

The Smallest Metastatic Solitary Vaginal Nodule From a Primary Recto-sigmoid Tumor – Case Report

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BACKGROUND

Primary vaginal neoplasms are one of the rarely encountered malignancies, with 17,600 cases reported worldwide in 2018 [1]. Vaginal metastatic lesions are extremely rare, with only 51 reported cases to date, and only eight of which reported isolated vaginal metastasis (Table 1) [2 – 9].

CASE PRESENTATION

Our patient is a 52-year-old female, known to have hepatitis B, married with six children with a single history of cesarean delivery, and non-smoker. She started to notice weight loss, loss of appetite, and alteration in bowel habits associated with minimal bleeding per rectum. A colonoscopy was ordered by her primary care physician, which showed a mass at 12 cm from the anal verge. Eight months later, she was referred to King Hussein Cancer Center (KHCC) for further management. Initial laboratory results showed hemoglobin (Hb) 9.4 g/dl, platelet 397 103/ μ l, white blood cell count (WBC) 10.1 103/ μ l, creatinine 0.7 mg/dl, and carcinoembryonic antigen level 5.36 ng/ml. Her physical examination showed a soft lax abdomen without any lymphadenopathy, and upon digital rectal examination (DRE) a mass 7 cm from the anal verge was palpated. Magnetic resonance imaging (MRI) study showed circumferential wall thickening of the upper rectum, 13.5 cm proximal to the anal verge, the involved segment measured approximately 7.0 cm in length, with severe stranding of perirectal fat and possible infiltration of the anterior aspect of the mesorectal fascia. In addition, multiple enlarged lymph nodes within the perirectal and presacral spaces, and along the course of the right internal iliac vessels were appreciated. Computed tomography (CT) whole-body scan was negative for metastatic disease. After counseling the patient and her family, a multidisciplinary clinic (MDC) decision was to go for low anterior resection, being staged T3N2. Under general anesthesia and via a lower abdominal vertical incision, the peritoneal cavity was reached, and meticulous search for metastasis in the liver, mesentery, omentum, and peritoneal surfaces was negative. The sigmoid colon was dissected from its lateral

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List of Abbreviations:

KHCC: King Hussein Cancer Center

Hb: Hemoglobin

WBC: White blood cell

CEA: Carcinoembryonic Antigen

DRE: Digital rectal examination

MRI: Magnetic resonance imaging

CT: Computed tomography

MDC: Multidisciplinary clinic

GIE: Gastro-intestinal endostapler

IMU: Intermediate care unit

peritoneal attachment, followed by ligation of the inferior mesenteric artery and preservation of the left colic artery. The tumor was found to be adherent to the posterior vaginal wall, which necessitated gentle shaving of the tumor without violating the vaginal entity. Colo-rectal end-to-end primary anastomosis via gastro-intestinal endostapler (GIE) was performed; hemostasis was secured, followed by drain insertion, closure, and dressing. The patient was monitored in the intermediate care unit (IMU) for 24 hours postoperatively, and then was transferred to the surgical ward. Histopathological examination did not show infiltration to the surrounding tissue. On postoperative day 3, the patient reported passage of gas from the vagina.

Bedside speculum examination revealed a fungating mass 2X3 cm in the middle of the posterior vaginal wall, 4 cm from the introitus, not limited to the vaginal mucosa. Her pre-operative images were reviewed extensively and revealed an irregular outline heterogeneously enhancing soft tissue nodule on the posterior wall of the lower third of the vagina measuring about 1.5X1.9 cm in maximal dimension on the sagittal plane. The nodule was away from the primary rectosigmoid tumor which was located about 12 cm from the anal verge. The vaginal wall, proximal and distal to the level of the nodule, and the cervical canal were of normal appearance (Figure 1).

The patient was prepped for an excisional biopsy procedure, and pathology showed metastatic colonic adenocarcinoma, based on the morphology and immunohistochemical stains (positive staining for CDX2 and negative staining for PAX8), (Figure 2). The patient was discharged home without any complications. Final histopathological analysis of the resected specimen confirmed the diagnosis of moderately differentiated adenocarcinoma, stating that the tumor is 2mm away from the anterior circumferential margin involvement and with negative resection margins (R0). After two months, the patient followed up with the gynecology clinic at KHCC, where she was re-evaluated and informed about the need to perform a wide local excision of the posterior vaginal wall with a potential risk of anal sphincter injury. In late February of 2018, the patient underwent wide local excision of the posterior vaginal wall with primary repair, approximately a 2.5 X 1.5 cm lesion was completely excised. The patient was discharged home the following day without any complications, and after one month, was started on adjuvant chemotherapy (10 cycles of Oxaliplatin, Leucovorin, and 5-Fluorouracil) and radiotherapy (25 fractions, 5000 cGy). The patient continued with regular follow-up at our clinics, and her

most recent imaging studies, two years postoperatively, showed complete disease remission and no complications.

