CANADIAN JOURNAL OF UROLOGY

Tech Science Press

Doi:10.32604/cju.2025.068588
CASE REPORT

# *Penile fracture and concomitant severe urethral trauma—a case report and discussion of surgical approach*

Angelos Samaras, Stefan Aufderklamm, Bastian Amend, Viktoria Stühler, Arnulf Stenzl, Igor Tsaur, Steffen Rausch,*
Department of Urology, University Hospital Tübingen, Tübingen, 72074, Germany

SAMARAS A, AUFDERKLAMM S, AMEND B, STÜHLER V, STENZL A, TSAUR I, RAUSCH S. Penile fracture and concomitant severe urethral trauma—a case report and discussion of surgical approach. *Can J Urol* 2026;33(2):477–481.

***Background:*** *Penile fracture is a rare urological emergency, especially when it involves a urethral injury.*
***Case Description:*** *Here, we report the case of a 41-year-old male patient with penile trauma during sexual intercourse, presenting with typical clinical signs of corpus cavernosum rupture and gross hematuria. Emergency surgical exploration revealed an additional partial urethral injury (approximately 1.5 cm in length), which was primarily closed. Surgical management included a vertical penoscrotal incision, evacuation of hematoma, double-layer re-approximation of the urethra, closure of the tunica albuginea, and placement of both transurethral and suprapubic catheters. The postoperative course was uneventful, with diazepam administered to suppress erections and full functional recovery at 6-month follow-up.*
***Conclusion:*** *This case highlights the importance of prompt diagnosis, a tailored surgical approach, and urinary diversion in the setting of urethral trauma.*

**Key Words:** penile fracture, urethral trauma, surgical approach, case report

## Introduction

Penile fracture (PF) is a rare urological emergency.[1] It is defined as the traumatic rupture of the tunica albuginea of the corpus cavernosum with subsequent subcutaneous hematoma. PF can be accompanied by the rupture of the corpus spongiosum and the urethra, especially when caused by blunt trauma to the erect penis.[2] It mostly occurs during sexual intercourse,[1–3] but other mechanisms such as abnormal bending of the penis during masturbation, rolling over in bed onto the erect penis, and forceful efforts to elicit detumescence have been reported.[3] Patients typically report a popping sound with concomitant pain and rapid detumescence, followed by swelling and ecchymosis of the penis ("eggplant deformity") and a penile deviation which is often directed towards the opposite side of the injury.[1–3] Urethral rupture with PF may be partial or complete.[1] Hematuria, dysuria, and urinary retention are typical clinical signs of urethral injury; however, up to 50% of patients may present without symptoms.[1,2]

The diagnosis of PF is mostly clinical, and additional imaging may not be needed to guide clinical decision-making. Imaging such as ultrasound, Magnetic Resonance Imaging (MRI), and urethrography may help to diagnose PF, the latter being especially helpful in urethral injury.[1]

The goal of treatment should be the preservation of sexual potency and normal micturition function.[1] Currently, the recommended standard approach for PF with concomitant urethral rupture is immediate surgery; however, a uniform standard approach has not yet been defined. Both penile degloving with circumcision and exploration of the corpora via penoscrotal incision appear to be reasonable approaches, each with different intraoperative and postoperative technical aspects. Here, we present a case of

Received date 01 June 2025
Accepted for publication 18 December 2025
Published online 15 April 2026

*Corresponding Author: Steffen Rausch.
Email: steffen.rausch@med.uni-tuebingen.de

severe penile trauma with PF and urethral injury and illustrate as well as discuss the surgical approach, postoperative management, and clinical course.[2]

Written informed consent was obtained from the patient. In accordance with local regulations, formal ethical approval was not required for single anonymized case reports. Besides, this study was prepared according to the CARE case report guideline, and a CARE checklist was provided.[4] Please see Supplementary Material S1 for more details.

## Case Report

A 41-year-old male patient presented to the emergency department of the University Hospital Tübingen with penile pain and swelling, but no fever or shivering. The patient reported penile trauma during sexual intercourse on the evening of the same day, resulting in immediate detumescence, after which urethrorrhagia and gross hematuria were observed. The patient had no relevant comorbidities or prior surgeries.

On clinical examination, penile edema and subcutaneous hematoma were found ("eggplant deformity"), but no further abnormalities were revealed. Ultrasound examination revealed a discontinuity of the tunica albuginea on the left side of the penile base.

