Brief Report Annals of Dermatology 2022;34(6) • https://doi.org/10.5021/ad.20.248

Pachyonychia Congenita with a Novel Variant in the *KRT16* Gene, c.348_379delinsAA

Keunyoung Hur*, Jung Min Ko[1]*, Je-Ho Mun

Departments of Dermatology and [1]Pediatrics, Seoul National University Hospital, Seoul, Korea

Dear Editor:

Pachyonychia congenita (PC) is a rare autosomal dominant keratinization disorder primarily affecting the skin and nails. PC is caused by dominant-negative mutations in one of five different keratin genes: *KRT6A*, *KRT6B*, *KRT6C*, *KRT16*, or *KRT17*.

A Korean adolescent in his late 10s presented with painful plantar hyperkeratosis and nail changes. Due to plantar pain, he had difficulty in walking. His mother and sister had similar lesions. Physical examination revealed plantar keratoderma and dystrophic hyperkeratotic yellowish nails. Leukokeratosis of the oral mucosa was also observed (Fig. 1). A punch biopsy was obtained from his left sole (Fig. 2A). Microscopic examination of the sample showed marked acanthosis with hyperkeratosis, suggestive of palmoplantar keratoderma. We received the patient's consent form about publishing all photographic materials. Blood sample was obtained to perform target gene sequencing using a next-generation sequencing panel. A novel likely pathogenic variant (PM1+PM2+PM4+PP1+PP3) in the *KRT16* gene (NM_005557.3:c.348_379delinsAA) was

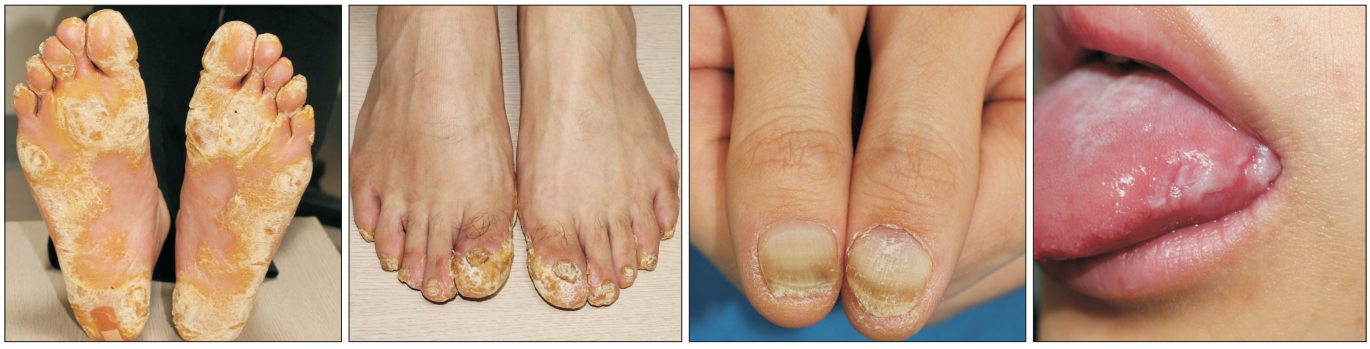

Fig. 1. Clinical images show marked plantar keratoderma, dystrophic yellowish nail changes with thickening of nail plates in the fingers and toes, and leukokeratosis of the oral mucosa.

Received September 14, 2020 **Revised** February 13, 2021 **Accepted** February 20, 2021

Corresponding Author
Je-Ho Mun
Department of Dermatology, Seoul National University College of Medicine, 103 Daehak-ro, Jongno-gu, Seoul 03080, Korea
Tel: +82-2-2072-3274, Fax: +82-2-742-7344, E-mail: jehomun@gmail.com
https://orcid.org/0000-0002-0734-2850
*These authors have equally contributed to the article.

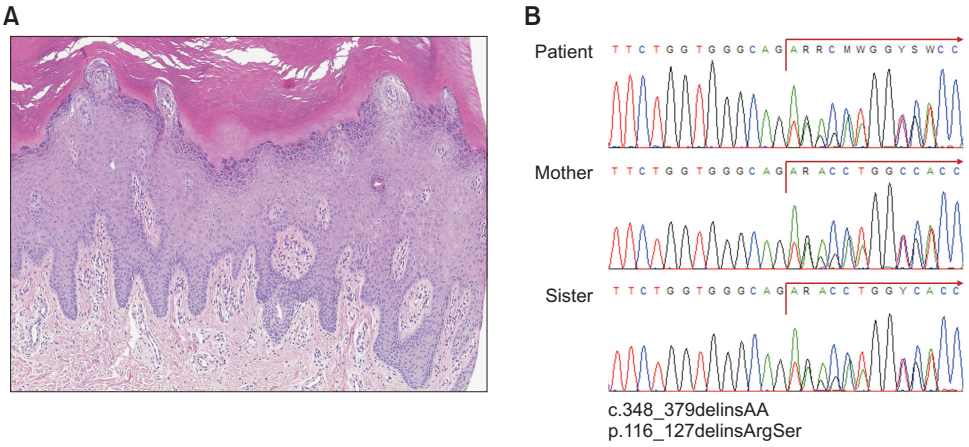

Fig. 2. (A) Histopathological image of punch biopsy specimen obtained from the sole show marked acanthosis with hyperkeratosis (H&E, ×100). (B) Partial sequences of cloning alleles of the *KRT16* gene show a novel heterozygous indel variant on exon 1 (c.348_379delinsAA), causing a protein length change of KRT16 (p.116_127delinsArgSer) shared by the patient, the mother, and the sister.

