Section: Pathology

Original Research Article

HISTOPATHOLOGIC SPECTRUM OF INFECTIOUS SKIN LESIONS IN A TERTIARY CARE HOSPITAL IN THE GARHWAL REGION

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Received *: 07/01/2024*
Received in revised form *: 05/03/2024*
Accepted *: 24/03/2024*

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DOI: 10.5530/ijmedph.2024.2.2

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2024; 14 (2); 9-13

ABSTRAC

Background: Skin is the largest organ of the body and is constantly harmed by a variety of environmental factors resulting in various kinds of neoplastic and non-neoplastic skin lesions. Among the non-neoplastic skin lesions, infective skin lesions are very commonly encountered in India, possibly due to the hot and humid environment, and lack of general awareness regarding infectious diseases. Very few studies, if any, have been conducted in the Garhwal region regarding infective skin lesions. Hence, present study was carried out to determine the spectrum of infective skin lesions. **Aim and Objective:** Present study was carried out to understand the spectrum of various skin lesions in correlation with age, sex and type of clinical lesion at a tertiary care hospital in Garhwal region.

Materials and Methods: Study Design: Non-interventional, cross-sectional, retrospective study was carried out from January 2022 to December 2023, on all skin biopsies diagnosed as infective skin lesions in the department of pathology, Veer Chandra Singh Garhwali institute of medical sciences and research irrespective of age and sex.

Results: Out of the 63 cases studies, leprosy was the most common infective skin lesion followed by tubercular dermatoses. Male predominance was present, with the most commonly encountered age group being 41-50 years. Presence of a hypopigmented patch was the most common clinical finding.

Conclusion: Leprosy was the most common infective skin lesion encountered in our study followed by tubercular dermatoses. Due to the wide range of clinical presentation in infective skin diseases, histopathological examination is necessary to make an accurate diagnosis.

Keywords: Infective skin lesions, leprosy, tubercular dermatoses.

INTRODUCTION

Skin is the largest organ of the body, accounting for 16 % of the total body weight.[1] Being the most exposed organ, it is constantly harmed by environmental factors through various direct and indirect agents and is susceptible to variety of disorder ranging from inflammatory to neoplastic.[2,3] Infectious skin lesions are very frequently encountered in tropical countries like India, affecting all age groups and sexes.[4] Their spectrum varies depending on the geographical location which could be because of environmental factor, social customs, economy and literacy. Sex, age and accompanying systemic disorders also play a crucial role.[5] Histopathological examination of skin biopsy is necessary for accurate diagnosis, to identify etiological agents and to guide dermatologist or clinician for deciding appropriate management as the treatment differs for different type of infective skin lesions.[6,7] Very few, if any, studies pertaining to infectious skin disorders have been have been carried

out in Garhwal region. Thus, the present study was carried out to look into the histopathological spectrum of skin lesions with infectious aetiology, determine their distribution according to age and sex and to pinpoint the most common infective skin lesion.

MATERIAL AND METHODS

A two-year retrospective study was carried out in a tertiary care hospital, from 1st of January 2022 till 31st of December 2023 in the Department of Pathology at the Veer Chandra Singh Garhwali Government Institute of Medical Sciences and Research in Srinagar, Garhwal, Uttarakhand.
All the skin biopsies, received in the histopathology department and diagnosed with infective aetiology, were included in our study. Relevant information and the clinical data was retrieved from requisition forms from the pathology department archives and were noted down. Light microscopy under various magnifications, was used to analyse slides stained with regular haematoxylin and eosin stain as well as special stains such as Wade-fite, Periodic acid Schiff stain and Ziehl-Neelsen (ZN) stain. Fresh sections were obtained, stained and studied after proper processing, wherever necessary.

RESULTS

In this retrospective study, a total of 63 cases of skin lesions that were diagnosed as that of infective aetiology were examined and divided into different categories. A slight male preponderance was seen with 35 cases (56%) being male and 28 cases (44%) being female (figure 1). The male to female ratio was 1.25.

