Cureus
Part of SPRINGER NATURE

Open Access Case Report

Delayed Malleable Penile Prosthesis Implantation With Bovine Pericardium Reconstruction After Ischemic Priapism: A Case Report

Review began 10/08/2026
Review ended 11/08/2026
Published 11/10/2026

© **Copyright** 2026
Kauffmann et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

DOI: 10.7759/cureus.119407

Iso F. Kauffmann [1], Lucas Iutaka [1], Caio S. Rodrigues [1], Felipe Sandoval [2], Marco Túlio Cavalcanti [2]

1. Department of Surgery, Irmandade da Santa Casa de Misericórdia de São Paulo, São Paulo, BRA 2. Department of Urology, Irmandade da Santa Casa de Misericórdia de São Paulo, São Paulo, BRA

Corresponding author: Iso F. Kauffmann, isokauffmann@gmail.com

Abstract

Prolonged ischemic priapism can cause cavernosal smooth muscle necrosis, extensive corporal fibrosis, penile shortening, and permanent erectile dysfunction. Delayed penile prosthesis implantation in this setting is technically difficult because the corporal spaces may be nearly obliterated and standard dilation may be unsafe or insufficient.

A 27-year-old man with sickle cell disease developed refractory ischemic priapism followed by cavernosal abscess and severe bilateral corporal fibrosis after previous corporal procedures. Before the index event, the patient reported normal erectile function. Definitive reconstruction required complete penile degloving, bilateral partial resection of the most fibrotic corporal segments, preservation of distal corporal remnants, and recreation of the corporal channels with sequential dilation and a surgical drill. A 10-mm malleable penile prosthesis measuring 18 cm was adjusted intraoperatively, wrapped in a double layer of bovine pericardium, and secured to the proximal and distal corporal remnants.

No intraoperative complications occurred. The reconstruction provided stable prosthesis anchorage, distal coverage, and an intraoperative gain of approximately 2.5 cm in shaft length. Healing was uneventful, glans perfusion was preserved, and no infection or extrusion was observed during the available follow-up. The patient resumed sexual activity 90 days after surgery and reported satisfactory sexual performance with successful penetrative intercourse.

This case demonstrates that delayed prosthetic reconstruction can restore sexual function despite advanced fibrosis after ischemic priapism. In carefully selected salvage cases, segmental corporal resection combined with bovine pericardium reconstruction may provide prosthesis coverage and anchorage when the residual tunica and corporal tissue are inadequate.

Categories: Urology, Hematology
Keywords: bovine pericardium, corporal fibrosis, ischemic priapism, penile prosthesis implantation, sickle cell disease

Introduction

Ischemic priapism is a urological emergency characterized by a prolonged and painful erection, associated with little or no cavernous blood flow, progressive tissue hypoxia, and time-dependent bodily injury [1]. In an international multicenter study of 130 patients with sickle cell disease, 35% reported a history of priapism, most commonly of the recurrent intermittent type (72%), although more than half (52%) had experienced at least one acute episode. Onset usually occurs during adolescence (mean age of 15 years), and approximately one in five affected patients develops subsequent erectile dysfunction [2]. When ischemia is prolonged, necrosis of the cavernous smooth muscle is followed by fibrosis, penile shortening, and permanent erectile dysfunction.

Current guidelines from the American Urological Association [1], the Sexual Medicine Society of North America [1], and the European Association of Urology emphasize that prolonged or refractory ischemic priapism presents a very low probability of erectile function recovery and that penile prosthesis implantation should be offered in delayed presentations and cases refractory to conservative measures or shunting [1,3]. Delayed implantation, however, is technically more difficult because severe cavernous fibrosis can make cavernous dilation hazardous and may increase the risks of corporeal damage, urethral injury, malposition, penile shortening, and the need for adjuvant reconstructive maneuvers [4,5]. Graft materials, including processed pericardial allograft and bovine pericardium, have previously been used in complex penile prosthesis surgery, mainly to compensate for tunica albuginea deficiency or to cover exposed prosthetic components [6,7]. However, their use to restore implant coverage, anchorage, and functional length after resection of severely fibrotic corporal segments remains poorly described.

We report the surgical management of a patient with sickle cell disease who developed severe bilateral cavernous fibrosis following recurrent ischemic priapism, previous surgical shunting, and a cavernous abscess. The novel aspect of this report is the definitive surgical technique, which involved segmental resection of the corpora cavernosa and patching with double-layer bovine pericardium not only to cover the prosthesis but also to provide anchoring and functional length suitable for penetrative sexual intercourse. This case highlights that, even in a delayed salvage setting, this reconstructive approach may allow restoration of penetrative sexual function.

Case Presentation

Initial presentation

A 27-year-old man with sickle cell disease who was receiving chronic hydroxyurea was referred to a tertiary urology center for severe erectile dysfunction after recurrent ischemic priapism. Multiple painful episodes began in late 2023. The index episode lasted approximately 8 hours before presentation and was initially treated with corporal aspiration and irrigation combined with intracavernosal phenylephrine injection. Because of recurrence, he underwent open drainage of the corpora cavernosa in December 2023.

In January 2024, a cavernosal abscess required surgical drainage and extensive washout. Before the vaso-occlusive crisis associated with the priapism episode, erectile function had been normal. After the ischemic event, the penis did not return to a normal flaccid state. The patient reported no spontaneous, nocturnal, or pharmacologically induced erections and did not resume sexual activity before definitive reconstruction.

Physical examination showed marked bilateral corporal induration, diffuse shaft fibrosis, and nodularity at the penile base, which was more pronounced on the left. Maximum stretched penile length was approximately 7-7.5 cm. The glans was well perfused, without evidence of active ischemia or infection.

Preoperative laboratory findings are summarized in Table *1*. Urinalysis showed no evidence of infection.

