

Clinical profile of non neoplastic skin lesions: A prospective cross-sectional study

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Abstract

Introduction: India being a large country with diverse population groups, varying climates and having different customs offers the perfect backdrop for a wide variety of peculiar and distinctive skin disorders.

Aim of our study was to determine the incidence and demographic distribution of various non neoplastic lesions of skin in patients attending the out patient department of dermatology of our institute.

Materials and Methods: The present prospective study was conducted from June 2008 to May 2010 in the department of dermatology and pathology, in NKP Salve Institute of Medical Sciences and Research Centre, Nagpur. A total of 205 patients were studied. Final histopathological diagnosis was given in each case correlating with the clinical findings. The results obtained were tabulated and analysed.

Results: Total number of cases included in the study were 205 out of which 22.43% of the patients were in the age group of 30 to 39 years. Macular lesion was the most common clinical presentation constituting 44.0% of all the cases. Non infectious erythematous, papular and squamous diseases were the most common histopathological diagnosis reported (31.21%) followed by bacterial diseases (20.98%) followed by non infectious vesicobullous vesicopustular diseases (17.097%).

Conclusion: In the present study, wide spectrum of skin lesions, common and rare were observed. Leprosy is a still a disease of increasing frequency. Vascular, viral, protozoan diseases are the rare lesions of skin

Keywords: Non neoplastic Skin Lesions, Vesicobullous Disorders, Demographic Distribution.

Introduction

India being a vast country with diverse population groups having different customs, thus offering the perfect backdrop for a wide variety of peculiar and distinctive dermatosis. Racially, the Caucasoid races of India seem to have a lesser incidence of light induced dermatosis, as compared to the west, but the incidence of vitiligo, alopecia areata, acquired pigmentary dermatosis, and pemphigus in children seems to be significantly higher.¹

In 1960, Desai observed that more than 50% of a general hospital's skin out-patient attendance consisted of infections that were acute and usually recurrent –scabies, pyodermas, superficial fungal infections, pediculosis, parasitic, viral infections and were the diseases of a poor economy.²

Skin is the largest external organ of the body with a surface area of 2 m² and accounting for 16-20% of the total body weight.³ Dermatologists are able to recognize most skin diseases based on their appearances, anatomic distributions, and behavior. Sometimes, however, those criteria do not allow a conclusive diagnosis to be made, and a skin biopsy is taken to be examined under the microscope or are subject to other molecular tests. That process reveals the histology of the disease and results in a specific diagnostic interpretation. In some cases, additional specialized testing needs to be performed on biopsies, including immunofluorescence, immunohistochemistry, electron microscopy, flow cytometry, and molecular pathologic analysis.^{4,5}

The aim of the present study was to classify the various non neoplastic skin disorders prevalent in the surrounding rural area and determine their demographic distribution.

Materials and Methods

The study was conducted on 205 patients who attended the outpatient Department of Dermatology & Venereology, in NKP Salve Institute of Medical Sciences and Research Centre, Nagpur during a period extending from June 2008 to May 2010 following the ethical approval from the ethical committee of the institute.

Inclusion criteria

1. All patients male, female of any age group presenting with lesions of skin clinically suspected non neoplastic.
2. Exclusion criteria
3. Patients diagnosed as neoplastic disorder of skin.
4. Patient's refusal for any procedure to be carried out for research.

Method of Collection of Data

Pertinent clinical history like age, duration of the lesion, site of the lesion, significant family and personal history, history of associated diseases and any drug intake was taken and entered in the proforma. After detailed general and local examination, the site of the biopsy was selected. The selected patient's consent was taken after explaining the details of the biopsy procedure.

The entire skin biopsy was submitted to department of Pathology for routine processing and embedded in paraffin wax. 3-5mm thick paraffin sections of the skin biopsy were

stained with haematoxylin and eosin. Special stains and special techniques were applied wherever necessary. Final histopathological diagnosis was given in each case correlating with the clinical findings. The results obtained were tabulated and analysed.

