

Nonhealing Eroded Plaque on an Interdigital Web Space of the Foot

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A 53-year-old man with a history of numerous basal cell carcinomas and odontogenic keratocysts presented with a nonhealing erosion between the left second and third toes of several months' duration. He was treated empirically with multiple courses of topical and systemic antibiotics as well as antifungals with minimal improvement. Physical examination revealed a 1.2×0.6-cm eroded plaque with rolled borders on the left second toe web; bilateral palmar pits; diffuse actinic damage; and several well-healed surgical scars on the head, neck, and back. Neurologic examination was normal, and dorsalis pedis pulses were equal and palpable bilaterally.

WHAT'S THE DIAGNOSIS?

- basal cell nevus syndrome
- Bazex-Dupré-Christol syndrome
- diabetic foot ulcer
- erosio interdigitalis blastomycetica
- pseudomonas hot foot syndrome

PLEASE TURN TO **PAGE 14** FOR THE DIAGNOSIS

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The authors report no conflict of interest.

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THE DIAGNOSIS: Basal Cell Nevus Syndrome

Given the patient's history of numerous basal cell carcinomas (BCCs), odontogenic keratocysts, palmar pits, and a nonhealing ulcer, the clinical presentation was highly suggestive of interdigital BCC in the setting of basal cell nevus syndrome (BCNS). A shave biopsy was performed revealing islands of basaloid cells with peripheral palisading and a retraction artifact surrounded by fibromyxoid stroma, consistent with nodular and infiltrative BCC (Figure 1).

Basal cell nevus syndrome (also known as Gorlin syndrome) is a rare neurocutaneous syndrome that manifests with multiple BCCs; palmar and plantar pits (Figure 2); central nervous system tumors; and skeletal anomalies including jaw cysts, macrocephaly, frontal bossing, and bifid ribs.¹ It is an autosomal-dominant condition caused by mutations in the *PTCH1* gene, a tumor suppressor gene involved in the Hedgehog signaling pathway.² Basal cell carcinoma is the most distinctive feature of BCNS, causing notable morbidity. Tumors typically present between puberty and 35 years of age, and patients can have anywhere from a few to thousands of tumors. They rarely become locally aggressive; however, with radiation therapy, proliferation and local invasion may occur within a few years. Therefore, radiotherapy should be avoided in these patients.¹

Although the most common sites for BCCs in BCNS are the head, neck, and back, there is a higher rate of occurrence on sun-protected areas in BCNS compared to the general population.³ Our patient presented with interdigital BCC of the foot, which is an extremely rare occurrence. PubMed and Ovid searches using the terms *basal cell carcinoma*, *BCC*, *foot*, *interdigital*, and *nonmelanoma skin cancer* revealed only 3 cases of interdigital BCC of the foot. One case was associated with prior surgical trauma, the second presented as a junctional nevus, and the third did not appear to have any associated inciting factors.⁴⁻⁶ Dermatologists need to have a low threshold for biopsy for any unusual nonhealing lesions, especially in the setting of BCNS. Basal cell carcinomas in BCNS cannot be histologically differentiated from sporadic BCCs, and management largely depends on the size, location, recurrence, and number of lesions. Treatment methods range from topical agents to Mohs micrographic surgery.¹

Nonhealing lesions of the foot may give an initial clinical impression of infection overlying peripheral vascular disease or diabetes mellitus with the possibility of associated osteomyelitis. Our patient had no clinical history to suggest peripheral vascular disease or diabetes mellitus, and he had palpable dorsalis pedis pulses as well as a normal neurologic examination. Clinicians also may consider fungal infection in the differential diagnosis.

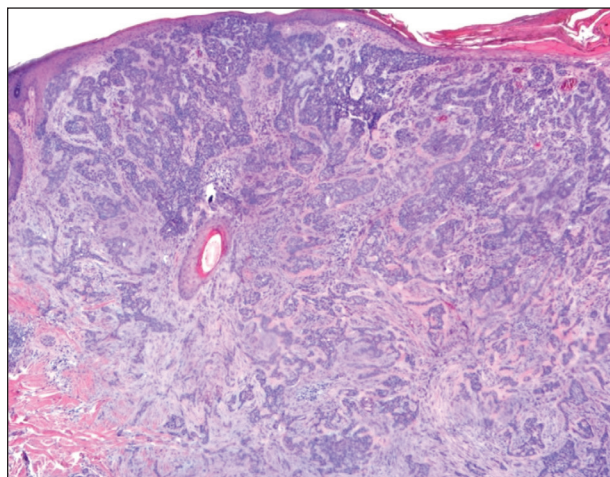


FIGURE 1. A shave biopsy specimen showed islands of basaloid cells with peripheral palisading and a retraction artifact surrounded by fibromyxoid stroma consistent with nodular and infiltrative basal cell carcinoma (H&E, original magnification $\times 10$).



FIGURE 2. Multiple pits on the palmar surface of the hand.

Erosio interdigitalis blastomycetica is a superficial yeast infection described as a well-defined, red, shiny plaque found in chronically wet areas, usually affecting the third or fourth interdigital spaces of the fingers.⁷ However, the lack of improvement with antibiotics and antifungals argued against bacterial or fungal infection in our patient. Although BCC also is a common feature of Bazex-Dupr -Christol syndrome, it also is characterized by follicular atrophoderma, milia, hypohidrosis, and hypotrichosis,⁸ which were not evident in our patient. Pseudomonas hot foot syndrome is characterized by painful, plantar, erythematous nodules after exposure to contaminated water

that typically is self-limited but does respond to antibiotics for *Pseudomonas*.⁹

Our patient underwent Mohs micrographic surgery with a complex repair utilizing a full-thickness skin graft. There were no signs of recurrence at 3-month follow-up, and he was counseled on the importance of sun-protective behaviors along with regular dermatologic follow-up.

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