Title: Penile Calciphylaxis in an ESRD patient.

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Background: Penile Calciphylaxis occurs in about 1–4% of hemodialysis patients worldwide. Associated mortality rates are very high, and hyperparathyroidism is the second most frequently associated disorder. Addressing the resulting metabolic imbalance, and ~~s~~urgical intervention guided by findings of radiological studies may improve quality of life**. T**he pathogenesis is thought to be mediated by vascular smooth muscle cells which differentiate into osteoblast-like cells. Decrease in vascular calcification inhibitory proteins fetuin-A and matrix Gla is found in patients on dialysis causing systemic medial calcification of arterioles, leading to epidermal ischemia, tissue infarction, and ulceration.

Case presentation: 47-year-old male with history of coronary arterial disease, type 2 diabetes mellitus, and end stage renal disease on dialysis presented with penile pain. Onset was 1.5 months earlier. Patient was evaluated multiple times, resulting in several antibiotic cycles without much perceived improvement.

On presentation patient's vital signs were unremarkable. Genitourinary exam showed a penis with a necrotic center around the urethral meatus opening and white ischemic patches on the glans. Additionally, darkened penis shaft and ulcerative foreskin lesions were visible. Parathyroid hormone and phosphorus were elevated, 480 pg/mL and 5.1 mg/dL respectively~~.~~ CT scan of the abdomen showed calcification along the shaft of the penis and glans. The patient started antibiotic therapy, pain management~~,~~ cinacalcet and a trial of sodium thiosulfate. Total penectomy and suprapubic catheter placement were done successfully~~.~~ Pathology report confirmed the diagnosis.

Conclusion: Because penile calciphylaxis is a metabolically mediated progressive disease, systemic treatment is vital in attempting to slow its progression. These do little to address the pain and urinary retention from necrosis, so the need of a wider and proximal resection, which also helps foster better wound healing. This case illustrates the importance of a prompt and accurate diagnosis of penile calciphylaxis, and management of its systemic manifestation.