

Renal vein tumor thrombus from metastatic anal gland adenocarcinoma



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ABSTRACT

A 62-year-old female with a history of anal gland adenocarcinoma presents with metastatic disease to the kidney with renal vein tumor thrombus extending into the inferior vena cava (IVC). Metastatic disease to the kidney with renal vein tumor thrombus is extremely rare with only several cases described in the literature. We present the first reported case of metastatic anal gland adenocarcinoma to the kidney with renal vein tumor thrombus.

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1. Introduction

Renal vein tumor thrombosis is a common manifestation of primary renal cell carcinoma (RCC). However, reports of renal vein tumor thrombus from metastatic disease are rare. We present the first reported case of metastatic anal gland adenocarcinoma (AGA) to the kidney with renal vein tumor thrombus.

2. Case presentation

The patient is a 62-year-old female with a history of AGA. She was diagnosed with cT3N1 AGA in December 2014. She received capecitabine, mitomycin and external beam radiation therapy to the site of disease from February to April 2015. A computed tomography (CT) scan of the chest, abdomen and pelvis in May 2015 revealed several new bilateral lung nodules, consistent with metastatic disease. She was started on a chemotherapeutic regimen of

FOLFOX and Avastin and completed 12 cycles in December 2015. In January 2016, CT scans of the chest, abdomen and pelvis revealed no evidence of disease. No further treatment was offered at that time. Subsequent follow-up imaging studies, completed in March 2017, revealed no evidence of disease. Of note, an 8mm hypodensity was seen in the lower pole of the right kidney, consistent with a cyst (Fig. 1).

Four months later, the patient presents to the emergency room (ER) in July 2017 with right lower quadrant and flank pain, along with gross hematuria. At presentation, her serum creatinine was 1.0 mg/dL (0.5–1.5 mg/dL) and her estimated glomerular filtration rate (eGFR) was 57.0 mL/min/1.73m². A CT scan of the abdomen and pelvis performed in the ER revealed a 7.5 cm heterogeneously enhancing right lower pole renal mass along with evidence of a tumor thrombus in the right renal vein, with slight extension into the IVC (Fig. 2). The scan also showed new lesions on the lungs and liver, highly suggestive of metastatic disease. Our differential diagnosis included primary RCC and metastatic disease from AGA. A renal biopsy was requested in order to confirm the diagnosis. H&E stained sections of the diagnostic colon biopsy in 2015 revealed a poorly differentiated carcinoma without mucin and infiltrating the submucosa. Immunohistochemical stains were positive for CK7, MOC31, BerEP4 while negative for CK20, CDX2, p63, p40, CD56,

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PAX8, synaptophysin and chromogranin. This morphology and immunoprofile was consistent with AGA (Fig. 3(a)). Histologic sections from the right kidney biopsy in 2017 also revealed a poorly differentiated tumor with morphology and immunohistochemical profile similar to AGA (Fig. 3(b)). After multidisciplinary consultation with urology, medical oncology and radiation oncology, the patient was deemed not to be a candidate for cytoreductive right radical nephrectomy and thrombectomy, given the rapid recurrence and presence of multiple metastatic sites. She was therefore counseled to begin a course of palliative chemotherapy (XELIRI) in August 2017.

3. Discussion

Renal vein tumor thrombus is a common manifestation of RCC, with a reported prevalence of 4–9%. Of these, 10–25% extend into the IVC.¹ To our knowledge, only three cases of metastatic disease to the kidney with renal vein tumor thrombus have been reported, and include breast, lung and esophageal primary cancers.^{2–4} We present the first reported case of renal vein tumor thrombus from metastatic AGA, expanding the list of malignancies that can radiographically mimic the behavior and appearance of locally advanced RCC.

The biology of renal vein tumor thrombus formation and propagation is an area of active research and is incompletely understood. In RCC, previous investigations have found that tumors with intraluminal renal vein invasion are biologically more aggressive than those without tumor thrombus.¹ The same group found that renal vein tumor thrombus was associated with higher rates of micrometastases and that there is biologic similarity between those tumors that extend into the renal vein and those that extend further into the IVC.¹ As our and previous reports suggest, this process is not unique to RCC. Rather it is likely a reflection of aggressive biology in combination with the inherent microanatomy of the kidney.

AGA is a rare and aggressive form of anal cancer, representing 2.9–10% of the 5300 cases of anal cancer reported annually in the



Fig. 2. Cross sectional computed tomography representative imaging of the abdomen and pelvis, dated July 2017. The scan reveals a 7.5cm heterogeneously enhancing right lower pole renal mass along with evidence of a level 2 tumor thrombus in the right renal vein.

