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Clinical Pattern of Palmoplantar Dermatoses: A Hospital Based Study In A Tertiary Care Center

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Abstract
Introduction : *Palmoplantar dermatoses (PPD) include specific skin diseases affecting palms and soles which are frequently encountered conditions in the dermatological practice. Palmoplantar dermatoses have major impact on our personal as well occupational life and its early detection and treatment is necessary to maintain our livelihood. However, there is paucity of specific as well comprehensive literature revealing characteristics of palmoplantar dermatoses.*
Method : *This was a hospital based descriptive cross sectional study, conducted in the department of Dermatology and Venereology of Tribhuvan University, Teaching Hospital. The study duration was from November 2020 to October 2021. Total one hundred and ten cases were enrolled in the study. After taking written consent, a detailed history and clinical examination pertaining to the aim of the study was recorded and analyzed.*
Results : *In our study 110 patients with palmoplantar dermatoses were included, comprising 65 females and 45 males. The maximum number of cases were seen in the age group of 21-40 years. The mean duration of palmoplantar dermatoses was 10.5 years. Most frequently affected individuals in this study were house wives (34.5 %) followed by farmers (19.1 %). The most common diseases causing palmoplantar dermatoses in our study were eczema (35.5 %), palmoplantar psoriasis (19.1 %) and palmoplantar warts (13.6 %) . The most common symptom observed was pruritus (40%). Majority of patients had involvement of palms (40%) followed by both palms and soles (29.1%).*
Conclusion : *Dermatoses affecting palms and soles are common but usually difficult to diagnose and manage due to very similar morphological appearance. Further study with a wider and larger population is necessary to understand the causative factors and clinical patterns of palmoplantar dermatoses, based on which accurate diagnosis and proper treatment could be achieved.*
Keywords *: Palmoplantar dermatoses, eczema, palmoplantar psoriasis, diagnosis, analysis*

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I. Introduction

Palms and soles are one of the readily visible areas of the body, affected in various dermatoses. The skin of the palms and soles has some distinctive features like: i) presence of dermatoglyphics, it refers to epidermal ridges present on the palms, soles, fingers and toes[1] ii) presence of the highest density of eccrine sweat glands and iii) absence of pilosebaceous units.[2] The glabrous skin of palms and soles lack sebaceous glands and apocrine glands.[3] They have a complex dermo-epidermal junction and encapsulated sense organs within the dermis. Palms and soles are different from other body sites in terms of clinical appearance, histologic findingsand response to mechanical stress.

Skin diseases on the hand and feet can affect the skin on the dorsal aspects, or the thick skin on the palmar or plantar aspects or both. These disorders can be inflammatory, infectious, genetically inherited, and neoplastic in origin.[4] It is important to identify these diseases and to start treatment early. If not treated, it may lead to difficulty in performing routine or occupational work cause severe difficulty on walking and it might lead to amputation with serious disability.

Palmoplantar dermatoses often show therapeutic challenge and limit patient's day to day activities. So many patients visit outpatient department (OPD) with their special concern for dermatitis involving palms and soles and among which many have chronic and recurrent disease. There are various types of palmoplantar dermatoses, few of them are specific to palms and soles, not affecting skin elsewhere in the body. Subtle clinical difference exist between them, which needs to be pickedup by sharp observation.[5] Many of these diseases have underlying genetic susceptibility like palmoplantar psoriasis, palmoplantar keratoderma, palmoplantar pustulosis etc. These are therapeutically challenging condition that can significantly impact patient quality of life, need prolonged course of treatment and regular follow up. Palmoplantar dermatoses caused by external agents like

infection, trauma, friction, chemicals etc. are also equally important and troublesome. Hands and feet, especially palms and soles are the most exposed part of the body to environmental factors so they are most vulnerable to external agents.

Palmoplantar dermatoses are very neglected part of our clinical dermatology, as there are very few comprehensive studies till date. Many of the patients are also very negligent towards the dermatoses affecting palms and soles and do not search dermatological consultation until their quality of life is severely impaired. There is no classification system for palmoplantar dermatoses as an entity, this reflects the researcher's oversight for the diseases of palms and soles.

