Richard P. Usatine, MD, Feature Editor

Puzzling palmar papules and pits

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A 54-year-old African American woman came to the office with a problem on her hands that began about 10 years before: small, hard plugs that formed on her palms (**Figures 1 and 2**). These areas remain tender for 1 to 2 days after the plugs first form and while they "stick up." After a few days, the plugs fall out, leaving small pits. The patient experienced no other symptoms once the plugs fall out; just the appearance of her palms.

Many years ago, a physician tried freezing the lesions, believing them to be warts. That therapy provided no benefit. The patient found that filing down the plugs and lubricating them with white petrolatum helped during the symptomatic phase.

The patient was married, with no history of sexually transmitted diseases or significant occupational exposures. She did take medication to control her hypertension, hyperlipidemia, and hypothyroidism. However, the problem with her hands predated taking these medications. There was no personal or family history of skin malignancy. The remainder of the skin examination was unremarkable.

WHAT IS YOUR DIAGNOSIS?

FIGURE 1 Lesions on left palm

Overview of lesions on the patient's left palm. Right palm has similar lesions. No similar lesions are found elsewhere.

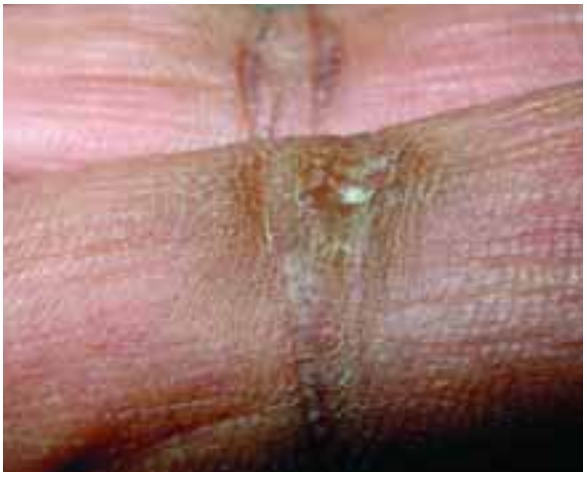
FIGURE 2 Lateral view

Lateral view of the dermatosis on the left hand. The patient has been filing the plugs and lubricating them with petrolatum.

FIGURE 3 Close-up of a "plug"

These raised areas are tender for 1 or 2 days after they form.

FIGURE 4 Close-up of a "pit"



Discreet conical pits form when the plugs fall out.

DIAGNOSIS: KERATOSIS PUNCTATA OF THE PALMAR CREASES

Keratosis punctata of the palmar creases (KPPC) is a benign, largely asymptomatic condition of the hands, seen almost exclusively those with African ancestry. KPPC presents as small keratotic papules (**Figure 3**) that evolve into discreet conical pits (**Figure 4**).[1,2] Although KPPC is not a novel or rare condition among African Americans, it is not found in standard dermatology texts used by primary care physicians. However, reference to KPPC may be found in ethnic dermatology texts, including reference to it as "a common normal finding in the black palm."[1]

The lesions of KPPC characteristically are 1 to 5 mm in diameter, sharply defined hyperkeratotic pits that occur in the flexural creases of the hands, both on the palms and volar surfaces of the fingers. KPPC has also referred to as keratotic pits of the palmar creases, punctate keratoses of the palmar creases, keratoderma punctata, hyperkeratosis penetrans, lenticular atrophia of the palmar creases, and hyperkeratosis punctata of the palmar creases.

Distinguishing KPPC from KPPP

KPPC has also been regarded as a variant of keratosis punctata palmaris et plantaris (KPPP).[3,4] KPPP and KPPC share some similarities with respect to the size and number of lesions per palm, probable exacerbation by trauma, and predilection for occurring in those of Afro-Caribbean descent.[1,3,4]

Historically, there has been some confusion in distinguishing KPPC from KPPP—in fact, it is possible for the 2 conditions to occur simultaneously. The papular lesions of KPPP tend to occur over the entire palm, volar wrist, and medial aspects of the feet. These entities differ in age at onset, prevalence, symptoms, and prognosis.

