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Evaluation of causative etiological factors for acquired palmoplantar keratoderma

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Abstract
Introduction: Hyperkeratinization of skin across the palm and soles is a cutaneous condition known as palmoplantar keratodermas (PPKs). Due to their altered expression of traditional skin diseases, palmoplantar dermatoses sometimes provide diagnostic problems. In addition to being challenging to diagnose, a small number of palmoplantar dermatoses result in significant pain, incapacity, and sometimes even loss of livelihood. This research was conducted at a tertiary care institution to evaluate the clinical signs and estimate the prevalence of cases with palmoplantar keratoderma.
Materials and Methods: In all, 122 instances of palmoplantar keratoderma involving patients of both sexes and ages 11 to 60 were included in the DVL outpatient department. The dermatological life quality index and the quality of life (QOL) score for acquired and inherited PPK, respectively, were determined using a grading system based on patient input.
Results: Housewives and daily wage workers were more likely to be impacted by inherited and acquired PPK. Eczema and psoriasis were the conditions most often linked to acquired PPK. On the other hand, familial patients of OOK often have Unna Thost syndrome.
Conclusion: In summary, 10% and 53%, respectively, of the participants with acquired PPK reported excellent and satisfactory quality of life. In individuals with hereditary PPK, the dermatological life quality index revealed a strong impact in 54.40 percent of cases and an intense effect in 16.17%.

Keywords: Palmoplantar keratoderma (PPK), psoriasis, occupation, prevalence, quality of life (QOL)

Introduction
Palmoplantar keratoderma (PPK) refers to a range of conditions where the skin of the palms and soles becomes thickened, either in a widespread or localised manner [1]. Diffuse, focal, or punctuate classifications may be assigned to hyperhidrosis based on the manner of inheritance, related comorbidities, and involvement of palmar and plantar skin [2, 3].
Keratodermas may be either acquired or inherited. Acquired PPKs is a condition characterised by the thickening of the skin on the palms and soles, which is neither inherited or caused by friction. It affects more than 50% of the surface area of these areas. It is uncertain if it is linked to clinical and/or pathological inflammation. Acquired PPK may be caused by several factors such as psoriasis, human papillomavirus, eczema, paraneoplastic keratoderma, calluses, and dermatophytosis [4]. Hereditary palmoplantar keratodermas (PPK) refer to a diverse collection of conditions that include the excessive thickening of the skin of the palms and soles due to abnormal keratinization [5].
Verifying the diagnosis in a specific instance is sometimes challenging and time-consuming, requiring a series of studies to reach a plausible conclusion. The current research aims to evaluate the clinical symptoms and estimate the frequency of Palmoplantar keratoderma patients in a tertiary care hospital, considering the many underlying causes and limited availability of clinical and epidemiologic literature.

Materials and Methods
This descriptive research was carried out at the Department of DVL at Maheshwara Medical College and Hospital in Isnapur, Patancheru between January 2018 and June 2019. Around 122 cases of both sexes attending outpatient department of DVL with chief complaints of Palmoplantar keratoderma were considered. Participants ranged in age from eleven years old to sixty years old, with palmoplantar keratoderma, either hereditary or acquired, and a favourable family history were included.

Cases having systemic problems, other dermatological illnesses, or those older than 60 years of age were not included in the research. The research protocol was approved by the institutional ethics committee, and all patients were asked to provide their written informed consent.

A comprehensive medical history was taken, covering symptoms such as worsening of the condition, involvement of the palmar and sole of the foot, discoloration of the keratotic surface, frequency of skin infections, scaling of the skin, characteristic of the scales, fissures with bleeding from the keratotic surface, burning sensation, other pigmentation issues, photosensitivity, and pain along with details of previous treatment. Patients' experiences with pain, itchy skin, difficulties at work, in sports, social events, in interacting with friends and family, sexual difficulties with partners, and treatment-related issues were all factors in determining the quality of life (QOL) score. Impact score ratings ranging from 0, 1, 2, and 3 (Poor, moderate, good and very poor) were derived from participants responses. The patient's comments were used to develop a grading system that assessed quality of life. The dermatological life quality index score was used to measure the quality of life of cases with hereditary PPK. Using SPSS version 23.0, the data that was obtained was examined. We used percentages and frequencies to show the category variables.