United States.⁵ Additionally, AGA has an overall worse prognosis and higher likelihood of recurrence than the more common anal squamous cell carcinoma. Currently, there is no standardized treatment protocol for AGA. However, some success has been demonstrated with incorporation of radiotherapy alongside 5-FU and platinum-based chemotherapy.⁵ Long-term survival for patients treated with multimodal therapy range from 30 to 60%.⁵ Our patient achieved complete remission after two cycles of chemoradiotherapy including capecitabine and mitomycin followed by FOLFOX and Avastin before recurrence of disease 2 years later. Within 4 months of otherwise normal imaging of the chest, abdomen and pelvis, our patient rapidly developed distant metastases in the lung, liver, and right kidney with associated renal vein thrombus, and is consistent with the known aggressive biology of AGA. Based on the clinical and radiographic features at presentation, we favored the diagnosis of metastatic AGA rather than primary RCC. Biopsy of the renal mass confirmed our suspicions.

Renal metastasis from AGA is extremely rare and its presentation with renal vein tumor thrombus, to our knowledge, has never been reported in the literature. Our report builds on previous case reports of renal metastases that behave similarly to primary renal tumors, suggesting that the propensity for renal vein thrombus formation and propagation is not inherent to RCC. Unfortunately, the rarity of AGA and subsequent metastases to the kidney with renal vein thrombi likely hinder future studies on such events. However, we believe that this report sheds light on the biology of renal vein thrombus formation, whether from primary RCC or metastases.

4. Conclusion

Metastatic AGA to the kidney is rare but can present similarly to primary, locally advanced RCC. Our report further demonstrates that renal vein tumor thrombus is not specific to RCC. Further research must be conducted to determine the biological mechanism of renal vein tumor thrombus from metastatic disease.

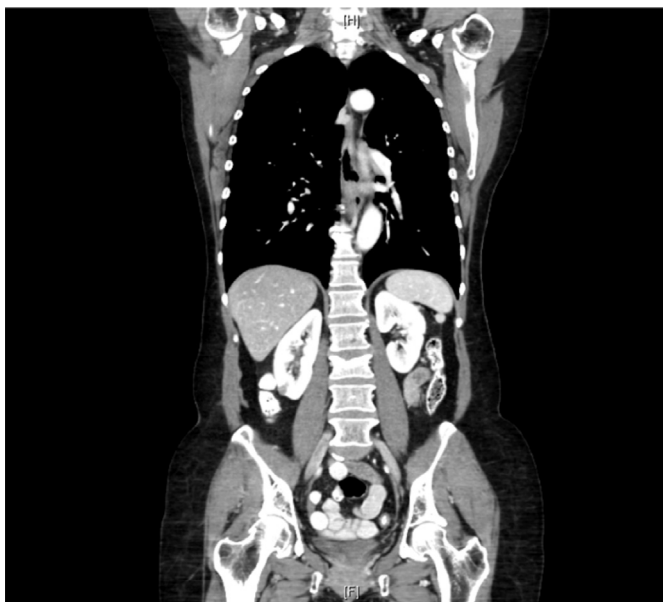


Fig. 1. Cross sectional computed tomography imaging of the abdomen and pelvis, dated March 2017. The scan reveals an 8mm right renal lower pole hypodensity, consistent with a cyst.

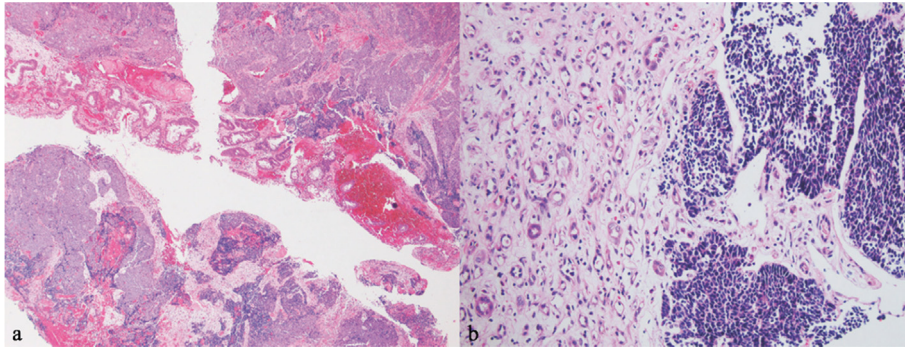


Fig. 3. (a): Diagnostic biopsy of the colon (2015). H&E stained section shows a poorly differentiated carcinoma without mucin and infiltrating the lamina propria and submucosa. The overlying colonic epithelium in the picture is unremarkable. These findings are consistent with anal gland adenocarcinoma. (b): Right renal mass biopsy (2017). H&E stained section shows a poorly differentiated carcinoma involving the renal cortex. This tumor is similar in morphology to the one in the colon and consistent with metastatic anal gland adenocarcinoma.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Conflict of interest

The authors have no conflicts of interest.

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