



Squamous Cell Carcinoma presenting as a non-healing wound: A case report

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Statement of Purpose

Squamous cell carcinoma to the foot is a rare occurrence. Malignancy should remain in the differential when encountering chronic non-healing wounds. We present a case report displaying the occurrence of squamous cell carcinoma within the foot.

Literature Review

Squamous cell carcinoma is the second most common type of skin cancer within the United States. The most common genetic abnormality is caused by a mutation within the p53 pathway, which is responsible for preventing mutated cells or damaged DNA from replicating. Within squamous cell carcinoma, the p53 pathway is non-functional allowing damaged DNA within squamous cells of the skin to replicate¹.

DNA damage often occurs due to chronic unprotected exposure to ultraviolet radiation, either from the sun or external sources¹. Individuals are at a higher risk are in their 50s and 60s with light skin and light eyes. Men have a higher risk than women of developing squamous cell carcinoma.

Squamous cell carcinoma lesions can be “flat, nodular, or plaque-like with significant induration and/or subcutaneous spread”¹. These lesions can vary from “flesh toned to erythematous with scaling, crusting, ulceration or hyperkeratosis”¹. In some cases, squamous cell carcinoma can be tender to the touch and painful. Lesions are often found in the areas of the body that are frequently exposed to the sun such as “face, neck, bald scalp, extensor forearms, dorsal hands, and shins”¹.

Case Report

72-year-old male presented to the podiatry clinic with left heel hyperkeratosis that revealed an ulcer post debridement in February 2023.

The patient had non-palpable dorsalis pedis and posterior tibial pulses and diminished sensation on both feet. Podiatry initiated local wound care. At the patient’s second podiatry appointment, further offloading was provided, return to vascular surgeon was recommended and left foot x-ray was ordered. No acute concerns were noted at that time. The last arterial doppler results from 2021 indicated moderate to severe arterial insufficiency in the left leg at rest.

The patient’s follow up with vascular was delayed due to the patient’s lack of follow-through. CTA revealed patient’s left common iliac artery extending to the level of the proximal left superficial femoral artery along with proximal left anterior tibial artery, distal left peroneal artery and posterior tibial artery were occluded. CT revealed a focal area of skin thickening and soft tissue swelling to the left heel without extending to the calcaneus. No acute concerns noted. See figure 1.

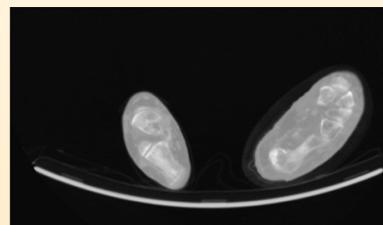


Figure 1: CT. Focal area of soft tissue swelling to left heel. Does not appear to extend to the underlying calcaneus.

The vascular team recommended that the patient undergo a femoral-femoral bypass to increase blood flow to the left lower extremity and promote healing of the left heel wound. Due to the patient’s cardiac history and admittance to the history of frequent chest pains over the past several years, cardiac clearance was recommended prior to proceeding with surgery. The patient continued to follow up with podiatry for wound care during this time. However, the wound continued to increase in size and pain per patient. The patient developed cellulitis of the left foot which resolved with oral antibiotics.

The patient ultimately received cardiac clearance and was admitted for his right to left femoral-femoral bypass. After a successful bypass, his pain was better controlled. Following the bypass, his next physical exam revealed multiple, small peri-wound soft tissue lesions to the left plantar heel. Two 4 mm punch biopsies of the left plantar heel wound were taken to rule out any possible malignancy. Pathology results revealed “invasive poorly differentiated squamous cell carcinoma” See figure 2.

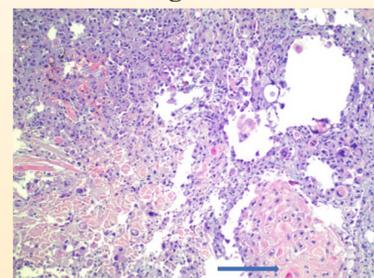


Figure 2: Punch biopsy of left heel (100x): squamous cell carcinoma, keratinizing. Arrow highlights the area of keratinization and squamous pearl. Picture taken by Dr. Emily Raftopoulos, DO, Anatomic and Clinical Pathology Specialist.