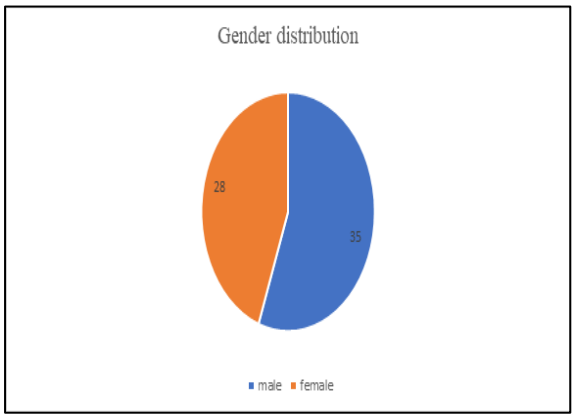

Figure 1: Distribution of infective skin lesion on the basis of gender

Age wise distribution is represented in figure 2. Most common age group involved having infective skin lesions was 41-50 years (25%, n=16), followed by 31-40 years age group (22%, n=14).

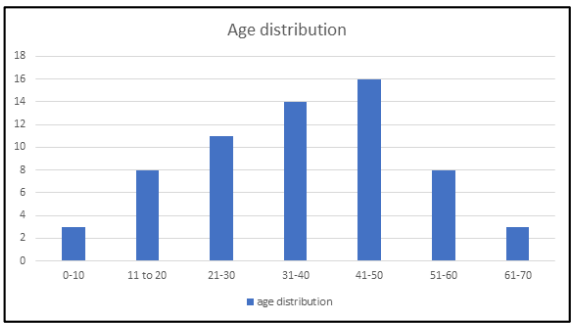

Figure 2: Distribution of infective skin lesions on the basis of age.

Bacterial infection (81%, n=51) was the most common category of infective skin lesion, followed by fungal infection (12.5%, n=8). Viral infection (5%, n=3) was also seen and a single case of protozoal infection (1.5%, n=1) was present. (table 1). Leprosy (52%, n=26) was the most common subcategory with lepromatous leprosy being the most common type (n=12) followed by tuberculoid leprosy (n=7). No cases of indeterminate leprosy were seen in our study. [table 2]. Among tubercular dermatoses (48%, n=24), lupus vulgaris was the most common one, accounting for 36 % (n=18) of the cases that were falling under the bacterial infection category. Few cases of Tuberculosis verrucosa cutis were also seen. Among fungal infection, pityriasis versicolor was the most common lesion, amounting to 42% (n = 3) of the total infective skin lesions falling under the fungal infection category. Two cases, each of sporotrichosis and chromoblastomycosis (14%, n=2) were also seen. Among viral infections, verruca vulgaris was the most common diagnosis amounting to 67% (n=2) of the total infective lesions caused by viruses followed by pityriasis rosea (33%, n=1). Among protozoal infections, a single case of leishmaniasis was seen. Two of the cases, one belonging to bacterial infection category and other belonging to fungal infection category were not further subcategorized as histopathological finding was not enough to determine the specific etiologic agent and pinpoint the exact diagnosis.
Most frequently encountered clinical lesion in our study was the presence of patches(33%, n=21), which were mostly hypopigmented, followed by ulcerative lesions(26%n=16)(table 3). Other lesions like papule, pustule and macule were also seen. [Table 2]
As per the results, the histopathology is shown in figures 3-8. Figure 3 shows destruction of skin appendages in a case of leprosy while Figure 4 shows presence of numerous acid-fast bacilli in the same case. Figure 5 shows presence of a granuloma and Langerhans giant cell in dermis in a case of lupus vulgaris. Figure 6 Shows presence of characteristic spores and short cigar butt shaped hyphae (spaghetti and meatballs appearance) of Malassezia furfur in epidermis in a case of pityriasis versicolor. Figure 7 shows presence of copper penny bodies in dermis in a case of chromoblastomycosis. Figure 8 shows presence of extracellular and intracellular Leishman

Donovan bodies.in a case of cutaneous leishmaniasis. [Table 3]

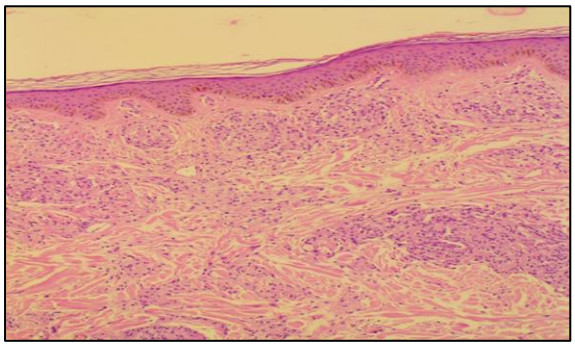

Figure 3: H&E stain, 100x, destruction of skin appendages in a case of lepromatous leprosy.

