



## Functional Urology

# Penile calciphylaxis with penoscrotal necrosis: A case report with literature review

Zhino Noori Hussein<sup>a</sup>, Rawa Bapir<sup>a,b,c</sup>, Saman Salih Fakhralddin<sup>a,b,d</sup>, Ari M. Abdullah<sup>b,e</sup>, Karzan M. Salih<sup>b</sup>, Fahmi H. kakamad<sup>b,c,d,\*</sup>

<sup>a</sup> Department of Urology, Sulaimaniyah Surgical Teaching Hospital, Kirdistan Region, Iraq

<sup>b</sup> Smart Health Tower, Madam Mitterrand Street, Sulaimani, Kurdistan, Iraq

<sup>c</sup> Kscien Organization, Hamdi Str., Azadi Mall, Sulaimani, Kurdistan, Iraq

<sup>d</sup> College of Medicine, University of Sulaimani, Madam Mitterrand Street, Sulaimani, Kurdistan, Iraq

<sup>e</sup> Sulaimani Teaching Hospital, Sulaimani, Kurdistan, Iraq



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## ABSTRACT

Penile calciphylaxis, also known as calcific uremic arteriolopathy is an uncommon condition of the penile vessels due to its extensive vascular network. The aim of this report is to report a very rare case of penile calciphylaxis with penoscrotal necrosis. A 54-year-old male patient presented with progressive penoscrotal necrosis within a duration of one month. He had a history of diabetes mellitus and stage 5 chronic kidney disease. Under spinal anesthesia, partial penectomy and excision of the necrotic scrotum were performed. Histopathological examination was consistent with calciphylaxis. Despite it is a rare occurrence, penile calciphylaxis should be included in the different diagnosis of any diabetic and end stage kidney disease patients who presented with penile pain.

## 1. Background

Calciphylaxis is a rare but potentially fatal condition characterized by calcification and fibrosis of medium and small blood vessels, leading to gangrene of the affected tissues. It typically affects adipose-rich tissues in the distal limbs, buttocks, and thighs. Penile calciphylaxis is a rare condition with an incidence of up to 4% in individuals with end-stage renal disease on hemodialysis.<sup>1</sup> The current study seeks to report an extremely rare case of penile calciphylaxis with penoscrotal necrosis.

## 2. Case presentation

**Patient's information:** A 54-year-old male patient presented with progressive penoscrotal necrosis within a duration of one month. He had a history of diabetes mellitus for the last 18 years, hypertension and blindness due to progressive diabetic retinopathy, and stage 5 chronic kidney disease on hemodialysis three times weekly.

**Clinical presentation:** His condition started as penile pain with black discoloration of the glans progressing to the shaft of the penis and upper scrotum. Physical examination revealed necrosis of the glans and penile shaft extending to the upper scrotum (Fig. 1).

**Diagnostic assessment:** Investigations showed leukocytosis (WBC 13000 cells), Low hemoglobin (Hb) (8.1g/dl), high HbA1c (9.1%), and high serum parathyroid hormone level (210 pg/ml). Serum calcium and phosphate were within the normal limit.

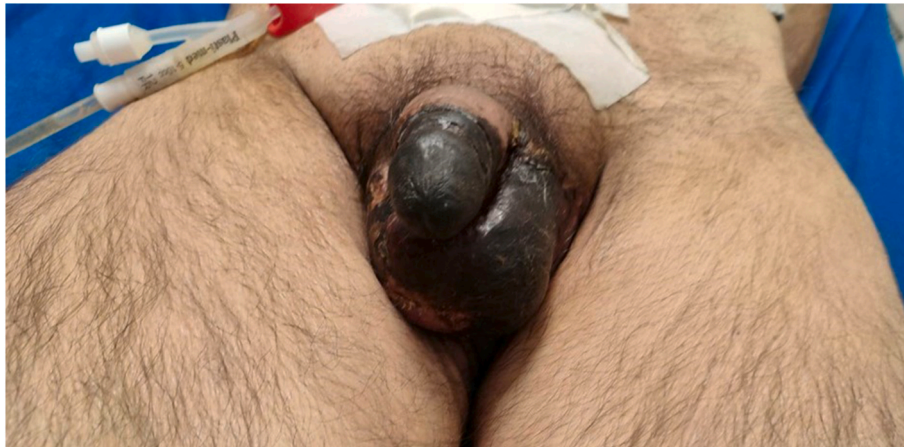
**Therapeutic intervention:** After optimization of his general condition, under spinal anesthesia, partial penectomy and excision of the necrotic scrotum were performed. Twelve French foleys catheter was inserted (Fig. 2) and kept in situ for two weeks. Histopathological examination revealed calcification of the tunica media and intimal fibrosis, which is consistent with the diagnosis of calciphylaxis (Fig. 3).

