Colouterine fistulisation from sigmoid colon diverticulitis

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Section: Genital (female) imaging
Area of Interest: Genital / Reproductive system female
Gastrointestinal tract
Procedure: Diagnostic procedure
Imaging Technique: CT
Special Focus: Diverticula Case Type: Clinical Cases
Authors: Tonolini Massimo, Villa Chiara
Patient: 88 years, female

Clinical History:

Elderly woman with chronic obstructive pulmonary disease, chronic renal failure, congestive heart failure and cardiac supraventricular arrhythmia, hospitalised because of fever and pelvic pain. Lower abdominal tenderness without peritonism at physical examination, associated purulent vaginal discharge. Laboratory abnormalities: anaemia, leukocytosis, markedly raised C-Reactive protein (270 g/dL), 1.8 mg/dL serum creatinine.

Imaging Findings:

Gynaecological consultation reported uterine fibroids, absent effusion in the Douglas' pouch. Initially, urgent CT (Fig. 1) acquired without intravenous contrast medium due to renal impairment (25 ml/min estimated glomerular filtration rate), revealed unruptured aortic aneurysm, diverticulitis of the sigmoid colon, and air bubbles in the uterus. Free intraperitoneal air, haemorrhage, and effusion were excluded.

Conservative treatment was started, including broad-spectrum antibiotics and hydration. 48 hours later, with improved renal function, contrast-enhanced multidetector CT (Fig. 2) was performed. Multiplanar MDCT reformatted images confirmed large infrarenal aortic aneurysm with extensive thrombosis, and sigmoid colon diverticulitis closely adherent to the dorsal uterine body. A fluid-filled fistulous track was directly identified, connecting the thickened sigmoid to an abnormal air- and fluid myometrial collection, which compressed the uterine cavity.

Vaginal discharge cultures tested positive for multiple organisms including Candida mycetes. Surgical treatment of aortic aneurysm and complicated diverticulitis with uterine penetration was deemed contraindicated by comorbidities.

Discussion:

Most usually affecting the sigmoid, colonic diverticulosis represents the commonest large bowel disorder, and its prevalence increases with aging to reach 65% of individuals over 80 years old. Up to 25% of patients with diverticulosis develop acute diverticulitis, which may be further complicated by obstruction, bleeding, contained or free perforation, abscess formation, or fistulisation. Representing up to 20% of complications, fistulisation results from inflammation and/or abscess penetrating into an adjacent organ [1, 2].

Approximately one-half of diverticular fistulisation cases are colovesical fistulas, followed by colovaginal fistulas (25%) which are the commonest of diverticulosis-related genital tract abnormalities and almost invariably involve the sigmoid. Conversely, colouterine fistulisation (CUF) is an extremely rare occurrence due to the thick muscular uterine wall acting as a protective barrier against invasion by benign or malignant diseases. In women, the presence
of the uterus accounts for the limited incidence of colovesical fistulas compared to men [3-9]. Characteristic symptoms of CUF include malodorous faecal or purulent vaginal discharge, associated with usual diverticulitis-related symptoms such as recurrent abdominal pain and fever. Vaginal or cervical cultures usually detect Gram-negative enteric organisms, and allow correct antibiotic treatment choice. Orally administered non-absorbable substances such as charcoal to be searched in vaginal tampons may confirm CUF, although without anatomical information [4-6].

In the past, diagnosis was usually made during surgery. According to the limited literature reports, diagnostic methods to demonstrate CUF remain to be established. Preoperative visualisation of the abnormal communication between urogenital tract and sigmoid colon is challenging at colonoscopy, barium enema, and transvaginal ultrasound [3, 8-10]. Although patients with diverticulitis-related genital fistulas may initially seek medical attention by the gynaecologist, and ultrasound remains the modality of choice for evaluating pelvic complaints in women, currently multidetector CT (MDCT) is readily available and widely employed to assess suspected diverticulitis or acute abdominal pain of uncertain origin. Multiplanar MDCT image reformations effectively depict uterine size, contour, and structural changes. Therefore, as this case exemplifies, CUF may be initially suggested by MDCT detection of intracavitary and/or intramural air in the uterus, closely adherent to the thickened diverticular sigmoid colon. Furthermore, direct identification of air- or fluid-filled fistulous tracks through the posterior uterine wall may obviate hysteroscopy or fistulography [1-3, 5, 10].