Laboratory test	Patient result	Reference range
Hemoglobin	9.1 g/dL	13-18 g/dL
Leukocyte count	**11.4 × 10^3/µL**	**3.0-11.0 × 10^3/µL**
Platelet count	**658 × 10^3/µL**	**150-400 × 10^3/µL**
Creatinine	0.8 mg/dL	0.63-1.16 mg/dL
Sodium	139 mEq/L	135-142 mEq/L
Potassium	**5.9 mEq/L**	**3.5-5.0 mEq/L**
Urea	**28 mg/dL**	**7-20 mg/dL**
International normalized ratio	1.06	0.8-1.2
Urinalysis	Negative leukocyte esterase and nitrites	Absent bacteria

TABLE 1: Preoperative Laboratory Findings

Values in bold are outside the normal reference ranges and were attributed to the patient's underlying sickle cell disease, with no clinical repercussions at the time of testing. The potassium level of 5.9 mEq/L was attributed to sample hemolysis; repeat measurement 4 days later was 4.5 mEq/L.

Penile ultrasonography performed in May 2024 showed asymmetric corpora cavernosa with irregular contours and diffusely heterogeneous echotexture. The corpus spongiosum and urethral wall thickness were preserved, and no tunical plaques or calcifications were identified. Pelvic magnetic resonance imaging showed postprocedural changes, irregularity, and volume loss at the base of the left corpus cavernosum, and no residual abscess or fluid collection. Because of the extensive fibrosis, previous infection, marked shortening, and irreversible erectile dysfunction, penile prosthesis implantation was planned with the hematology team. The hematology team recommended blood transfusion to achieve a hemoglobin level of at least 10 g/dL and optimize the patient's clinical status in the setting of sickle cell disease. Hemoglobin S (HbS) levels could not be quantified because this test was not available at our institution

Prior surgical management

The first operation was performed in December 2023, for refractory priapism. Under general anesthesia with penile block, the patient was placed supine and a 16-French Foley catheter was inserted. A penoscrotal

incision exposed a peri-fascial hematoma. Both corpora cavernosa were dissected, stay sutures were placed in the tunica albuginea, and bilateral corporotomies were created. Dilation with Hegar dilators and irrigation with heparinized saline evacuated only a small amount of blood and clot. Intense fibrosis was already present. Partial detumescence was achieved, and the surgical planes were closed.

The second operation was performed in January 2024, for a penile abscess. The previous incision was reopened, and exploration of the right edematous area released purulent material that was sent for culture, which yielded negative results. No additional cultures were obtained. The right corpus cavernosum was opened and drained, and communication between the corpora was identified. Exploration of the left penile base produced no purulent drainage. The operative field was irrigated with chlorhexidine and saline, drainage of the right corpus cavernosum was maintained through the previous incision, and the skin was partially approximated.

The third and definitive operation was performed in May 2025 and consisted of semirigid penile prosthesis implantation with corporal reconstruction. The interval of approximately 16 months between abscess drainage and implantation was due to the waiting time for surgical scheduling and prosthesis availability in the public health system.

Definitive reconstruction

Definitive reconstruction was performed under spinal anesthesia with sedation. Antibiotic prophylaxis consisted of 1 g of intravenous ceftriaxone, administered at anesthetic induction and continued every 12 hours for an additional 24 hours postoperatively. A subcoronal circumferential incision was followed by circumcision and complete penile degloving. The urethra, both corpora cavernosa, and the dorsal neurovascular bundle were meticulously dissected and individually isolated. A penoscrotal incision improved exposure of the proximal corpora. Dense scar tissue from the previous procedures was encountered throughout the dissection. Preoperative shaft length was documented before reconstruction (Figure *1*).



FIGURE 1: Preoperative Penile Shortening

Preoperative penile length before reconstruction. Penile length, measured with a sterile surgical ruler from the base of the penis at the pubic region to the external urethral meatus, was 7.0 cm.

The tunica albuginea was secured with 2-0 polyglactin stay sutures. Corporotomy exposed severe fibrosis, marked distortion, and near-complete loss of normal cavernosal architecture. The most severely affected segments were partially resected bilaterally, with approximately 1 cm resected from each side, because the noncompliant tissue prevented safe dilation and contributed to critical shortening (Figure *2*).

