

The Histopathological Profile Of Non-Neoplastic Dermatological Disorders With Special Reference To Granulomatous Lesions - Study At A Tertiary Care Centre In Pondicherry

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Citation

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Abstract

Background Dermatologic disorders are common in many countries but the spectrum varies greatly. The objective of this study was to determine the histopathological profile of non-neoplastic dermatological lesions, to study the morphology and attempt to find the etiology of granulomatous lesions on skin biopsies.

Methods This is a retrospective study over a period of two years in the department of pathology, IGMC &RI. Out of a total of 248 skin biopsies received, 112 cases with non-neoplastic skin lesions were included in the study. Incisional biopsy, excision biopsy and punch biopsy were done to obtain tissue for histopathological examination. Slides stained with routine stain and special stains like Ziehl - Neelsen stain, Periodic Acid Schiff, Alcian blue and Fite faraco were reviewed. Data entry and analysis were done using statistical software SPSS for Windows Version 16.0 (SPSS Inc., Chicago, IL, USA). Percentages were calculated for categorical variables. Chi-square test was used for comparison of proportions of different groups. Chi-square test for trend was used for studying the linear trend in occurrence of various skin lesions with age. All p values < 0.05 were considered significant, while p values between 0.05 and 0.10 were considered marginally significant.

Results A total of 112 patients were included in the study, 61 cases (54.5%) males and 51 cases (45.5%) females. In males, the commonest lesions were nonspecific dermatoses (n=17, 27.9%) followed by granulomatous lesions (n=14, 23%) and in females the commonest lesions were granulomatous lesions (n= 12, 23.5%) followed by nonspecific dermatoses (n= 11, 21.6%)(Table 1). The sex distribution of various non-neoplastic lesions was of no statistical significance except for vasculitis which was commoner in females (p value-0.0175). Miscellaneous lesions included cases of Hidradenitis suppurativa, folliculitis and lichen sclerosus et atrophicus. The prevalence of calcinosis cutis was highest in the age-group 41-60 years (p = 0.0117) (Table 2). All cases of nonspecific ulcers (p = 0.0389) and vasculitis (0.0679) were also higher in the same age group. Calcinosis cutis and vasculitis showed a statistically significant increasing linear trend with age (p value 0.0025 and 0.0140, respectively) (Figure 1). Similarly, lichen planus showed a statistically significant decreasing linear trend with age (p value= 0.0378) (Figure 1). 26 out of 112 (23.2%) skin biopsies, were found to have a granulomatous reaction pattern. The commonest etiology of granuloma in our study was leprosy accounting for 12 cases followed by 11 cases of tuberculosis. Less common causes included erythema nodosum and granuloma annulare (Table 3). The typified 5 cases of tuberculosis were lupus vulgaris (3 cases) and tuberculosis verrucosa cutis (2 cases). Special stain for AFB were positive in 11.5% of all cases.

Conclusions Skin biopsies with non-neoplastic lesions constituted 45% of the total number of skin biopsies at our institute. The age distribution pattern indicated highest percentage in the 41-60 year age group (36.6%). The sex distribution pattern revealed a male preponderance of 54.5% compared to 45.5 % females. Granulomatous dermatoses are still rampant, infections forming an important cause of granulomatous dermatitis with leprosy and tuberculosis as the leading causes. Majority of the cases of leprosy were borderline tuberculoid (BT), followed by tuberculoid (TT) leprosy. Demonstration of acid fast bacilli by ZN stain is specific, however, they are not detected with ease thereby further emphasizing the significance of adequate clinical data and workup which helps in elucidation of specific etiology.

INTRODUCTION

The pattern of skin diseases varies from one country to

another and across different parts within the same country. Studies from developing countries conducted over a period

of years in the past have reported high prevalence of skin disorders, the spectrum of which has been highly variable. Our study aimed at describing the histopathological profile of non-neoplastic dermatological disorders. Granulomatous dermatitis frequently poses a diagnostic challenge to dermatopathologists, since an identical histologic picture is produced by several causes, and, conversely, a single cause may produce varied histologic patterns.¹ Therefore in the present study an attempt has been made to classify granulomatous dermatitis based on histopathology and find the etiology.

METHODS

STUDY DESIGN AND SETTING

This is a retrospective study over a period of two years.

SAMPLING TECHNIQUE

The study was carried out in the Department of Pathology, Indira Gandhi Medical College and research Institute (IGMC&RI), Pondicherry. All the skin biopsies received from May 2010 to April 2012 were reviewed and cases of non -neoplastic skin lesions selected for study in detail. Clinical history and relevant data were recorded from request forms of biopsies received.

CLINICAL AND LABORATORY WORK-UP

Dermatological diagnosis was made mainly clinically. Skin biopsies were taken as appropriate for routine histological examination. Slides stained with routine stain and special stains like Ziehl - Neelsen stain, Periodic Acid Schiff, Alcian blue and Fite faraco were reviewed .