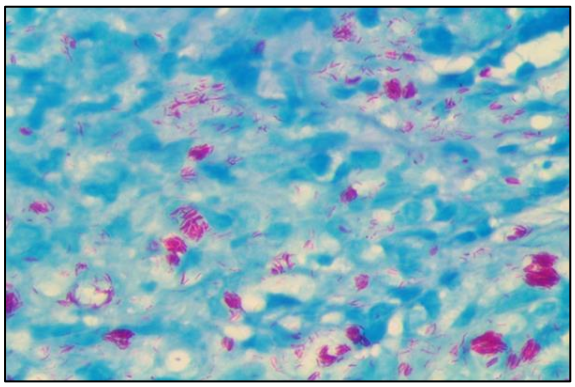

Figure 4: Wade-fite stain, 1000x, numerous acid fast bacilli in a case lepromatous leprosy

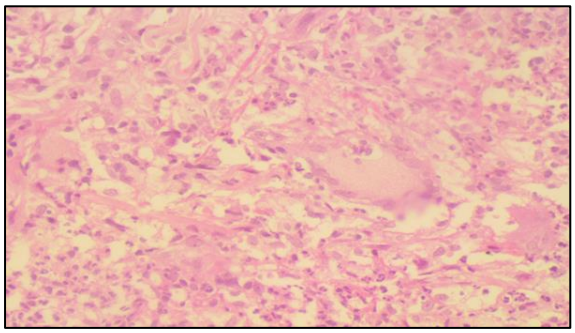

Figure 5: H&E stain, 400x, a granuloma with a prominent Langhans giant cell in a case of lupus vulgaris

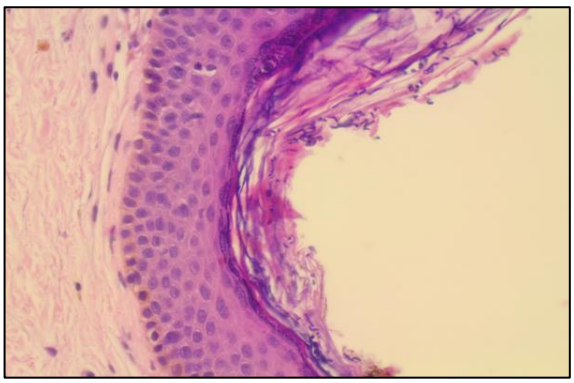

Figure 6: H&E stain, 400x, Spores and hyphae of Malassezia furfur in epidermis in a case of pityriasis versicolor

