

Plantar Keratoderma with Pachyonychia Likely Induced by Imatinib Mesylate

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Dear Editor:

Imatinib mesylate (Gleevec[®]; Novartis, Basel, Switzerland) is a tyrosine kinase inhibitor that targets BCR-ABL protein, c-kit, and platelet-derived growth factor receptor¹. It is widely used in the treatment of chronic myeloid leukemia (CML) and gastrointestinal stromal tumors. Cutaneous adverse effects are common, the most common form being erythematous maculopapular eruption affecting the

forearms and trunk². However, palmoplantar hyperkeratosis has been rarely described². Herein, we report on a patient who developed plantar keratoderma and pachyonychia after four months of imatinib mesylate administration.

A 52-year-old male was referred to our department in July 2011 with a three-month history of asymptomatic hyperkeratotic plaques on his soles. He had been diagnosed



Fig. 1. (A) Symmetrically distributed, diffuse, hyperkeratotic, yellow-brownish plaques with fissures on the soles, and (B) hyperkeratosis of the finger nails and toe nails.

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Fig. 2. Follow-up 17 months later. (A) Improvement of pachyonychia of thumb nails. (B, C) Improvement of hyperkeratosis of toenails.

with CML in 2001, and had received stem cell transplantation in June 2002. He had begun imatinib mesylate 400 mg a day starting in December 2010, and skin rash and peripheral blood eosinophilia developed four months later. Also, hyperkeratosis of the soles and nails developed. At presentation his soles were covered with asymptomatic, symmetrically distributed, diffuse, hyperkeratotic, yellow-brownish plaques with fissures (Fig. 1A). The lesions were more prominent on the pressure-bearing areas. Palmar thickening was also seen, but to a milder degree. He also showed hyperkeratosis of the toe nails and finger nails (Fig. 1B), and pruritic scaly erythematous patches involving his back, elbows and legs. There was no personal or familial history of similar skin disease. Eosinophil count was elevated to 8%, but other laboratory findings were within normal limits. Skin biopsy of the hyper-

keratotic plaque and fissured area of the sole revealed marked hyperkeratosis with parakeratosis and papillomatosis in the epidermis, and mild perivascular lymphocytic infiltrations in the upper dermis. Imatinib mesylate-induced plantar keratoderma and pachyonychia were suspected, and imatinib was therefore withdrawn. The plantar lesion gradually disappeared with topical application of 20% salicylic acid and 20% urea cream. Also, pachyonychia of the finger nails and toe nails was noted to have improved on the 17-month follow-up visit (Fig. 2). In addition, KOH mounting and fungus culture of scrapings from the nails and soles were performed at this time, and both were negative for fungal infection.

In our patient, the bilaterally symmetric distribution pattern and sudden onset of the lesions suggested that this case was drug-related. Other differential diagnoses manifesting hyperkeratosis of the soles were also considered. Psoriasis was ruled out due to a lack of psoriasiform dermatitis in the pathologic findings and because the distribution of the lesion was confined to the weight-bearing areas of the soles. Hyperkeratotic eczema was also excluded because the patient did not suffer from pruritus. Since none of his family members had similar symptoms, other inherited forms of palmoplantar keratoderma could be excluded. Moreover, the improvement in the skin lesions after the cessation of imatinib mesylate supports a drug-related causality.

To date, two case series of palmoplantar hyperkeratosis associated with imatinib mesylate treatment have been reported in the literature^{1,2}. In addition, there has been one case report of multiple hyperkeratotic crusted papules of the buttock, thighs, and the right ear helix caused by sorafenib, another tyrosine kinase inhibitor³. These agents are known to interact with downstream molecules of the epidermal growth factor receptor pathways, leading to cutaneous epithelial proliferation.

Our case suggests that plantar keratoderma and pachyonychia should be included in the list of cutaneous adverse reactions of imatinib mesylate.

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Tick Bite on Glans Penis: The Role of Dermoscopy

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Dear Editor:

Since the first report of a human tick infestation in 1982¹, about 40 human cases have been reported in the Korean literature. The causative ticks reported in Korea were 7 species, and tick bites from *Amblyomma testudinarium* has been reported once in Korea². Dermoscopy is a useful technique that allows the visualization of magnified submacroscopic structures, and by using dermoscopy, we could identify the biting tick and detect the residual part of the tick.

A 75-year-old Korean man who lived in Tongyeong city, Gyeongsangnamdo, Korea presented with a small, blackish nodule on his glans penis (Fig. 1A). He had worked on a chili pepper farm the previous day. We noticed that the nodule was a tick by using dermoscopy and removed it with forceps. When we were removing the tick, the mouthpart of tick tore off. We identified the remaining

part of the tick by using dermoscopy (Fig. 1B), and the tick bite site was excised. Histopathologic findings showed wedge-shaped necrosis at the site of penetration of the mouthparts, and remnants of the mouthparts of the tick.

The tick was examined stereoscopically and identified as a female *A. testudinarium* based on the morphological characteristics as described previously³. The tick was about 18 mm in length, having 4 pairs of legs. The dorsal scutum was seen as a small shield ornamented with dark brown spots. The eyes were located on the lateral edges of the scutum (Fig. 2A). An anal groove was observed on the posterior portion of the anus (Fig. 2B). The external spur of coxa I was longer than the internal spur of coxa I. A comma-shaped spiracular plate and genital aperture were seen on the ventral side.

Human tick bites by *A. testudinarium* have been reported mainly in regions with a warm and humid climate. In addition, *A. testudinarium* tends to attach to the axillary or inguinal region, which are rich in apocrine glands⁴. The reason why *A. testudinarium* prefers these sites is unknown, but it has been suggested that this tick reacts strongly to the odor from the apocrine glands. In our case, Tongyeong city is located in the southern coastal area of the Korean peninsula and has an oceanic climate. The external genitalia is rich in apocrine glands and blood supply, but the glans penis has no apocrine glands. As the patient's glans penis was not covered by a prepuce after a circumcision, we suggest that the patient's glans penis was

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