Case Report

A Case of Diffuse Palmoplantar Keratoderma in a Middle-aged Male

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ABSTRACT

Introduction: Palmoplantar keratoderma (PPK) represents a heterogeneous group of disorders characterized by abnormal thickening and hyperkeratosis of the palms and soles. The hereditary diffuse type often begins in childhood with progressive thickening and may be associated with nail dystrophy.

Place and Duration of Study: This study was conducted at the Dermatology and Venereology Department, Faculty of Medicine Universitas Sumatera Utara, Universitas Sumatera Utara Hospital, Medan, Indonesia from 06 May 2025 to 16 May, 2025.

Case Presentation: A 43-year-old male who presented with progressive thickening, fissuring, and painful hyperkeratotic plaques on both palms and soles since childhood. Family history revealed similar conditions in multiple relatives, suggesting a hereditary pattern.

Findings: Clinical examination showed diffuse hyperkeratotic plaques with fissures, nail dystrophy, and extension to dorsal surfaces. Histopathology demonstrated hyperkeratosis and acanthosis without malignancy. **Management**: The patient was treated with topical desoximethasone combined with salicylic acid, urea cream, and oral cetirizine, with gradual improvement within 10 days.

Conclusion: This case highlights the chronic and disabling nature of PPK, its hereditary pattern, and the importance of early recognition and symptomatic treatment to improve quality of life.

Key Words: Case Report, Diffuse PPK, Hyperkeratosis, Palmoplantar Keratoderma

doi:http://doi.org/10.60110/medforum.37.10.34

Citation of Case Report: Ella Finarsih ES, Dalimunthe DA, Nababan KA, Jesslyn J. A Case of Diffuse Palmoplantar Keratoderma in a Middle-aged Male. Med Forum 2026;37(10):178-180. doi:http://doi.org/10.60110/medforum.37.10.34.

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INTRODUCTION

Palmoplantar keratoderma (PPK) is a heterogeneous group of dermatological disorders characterized by abnormal thickening of the skin on the palms and soles due to hyperkeratosis.[1,2,3] It is classified into hereditary and acquired forms, with further subtypes based on morphology: diffuse, focal, punctate, or striate.[2] Inherited forms are commonly associated with keratingene mutations and may have systemic associations, while acquired forms may result from chronic irritants, drugs, or systemic conditions.[2,3] Although not life-threatening, PPK can significantly impair quality of life due to pain, fissures, and cosmetic burden.[1]

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Received: June, 2026
Reviewed: July-August, 2026
Accepted: September, 2026

CASE REPORT

A 43-year-old Batak male presented with thickened, hardened, and painful skin lesions on both palms and soles since the age of five. The lesions progressively worsened, extending to the dorsal surfaces, causing painful fissures, pruritus, and functional limitation. Family history revealed similar conditions in his grandmother, father, uncle, sibling, and daughter.

On examination on 06 May 2025, diffuse well-demarcated hyperkeratotic plaques with fissures and post-inflammatory hypopigmentation were observed on palmar and plantar regions bilaterally, extending to dorsum of hands and feet as shown in Fig. 1.

Histopathology from a punch biopsy of the plantar lesion revealed hyperkeratosis and acanthosis without evidence of malignancy (Fig. 2). A clinical diagnosis of

diffuse hereditary PPK was made. Treatment included desoximethasone with salicylic acid 5% for palms, 10% for soles, urea cream (10%), and oral cetirizine. The patient was advised to maintain emollient use, avoid trauma, and protect the hands and feet. On follow-up at day 7 (13 May 2025) and day 10 (16 May 2025), gradual improvement was observed with thinning of hyperkeratotic plaques, decreased fissuring, and symptom relief (Fig. 3 and 4).



Figure No.1: Clinical presentation of diffuse hyperkeratotic plaques with fissures on palms and soles. Nail dystrophy with yellow discoloration was noted.

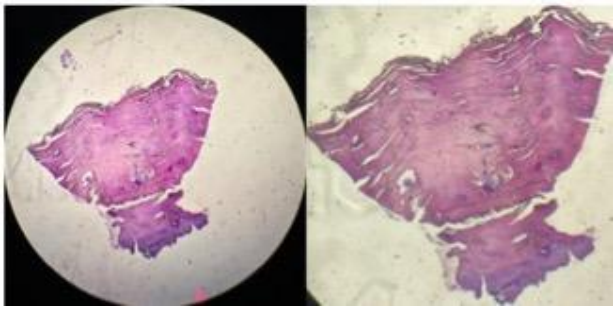


Figure No. 2: Histopathological image showing hyperkeratosis and acanthosis without malignancy



Figure No. 3: Clinical improvement at day 7 with thinning plaques and reduced fissuring

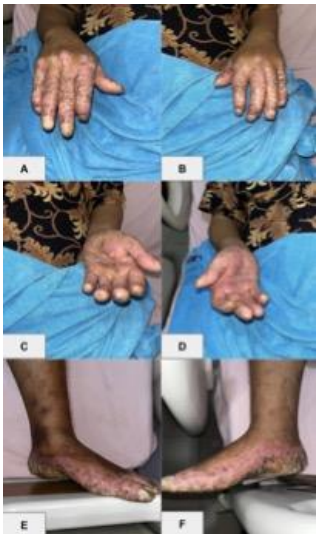


Figure No. 4: Further clinical improvement at day 10 with desquamation and reduced pain

DISCUSSION

PPK may present in hereditary or acquired forms. The hereditary diffuse type, as in our case, often begins in childhood with progressive thickening and may be associated with nail dystrophy. Mutations in keratin genes (e.g., K1, K9, K6a, K106) disrupt keratinocyte stability, resulting in hyperkeratosis.[4,5]

The main differential diagnosis includes palmoplantar psoriasis and hyperkeratotic eczema. Psoriasis is typically associated with lesions elsewhere on the body and characteristic nail changes, while hyperkeratotic eczema is usually pruritic with erythematous borders and adult onset.[6,7]

Histopathology in PPK is usually non-specific, showing hyperkeratosis, acanthosis, and sometimes parakeratosis.[3]

Treatment remains symptomatic, aimed at softening and reducing hyperkeratosis. Topical keratolytics (salicylic acid, urea), emollients, and corticosteroids are the mainstay. In severe or resistant cases, systemic retinoids may be considered. Although prognosis is good regarding life expectancy, chronic symptoms often impair quality of life.[4]

CONCLUSION

Diffuse hereditary palmoplantar keratoderma should be considered in patients presenting with chronic hyperkeratotic plaques of palms and soles, especially with a strong family history. Early diagnosis and symptomatic treatment with keratolytics, emollients, and topical corticostroids can significantly improve patient comfort and quality of life.

Acknowledgments:

The authors thank the patient for providing written informed consent for publication of this case report and accompanying clinical images. No other individuals

contributed to this work in a manner that warrants acknowledgment.

Informed Consent: Informed consent was obtained from the patient for the publication of this case report and accompanying clinical images.

Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

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