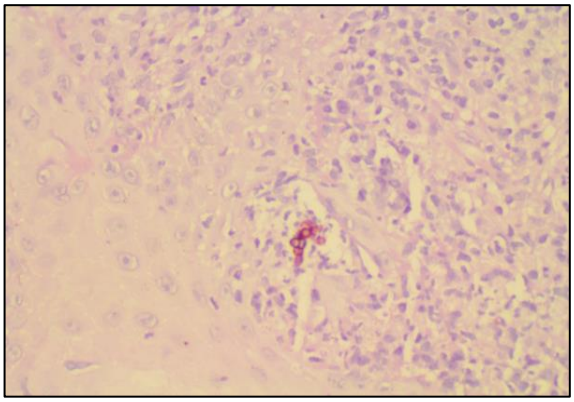

Figure 7: H&E stain, 400x, copper penny bodies in a case of chromoblastomycosis

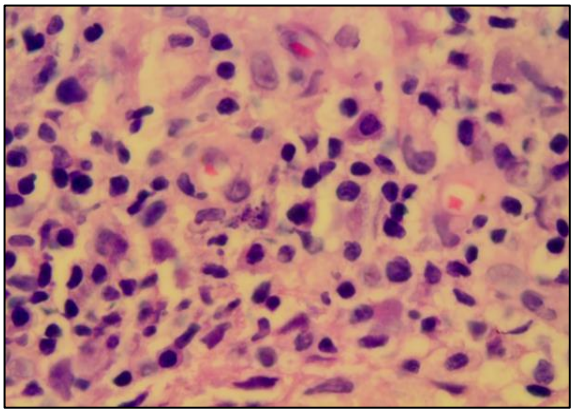

Figure 8: H&E stain, 1000x, Leishman Donovan bodies in a case of cutaneous leishmaniasis

Table 1: Categorization of skin lesions diagnosed with infective etiology

Broad category	Subcategory	No. of cases
Bacterial	Leprosy	26
	Lupus vulgaris	18
	TBVC	6
	Other non-specific	1
Fungal	Pityriasis versicolor	3
	Sporotrichosis	2
	Chromoblastomycosis	2
	Non- specific	1
Viral	Verruca vulgaris	2
	Pityriasis rosea	1
Protozoal	Leishmaniasis	1

Table 2: Categorization based on type of leprosy according to Ridley-Jopling classification

Type of leprosy	No. of cases
Tuberculoid leprosy	7
Borderline tuberculoid	2
Mid borderline	1
Borderline lepromatous	4
Lepromatous leprosy	12
Indeterminate leprosy	0

Table 3: Type of clinical lesion

Type of clinical lesion	No. of cases
Patch	21
Ulcerative lesion	16
Macule	10
Pustule	8
Papule	4
Others	4

DISCUSSION

Histopathological and clinical features of infectious skin lesions vary widely and they tend to affect both men and women. Skin biopsy is simple, easy, cost effective and is an outpatient procedure which provides adequate material for the confirmation of the diagnosis and for further management of the patient.[8] The present study is retrospective in nature, and it encompasses all the skin biopsies obtained in the histopathology section of the pathology department for the duration of two years. In our study, we analysed 63 cases and categorized them according to the type of infective agent involved into 4 groups – bacterial, fungal, viral and protozoal infection (Table 1). Male predominance was seen – 35 cases (56%) were male and 28 cases (44%) were female, distributed throughout a wide age range. This finding is consistent with the finding of Patel et al,[9] and Goyal et al,[10] which also showed a slight male preponderance. In our study, the highest number of cases were in the 41-50 years age group category (25%). Bacterial infection (n=51, 81%) was the most common category of lesion which was in concordance with the study done by Agarwal et al.[11] Fungal infection (n=8, 12.5%) was the second most common type of infective skin lesion followed by viral infection (n=3, 5%). A single case of protozoal infection (n=1, 1.5%)was also seen. Bacterial infection was the most common category of skin lesion with Leprosy being the most common diagnosis in our study. This is consistent with the findings of Gupta et al, in which, among the infectious skin lesions, bacterial lesions were the most common lesions among the infective skin disorders with leprosy.[12] However, dermatophytosis was the most common infective skin lesion in study done in Nepal by Karn et al,[13] and Walker et al,[14] despite having similar geographic location and weather condition. The difference in results might be because of differences in cultural practices and customs along with socioeconomic factors. Among lepromatous lesions, lepromatous leprosy was the commonest type followed by tuberculoid leprosy. The most common clinically apparent lesion in our study was presence of a hypopigmented patch followed by ulcerative lesions. Patches were more common in cases of leprosy while ulcerative lesions were more common in lupus vulgaris cases.

CONCLUSION

Leprosy was the most common infective lesion in our research with lupus vulgaris being a close second. In order to decrease the occurrence of these diseases, communities should be educated about airborne diseases and taught how to avoid droplet transmission. Moreover, the community should be encouraged to adopt better hygiene practices in order to avoid fungal infections and aggressive use of over-the-counter drugs, especially steroids need to be tackled. Also, it is imperative to do a histopathological examination for infective skin lesions, because clinical examination is fallible in some cases and dermatologists are prone to make a misdiagnosis, as some pathological features are only visible microscopically.

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