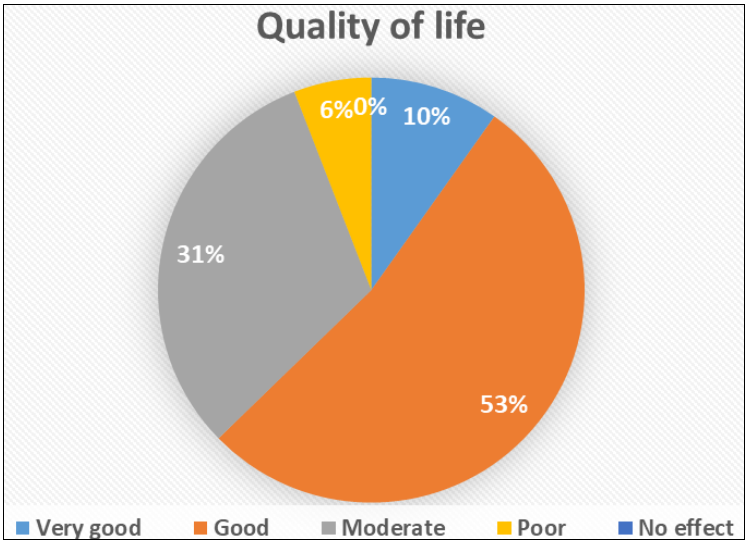
Results

Table 1: Sociodemographic details of study participants.

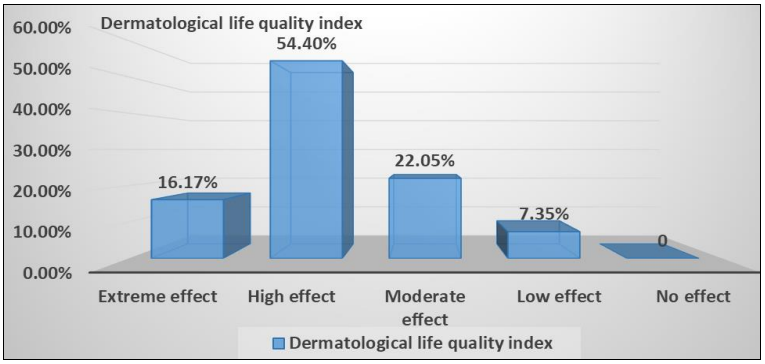
Sociodemographic parameters	Acquired palmoplantar keratoderma (n=54)		Hereditary palmoplantar keratoderma (n=68)	
	Frequency	Percentage	Frequency	Percentage
Age				
11-20	10	18.51%	09	13.23%
21-30	09	16.6%	12	17.64%
31-40	06	11.1%	10	14.7%
41-50	17	31.48%	20	29.41%
51-60	12	22.22%	17	25%
Gender				
Male	30	55.56%	44	64.70%
Female	24	44.44%	24	35.30%
Occupation				
Skilled workers	04	7.40%	06	8.82%
Daily wage Labourer	20	37.03%	20	29.41%
Student	05	9.25%	05	7.35%
Housewives	11	20.37%	15	22.05%
Professional	03	5.55%	05	7.35%
Unskilled	05	9.25%	10	14.70%
Unemployed	06	11.1%	07	10.29%