confirmed based on the American College of Medical Genetics and Genomics criteria; the mutation leads protein a length change (PM4) and penetrates the mutational hotspot region of exon 1 (p. 120-130) and this region locates in a well-preserved region on the filament domain of *KRT16* gene (PM1). Also, this variant was absent from controls of multiple population databases (PM2). The same genetic variant was also observed in the patient's mother and sister who shared dermal phenotypes (PP1) (Fig. 2B) and multiple lines of *in silico* prediction support a deleterious effect (PP3).

Among the subtypes, PC-K6A is considered the most common, followed by PC-K16, PC-K17, PC-K6B, and PC-K6C[1]. Clinically, the triad of hypertrophic toenail dystrophy, plantar keratoderma, and severe plantar pain are the key to diagnosis. Among these, plantar pain profoundly affects the patients' quality of life. Particularly, patients with *KRT16* mutations have more extensive and painful palmoplantar keratoderma compared to patients with *KRT6A* mutations[2]. *KRT17* mutations were most commonly associated with cysts and natal teeth[3].

Genetic testing is essential for confirmation of PC. Previous classification of the condition, specifically PC-1 and PC-2, was based on clinical features. However, a new classification system based on the specific genetic mutation was proposed. Clouston syndrome, Olmsted syndrome, PLACK syndrome or epidermolysis bullosa simplex can be misdiagnosed as PC as they share similar features.

Until now, there is no effective therapy for PC. Personalized treatment based on the patient's symptoms[4], especially plantar pain and nail hyperkeratosis is essential. General management includes mechanical treatments, systemic medication including retinoids, and topical agents such as keratolytics, emollients, moisturizers, and topical steroids. Mechanical treatments include filing, grinding, and cutting of nails[4]. Oral retinoids were effective in some PC patients with painful palmoplantar keratoderma[5].

In conclusion, we report a case of PC with a novel mutation in the *KRT16* gene. As PC is rarely reported in Koreans, further studies with genetic analysis is warranted to estimate the prevalence of PC in Korea and support management of the patients.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

FUNDING SOURCE

None.

ORCID

Keunyoung Hur, https://orcid.org/0000-0003-0928-951X
Jung Min Ko, https://orcid.org/0000-0002-0407-7828
Je-Ho Mun, https://orcid.org/0000-0002-0734-2850

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Brief Report Annals of Dermatology 2022;34(6) • https://doi.org/10.5021/ad.20.326

Myopericytoma of the Finger: A Case Report and Literature Review

Ji-Hoon Lim, Soon-Hyo Kwon, Woo-Young Sim, Bark-Lynn Lew

Department of Dermatology, Kyung Hee University Hospital at Gangdong, Kyung Hee University School of Medicine, Seoul, Korea

Dear Editor:

Myopericytoma is an uncommon type of soft tissue tumor that shows a well-circumscribed, unencapsulated nodular proliferation with thin-walled vessels and a concentric, perivascular arrangement of ovoid spindle-shaped myopericytes. Clinically, most myopericytomas present as painless, slow-growing tumors in the superficial or deep soft tissues[1]. Myopericytomas most commonly affect the lower extremities and rarely occur on the fingers. Here, we report the case of a patient with myopericytoma located on the left third finger.

Our patient was a 66-year-old female who presented to the clinic with painful soft tissue masses on the palmar aspect of her left third finger. She was otherwise healthy and had no history of trauma.

On examination of her left finger, a 5-mm-sized, semifirm, round, soft tissue mass was observed (Fig. 1). The mass was mildly tender to palpation but did not fluctuate. There were no neurological or peripheral vascular abnormalities on the physical examination, and her range of motion was within normal limits. An excisional biopsy was then performed in the outpatient clinic. No deep attachments or stalks were noted.

Pathologic analysis of the lesion revealed that the soft tissue mass had multilayered, concentric perivascular cell growth, and showed an oval-to-spindle-shaped cellular architecture with abundant eosinophilic cytoplasm and an indistinct cellular border. Immunohistochemical staining was positive for smooth muscle actin (Fig. 1). These findings led to the diagnosis of myopericytoma. During the one- year follow-up, she has not reported recurrence of the mass.

Myopericytomas are most commonly located in the lower extremities, although they can occur in other locations, including the proximal extremities, head, neck, lungs, muscle, and bone[2]. Our present case is consistent with previous observations of myopericytomas, such as that they are relatively well-circumscribed but unencapsulated tumors that consist of spindle-shaped cells with a concentric perivascular growth pattern

Received December 18, 2020 **Revised** February 10, 2021
Accepted March 6, 2021

Corresponding Author
Bark-Lynn Lew
Department of Dermatology, Kyung Hee University Hospital at Gangdong, 23 Kyungheedae-ro, Dongdaemun-gu, Seoul 02447, Korea
Tel: +82-2-440-7329
Fax: +82-2-440-7336
E-mail: bellotte@hanmail.net
https://orcid.org/0000-0003-4443-4161