Table 1: Categorization of PPD

The most common palmoplantar dermatoses can be categorized as such[6]	
Inflammatory	Eczema (irritant, allergic, atopic, endogenous), palmoplantar lichen planus, palmoplantar psoriasis, palmoplantar pustulosis, pityriasis rubra pilaris
Infections	Bacterial (pitted keratolysis), viral (wart, hand foot mouth disease), fungal (dermatophytosis, candidiasis)
Disorders of keratinization	Palmoplantar keratoderma Ichthyosis
Disorder of sweat gland	Hyperhidrosis
Mechanical injury	Corn , callus
Others	Talon noir, acral erythema, trophic ulcer etc

II. Methods

This was a hospital based descriptive cross sectional study. The study was performed at the outpatient department of Department of Dermatology and Venereology, Tribhuvan University Teaching Hospital , Kathmandu.The study population comprised of all new cases attending the OPD of Department of Dermatology and Venereology, TUTH with palmoplantar dermatoses. Sampling technique was non-probability purposive sampling. A proforma was developed covering all the relevant points focusing on the objective of the study. Upon receiving a case and fulfilling the inclusion criteria, they were explained about the study in detail and assured of full confidentiality.In our study we used descriptive analysis. Continuous variables were expressed in frequency and percentage. Discrete variables were expressed in mean and standard deviation. Data entry was conducted using SPSS version.

III. Results

In total 110 patients were included in this study, comprising 65 females and 45 males.The age of participants varied from 1 to 80 years with mean age of 36.75years and standard deviation of 16.45 years.

