



Infection of the Penuma penile implant and associated post-operative complications: A case report

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ARTICLE INFO

Keywords:

Penile prosthetic infection
Girth enhancement
Post-operative complications

ABSTRACT

The Penuma penile implant is the only FDA approved device for cosmetic correction of the penis. We present a case of an infected Penuma implant that presented similarly to penile prosthesis infection. Explantation is recommended, similar to the management of infected penile prosthesis, via an infrapubic approach, which differs from explantation of a penile prosthesis. Post-operatively, the patient developed penile shortening and dorsolateral curve, which is important to discuss when counseling patients.

1. Introduction

The Penuma implant is a medical-grade silicone device approved by the US Food and Drug Administration (FDA) in 2004 for cosmetic correction of soft tissue penile deformities.¹ Since its development, it has been used to enhance patients with bother from their perception of decreased penile length and girth.^{1,2}

Although the Penuma implant may improve penile cosmetics, and even function, it can be associated with post-operative complications. To date, there is only one retrospective study outlining the post-operative complications associated with the Penuma implant.¹ We present an unusual case of an infected Penuma implant.

2. Case presentation

A 42-year-old male, who underwent a Penuma implant 8 weeks prior, presented to the emergency department after 1 week of increased infrapubic swelling, penile pressure and chills. His reported post-operative course was uneventful other than expected penile edema, which was managed with compression dressing. He denied issues with voiding, tumescence or detumescence. On presentation, the patient had tender infrapubic swelling and circumferential penile edema, but afebrile and hemodynamically stable. Lab results included a mild leukocytosis of 10.9 and COVID-positive, however remained asymptomatic.

A computed tomography (CT) scan of the pelvis demonstrated a 5.6 × 13.6 × 6.2 cm fluid collection at the dorsal aspect of the penis that

extended to the anterior pubis, with associated soft tissue stranding (Fig. 1). He was admitted to the hospital for serial exams, laboratory studies, penile compression dressing, and intravenous Vancomycin and Zosyn. His leukocytosis continued to uptrend with increasing edema and infrapubic and penile tenderness. Therefore, on hospital day 3 the decision was made to proceed to the operating room to evaluate the quality of the fluid collection with intention to proceed with incision, drainage, and explant of the Penuma implant if there was sign of infection.

Aspiration of the collection yielded purulent fluid. Thus, we proceeded with explant of the Penuma implant. An incision was made over the prior infrapubic incision with return of approximately 100 cc of purulent fluid (Fig. 2a). The Penuma was subsequently explanted by inverting the penis and cutting the sutures of the Penuma mesh at the junction of the tunica albuginea and dorsal glans in the distal penis (Fig. 2b,c). The patient was left with 2 JP drains, one at the base and the other at the shaft of the penis. Both drains were removed on post-operative day 3 after minimal output was recorded. Intraoperative wound cultures grew *Staphylococcus Aureus* and the patient was discharged with a 7-day course of Bactrim DS.

The patient was seen 3 weeks post-operatively and reported penile shortening, new onset left dorsolateral curvature, and noticeable firmness at the dorsal aspect of his distal penis (Fig. 3a). He had no issues with voiding or tumescence. A penile doppler was performed after facilitating an erection with bimix. Findings demonstrated normal PSV and EDV, but a new 40° left dorsolateral penile curvature (Fig. 3b). Due to his new onset curvature and penile fibrosis, a generic penile rehabilitation was recommended with pentoxifylline 400 mg twice a day,

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<https://doi.org/10.1016/j.eucr.2021.101846>

Received 8 August 2021; Received in revised form 2 September 2021; Accepted 8 September 2021

Available online 9 September 2021

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Fig. 1. (a) Axial CT images of infected Penuma penile implant. (b) Coronal and sagittal CT images of infected Penuma penile implant.