The patient was admitted for emergency surgery to the Department of Urology, University Hospital Tübingen. Penile degloving with circumcision was discussed; however, since a large hematoma of the foreskin was present, we decided to perform surgery via a penoscrotal approach. A 5 cm penoscrotal incision was performed, and the subcutaneous hematoma was evacuated. A large rupture of the left cavernosal body (approx. 1.5 cm) (Figure 1) and a concomitant anterior urethral rupture were noted. Closure of the corporal body was performed using 2-0 Polydioxanon (PDS). The urethra was not completely disconnected, and double-layer re-approximation using 4-0 Monocryl and 4-0 Vicryl for the mucosa and spongious tissue was performed, respectively. Subcutaneous re-approximation and skin closure were performed using 3-0 Vicryl and Vicryl rapide, respectively. A compressive dressing was applied thereafter for the first 48 h. Both a transurethral and a suprapubic catheter were placed during the procedure.

After surgery, diazepam (5 mg) was administered to avoid erections for 14 days, and diclofenac (75 mg qd) was given for analgesia and to prevent edema. The patient remained hospitalized for 7 days. Antegrade paracatheteral (to evaluate urethral healing without removing the indwelling catheter) and retrograde urethrograms were performed after 3 weeks, showing a residual leakage at the anterior urethra (Figure 2).

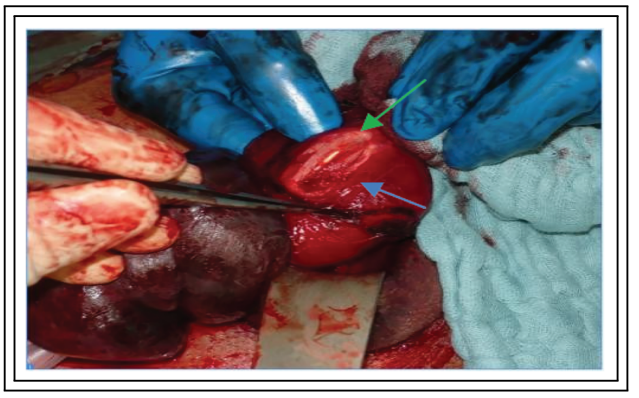

**FIGURE 1.** Intraoperative situation: rupture of the corpus cavernosum (blue arrow) and concomitant rupture of the spongiosum (green arrow) with visible reflex of transurethral catheter

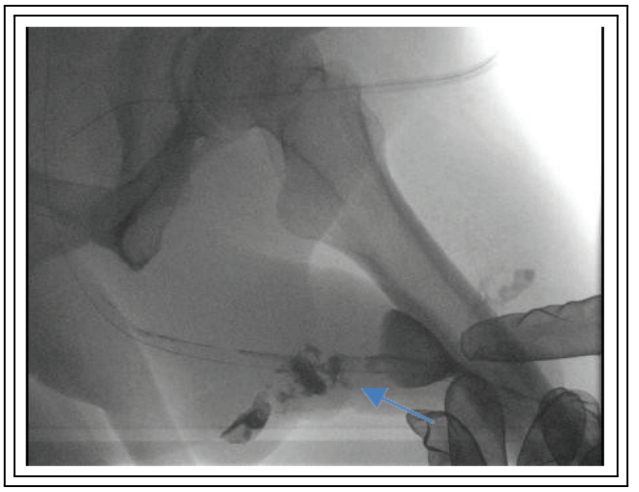

**FIGURE 2.** Urethrogram (para-catheteral) illustrating residual fistula and contrast extravasation (blue arrow)

Follow-up urethrography 2 weeks later confirmed complete healing; however, the patient developed phimosis due to prolonged foreskin edema, necessitating elective circumcision. The suprapubic catheter was capped and removed on day 28 after a trial of void with post-void residual measurement. Sexual function and micturition at 3 and 6 months after surgery were restored (Table 1).

TABLE 1. **Timeline**

| Timepoint | Key findings |
|---|---|
| Day 0—Presentation | Penile trauma; immediate detumescence, urethrorrhagia, hematuria; edema/hematoma; ultrasound shows tunica albuginea discontinuity. |
| Day 0—Surgery | Penoscrotal approach; hematoma evacuation; 1.5 cm cavernosal rupture + anterior urethral rupture; repaired with PDS/Monocryl/Vicryl; Urethral + suprapubic catheter placed. |
| Postoperative Days 1–7 | Diclofenac analgesia; diazepam to suppress erections; uncomplicated recovery. |
| Week 3 | Urethrograms show residual anterior urethral leakage; catheters maintained. |
| Week 5 | Repeat urethrogram shows complete healing; Urethral catheter removed, trial of void initiated foreskin edema + secondary phimosis → elective circumcision planned. |
| Week 9 | Successful trial of void; suprapubic catheter capped and removed. |
| 3–6 Months Follow-up | Normal micturition; restored sexual function; no stricture or ED. |