DISCUSSION

Primary vaginal cancer is rare and represents only 1-2% of all gynecological malignancies [11]. Squamous cell carcinoma accounts for 90% of confirmed cases and only 8 % are adenocarcinomas, most of which are secondary to uterine, rectal, ovarian, breast, pancreatic, or renal tumor [6, 12]. Metastasis of colorectal carcinoma to the female genital tract is usually to the ovaries followed by the vagina and endometrium [13], knowing that the most common site for colorectal cancer metastasis is the liver [14]. Some of the suggested hypotheses for colorectal vaginal metastasis formation are a) direct infiltration via the Pouch of Douglas, b) lymphovascular pathways, c) fallopian tubes pathway [3, 6]. Whitelaw et al reported the first case of metastatic adenocarcinoma to the lateral wall of the vagina and the urethra. The patient presented at that time with vaginal spotting, status-post supravaginal hysterectomy, and was later found to have a primary sigmoid cancer, all of which was excised surgically with adjuvant radium therapy but unfortunately; the patient died 39 months after the onset of symptoms [15]. In 1966, Raider reported the first case of isolated anterior vaginal metastasis in a 63-year-old woman who underwent left colectomy for an obstructing mass, and after two years, she complained of vaginal bleeding that revealed a lesion. She was primarily treated with nitrogen mustard, followed by cobalt and radium mold therapy due to recurrence. The patient then developed an ileovaginal fistula that necessitated surgical excision after which she was in remission [3]. A review done by Ng and Aly in 2013 reported that the majority of vaginal metastasis cases had vaginal bleeding, followed by discharge, staining, heaviness, and perianal discomfort. They emphasized that due to the lack of reporting, a definitive treatment plan is still not present. Multiple studies reported different modalities from local treatment with radiotherapy to a more aggressive approach, including hysterectomy and bilateral salpingo-oophorectomy, according to the extent of the disease [2]. To the best of our knowledge, this is the first case to report gas passage sensation with an intact vaginal wall revealing metastatic nodule. It is worth mentioning that vaginal symptoms can be the first presentation for patients with metastatic colorectal carcinoma [6, 15, 16], and clinical examination remains superior to any other imaging modality. Isolated vaginal metastasis from a primary rectosigmoid tumor is rare with only a limited number of cases reported in the literature.

Many cases reported difficulty in spotting the isolated mass at first via MRI due to the small dimension of the vaginal lesion. This necessitates a thorough gynecological examination along with an extensive radiological analysis whenever a suspicion of a female reproductive tract involvement. Post-complete resection, adjuvant therapy is recommended per NCCN guidelines.

Table 1.

Author / Year	Age	Primary col-orectal cancer site	Single vaginal metastasis location	Volume of meta-static lesion
Raider / 1966 [3]	63 years	Distal descending colon	Anterior wall	Initial size not available Recurrence 32 cm ³
Lee et al. / 1974 [4]	81 years	Recto-sigmoid	Anterior wall	6 cm ³
Lee et al. / 1974 [4]	57 years	Sigmoid	Introitus	4 cm ³
Perrotin et al. / 1997 [5]	61 years	Rectum	Anterior wall	Not available
Marchal et al. / 2006 [6]	81 years	Sigmoid	Lower third	40 cm ³
Costa et al. [7]	67 years	Right colon	Left anterolateral wall	7.8 cm ³
Funada et al. / 2010 [8]	63 years	Sigmoid	Introitus	4 cm ³
D'Arco et al. / 2013 [9]	67 years	Sigmoid	Mid-inferior anterior wall	6.05 cm ³
Current Study / 2022	52 years	Recto-sigmoid	Posterior wall	2.8 cm ³

Figure 1. Locally advanced high rectal tumor. A) Sagittal T2 weighted MR image shows concentric high rectal tumor. Axial STIR weighted images shows extensive infiltration into mesorectal fat. B) Coronal T1 weighted MR image shows the rectal tumor with infiltration into the mesorectal fat. Multiple enlarged mesorectal lymph nodes. C) Sagittal T2 weighted MR image shows irregular mass of intermediate to high signal intensity involving the posterior wall of the lower vagina. On sagittal T1 post-contrast there is mild heterogeneous enhancement of the lesions. D) Axial T1 post contrast weighted MR image shows the small lesion in the posterior wall of the lower vagina.