Results

Total number of cases included in the study were 205 out of which 22.43% of the patients were in the age group of 30 to 39 years. There was a male predominance with male: female ratio of 1.05.(Fig. 1).Specific disease categories revealed

different male to female ratios and age distribution.(Table-2a-l) Macular lesion was the most common clinical presentation constituting 44.0% of all the cases followed by papular lesions (31.5%). (Fig. 2) Non infectious erythematous, papular and squamous diseases were the most common histopathological diagnosis reported (31.21%) followed by bacterial diseases (20.98%) followed by non infectious vesicobullous vesicopustular diseases (17.097%). All the other disorders reported constituted each of about 5 or less than 5% of the total cases. (Table 1)

Table 1: Distribution of Non-Neoplastic Skin Diseases

Name of disease	Total No. of cases	Percentage
Genodermatoses	4	1.95
Non-infectious, Erythematous, papular and squamous diseases	64	31.21
Vascular diseases	2	0.98
Non-infectious vesiculobullous vesicopustular diseases	35	17.07
Connective tissue disorders	15	7.32
Photo sensitivity disorders	1	0.49
Non-infectious granuloma	4	1.95
Metabolic diseases of skin	3	1.46
Inflammatory diseases of hair follicles, sweat gland and cartilage	2	0.98
Bacterial diseases	43	20.98
Protozoan and parasitic diseases	1	0.49
Diseases caused by viruses	8	3.9
Miscellaneous	23	11.21
Total	205	100 percent

Out of 205 cases maximum number of skin lesions were found of non infectious erythematous, papular and squamous diseases followed by bacterial diseases, non infectious vesicular and bullous diseases.

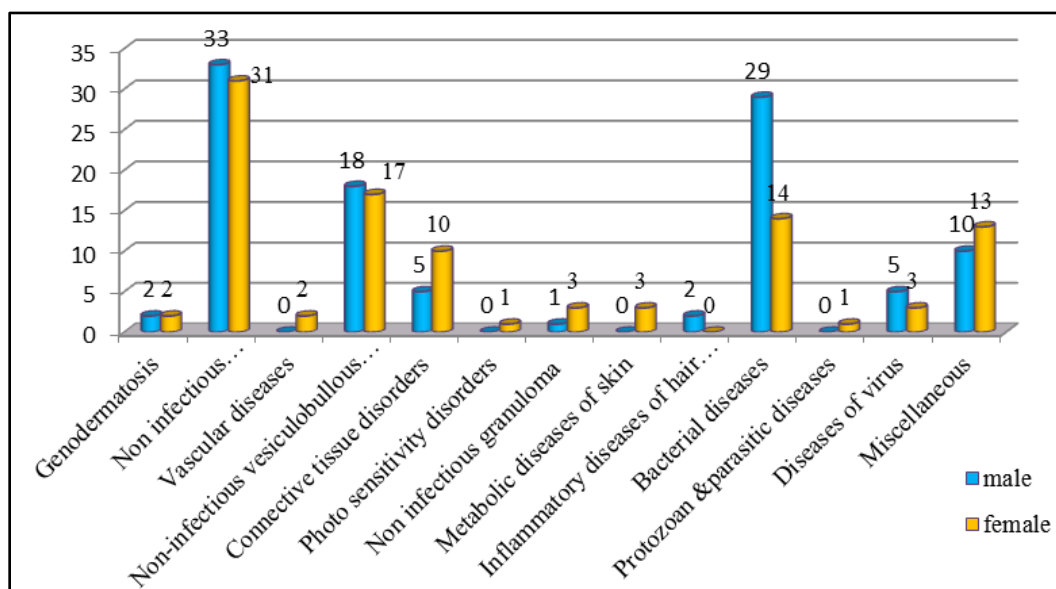


Fig. 1: Sex wise distribution of individual Non-neoplastic skin lesions

Considering the sex distribution in present study the male to female ratio is variable. Significant male predominance was seen in bacterial diseases and non infectious, erythematous, papular and squamous diseases. Significant female predominance was seen in connective tissue diseases.

