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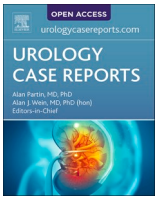

Oncology

Incidental discovery of metastatic renal cell carcinoma at the vaginal wall: A case report

Dennis N. Boynton [a], Conrad M. Tobert [b], Brian R. Lane [a,b,*], Sabrina L. Noyes [b], Mae Zakhour [a,b]

[a] Michigan State University College of Human Medicine, 15 Michigan Street NE, Grand Rapids, MI, 49503, USA
[b] Corewell Health Hospital System, 145 Michigan Street NE, Grand Rapids, MI, 49503, USA

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ABSTRACT

Metastasis of renal cell carcinoma (RCC) to the vaginal wall has rarely been reported in the literature. We present a case of a 48-year-old who was found to have a solitary RCC metastasis at the vaginal wall, five years following radical nephrectomy. This case is noteworthy because this late presentation is unique, with prior reports of synchronous metastasis or metastasis within two years of nephrectomy, highlighting the need to consider metastatic RCC to the vagina a possibility even many years after treatment.

1. Introduction

The most common sites for metastasis of clear cell RCC (ccRCC) are the lung, bone and lymph nodes.[1] Metastasis to the vagina is rare and, to our knowledge, has been reported in the literature only twenty-one times since 1949. Most cases of metastatic ccRCC to the vagina are discovered synchronously with the primary renal mass. Presentation of these lesions often coincides with vaginal bleeding, leading to the discovery of both the vaginal mass and renal mass.[2] As reported in the literature, few have been discovered following initial nephrectomy, with the greatest time between surgery and discovery of the vaginal lesion being one year.[3,4]

2. Case presentation

A 48-year-old female presented for routine follow-up five years following right, open radical nephrectomy for a 6.2 cm renal mass (Fig. 1A). Final pathology from the initial surgery was ccRCC, grade 3, stage pT1bN0M0. The patient's past medical history included diabetes mellitus type II, gastroesophageal reflux disease and class 3 obesity (BMI 41 kg/m^2). Routine surveillance following nephrectomy had been performed with annual abdominal and chest imaging. At five-year follow-up, a surveillance contrast CT scan showed a soft tissue nodularity along the left lateral wall of the vagina, concerning for potential malignancy (Fig. 1B). Pelvic MRI with and without contrast was obtained and demonstrated a 2.4 x 2.2 × 2.2cm, heterogeneously enhancing mass at the left, superior vaginal wall (Fig. 1C). The patient was referred to gynecologic oncology, where a subvaginal mass was noted, with no breakthrough into the vaginal mucosa. A biopsy was attempted in the office and was consistent with a fibroepithelial stromal polyp. Due to concern that the initial biopsy was not representative of the imaging findings, a repeat biopsy was performed under anesthesia in the operating room, and histologic evaluation demonstrated underlying fibrosis. Given these findings, the decision was made to proceed with surveillance MRI in 3 months.

The patient presented one month later with a complaint of vaginal bleeding and discharge. The patient had not had a menstrual period for many years due to the presence of a levonorgestrel intrauterine device. Speculum examination demonstrated the etiology of the bleeding to be the healing, biopsy site. The patient returned two months later with persistent bleeding and discharge. Speculum examination then revealed a large polypoid mass protruding through the vaginal apex that was not amenable to resection in the office. A repeat MRI with and without contrast was obtained and showed the mass had grown to 4.9 x 3.0 × 3.4cm and now appeared to be partially situated in the vaginal canal (Fig. 1D). The patient returned a week later for partial excision of the polyp in the operating room, with subsequent pathology revealing metastatic ccRCC. The patient was referred to urologic oncology and, given the localized presentation of disease, was offered surgical management with robotic assisted partial vaginectomy, total hysterectomy, and bilateral salpingectomy.

At the time of surgery, no evidence of intraabdominal metastasis was

* Corresponding author. Urologic Oncology, Corewell Health Cancer Center, Michigan State University College of Human Medicine, Division of Urology, Corewell Health West, 145 Michigan Street NE, MC120, Grand Rapids, MI, 49503, USA.
E-mail address: brian.lane@corewellhealth.org (B.R. Lane).

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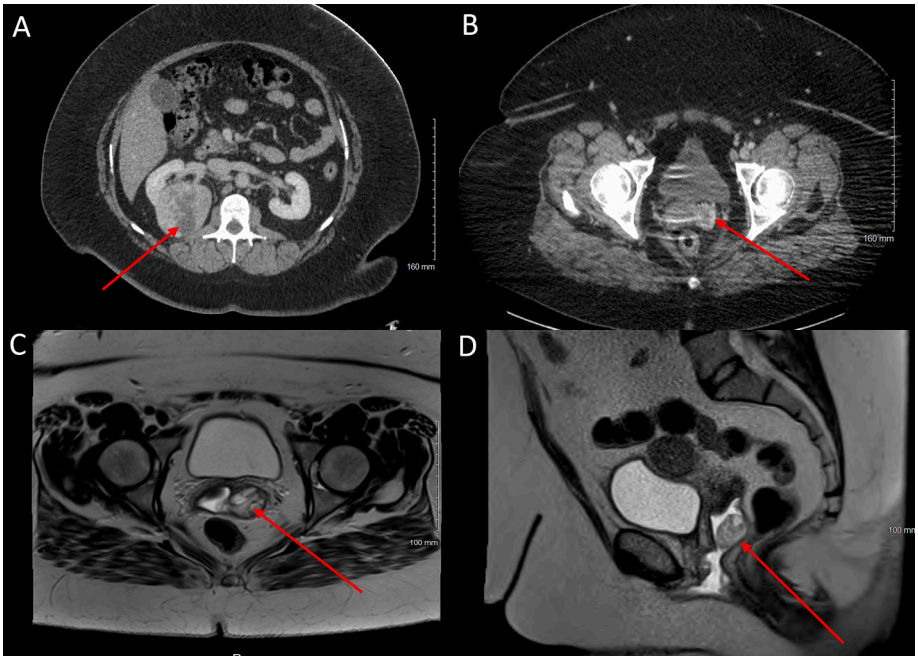