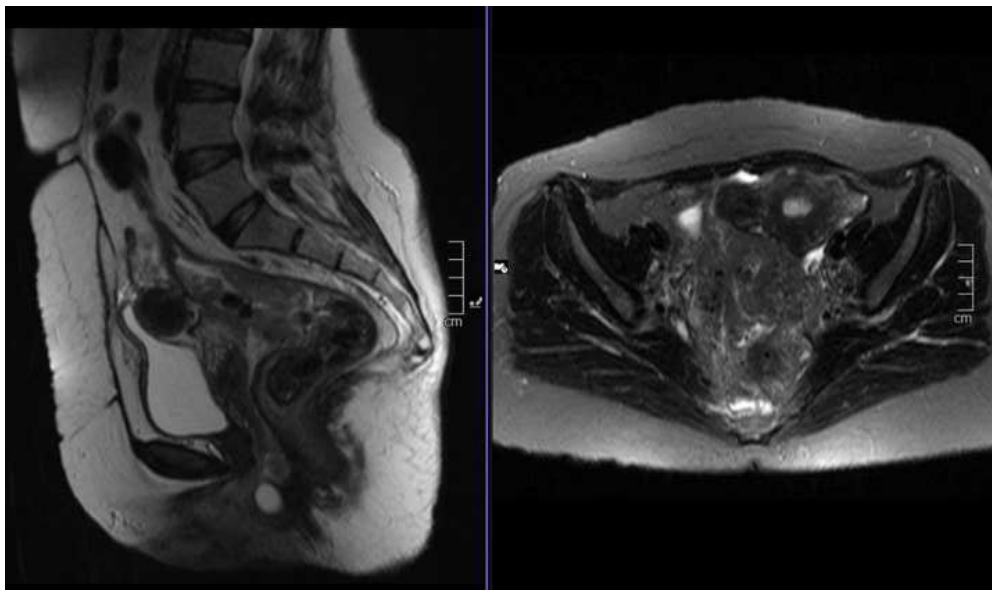


Figure 1a

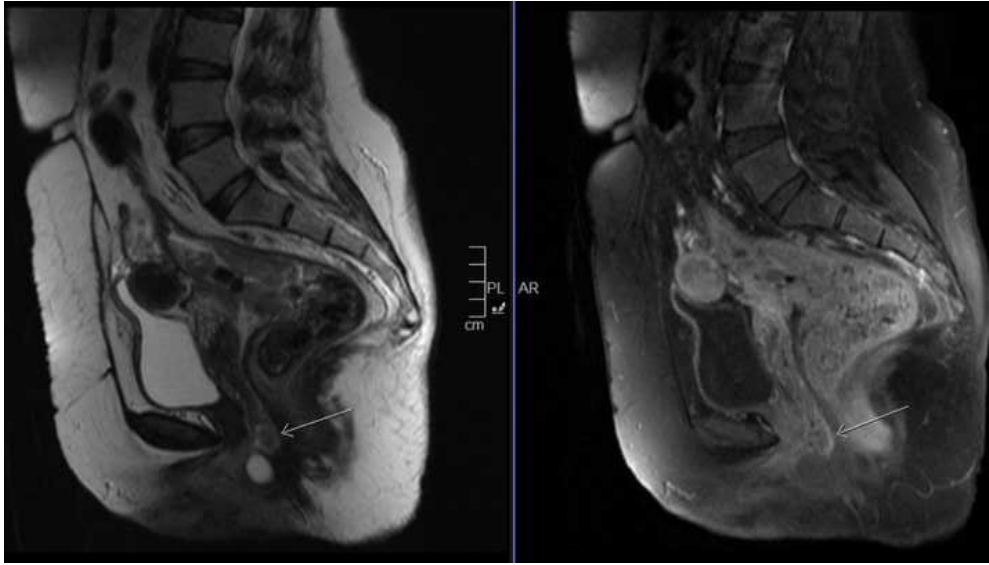


Figure 1b

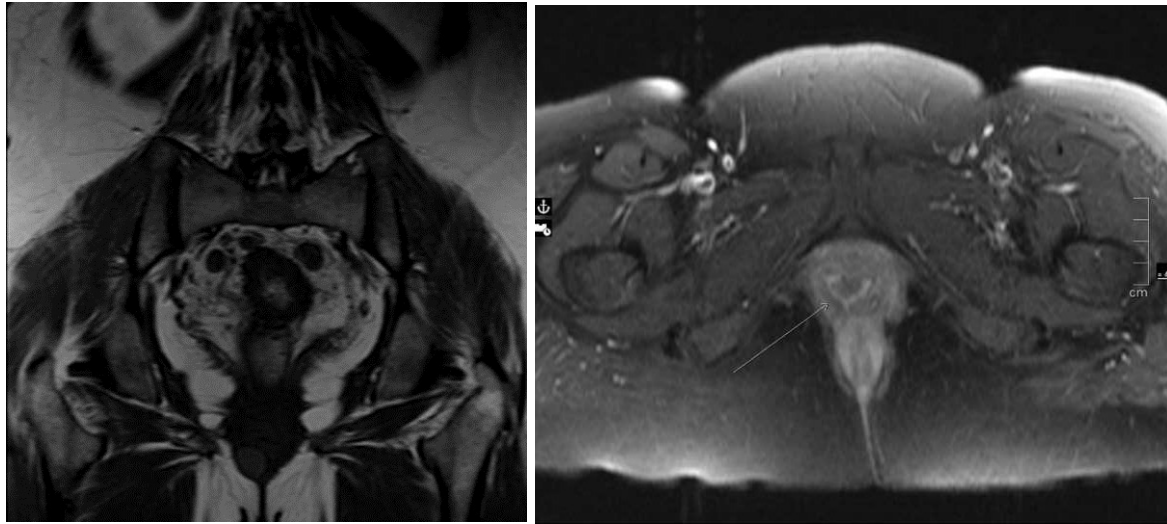


Figure 1c

Figure 1d

Figure 2. Microscopic examination of the tumor. A) Metastatic colonic adenocarcinoma to vaginal wall. Hematoxylin and eosin stain, 40X. B) CDX2 positive immunohistochemical stain in metastatic colonic adenocarcinoma to vaginal wall. CDX2 immunohistochemical stain, 40X.

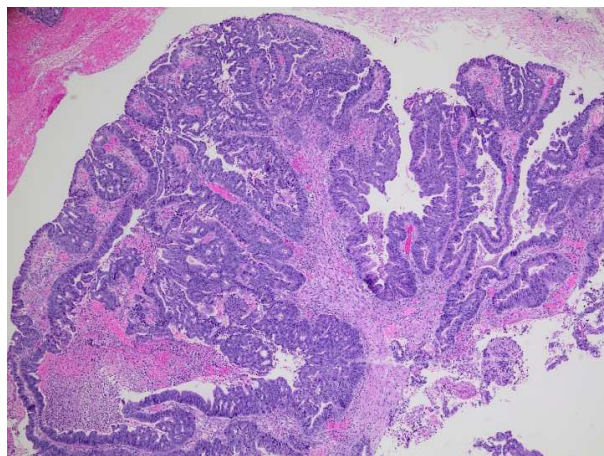


