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# A Rare Case of Vesicosalpingo and Vesicovaginal Fistula Following Hysterectomy

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**Abstract:** ***Vesicovaginal fistula (VVF) is a well-documented complication of gynecological surgery; however, vesicosalpingo fistula (VSF) is extremely rare. We present a case of a 31-year-old woman who developed both VVF and VSF following an abdominal hysterectomy for uterine fibroids. She presented with abdominal discomfort and continuous vaginal urine leakage. Diagnostic cystoscopy identified two fistulous tracts, which were further evaluated and treated surgically. The patient underwent open surgical repair with the removal of the fallopian tubes and bladder closure reinforced with an omental flap. Postoperative follow-ups showed complete resolution without recurrence. This case emphasizes the importance of thorough assessment and individualized surgical planning in managing multiple fistulas.***

**Keywords:** vesicosalpingo fistula, vesicovaginal fistula, hysterectomy complication, bladder injury, urinary fistula

## 1. Introduction

Vesicovaginal fistula (VVF) is the most frequently encountered type of urogenital fistula, often occurring as a complication following gynecologic procedures, particularly total abdominal hysterectomy. It is reported in approximately 0.8% to 2.2% of such cases and typically presents with continuous urinary leakage through the vagina, leading to significant physical and psychological distress [1,2].

In contrast, vesicosalpingo fistula (VSF)—a rare abnormal communication between the urinary bladder and fallopian tube—is infrequently documented in the literature. Patients may present with nonspecific symptoms, including intermittent urinary leakage, recurrent urinary tract infections (UTIs), and pelvic discomfort, which can delay diagnosis [3].

The simultaneous occurrence of VVF and VSF in a single patient is extremely rare and poses unique diagnostic and therapeutic challenges. In this report, we present a rare case of combined VVF and VSF in a patient following total hysterectomy, with emphasis on the clinical presentation, diagnostic process, and surgical management.

## 2. Case Presentation

A 31-year-old woman presented to the Urology department with complaints of abdominal pain, discomfort, and continuous urine leakage from the vagina. She had undergone

a hysterectomy for uterine fibroids four months earlier. During the initial surgery, a suspected bladder injury with pelvic bleeding was noted, and a urinary catheter was placed. However, persistent urine leakage postoperatively led to a referral for further evaluation. Diagnostic Workup

A preoperative Cystogram was done (Figure 1).

Cystoscopic examination revealed two distinct fistula tracts near the midline of the posterior bladder wall. One tract was cannulated with a guidewire, which was observed exiting through the vagina, confirming a vesicovaginal fistula. The second defect was also cannulated, but its path was unclear. Given these findings, the patient was counseled regarding the need for open surgical repair, and informed consent was obtained.

**Operative Technique**

The patient underwent open surgical repair under general anesthesia in the dorsal lithotomy position. Cystoscopy was performed, and a guidewire was passed through the vesicovaginal fistula, exiting through the vagina. However, the second bladder defect was cannulated without clear evidence of its course.

**Key intraoperative findings included:**

- The right fallopian tube was found adherent to the vaginal cuff closure, likely from the previous hysterectomy.
- The guidewire placed in the fistula tract appeared to enter the right fallopian tube, confirming a vesicosalpingo fistula.

**Surgical steps included:**

- Peritoneal dissection: The peritoneum overlying the posterior bladder was incised and divided.
- Bladder mobilization: The bladder was carefully lifted to create a plane between the bladder and vagina.

**Fistula repair:**

The vesicovaginal fistula was identified and repaired.
The vesicosalpingo fistula was confirmed and repaired.

The fallopian tubes were removed to prevent recurrence (Figure 2).

Bladder closure: The bladder was sutured in multiple layers.

Omental interposition: An omental flap was interposed between the bladder and vagina to reinforce the repair.

Postoperative management: A Foley catheter was placed and left in situ for 14 days to ensure proper healing.

**Postoperative Course**

The patient was discharged on postoperative day 4 with an indwelling urinary catheter.

A cystogram at two weeks confirmed the absence of urinary extravasation.

At six-month follow-up, there was no recurrence of fistula formation, and the patient remained asymptomatic.

