

Verrucae Carcinoma of the Foot: A Case Study

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Introduction

Verrucae carcinoma, also known as verrucous carcinoma of the foot, is a rare, low-grade, malignant tumor originating from a pre-existing verruca (wart). It is a rare form of squamous cell carcinoma (SCC). It is sometimes called Ackermann's tumor.

Epidemiology

- Incidence: Rare, accounting for <5% of all skin cancers.
- Age: Typically affects middle-aged to elderly individuals (40-70 years).
- Sex: Slightly more common in males.
- Location: Most commonly occurs on the plantar surface of the foot.

Etiology and Risk Factors

- Human Papillomavirus (HPV): Types 16, 18, and 33 are commonly associated.
- Chronic irritation or trauma: Repeated friction, pressure, or injury.
- Immunocompromised individuals: Weakened immune systems (e.g., HIV/AIDS, organ transplant)
- Genetics: Family history of skin cancer or genetic predisposition.
- Environmental factors: Exposure to UV radiation, chemicals.

Diagnostic Methods

- Biopsy: Excisional or incisional biopsy for histopathological examination.
- Dermoscopy: Examination with a dermatoscope.
- Imaging studies: X-rays, CT, or MRI scans to assess extent.

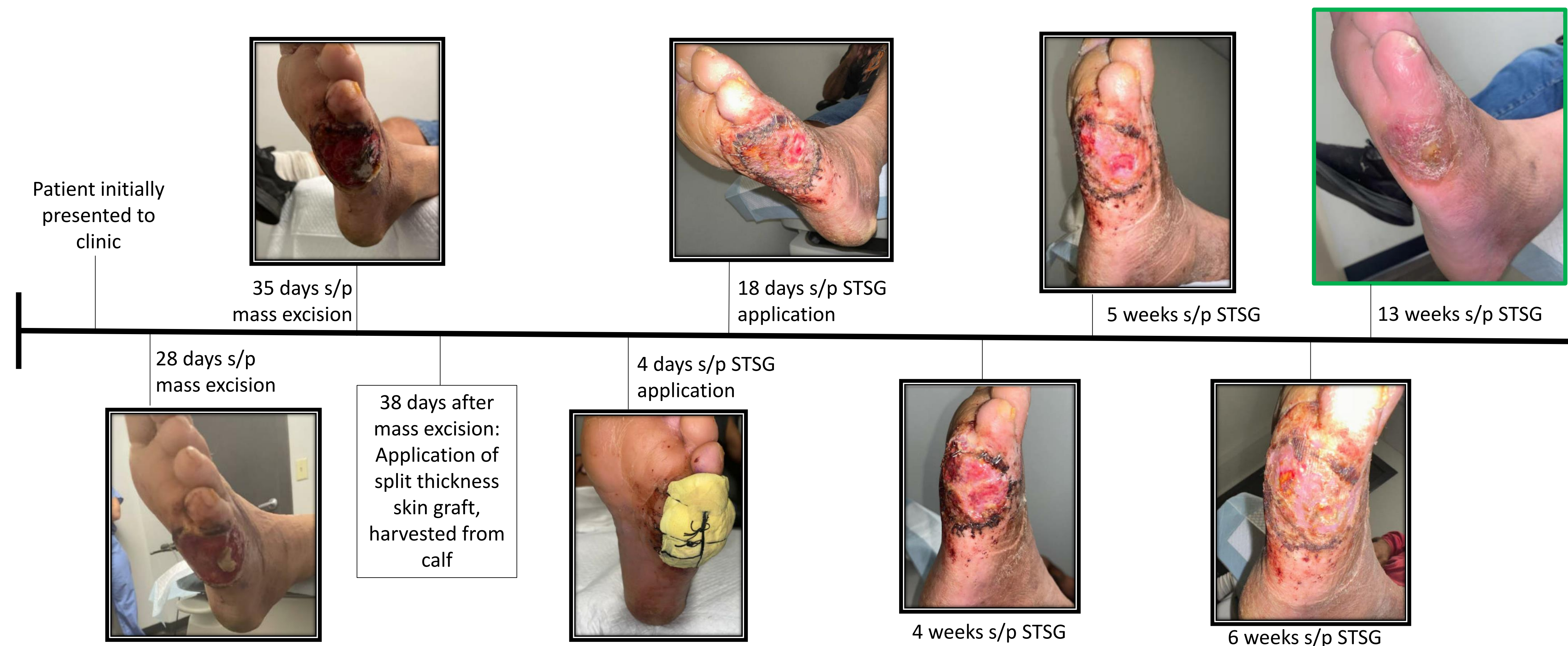
Imaging

Xray:

No osseous abnormalities appreciated. Large soft tissue mass appreciated to the lateral aspect of the left forefoot over the area of the fifth metatarsal head.