DATA ANALYSIS

Data entry and analysis were done using statistical software SPSS for Windows Version 16.0 (SPSS Inc., Chicago, IL, USA). Percentages were calculated for categorical variables. The Chi-square test was used for comparison of proportions of different groups. Chi-square test for trend was used for studying the linear trend in occurrence of various skin lesions with age. All p values < 0.05 were considered significant, while p values between 0.05 and 0.10 were considered marginally significant .

ETHICAL ISSUES

Ethical clearance was obtained from the Ethics Board.

RESULTS

A total of 112 patients were included in the study, 61 cases

(54.5%) males and 51 cases (45.5%) females. In males, the commonest lesions were nonspecific dermatoses (n=17, 27.9%) followed by granulomatous lesions (n-14, 23%) and in females the commonest lesions were granulomatous lesions (n= 12, 23.5%) followed by nonspecific dermatoses (n= 11 , 21.6%)(Table 1). The sex distribution of various non- neoplastic lesions was of no statistical significance except for vasculitis which was commoner in females (p value-0.0175). Miscellaneous lesions included cases of Hidradenitis suppurativa , folliculitis and lichen sclerosus et atrophicus. The prevalence of calcinosis cutis was highest in the age-group 41-60 years (p = 0.0117) (Table 2). All nonspecific ulcers (p = 0.0389) and vasculitis (0.0679) were also higher in the same age group. Calcinosis cutis and vasculitis showed a statistically significant increasing linear trend with age (p value 0.0025 and 0.0140, respectively) (Figure 1). Similarly, lichen planus showed a statistically significant decreasing linear trend with age (p value 0.0378) (Figure 1).

26 out of 112 (23.2%) skin biopsies, were found to have a granulomatous reaction pattern. The commonest etiology of granuloma in our study was leprosy accounting for 12 cases followed by 11 cases of tuberculosis. Leprosy cases were further classified into sub-groups according to Ridley and Jopling. Majority of the cases were borderline tuberculoid (BT), followed by tuberculoid (TT) leprosy . Less commonly seen were (LL) leprosy and borderline lepromatous leprosy (BL). The typified 5 cases of tuberculosis were lupus vulgaris (3 cases) and tuberculosis verrucosa cutis (2 cases). Special stain for AFB were positive in 11.5% of all cases. Less common causes of granulomatous reaction included erythema nodosum and granuloma annulare (Table 3).

Figure 1

Table 1 : Sex distribution of patients with skin lesions (n = 112)

S.No	Non neoplastic skin disorders	Female (n = 51) (%)	Male (n = 61) (%)	p value
	Calcinosis cutis	3 (5.9%)	4 (6.6%)	1.000
	Non-specific dermatosis	11 (21.6%)	17 (27.9%)	0.5839
	Granulomatous	12 (23.5%)	14 (23.0%)	0.8788
	Fungal & viral infections	2 (3.9%)	2 (3.3%)	1.0000
	Lichen planus	4 (7.8%)	2 (3.3%)	0.4086
	Miscellaneous	7 (13.7%)	12 (19.7%)	0.5604
	Psoriasis	1 (2.0%)	1 (1.6%)	1.000
	Non- specific ulcers	2 (3.9%)	5 (8.2%)	0.4518
	Vasculitis	5 (9.8%)	0 (0%)	0.0175*
	Vesicobullous lesions	4 (7.8%)	4 (6.6%)	1.0000

* - p value is significant

Figure 2

Table 2: Age distribution of patients with skin lesions (n = 112)

Non neoplastic skin disorders	1 – 20 (n = 20) (%)	21 - 40 (n = 38) (%)	41 - 60 (n = 41) (%)	61 - 80 (n = 13) (%)	p value
Calcinosis cutis	0	0	4	3	0.0117*
Non-specific dermatosis	4	11	11	2	0.7299
Granulomatous	5	10	8	3	0.9064
Fungal & viral infections	1	1	1	1	0.7989
Lichen planus	3	2	1	0	0.1651
Miscellaneous	4	10	5	0	0.1213
Psoriasis	1	1	0	0	0.5096
Non- specific ulcers	1	0	6	0	0.0389*
Vasculitis	0	0	3	2	0.0679**
Vesicobullous lesions	1	3	2	2	0.6107