**Follow up:** The immediate post-operative period was uneventful. Two weeks later, the foleys catheter was removed and was kept on daily wound care and regular dialysis. Unfortunately, the patient died 2.5 months later due to his multiple comorbidities.

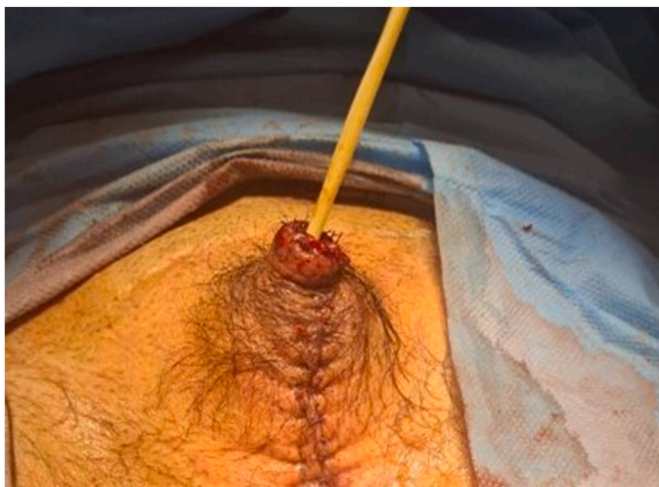
## 3. Discussion

Penile calciphylaxis is a rare and potentially fatal manifestation of systemic calciphylaxis. Calciphylaxis occurs due to calcium deposition with subsequent fibrosis and thrombosis in tiny dermal and subcutaneous vessels. The most common risk factors for developing

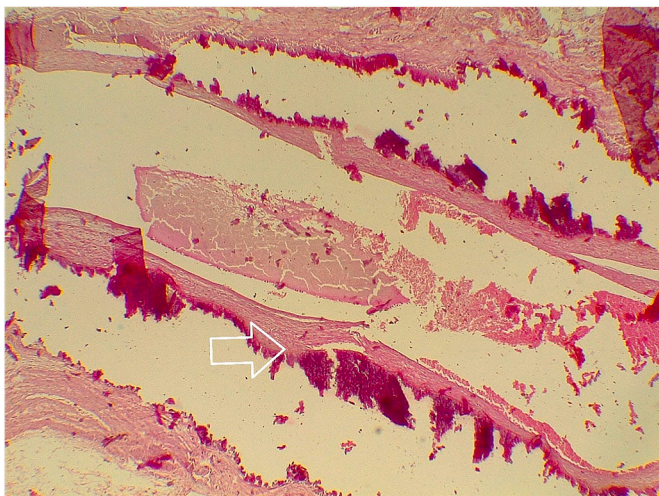
\* Corresponding author. Doctor City, Building 11, Apartment 50, Sulaimani, Iraq.  
E-mail address: [fahmi.hussein@uniuvsul.edu.iq](mailto:fahmi.hussein@uniuvsul.edu.iq) (F.H. kakamad).



**Fig. 1.** Condition of the patient during physical examination demonstrating dry penile gangrene of the penis and upper scrotum.



**Fig. 2.** Immediate postoperative picture showing partial penectomy over a 12 Fr Foleys catheter.



**Fig. 3.** Penile Calciphylaxis: Calcium deposition (arrow) in the intima and media of large blood vessels with thrombi in the lumen.

serum albumin, and elevated serum alkaline phosphatase levels.<sup>1</sup> The diagnosis can be challenging before necrosis is established but should be considered in individuals with end-stage chronic kidney disease and a painful penile lesion. Doppler ultrasonography, computed tomography and magnetic resonance imaging all are helpful in the diagnosis of suspicious cases.<sup>2</sup> Sodium thiosulfate and surgical intervention have been suggested as treatment options, but the advantages of surgical intervention are still debatable.<sup>1</sup> Without proper therapy, calciphylaxis is associated with a significant incidence of morbidity and mortality.<sup>3</sup> Calciphylaxis patients have an extremely bad prognosis, with a life expectancy of up to 6 months following the emergence of necrosis, and death is usually caused by sepsis, multisystem organ failure, or myocardial infarction.<sup>4</sup>

#### 4. Conclusion

Although penile calciphylaxis is rare, it must be included in the differential diagnosis of diabetic and end stage kidneys disease patients who present with penile pain and ulcers. Surgical intervention should be considered for patients at high risk of illness development.

#### References

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calciphylaxis include female gender, raised serum phosphate, elevated