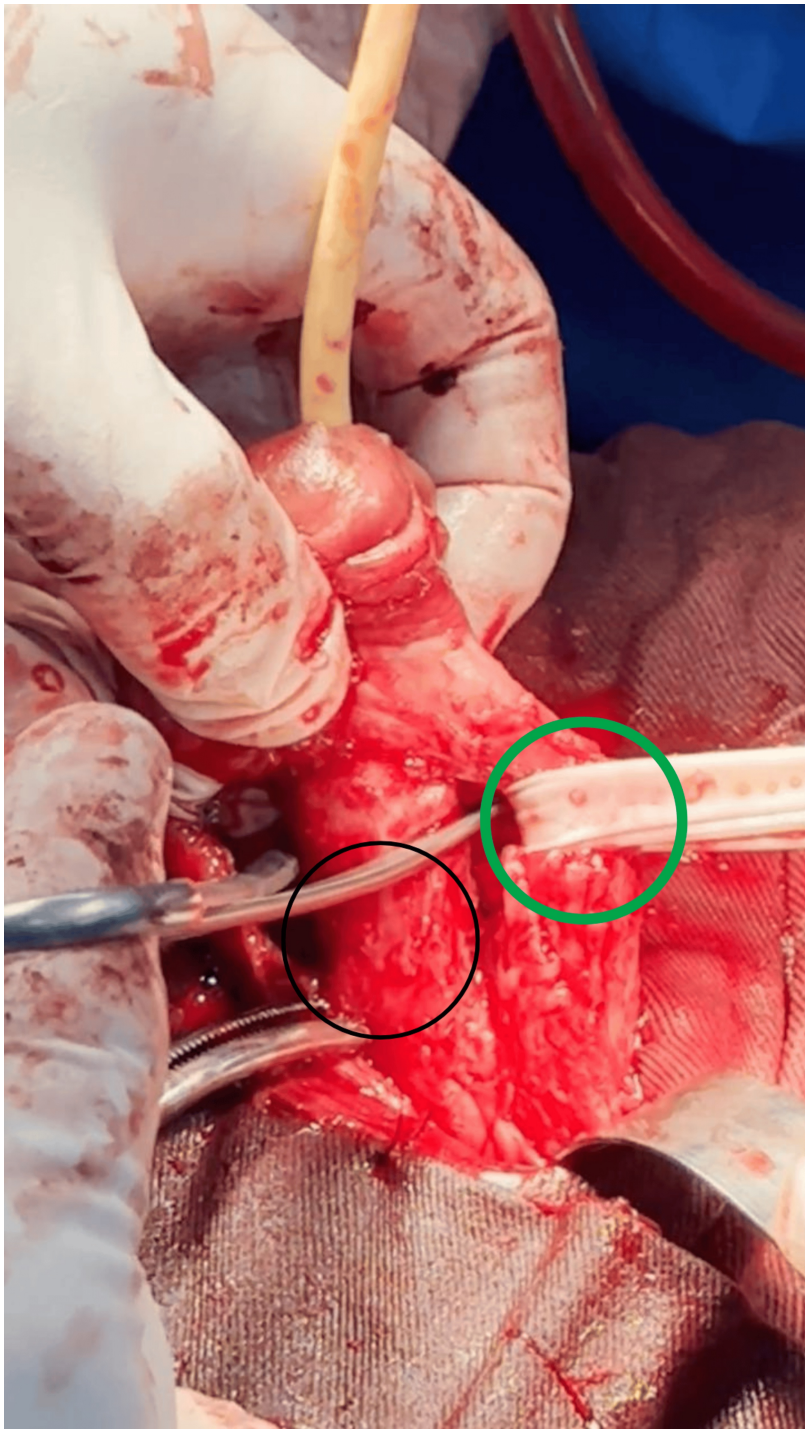


FIGURE 2: Severe Bilateral Corporal Fibrosis Before Segmental Resection

Corporotomy showing fibrosis and loss of normal cavernosal architecture. The most severely affected segments (approximately 1 cm on each side) were resected because the noncompliant tissue prevented safe dilation.

Black circle: fibrotic corpus cavernosum; Green circle: isolated urethra with Foley catheter

A distal segment of each corpus cavernosum was preserved to provide an anchoring bed and reduce the risk of distal prosthesis extrusion. After the penile structures were isolated and the fibrotic corporal segments were resected, the residual proximal and distal corporal remnants measured 1.0 cm and 3.7 cm, respectively (Figure *3*).

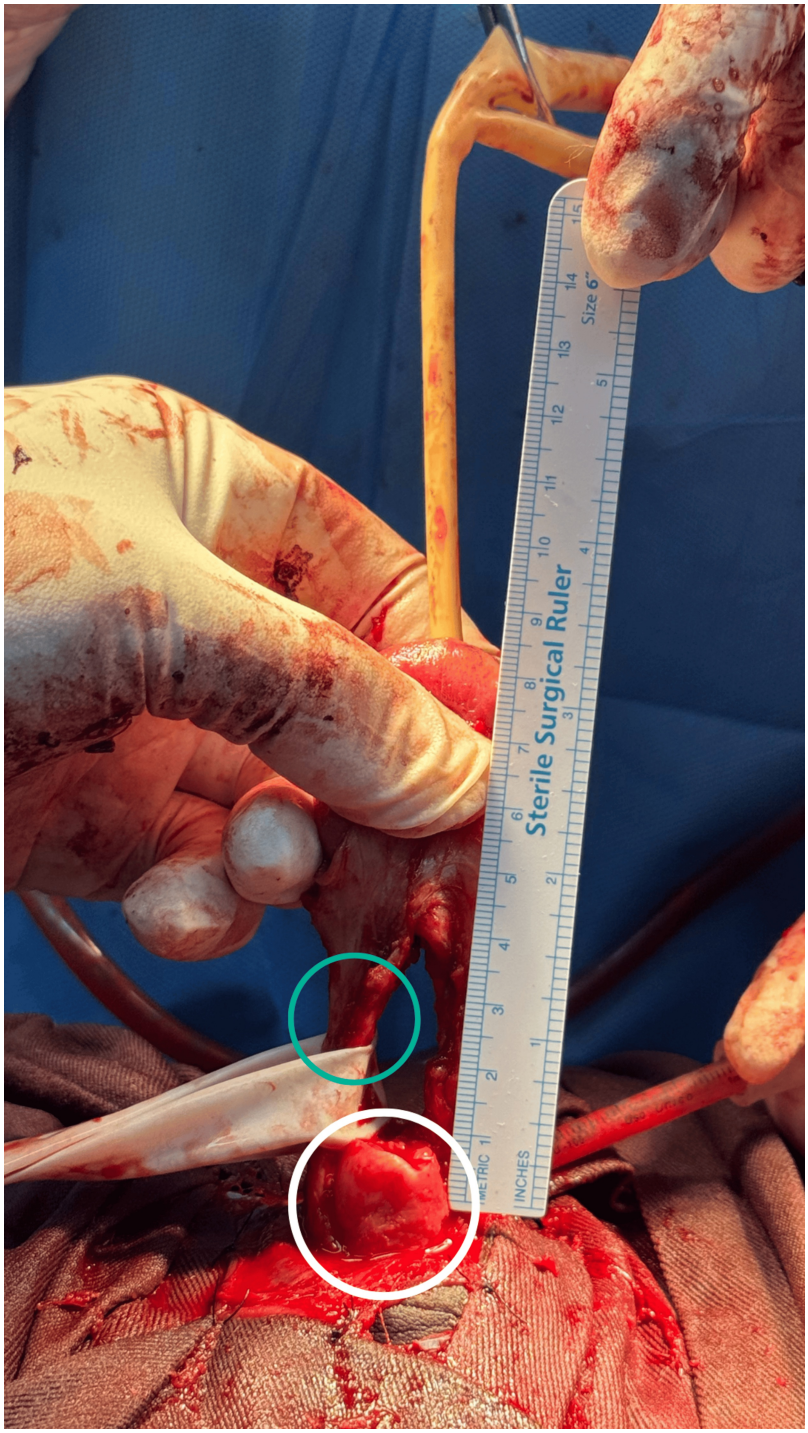


FIGURE 3: Preserved Corporal Remnants After Bilateral Segmental Resection

Residual corporal remnants after resection of the fibrotic segments, with the urethra and dorsal neurovascular bundle individually isolated. The proximal and distal corporal remnants measured 1.0 cm and 3.7 cm, respectively.

