ISSN Print: 2664-8334
ISSN Online: 2664-8342
IJOG 2025; 7(1): 01-02
www.obstetricsjournals.com
Received: 02-11-2024
Accepted: 07-12-2024

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An unexpected link: A unique presentation of colovaginal fistula secondary to post-hysterectomy adhesions in an elderly patient

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DOI: https://doi.org/10.33545/26648334.2025.v7.i1a.34

Abstract
Colovaginal fistulas (CVFs) are rare pathological communications between the colon and vagina, often arising from diverticulitis, malignancy, or pelvic trauma. They may initially present with nonspecific symptoms, often leading patients to seek care for a presumed urinary or gynecological issue. Clinicians should maintain a high index of suspicion for CVFs in patients with a history of pelvic surgeries, even in the absence of acute inflammatory conditions such as diverticulitis. We report the case of an 84-year-old woman with a colovaginal fistula attributed to post-hysterectomy adhesions, without evidence of diverticulitis or active inflammation. This case underscores the importance of advanced imaging in diagnosing complex fistulas and highlights the successful management with laparoscopic sigmoid colectomy and fistula repair.

Keywords: Colovaginal fistula (CVF), post-hysterectomy adhesions, pelvic surgery, complications

Introduction
Colovaginal fistulas (CVFs) are abnormal communications between the colon and vagina that result in a range of distressing symptoms, including recurrent vaginal discharge, passage of fecal matter through the vagina, and recurrent infections [1]. These fistulas typically arise due to underlying inflammatory or mechanical disruption within the pelvis. Common etiologies include diverticulitis, malignancies, pelvic trauma, or adhesions resulting from prior surgical procedures. CVFs are rare complications in gynecological surgeries, such as hysterectomy, where pelvic adhesions or bowel injury may predispose to fistula formation over time [1].
Patients with CVFs often present with nonspecific symptoms such as dysuria, vaginal discharge, or gastrointestinal complaints, making diagnosis challenging without imaging or surgical exploration. The clinical complexity increases in elderly patients with multiple comorbidities or surgical histories, where presentations may be atypical or compounded by other coexisting conditions [1].
This case report highlights a rare instance of CVF in an 84-year-old female with a prior hysterectomy. Unlike the more common inflammatory causes, this patient's fistula likely developed due to post-surgical adhesions. The case highlights the multifaceted challenges in diagnosing and managing CVFs, particularly in older adults with significant comorbidities and postoperative complications.

Case Report
An 84-year-old female with a history of hypertension, diabetes mellitus, asthma, and prior hysterectomy presented with hematuria, right-flank abdominal pain, and dysuria. Her initial presentation was suggestive of a urinary tract infection (UTI), and this was further supported by her history of a recent UTI as reported by her daughter. However, due to the persistence of symptoms and concern raised by her daughter, imaging studies were performed to rule out other underlying causes.
A CT scan of the abdomen and pelvis with rectal contrast revealed a small focus of air within the vagina, and following contrast administration, contrast material was observed in the left

side of the vagina, indicating the presence of a colovaginal fistula. Additional findings included a small bowel-containing ventral soft tissue hernia without signs of strangulation or obstruction, as well as diverticulosis of the sigmoid and descending colon without evidence of diverticulitis. These imaging findings, in conjunction with her clinical symptoms, led to the diagnosis of a colovaginal fistula.

In order to repair this defect, the patient underwent a laparoscopic sigmoid colectomy with colovaginal fistula repair and lysis of post-hysterectomy adhesions. Adhesions from the prior hysterectomy were carefully dissected to prevent recurrent bowel obstruction, improve abdominal wall motility, and gain access to the sigmoid colon and the area of the fistula. After mobilizing the sigmoid colon, the affected portion was identified, and a portion of the colon was resected. Adequate margins were ensured (?) to confirm complete excision of any tissue involved in the fistula. The remaining portion of the sigmoid colon was anastomosed to the remaining health bowel, after vaginal repair. Surgeons were careful to preserve the integrity of surrounding structures, such as the bladder and ureters.

Postoperatively, she was transferred to the ICU and required mechanical ventilation for two days. After extubation, her respiratory and hemodynamic status stabilized, and she was transitioned to oxygen via a Venturi mask.

Her recovery was complicated by paralytic ileus, with imaging revealing dilated air-filled loops of small bowel. This resolved gradually with nasogastric decompression and conservative management. She began to tolerate a clear liquid diet, which was later advanced. Additional management included IV antibiotics, which were later adjusted as her condition improved.

During her stay, she also developed acute kidney injury, which was stabilized with appropriate management. She received physical therapy due to deconditioning, and progressed well with recovery. Her surgical site remained clean and healed appropriately. She was discharged to a skilled nursing facility in stable condition with normalized bowel function and was scheduled for follow-up with general surgery for postoperative evaluation.

Discussion

This case presents an uncommon presentation of a colovaginal fistula (CVF) secondary to post-hysterectomy adhesions, emphasizing the complexity of managing fistulas not caused by more typical inflammatory etiologies such as diverticulitis. The pathophysiology of CVFs involves chronic inflammation or mechanical disruption that erodes tissue planes between the colon and vagina [1]. In this patient, adhesions from a prior hysterectomy likely contributed to the fistula formation by creating areas of tension and ischemia, making these tissues more vulnerable to perforation or erosion [1, 2].

Although this patient had diverticulosis, there was no evidence of active diverticulitis, further supporting survival adhesions as the likely cause. The lack of inflammation makes cases like this more challenging to diagnose initially, as symptoms like dysuria, vaginal discharge, or vague abdominal pain can be easily misattributed to other more common conditions in elderly patients, such as urinary tract infections or vaginal atrophy. The lack of acute inflammatory changes on imaging added to the diagnostic complexity, leading clinicians away from considering a fistula, thus underscoring the importance of maintaining a broad differential diagnosis when evaluating nonspecific pelvic or genitourinary symptoms in patients with prior pelvic surgeries [3].

Despite the lack of inflammatory features, imaging played a critical role in diagnosis. A CT scan with rectal contrast revealed a small focus of air and contrast material in the vagina, conclusively identifying the colovaginal fistula. These findings, combined with clinical symptoms of dysuria, hematuria, and abdominal pain, allowed for precise localization of the fistula and guided surgical management. The patient's comorbidities, including hypertension, diabetes, and advanced age, complicated both the diagnosis and subsequent treatment process.

This case underscores the importance of maintaining a high index of suspicion for CVF in patients with prior pelvic surgeries, particularly when symptoms are nonspecific and inflammation is absent. Advanced imaging modalities, such as CT with rectal contrast, were pivotal in detecting subtle findings indicative of a fistula, even in challenging cases.

This case highlights several layers of complexity. First, post-hysterectomy adhesions, while recognized as a risk factor, are a less common etiology for CVFs than diverticulitis. Second, the patient's advanced age and multiple comorbidities increased her risk of perioperative complications, necessitating individualized perioperative care and a multidisciplinary approach. Third, the rarity of this presentation and the successful management of a CVF in such a complex clinical scenario add to the growing body of literature on CVFs.

In conclusion, this case illustrates the need for heightened clinical awareness of CVFs as a potential late complication of pelvic surgeries, even decades later. It underscores the importance of imaging in diagnosis, the challenges of managing elderly patients with significant comorbidities, and the role of prompt surgical intervention in achieving a successful outcome.

Acknowledgments

We would like to thank Dr. Hernandez Borges, MD, Larkin Community Hospital PSC, the internal medicine team, and all available consultants for their collaborative care in managing this complex case. There are no conflicts of interest related to the work.

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