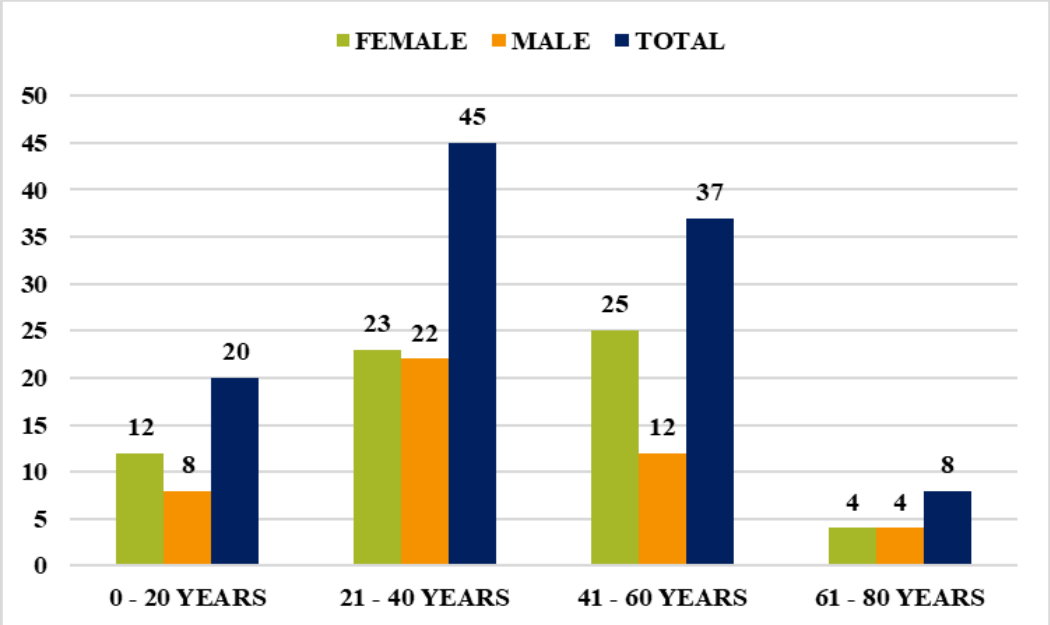

Fig 1 : Age of the patients

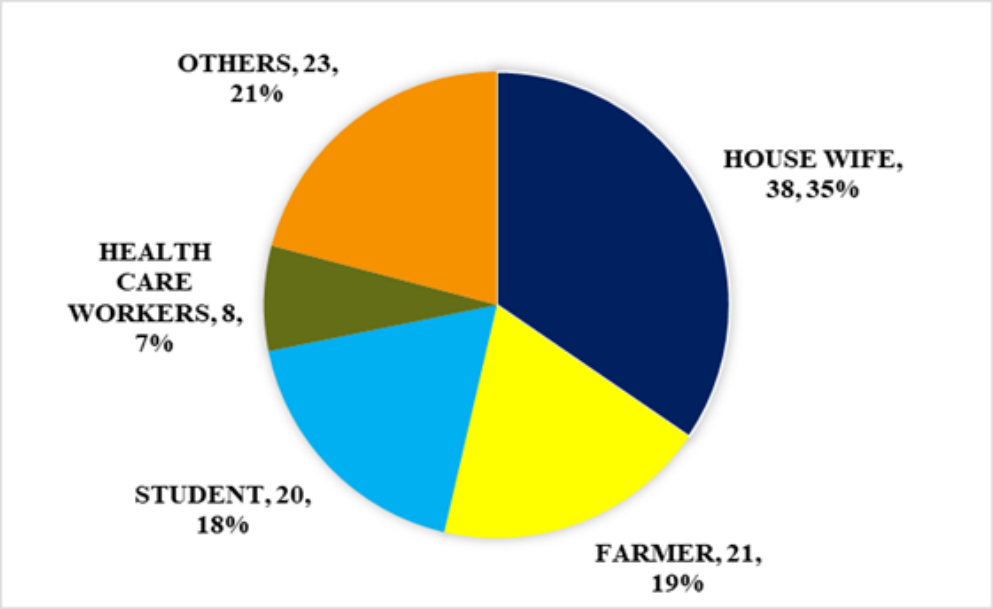

Fig 2 : Occupation of the patients

The most common complaint observed was pruritus in 40% of patients.Majority of patients had lesions over palms only, followed by involvement of both palms and soles.

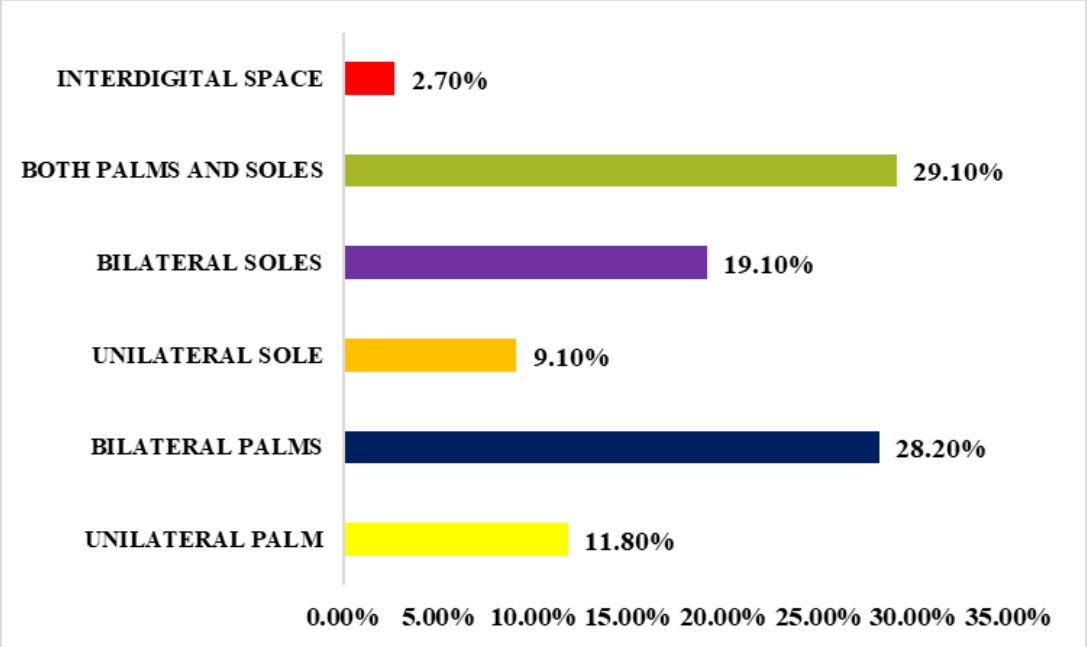

Fig 3 : Distribution of lesions over palms and soles

The most common diseases causing palmoplantar dermatoses were eczema followed by palmoplantar psoriasis and palmoplantar warts . Others include 1 case of each hand foot mouth disease , callus, pityriasis rubra pilaris and ichthyosis.