Table 2: Clinical pattern in acquired and hereditary PPK

Pattern	Gender	Acquired palmoplantar keratoderma (n=54)		Hereditary palmoplantar keratoderma (n=68)	
		Frequency	Percentage	Frequency	Percentage
Diffuse	Male	11	20.37%	24	35.29%
	Female	14	25.92%	18	26.47%
Focal	Male	15	27.77%	17	25%
	Female	13	24.07%	03	4.41%
Punctate	Male	01	1.85%	05	7.35%
	Female	-	-	01	1.47%



Graph 1: Status of quality of life in cases with acquired palmoplantar keratodermas



Graph 2: Outcome of dermatological life quality index among study participants

Discussion

Palmoplantar keratoderma (PPK) occurs when hyperkeratosis thickens the skin of the sole and palm of the hand [6]. There are two main categories into which PPK falls: acquired and inherited [7-9]. Acquired PPK may manifest clinically in a variety of ways, including extensive, localised, or punctate involvement of the epidermis. The three types of PPK are as follows: diffuse PPK, which affects the palmoplantar surface uniformly; focal PPK, which affects pressure points that are striate or oval; and punctuate PPK, which affects the palm and sole and is characterised by many distributed, round lesions of small keratotic papules [10, 11]. Patients with palmoplantar keratodermas were the subjects of this research, which aimed to evaluate the clinical profile and symptoms related to the condition.

In present study, among the 6482 cases who visited outpatient department of DVL, 68 cases found to be Hereditary palmoplantar keratoderma and 54 cases was diagnosed with Acquired palmoplantar keratoderma. Males were common than female participants. Daily wage labourers and housewives were more in acquired and hereditary PPK groups, followed by unskilled workers, unemployed and skilled workers (Table 1).

Diffuse type of keratoderma was seen in 46.29%, focal type in 51.85% and punctate type was seen in 1.85% cases with acquired palmoplantar keratoderma. Whereas in hereditary PPK, diffuse type was seen in 61.76%, focal type in 29.41% and punctate type in 8.82% of cases (Table 2). Psoriasis was commonly associated with acquired PPK, followed by eczema. Whereas Unna Thost syndrome was commonly seen in hereditary OOK cases.

Status of quality of life in cases with acquired PPK was very good in 10%, good in 53%, moderate in 31%, poor in 6% of cases. None of the cases reported no effect (Graph 1. The dermatological life quality index showed that the effect was extreme in 16.17%, high in 54.40%, moderate in 22.05%, low effect in 7.35% and none of the case reported no effect (Graph 2).

According to a study conducted by Pragya A. Nair *et al*., out of 202 patients, palmoplantar psoriasis was the most prevalent skin condition (28.22%), followed by keratinizing diseases (26.72%). Palms were implicated in 66.34% of instances, soles in 69.30%, and both palms and soles in 37.12% of cases. The current study found that housewives are often impacted, followed by labourers and students, which is consistent with previous research [12]. Kodali *et al.* reported that 53% of farmers and 20% of housewives suffer from PPK [13]. Similarly, Chopra *et al*. discovered that manual workers (making up 48.16% of the population) and housewives (18.69%) are both affected [14]. The research conducted by Mahajan *et al*. [15] found that manual labourers accounted for 48.16% of the participants, while students made up 33.1% and housewives comprised 18.69%. Another study done by Murthy SC *et al*. [1+] reveals that PPK often affects farmers and manual labourers. The findings of Chopra *et al*. and Murthy SC *et al*. [14, 16] concur that psoriasis is the most common symptom linked to PPK. In a study, 52% to be psoriasis, 31% to be eczema, 2% to be fungal infection, and 1% to be warts were found in a different study (13). In one study, 23.2% of cases were found to be palmoplantar pustulosis, 11.4% to be warts, 10.1% to be palmoplantar keratoderma, 8.9% to be contact dermatitis, and 8.0% to be pompholyx [18]. The present study has limitation in terms of less sample size, further large-scale studies are required to compare the detailed clinical and molecular profile of PPK.

