

## Necrosis of the glans complicating uremic calciphylaxis: About a case

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### Abstract

Uremic calciphylaxis is a rare disease that almost exclusively affects patients with end-stage renal failure and chronic hemodialysis. Glans necrosis is a rare complication of this disease. In this report, we present the case of a 67-year-old patient with diabetes and chronic renal failure who was undergoing hemodialysis and presented with a clinical picture of glans necrosis suggestive of uremic calciphylaxis. The treatment for this patient consisted of partial amputation of the penis.

**Key words:** Calciphylaxis; Necrosis; Glans; Uremic; Complicating; Penis

### 1. Introduction

Glans necrosis is a rare pathology that can occur in diabetic or chronic renal failure patients as part of uremic calciphylaxis (1,2). This pathology is thought to result from progressive vascular calcification due to secondary hyperparathyroidism in patients with chronic renal failure (3). This report presents a case of a patient who had glans necrosis in connection with calciphylaxis.

### 2. Observation

The patient is a 67-year-old male with type 2 diabetes, end-stage renal failure, and a history of chronic hemodialysis for five years. He presented with pain and necrosis of the glans penis. The biological tests revealed an inflammatory syndrome, secondary hyperparathyroidism, and phosphocalcic disorders. The angioscanner showed 25 mm of abscessed necrosis of the anterosuperior part of the glans, with pudendal and penile arterial calcifications and opacification defects. The patient's clinical presentation was consistent with a diagnosis of calciphylaxis. Additionally, the patient underwent partial amputation of the penis, and the surgical specimen was sent to the laboratory for histological analysis. Post-operative management was uneventful.

### 3. Discussion

Calciphylaxis can cause necrosis of the penis or glans, which is a rare and serious complication. This condition was first described by Selye in 1962(4) and is most commonly observed in end-stage renal failure patients undergoing dialysis. It occurs due to calcification and occlusion of micro-vessels in the dermis and hypodermis (5,6), which can lead to thrombosis and subsequent skin necrosis. Impaired renal function can cause elevated levels of phosphorus and calcium, leading to an increase in parathyroid hormone. This, in turn, reduces intracellular calcium output, promoting vascular calcification (7). The biological diagnosis of calciphylaxis relies on determining blood levels of calcium, phosphorus, and

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parathyroid hormone (8). The patient's biological work-up revealed phosphocalcic disorders and increased parathyroid hormone levels.

Clinically, calciphylaxis is characterized by the appearance of painful skin lesions, usually symmetrical, which can lead to ulceration and bedsores. These lesions affect the trunk, buttocks, and thighs, and rarely the glans. The penis is often spared due to its rich vascularization (1, 2, 9). The patient presented with lesions that were confined to the glans penis.

CT scans may reveal diffuse arterial calcifications (3,5). The patient's angioscan revealed 25 mm of potentially abscessed necrosis of the anterosuperior part of the glans, with pudendal and penile arterial calcifications with opacification defects. Although MRI of the penis can help define the limits of the zone of necrosis (1), it was not performed in this case. In typical forms, anatomopathological examination can reveal calcifications composed of calcium and phosphorus deposits in the walls of skin and muscle arterioles, along with fat necrosis and infiltration by inflammatory cells (5). The treatment for glans necrosis is primarily surgical (1, 2). The patient in question underwent partial amputation of the penis, including the entire area affected by necrosis.



**Figure 1** Image showing necrosis limited to the glans.

The surgical specimen was sent to the laboratory for histological analysis. Post-operative management was uncomplicated. He was referred to the nephrology department for further treatment. Preventive treatment for calciphylaxis involves managing secondary hyperparathyroidism and phosphocalcic disorders (5). Some authors recommend parathyroidectomy and hyperbaric oxygen therapy to aid in the healing of skin lesions (1,10).



**Figure 2** Image showing partial amputation of the penis

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#### 4. Conclusion

Necrosis of the glans is a rare but potentially serious complication that occurs most frequently in patients with chronic end-stage renal failure and on chronic hemodialysis. Treatment is essentially surgical.

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#### Compliance with ethical standards

##### *Disclosure of conflict of interest*

The authors have declared no conflict of interest in relation to this article.

##### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study

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