Complicated Diverticulitis Resulting in Colovaginal Fistula

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Background

- Acute diverticulitis occurs when diverticula—outpouchings of the colon wall—become inflamed[1]
- Older individuals are at increased risk for diverticulitis and reoccurrences are common[1,2]
- Complications such as abscesses, perforation, or fistulas may occur[1]
- Colovaginal fistulas are estimated to represent 20% of fistulas that occur in complicated diverticulitis[3]
- 0.6 in 100 thousand U.S. women may experience a colovaginal fistula[4]
- They are most common in patients who have undergone hysterectomies, likely due to resulting adhesions[4-6]
- Proposed triad for suspecting a colovaginal fistula:
  - History of diverticulitis
  - Previous hysterectomy
  - Stool or flatus per vagina[5]
- Patients commonly present to gynecology initially which can lead to a delay in definitive surgical treatment[3]

History of Presenting Illness

A 63 y/o female presented to the Emergency Department (ED) with 10 days of non-odorous vaginal bleeding with intercourse, lower abdominal pain, nausea, and vomiting. She denied fecal discharge, fevers, or chills. She had been to the ED 5 days earlier for vaginal bleeding and was discharged with outpatient follow-up after an unremarkable pelvic examination. Her gynecologist eventually prompted her to return to the ED on day 10 for worsening vaginal bleeding. At the ED, the patient's vital signs, leukocyte count, and other labs were all within normal limits.

Past Medical History

PMH: diverticulitis, irritable bowel syndrome, chronic obstructive pulmonary disease, arthritis, hypertension
PSH: bilateral tubal ligation 2022, gastric sleeve 2021, cesarean section 1990, kidney cystectomy 1984
Allergies: atorvastatin
Medications:
- escitalopram 20 mg PO QD
- lisinopril 5 mg PO QD
- montelukast 10 mg PO QD
- tiotropium 18 mcg inhaler QD

Physical Exam

Vital Signs:
- 160/70 mmHg
- 77 bpm
- 97.7 °F
- 18 breaths/min
- 98% SpO2

- General: Patient appears uncomfortable and frail
- Neurologic: Alert and oriented x 4, organized speech and thought
- **Abdomen**: **Distended, normoactive bowel sounds, diffusely tender to palpation, rebound tenderness, well-healed transverse incision scar**
- Pulmonary: No accessory muscle use with respirations, clear lung sounds bilaterally
- Cardiac: Regular rate and rhythm without murmurs
- GU: No malodorous discharge noted, no tenderness, no external lesions or masses

Imaging

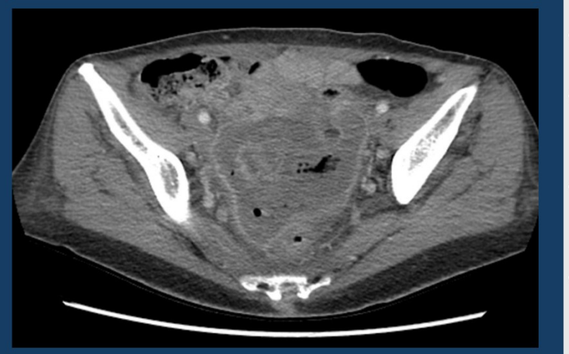

Figure 1: Pre-operative transverse CT shows diverticulitis, a 10.6 x 6cm abscess, and free air

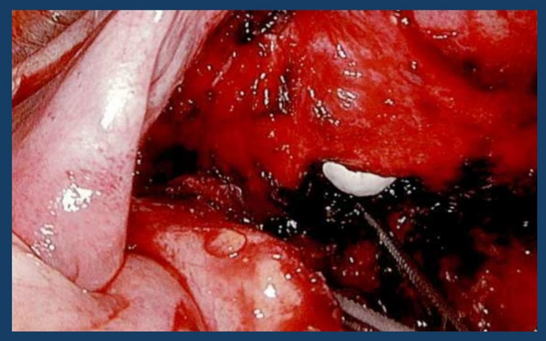

Figure 2: Intra-operative laparoscopic image shows suspended uterus and gloved finger of gynecologic surgeon visualized during digital vaginal exam

Hospital Course

- Gynecology brought patient to operating room (OR) for a vaginal examination under anesthesia (EUA)
- EUA demonstrated bleeding from the apex of the vagina, just posterior to the cervix with necrotic tissue. A subtle odor was noted.
- A fistula was suspected, and the team ordered a computed tomography (CT)
- CT scan revealed sigmoid diverticulitis with free air and a large pelvic abscess measuring 10.6 by 6 cm
- The patient went back to the OR for an exploratory laparoscopy with the general surgery team
- The sigmoid bowel was friable, with numerous adhesions, and was adhered to the vaginal apex
- The appendix was inflamed and adhered to the uterus
- Massive amounts of necrotic tissue posterior to the uterus were observed and intra-operative gynecology consult was obtained
- A digital vaginal exam revealed a 2 cm superior vaginal wall tear from a fistula with the sigmoid colon
- Surgical team performed a sigmoidectomy with primary anastomosis and a diverting ileostomy, vaginal wall repair, and incidental appendectomy
- Postoperatively, patient was observed for 6 days for viability of the ileostomy and gradual toleration of diet
- On post-op day #3, the patient required 1 unit of packed red blood cells for a hemoglobin level of 6.9 and she responded well with up-trending labs
- She was discharged on post-op day #6 with outpatient surgical follow-up
- Ileostomy was successfully reversed 2 months later

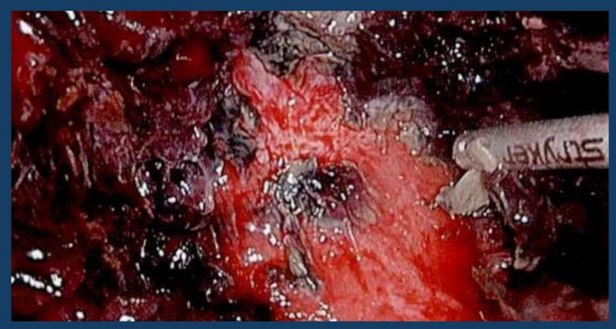

Figure 3: Necrotic tissue posterior to the uterus and friable bowel on intra-operative laparoscopic imaging

Discussion

- The majority of colovaginal fistulas are a complication of diverticulitis and in patients who have undergone a hysterectomy[4,5]
- This case reflects a less commonly described pathology in literature, where a sigmoid diverticular abscess in the rectouterine region likely caused damage and fistulized through the posterior vaginal wall[6]
- Malodorous vaginal discharge is a key indicator for a fistula, prompting gynecological teams to involve general surgery[6]
- Yet, this patient's primary complaint during her initial ED visit was vaginal bleeding with intercourse, without any noticeable odor
- Management of colovaginal fistulas necessitates a multidisciplinary approach with general surgery and gynecology, as they are unlikely to resolve spontaneously[6,7]
- Studies have demonstrated that a sigmoidectomy with primary anastomosis is the preferred long-term treatment for complicated diverticulitis[5,8,9]
- The diverting ileostomy mitigates the risk of anastomotic leaks, which are a significant concern post-operatively[9,10]
- Patients recover well from laparoscopic surgeries for fistulas, yet a minority have complications, such as anemia[7]

Conclusion

A colovaginal fistula should remain on the differential for patients with a history of diverticulitis and, specifically, for those with a history of a hysterectomy. They should be managed surgically and usually require a colectomy with various levels of gynecologic intervention.

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