

Penile Prosthesis Implantation in an Exstrophy-Epispadias Complex Patient: A Case Report



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ABSTRACT

Penile prosthesis implantation (PPI) is a definitive treatment option for patients with medically refractory erectile dysfunction (ED). It is a safe, reliable operation with high patient satisfaction and few complications. We report a novel case of an adult patient with exstrophy-epispadias complex who underwent PPI for ED and discuss the surgical challenges presented by the unique anatomic constraints of this condition. **Sotimehin AE, Burnett AL. Penile Prosthesis Implantation in an Exstrophy-Epispadias Complex Patient: A Case Report. Sex Med 2019; 7:540–542.**

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Key Words: Erectile Dysfunction; Penile Prosthesis; Exstrophy-Epispadias Complex; Treatment

INTRODUCTION

Penile prosthesis implantation (PPI) is a definitive treatment option for patients with medically refractory erectile dysfunction (ED).¹ It is a safe, reliable operation with high patient satisfaction and few complications.¹ Herein, we report a novel case of an adult patient with exstrophy-epispadias complex who underwent PPI for ED and discuss the surgical challenges presented by the unique anatomic constraints of this condition.

Case Presentation

A 42-year-old man with a history of bladder exstrophy-epispadias complex and urethral strictures presented to our hospital seeking consultation for medically refractory ED of 8 years duration. He reported being unable to achieve an erection sufficient for masturbation or sexual activity and denied nocturnal erections. He had previously tried oral medications, penile injection therapy, and vacuum erection device therapy with no improvement of his symptoms. His surgical history was significant for prior urologic surgeries, notably bladder exstrophy repair at age 4, phalloplasty at age 10, and urethroplasty at age 30. His medical history was significant for recurrent urinary tract

infections, obstructive sleep apnea, and obesity with a body mass index of 38.7 kg/m².

On examination, his penis was diminutive with short, laterally displaced anterior corpora and scarring across the ventral surface of the penis. His penis also had slight dorsal curvature. The opening of his urethra was located on the dorsal aspect of the phallus. Scrotal examination confirmed normally descended testes and epididymides bilaterally. Significant scarring was seen in the lower abdomen and pelvic region.

The patient underwent implantation of an inflatable penile prosthesis (AMS 700 CX Penile Prosthesis; American Medical Systems, Minnetonka, MN, USA) and penile reconstruction to achieve adequate cosmesis.

A penoscrotal approach was used to expose the corpora ventrally.¹ Longitudinal corporotomies were made separate from the location of the dorsally positioned urethra. The corporal bodies were then dissected and dilated (Figure 1). Based on maximal stretched corporal body lengths of 19 cm bilaterally, a 12 cm length cylinder device allowing 6 cm rear tip extender attachments was selected and placed within the penis. Inflation of the device revealed significant dorsal curvature to the penis and a ventral droop of the glans penis. To address penile dorsal curvature, transverse relaxing incisions were made on the dorsal aspect of the corpora by delivering the corporal bodies through an extended peno-scrotal incision and elevating Buck's fascia to gain access to the tunica albuginea. Additional penile modeling maneuvers were used to achieve further straightness of the penis.² The relaxing incisions produced a minimal defect <1 cm, which did not require a patch. A glanulopexy was performed to correct his glans hypermobility.³ Given his history of prior abdominal

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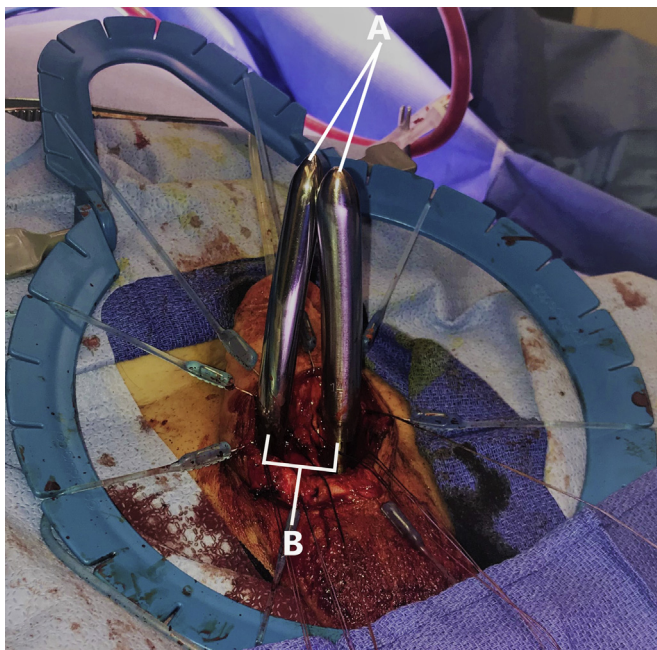


Figure 1. Intraoperative photograph during corporal dilation. A penoscrotal approach with a vertical ventral incision was used to expose the corporal bodies ventrally. The corporal bodies were then dissected and dilated using Hegar dilators (A). Wide spacing demonstrates significant pubic symphysis diastasis and corporal body angulation present in this case (B).

surgery, the reservoir was placed extraperitoneally in a space created behind the rectus muscle on the right side. The pump portion was placed routinely at a subdartos location within the anterior-inferior aspect of the scrotum.

At the 3-month follow-up, he developed epididymitis, with a localized scrotal infection, unrelated to the PPI. Given concern for extension of the infection to the pump, the PPI device was

then removed and replaced with a malleable device. At the 6-month follow-up, he reported adequate satisfaction with use of the malleable device for sexual activity.

DISCUSSION

We present a case that demonstrates the use of a PPI as a definitive treatment for ED in a patient with exstrophy-epispadias complex and highlights the importance of defining pelvic anatomy, phallus length, and penile deformity as penile prosthetic surgical considerations in this patient population.

