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CLINICAL AND HISTOPATHOLOGICAL STUDY OF PALMOPLANTAR KERATODERMA

P M Mahajan, M B Gharpuray, Vinay Kulkarni

Study of palmo-plantar keratoderma in eighty-two cases showed that twenty different diseases, both hereditary and acquired were responsible for palmoplantar keratoderma. Maximum number of cases were of hereditary variety of palmoplantar keratoderma (Unna-Thost syndrome) (28.05%). Whereas psoriasis was the leading cause among the acquired conditions (17.07%). Two histopathological types of Unna-Thost syndrome and their correlation with clinical features are reported.

Key Words : Palmoplantar keratoderma, Hyperkeratosis of plams and soles

Introduction

Palmoplantar keratoderma is one of the common disorders of keratinization. It is characterized by a diffuse or focal thickening of the stratum corneum of palms and soles. It can be caused by a host of dermatological disorders, hereditary or acquired. It may be the only change or a part of a more widespread dermatosis or even a manifestation of an internal malady.[1] The hereditary disorders present distinctive differences in their clinical features, mode of inheritance, associated defects and prognosis.[2]

Systematic study of the aetiology of palmoplantar keratoderma has not been done in India as evidenced by the paucity of available literature and as such, the data on the incidence of various aetiological factors causing hyperkeratosis of palms and soles in Indian patients is not known.

Materials and Methods

Eighty-two consecutive patients of palmoplantar keratoderma attending out-patient department of dermatology of Sassoon General Hospital, Pune were included in the study. An elaborate history was taken in every case wtih special emphasis on age at the onset, the seasonal variations, aggravating factors, if any and family history. A complete general and systemic examination was carried out in addition to detailed dermatological examination. Lesions on other parts of the body and any other associated dermatoses or systemic diseases were especially sought for. Routine estimation of haemoglobin, total and differential count of leukocytes, urine and stool examination were done in each case. Special tests like STS, KOH preparation were done as and where necessary. Periodic Acid Schiff's stain was done for histopathologic demonstration of fungi. A clinical typical hyperkeratotic lesion was selected for biopsy. The biopsy of related lesion over other part of the body was also carried out.

Results

When the cases were studied for the incidence in different age and sex groups, palmo-plantar keratoderma was found to be more common in males (64.63%). The highest incidence was in the age group of 11 to 20 years (32.92%). Occupation-wise different types of manual workers such as laborers, farmers and mechanical workers contributed

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48.16%, students - 33.15% and housewives - 18.69%.

In 40 (48.76%) patients, the diseases began between the age of 0 to 15 years. Out of them 11 had the onset within first year of life, whereas in 29 patients it was between the age of 2 to 15 years. Exacerbation of hyperkeratosis was seen in autumn (19.51%), winter (41.46%) and in summer (20.73%). Twenty different diseases comprised the 82 patients of palmo-plantar keratoderma (Table I). In patients with Unna-Thost syndrome-diffuse thickening was seen in 65.21% of the patients (Fig.1), while 34.78% had focal/ discrete hyperkeratosis (Fig. 2). Hyperkeratosis was limited to palms and soles in 56.62% of patients, whereas lesions extended to involve dorsi of hands and feet, elbows and knees in 43.38%. Nails were involved in 52% of cases and showed transverse ridging.