* - p value is significant

** - p value is marginally significant

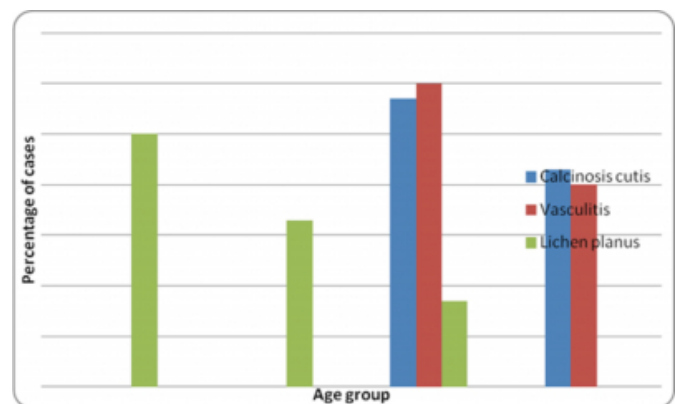
Figure 3

Table 3: Frequency of various clinico-pathological types of granuloma

Type of lesion	n=26
Lupus vulgaris	3
Tuberculosis verrucosa cutis	2
Tuberculosis (NOS)	7
Granuloma annulare	1
Erythema nodosum	1
BL Hansen's	1
BT Hansen's	5
LL Hansen's	2
TT Hansen's	4

Figure 4

Figure 1



DISCUSSION

This study has documented the histopathological profile of non-neoplastic skin lesions at a tertiary care centre in Pondicherry. The sex distribution pattern revealed that most of the patients were males (61%) (Table 1). The age distribution pattern revealed that the maximum biopsies received (36.6%) were in the age range of 41-60 years and the least number were in the age range of 61-80 years (11.6%) (Table 2). An analysis of the broad categories revealed that the most frequently encountered lesions were nonspecific dermatoses (25%) and granulomatous lesions (23.2%) (Table 1). In our study 26 out of 112 cases showed a granulomatous reaction pattern. This included 14 males and 12 females. This finding is in accordance with Dhar et al. in India who found males to be involved more frequently.² However a study done in Pakistan by M Naved Uz Zafar et al showed that females are more susceptible to develop granulomatous lesions of skin.³ Infectious granulomatous lesions were predominant in the present study in accordance with the study done by Bal et al.^{4,5} The commonest etiology of granuloma in our study was leprosy accounting for 12 cases. Borderline tuberculoid leprosy was the most common

lesion encountered similar to studies reported by Bal et al and Gautam et al^{4,6}. In our study most of the patients with granulomatous lesions were in the 21-40 yrs age group (38.5%) whereas (19.2%) were seen the age group 1-20 yrs. Studies done in Pakistan reveal out of a total of 97 cases of tuberculosis 17 (17.5%) were children (age <16 years)³ and Kumar et al.⁷ observed 75 children (18.7%) out of 402 cases of cutaneous tuberculosis. Cutaneous tuberculosis is a relatively rare clinical entity in western countries but is still prevalent in the developing world such as in Far East it accounts for 0.4% of patients with skin disease⁸. In developing countries like India, the incidence has fallen from 2% to 0.15%.⁹ In our study, 5 out of 12 cases of tuberculosis were typified which included lupus vulgaris (3 cases) and tuberculosis verrucosa cutis (TVC) (2 cases). In a study done in Pakistan³, out of 47 typified cases of cutaneous tuberculosis, lupus vulgaris was the commonest form, seen in 18 (38.29%) of these patients, followed by other types. These results were consistent with Khan's study¹⁰ who also found lupus vulgaris the commonest (50%) followed by TVC (30%) and scrofuloderma (20%). Similar results were also seen by Singh¹¹ and Kumar and Muralidhar¹² who found lupus vulgaris the commonest form in 44% and 48%, respectively. In the present study special stain for AFB was positive in 11.5% of all cases. According to S. Veena et al. AFB were found in 2 (6.45%) out of 31 skin biopsies in leprosy patients.¹³

Less commonly encountered lesions in our study were lichen planus, vesiculobullous lesions and calcinosis cutis. Lichen planus was most frequently seen in the 1-20 year age group. It has, however, been reported in the middle aged adults in the 5th- 6th decades.¹⁴ Some authors have reported it in young to middle aged adults.¹⁵ Lichen planus showed female preponderance in our series and has been also described as such in the literature.^{14, 16}

Vesiculobullous lesions included bullous pemphigoid (5 cases) followed by pemphigus vulgaris (3 cases) and were most commonly seen in 21-40 years age group. The prevalence of calcinosis cutis was highest in the age-group 41-60 years (p = 0.0117). Further subtyping could not be done due to lack of serum biochemical investigations. Among the infective conditions, viral infections comprised three cases of verruca vulgaris and one case of condyloma acuminatum. One case of fungal infection, *Cladosporium* sp. was also identified.

CONCLUSIONS

Non-neoplastic lesions biopsies constituted 45 % of the total number of skin biopsies at our institute. The age distribution pattern indicated highest percentage in the 41-46 year age group (36.6%). The sex distribution pattern revealed a male preponderance of 54.5% compared to 45.5% females. Granulomatous dermatoses are still rampant, infections forming an important cause of granulomatous dermatitis with leprosy and tuberculosis as the leading causes. Demonstration of acid fast bacilli by ZN stain are specific; however, they are not detected with ease, thereby further emphasizing the significance of adequate clinical data and workup which helps in elucidation of specific etiology.

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