Table 2: Age and sex wise distribution of individual Non-neoplastic skin lesions

2a) Genodermatoses

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Acrokeratosis of Hopf	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	25
Darrier Disease	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	25
Porokeratosis	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	2	50
Total	-	-	-	-	1	1	1	-	-	1	-	-	-	-	-	-	4	
Percent	-	-	-	-	50	25	25	-	-	-	-	-	-	-	-	-		100

2b) Non-infectious, Erythematous, papular and squamous diseases

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Ashy Dermatitis	-	-	-	-	1	2	1	1	-	-	-	-	-	-	-	-	5	7.8
Epidermal naevus	-	-	-	1	-	2	1	-	-	-	-	-	-	-	-	-	4	6.25
Hypertrophic Lichen Planus	-	-	-	2	-	-	1	-	-	1	2	-	-	-	-	-	6	9.37
Lichen planopilaris	-	-	-	1	-	-	-	2	-	1	-	-	-	-	-	-	4	6.25
Lichen Planus	-	-	-	2	-	2	1	1	2	2	2	-	2	1	-	-	15	23.4
Lichen sclerosus atrophicus	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	2	3.12
Lichen striatus	-	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	4	6.25
Pityriasis Lichenoides chronica	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	2	3.12
Prurigo Nodularis	-	-	1	3	-	-	-	-	-	1	1	-	-	-	-	-	6	9.37
Psoriasis	1	-	-	-	2	-	1	-	4	-	2	-	-	-	-	-	10	15.6
Psoriasis Vulgaris	-	-	-	-	-	-	-	1	2	-	2	-	-	-	-	-	5	7.8
Pustular psoriasis	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1.56
Total	1	1	2	12	4	7	6	5	8	5	9	-	3	1	-	-	64	
Percent	3.12		21.8		17.1		17.1		20.3		14		6.25		-			100

2c) Vascular diseases

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Sweet Syndrome	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	50
Leucocytoclastic Vasculitis							1										1	50
Total	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2	
Percent	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-		100

2d) Non infectious vesiculobullous vesiculopustular diseases

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Dermatitis	1	-	1	2	3	-	2	2	-	-	1	-	1	1	-	-	14	40.0
Pemphigus Foliaceous	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	2.85
Pemphigus vegetans	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	2.85
Pemphigus Vulgaris	-	-	-	-	-	-	2	1	-	2	1	2	2	1	-	-	11	31.4
Bullous pemphigoid	-	-	-	-	-	-	-	-	-	-	-	2	1	-	1	-	4	11.4
Erythema multiforme	-	-	1	2	-	-	-	-	-	-	1	-	-	-	-	-	4	11.4
Total	1	-	2	4	3	-	4	4	-	2	3	3	5	3	-	1	35	
Percent	2.85		17.1		8.6		22.8		5.7		17.1		22/8		2.85			100

35 cases of vesiculobullous lesions were found in our study out of which maximum were of Dermatitis followed by Pemphigus vulgaris.

2e) Connective tissue disorders

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Morphea	-	-	-	-	2	1	-	-	1	1	1	-	-	-	-	-	6	40
Scleroderma	-	-	-	-	-	1	-	-	-	1	-	-	-	1	-	-	3	20
Systemic lupus erythematosus	-	-	-	1	-	1	-	1	-	1	-	-	-	-	-	-	4	26.6
Discoid lupus erythematosus	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	2	13.3
Total	-	-	-	1	2	3	1	1	1	4	1	-	-	1	-	-	15	
Percent	-	-	-	6.6	33.3	33.3	13.3	33.3	6.6	6.6	-	-	-	-	-	-		100

2f) Photo sensitivity disorders

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Polymorphic Light eruption	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	100
Total	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	
Percent	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-		100

2g) Non infectious granuloma

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Granuloma Annulare	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	2	50
Sarcoidosis	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	2	50
Total	-	-	1	-	-	1	-	2	-	-	-	-	-	-	-	-	4	
Percent	-	-	25	-	25	-	50	-	-	-	-	-	-	-	-	-		100