## Discussion

PF is a rare urologic emergency associated with the injury of the tunica albuginea due to blunt trauma to the penis in a state of erection.[5] The clinical presentation is typical and includes a popping sound followed by pain, penile detumescence, hematoma, penile deformity known as "eggplant deformity," and penile deviation due to hematoma progression.[5] Anterior urethral injury is found in 1–38% of patients, can be partial or complete, and is highly suspected when urethral bleeding, voiding difficulty, and hematuria are observed.[1,5] However, a urethral injury should not be excluded in the absence of these findings, as 50% of patients are clinically asymptomatic and the injury is found accidentally during USG or intraoperatively.[1]

Specifically, in Western countries, 38% of patients with PF have concomitant urethral injuries, mainly resulting from sexual intercourse, whereas in Eastern Europe, Asia, and Africa, this rate is only 3%, primarily due to penile manipulation.[1] Barros et al. reported that "doggy style" and "man on top" positions were frequently associated with urethral and bilateral injuries of the corpora cavernosa.[5]

In suspected cases, retrograde urethrocystography (RGU), ultrasound (USG), flexible cystoscopy, and MRI of the penis are recommended for improved diagnostic accuracy.[1,2] However, the clinical presentation of PF is usually characteristic, and these additional imaging studies may not be necessary, especially when urethral injury is suspected and surgical intervention is warranted.[1,5]

There are some controversies regarding the optimal treatment of PF. In the past, non-surgical management was recommended for many patients, but only a small percentage maintained erectile function. Nowadays, immediate surgical treatment is generally recommended to prevent late complications such as coital difficulty, urethral fistula, penile plaque, erectile dysfunction, wound infection, skin necrosis, and wound dehiscence, as well as to ensure satisfactory recovery of erectile function and cosmetic outcomes.[2,5,6] There is no exact timeframe for surgical management, but it is suggested to be performed within the first 24 h of injury.[6] Surgery includes penile exploration, hematoma evacuation, and localization of defects in the tunica albuginea and urethra with subsequent repair of these injuries.[6]

Several surgical approaches for fracture repair have been described, including a circumcising degloving incision, midline penoscrotal, inguinoscrotal, and lateral incisions.[7–9] There are no specific data suggesting that any approach is universally superior.[10]

The two most common incision techniques are the subcoronal distal-circumcising degloving and the vertical penoscrotal approach, with the former being the most popular.[6] The degloving incision has the advantage of providing maximum exposure and examination of all three corpora bodies, reducing the risk of missing bilateral or urethral injuries. Moreover, it allows for repair or separation of the neurovascular bundle if needed.[7,9] Circumcision at the end of the surgery is also recommended in uncircumcised patients, as phimosis may occur due to massive postoperative penile swelling.[7]

The main disadvantages of the circumferential degloving approach include potential decreased sensation and, infrequently, skin necrosis due to extensive dissection, as well as difficulty in exploring the proximal penis, particularly in patients with

a large hematoma or significant tissue edema.[9,10] In such cases, a midline penoscrotal incision is recommended for hematoma evacuation and repair of the corpora, especially when the main hematoma is located in the penoscrotal area and the suspected site of injury is deeper.[7] The main advantages of the penoscrotal incision are the easy exploration of the base of both corpora cavernosa, where most penile fractures statistically occur, direct access to the penile urethra in cases of urethral rupture, and the possibility of extending the incision if necessary, while avoiding extensive dissection of Buck's fascia.[10] Importantly, this approach provides adequate exposure for both ventral and dorsal injuries of the corpora cavernosa, particularly in proximal locations, and facilitates simultaneous inspection and repair of associated urethral injuries, as was the case in our patient. Management of urethral injury mainly involves an end-to-end re-anastomosis technique over a transurethral catheter.[6] Additionally, the postoperative duration of urethral catheterization remains debatable and depends on the complexity and severity of the injuries. In most cases of patients who underwent simultaneous urethral injury repair, the duration of catheterization is longer than in those without urethral injury.[1,6] Moreover, suprapubic cystostomy is recommended in cases of complete circumferential rupture.[1] Postoperatively, in our case, diazepam was administered to suppress erections and thus protect the surgical repair, a practice supported by previous reports in penile trauma management.[11] In Addition, the prolonged inpatient stay rather reflects local healthcare structures and postoperative management protocols, which may differ from outpatient-based approaches commonly practiced and feasible in other healthcare systems. The strength of this report lies in the detailed depiction of intraoperative findings and the rationale for choosing a vertical penoscrotal approach, which provided optimal access in the presence of marked foreskin hematoma and proximal urethral injury. The case also highlights the importance of individualized surgical decision-making. Circumcision was deliberately deferred due to tissue edema and the risk of impaired wound healing, though it could be discussed as part of the initial procedure to prevent later phimosis. As a single-case observation, the report's generalizability is limited, yet it may support surgical decision-making in similar scenarios.

