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# Acquired keratodermas (and conditions with similar presentations)

by Brooks David Kimmis, MD

**Acquired keratodermas**

| Diagnosis | Clinical features | Associations | Treatments | Comments |
|---|---|---|---|---|
| Keratoderma climactericum | Focal plantar hyperkeratosis in postmenopausal middle aged and older women<br><br>Favors pressure points<br><br>Can fissure and cause pain with walking<br><br>Palmar involvement, if present, is mild | Likely hormone related (similar findings reported in young women after oophorectomy)<br><br>Obesity<br><br>Cold, dry climates<br><br>Sandals and backless shoes | Low dose oral retinoid<br><br>Keratolytics (urea 25-40%)<br><br>Topical estradiol 0.05% ointment | |
| Aquagenic palmoplantar keratoderma | Thickened, white pebbly papules on palmoplantar surfaces minutes after immersion in water<br><br>Onset typically in 2nd decade | Cystic fibrosis<br><br>COX-2 inhibitors (celecoxib) | Botulinum toxin injection, aluminum chloride hexahydrate +/- urea cream | Acquired, autosomal dominant, and autosomal recessive variants have been described |
| Circumscribed palmar or plantar hypokeratosis | Well-circumscribed circular depressed papule or plaque on the palm or sole<br><br>Usually focal<br><br>Often seen in women ages 40-85 | Prior trauma/burn | Topical calcipotriene, topical 5-FU, cryotherapy, excision have been attempted | Unknown etiology<br><br>Focal thinning of stratum corneum overlying a diminished stratum granulosum with a drop-off between affected and unaffected skin |

**Paraneoplastic keratodermas**

| Diagnosis | Clinical features | Associations | Treatment | Comments |
|---|---|---|---|---|
| Diffuse PPK | Diffuse yellow hyperkeratosis of the palmar or plantar surface | Bronchial carcinoma | As with all paraneoplastic entities, treatment is targeted at the underlying malignancy | |
| Filiform/Spiny PPK | Spine-like hyperkeratotic, punctate papules on palmoplantar surfaces | Breast, colon, and kidney cancers | | Filiform/spiny PPK can also exist as an autosomal dominant condition usually presenting in the 1st-3rd decades of life, in contrast to acquired filiform PPK which tends to appear after age 50 |

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| Paraneoplastic keratodermas | | | | |
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| **Diagnosis** | **Clinical features** | **Associations** | **Treatment** | **Comments** |
| Tripe palms (form of malignant acanthosis nigricans) | Velvety palmoplantar, keratotic plaques | Stomach adenocarcinoma or other GI or GU adenocarcinomas | As with all paraneoplastic entities, treatment is targeted at the underlying malignancy | May or may not have findings of acanthosis nigricans in other areas (axillae, groin, nape of neck, oral mucosa) |
| Bazex syndrome, AKA acrokeratosis paraneoplastica (not to be confused with inherited Bazex-Dupre-Christol syndrome) | Acral psoriasiform and violaceous plaques with similar plaques on nose and/or helices. Horizontal and longitudinal nail ridging | Pharyngeal, laryngeal, and esophageal malignancies | | |

| Keratoderma-like conditions related to exogenous substances | | | | |
|---|---|---|---|---|
| **Diagnosis** | **Clinical features** | **Associations** | **Treatment** | **Comments** |
| Arsenical keratoses | Small, punctate, hyperkeratotic papules resembling corns on palms and soles<br><br>Can increase in number and progress to larger, thicker papules and plaques with spread to dorsal hands and feet | Chronic arsenic exposure (contaminated well water or occupational exposure, including ore mining, agricultural use, or medicinal applications)<br><br>Lesions at risk of progression to SCC in-situ, SCC, and BCC | Oral retinoids (reduces keratoses as well as risk of arsenical BCC)<br><br>Can also consider excision, cryotherapy, topical 5-FU, topical imiquimod, or photodynamic therapy<br><br>Chelation for chronic arsenic exposure may or may not be of benefit | Onset of arsenical keratoses ranges from 10-30 years after onset of exposure<br><br>Visceral malignancies (lung and bladder) related to arsenic tend to develop after PPKs |
| Acral erythema AKA hand-foot syndrome AKA palmoplantar erythrodysesthesia and hand-foot skin reaction | Presentation is variable but includes diffuse edema, redness and scale of palmoplantar surfaces, and/or hyperkeratotic callus-like plaques overlying points of pressure and friction<br><br>Pain, paresthesia, tingling, soreness, inability to tolerate hot substances | Prolonged infusions of chemotherapy<br><br>Diffuse redness seen with cytotoxic agents such as cytarabine, doxorubicin, 5-FU<br><br>Hyperkeratotic lesions seen with tyrosine kinase inhibitors such as sorafenib or sunitinib<br><br>BRAF inhibitors | Symptomatic management includes topical keratolytics, pain control, topical corticosteroids, and wound care<br><br>If severe, may need dose alteration or discontinuation of the drug | Exists on a spectrum of chemotherapy-induced eruptions called toxic erythema of chemotherapy, which also includes Ara-C ears, intertriginous eruption associated with chemotherapy, epidermal dysmaturation, and eccrine squamous syringometaplasia<br><br>When not lumped together, "acral erythema" is considered the more severe variant with redness and edema and seen mostly with cytotoxic agents, while "hand-foot skin reaction" is the hyperkeratotic variant seen with kinase inhibitors |