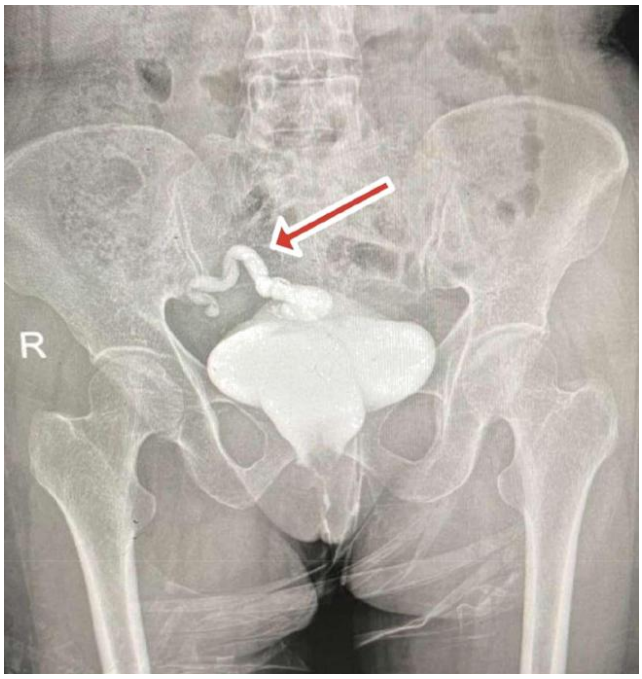


**Figure 1:** A preoperative Cystogram, Arrow pointed towards Right Fallopian Tube

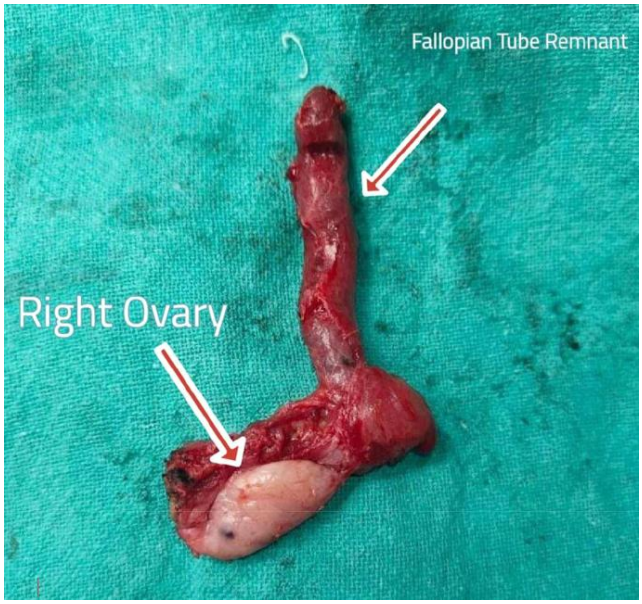


**Figure 2:** Fallopian tube remnants and Right ovary.

## 3. Discussion

VSF is hypothesized to arise secondary to iatrogenic trauma during pelvic surgery, particularly when dissection involves the adnexal structures and the bladder. Mechanisms such as ischemia, thermal injury, and inadvertent inclusion of the fallopian tube during bladder closure or suture placement may contribute to fistula formation [2]. In the reported case by Hadzi-Djokic et al., VSF developed as a complication of total hysterectomy, illustrating how subtle intraoperative trauma can lead to this uncommon outcome [2].

A thorough and individualized diagnostic approach is essential, particularly in patients presenting with persistent urinary leakage following pelvic surgery. Early cystoscopic evaluation is critical for identifying the primary fistulous tract and detecting secondary or atypical tracts such as VSF

[3]. Preoperative imaging, including contrast-enhanced studies like voiding cystourethrography or CT urography, further aids in delineating the complex anatomy of multiple fistulae [4]. Hilton and Cromwell highlighted the variability in fistula presentations post-hysterectomy, reinforcing the importance of comprehensive evaluation to guide successful repair [4].

Surgical correction remains the definitive management for VVF and VSF. Success is rooted in key surgical principles: tension-free, watertight, multilayered closure and the interposition of well-vascularized tissue to reinforce the repair and prevent recurrence [1,3]. Elkins emphasized these principles in his extensive experience with VVF repairs, underscoring their relevance even in rare and complex cases [3]. Tissue flaps such as omental, peritoneal, or Martius flaps are frequently utilized for this purpose. The omental flap, in particular, has demonstrated favorable outcomes due to its excellent vascular supply and adaptability to the pelvic anatomy [5]. Sapmaz et al. highlighted its successful use in patients with Youssef syndrome, suggesting similar benefits in other genitourinary fistula repairs [5].

Complex and recurrent fistulae, such as those involving both the bladder and fallopian tube, demand meticulous intraoperative evaluation and planning. Hilton, in his 25-year personal series, emphasized the necessity of adapting surgical techniques to the specific anatomical and pathological features of each case [6]. In the modern surgical landscape, minimally invasive techniques, including robotic-assisted laparoscopic repair, have emerged as effective alternatives. These approaches offer precise dissection and suturing capabilities, especially valuable in cases with dense pelvic adhesions or difficult-to-access fistulous tracts. Agrawal et al. reported a single-center experience demonstrating the efficacy and safety of robotic-assisted VVF repair, with promising outcomes and reduced operative morbidity [7].

## 4. Conclusions

This case highlights a rare presentation of vesicosalpingo and vesicovaginal fistulas following hysterectomy. Thorough preoperative evaluation and meticulous surgical repair are essential for successful management. Proper

fistula identification, multilayer closure, and interposition techniques can help prevent treatment failure and recurrence. Given the rarity of vesicosalpingo fistulas, a high index of suspicion is necessary when patients present with persistent urinary symptoms following pelvic surgery. Early and accurate diagnosis, aided by imaging and endoscopic evaluation, is crucial to ensure optimal surgical planning and long-term outcomes.

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