In most cases surgical treatment is necessary to prevent local infectious complications and systemic sepsis, with en-bloc resection of the uterus and sigmoid colon, alternatively a Hartman procedure with hysterectomy and colostomy [4-7, 10].

**Differential Diagnosis List:** Colouterine fistulisation from sigmoid colon diverticulitis., Acute uncomplicated diverticulitis, Diverticulitis with perivesical abscess, Tuberculous salpingitis, Pelvic inflammatory disease / tubo-ovarian abscess / pyogenic salpingitis, Intestinal ischaemia, Uterine fibroid torsion and/or haemorrhage, Endometrial carcinoma, Uterine sarcoma

**Final Diagnosis:** Colouterine fistulisation from sigmoid colon diverticulitis.

**References:**


Description: Unenhanced acquisition due to renal impairment discloses previously unknown, large unruptured aneurysm of the infrarenal abdominal aorta with extensive mural calcifications. Origin: Tonolini M, Department of Radiology, “Luigi Sacco” University Hospital – Milan (Italy)
Description: In the pelvis, the sigmoid colon shows extensive diverticular changes with mural thickening, and faecal-filled outpouching (arrowhead) interpreted as suspicious for contained perforation. Origin: Tonolini M, Department of Radiology, “Luigi Sacco” University Hospital – Milan (Italy)
Description: Furthermore, gas bubbles and faeces-like material (arrow) are seen in the uterus, which is enlarged for the patient's age. Free intraperitoneal air, haemorrhage, or effusion are excluded.

Origin: Tonolini M, Department of Radiology, “Luigi Sacco” University Hospital – Milan (Italy)
Description: With improved renal function, repeat MDCT with intravenous contrast confirms unruptured infrarenal aortic aneurysm with extensive intraluminal thrombosis. Origin: Tonolini M, Department of Radiology, “Luigi Sacco” University Hospital – Milan (Italy)
Description: Acute diverticulitis of the sigmoid colon is confirmed, with diffuse mural thickening and mild fascial fluid. Origin: Tonolini M, Department of Radiology, "Luigi Sacco" University Hospital – Milan (Italy)
Description: Multiplanar reformatted images confirm mixed air- and fluid-filled collection (arrows) in the dorsal portion of the uterine body. Origin: Tonolini M, Department of Radiology, “Luigi Sacco” University Hospital – Milan (Italy)
Description: Multiplanar reformatted images confirm mixed air- and fluid-filled collection (arrows) in the dorsal portion of the uterine body, closely adherent to the thickened sigmoid colon. Origin: Tonolini M, Department of Radiology, “Luigi Sacco” University Hospital – Milan (Italy)
Description: Multiplanar reformatted images confirm mixed air- and fluid-filled collection (arrows) in the dorsal portion of the uterine body, which compresses the uterine cavity (arrowhead). Origin: Tonolini M, Department of Radiology, “Luigi Sacco” University Hospital – Milan (Italy)
Description: Additionally, a fluid-filled fistulous track (thin arrows) is detected, connecting the thickened sigmoid colon to the myometrial collection (arrows) in the closely adherent uterine body. Origin: Tonolini M, Department of Radiology, “Luigi Sacco” University Hospital – Milan (Italy)
**Description:** Additionally, a fluid-filled fistulous track (thin arrows) is detected, connecting the thickened sigmoid colon to the myometrial collection (arrows) in the closely adherent uterine body. Note compressed uterine cavity (arrowhead). **Origin:** Tonolini M, Department of Radiology, “Luigi Sacco” University Hospital – Milan (Italy)