The patient was admitted for long-term care, and eventually, above-the-knee amputation. PET/CT revealed extensive uptake in the left leg up to pelvic lymph nodes. See figure 3.

Left above-knee amputation site and nodule from the left thigh were sent to pathology for analysis. Pathology results revealed that the left above the knee amputation site had “poorly differentiated squamous cell carcinoma of heel with evidence of subcutaneous metastasis, consistent with carcinoma erysipielodies.” Biopsy of the soft tissue of the left thigh revealed “poorly differentiated squamous cell carcinoma, keratinizing.” See figure 4.

The patient began to decline due to the rapid progression of the disease. His family opted into palliative care.

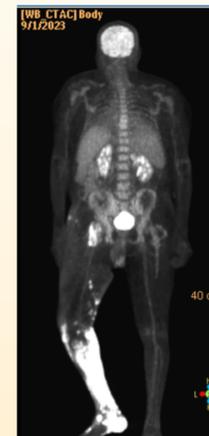


Figure 3: PET/CT tumor imaging (FDG) Uptake noted to left midfoot, extending to mid-distal thigh. Increased uptake also noted left inguinal region and left deep inguinal lymph nodes.

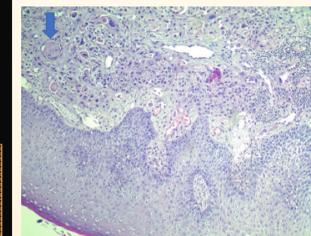


Figure 4: Left thigh nodule from above knee amputation (100x): a dermal squamous cell carcinoma is present with no overlying in situ carcinoma. Histologically similar to heel biopsy. Arrow highlights area of keratinization. Picture taken by Dr. Emily Raftopoulos, DO, Anatomic and Clinical Pathology Specialist.

Discussion

“Squamous cell carcinoma originates from the squamous cell epithelium of the surface dermis and can present in a variation of differentiation and keratinization³.” Particularly in the foot, squamous cell carcinoma can arise from conditions such as “lichen planus, deep mycosis, lichen simplex chronicus and plantar verruca”³.

Clinical presentation of squamous cell carcinoma can vary from flat patches to red bumps or wart-like growths. Changes noted with color, shape, size, or sudden onset of pain of a lesion should be evaluated for possible malignancy especially if the chronic lesion has prolonged healing.

Diagnosis is made from a high index of suspicion. An initial biopsy should be performed for definitive confirmation of diagnosis since histopathology is diagnostic. Magnetic resonance imaging can be adjunctively utilized to determine the presence and extent of the disease. Treatment of choice is wide excision for squamous cell carcinoma of the foot. If unable to perform adequate excision, then the treatment of choice would be amputation³.

“The treatment that offers the highest rate of cure for patients with high-risk tumors or recurrent squamous cell carcinoma is Mohs micrographic surgery. The five-year rate of cure in patients with large tumors is 70% regardless of the treatment chosen”². Even though the incidence of malignancy in the foot is rare, the risk of metastatic disease and recurrence remains prevalent. Some factors may inevitably hinder early diagnosis such as patient follow through. However, it is vital to keep malignancy in the differential when viewing a chronic wound as best as possible.

References

1. Howell JY, Ramsey ML. Squamous Cell Skin Cancer. [Updated 2023 Jul 31]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441939/>
2. Raval, Ritu S., et al. “Squamous Cell Carcinoma on the Dorsal Aspect of Foot: A Case Report and Literature Review.” *International Surgery Journal*, www.ijurgery.com/index.php/ij/article/view/9576. Accessed 16 Oct. 2023.
3. Wani, Imtiaz. “Metastatic Squamous Cell Carcinoma of Foot: Case Report.” *Oman Medical Journal*, U.S. National Library of Medicine, Jan. 2009, www.ncbi.nlm.nih.gov/pmc/articles/PMC3269626/.