be 57.94%, while the females proportion was 42.06% of the total cases. Veldurthy et al^[7] in their study also found a male predominance. Piyush G Vaghela et al^[10] in a study done in 2015 found 52% males and 48% females.

In current study analysis of the different kind disease group found that

the highest number of cases were from the broad group of infectious diseases. It comprised of 36 cases (30.50% of total cases), followed closely by group of non-infectious papulo-squamous disorders comprised of 31 cases (26.27% of total cases). D Costa et al^[6] also found highest number of cases from the infectious diseases group (24.29%) followed by erythematous and papulo-squamous disorders (20.56%).

In contrast, Rakesh mehar et al^[11] noted the most number of cases of granulomatous disorders followed by non-specific dermatoses.

In current study of total 36 cases of infectious diseases, most number of cases were of leprosy comprising of 26 cases (72.22%). While 4 cases each of cutaneous tuberculosis and viral infections and 2 cases of fungal infections were seen. D' Costa et al^[6] also noted leprosy to be the single largest category of all the dermatoses and also the single largest group in infectious disorders. This might be due to the fact that the distribution of various skin disorders varies from country to country and even across different parts of the same country.

In present study the second largest broad group of disorders was of Non-infectious erythematous and papulo-squamous disorders comprising of 31 cases (26.27%). D' Costa et al^[6] in their study also found these to be second most common after infectious disorders. In contrast, Bin Yap et al^[9] found papulo-squamous disorders to be 7.7% of total cases.

In present study out of total 31 cases of non-infectious erythematous, papular and squamous disorders, most frequently seen lesion was psoriasiform lesions comprising of 11 cases (35.48%), like psoriasis (25.80%) and psoriasiform dermatitis (9.67%), followed closely by lichenoid lesions like lichen planus, lichenoid dermatitis consisting of 10 cases out of 31 cases (32.25%) followed by 3 cases of prurigo nodularis, 2 cases of pityriasis lichenoides, pityriasis rubra pilaris and erythema annulare centrifugum and one case of erythema dyschromicum perstans.

D' Costa et al^[6] also found psoriasis to be the most common group among papular-squamous disorders followed by lichenoid pattern. However, in another study by the same author in 2010^[10] of non-infectious erythematous, papular and squamous lesions of the skin they found that the lichenoid lesions were commonest followed by psoriasiform lesions and in contrast also Veldurthy et al^[7] in their study found lichenoid lesions to be the most common histopathological diagnosis reported.

In the current study the third largest group of skin dermatoses was non-infectious vesicobullous and vesicopustular disorders i.e. 23 cases (19.49%), in which most number of cases were of pemphigus vulgaris i.e. 9 cases (39.13%) followed by 5 cases of pemphigus foliaceus (21.73%). Aslan et al^[5] also found these to be the third largest group of disorders comprising of 7 cases of Pemphigus vulgaris, followed by Pemphigus foliaceus (4 cases) and dermatitis herpetiformis. Similarly Collier and Wojnarowska et al^[11] and Salmanpour R et al^[12] also found pemphigus vulgaris to be the most common blistering disorder.

The next group of disorders was connective tissue disorders, comprising of 9 cases (7.62% of total cases). D' Costa et al^[6] also found connective tissue disorders to be 6.54% of their total cases while Bin Yap et al^[9] found them to constitute 6.0% of their total cases. Out of nine cases of connective tissue disorders, seven cases were of lupus erythematosus and 2 of scleroderma. In 7 cases of lupus erythematosus, 5 were males, while two were females. Similarly in a study by Pandhin et al^[13] they also found a male predominance in cases of lupus erythematosus.

In present study genodermatosis group of disorders had 4 cases (3.38%), consisting of 2 cases each of Darier's disease and acrokeratosis verruciformis of HOPF. D' Costa et al^[6] also found this group in 3.73% of cases, of which Darier's disease in 3 cases and one case each of Hailey Hailey disease and acrokeratosis verruciformis of HOPF.

The Broad group of folliculitis/panniculitis had 3 cases (2.54%), comprised of keratosis pilaris. D' Costa et al^[6] also found one case of keratosis pilaris in their study.

CONCLUSION

This study was done on 118 cases of clinically diagnosed patients having non-neoplastic dermatological disorders whose punch biopsies were taken, and histopathological diagnosis was made. It was found that infectious diseases constitutes of an overwhelming number of the non-neoplastic skin disorders. Punch Biopsy is highly useful tool in investigations of non neoplastic skin disorders. It has a high specificity and accuracy for evaluating skin lesions.

REFERENCES

1. Rakesh Mehar, Ravi Jain, CV Kulkarni, Sanjeev Narang, Meena Mittal, Harshul Patidar. Histopathological study of dermatological lesions - a retrospective approach. International journal of Medical Science and Public Health(2014) Vol 3 / Issue 9
2. Burns D.A. Cox N.H.: Rook's textbook of dermatology. 7th edition 2004. Blackwell Science;1.1-1.4.
3. Alguire PC, Mathes BM. Skin biopsy techniques for the internist. J Gen Intern Med 1998; 13:46-54.
4. Sleiman R, Kurban M, Abbas O. Maximizing diagnostic outcomes of skin biopsy specimens. Int J Dermatol 2013;52:72-78.leprosy.
5. Aslan C, Goktay F, Mansur A T, Aydingoz I E, Guness P, Ekmekci TR. Clinicopathological consistency in skin disorders: A retrospective study of 3949 pathological reports. Journal of American Academy of Dermatology;10.1016/J.JAAD.2010.12.03.
6. D'Costa G, Bendale K A, Patil Y V. Spectrum of paediatric skin biopsies. Indian J Dermatology 2007;52(2).111-115
7. Veldurthy VS, Shanmugam C, Sudhir N, Sirisha O, Motupalli CP, Rao N, Reddy SR, Rao N. Pathological study of nonneoplastic skin lesions by punch biopsy. Int J Res Med Sci 2015;3(8):1985-8.
8. Vaghela PG, Jha BM . Histomorphological analysis of nonneoplastic skin lesions. Int J Med Sci Public Health 2016;5:638-641
9. Bin Yap FB: Dermatopathology of 400 skin biopsies from Sarawak. Indian journal of Dermatology, Venereology and Leprology, 2009; 75(5):518-519.
10. D'Costa G, Bharambe BM. Spectrum of non infectious erythematous, popular and squamous lesions of the skin. Indian J Dermatol 2010;55(3):225-228
11. Collier P M, Bendale K A, Patil Y V. Spectrum of paediatric skin biopsies. Indian J Dermatology 2007;52(2).111-115
12. Salmanpour R, Shalkar H, Namazi MR, Rahman-Shenas MR. Epidemiology of pemphigus in South -Western Iran: a 10 year retrospective study.1991- 2000 International Journal of Dermatology 2006; 45(2):103.
13. Pandhi R K, Gupta R, Kumar A S et al. Discoid lupus erythematosus in Northern India. Ind J Dermatol Venereal Leprol. 1984; 50: 97-99