2h) Metabolic diseases of skin

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Lichen Amyloid	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	3	100
Total	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	3	
Percent	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-		100

2i) Inflammatory diseases of hair follicles, sweat gland and cartilage

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Rosacea	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	50
Acute folliculitis with fungal infection	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	50
Total	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	2	
Percent	-	-	-	-	-	-	50	-	50	-	-	-	-	-	-	-		100

2j) Bacterial diseases

	Decades																Total	%
	1		2		3		4		5		6		7		8			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Lupus vulgaris	-	-	1	-	-	2	1	-	-	-	-	-	-	-	-	-	4	9.3
Papulonecrotic tuberculid	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	2.32

Tuberculoid Leprosy	-	-	2	1	1	1	3	-	1	-	1	1	1	1	-	-	13	30.2
Borderline Tuberculoid Leprosy	1	-	-	1	4	1	5	2	-	-	2	1	2	-	3	-	22	51.1
Lepromatous Leprosy	-	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-	3	6.97
Total	1	-	3	2	5	5	10	3	1	1	3	2	3	1	3	-	43	
Percent	2.32		11.6		23.2		30.2		4.6		11.6		9.3		6.9			100

Amongst the bacterial diseases of skin large number of cases was of leprosy (88.27%) and then tuberculosis of skin (9.3%)

2k) Protozoan and parasitic diseases

	Decades																Total	%
	1		2		3		4		5		6		7		8			
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Cysticercosis	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	100
Total	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	
Percent	-		100		-		-		-		-		-		-			100

2l) Diseases caused by viruses

	Decades																Total	%
	1		2		3		4		5		6		7		8			
Diseases Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Molluscum Contagiosum	-	2		-	-	-	-	-	-	-	-	-	-	-	-	-	2	25
Verruca plana	-	-	-	-	1	-	1	-	-	1	-	-	1	-	-	-	4	50
Verruca vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	2	25
Total	-	2	-	-	1	-	1	-	-	1	-	-	2	-	1	-	8	
Percent	25		-		12.5		12.5		12.5		-		25		12.5			100

