

## Inflammation and Infection

## Penile Abscess: A Case Report and Review of Literature

Cindy Garcia<sup>a,\*</sup>, Matthew Winter<sup>b</sup>, Venu Chalasani<sup>a,c</sup>, Thomas Dean<sup>a,d</sup><sup>a</sup> Department of Urology, Hornsby Ku-Ring-Gai Hospital, NSW, Australia<sup>b</sup> Department of Urology, Hornsby Ku-Ring-Gai Hospital, NSW, Australia<sup>c</sup> University of Sydney, NSW, Australia<sup>d</sup> Department of Urology, Sydney Adventist Hospital, NSW, Australia

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## ABSTRACT

A case of penile abscess after amphetamine injection into the penis is reported. A 45-year-old male patient was successfully treated with surgical drainage and antibiotics. There were no 3-month consequences of treatment at follow-up, and the patient maintained potency, without any penile deformity. The aetiology, diagnosis, and management of penile abscesses are discussed.

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## Introduction

Penile abscesses are an uncommon urologic condition and have been described in association with penile trauma, in the presentation of disseminated infection, or in association with underlying disease such as poorly controlled diabetes mellitus. The most commonly implicated organisms in penile abscess include *Staphylococcus aureus*, Streptococci, Fusibacteria, and Bacteroides.<sup>1</sup> Penile abscesses may be diagnosed with various imaging modalities, including magnetic resonance imaging (MRI), computed tomography (CT), and ultrasound. Such modalities may be used to concurrently treat penile abscesses; however, surgical evacuation and antibiotic therapy remain first line. We present a unique case of penile abscess in a 45-year-old male patient occurring after injection of amphetamine into the penis.

## Case presentation

We report a case of penile abscess in a 45-year-old man who presented 1 week after self-injection of amphetamine into the dorsal aspect of his penis. The penis was chosen as an injection site

in the absence of suitable peripheral veins; a used syringe needle was utilized for drug injection. On presentation to the emergency department, the patient had a fluctuant necrotic area, approximately 2 × 3 cm at the base of the dorsal aspect of his penis associated with moderate penile shaft oedema (Fig. 1). This patient had a history of intravenous (IV) drug use in the absence of a significant medical history or sexually transmitted disease. He was afebrile, and C-reactive protein was 55 on presentation. He was given IV antibiotics and underwent immediate surgical intervention. Widespread excision and drainage were performed. Approximately 10 mL of pus was drained and copious washout performed. Partial dorsal vein thrombosis was noted during surgical exploration (Fig. 2). Normal saline soaked gauze, combine, and crepe dressing were applied. The patient continued with 48 hours of IV piperacillin with tazobactam and daily dressings. He completed a further 2 weeks of oral antibiotics and daily dressings. Wound swab identified gram-negative rods suggestive of Fusiform Anaerobes. On review, day 31 postoperatively, the patient had a well-granulated wound almost completely healed by secondary intention (Fig. 3).

## Discussion

Penile abscesses are an uncommon urologic condition that most commonly present with a localized penile swelling and painful erections. The causes of penile abscess are variable but might be associated with penile trauma, injection, and disseminated infection. A significant number of spontaneous penile abscess cases are reported with no inciting event identified.

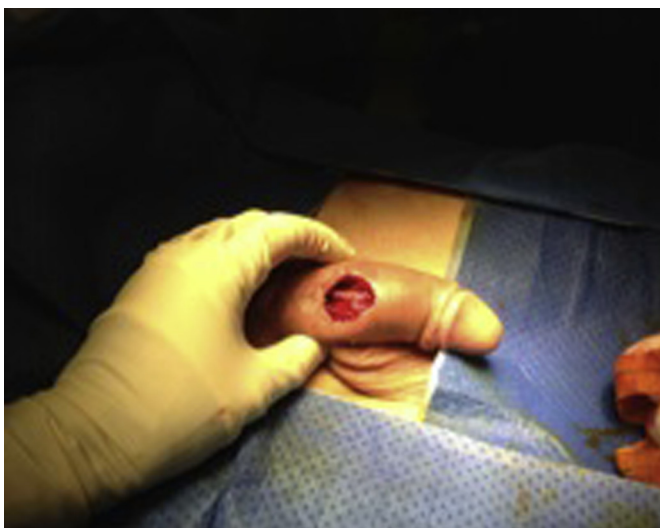
\* Corresponding author. Tel.: +61-2-9477-9123.

