Squamous Cell Carcinoma of the Foot: Case Study

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Purpose

Squamous cell carcinoma (SCC) is the most common form of cancer on the skin of the feet; however it is commonly underreported in the literature which can lead to inappropriate treatment. Although most cases are curable, the risk of metastases and recurrence are high. This case study presents our protocol for the diagnosis and treatment of SCC.

Literature Review

SCC is among the most common human malignancies, representing 30% of all skin cancers. Only 5% of all SCC, or 1.5% of all primary carcinomas, occur in the lower extremities (1). A review of 511 cutaneous tumors of the foot, SCC comprised 14% of lesions (2). SCC is the most common soft tissue malignancy of the foot with a slightly greater incidence than both melanoma and synovial sarcoma (3). This carcinoma of the foot may arise from a precursor lesion or may be secondary. Presentation can be either as a proliferative or an erosive lesion. The clinical appearance is variable ranging from a nodule, an area of induration, an ulceration or an exophytic, cauliflower-like growth. MRI is an adjuvant in the diagnosis with histopathology being the gold standard. The degree of differentiation of squamous cell carcinoma, as well as size and depth of tumor invasion are extremely important prognostic variables (4). An initial wide excision for squamous cell carcinoma of the foot is the treatment of choice and may prevent metastasis. Inadequate excision associated with recurrence should be treated by amputation (5). Ruling out metastatic disease is also important and can be achieved by sentinel lymph node biopsy. CT scanning can also indicate areas of lymphadenopathy and metastasis (6,7).

Literature Review

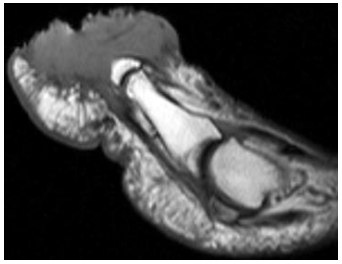
The prognosis for SCC includes primary control of disease in up to 93% of cases, but 0.5% to 10% may ultimately die of metastatic disease, with 86% of those having nodal involvement. Despite high incidence of SCC, foot and ankle surgeons remain relatively unfamiliar with this disease (8). This often leads to inappropriate and delayed treatment of the disease.

Case Study

This is a 54 y.o. male with a PMH of HTN who presents to the ED with swelling, pain, and deformity to his left great toe. Patient reports a history of an 80 lbs. plank falling on his left great toe approximately 1.5 years prior. He did not have the toe evaluated at that time. Six months prior to presentation, he experienced another crushing injury to the area. The patient states over the past 6 weeks he has noticed worsening swelling, redness, pain and malodor coming from the toe. On physical exam there are hypertrophic and fungating skin changes to the distal left hallux measuring 5cm x 7cm with a positive probe to bone, purulence, malodor and surrounding erythema. Radiographs were performed in the ED with findings of increased soft tissue density and erosive changes to the distal phalanx concerning for osteomyelitis (Fig. 1). An MRI was performed which revealed a heterogeneous, enhancing and ulcerative lesion highly concerning for a malignant soft tissue mass (Fig. 2). Treatment consisted of surgical excision of the lesion with amputation of the great toe at the MTP joint and primary closure. The fungating ulcer at the tip of the left great toe was circumferentially excised with the underlying distal phalanx and sent for pathology for evaluation (Fig. 3). Clean margins were confirmed by histopathology.

Figure 1. Pre-operative clinical photos and radiographs

Figure 2. Pre-operative MRI : T1 sagittal view (left) and T1 axial view (right)



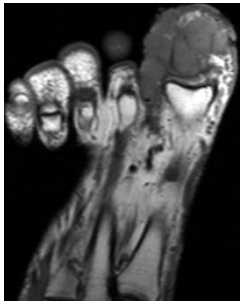


Figure 3. Intraoperative photos: post wide excision of lesion (left) and clean margins confirmed by histopathology

Case Study

Histopathology later revealed invasive keratinizing squamous cell carcinoma. Patient later underwent sentinel lymph node biopsy by surgical oncologist which was negative for metastasis. The great toe amputation site healed without incident and the patient was returned to regular shoe gear 2 weeks postoperatively. No evidence of recurrence one year postoperatively. Patient continues to follow up with oncologist with no evidence of metastasis to date.

Discussion

SCC of the foot is likely underreported and frequently subject to inappropriate initial treatment (8). A high index of suspicion must be held when dealing with wounds and skin lesions for any malignancy. Currently there is not a defined standard of care relating to the biopsy of suspicious lesions and wounds. Regardless of the presentation, biopsy and subsequent histopathologic analysis is the only way to diagnose suspicious skin lesions (9). Early diagnosis and treatment is of vital importance to decrease the risk of recurrence and metastasis. Obtaining a thorough history from a patient along with appropriate advanced imaging can expedite the diagnosis and treatment. Ruling out metastatic disease is also an important consideration. Consultation to surgical oncology for CT scanning and sentinel lymph node biopsy is vital for comprehensive care of the patient (6,7). Wide excision of lesions is considered the gold standard for treatment (5). Limb salvage is a principle concept in the evaluation of SCC involving the lower extremity (10). Obtaining clean margins is only found histologically and using fresh frozen sections while in the operating room can be helpful to decrease operating room time.

Discussion

Reconstruction can be performed once clean margins are confirmed. This includes primary closure, local tissue transfer, tissue substitutes, split thickness skin graft and free tissue transfer (9). Patients who have been diagnosed and treated for SCC of the lower extremity should be followed throughout their lifetime by a foot and ankle specialist. Patients should also be followed and monitored by an oncologist for any signs of metastasis (10).

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