

Vesicouterine Fistula After Primary Repair of a Cesarean Section-Associated Bladder Injury: A Case Report

Sezaryenle ilişkili Mesane Yaralanmasının Primer Onarımı Sonrası Gelişen Vezikouterin Fistül: Bir Olgu Sunumu

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Abstract

Vesicouterine fistula (VUF) is a rare type of genitourinary fistula that usually develops following obstetric and gynecological surgeries. We present the diagnostic and therapeutic management of a VUF in a 35-year-old woman with a history of four previous cesarean sections. During her fifth cesarean section, an intraoperative bladder injury occurred and was repaired primarily. Despite initial treatment, the patient developed cyclic hematuria during the postoperative period. Cystography demonstrated contrast extravasation from the bladder wall, while magnetic resonance urography revealed an approximately 15 mm defect in the anterior bladder wall with a fistulous tract extending into the endometrial cavity. Diagnostic cystoscopy confirmed the fistula orifice. Following multidisciplinary evaluation, open surgical repair was performed. Due to dense adhesions, subtotal hysterectomy was required, followed by excision of the fistulous tract and primary bladder repair. No postoperative complications occurred, and the foley catheter was removed after control cystography confirmed the absence of urinary leakage. VUF should be considered in patients presenting with cyclic hematuria after cesarean section, and successful outcomes can be achieved with timely diagnosis and appropriate surgical management.

Keywords: Vesicouterine fistula, Youssef syndrome, Genitourinary fistula, Multiple cesarean section, Iatrogenic bladder injury

Öz

Vezikouterin fistül (VUF), genellikle obstetrik ve jinekolojik cerrahiler sonrasında gelişen nadir bir genitoüriner fistül tipidir. Bu olgu sunumunda, tekrarlayan sezaryen öyküsü bulunan bir hastada gelişen VUF'nin tanı ve tedavi süreci sunulmuştur. Dört kez sezaryen öyküsü bulunan 35 yaşındaki hasta, beşinci sezaryen operasyonu sırasında meydana gelen mesane yaralanması nedeniyle değerlendirilmiştir. Primer mesane onarımı uygulanmasına rağmen postoperatif dönemde siklik hematüri gelişmiştir. Sistografi ile mesane duvarından kontrast ekstrevasyonu saptanırken, manyetik rezonans ürografide mesanenin ön duvarında yaklaşık 15 mm'lik defekt ve endometrial kaviteye uzanan fistül traktı izlenmiştir. Sistoskopi ile fistül ağzı doğrulanmıştır. Obstetri ve jinekoloji ekibi ile birlikte gerçekleştirilen cerrahi tedavide yoğun adezyonlar nedeniyle subtotal histerektomi uygulanmış, fistül traktı eksize edilerek primer mesane onarımı yapılmıştır. Postoperatif dönemde komplikasyon gelişmemiş ve kontrol sistografisinde kaçak saptanmaması üzerine üretral kateter çıkarılmıştır. Sezaryen sonrası siklik hematüri ile başvuran hastalarda VUF akılda tutulmalı ve uygun cerrahi tedavi ile başarılı sonuçlar elde edilebilmektedir.

Anahtar Kelimeler: Vezikouterin fistül, Youssef sendromu, Genitoüriner fistül, Sezaryen, Mesane yaralanması

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Received: 03.06.2026 / **Accepted:** 14.08.2026

Cite this article as: Kuru D, Günsay E, Sağır B, Ördek E. Vesicouterine Fistula After Primary Repair of a Cesarean Section-Associated Bladder Injury: A Case Report. Harran Üniversitesi Tıp Fakültesi Dergisi (Journal of Harran University Medical Faculty) 2026;23(3):501-504. DOI: 10.35440/hutfd.1962918.



Introduction

Vesicouterine fistulas (VUF) are pathological connections between the uterus or cervix and the bladder, representing a rare subtype of genitourinary fistulas. Their incidence has been reported to be approximately 1-4% among all urogenital fistulas (1,2). With the increasing rates of cesarean sections, the incidence of VUF has also risen (3). VUF is most commonly caused by iatrogenic factors, with cesarean section being the leading etiological factor (1). Repeated cesarean deliveries increase the risk of bladder injury due to pelvic adhesions and difficult dissections (4). Clinically, VUF may present as the classic Youssef syndrome, characterized by amenorrhea, cyclic hematuria, and absence of urinary incontinence (5). Diagnostic modalities include cystoscopy, cystography, and magnetic resonance imaging, while treatment is planned conservatively or surgically depending on the patient's clinical condition and fertility expectations (2,6).

Case Report

A 35-year-old woman at 28 weeks of gestation (G7P5Y3, with a history of two stillbirths) had previously undergone four cesarean sections and had no known comorbidities. She underwent an emergency fifth cesarean section due to placenta previa. Intraoperative consultation was requested because of bladder perforation. During bladder repair, the ureteral orifices were identified and confirmed to be intact. The bladder defect was closed in two layers using 3-0 Vicryl sutures. An intraoperative leak test was performed, and no leakage was observed. A 16 Fr two-way Foley catheter was subsequently placed. The patient was closely followed with urethral catheterization for three weeks, after which the catheter was removed. During subsequent follow-up, beginning approximately five to six weeks after delivery, she developed recurrent episodes of hematuria temporally associated with her menstrual periods. Cystography revealed contrast extravasation from the superior wall of the bladder (Figure 1). Magnetic resonance urography performed at an external center demonstrated an approximately 15 mm defect in the anterior bladder wall with a fistulous tract extending into the endometrial cavity, consistent with VUF.



