Dermatologists are experts in managing conditions of the skin, hair, nails, and mucosa, literally from head to toe. Although the specialty’s purview obviously includes the feet, the lower extremities seem to receive short shrift, with attention typically focusing on fungal infections and plantar warts. The clinical reality, however, is that patients often present to the dermatologist for diagnosis and/or treatment of cutaneous complications of the feet and toes. Corns and calluses may be rather significant complaints, and there are many conservative and surgical options for offering pain relief. Dermatologists who encounter these often painful manifestations have the opportunity to help identify underlying dynamic or musculoskeletal disorders that may contribute to their development.

In order to help clinicians provide more effective symptomatic relief of cutaneous complaints and to facilitate more rapid referral of patients for full podiatric assessment and management, the following review will describe several skin conditions of the foot, then address some of the common podiatric disorders that may cause them.

Common Cutaneous Complaints

**Heloma durum or hard corn.** A heloma or corn develops in response to pressure or friction. (Photo 1) Commonly affected sites include the proximal or distal interphalangeal joint or lateral nail fold of the fifth toe.

**Dermatologic Intervention.** Debridement pares down the corn and provides symptomatic relief. If the patient can identify and avoid offending footwear and/or successfully use foot padding, new corn formation may be delayed. Since many cases have a biomechanical cause, new corn formation is almost always inevitable. Some patients will be satisfied with the results of regular debridement. However, surgical correction of underlying bony deformities may be possible. Refer patients to a podiatrist for full evaluation if functional or anatomical dysfunction is apparent.

**Heloma molle or soft corn.** Commonly formed in the fourth webspace
as a result of pressure from the head of the proximal phalanx of the fifth toe overlapping the base of the fourth proximal phalanx, heloma molle or soft corns can be quite painful. Untreated, heloma molle can become secondarily infected with bacteria or fungi. Prolonged neglect can lead to abscesses and/or cellulitis. Unfortunately patients with peripheral neuropathy, particularly diabetic patients, may not register the pain of heloma molle, delaying the time to treatment and increasing the risk for infectious sequelae including amputation.

**Dermatologic Intervention.** Debridement, though sometimes difficult, yields immediate relief of symptoms. Refer patients to a podiatrist for full evaluation, as most cases of heloma molle result from a congenital or acquired malformation of the foot anatomy. Plain film pedal radiographs with a lesion marker will confirm friction between the two phalanges. Suggest that the patient wear shoes that have a wide toe-box or that otherwise do not put pressure on the fifth digit. Moldable silicone compounds or silicone spacers placed in the 4th web space can offer significant relief of pressure.

**Clavus.** Sometimes used synonymously with “corn,” clavi most often refer specifically to corns that develop on the distal tufts of the toes. (Photo 3, next page) These often result from either a long second toe (Morton’s toe, see below), hammer toe, or claw toe.

**Dermatologic Intervention.** As with heloma durum, debridement and padding provide temporary symptomatic relief. Surgical correction of the hammer toe, claw toe, or mallet toe with arthroplasties or arthrodesis is often corrective. Refer patients to a podiatrist for evaluation and to explore options for management of Morton’s toe or hammer toes.

“**Dystrophic**" Fifth Toenail. Dermatologists presented with an apparently dystrophic or otherwise malformed fifth toenail may consider onychomycosis as a cause. However, pressure from footwear or other contributory factors may cause the nail to assume a dystrophic or malformed appearance absent of any infectious etiology.

**Dermatologic Intervention.** It is wise to perform a PAS stain to determine presence of hyphae and thus confirm a fungal presence before initiating onychomycosis therapy, particularly when the affected nail is on the fifth digit. Recommendation for shoes with adequate space in the toe box can be helpful, but the nail dystrophy is often related to repetitive trauma from physical activities such as running.
**Tyloma or calluses.** Easily identified, tylomas form when the basal layer overproduces keratinocytes in response to persistent friction or pressure. (Photo 4)

**Spin callus or Pinch callus.** Spin callus refers specifically to a callus of the plantar medial great toe joint or great toe. (Photo 5) A spin callous is most often the consequence of limitation of motion at the first metatarsophalangeal joint known as hallux limitus.

**Dermatologic Intervention.** Urea-based compounds in conjunction with regular sharp debridement (at intervals of two to three months or so) will provide incomplete but potentially sufficient relief of discomfort for many patients. Since the adjunctive use of custom orthotic devices and padding (in addition to selection of properly-fitting shoes) to decrease pressure helps delay formation of tyloma, referral to a podiatrist is indicated. Abnormal biomechanics are often at fault, and surgical interventions are available.

**Intractable plantar keratosis or IPK.** If a tyloma develops with a nucleated core beneath a bony prominence, it is termed an intractable plantar keratosis. (Photo 6) Most commonly occurring beneath the second or third metatarsal, an IPK can be quite painful. Unlike most tylomas, an IPK tends to have an inverted “ice cream cone” shape, with a larger, rounded end at the plantar surface that elongates and tapers. IPKs are often misdiagnosed as plantar verruca by practitioners not familiar with pedal dermatology.

**Dermatologic Intervention.** In accordance with its name, an IPK is rather difficult to treat. Periodic debridement offers effective management of pain. Pads and orthotics with specialized forefoot extensions may decrease pressure to provide temporary relief of symptoms, but patients may consider surgical interventions for long-term resolution. Surgical intervention requires bone osteotomies, and long-term success rates are less than optimal.