E-mail address: [cindy.jc.garcia@gmail.com](mailto:cindy.jc.garcia@gmail.com) (C. Garcia).



**Figure 1.** Penile abscess located on dorsal aspect of penis.

The varied aetiologies of penile abscess are also reflected in the variation of organisms cultured from abscess swabs. Organisms cultured from penile abscesses in various case reports include the following: *Streptococcus constellatus*, *Streptococcus intermedius*, *Prevotella bivia*, *Streptococcus anginosus*, *Enterococcus faecalis*, *Escherichia Coli*, *Mycobacterium tuberculosis*, and *Staphylococcus aureus*.<sup>1</sup> A recent review of penile abscess case reports by Dugdale



**Figure 2.** Partial dorsal vein thrombosis.



**Figure 3.** Day 31 postoperative, secondary intention healing.

et al identified *Staphylococcus aureus*, Streptococci, Bacteroides, and Fusibacteria as the most commonly implicated organisms.

Cases of penile abscess after intracavernosal injection have previously been reported in literature. Penile abscesses have been cited as a consequence of penile injection with both pharmaceutical substances, such as alprostadil and papaverine,<sup>1</sup> and non-pharmaceutical substances, such as petroleum jelly.<sup>2</sup> Injection of substances into the penis for the purposes of enhancing penile girth or sexual performance causes penile abscess by the introduction of bacteria and subsequent establishment of infection and localized abscess formation. The injection of illicit substances into the penis, however, is rare because of the paucity of the practice among intravenous drug users.

Among intravenous drug users, the groin and neck are perceived to be the most dangerous site of injection and thus might account for its limited use as an injecting site.<sup>3</sup> Approximately 6% of intravenous drug users inject into the groin area, with an even smaller proportion injecting into the penis.<sup>3</sup> Often, genitalia are used as a site of drug injection in the absence of suitable peripheral limb access. Drug injection into the groin area tends to occur with prolonged length of intravenous drug injection.<sup>3</sup> The consequences of drug injection into the penis are varied and might include penile abscess as in this case, in addition to Fournier's gangrene or penile ulcers.

Clinical suspicion of a penile abscess might be confirmed through ultrasound, CT, or MRI. Ultrasound is an inexpensive and accessible imaging modality that allows concurrent drainage of the penile abscess.<sup>4</sup> CT has also been used as a means of imaging penile abscess, in addition to aiding image-guided aspiration.<sup>5</sup> Image-guided aspiration of penile abscess, although not common, is minimally invasive and might avoid the complications of poor erectile function and penile deviation, which are more common in surgical drainage.<sup>1,4</sup>

Despite the benefits of the conservative approach, surgical evacuation remains first line in the treatment of penile abscess because of the risk of abscess recurrence in the event of incomplete evacuation.<sup>1</sup> Surgical drainage is used in cases in which the penile abscess is spontaneous, and in those cases complicated by coexisting penile trauma, extensive infection, or failed conservative management. In cases in which penile trauma has precipitated the development of abscess, surgical drainage allows concurrent treatment of both the abscess and its inciting event. In addition, surgical management has the added benefit of allowing surgeons to assess any compromise of the surrounding anatomy.

Various complications after surgical management of penile abscesses might occur. The most frequent complication after penile abscess, and its surgical management, is penile curvature. The development of penile fibrosis and curvature after penile abscess formation generally does not result in poor erectile function.<sup>4</sup> Complications that occur after surgical drainage might require further management with penile prosthesis or surgical intervention to correct complications.<sup>4</sup> In this case of amphetamine injection into the penis, the patient did not experience any complications after surgery and regained normal erectile function, in the absence of penile deformity.

### Conclusion

Penile abscesses are an uncommon condition. There are multiple aetiologies of penile abscesses, including penile injection, penile trauma, and disseminated infection. Penile abscesses might also occur in the absence of an underlying cause. The treatment of penile abscesses should depend on the extent of infection and the cause of the abscess. Most cases of penile abscess necessitate surgical debridement, in addition to antibiotic therapy. Complications of

surgery might include penile fibrosis and curvature. These complications rarely require treatment, however, they should be addressed in pre-operative and post-operative.

### Conflict of interest

The authors of this case report have no conflicting interests to declare.

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