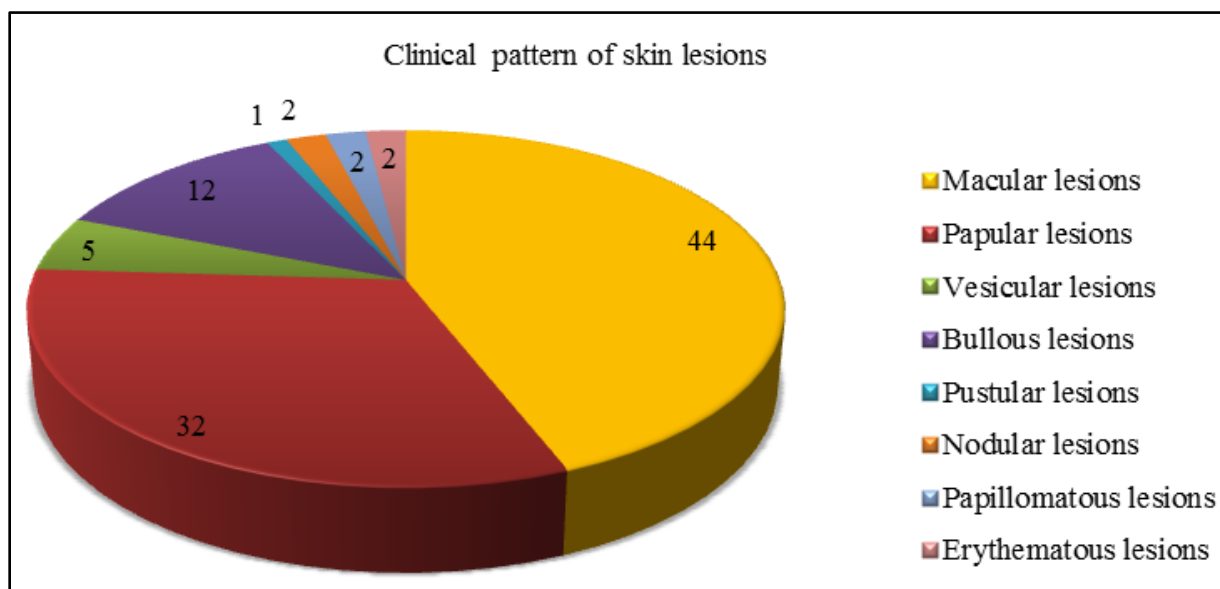


Fig. 2: Clinical pattern of skin lesions.

Discussion

The present study was a prospective study conducted at the departments of Dermatology and Pathology in NKP Salve Institute of Medical Sciences and Research Centre. Total number of cases analysed were 205. In the study by Rajasekhar et al, a total of 80 patients were analysed.⁶ In the study by Singh et al, a total of 112 cases were analysed.⁷ In the present study, 22.4% of the patients were in the age group of 31 to 40 years. In the study by Rajasekhar et al,

23.75% of the patients were in the age group of 31 to 40 years.⁶ In the study by Yonus et al. 6 25% of the patients were in the age group of 21 to 30 years.⁸

The exact incidence of all Non-neoplastic lesions of skin is not given in the world literature, though the incidence of individual skin disease we can find. The incidence we found of the skin diseases is on hospital based data.

In the present study, we found the highest number of cases in Non-infectious Erythematous, Papular and Squamous disorders (31.21%), followed by the Bacterial diseases (20.98%) and then Non-infectious Vesiculobullous and Vesiculopustular diseases (17.07%). Connective Tissue disorders constituted 7.32% of all cases.

The highest number of cases (31.21%) in the Non-infectious Erythematous, Papular and Squamous disorders can be attributed to various factors like trauma, infection, metabolic causes, drugs and endocrinal provocative factors.

Bacterial diseases (20.98%) can be attributed to the socioeconomic status, bad personal hygiene and it is seen all over India. This includes cases of Tuberculosis of skin and Leprosy cases. Among the Leprosy cases, largest number of cases were that of BorderlineTuberculoid type of leprosy, followed by tuberculoid Leprosy. None of the cases were of indeterminate type. This is due to the fact that most cases attended the out patient department for seeking treatment for the hypopigmented, hypoesthetic patch.

The aetiological factors in bacterial diseases are the infectious agent *Mycobacterium tuberculosis* and *Mycobacterium leprae*. The infections by these agents is

seen in immunocompromised host, contact with the person suffering from the disease, overcrowding in the family which is seen in cases coming from the low socioeconomic group. Also illiteracy and ignorance can be attributed to this high incidence.⁹

Allergic response to chemical proteins, bacterial and fungal infection, autoantibodies, drug consumption, viral infection, vaccination were found to be the etiologic cause, for the Non-infectious vesicular and bullous diseases of skin.

The other etiological factors found were immunologic, congenital inherited disease, parasitic infestation, viral and fungal infection. Most of time the etiological factors were not observed like in the nonspecific changes observed histopathologically.

Among non infectious erythematous papular and squamous diseases, lichen planus and its variants were observed in 31 cases (48.43%) followed by psoriasis 16 cases (24.96%). In the study by Bharambhe et al, lichenoid lesions were commonest (46.57%) followed by psoriasis (19.88%).¹⁰ (Fig. 3 a,b), (Fig. 4 a,b)