Fig. 1. A) Axial CT imaging of the abdomen and pelvis first detected this 6.2 cm mass in the right posterior mid kidney. Patient underwent radical nephrectomy. B) Repeat CT imaging of the abdomen and pelvis obtained during surveillance for renal cancer revealed a soft tissue nodularity along the left lateral wall of the mid and upper vagina and paravaginal soft tissue. C) Pelvic MRI with and without contrast demonstrated this lesion to be a 2.4 x 2.2 × 2.2 cm, heterogeneous lesion on T2-weighted imaging. D) After the initial biopsy did not reveal malignancy, subsequent MRI showed the mass had grown to 4.9 x 3.0 × 3.4 cm. This now appeared to be partially situated in the vaginal canal on sagittal T2 Half-Fourier Acquired Single-shot Turbo Spin Echo (HASTE) imaging.

identified on laparoscopic assessment. Once the uterine pedicles had been ligated in the usual fashion, a colpotomy was performed. Upon exploration of the upper vaginal mucosa, the lesion was visualized at the left lateral wall. The colpotomy was carried circumferentially along the cervicovaginal junction, and the uterus and cervix were then delivered through the vagina. The left paravaginal mass was now better visualized and was then dissected circumferentially, removed, and delivered through the vagina within a retrieval bag. The surgery was uncomplicated, and the patient was discharged home on postoperative day 2. The final pathology of the mass confirmed metastatic ccRCC with negative margins.

The patient has followed up with medical oncology with a plan for one year of adjuvant pembrolizumab. The patient remains on this immunotherapy regimen and will be monitored with repeat imaging for disease recurrence.

3. Discussion

We present a case of metachronous metastasis of ccRCC to the vagina five years after initial resection. To our knowledge, this is the longest period between resection of the incident mass to the discovery of vaginal metastasis. The patient presented here was asymptomatic when the mass was first discovered, but subsequently developed vaginal bleeding a few months later, likely due to the growing paravaginal mass.

Roughly 30% of patients undergoing surgical resection for RCC will develop disease recurrence, with the average time to recurrence for patients with pT1 stage disease being 38 months.[5] The majority of patients with metastatic RCC are treated with systemic therapy, using single-agent or combination tyrosine kinase inhibitor and immune checkpoint inhibitors. For patients with oligometastatic disease, metastatectomy is commonly performed and appears to be associated with prolonged survival and occasionally delays the initiation of systemic therapy.[6]

Metastatic RCC to the vagina has been rarely reported, with most cases occurring synchronously with the incident tumor. In the literature, diagnosis of malignancy was most commonly discovered due to patient concern of vaginal bleeding or a mass detected during pelvic exam.[2] Other than the present case, two other cases of metachronous vaginal metastasis have been reported, in 75-year-old and 19-year-old females, in whom the time between initial treatment and development of metastasis was roughly one year.[3,4]

The case presented here highlights the need to consider metastatic RCC in the differential diagnosis for abnormal uterine bleeding in patients with a known history of RCC. Moreover, due to the difficulty of accessing this location of metastatic disease, additional measures may be necessary to assure that adequate tissue sampling in the paravaginal area is performed.

CRediT authorship contribution statement

Dennis N. Boynton: Data curation, Investigation, Visualization, Writing – original draft. **Conrad Tobert:** Conceptualization, Resources, Validation, Writing – review & editing. **Brian R. Lane:** Conceptualization, Funding acquisition, Investigation, Resources, Supervision, Visualization, Writing – review & editing. **Sabrina L. Noyes:** Conceptualization, Project administration, Supervision, Writing – review & editing. **Mae Zakhour:** Conceptualization, Resources, Supervision, Validation, Writing – review & editing.

Declaration of competing interest

None.

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References

1. Bianchi M, Sun M, Jeldres C, et al. Distribution of metastatic sites in renal cell carcinoma: a population-based analysis. *Ann Oncol*. 2012;23:973.
2. Jimenez AR, Rivera Rolon MDM, Eyzaguirre E, et al. Vaginal bleeding as initial presentation of an aggressive renal cell carcinoma: a case report and review of the literature. *Case Rep Pathol*. 2018;2018, 2109279.
3. Benbrahim Z, Chouaib A, Mazeron R, et al. Gynecologic bleeding revealing vaginal metastasis of renal cell carcinoma. *Pan Afr Med J*. 2013;14:62.
4. Bozaci EA, Atabekoglu C, Sertcelik A, et al. Metachronous metastases from renal cell carcinoma to uterine cervix and vagina: case report and review of literature. *Gynecol Oncol*. 2005;99:232.
5. Eggener SE, Yossepowitch O, Kundu S, et al. Risk score and metastasectomy independently impact prognosis of patients with recurrent renal cell carcinoma. *J Urol*. 2008;180:873.
6. Sun M, Lughezzani G, Perrotte P, et al. Treatment of metastatic renal cell carcinoma. *Nat Rev Urol*. 2010;7:327.