Table 2 : Clinical pattern of palmoplantar dermatosis

PALMOPLANTAR DERMATOSES	PERCENTAGE
Eczema	35.5%
Palmoplantar psoriasis	19.1%
Palmoplantar wart	13.6%
Palmoplantar keratoderma	8.2%
Palmoplantar pustulosis	5.5%
Dermatophytosis	4.5%
Hyperhidrosis	3.6%

Candidal intertrigo	2.7%
Palmoplantar lichen planus	1.8%
Pitted keratosis	1.8%
Others	3.6%

IV. Discussion

The most common three palmoplantar dermatoses in our study were eczemas 39 (35.4%), followed by palmoplantar psoriasis 21 (19.1 %) and palmoplantar warts 15 (13.6%). A.A.Hongel et al[5] reported palmoplantar psoriasis (20.2%), moniliasis (19%) and hyperhidrosis (7%) were the three most commonest palmoplantar dermatoses. P.A.Nair et al[7] observed palmoplantar psoriasis (28.22%) as the commonest dermatoses in palms and soles which was followed by keratinizing disorder (26.72%) and eczema (13.36%).Kang et al[7] reported palmoplantar pustulosis(23.2%) as the most common condition affecting palms and soles, followed by wart (11.4%) and pompholyx (10.1%).The predominance of eczema cases in our study could be explained as the majority of participants were house wives and farmers, more vulnerable group to exogenous allergen and irritant induced PPD.

The most common clinical pattern observed was hyperkeratotic type in 61.8% participants. This data reflects the chronicity of PPD in population as 72% of participants had duration of illness more than 6 weeks.

In our study majority of patients were females(65%). A similar female preponderance was also observed by A.A.Hongel[5] et al. In contrast, P.A.Nair[6] et al and Kang et[7] al observed male preponderance in their study.

In this study, majority of patients were in the age group 21 - 40 years. Similarly, in studies of AA Hongal et al[5] and P A Nair et al[6], the maximum number of patients belonged to the age group of 21 - 40 years and 17 - 40 years respectively. In the study by Kang et al[7], maximum incidence was seen in the age groups 40 - 49 years and 50 - 59 years with 18.1% in each group. This difference could be explained by the fact that younger people are occupationally more active in our part of the world.

More than one third of the participants were housewives. Similar findings were reported by P.A.Nair[6]et al and A.A.Hongel[5] et al. In our study pruritus was the most common symptom in palmoplantar dermatoses, comparable to a study conducted by P A. Nair[6] et al.

In the present study, palmoplantar dermatoses involved the palms only in 40% patients, on the soles only in 28.2% patients, and both palms and soles in 29.1 % cases. While in study by Kang et al.[8], the palmoplantar dermatoses appeared on the palms only in 20.6% patients, on the soles only in 51.9% patients and on both the palms and soles in 27.4% patients. This variation may be due to occupational status.

In the present study plantar wart was more common than palmar wart while Ghadgepatil et al[9] reported palmar wart more commoner than plantar wart. This difference might be due to smaller sample size in our study.

V. Conclusion

Eczema, palmoplantar psoriasis and palmoplantar warts were the three most common PPD. The most common clinical pattern observed in our study was hyperkeratotic pattern. Palms were the most common site involved in palmoplantar dermatoses. In eczema female preponderance was observed and hand eczema was more common than foot eczema. The most common pattern of eczema observed was hyperkeratotic type of eczema. In palmoplantar psoriasis majority of patients affected were female and most of them had involvement of palms and soles both. In palmoplantar wart male preponderance was observed and plantar warts were more common than palmar warts.

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