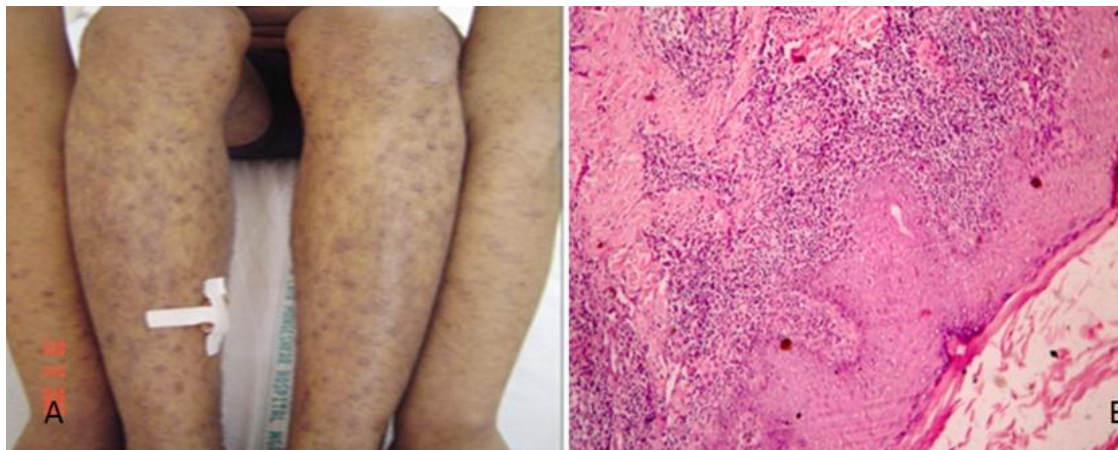


Fig. 3(a): Clinical photograph of lichen planus showing small, flat-topped, shiny, violaceous papules; (b) Photomicrograph of Lichen planus showing hyperkeratosis, mild hypergranulosis, dense band like lymphocytic infiltrate in upper dermis (H&E x100)

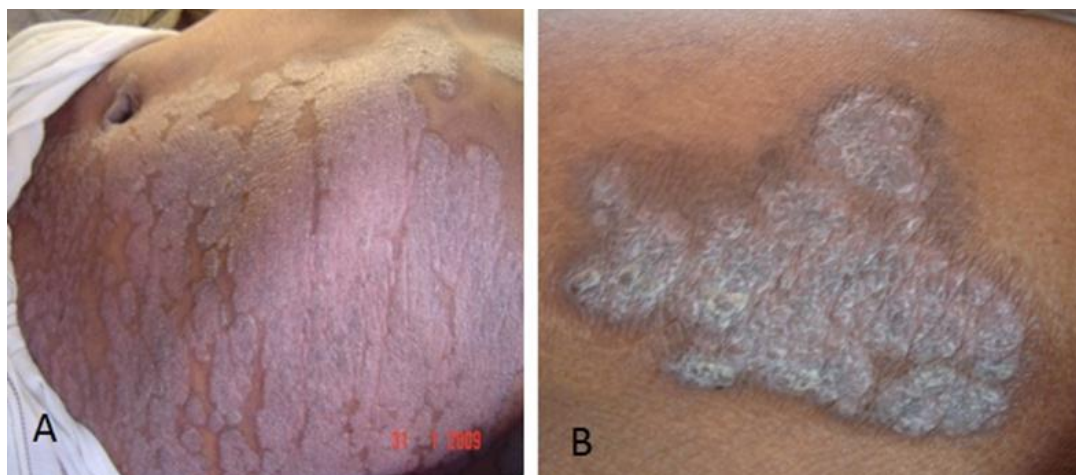


Fig. 4(a,b): Clinical picture of Psoriatic silvery white scales.

Among bacterial diseases 38 cases (88.27%) of leprosy were included in the study and categorized according to Ridley Jopling Classification.¹¹ Among leprosy, number of cases of borderline tuberculoid leprosy was highest, 22 cases (51.1%), tuberculoid leprosy 13 cases (30.2%), lepromatous leprosy 3 cases (6.97%). Thakkar S, reported 40% patients in the borderline spectrum followed by tuberculoid leprosy (TT) (29.2%), lepromatous leprosy (LL) (26.8%), and 3.9% of indeterminate leprosy (IL).¹² (Fig. 5 a,b)