Figure 1. Cystographic image of vesicouterine fistula (VUF)

Diagnostic cystoscopy showed a normal urethra and ureteral orifices, while a fistula opening was observed on the superior bladder wall. The fistula tract was confirmed by visualizing a guidewire passed through the cystoscope exiting via the vaginal route (Figure 2).

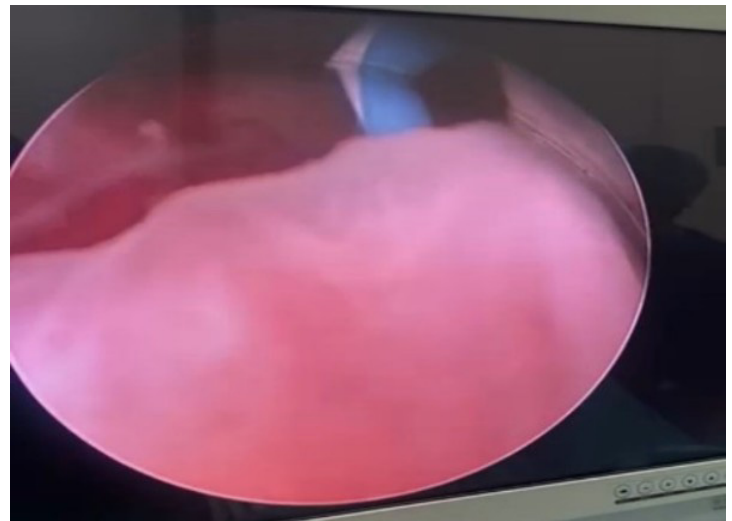


Figure 2. Vaginal visualization of the guidewire advanced through the bladder end of the fistula

Open surgical repair was planned in collaboration with the obstetrics and gynecology team. The patient had no desire for future fertility, and the possibility of hysterectomy, if clinically required, was discussed preoperatively and included in the informed consent. Under general anesthesia, the abdomen was entered via a lower midline incision, and the bladder was dissected and mobilized from the surrounding tissues. Due

to dense adhesions encountered intraoperatively, a subtotal hysterectomy was performed. The fistulous segment was excised together with the hysterectomy specimen. The bladder defect was closed in two layers using continuous 3-0 Vicryl sutures. An omental interposition flap was placed to reinforce the repair and separate the bladder repair line from the genital tract. After repair, the bladder was filled with 200 mL of saline, and no leakage was observed. A 16 Fr Foley catheter was inserted, and a silicone drain was placed in the operative field. The patient's postoperative course was uneventful. The drain was removed on postoperative day three, and the patient was discharged on day four. The Foley catheter was maintained for one month. After confirming the absence of leakage on control cystography, the catheter was removed, and complete resolution of symptoms was observed during follow-up (Figure 3). At the six-month follow-up, the patient had no active complaints, including recurrent hematuria, vaginal urinary leakage, urinary incontinence, recurrent urinary tract infection, or irritative voiding symptoms, and no additional intervention was required.



Figure 3. Post-repair cystogram of vesicouterine fistula (VUF)

Discussion

VUF is a rare but significant complication among genitourinary fistulas, particularly following obstetric surgeries. With the increasing number of cesarean sections, the incidence of VUF has also risen (3). A history of repeated cesarean sections, pelvic adhesions, and difficult dissection conditions are major risk factors for bladder injury (4). In the present case, the patient's history of multiple cesarean sections and intraoperative bladder injury were the main contributing factors to VUF development.

The clinical presentation of VUF may vary; however, the most characteristic manifestation is Youssef syndrome, defined by amenorrhea and cyclic hematuria (5). Due to the sphincter-like effect of the cervix, urinary incontinence is typically absent (7). In our case, the patient's complaint of cyclic hematuria was consistent with this classic presentation.

Cystoscopy, cystography, and magnetic resonance imaging play crucial roles in diagnosis. In particular, MRI provides high accuracy in delineating the anatomical details of the fistula tract (6). In our case, the diagnosis was confirmed using multiple imaging modalities.

The treatment approach is determined based on the patient's fertility expectations. Conservative options include prolonged catheterization and hormonal suppression, although their success rates are limited (8). Surgical treatment remains the gold standard and can be performed via open, laparoscopic, or robotic approaches (2,9). In cases with no desire for fertility or with dense adhesions, hysterectomy combined with fistula repair may be preferred (1,2). In this case, due to severe adhesions, subtotal hysterectomy was performed, and successful repair was achieved following excision of the fistula tract.

Conclusion

VUF is a rare but important complication that should be considered, especially in patients with a history of multiple cesarean sections. The presence of cyclic hematuria after cesarean section should prompt evaluation for VUF. Early diagnosis, appropriate imaging, and correct surgical management can result in high success rates, while meticulous intraoperative technique and timely repair of bladder injuries play a critical role in prevention.

AI Usage Information: No artificial intelligence was used.

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

Author Contributions:

Concept: E.Ö.

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Literature Search: E.Ö., D.K., E.G., B.S.

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Critical Review: E.Ö.

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: Authors declared no financial support.

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