Histopathological study in patients with

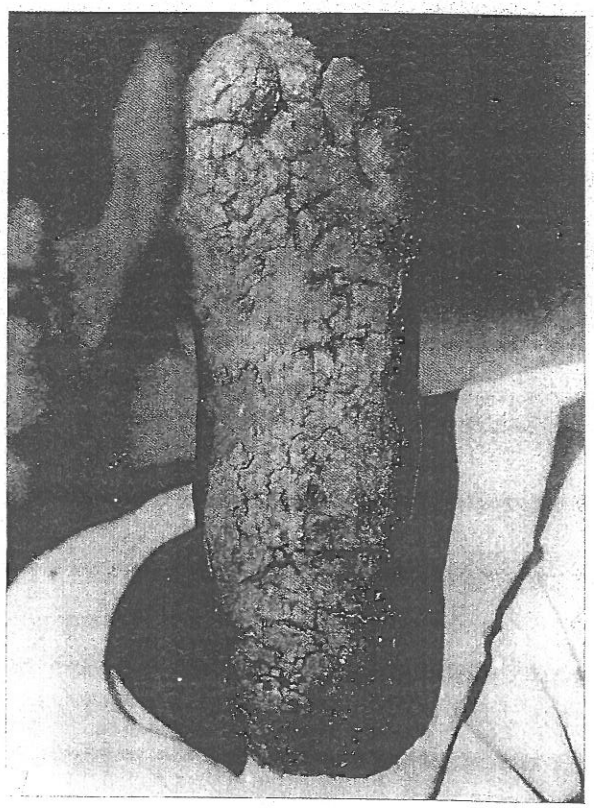

Fig. 1. Clinical features, Unna- Thost svndrome-diffuse hyperkeratosis.

Table I. Distribution of 82 Patients of Palmoplantar Keratoderma according to aetiology.

No.	Diagnosis	Males	Females	Total	Percentage
1.	Unna-Thost Syndrome	17	6	23	28.05
2.	Psoriasis	11	3	14	17.07
3.	Pityriasis rubra pilaris	8	1	9	10.97
4.	Fungal infection	3	4	7	8.54
5.	Eczema	2	3	5	6.10
6.	Lichen planus	1	3	4	4.87
7.	Darier-White disease	1	2	3	3.66
8.	Vohwinkel's syndrome	2	0	2	2.44
9.	Pachyonychia Congenita	2	0	2	2.44
10.	Keratoderma Climectericum	0	2	2	2.44
11.	Epidermal naevus	1	1	2	2.44
12.	Keratoderma punctata	1	0	1	1.22
13.	Keratoderma striata	1	0	1	1.22
14.	Papillon- Lefevre syndrome	0	1	1	1.22
15.	Epidermolytic hyperkeratosis	1	0	1	1.22
16.	Porokeratosis of Meblli	0	1	1	1.22
17.	Syphilis	1	0	1	1.22
18.	Reiter's disease	1	0	1	1.22
19.	Warts	0	1	1	1.22
20.	Arsenic Keratosis	0	1	1	1.22
	Total	53	29	82	100.00

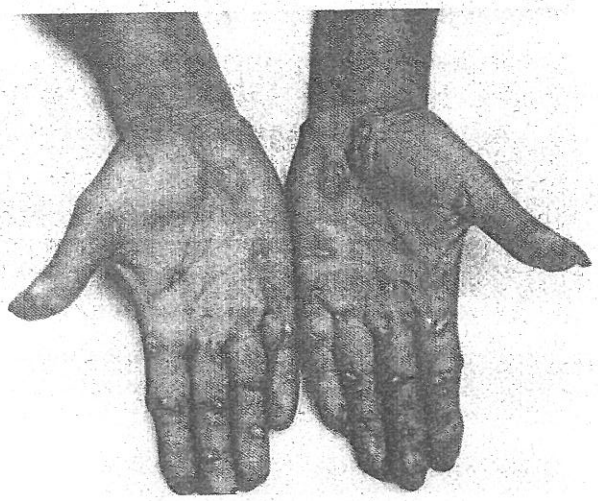

Fig. 2. Clinical features, Unna- Thost syndroms - Discrete hyperkeratosis.

Unna-Thost syndrome showed two types of changes. In the most common type seen in 68.42% of such patients, there was massive hyperkeratosis and acanthosis. Granular cell layer however was only 2 to 3 cells thick. There was no papillomatosis. Dermis showed very sparse mononuclear cell infiltrate (Fig. 3). This change was commonly observed in cases with diffuse involvement of palms and soles.