Conclusion

The majority cases with hereditary and acquired PPK were daily wage labourers. And housewives. The quality-of-life status was excellent in 10% and good in 53% of subjects with acquired PPK. The dermatological life quality index showed extreme effect in 16.17% and high effect in 54.40% of participants with hereditary PPK.

Conflict of Interest

Not available

Financial Support

Not available

References

1. Judge MR, McLean WHI, Munro CS. Disorders of keratinization. In: Burns T, Breathnac S, Cox N, Griffiths C. Rook's Textbook of Dermatology. 7th ed. Blackwell Publishing Company. 2004;34:1-111.
2. Judge MR, Mc Lean WHI, Munro CS. Palmoplantar keratoderma: Disorders of keratinisation Rook's textbook of dermatology 8th ed., Singpore: WB; c2010.
3. Stevens HP, Leigh IM, Fitzpatrick TB, Freeberg IM, Eisen AZ, Wolff K, *et al*. Keratoderma of palms and soles. In: Dermatology in General Medicine. 5th edn. New York: McGraw-Hill; c1999. p. 603-13.
4. Patel S, Zirwas M, English JC. Acquired Palmoplantar Keratoderma. American Journal of Clinical Dermatology. 2007;8:1-11.
5. Swensson O, Eady RAJ. Morphology of keratin filament network in palm and sole skin: Evidence for dite-dependent features based on stereological

analysis. Arch Dermatol Res. 1996;288:55-62.
6. Venkatesan A, Aravamudhan R, Perumal SK, Kannan R, Thirunavukkarasu V, Shukla S. Palmoplantar Psoriasis-Ahead in the Race-A Prospective Study from a Tertiary Health Care Centre in South India. J Clin Diagn Res. 2015;9:01-3.
7. Kang BS, Lee JD, Cho SH. A Clinicopathological Study of Palmoplantar Dermatoses. Korean J Dermatology. 2006;44:714-20.
8. Itin PH, Fistrol SK. Palmoplantar keratodermas. Clin Dermatol. 2005;23:15-22.
9. Freedberg IM, Eisen AK, Wolff K, *et al*. Fitzpatrick's dermatology in general medicine. 6th edn. New York: McGraw-Hill; c2003.
10. Champion RH, Burton JL, Burns DA, *et al*. Rook, Wilkinson, Ebling textbook of dermatology. 7th ed. Malden (MA): Blackwell Science Ltd. 2004;34:79-107.
11. Bolognia JL, Jorizzo JL, Rapini RP. Dermatology. New York: Mosby, 2003, 809-10.
12. Pragya A Nair, Nilofar G Diwan, Rochit Singhal, Rita V Vora. A Prospective Study of Clinical Profile in Patients of Palmoplantar Dermatoses. Indian Dermatol Online J. 2017;8(5):331-335.
13. Kodali S. A Clinico-Histopathological Study of Acquired Palmoplantar Keratoderma in a Rural-Based Tertiary Hospital. J Evolution Med Dent Sci. 2014;30:8500-5.
14. Amrita A Hongal, Nadiga Rajashekhar, Somashekar Gejje. Palmoplantar Dermatoses: A Clinical Study of 300 Cases. Journal of Clinical and Diagnostic Research. 2016;10(8):04-07.
15. Chopra A, Maninder, Gill SS. Hyperkeratosis of palms and soles: Clinical study. Indian J Dermatol Venereol Leprol. 1997; 63:85-8.
16. Mahajan VK, Thakur NS, Sharma NL. Papillon-Lefevre syndrome. Indian Pediatr. 2003;40:1197-200.
17. Sambasiviah Chidambara Murthy, Tanjore Y. Raghu, Tamraparini Suresh. Study of palmoplantar keratodermas in South India. Int J Dermatol. 2008;47(7):762-4.
18. Rathoriya SG. Clinical profile of palmoplantar dermatoses in patients attending tertiary health center in central India. Int J Res Dermatol. 2018;4:514-7.

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