Green circle: neurovascular bundle; White circle: proximal corpus cavernosum

Corporal channel creation was initially attempted with progressive Hegar dilation to size 12. Because dense intracavernosal fibrosis prevented adequate passage, a surgical drill (Carrion-Rossello cavernotome, 12 mm in diameter) was used as a cavernosal drilling device to excavate the fibrotic tissue and recreate the corporal spaces. To protect the urethra, a 14-French Foley urethral catheter was placed, which allowed the urethra to be surgically identified and isolated so that drilling and dilation could be performed without risk of urethral injury. Sequential Hegar dilation was then completed. Urethral integrity was subsequently assessed by saline

irrigation, with inspection for any leakage from the urethra. No urethral injury was identified.

A 10-mm semirigid prosthesis measuring 18 cm (Promedon, Córdoba, Argentina) was selected because severe bilateral fibrosis, previous infection, and distorted anatomy limited conventional corporal preparation. The implant was shortened by 2 cm intraoperatively by trimming the proximal end of each rod with Metzenbaum scissors to obtain appropriate accommodation and symmetry. Implant length and position were tested before fixation (Figure *4*).

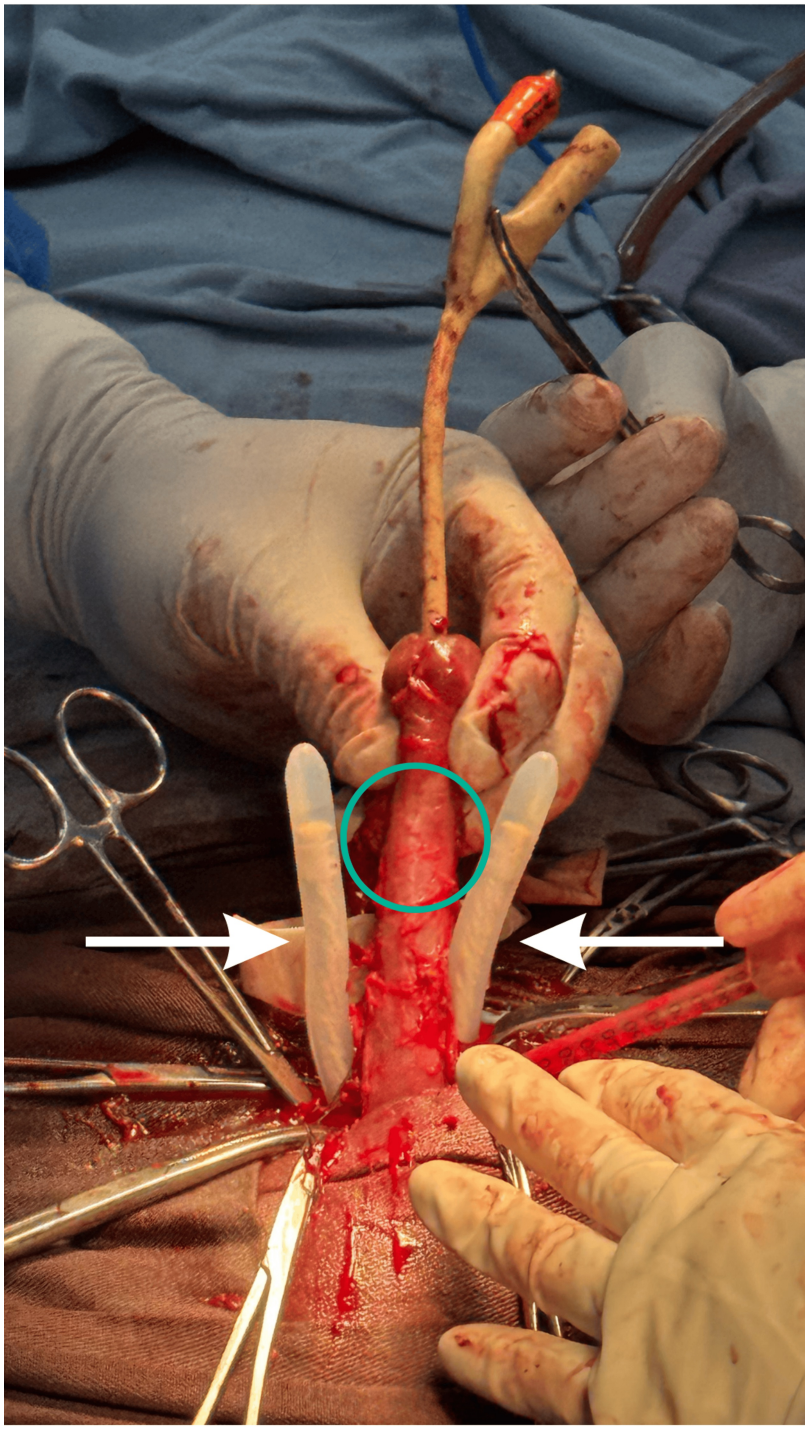


FIGURE 4: Intraoperative Testing of the Adjusted Malleable Penile Prosthesis

Intraoperative testing of implant length and position before fixation, using the 10-mm semirigid prosthesis shortened from 18 cm to 16 cm.