Classically, patients with bladder exstrophy-epispadias complex are born with increased pubic diastasis, a shortened anterior pubic segment, and a triangular fascial defect containing the exstrophied bladder and posterior urethra. Affected male infants commonly have separated and triangular-shaped corporeal bodies, prominent dorsal chordee, and a dorsally located urethra.⁴

Most patients with exstrophy-epispadias complex have normal sexual function and libido.⁵ Although urinary incontinence and penile deformity are common conditions, many patients express greater concern for penile deformity. The modified Cantwell-Ransley repair and penile disassembly repair are the standard treatments to correct penile deformity.⁴ The incidence of ED is not well-documented in exstrophy-epispadias complex except for one case series, which reports an increased incidence of ED, particularly in patients who have undergone multiple continence surgeries.⁶ However, it is possible that psychogenic ED, diminutive penis size, and/or other penile deformities may confound the assessment of ED in this patient population. Our patient, irrespective of his penile deformity, reported symptoms consistent with ED and had several risk factors for ED, including obesity, obstructive sleep apnea, and previous urologic surgeries.

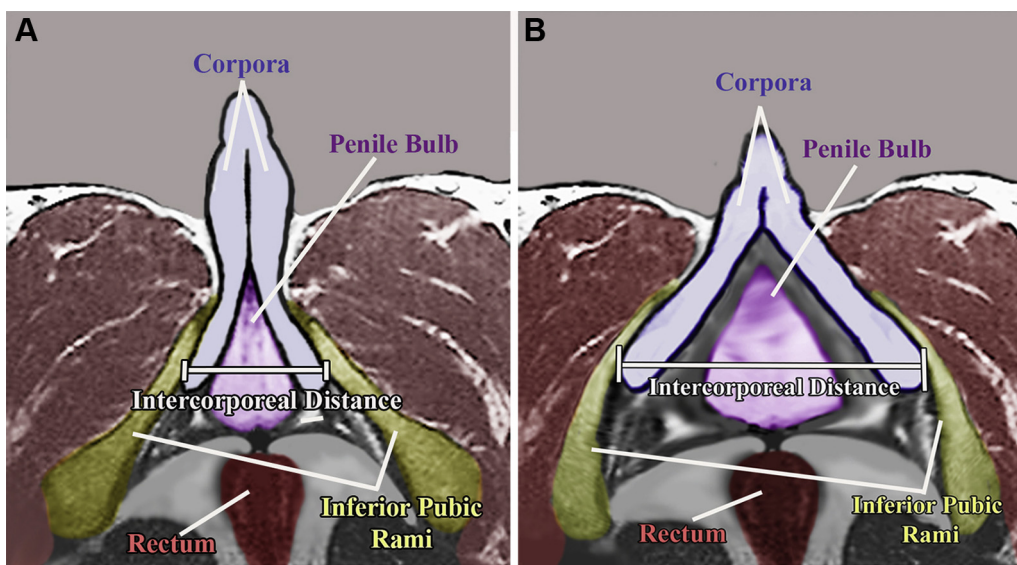


Figure 2. Graphic representation of an axial magnetic resonance imaging scan demonstrating differences between a normal pelvis (A) and exstrophy pelvis (B). Pertinent structures are labeled and colored-coded. Notice the increased intercorporeal distance in the exstrophy pelvis resulting from pubic diastasis.

Our patient's case was complicated by moderate diastasis of the pubic symphysis, short penile length, dorsal curvature of the penis, dorsal orientation of the urethra with respect to the corporal bodies, floppy glans syndrome, and previous urologic surgeries. We selected an appropriate cylinder length to accommodate his anatomic constraints. Although we typically try to limit the length of rear tip extenders, it was difficult to access the proximal corpora so we used longer (6 cm) rear tip extenders to secure the device. Intraoperatively, special care was made to avoid injury to the dorsally located urethra and because his history of abdominal surgery presented a risk of visceral injury in attempting abdominal placement of the prosthesis reservoir, it was placed ectopically. Additionally, to correct his penile deformity, penile modeling maneuvers as well as a glanulopexy were performed.

A common indication for neophalloplasty in adult patients with exstrophy-epispadias complex is micropenis, which is defined as a stretched penile length 2.5 SDs below the mean or ≤ 9.3 cm.^{7,8} As our patient was satisfied with his native phallic length and intra-operative measurements demonstrated an adequate phallic length (stretched penile length >9.3 cm), a neophalloplasty was not indicated.

We also acknowledge that our patient's underlying urologic conditions presented additional challenges in the postoperative period. His history of urethral strictures with recurrent urinary tracts infections likely predisposed his developing an epididymitis episode, which then necessitated replacement of the PPI device. Additionally, it would have been helpful to have more information about the patient's previous phalloplasty for pre-operative planning but as it was performed over 20 years ago we were unable to obtain records. Similarly, a pre-operative magnetic resonance imaging scan would have been helpful to better understand his anatomy prior to implantation. [Figure 2](#) compares and highlights the differences between the normal male pelvis and exstrophy pelvis.

A PPI device is an acceptable treatment option for ED in patients with bladder exstrophy-epispadias complex. However, special consideration should be given to phallic length and severity of pubic symphysis diastasis. In patients with severe penile length inadequacy or those satisfying criteria for micropenis, neophalloplasty followed by PPI may be preferred.⁸ Additional reconstructive maneuvers may be required depending upon penile deformity issues.

CONCLUSION

Patients with exstrophy-epispadias complex who have medically refractory ED may be appropriate candidates for PPI. However, adjunctive procedures may be required with regard to anatomic constraints of the pelvis and penis in this patient population. PPI in the native phallus may be an underutilized ED treatment modality in patients with exstrophy-epispadias complex.

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