



HISTOPATHOLOGICAL STUDY OF NON-NEOPLASTIC SKIN LESIONS IN A TERTIARY CARE HOSPITAL AND THEIR DEMOGRAPHIC DISTRIBUTION – A STUDY OF 352 CASES

Pathology

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ABSTRACT

Non-neoplastic skin diseases include a wide range of pathologic processes ranging from autoimmune to infectious to diseases of unknown etiology. Our study focused at evaluating the non-neoplastic skin diseases in rural India. This was an institutional based prospective study carried out at Bankura Sammilani Medical College and Hospital from August 2013 to June 2015. Total 352 cases of all age and sex were included. We found that patients in the age group of 20-29 years were mostly affected (24.4%) with a male (54.9%) predominance. The most common lesion diagnosed was leprosy (35.5%) followed by cutaneous tuberculosis (21.8%). Amongst the Leprosy cases borderline tuberculoid type was more prevalent (40.8%). We found an overwhelming majority of cutaneous mycobacterial infection in these rural areas of India. In this regard mycobacterial diseases need more research in India as multi-drug resistant (MDR) and extensively drug resistant (XDR) strains are emerging each year.

KEYWORDS

skin, histopathology, rural India, granulomatous skin lesions

INTRODUCTION:

Skin is the largest and remarkably heterogeneous organ of human body. The spectrum of non-neoplastic skin disorder comprise of four major types. They include- inflammatory with known etiology, non-inflammatory, vesicobullous, degenerative and miscellaneous. Of them inflammatory with known etiology is the most common type. The pattern of distribution varies from country to country and from place to place in same country. In developing countries like India there is a high prevalence of these skin disorders. Diagnosis of the lesions often become difficult due to overlapping in clinical presentation. For this, a careful history taking and clinical examination is essential along with the other invasive procedures. Skin biopsy is especially useful for this purpose.

AIMS AND OBJECTIVE

Aim of the present study was to find out the spectrum of various non-neoplastic skin lesions in a rural Indian population. To know their demographic distribution and identify the highest prevalent one.

MATERIALS AND METHODS:

Ours was a prospective study conducted in the department of Pathology in collaboration with department of Dermatology of a tertiary care hospital of rural Bengal. The study period was defined from August 2013 to June 2015. Cases were defined as people of all age and sex with clinically visible skin lesions or deformity. Cases who did not give informed consent for biopsy procedure and with a final diagnosis of neoplastic lesions were excluded from the study.

Detailed relevant history including demographic profile of the patients was obtained. Necessary clinical examination, routine blood investigations were done. Subsequently skin biopsy from representative site was taken under local anesthesia with aseptic precautions. Different biopsy procedures were: shave biopsies, punch biopsies and excision biopsies. The slides were stained routinely with Hematoxylin & Eosin stain. Special stains like Periodic Acid Schiff, Zeihl-Neelson stain (for acid fast bacilli) and Congo Red (for amyloid) was also used as required. Data were analyzed using SPSS software and proper statistical technique.

OBSERVATIONS & RESULTS:

A total of 352 cases satisfying the eligibility criteria were considered for this study. Median age of the patients was 32.5 years (range 6 years to 84 years) with male and female ratio of 1.3:1. Table 1 shows that people of age group between 20-39 years had the highest incidence (39.8%).

Table 1: Distribution of cases according to age

Age group (in years)	No. of cases	Percentage (%)
0-19	70	19.8

20-39	140	39.8
40-59	98	27.9
>60	44	12.5
Total	352	100

Granulomatous lesions (57.3%) were the commonest histopathological diagnosis followed by lichenoid lesions (15.6%) of all. Amongst the granulomatous disease Leprosy (35.5%) was commonest. The distribution of the Leprosy cases according to type revealed borderline tuberculoid (40.8%) type to be commonest followed by lepromatous (28.8%) and tuberculoid (25.6%) type. Most of the patients suffering from Leprosy were in the age group of 20-29 (32.8%) with a male: female ratio of 1.3:1.

Tuberculosis (21.8%) was second commonest type. Of which Lupus vulgaris was the predominant (33%). Whereas tuberculosis verrucosa cutis constituted 31% of cases.