White arrows: penile prosthesis rods within the corpora cavernosa; Green circle: urethra isolated with the aid of the Foley catheter

Each prosthetic rod was wrapped in a tailored double layer of a bovine pericardial patch measuring 7.5 × 7.5 cm (product code P07575; Biomedical Equipamentos, Belo Horizonte, Brazil). The bovine membrane was supplied preserved in 4% formaldehyde and, before implantation, was rinsed in three consecutive baths of sterile 0.9% saline (approximately 500 mL each, in separate sterile basins with complete solution exchange), for 5 minutes per bath (total of 15 minutes), with gentle agitation to facilitate removal of residual

formaldehyde (Figure 5).

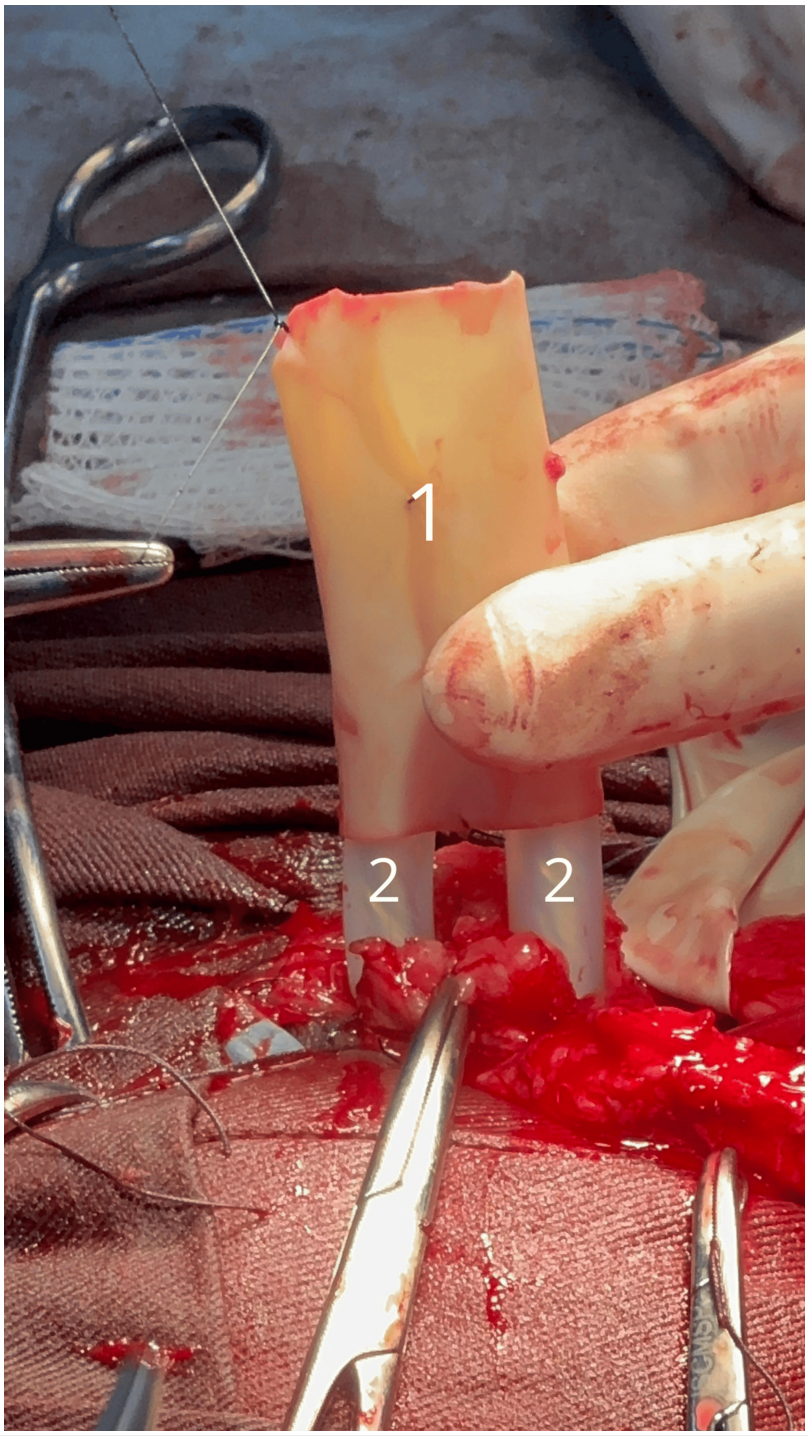


FIGURE 5: Preparation of the Double-Layer Bovine Pericardial Covering

Bovine pericardial patch (7.5 × 7.5 cm) after saline rinsing, prepared as a tailored double layer to wrap each prosthetic rod.

1: bovine pericardium; 2: penile prosthesis rods within the corpora cavernosa

The bovine pericardium was sutured to the proximal and distal corporal remnants to secure the prosthesis, improve soft-tissue coverage, and protect its distal end from exposure (Figure 6).

