Title
Tender, necrotic plaques of the glans penis due to calciphylaxis

Permalink
https://escholarship.org/uc/item/1hs0c1qm

Journal
Dermatology Online Journal, 21(6)

Authors
Endly, Dawnielle
Irfan, Mahwish
Piliang, Melissa

Publication Date
2015

License
CC BY-NC-ND 4.0

Peer reviewed
Case presentation

Tender, necrotic plaques of the glans penis due to calciphylaxis

Dawnielle Endly DO¹, Mahwish Irfan MD², Melissa Piliang MD²

Dermatology Online Journal 21 (6): 8

¹Department of Dermatology, Largo Medical Center, Largo, FL
²Department of Dermatology, Cleveland Clinic Foundation, Cleveland, OH

Correspondence:
Dawnielle Endly, DO
Department of Dermatology, Largo Medical Center
201 14th St SW
Largo, FL 33770
E-mail: dawnielleendly@hotmail.com
Telephone: 727-588-5704
Fax: 727-585-7205

Abstract

Calciphylaxis, also known as calcific uremic arteriolopathy, is a rare, but often fatal condition involving vascular calcification that can result in tissue ischemia and cutaneous necrosis. It is most often seen in patients with renal failure among many other occasionally reported etiologies. Below, we present a rare and challenging case of calciphylaxis involving the glans penis and right leg in a man with end stage renal disease on hemodialysis.

Keywords: calciphylaxis, calcific uremic arteriolopathy, penile necrosis

Introduction

Calciphylaxis, also known as calcific uremic arteriolopathy, is a rare, yet serious condition characterized by vascular calcification resulting in tissue ischemia and cutaneous necrosis [1]. Owing to extensive collateral circulation of the perineum and lower abdomen, calciphylactic necrosis of the penis is very rare with very few cases reported in the literature [2]. We describe a challenging case of calciphylaxis involving the glans penis and right leg in a man with end stage renal disease on hemodialysis.

Case synopsis

A 58-year-old man with a history of end stage renal disease on hemodialysis, peripheral arterial disease, and diabetes mellitus was admitted to the hospital with necrosis of the glans penis and right leg as well as a rash on his right leg. He first noticed tender, erythematous macules on his penis and right leg one month prior to presentation with a rapid progression to the current state. The patient’s left leg had been amputated below the knee four months earlier as a result of acute limb ischemia secondary to peripheral arterial disease. He denied any history of recent illness, trauma, fever, or chills.

Upon admission, he was started on morphine for pain and a dermatology consult was requested. Cutaneous examination revealed a 2 cm firm, black, leathery necrotic plaque with surrounding poorly demarcated purpura of the glans penis (Figure 1). A 10 cm
black, necrotic plaque with surrounding retiform purpura was also present on his posterolateral right leg (Figure 2). A 5mm punch biopsy was performed on a violaceous patch on the right leg. The histopathologic findings of the punch biopsy specimen revealed a necrotic epidermis and dermis with dilated blood vessels containing small vascular thrombi (Figure 3). Calcium deposits involving the small and medium sized vessel walls in the deep dermis and the subcutaneous tissue were noted. Von Kossa staining was performed and highlighted the calcium deposits within the vessel walls (Figure 4), confirming a diagnosis of calciphylaxis.

Laboratory evaluation revealed normal calcium (9.0 mg/dL), phosphorous (4.1 mg/dL), and corrected-calcium x phosphorous product (39.8 mg²/dL²). The parathyroid hormone was found to be elevated (410 pg/mL).

The patient was treated with ongoing hemodialysis, sodium thiosulfate, and hyperbaric oxygen. Ultimately, he succumbed to his disease three months later.

**Discussion**

The exact pathogenesis of calciphylaxis remains unclear, but it occurs predominantly in those with end stage renal disease undergoing chronic hemodialysis. Other risk factors include female gender, diabetes, obesity, concomitant vascular disease, elevated calcium x phosphate product (CPP), and hyperparathyroidism secondary to nephropathy [1,3]. A CPP greater than 70


