Calciphylaxis: An Unusual Presentation on the Heel

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Statement of Purpose
Case review of a case of calciphylaxis with the first presenting lesion on the heel. The patient was evaluated initially and found to have no heel lesions. Six days after initial evaluation, the service was re-consulted for a pressure ulceration to heel which was found to be calciphylaxis. This study serves to review calciphylaxis and its characteristics.

Case Study
A 61y Hispanic female presented to ED, from a skilled nursing facility, with a temperature of 102.5°F with complaints of thigh redness and swelling, abdominal pain, nausea, and vomiting. Past medical history was significant for asthma, congestive heart failure, hypertension, gastroesophageal reflux disease, chronic renal failure (dialysis started Aug 2012), diabetes mellitus, rheumatoid arthritis (on chronic steroids), chronic leaking cysts, depression, anxiety, and a history of an embolic CVA (on Coumadin). Past surgical history was significant for L&D of posterior right thigh abscess and bilateral knee replacements. She had no history of smoking, alcohol, or intravenous substance abuse. Her white count on admission was 31.1. Patient was admitted with the diagnoses with urinary tract infection, cholelithiasis, questionable cholelithiasis difficulties, and a history of calciphylaxis. Antibiotics were initiated to include oral Vancomycin, intravenous Flagyl, and intravenous Aminoc. Further lab work performed on the floor revealed an albumin of 2.0 (normal range 3.5-5.0), prealbumin 8.9 (normal range 7.4-22), fibrinogen 367 (normal range 204-431), phosphorus 1.9 mg/dl (normal range 2.5-4.5), alkaline phosphatase 313 U/L (normal range 38-126).

Podiatry was consulted on hospital day 10. Physical examination revealed palpable dorsalis pedis and posterior tibial pulses bilaterally. A superficial ulcer was noted at the calcaneal-cuboid joint of the left foot with no purulence, no malodor, and no probing. Patient was also noted to have a right posterior leg superficial ulceration with no purulence, no malodor, and no probing. No erythema was noted at the lower extremity at this time. X-Ray imaging showed evidence of previous Charcot of the left foot without periostial reaction and no evidence of osteomyelitis.

Case Study Continued
Hematology/Oncology was consulted with recommendations that the patient had a vitamin D deficiency secondary to malabsorption/deficiency, as well as malnutrition. Treatment included vitamin D therapy. Serology for vasculitis was negative.

Six days after the initial podiatric evaluation, the patient had developed a left posterior heel ulceration with purulent erythema and a necrotic base. Re-examination of the extremities two days later revealed violaceous tissue with patches of necrosis to bilateral legs. Further laboratory work was ordered showing normal calcium (8.2), normal phosphorus (3.7) and normal parathyroid hormone (56.9). A biopsy was performed which revealed "Multifocal calcium deposition, including calcification of small and medium size vascular structures with ischemic change. Histologic findings consistent with calciphylaxis.” The patient was started on Sodium Thiosulfate 25g IV.

Analysis and Discussion
The hallmark signs of calciphylaxis must be kept in mind when assessing the patient. Affected patients will present with peripheral pulses, bilateral necrosis, and frequent involvement of the lower extremity. The clinical manifestations of calciphylaxis are similar to those of other vascular disorders: therefore making diagnosis difficult. Disorders that share the characteristics of calciphylaxis include: Arteriosclerosis, DIC, Causaini necrosis, connective tissue disorders, CREST and Scleroderma. Arteriosclerosis/cholesterol embolus is a disease process of the medium large arteries rather than the small medium. Necrosis is generally seen at the tips of the digits. Unlike vasculitis, there are very few inflammatory cells in and around the blood vessels unless the skin is secondarily infected. Disseminated intravascular coagulopathy presents similar to a deep vein thrombosis with persistent bleeding from puncture sites. CREST/CREST patients typically have Raynaud’s phenomenon along with swelling of the distal extremities and polyarthralgia.

Analysis and Discussion Continued
The gold standard for diagnosis of calciphylaxis is biopsy. There is no pathognomonic feature of calciphylaxis on histologic examination; however, the most consistent microscopic feature is acute and chronic granulomas with a predominantly septal pattern. In addition, microcalcifications in small to medium sized vessels are appreciated. A high index of suspicion is required when diagnosing and treating calciphylaxis. The early stages of the disease often mimic other disease processes. This particular case was complicated by the presence of lesions location of the heel. The patient was thought to have a decubitus ulceration. It was not until a review of the patient’s notes that it was noted she was lesion free on admission. In addition, the patient’s laboratory results were within normal limits. The patient’s co-morbidities along with the rapid progression of necrosis led to the decision to biopsy. Initiation of treatment in a timely fashion resulted in preservation of the patient’s limb, while preventing sepsis.

References