# Acquired keratodermas (and conditions with similar presentations)

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| Keratoderma as a presentation of other skin conditions | | | | |
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| **Diagnosis** | **Clinical features** | **Associations** | **Treatments** | **Comments** |
| Psoriasis | Erythematous plaques with psoriasiform, silver scale on palmoplantar surface +/-sterile palmoplantar pustules and nail pitting, onycholysis, or oil drop spots | Psoriatic arthritis<br><br>Metabolic syndrome<br><br>Cardiovascular disease | Topical corticosteroids +/- under occlusion, topical retinoids, topical vitamin D analogues<br><br>Systemic retinoids, methotrexate, biologics, cyclosporine (for short term therapy)<br><br>Phototherapy | Look for other findings of psoriasis (involvement of scalp, umbilicus, elbows, or knees, nail pitting, oil drop spots, joint swelling)<br><br>Biopsy can be helpful |
| Chronic hand eczematous dermatitis<br>• Allergic contact dermatitis<br>• Irritant contact dermatitis<br>• Other eczematous variants (atopic dermatitis, dyshidrotic eczema, others) | Erythematous scaly plaques often involving the palmar and dorsal surface. May extend to volar wrist<br><br>Fissured, hyperkeratotic plaques of digits<br><br>Fissuring is a common finding and is painful | Common irritants: water, detergents, fragrances, soaps, solvents, and physical irritants<br><br>Common allergens: methylisothiazolinone (wet wipes), rubber, gold, nickel | Avoidance of irritants or allergens<br><br>Topical barrier creams<br><br>Gloves and physical barriers<br><br>Topical corticosteroids<br><br>Depending on the underlying cause, systemic corticosteroids, dupilumab, phototherapy | Consider patch testing for chronic eczematous hand dermatitis<br><br>Biopsy can be helpful to rule out other causes of keratoderma |
| Pityriasis Rubra Pilaris (PRP) | Distinctive orange-red keratoderma of palms and soles | | Systemic retinoids<br><br>Methotrexate<br><br>Topicals (corticosteroids, retinoids, keratolytics) are useful as adjuvant therapy but not as sole form of therapy | Clinical types:<br>• Classic adult<br>• Atypical adult<br>• Classic juvenile<br>• Circumscribed juvenile<br>• Atypical juvenile<br>• HIV-associated<br><br>Types I and III tend to be self-resolving<br><br>Clinical clues favoring PRP: salmon orange perifollicular keratotic papules coalescing into plaques, islands of sparing |

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| **Diagnosis** | **Clinical features** | **Associations** | **Treatments** | **Comments** |
| Darier disease | Punctate hyperkeratotic papules and depressed pits<br>+/- focal keratoderma with hyperkeratotic plaques | Patients are prone to secondary skin bacterial, fungal, and viral infections. **(Remember that Kaposi varicelliform eruption doesn't only apply to atopic dermatitis)**<br><br>Salivary gland obstruction<br><br>Neuropsychiatric disorders<br><br>Ocular complications | Topical and systemic retinoids<br><br>Localized areas: excision with skin grafting, laser, or dermabrasion | Darier is an autosomal dominant genetic disorder, but symptoms can uncommonly begin in the 2nd decade or later.<br><br>Family history is helpful<br><br>Exam findings favoring Darier disease include seborrheic distribution of keratotic plaques, erythronychia, V-shaped nicking of nails, verrucous brown papules on dorsal hands and feet, and oral rugose plaques |

Other considerations to keep in mind:

- PPK associated with lymphedema
- Palmoplantar involvement of mycosis fungoides
- Keratoderma secondary to drugs other than chemotherapeutics (lithium, verapamil, venlafaxine)
- Mechanic's hands of dermatomyositis
- Myxedema of hypothyroidism
- Keratoderma blenorrhagicum of reactive arthritis
- Crusted scabies
- Dermatophytosis

**Key:**

PPK, palmoplantar keratoderma
SCC, squamous cell carcinoma
BCC, basal cell carcinoma
5-FU, 5-flurouracil
GI, gastrointestinal
GU, genitourinary

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