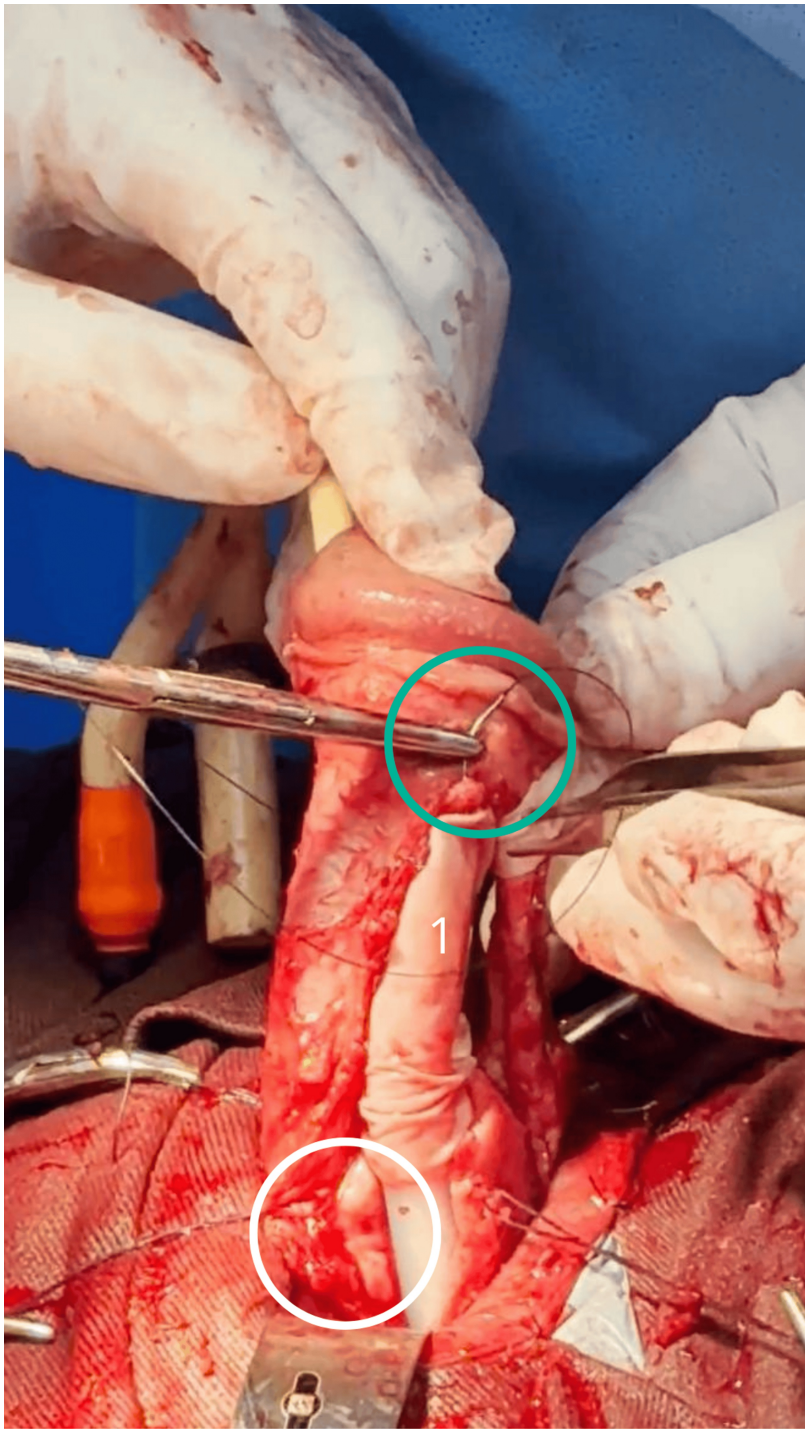


FIGURE 6: Fixation of the Bovine Pericardium-Covered Prosthesis

Bovine pericardium sutured to the proximal and distal corporal remnants, securing the prosthesis and covering its distal end.

1: Bovine pericardial patch wrapping the prosthesis; Green circle: distal corporal remnant; White circle: proximal corporal remnant.

Before closure, an intraoperative shaft-length gain of approximately 2.5 cm was observed (Figure 7). This intraoperative measurement was obtained with a sterile surgical ruler from the base of the penis at the pubic region to the external urethral meatus, so that glans size would not interfere with the measurement, in the degloved penis, and is therefore not directly comparable with the preoperative clinical stretched length.



FIGURE 7: Reconstructed Penile Shaft Length Before Closure

Penile length after reconstruction, before closure. Penile length, measured with the same method as in Figure 1, was 9,5 cm, corresponding to an intraoperative gain of approximately 2.5 cm.

1: neurovascular bundle; 2: urethra; 3: prosthesis wrapped in bovine pericardium

After hemostasis, the tunica albuginea was closed with continuous 2-0 polyglactin sutures, followed by layered closure with absorbable monofilament sutures. The subcoronal skin was closed with interrupted absorbable monofilament sutures, and a sterile compressive dressing was applied. Implant position, axial rigidity, and penile alignment were satisfactory. No intraoperative complications occurred. The immediate postoperative appearance is shown in Figure *8*.



FIGURE 8: Immediate Postoperative Appearance After Reconstruction

Immediate postoperative appearance, with satisfactory implant position, axial rigidity, and penile alignment.

Postoperative outcome

The postoperative course was uneventful. The patient remained afebrile and hemodynamically stable and had no urinary symptoms. The wound healed appropriately, glans perfusion remained preserved, and no infection or prosthesis extrusion was observed. The patient had a urinary catheter in place only during the first 48 hours postoperatively. Postoperatively, 1% topical alprostadil gel was applied to the glans twice daily for one month to promote glans perfusion. Alprostadil, a synthetic formulation of prostaglandin E1, directly relaxes smooth muscle and increases penile blood flow through cyclic adenosine monophosphate (cAMP), independently of sexual stimulation. It is used in the treatment of erectile dysfunction, particularly in patients who do not respond to or cannot use phosphodiesterase type 5 (PDE5) inhibitors, and its topical and intraurethral forms have a favourable safety profile, with mainly local adverse events such as penile pain and erythema and no reported cases of priapism [8].

On postoperative day 60, the patient reported no pain or urinary symptoms. Small mobile nodules persisted at the penile base. Examination showed a semierect penis without inflammatory changes, a healed incision, and palpable nodules measuring approximately 0.5 cm at the right base and 1 cm at the left base. Penile length, measured in the clinic using the same method as the preoperative assessment (stretched length from the base of the penis at the pubic region to the external urethral meatus), was 9.8 cm, corresponding to a

shaft-length gain of approximately 2.3 cm compared with the preoperative stretched length of 7-7.5 cm.

At the 90-day postoperative reassessment, the patient had resumed sexual activity and reported satisfactory sexual performance with successful penetrative intercourse. At the most recent follow-up, 12 months after surgery, there was no evidence of infection, prosthesis extrusion, or graft-related complications, and the outcome remained stable (Figure *9* and Figure *10*). He remains under outpatient follow-up, with clinical evaluations scheduled every 3 to 6 months to monitor for late infection, erosion, extrusion, and graft-related complications; complementary imaging is reserved for patients who develop symptoms.



FIGURE 9: Postoperative Appearance in April 2026

A semirigid penis without significant scarring or deformity.



