Multiple Keratotic Papules on the Left Sole of a 35-year-old Woman

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CASE REPORT
A 35-year-old female presented with multiple asymptomatic spiny protrusions on her left sole, which gradually accumulated for 2 years. Clinical examination revealed hundreds of asymmetrically distributed, minute, flesh-colored, keratotic papules on the patient’s left sole (Fig. 1). On close-up inspection, the lesions, which measured 0.5 to 2 mm in height, were firmly attached. The papules appeared like crystals emerging from the skin (Fig. 2). The surrounding skin of the sole was normal. The patient's face, palm, and right sole also were not involved. Additionally, the patient did not exhibit any hair, teeth, or skeletal abnormalities. The patient reported that no family member had similar lesions. Arsenic exposure was not reported by the patient. A skin biopsy was taken from a papule on the left sole revealed compact parakeratotic vertical columns, under which the granular layer was decreased. There was no evidence of dyskeratosis or vacuolation degeneration in the epidermis (Fig. 3).

Fig. 1
Numerous minute, flesh-colored, keratotic papules on her left sole.

Fig. 2
A close-up view of plantar lesions shows spiny projections more clearly.

Fig. 3
A compact parakeratotic column above a hypogranular epidermis corresponds to one of the spine lesions. (H&E, 100x)
DIAGNOSIS: Spiny Keratoderma

DISCUSSION

Spiny keratoderma is the term used for a dermatosis consist of multiple keratotic protrusions that resemble music box spines, and are located on the palms or soles.\textsuperscript{1, 2} The disorder has been reported under many different names, including punctate keratoderma, punctate porokeratotic keratoderma, and porokeratosis punctata palmaris et plantaris.\textsuperscript{1-3} More recently, the designation of spiny keratoderma has gained favor because of its accurate simplicity.\textsuperscript{4-6} To date only a small number of cases of spiny keratoderma have been reported in the literature. There are probably two reasons for the paucity of cases. The disorder is uncommon and most dermatologists overlook it. Furthermore, such patients do not go to the hospital because most cases are asymptomatic or cause minimal discomfort.\textsuperscript{2, 6} Spiny keratoderma are classified based on the characteristics of the lesions, including exhibition of parakeratosis, localization to palmoplantar surfaces, diffuse involvement, or association with the appendages.\textsuperscript{5} Clinically, spiny keratoderma has been described as seed-like keratotic papules or spiny protrusions or pits with or without keratin plugs. Most cases present lesions on the palms and soles. The majority of previously reported cases develop skin lesions after puberty, generally between the second and fourth decade of life. The spiny lesions progress slowly and are bothersome primarily for aesthetic reasons.\textsuperscript{1} The cause of spiny keratoderma remains unknown. Hashimoto \textit{et al.}\textsuperscript{4} suggested that it is a disease of ectopic hair formation of the palms and soles according to an analysis with hair specific antikeratin antibodies and electron microscopy. Cases associated with genetic mutation, repeated trauma, hypertension, and hyperlipidemia have also been described, but the associations may be coincidental.\textsuperscript{2, 4} Histologically, spiny keratoderma is characterized by compact parakeratotic columns overlying a significantly decreased or absent stratum granulosum. Although both spiny keratoderma and porokeratosis share a similar histological picture, spiny keratoderma does not demonstrate vacuolization and/or dyskeratosis of the underlying spinous layer, forming the so-called cornoid lamella.\textsuperscript{2} Additionally, spiny keratoderma lack centrifugally expanding rings characteristic of porokeratosis and do not coalesce to form plaques. As stated by Osman \textit{et al.}, we agree that these spiny lesions should not be classified as porokeratosis. Proper classification is important because porokeratosis has a potential for malignancy, and spiny keratoderma has not exhibited this propensity.\textsuperscript{1, 6}

Spiny keratoderma has not been reported to resolve spontaneously. Many treatments have been tried unsuccessfully in the past reports. Reports of successful treatment with topical preparations have included topical 5% 5-fluorouracil cream, 5% salicylic acid with occlusion, and 12% ammonium lactate. Nevertheless, attempts to discontinue treatment often resulted in recurrence of lesions.\textsuperscript{1, 2, 5} Our case was treated by carbon dioxide laser vaporization, and has not required further followed-up.

REFERENCES