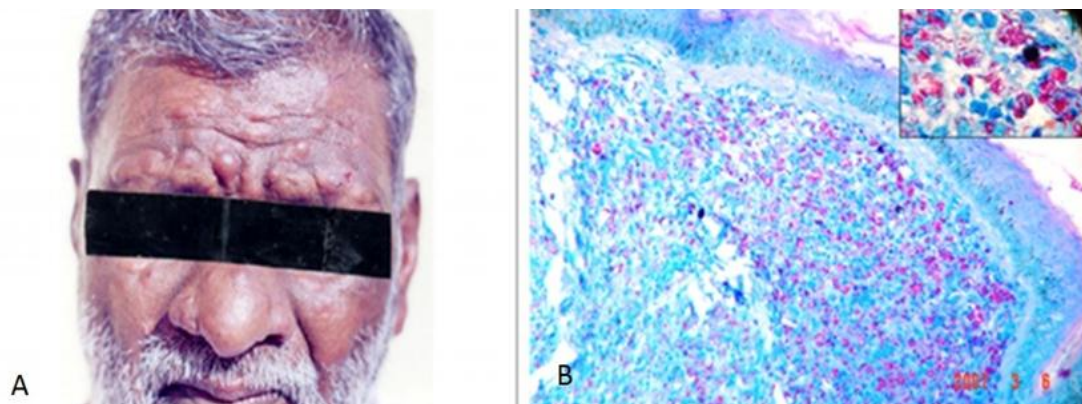


Fig. 5(a): Clinical photograph of lepromatous leprosy showing multiple nodules over the forehead. (b) Photomicrograph of lepromatous leprosy showing collection of foamy cells with clear grenz zone and lepra bacilli (F.F.stain x 100)Inset showing positive Fite Faraco stain with plenty lepra bacilli arranged in cigar shaped bundles (x1000)

Maximum number of patients were males with 68.42% and females 31.5%. This is similar to Moorthy B.N. et al (2001) who reported leprosy in 65.05% males and 34.95% females.¹³

Leprosy still remains a major public health problem in many parts of the world including India. At the beginning of the year 2001, the total number of registered cases in the world over was 0.6 million.⁹

India accounts for 60.9% of globally recorded cases of leprosy. The prevalence rate in the country has reduced from 57 per 10,000 in 1981 to 3.7 per 10,000 by March 2001. The total recorded cases have come down to 4.95 lakhs.⁹

Another category constituting the large number of patients was of non infectious vesicular and bullous diseases. In this category dermatitis (39.90%) was the most common disorder, followed by 13 cases (37.1%) of pemphigus, 4 cases (11.4%) of bullous pemphigoid and 4 cases (11.4%) of erythema multiforme. (Fig. 6 a,b)



Fig. 6(a): Clinical photograph of allergic contact dermatitis showing blister formation with erythema of skin. (b).Clinical photograph of Pemphigus vulgaris showing fresh and many crusted healed bullae.

Vascular Diseases

In our study we reported one case of sweet syndrome and one case of Leucocytoclastic vasculitis (LCV). Sweet syndrome typically occurs in middle-aged women usually in 4th decade.¹⁴ The lesions tend to be found on face or extremities. Possible etiological agent of LCV was unknown and the lesions were on lower limbs. On histopathology neutrophils in vessel wall,

fibrinoid necrosis and extravasation of red blood cells was seen.

We also reported 2 cases of molluscum contagiosum, 4 cases of verruca plana, 2 cases of verruca vulgaris, 3 cases of lichen amyloidosis, 1 case of subcutaneous cysticercosis. (Fig. 7a,b) (Fig. 8a,b)