Case Description



A 43- year- old male presents to clinic for a painful mass on the lateral aspect of his left foot. He states it has been present for a few years. It has grown in the past few months and is becoming more painful. His past medical history is unremarkable. He does admit to being an active smoker.

On physical exam, he was alert and oriented to time, place and person.

- Vascular: PD and PT pulses faintly palpable bilaterally. CFT brisk to the digits bilaterally. No sign of rubor, cyanosis or ischemic changes bilaterally. Pedal hair growth present.
- Neurologic: Vibratory, light and gross touch intact bilaterally.
- Dermatologic: Large mass to the lateral aspect of the foot, specifically the plantar lateral fifth metatarsal head. Extends from plantar mid- fifth digit to metatarsal head. Mild odor. Cauliflower like lesion. Immobile.
- Musculoskeletal: Muscle strength 5/5 for all pedal groups bilaterally. No pain on palpation to plantar fascia and Achilles tendon. Ankle, STJ, and 1st MPJ range of motion is within normal limits bilaterally. Pain with palpation of the right hallux.

Differential diagnosis:

Verruca plantaris
 Verruca carcinoma
 Keratoacanthoma
 Corn or callus

Medical Treatment Course:

- In office, a left foot radiograph was obtained. A biopsy was obtained in office.
 - Pathology resulted: *epidermal proliferative changes most suggestive of pseudoepitheliomatous hyperplasia.*
- Due to the nature of the mass, there was concern for carcinoma. Decision was made to take the patient to the OR for mass excision. Mass was excised, with grossly appearing healthy margins. The mass, measuring 6.3 x 4.5 x 1.5 cm, was then sent to pathology. A silicone bilayer graft was applied.
 - Pathology resulted: *well- differentiated verrucous carcinoma with clear margins*
- Patient presented weekly for local wound care. During his 3 week post-op visit, decision was made to apply a split thickness skin graft to the wound.
- A split thickness skin graft was obtained from the ipsilateral calf, 0.016, using the 1:5:1 mesher. A bolster dressing applied.
- Patient presented weekly for post-op visits and local wound care. Patient healed without any further complications.

Discussion

- The foot is an uncommon site for verrucous carcinoma, and it is theorized that this patient developed the malignancy due to continuous friction and rubbing from footwear. This chronic irritation may predispose typical verrucous lesions to undergo malignant transformation.
- Human papillomavirus (HPV) infection plays a crucial role in the pathogenesis of this condition, highlighting the importance of prevention through vaccination.
- When a biopsy is obtained, it will reveal pseudoepitheliomatous hyperplasia, a benign reactive proliferation of squamous epithelium caused by persistent low-grade inflammation, often described as hyperkeratotic. This condition closely resembles well-differentiated squamous cell carcinoma, such as verrucous carcinoma.
- This tumor is quite invasive, with the potential to infiltrate tendons, muscles, and even bone. Treatment requires wide excision.
- Radiation therapy is often avoided due to risk of malignant transformation into squamous cell carcinoma. However, radiation therapy for verrucous carcinoma can be considered in specific cases—such as when surgical excision is not feasible, tumor margins are unclear, or the patient has recurrent metastatic. Risks for radiotherapy include malignant transformation, radiation-induced sarcomas, and limited efficacy.
- To further prevent verrucous carcinoma, it is essential to educate patients about avoiding chronic friction and pressure, as well as to encourage regular foot exams for early diagnosis.
- The rare status of this disease complicates research and funding, leading to limited awareness and challenges in diagnosis due to its similarity with benign lesions.

Conclusions

- When a patient presents to clinic with a suspicious mass or wound, it is best to take a biopsy quickly.
- Verrucous carcinoma can arise from chronic traumatic areas, thus requiring a thorough physical exam and history.
- When these lesions are diagnosed early, surgical excision and graft applications can prevent patient from further disability. Misdiagnosing can lead to progression of the disease, and delayed treatment.
- When concerned about metastatic disease, it is important to obtain a sentinel lymph node biopsy and CT scanning.
- Often, a multidisciplinary approach is recommended in the treatment of malignancies and has shown higher rates of clinical success.

References

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