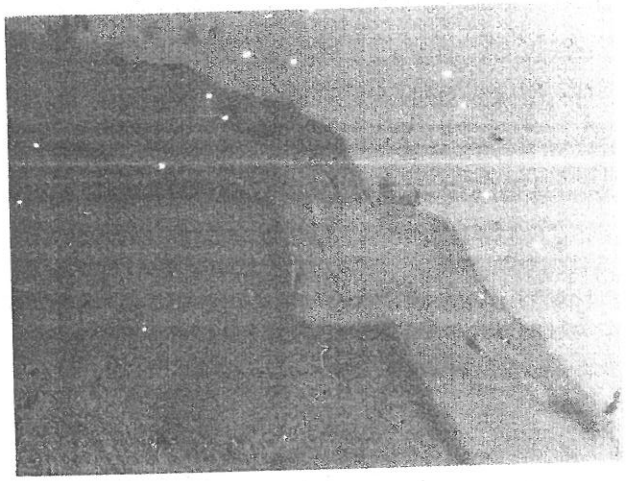

Fig. 3. Histopathology type 1, Unna- Thost syndroms -.Diffuse hyperkeratosis.

Sceond type of change seen in 31.57% of patients, was characterized by hyperkeratosis, acanthosis, papillomatosis and moderate mononuclear cell infiltrate (Fig. 4). Patients with focal or circumscribed hyperkeratosis

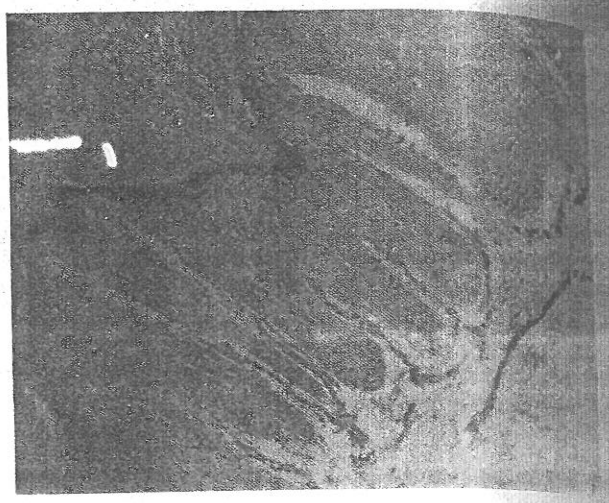

Fig. 4. Histopathology type 2, Unna-Thost syndroms - Diffuse hyperkeratosis.

usually had this change.

Comments

The male preponderance and the age group distribution of palmoplantar keratoderma in our patients was thought to be due to predisposition to trauma caused by manual labor and working or playing barefoot, as also reproted by Samanta et al.[1] High incidence of palmoplantar keratoderma among manual workers was in accordance to the usual belief that hyperkeratosis of palms and soles will be more common in the working class.[1] The early age of the onset (0 to 15 years) seen in our study was as a result of the highest incidence of hereditary varieties of palmoplantar keratoderma in our series. The initial detection of these disorders is reported to vary between birth and second decade by others.[3] Samanta et al[1] reported that the incidence of palmoplantar keratoderma was comparatively low in summer. However, our finding of exacerbation of hyperkeratosis of palms and soles in winter as well as in summer could be explained on the basis that extremes of climatic conditions and temperature are known to exacerbate palmoplanter keratoderma as stated by Fred et al.[3] Similarly, this

exacerbation in particular season also depends upon the remission and exacerbation of the disease causing palmoplantar keratoderma in particular seasons.

Unna-thost syndrome (tylosis) was seen in 28.05% of our patients. Painful cracks in palms and soles was the common presenting feature. Infection of the hyperkeratotic palms and soles in tylosis was conspicuous by its absence as obseved by Aars et al[4] although it differed from the observation by Nielsen.[5] The two histopathological types seen in patients with Unna-Thost syndrome and their clinical correlation is hitherto unreported.

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