



Case Report

Extensive Recurrent Vesicourethral-Cutaneous Fistula Tracking to the Thigh after Laparoscopic Radical Prostatectomy: A Case Report

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Abstract

Background

Vesicourethral anastomotic fistula is an uncommon complication following radical prostatectomy. In rare instances, persistent urinary leakage may result in extensive fistula formation with propagation into adjacent soft tissues, leading to severe infectious complications.

Case Presentation

We report a case of a 63-year-old male who developed a recurrent vesicourethral-cutaneous fistula following laparoscopic radical prostatectomy for localized prostate cancer. The postoperative course was complicated by persistent urinary leakage, extensive soft tissue infections, abscess formation, and urosepsis. Conventional cystography failed to fully delineate the fistulous tract. Contrast-enhanced computed tomography revealed extensive urine extravasation originating from the vesicourethral anastomosis and tracking through the retroperitoneal space along fascial planes into the medial compartment of the right thigh, resulting in the formation of a vesicocutaneous fistula.

Management and Outcome

After an unsuccessful initial surgical repair, the patient underwent definitive open reoperation with excision and two-layer closure of the vesicourethral fistula, combined with urinary diversion and meticulous drainage. Intraoperative cystography confirmed watertight closure. The postoperative course was uneventful, with complete resolution of urinary leakage and satisfactory wound healing.

Conclusion

Extensive vesicourethral fistulas following radical prostatectomy are rare but potentially life-threatening complications. Cross-sectional imaging plays a crucial role in accurate diagnosis and surgical planning. Definitive open surgical repair can achieve durable fistula closure while preserving bladder function, even in advanced and recurrent cases.

Keywords: Vesicourethral fistula; Radical prostatectomy; Vesicocutaneous fistula; Urinary extravasation; Postoperative complications

Introduction

Radical prostatectomy is a well-established treatment modality for localized prostate cancer, offering favorable oncological and functional outcomes. Although minor urinary leakage from the vesicourethral anastomosis may occur during the early postoperative period, persistent fistula formation is rare. When present, vesicourethral fistulas may result in significant morbidity, particularly if associated with infection or extension into adjacent anatomical compartments. We report an exceptionally rare case of a recurrent vesicourethral-cutaneous fistula extending into the thigh following laparoscopic radical prostatectomy, highlighting diagnostic challenges and principles of surgical management.

Case Presentation

A 63-year-old male with a history of prostate cancer was referred to our department because of persistent urinary leakage and recurrent soft tissue infections following laparoscopic radical prostatectomy (LRP).

The patient was initially diagnosed with prostate adenocarcinoma based on transrectal core needle biopsy performed in August 2019. Histopathological examination revealed adenocarcinoma with a Gleason score of 6 (3+3), Grade Group 1, involving approximately 10% of the sampled cores. The preoperative serum prostate-specific antigen (PSA) level was 11.2 ng/mL. Staging investigations, including bone scintigraphy and computed tomography (CT), demonstrated no unequivocal evidence of distant metastases.

In October 2019, the patient underwent laparoscopic radical prostatectomy. The early postoperative course was uneventful, and he was discharged on the third postoperative day with a Foley catheter scheduled for removal after 14 days. Final histopathological examination confirmed adenocarcinoma with a Gleason score of 6 (3+3), Grade Group 1, involving approximately 30% of the right prostatic lobe and 20% of the left lobe. The tumor was organ-confined (pT2N0Mx), with negative surgical margins (minimum margin width 0.2 cm). The urethra, seminal vesicles, and regional lymph nodes were free of malignancy.

Several weeks after surgery, the patient developed progressive urinary leakage from the base of the penis, accompanied by local skin necrosis and progressive deterioration of general condition. He required multiple hospital admissions because of severe infectious complications, including scrotal and perineal abscesses, necrosis of penile skin, urinary tract infection, and formation of cutaneous fistulas [1-9].

Investigations

Cystography performed in February 2020 demonstrated massive extravasation of contrast medium from the vesicourethral anastomosis, extending beyond the pelvis into adjacent soft tissues (Figures 1-3). Despite an initial attempt at surgical repair, the fistula recurred.



Figure 1: Plain pelvic radiograph obtained during cystography.



Figure 2: Standing cystography demonstrating massive contrast extravasation from the vesicourethral anastomosis.



Figure 3: Cystography showing extensive leakage of contrast beyond the pelvic cavity.

Subsequent cystographic studies failed to clearly visualize the fistulous tract. Contrast-enhanced CT of the abdomen and pelvis revealed contrast leakage originating from the anterior bladder wall at the level of the vesicourethral anastomosis. The extravasated urine tracked anteriorly through the retropubic space and extended bilaterally along the pubic bones into the surrounding musculature. On the right side, contrast collections were identified within the pectineus and adductor muscles. A well-defined vesicocutaneous fistulous tract extended to the medial aspect of the right thigh, forming an external cutaneous opening (Figures 4, 5).



Figure 4: Follow-up cystography demonstrating irregular bladder contours without clear visualization of the fistulous tract.



Figure 5: Lateral cystography showing fistula tracking toward the right thigh.



Figure 6: Postoperative surgical wound on the day of discharge.



Figure 7: Healed fistula site on the medial aspect of the right thigh on postoperative day 14.

Management

Given the recurrent nature of the fistula and its extensive propagation into the thigh, definitive surgical repair was planned. The procedure was performed in July 2020 under general anesthesia via a transverse Pfannenstiel incision. Dense adhesions were carefully dissected to access the retropubic space, and the bladder was opened anteriorly. Both ureteral orifices were identified and temporarily catheterized using 7 Fr ureteral catheters.

A fistulous opening approximately 4 mm in diameter was identified in the superior portion of the vesicourethral anastomosis. The fistula was excised and closed using a two-layer technique with absorbable sutures. A Petzer catheter was placed to ensure adequate urinary drainage. Intraoperative cystography confirmed watertight closure. Two suction drains were left in the retropubic and subfascial spaces. Excess scarred penile skin resulting from previous urine leakage was excised during the same operative session.

Outcome

The postoperative course was uneventful. No urinary leakage or infectious complications were observed. The patient was discharged on postoperative day seven in good general condition. The wound on the medial aspect of the right thigh healed satisfactorily, with residual scarring and no evidence of recurrent fistula formation (Figures 6, 7).

Discussion

Vesicourethral fistula is a rare complication following radical prostatectomy. Persistent fistula formation is most commonly

associated with infection, tissue ischemia, or impaired wound healing. In the present case, extensive urine extravasation along fascial planes resulted in recurrent abscess formation and ultimately life-threatening urosepsis.

Diagnosis of complex urinary fistulas may be challenging, as conventional cystography can fail to delineate long, tortuous, or intermittently patent fistulous tracts. In this patient, contrast-enhanced CT proved essential for accurate visualization of the fistula extent and for surgical planning. Definitive open surgical repair with multilayer closure, appropriate urinary diversion, and meticulous drainage enabled durable fistula closure while preserving bladder function.

Conclusion

Complex vesicourethral-cutaneous fistulas extending beyond the pelvis represent rare but severe complications following radical prostatectomy. When conventional imaging is inconclusive, cross-sectional imaging should be pursued. Definitive open surgical repair can provide successful outcomes even in advanced and recurrent cases.

Ethical Statement

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

Conflict of Interest

The authors declare no conflict of interest.

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