

## Case Report

# Severe gangrene at the glans penis requiring penectomy as the first major complication of Buerger's disease

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**Abstract:** We report an interesting case of Buerger's disease that manifested at the glans penis in a 56 year-old former smoker. Penile involvement in Buerger's disease is rare. Our patient had no prior extremity or digit amputations in his 4-year history of Buerger's disease. However, our patient did suffer from recurrent penile ulcers over an 8-week timeframe that ultimately progressed to a gangrenous, unsalvageable glans penis. He underwent a partial penectomy and urethral reconstruction with excellent post-operative results.

**Keywords:** Buerger's disease, glans penis, penile involvement, penectomy, urethral reconstruction

## Introduction

Buerger's disease, also known as thromboangiitis obliterans, is a non-atherosclerotic, segmentally sclerosing vasculitis that generally affects medium- and small-sized vessels. The typical patient is a male smoker between the ages of 40 to 45. Buerger's disease causes intermittent claudication and vascular ischemia that usually manifests as gangrene, autoamputation of digits, and superficial nodular phlebitis [5]. Veins and arteries in the extremities are most commonly affected, and it is not uncommon to undergo surgical amputation of the extremities or digits as a result of gangrene [3]. Meanwhile, penile involvement is rare. In two reported cases, both patients had extensive manifestations in their lower extremities that required above-knee amputations before ultimately undergoing a penectomy [1, 4]. The pathogenesis of this disease process is still largely unclear, although smoking appears to be important to its initiation and propagation [5].

## Case report

A 56-year-old smoker with a history of Buerger's disease presented for urologic evaluation of

recurrent penile and scrotal ulcers of one year in duration. These had subacutely progressed to an eschar obscuring the urethral meatus. He had a 4-year history of Buerger's disease that manifested as non-healing sets of wounds in his distal lower extremities. However, these wounds were eventually managed successfully and conservatively with Silvadene dressing. The patient never required any radical procedures to treat symptoms of his disease, such as extremity or digit amputations.

The patient had been a smoker since his early teens with an 80 pack-year history, and had only stopped smoking 8 days prior to his penile operation. He had been seen by specialists in vascular surgery, general surgery, infectious disease, and dermatology prior to being evaluated by urology. Of note, the patient also had a history of acyclovir-resistant herpes simplex virus-2, and had been treated with valganciclovir quite successfully for nearly a year before his operation. However approximately 8 weeks prior to being evaluated by urology, the patient developed a new set of ulcers that persisted and progressed to frank gangrene of the glans penis despite being treated with the previously successful valganciclovir.

## Buerger's disease at the glans penis requiring penectomy



**Figure 1.** Preoperative photograph of a grossly necrotic, gangrenous glans penis belonging to a 56-year-old male smoker with Buerger's disease.



**Figure 2.** Preoperative photograph showing necrosis of glans penis with no scrotal involvement.



**Figure 3.** Postoperative photograph of the penis after a partial penectomy with complete resection of the glans penis and urethral reconstruction.

Physical examination revealed a large tender eschar on the glans penis that extended to and obscured the urethral meatus. There was also a 3-centimeter purulent ulcer on the left aspect of the distal ventral shaft (**Figure 1**). No scrotal involvement or distal extremity involve-

ments were appreciated at the time of our initial evaluation (**Figure 2**). Laboratory findings were normal.

The patient was advised to apply a Silvadene cream to the area prior to his surgery. Two weeks later, the patient underwent a partial penectomy with urethral reconstruction (**Figure 3**). The distal penis, which included the glans penis and measuring  $3.2 \times 3.0 \times 2.6$  cm, was amputated with careful preservation of as much of the urethra and corporal tissues as possible. The penectomy left viable and well-vascularized margins. Pathologic examination of the devitalized penile tissue showed necrosis, marked suppurative inflammation, and hemorrhage with no evidence of HSV1 or HSV2. GMS, AFB, and gram stains were also negative for fungal, mycobacterial, and bacterial organisms, respectively. These findings are consistent with Buerger's disease and also helped to rule out any infectious causes for the gangrene.

### Discussion

Buerger's disease is a non-atherosclerotic, segmentally sclerosing vasculitis that generally manifests with symptoms of vascular claudication in the limbs and digits of male smokers between the ages of 40 to 45 [5]. Multisystem manifestations, including cerebral, coronary, and mesenteric involvement, have been documented [2]. However, penile involvement is rare, and while it has been documented twice before in the literature, both of those reported cases featured patients who had significant vascular complications in their lower extremities that required above-knee amputations prior to a penectomy [1, 4]. The patient in our case is a 56 year-old male smoker, who despite having nonhealing ulcers in the past that were successfully treated with conservative measures, had no other major vascular consequences except for penile involvement. Most notably, he never had any prior extremity or digit amputations, and his first surgical operation as a consequence of Buerger's disease was his partial penectomy. This case illustrates that Buerger's disease may not necessarily manifest significantly as a disease of the extremities and digits, as it most commonly does, but it may rather first present as a serious, life-threatening problem at the penis. Due to his unsalvageable gangrene at the glans penis, our patient was treated operatively with

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a partial penectomy and reconstruction of the urethra.

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### Disclosure of conflict of interest

None.

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