## Conclusion

Penile fracture is a relatively uncommon urological emergency, especially when combined with partial or complete urethral rupture. The presence of clinical signs such as hematuria and urinary retention suggests urethral injury. Diagnosis is mainly clinical, and complementary diagnostic exams are not always required. In most cases, surgery is mandatory to maintain sexual potency and micturition function. Generally, when PF is treated immediately, patients can expect good functional and cosmetic outcomes.

## Acknowledgement

Not applicable.

## Funding Statement

Not applicable.

## Author Contributions

The authors confirm contribution to the paper as follows: Conceptualization, Steffen Rausch and Angelos Samaras; Investigation and surgery, Steffen Rausch, Stefan Aufderklamm, Basitan Amend, Viktoria Stühler; Data curation, Angelos Samaras, Steffen Rausch; Writing—original draft preparation, Steffen Rausch, Angelos Samaras; Writing—review and editing, Arnulf Stenzl, Viktoria Stühler, Igor Tsaur, Bastian Amend, Stefan Aufderklamm, Steffen Rausch; Supervision, Igor Tsaur, Arnulf Stenzl. All authors reviewed the results and approved the final version of the manuscript.

## Availability of Data and Materials

Not applicable.

## Ethics Approval

According to institutional policy, ethical approval was not required for single-patient case reports.

## Informed Consent

Written informed consent was obtained from the patient for publication of this study and any accompanying images.

## Conflicts of Interest

The authors declare no conflicts of interest to report regarding the present study.

## Supplementary Materials

The supplementary material is available online at https://www.techscience.com/doi/10.32604/cju.2025.068588/s1.

References


1. Barros R, Ribeiro JGA, da Silva HAM, de Sá FR, Fosse AM Jr, Favorito LA. Urethral injury in penile fracture: a narrative review. *Int Braz J Urol* 2020;46(2):152–157. doi:10.1590/S1677-5538.IBJU.2020.99.02.
2. Ge G, Wang H, Chen Y, Li G, Ma L. Complete urethral injury in the penile fracture: a case report and literature review. *Transl Androl Urol* 2021;10(2):969–975. doi:10.21037/tau-20-1155.
3. Ateyah A, Mostafa T, Nasser TA, Shaeer O, Hadi AA, Al-Gabbar MA. Penile fracture: surgical repair and late effects on erectile function. *J Sex Med* 2008;5(6):1496–1502. doi:10.1111/j.1743-6109.2007.00769.x.
4. Riley DS, Barber MS, Kienle GS et al. CARE guidelines for case reports: ex planation and elaboration document. *J Clin Epi* 2017;89:218–235. doi:10.1016/jclinepi.2017.04.026.
5. Barros R, Schulze L, Ornellas AA, Koifman L, Favorito LA. Relationship between sexual position and severity of penile fracture. *Int J Impot Res* 2017;29(5):207–209. doi:10.1038/ijir.2017.24.
6. Kominsky H, Beebe S, Shah N, Jenkins LC. Surgical reconstruction for penile fracture: a systematic review. *Int J Impot Res* 2020;32(1):75–80. doi:10.1038/s41443-019-0212-1.
7. Kamdar C, Mooppan UM, Kim H, Gulmi FA. Penile fracture: preoperative evaluation and surgical technique for optimal patient outcome. *BJU Int* 2008;102(11):1640–1644; discussion 1644. doi:10.1111/j.1464-410X.2008.07902.x.
8. Tijani KH, Ogo CN, Ojewola RW, Akanmu NO. Increase in fracture of the penis in south-west Nigeria. *Arab J Urol* 2012;10(4):440–444. doi:10.1016/j.aju.2012.07.004.
9. Simms A, Baradaran N, Lue TF, Breyer BN. Penile fractures: evaluation and management. *Urol Clin North Am* 2021;48(4):557–563. doi:10.1016/j.ucl.2021.06.011.
10. Mazaris EM, Livadas K, Chalikopoulos D, Bisas A, Deliveliotis C, Skolarikos A. Penile fractures: immediate surgical approach with a midline ventral incision. *BJU Int* 2009;104(4):520–523. doi:10.1111/j.1464-410X.2009.08455.x.
11. Boncher NA, Vricella GJ, Jankowski JT, Ponsky LE, Cherullo EE. Penile fracture with associated urethral rupture. *Case Rep Med* 2010;2010:791948. doi:10.1155/2010/791948.


 