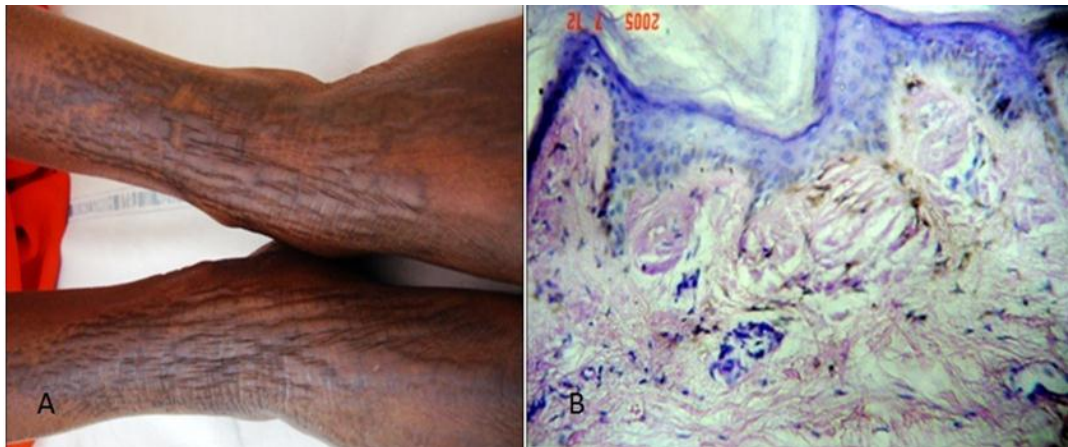


Fig. 7(a): Clinical photograph of lichen amyloidosis showing firm cutaneous plaques or areas of induration of the skin; (b) Photomicrograph of Lichen Amyloidosis showing amyloid globules in papillary dermis (H&E x 100)

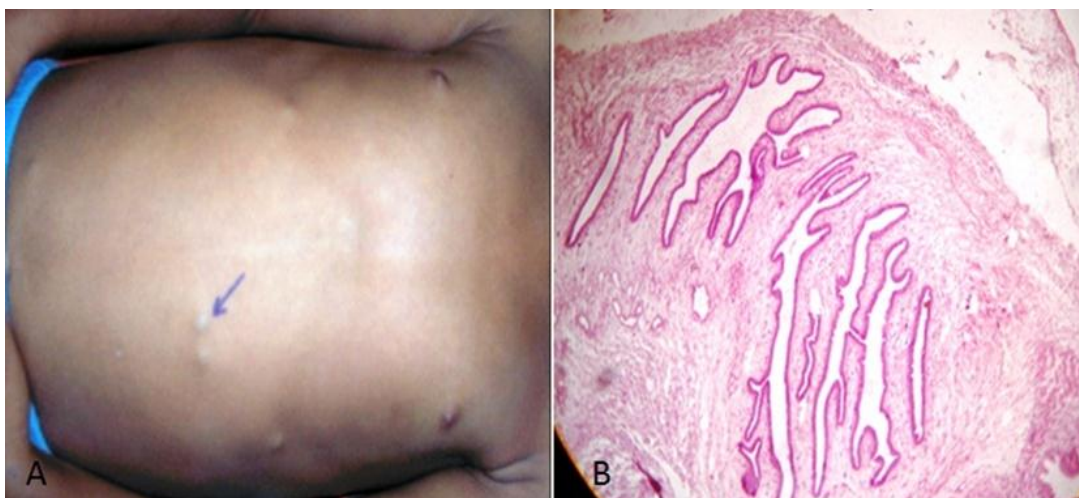


Fig. 8(a): Clinical photograph of Subcutaneous cysticercosis showing subcutaneous nodules on trunk. (b) Photomicrograph of subcutaneous cysticercosis showing parasite (cysticercous) in dermis (H&E x 100)

Among connective tissue disorders morphea (40.00%) was the most common histopathological diagnosis.

Conclusion

In the present study, wide spectrum of skin lesions, common and rare were observed. Leprosy is still a disease of increasing frequency. Skin diseases are common in adult life third to fourth decade affecting males more than females. Vascular, viral, protozoan diseases are the rare lesions of skin.

Conflict of Interest: None.

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How to cite this article: Gupta I, Kaira V, Gupta K, Bothale KA, Mahore SD, Clinical profile of non neoplastic skin lesions: A prospective cross-sectional study. *Indian J Clin Exp Dermatol* 2019;5(2):158-166.