FIGURE 10: Postoperative Appearance in April 2026

Postoperative appearance in April 2026, from a different perspective, showing the absence of significant deformity or scarring.

Discussion

This case illustrates the end-stage of ischemic priapism in a particularly high-risk setting: sickle cell disease, delayed referral, previous open corporal surgery, and subsequent cavernosal infection. In such circumstances, irreversible cavernosal smooth muscle loss and replacement by fibrosis are expected, making delayed prosthetic reconstruction substantially more difficult than early implantation [1,3-5]. Current guideline-based management increasingly recognizes penile prosthesis implantation as a definitive option in prolonged or refractory ischemic priapism, particularly when erectile function recovery is unlikely and the objective shifts from detumescence alone to preservation of penile length and future sexual function [1,3].

The literature consistently shows that early prosthesis implantation is associated with less challenging surgery and more favorable functional outcomes than delayed insertion. In a systematic review of priapism-related penile prosthesis surgery, sexual intercourse was achieved in 64.2% to 100% of reported cases, with satisfaction rates of 80% to 100%, although the overall quality of evidence remained low [9]. More specifically, Elmarasi et al. found higher total complication rates and significantly more fibrosis in delayed cases, with pooled satisfaction favoring early implantation within 30 days [10]. Likewise, Nanda De Niro et al. reported lower short-term complication rates and better overall satisfaction with early compared with

delayed implantation [11]. In the retrospective series by Salman et al., delayed malleable prosthesis insertion three months or more after priapism was associated with more difficult corporal dilation, higher rates of intraoperative urethral injury and corporal perforation, and smaller implanted devices, whereas early insertion allowed larger prosthesis dimensions [12]. These findings are directly relevant to the present case, in which delayed referral resulted in a markedly shortened shaft, near-complete obliteration of the corporal spaces, and the need for drilling and reconstructive grafting.

Our intraoperative findings also parallel previous descriptions of severe penile fibrosis after priapism and infection. Martínez-Salamanca et al. emphasized that fibrotic corpora often require specialized tools, corporal excavation, multiple corporotomies, downsized cylinders, or graft-based reconstruction [4]. Fernandez Crespo et al. similarly highlighted priapism and infection as settings strongly associated with severe fibrosis and emphasized the role of adjunctive surgical strategies in specialized centers [5]. In the present case, simple corporal dilation would not have been sufficient. Bilateral segmental corporal resection was necessary because the fibrotic segments were not only noncompliant but also contributed to critical loss of functional shaft length. Preservation of a distal corporal anchoring segment was an additional technical measure intended to decrease the risk of distal extrusion in a surgically hostile field.

Preoperative imaging also proved useful. Ultrasonography and magnetic resonance imaging were concordant with the intraoperative impression of severe corporal asymmetry and fibrosis and helped exclude persistent infection. This is consistent with the growing literature supporting imaging as an adjunct for operative planning in selected patients with corporal fibrosis [13].

The choice of a malleable prosthesis was deliberate. Although inflatable devices may provide more physiological concealment and higher long-term satisfaction in routine erectile dysfunction surgery, malleable prostheses remain particularly valuable in salvage and fibrosis cases because they are easier to implant, require less corporal dilation, shorten operative time, and offer reliable rigidity in distorted anatomy [4,5,9]. Palmisano et al., in a series of early soft prosthesis implantation for refractory ischemic priapism, reported preservation of penile length, satisfactory intercourse, and no perioperative complications in six patients [14]. Our case differs in that implantation was substantially delayed and therefore technically much more demanding, reinforcing the practical advantage of a semirigid device in this setting.

The most distinctive aspect of this case was the use of bovine pericardium after bilateral segmental corporal resection. Pericardial graft materials have previously been used in complex prosthesis surgery when the tunica albuginea is deficient or when extensive corporal defects prevent adequate coverage of the implant. Palese and Burnett described processed pericardial allograft for complex corporoplasty in damaged corporal bodies [6], and Lopes et al. reported a five-patient series in which bovine pericardium was used in complex prosthesis implantation with no reported complications [7]. In most previously reported cases, grafting was primarily used to compensate for tunical deficiency or to cover exposed prosthetic components. In contrast, in the present case, the double-layer bovine pericardium served a broader reconstructive purpose: it provided distal and proximal anchorage to the residual corpora, protected the distal tips of the prosthesis, and contributed to restoring functional shaft length after resection of severely fibrotic corporal segments. This step was central to achieving the main functional goal of the procedure, namely, allowing penetrative sexual intercourse.

This report has limitations. As a single case, its findings cannot be generalized, and the reproducibility of this technique remains to be confirmed. Although follow-up has reached 12 months, it remains insufficient to exclude late infection, prosthesis extrusion, or graft-related complications, and the long-term durability of the reconstruction is unknown. Formaldehyde-preserved bovine pericardium may be associated with fibrosis and contracture, which could affect long-term penile length and implant stability. Furthermore, the use of a xenograft in a previously infected surgical field may carry an increased risk of infection, even in the absence of infectious complications during the available follow-up.

Thus, while the present case supports the broader literature favoring early penile prosthesis implantation after refractory ischemic priapism, it also expands the discussion of late salvage scenarios. A recent narrative review of inflatable prosthesis timing after ischemic priapism found overall complication rates of 3.37% in early cases versus 37.23% in delayed cases, again underscoring the consequences of delayed reconstruction [15]. Our patient belongs to the delayed extreme of that spectrum. Despite this, careful anatomical dissection, corporal drilling, segmental resection of severely fibrotic tissue, and bovine pericardium reconstruction allowed a favorable functional outcome without infection or extrusion during 12 months of follow-up.