Sources differ regarding the average age of onset for KPPP; some report onset from infancy to 70 years.[5–7] For KPPC, the age of onset generally is between 15 and 40 years.[3] Among African Americans, the prevalence of KPPC is between 1.9% and 3.1%,[3,6,8] whereas the prevalence of KPPP may be up to 11%.[3,4] While KPPP is largely asymptomatic, the lesions of KPPC tend to be noticed more often. Once present, KPPP lesions usually remain stable over time, whereas, KPPC lesions usually increase in number and size.[3]

Demographics and causes

KPPC is rarely seen in Caucasians. Of 1001 white patients examined for palmar lesions, none fulfilled the diagnostic criteria for KPPC.[9] In a study of 534 patients, Weiss et al discovered 7 cases—all in African American patients and representing 3.1% of this racial group.[8]

TABLE

Differential diagnosis of punctate keratoses of the hands and feet

Acquired keratoses	Classic clinical description	Associations
Arsenical	Round, verrucous, or acuminate keratotic papules most common on palms and soles. Typically occur decades after chronic arsenic ingestion	Angiosarcoma of the liver, nonmelanoma skin cancer, bronchial adenocarcinoma
Idiopathic filiform porokeratoses	Multiple thin spiny keratotic projections on palms and soles	Breast, renal, colon, and lung cancer
Keratosis punctata of the palmar creases	Discrete, sharply marginated, hyperkeratotic, conical, 1–5 mm depressions confined to flexural creases	Dupuytren's contracture, striate keratoderma, knuckle pads
Hereditary keratoses	**Classic clinical description**	**Associations**
Keratosis punctata palmoplantaris (type I), Buschke-Fischer-Brauer disease	Multiple 1–2 mm punctate keratoses of the palms and soles	Longitudinal nail dystrophy, lichen nitidus, ichthyosis, atopy, recalcitrant warts. Increased risk of malignancy
Spiny keratoderma (type II)	Small keratotic spines over entire palmoplantar surfaces. Resembles the spines of an old-fashioned music box	No predisposition to malignancy
Acrokeratoelastoidosis lichenoids (type III)	2–4 mm round to oval papules on the borders of hands, feet and wrists. May be umbilicated and become confluent	Darier's disease, Cowden's disease

Adapted from Rustad et al 1990,[5] Kong et al 2004,[7] Asadi 2003,[9] Habif 2004,[11] and Osman et al 1992.[12]

The cause of KPPC is unknown. No medications have been implicated, and it has been difficult to link it to a virus.[3] Although some authors have suggested that KPPC represents flexural calluses related to manual labor, lesions also occur in patients without this history.[1,5] There is no association between KPPC and arsenical agents or syphilis.[8]

It is generally believed that KPPC does not have a recognizable heritable pattern, though there may be exceptions.[8] There may be a familial association with ichthyosis vulgaris and other disorders of keratinization. One report included 5 patients in 1 family with keratotic plugs of the palmar creases consistent with an autosomal dominant pattern of inheritance. The syndrome was associated with ichthyosis vulgaris in several family members.[10] KPPP and KPPC might be the result of abnormal callus formation in predisposed individuals, as both conditions seem to be due to an abnormal hyperproliferative response to local trauma.[3]

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DIFFERENTIAL DIAGNOSIS

Punctate keratoses of the palms are fairly common frequently overlooked lesions. The differential diagnosis is extensive (**Table**), but there are several clinical features of KPPC that distinguish it from other hyperkeratotic conditions. The

lesions of KPPC can be painful, have a predilection for joint creases, and evolve into pits.[3] KPPP is similar except not localized to the creases.[4]

Aquagenic keratoderma is a transitory condition afflicting young women and defined clinically by the appearance of palmar lesions accentuated after immersion in water. These lesions have a characteristic histological appearance (hyperkeratosis, dilated eccrine ducts).[13]

Palmoplantar pustulosis is characterized by chronically recurring sterile pustules on the palms and soles, usually found on an erythematous base, and a strong association with tobacco use.[14] *Palmoplantar lichen planus* may exhibit a variety of morphologic patterns including papules or plaques with pruritus, erythema, and compact hyperkeratosis.[15]

Cole disease is an uncommon disorder typified by distinctive cutaneous hyperpigmentation and punctate keratoses on the palms and soles. It is a congenital disease with an autosomal dominant inheritance pattern and phenotypic variability.[16]

Palmoplantar psoriasis is associated with manual labor in 50% of cases. Lesions are restricted to areas exposed to pressure. All patients with unilateral palmar lesions had them on their dominant hand. Biopsy may be necessary to differentiate hyperkeratotic eczema from psoriasis when just localized to the palms and soles.[17]

TREATMENT OPTIONS: KERATOLYTIC AGENTS MAY HELP TEMPORARILY

The mainstay of therapy is informing the patient of the benign nature of the diagnosis and avoiding unnecessary and unhelpful therapies and diagnostic modalities. Therapy with keratolytic agents or systemic retinoids may temporarily improve symptoms of KPPC.

However, lesions tend to recur when the medications are stopped or decreased.[5,7] Temporizing treatment of symptomatic keratoses, such as applying emollients and paring them, is all that is usually necessary. Systemic retinoids have far too many side effects to consider using in this completely benign condition.

PATIENT OUTCOME

The patient was reassured by the explanation of the condition and chose to try a keratolytic/emollient agent, Lac-Hydrin, for symptomatic recurrences. At her last visit for another health issue, she has reported this to be helpful.

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