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Acute Palmar and Plantar Rash in a 52-Year-Old Woman

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A 52-year-old woman presented to a primary care clinic with a 3-week history of rash on her feet that had spread to her hands in the previous week. She described the rash as painful, burning, and itching with no drainage. She denied any recent illness, fever, chills, medication changes, or environmental exposures. Home treatments included Epsom salt baths and lotion with no improvement.

Past medical history included hypertension. She was a smoker with a 30-pack-year history and drank alcohol on a daily basis. Her medications included losartan and atorvastatin.

On examination, multiple papular and scabbed lesions were present with mild scaling. Additional review of systems and physical exam were benign. A KOH prep showed hyphae. The patient was diagnosed with tinea pedis and prescribed fluconazole (150-mg tablet once per week for 2 weeks).

Two weeks later, after completing the antifungal therapy, the patient returned with pain limiting her ability to bear weight or grasp objects. Clinical examination showed well-demarcated erythematous scaly and hyperkeratotic plaques with scattered papular and pustular lesions on bilateral palmar and medial aspects of plantar surfaces (see Figures 1 and 2). A repeat KOH was not completed. The patient was diagnosed with palmoplantar pustulosis (PPP).

DISCUSSION

PPP is a chronic, relapsing, inflammatory skin condition that results in painful lesions on the palms and the soles.[1,2] There is debate as to whether PPP is a variant of psoriasis or a separate condition; depending on physical manifestations, one can be diagnosed with palmoplantar plaque psoriasis, PPP, or a combination of the two.[3,4]

The exact cause of PPP is unknown; however, increased levels of inflammatory cytokines interleukin (IL)-17 and IL-22 may be involved in the pathogenesis of the disease.[5] Additional genetic and environmental factors, most significantly smoking, play an important role in its development.[2,6]

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FIGURE 1

Palmar erythematous scaly plaques with scattered pustules

Clinical presentation

Inflammation associated with PPP typically manifests in the classic features of pustules that coalesce and resolve over several days, resulting in brown macules, hyperkeratosis, fissures, and debilitating pain.[4,7] Some patients may have co-occurring onycholysis resulting from nail dystrophy and destruction or plaque psoriasis elsewhere on their body.[8] PPP often persists for years with periods of exacerbation and remission, and it significantly affects the patient's ability to perform activities of daily living without pain.[8,9] It is exceedingly rare and most commonly affects middle-aged women with a smoking history or current smoking status.[7]

Laboratory diagnosis

The diagnosis of PPP is based on clinical presentation and physical exam. Laboratory testing, such as KOH prep, may assist in ruling out dermatophyte infection; a complete blood count may assist in eliminating a bacterial infection as the cause. Skin biopsy is not necessary unless diagnosis is uncertain or prolonged treatment has not produced a response.

FIGURE 2
Plantar hyperkeratotic plaques and brown macules

Differential diagnosis

The differential diagnosis of PPP includes skin conditions that involve the palms and/or the soles and may have fungal, allergic, or bacterial origins.

Fungal. Tinea manuum (palms) and tinea pedis (soles) result from dermatophyte infection and manifest with erythema and/or scaling and pruritis. A positive KOH examination can confirm diagnosis. On examination, fungal infections are commonly unilateral and asymmetric.[8] Treatment with an antifungal agent should result in resolution of symptoms.

Allergic. Contact with an allergen can result in skin erythema, pruritis, and pain at the exposed area. Contact dermatitis can result from an inflammatory response to an allergen or irritant, and it is often localized and well demarcated. This is an acute condition that resolves over time with antihistamines and avoidance of irritants.

Dyshidrotic eczema results in small, pruritic blisters on the palms and the soles and can be recurrent and related to seasonal allergen exposure. Diagnosis is made from history and physical exam. Treatment often consists of emollients and occasionally topical steroids, depending on the severity.

Bacterial. A primary bacterial cause of bilateral skin lesions on the palms and the soles is uncommon. However, any open skin lesion can result in secondary bacterial infection. The pustules of PPP are often sterile and do not require bacterial culture; however, additional symptoms of fever, purulence, warmth, and worsening of symptoms may prompt further evaluation for a bacterial origin or complication.

Management

Due to limited quality data on treatment recommendations, the treatment options for PPP vary greatly. Most studies recommend topical versus systemic therapy for initial management.[1-2,8,10-11] Firstline therapy often consists of topical corticosteroids and occlusive dressings, followed by oral retinoids (acitretin, alitretinoin) or photochemotherapy.[1,8] Third-line therapy can include immunosuppressants (ciclosporin, methotrexate) or biologics (secukinumab).[1,12] Recent data have shown positive results with vitamin D_3 analogs (maxacalcitol, betamethasone butyrate propionate) as monotherapy or in combination with corticosteroids.[10-11] Duration of therapy ranges from 4 to 8 weeks throughout the literature, depending on severity; however, many patients see improvement in the first few weeks.

Conservative measures to maintain remission include smoking cessation, skin emollients, and avoidance of irritants. It is important to educate patients about the chronicity of the disease and early treatment to prevent secondary infection or significant impact on quality of life.

OUTCOME FOR THE CASE PATIENT

The patient was prescribed triamcinolone acetonide (0.5% ointment applied bid), to be used until symptoms improved. After 1 week of treatment, she confirmed (verbally) that symptoms had resolved. She declined a follow-up visit or referral to dermatology.

CONCLUSION

Although PPP is fairly uncommon, it is important for clinicians to consider this diagnosis in patients presenting with localized rash on their palms and soles. This debilitating condition greatly affects a patient's quality of life and, although it is chronic in nature, available treatments described in the literature have shown success in both acute resolution and ongoing remission of the disease. **CR**

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