Figure 2a

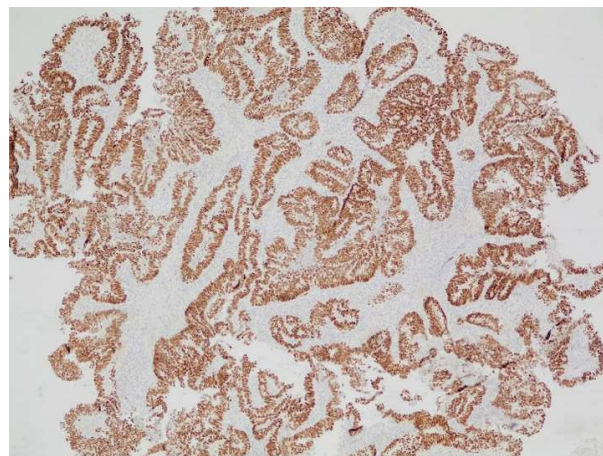


Figure 2b

AUTHORS' CONTRIBUTIONS

MKAC, LR, OT performed the literature search and wrote the manuscript.

OJ obtained and reviewed the pathology samples and provided the images.

AG reviewed the case and provided radiological images.

FA performed the procedure, wrote portions of the manuscript, and provided insight.

All authors read and approved the final manuscript.

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