Sixteen cases of viral, 11 cases of Pemphigus vulgaris, 10 cases of Granuloma annulare, 6 cases of fungal, and 5 cases of psoriasis were also reported. There were three cases each of rhinosporidiosis, pyoderma gangrenosum, and two cases each of lupus erythematosus, actinomycosis, amyloidosis, panniculitis, scabies and eczema. Distribution of cases according to their diagnosis is presented in table 2.

Table 2: distribution of cases according to their histopathological diagnosis

Histopathological diagnosis	Number of cases	Percentage of cases
Leprosy	125	35.51%
Cutaneous TB	77	21.88%
Actinomycosis	2	0.57%
Fungal infection	6	1.70%
Viral infection	16	4.55%
Connective tissue disorders	20	5.68%
Lupus erythematosus	2	0.57%
Lichen	55	15.63%
Psoriasis	5	1.42%
Pyoderma gangrenosum	3	0.85%
Erythroderma nodosum	1	0.28%
Granuloma annulare	10	2.84%
Pemphigus vulgaris	11	3.13%
Erythema multiforme	1	0.28%
Pemphigus vegetans	1	0.28%
Epidermolysis bullosa	1	0.28%

Amyloidosis	2	0.57%
Panniculitis	2	0.57%
Scabies	2	0.57%
Eczematous lesions	2	0.57%
Rhinosporidiosis	3	0.85%
Pityriasis rosacea	2	0.57%
Allergic vasculitis	1	0.28%
Freckles	2	0.57%
Total	352	100%

DISCUSSION

The present study was conducted at Bankura Sammilani Medical College and Hospital, Bankura, West Bengal. This was a large scale based prospective study conducted on patients who presented with non-neoplastic skin lesions. The study aimed to find out the demographic distribution of cases, to categorize them according to their histological finding and to identify the high prevalent cases in these rural Bengal areas. A total 352 cases fulfilling eligibility criteria were available for final analysis. Rajasekhar et al³, Veldhurthy VS et al⁴ and Singh et al.⁵ conducted similar studies on 80, 92 and 112 cases respectively.

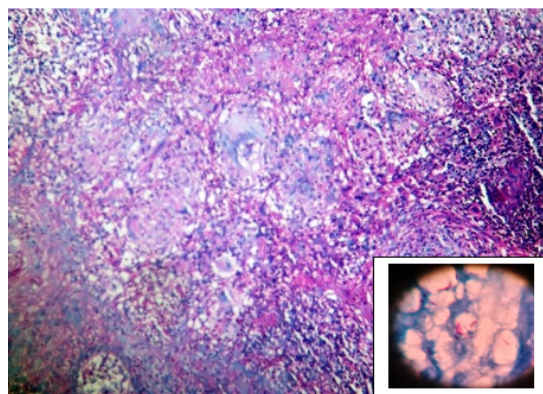
Median age of cases was found to be 32.5 years with 20-39(39.8%) year group to be most affected. Other studies on non-neoplastic skin disorders similarly found more incidence in this age group^{3,4,5,6}.

In our study there was male preponderance with a male: female ratio of 1.3:1. This result is supported by studies conducted by D'Costa et al⁶, Rajput et al⁷, and Singh et al.

The potentiality of skin is to react in many different ways to a single agent. We found infection (64.2%) was the commonest cause of non-neoplastic skin diseases in our study population. Infectious etiology was also prevalent on similar studies by Rajput et al (38.33%) and Goyal et al⁸(53.6%).