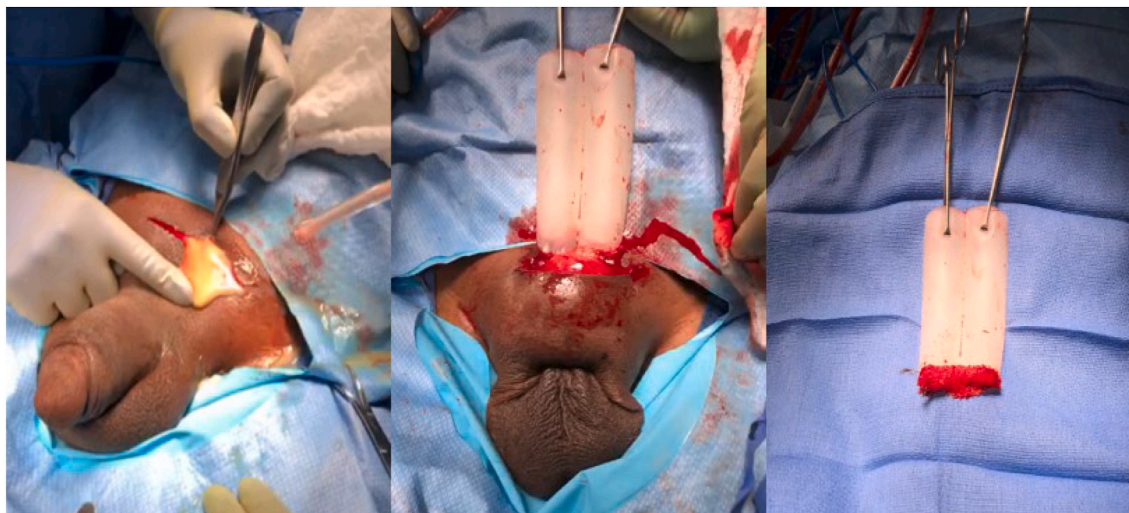


Fig. 2. (a) Infrapubic incision immediate drainage of purulent fluid. (b) Penuma implant removed via penile inversion approach (c) Penuma implant explanted.



Fig. 3. (a) Post-operative penis after explantation of Penuma penile implant. (b) Erect penis with new dorsal curvature after explantation of Penuma penile implant.

tadalafil 5 mg every other day, L-arginine 1000mg daily, and penile stretching with a vacuum erection device. He remains early in the post-operative period with ongoing follow-up.

3. Discussion

Prosthetic surgery in urology is well-established and the risks of surgery have been extensively published.³ For penile cosmetics, the Penuma remains the only FDA approved device. To our knowledge, there is only one retrospective study by *Elist et al.* that documents post-operative complications as seroma, scar formation, and infection,

quoted at an overall rate of 3.3%.¹ Infections noted in this study presented between 5 and 12 months and were associated with wound infection or implant breakage/extrusion.¹ In the case discussed above, the infection occurred approximately 8 weeks post-operatively, and did not present with wound infection or extrusion of the implant, demonstrating it may occur sooner and without typical presentation. Thus, urologists should evaluate and manage a patient with a concern for a Penuma implant infection similarly to those with any penile prosthetic infection.

No literature on salvage procedures for the Penuma implant exists currently. Thus, there are no set protocols on performing salvage or

replacement Penuma implants after removal for infection.

Furr et al. reports a handful of cases describing post-operative complications after explant of a subcutaneous silicone implant for genital enhancement (does not explicitly name the Penuma implant) as penile shortening in 3/4 patients, penile curvature in 3/4 patients, and erectile dysfunction in 1/4 patients.⁴ To regain function, 2/4 patients required reconstructive corrective surgery with excision of the subcutaneous scar.⁴ Our patient experienced penile shortening and curvature, further supporting that it may be expected after explant of the Penuma implant. The etiology of penile shortening and curvature occurs secondary to subcutaneous scarring, which was noted during reconstructive corrective surgery as described above.⁴

4. Conclusion

In conclusion, infection of the Penuma implant can present similarly to traditional penile prosthesis infections with subclinical constitutional symptoms, penile swelling, and tenderness. Implant infections are more likely to present in the setting of implant erosion or extrusion, and persistent wound infection, but can also present without obvious presentation as in this case. Management should lean towards early explant of the implant to prevent sepsis, as is the mainstay of treatment for infection of penile prostheses. We recommend a penile inversion approach for explantation compared to degloving incision as it is the most efficient approach to accessing the implant tacking sutures.

Post-operative complications of explantation should be discussed with the patient to include penile shortening, penile curvature, and possibly erectile dysfunction. However, further studies are required to

define the true complication rate. The role of penile rehabilitation after explantation is also premature to render a conclusion.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

Dr. Rafael Carrion is a consultant for Boston Scientific, Coloplast, and Endo.

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