Conclusions

This case suggests that delayed reconstruction can achieve short-term restoration of penetrative function in a patient with severe erectile dysfunction secondary to ischemic priapism and advanced bilateral corporal fibrosis and sickle cell disease. The distinctive feature of this case was not only the implantation of a malleable penile prosthesis in a severely fibrotic field but also the need for bilateral segmental corporal resection and reconstruction with double-layer bovine pericardium. In this patient, bovine pericardium

served as a reconstructive adjunct that provided implant coverage and anchorage, protected the distal prosthetic extremities, and contributed to the restoration of functional shaft length for penetrative intercourse, with no infection, erosion, or extrusion observed during 12 months of follow-up.

In line with current guidelines, early penile prosthesis implantation should be discussed when recovery of erectile function after prolonged ischemic priapism is unlikely, and the technical difficulties encountered in this delayed case illustrate the potential consequences of postponing implantation. When delayed salvage reconstruction is unavoidable, anatomy-driven strategies such as bovine pericardium grafting may be considered when the residual corporal tissue is insufficient for adequate implant coverage and fixation. Additional cases and longer follow-up are required to establish the safety, durability, and reproducibility of this approach.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Iso F. Kauffmann, Lucas Iutaka, Felipe Sandoval, Marco Túlio Cavalcanti

Acquisition, analysis, or interpretation of data: Iso F. Kauffmann, Lucas Iutaka, Caio S. Rodrigues, Felipe Sandoval, Marco Túlio Cavalcanti

Drafting of the manuscript: Iso F. Kauffmann, Caio S. Rodrigues

Critical review of the manuscript for important intellectual content: Lucas Iutaka, Caio S. Rodrigues, Felipe Sandoval, Marco Túlio Cavalcanti

Supervision: Marco Túlio Cavalcanti

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Research Ethics Committee of Santa Casa de Misericórdia de São Paulo (SCMSP) issued approval 8.239.695. This case report was approved by the Research Ethics Committee of Santa Casa de Misericórdia de São Paulo (SCMSP) on February 25, 2026 (CAAE 95525226.4.0000.5479; approval no. 8.239.695). Written informed consent for treatment and open-access publication of the clinical information and accompanying images was obtained from the patient. Identifying information was removed to preserve patient confidentiality. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Bivalacqua TJ, Allen BK, Brock G, et al.: Acute ischemic priapism: an AUA/SMSNA guideline . J Urol. 2021, 206:1114-21. 10.1097/JU.0000000000002236
2. Adeyoju AB, Olujohungbe AB, Morris J, et al.: Priapism in sickle-cell disease; incidence, risk factors and complications - an international multicentre study. BJU Int. 2002, 90:898-902. 10.1046/j.1464-410x.2002.03022.x
3. EAU guidelines on sexual and reproductive health: priapism . (2026). Accessed: March 14, 2026: https://uroweb.org/guidelines/sexual-and-reproductive-health/chapter/priapism.
4. Martínez-Salamanca JI, Mueller A, Moncada I, Carballido J, Mulhall JP: Penile prosthesis surgery in patients with corporal fibrosis: a state of the art review. J Sex Med. 2011, 8:1880-9. 10.1111/j.1743-6109.2011.02281.x
5. Fernandez Crespo RE, Stroie F, Taylor L, Pignanelli M, Parker J, Carrion R: Penile fibrosis-still scarring urologists today: a narrative review. Transl Androl Urol. 2024, 13:127-38. 10.21037/tau-23-206
6. Palese MA, Burnett AL: Corporoplasty using pericardium allograft (Tutoplast) with complex penile prosthesis surgery. Urology. 2001, 58:1049-52. 10.1016/S0090-4295(01)01410-8
7. Lopes EJ, Kuwano AY, Guimaraes AN, Flores JP, Jacobino MA: Corporoplasty using bovine pericardium grafts in complex penile prosthesis implantation surgery. Int Braz J Urol. 2009, 35:49-53; discussion 53-5. 10.1590/s1677-55382009000100008
8. Papadopoulos I, Tishukov M, Sokolakis I, et al.: The effect of topical and intraurethral alprostadil on erectile function: a systematic review and meta-analysis. Andrology. 2025, 13:2235-45. 10.1111/andr.70025
9. Velasquez DA, Guimaraes PV, Lescay H, Raheem O: Penile prosthesis in priapism: a systematic review of outcomes and complications. Transl Androl Urol. 2024, 13:574-83. 10.21037/tau-23-224
10. Elmarasi M, Alsaeedi A, Elmakaty I, et al.: Early vs delayed insertion of penile prosthesis in patients with

refractory priapism: a systematic review and meta-analysis. Sex Med Rev. 2024, 12:528-36. 10.1093/sxmrev/qeae007

11. Nanda De Niro AJ, Duarsa GW, Harvy Wicaksono M, Tirtayasa PM, Santosa KB, Yudiana IW, Prayudi NG: A systematic review and meta-analysis of short- and long-term complications of early versus delayed penile prosthesis implantation in patients with ischemic priapism. Arch Ital Urol Androl. 2024, 96:12576. 10.4081/aiua.2024.12576
12. Salman B, Elsherif E, Elgharabawy M, Badawy A: Early versus delayed penile prosthesis insertion for refractory ischemic priapism. Arab J Urol. 2023, 21:76-81. 10.1080/2090598X.2022.2135290
13. García Rojo E, Kollitsch L, García Gómez B, Alonso Isa M, Romero Otero J, Moncada I, Osmonov D: The role of imaging in patients with corporal fibrosis undergoing penile prosthesis placement: a narrative review. Rev Int Androl. 2024, 22:1-8. 10.22514/j.androl.2024.016
14. Palmisano F, Vagnoni V, Franceschelli A, Gentile G, Colombo F: Immediate insertion of a soft penile prosthesis as a new option for a safe and cost-effective treatment of refractory ischemic priapism. Arch Ital Urol Androl. 2021, 93:356-60. 10.4081/aiua.2021.3.356
15. Abou Chawareb E, Hammad MA, Barham DW, Lumbiganon S, Azad BK, Osmonov D, Yafi FA: Early Inflatable penile prosthesis implantation offers superior outcomes compared to delayed insertion following ischemic priapism: a narrative review. Int J Impot Res. 2025, 37:27-32. 10.1038/s41443-024-00900-y