An analysis of broad-spectrum dermatological lesions revealed granulomatous (57.3%) lesions were commonest amongst the infectious group. Leprosy (35.51%) was the most prevalent subtype of granulomatous diseases followed by cutaneous tuberculosis(21.88%) in these rural Bengal population. D'Costa et al also observed leprosy to be the single largest category of all dermatoses. In a prospective study by Patel et al⁹ on 324 non-neoplastic skin lesions at Gandhinagar, Gujarat granulomatous were the most common skin disorders with leprosy as the most common subtype. Rajput et al also found leprosy constituting 78.26% cases. Majority of our leprosy patients were in the age group of 20-29(32.8%) with male predominance. Of the Hansen's cases we found 51 cases (40.80%) borderline tuberculoid followed by lepromatous (28.8%) and tuberculoid (25.6%) subtype. Veldhurthy VS et al. found indeterminate, tuberculoid and lepromatous types constituted more than 65% of the total Hansen's cases. Leprosy cases presented with macular, nodular and diffuse type, affecting both the skin and peripheral nerves. Histologically, it exhibited thinning of epidermis, dense inflammatory cell infiltrate, foamy macrophages and destruction of dermal appendages. Zeihl-Neelson stain showed presence acid fast bacilli (Figure 1).

Figure 1. lupus vulgaris



histopathology showing extensive caseous granulomatous inflammation in the deep dermis in lupus vulgaris, H&E stain 10X

Cutaneous tuberculosis comprises a small fraction (2%) of tuberculosis cases¹⁰. Scrofuloderma is the most common form of cutaneous TB in India (50% cases) followed by lupus vulgaris (LV) (42.86%) and tuberculosis verrucosa cutis (TBVC) in 4.76%¹¹. Lupus vulgaris was the most common type (33%) of cutaneous tuberculosis followed by Tuberculosis verrucosa cutis and Scrofuloderma. Histopathology of lupus vulgaris lesions showed extensive caseous granulomatous inflammation in the deep dermis. Extremities, especially the lower limbs, were most commonly involved in LV, which is at variance with the other European reports, where face is the most common site of involvement by LV. TBVC lesions mostly occur on lower limbs [90%] of children and hands in adults¹². While involvement of face in only one patient was reported¹³. In the present study, a definite history of trauma preceding the onset of TBVC was forthcoming in 73.33% patients. A majority of our patients were not using footwear outdoors and were often bare footed. Being engaged in heavy manual work in the agricultural fields, they were more prone for frequent injuries. The resultant trauma might have provided a portal of entry to the AFB. A majority of our patients were not using footwear outdoors and were often bare footed. Being engaged in heavy manual work in the agricultural fields, they were more prone for frequent injuries. The resultant trauma might have provided a portal of entry to the AFB.

Lichenoid lesion(15.63%) was our second most common diagnosis. This incidence is higher in study by Veldhurthy VS et al. (26%) and D'Costa et al. (46.57%). Of the lichenoid lesions lichen planus was most prevalent.

Connective tissue disorders constituted 5.68% of total cases and it includes scleroderma systemic sclerosis and Discoid lupus erythematosus. Females were more commonly affected by connective tissue disorders with Male:Female ratio of 1:3. Histopathological Spectrum of vesiculobullous (3.75%) diseases include Pemphigus vulgaris(n=12) and one case each of pemphigus vegetans, epidermolysis bullosa and erythema multiforme. Six cases of fungal diseases and five cases of psoriasis were also reported.

CONCLUSION

India is the country with the highest burden of tuberculosis and one of the countries with the high number of new leprosy diagnoses. Mycobacterial lesions comprised >55% of all categories. Population of Bankura is from rural India (91.67%) with literacy rate (70.26%)(census 2011) that is below average India (74.04%) and of low socio-economic status. This may partly explain the overwhelming occurrence of mycobacterial cases in our study.

While tuberculosis research in India grew rapidly, leprosy research has been on the decline even though leprosy cases are reported from India as per WHO statistics.

The Programmes like Revised National Tuberculosis Control Programme (RNTCP) for controlling Tuberculosis and National Leprosy Eradication Programme for eliminating leprosy by India has been successful to an extent yet new cases are reporting each year. Only 20% of Mycobacterium research is published from the countries with high incidence such as India (8%), South Africa (4%) and China (3%). A significant increase over the 127,326 new leprosy cases detected in 2015. Of the total new cases detected, almost 50% were multibacillary leprosy indicating continued transmission of leprosy in the community. It reflects the necessity to develop effective controlling programmes for eradication. In this regard mycobacterial diseases need more research in India as multi-drug resistant (MDR) and extensively drug resistant (XDR) strains are emerging each year.

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