**Tyloma or IPK with hemorrhage.** Any evidence of blood—red, dark brown, or black coloring—within a closed callus signifies a sub-keratotic hemorrhage that may extend to the level of the dermis, subcutaneous layer, or even the bone.
This is an ominous sign that is most often encountered in patients with diabetes mellitus and other forms of peripheral neuropathy. (Photos 7,8) These patients often present with infections including cellulitis, but may have no apparent break in the integument.

**Dermatologic Intervention.** Debridement of the tyloma is imperative, as an ulceration is frequently present beneath the hyperkeratosis. Local wound care and off-loading of the area are paramount. A non-infected open ulceration should not be treated with oral antibiotics. If clinical signs of infection are present, oral antibiotics are indicated.

**Anatomical or biomechanical disorders**

Poorly-fitted shoes may produce—or more likely—contribute to the pressure and friction that leads to formation of various corns and calluses. In such cases, manual debridement at regular intervals coupled with the selection of appropriate footwear and/or the use of padding (such as silicone toe socks) and orthotic devices may yield sufficient symptomatic relief and prevent or significantly delay re-emergence. In such cases, patients may be satisfied with conservative management. However, in the vast majority of cases, these dermatologic interventions are not sufficient. Treatment must address the musculoskeletal disorders that are primarily responsible for cutaneous manifestations. Dermatologists who are able to recognize some of the most common contributory podiatric disorders will be better prepared to refer patients for appropriate care.

**Hallux Limitus.** Hallux limitus designates decreased range of motion in the first metatarsophalangeal joint. This limited range of motion may be persistent or evident only when the foot is loaded by placing plantar to dorsal force beneath the lateral forefoot (termed functional hallux limitus). Total or near total impairment is termed hallux rigidus. The plantar first metatarsal phalangeal joint does not bear its appropriate share of ground reactive forces. Decreased range of motion in the joint leads to a rolling off the inside of the great toe during propulsion, which presses the great toe against the second toe.

**Cutaneous Manifestations.** As a result of pressure from the great toe against the second toe and a decrease in range of motion at the first metatarsophalangeal joint (MTPJ), spin calluses form at the hallux interphalangeal joint (IPJ) medially. IPKs may form on the plantar surface, beneath one of the metatarsal heads. Diffuse tylomas may also develop.

**Morton’s Foot or Morton’s Toe.** The Morton’s foot type is characterized by a long second digit that extends beyond the hallux, called a Morton’s toe, and a short or hypermobile first metatarsal. (Photo 9, next page)

**Cutaneous Manifestations.** Distal clavi on the second toe are the most common manifestations of Morton’s Toe. In the case of a short or hypermobile first metatarsal, tyloma may develop on the plantar surface under the second and third metatarsals.

**Hammer toes.** A hammer toe results from an extensor contraction at the metatarsophalangeal (MTP) joint and a flexion contracture at the proximal interphalangeal (PIP) joint. (Photo 10, next page) Claw toes and mallet toes have similar though slightly different characteristics. A claw toe is defined as a flexion contracture at the proximal (PIP) and distal interphalangeal (DIP) joints. This produces a more dramatically hooked appearance to the toe. A mallet toe has a single flexion contracture at the DIP joint. Dorsally contracted fourth digits are sometimes misdiagnosed as hammer toes when in actuality they are the consequence of brachymetatarsia of the fourth metatarsal. (Photo 11, next page) This is fairly common and can be idiopathic or due to endocrine abnormalities such as pseudohyppoparathyroidism. Radiographs confirm the diagnosis. Surgical correction of

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**Table 1. Possible Cutaneous Manifestations of Podiatric Conditions**

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<th>Clavus</th>
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the brachymetatarsia by callus distraction using an external fixator device or osteotomy with bone graft along with a V to Y skin plasty are often employed to correct the deformity.

**Cutaneous Manifestations.** As the head of the proximal phalanx rubs against shoes or skin (when the affected toe overlaps adjacent toes), hard corns may develop. In addition, retrograde forces from a hammer toe onto the more proximal metatarsophalangeal joint can serve as an etiology for tylomas and IPKs by increasing ground reactive forces beneath the respective metatarsal head.

**Adductovarus toes.** This condition affects the fourth or fifth digit, which curls inward, often sliding under the adjacent toe. It may be more common in patients with pes planus (flat feet).

**Cutaneous Manifestations.** Heloma dura may develop at the dorsal aspect of the adductovarus toe over the proximal interphalangeal joint. Pressure caused by the head of the fifth proximal phalanx against the base of the fourth proximal phalanx may lead to development of heloma molle.

**Bunions or Hallux valgus or hallux abducto valgus.** Bunions are bony deformities in which the hallux excessively abducts and the first metatarsal head becomes more medially prominent at the first metatarsophalangeal joint. (Photo 12) A bunionette or Tailor’s bunion is a similar prominence of bone at the fifth metatarsal head. NSAIDs and avoidance of pressure on the affected joints may reduce inflammation and provide some symptomatic relief. Podiatrists may employ various conservative measures to reduce pressure on the joints and yield an acceptable degree of symptom control, although surgical correction is often necessary.

**Cutaneous Manifestations.** Swelling and inflammation may manifest in the skin and soft tissues. Heloma dura may develop on medial toes due to pressure from the affected toe. Tylomas or IPKs may develop plantar to lesser metatarsal heads.

**A Collaborative Approach**

While the vast majority of patients with podiatric complaints seek the care of a podiatrist, a significant number of patients present to dermatologists for management of cutaneous complications that are a direct result of podiatric complications. Dermatologists have

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Drs. Caldwell and Bikowski have no relevant disclosures.