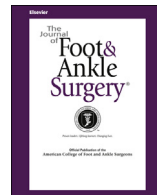


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Case Reports and Series

Rare Presentation of a Marjolin's Ulcer Secondary to a Post-Traumatic Injury

Kaitlyn Bernhard, DPM¹, Kenneth Morgan, DPM², Dustin Kruse, DPM, MA, FACFAS³, Paul A. Stone, DPM, FACFAS⁴¹ Second Year Resident, Highlands-Presbyterian/St. Luke's Podiatric Medicine and Surgery Residency Program, Denver, CO² Attending Staff, Highlands-Presbyterian/St. Luke's Podiatric Medicine and Surgery Residency Program, Denver, CO³ Director of Research, Highlands-Presbyterian/St. Luke's Podiatric Medicine and Surgery Residency Program, Denver, CO⁴ Program Director, Highlands-Presbyterian/St. Luke's Podiatric Medicine and Surgery Residency Program, Denver, CO

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ABSTRACT

Marjolin's ulcer is a rare and aggressive cutaneous malignancy arising from previously traumatized skin, most commonly at the site of previous burns. We present a unique case of Marjolin's ulceration secondary to an orthopedic injury and a nonburn history of trauma. The patient had been involved in a motorcycle accident >20 years earlier. For 17 months, the patient had refused to acknowledge the severity of his disease state. He had refused the standard of care and opted for local wound care only until a minor fall caused a pathologic fracture, leading to an above the knee amputation. Road traffic incidents remain an uncommon cause of subsequent Marjolin's transformation in developed countries. As such, we present the case of a patient with a unique combination of a continued lack of compliance after diagnosis and the unusual cause of his initial trauma.

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Marjolin's ulcer is a rare and aggressive cutaneous malignancy arising from previously traumatized skin (1). Earlier reports estimated that 2% of burn scars would undergo malignant transformation (2). A more recent study found that the epidemiology varies among different regions owing to sociocultural and economic influences, with an incidence as great as 63% of squamous cell carcinoma cases arising from chronically irritated or scarred skin in areas of Sub-Saharan Africa (3). Thermal burns are thought to be the most common etiology for Marjolin's ulcers, although other causes have been reported, including chronic osteomyelitis, diabetic ulcers, chronic venous ulcers, chronic fistulas, pilonidal sinus, hidradenitis suppurativa, chronic radiation dermatitis, discoid lupus erythematosus, leprosy, operative scars, tropical ulcers, frostbite, vaccination sites, gunshot wounds, puncture wounds, and dog bites (4,5).

Road traffic accidents are not an uncommon cause of subsequent cutaneous malignancy; however, it is rare in areas in which healthcare is easily accessible (6). We present a case of a Marjolin's ulcer that developed in a patient 20 years after his motorcycle accident in the

United States, where access to advanced healthcare is readily available, to highlight the importance of early diagnosis and treatment.

Case Report

A 63-year-old male presented to our wound care clinic for a second opinion on his chronic, nonhealing bilateral lower extremity wounds. He was treated by our service from November 2014 to April 2016. The patient had been in a motorcycle accident 20 years earlier and had sustained degloving injuries of his bilateral upper and lower extremities. He had never sought initial medical attention and had treated these wounds with antibacterial ointment and gauze on his own. The wounds on the extensor surface of his forearms healed uneventfully; however, the lower extremity wounds, covering the entire anterior surface distal to his knees and proximal to his ankles, had never completely healed.

In October 2014, he was admitted to an outside hospital for shortness of breath, bleeding from his chronic lower extremity wounds, and bilateral lower extremity edema. At the hospital admission, he was diagnosed with atrial fibrillation, chronic obstructive pulmonary disease, right-sided heart failure, diastolic dysfunction, hepatitis C, microcytic anemia, hypoalbuminemia, mediastinal lymphadenopathy, probable bilateral tibial and fibular shaft osteomyelitis shown on magnetic resonance imaging, and possible squamous cell carcinoma. Two biopsies were performed on a

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Address correspondence to: Paul A. Stone, DPM, FACFAS, Highlands-Presbyterian/St. Luke's Podiatric Medicine and Surgery Residency Program, 1719 East 19th Avenue, Denver, CO 80218.

E-mail address: pstonehighlandspresidency@comcast.net (P.A. Stone).



Fig. 1. Initial presentation of left lower extremity post-traumatic ulceration with noted Marjolin's ulcer proximally.



Fig. 2. Initial presentation of right lower extremity post-traumatic wound.

nodular growth of his left leg, which demonstrated pseudoepitheliomatous hyperplasia, squamous atypia, and inflammation without definitive invasive squamous cell carcinoma. The patient was seen by

an orthopedic physician who recommended that the patient undergo bilateral below the knee amputation. The patient adamantly refused this plan and presented to our clinic 1 month later.

At the patient's initial visit, he reported not noticing much change in the appearance of his nonhealing wounds from his initial injury until July 2014. At that time, he did not recall any new inciting trauma, but he had developed significant bilateral lower extremity edema and his wounds had worsened. He admitted to a 60-pack year smoking history and stated that he had quit smoking after his most recent hospitalization. He reported living alone and working part time from his residence. He denied any alcohol or recreational drug use.

On physical examination, his lower extremity muscle strength was within normal limits, the pedal pulses were nonpalpable secondary to profound pitting edema, and protective sensation was diminished. Both wounds extended from the tibial tuberosity to the proximal ankle and had a cobblestone appearance and purulent drainage (Figs. 1 and 2). The right wound measured $28.6 \times 6.8 \times 1.4$ cm and did not have muscle, tendon, or bone exposed. The left wound measured $31.5 \times 7.5 \times 2.6$ cm and appeared to have a granuloma adjacent to a deep ulcer cavitation, with visibly exposed bone. A wet-to-wet dressing of Dakin's 0.25% solution was applied, and the patient was instructed to change the dressing twice daily. Lower extremity arterial duplex studies and radiographs were ordered and showed adequate perfusion (Figs. 3 and 4). Noninvasive arterial Doppler examinations revealed no significant stenosis, with biphasic pulses noted to the dorsalis pedis and posterior tibial arteries, although the ankle brachial indexes were elevated bilaterally, at 1.4. The transcutaneous oxygen measurements above and below the wounds were also recorded. On the right, the measurements were 45 and 33 mm Hg above and below the wound and on the left, the measurements were 41 and 22 mm Hg, respectively. A vascular surgery consultation was obtained, which



Fig. 3. Anteroposterior view of left tibia showing a 10.3- x 3.9-cm geographic bone lesion.



Fig. 4. Lateral view of left tibia showing a 10.3- x 3.9-cm geographic bone lesion.

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