Emergent Embolization of a Pelvic Kidney with Metastatic Renal Cell Carcinoma: A Unique Interventional Case

N Reyes, A Moore, K Stokes

Department of Interventional Radiology

INTEGRIS Baptist Medical Center, Oklahoma City, OK

Purpose

The purpose of this abstract is to present an interesting and unique case involving emergent selective renal artery embolization in a right renal pelvic kidney secondary to hemorrhagic metastatic renal cell carcinoma (RCC). The incidence of bilateral sporadic renal cell carcinoma is estimated at 1-5% of all cases of RCC. The incidence of pelvic kidney variant anatomy is estimated at between 1 in 2,200 and 1 in 3,000. As such, the incidence of metastatic renal cell carcinoma to a pelvic kidney is an extremely rare entity that can pose unique interventional challenges in the setting of acute hemorrhage.

Materials and Methods

A 77-year-old male with history of known abdominal aortic aneurysm (AAA), prior left nephrectomy secondary to RCC and incidentally-noted right ectopic pelvic kidney presented to an outside facility with abdominal pain. A non-enhanced CT of the abdomen showed concern for hemoperitoneum secondary to ruptured AAA. The patient was transferred to our facility, where a contrast-enhanced CT angiogram demonstrated a right pelvic kidney with soft tissue enlargement concerning for neoplasm and active contrast extravasation from the inferior renal pole. Interventional radiology was consulted and the patient was taken to the angiography suite emergently.

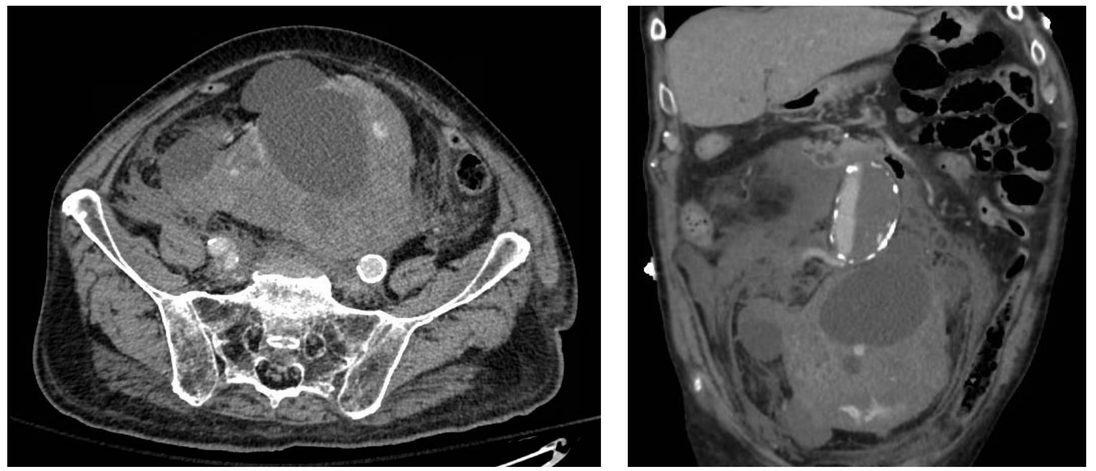

Figure 1: Axial (left) and sagittal (right) CT images obtained in the arterial phase of contrast demonstrate enlarged right pelvic kidney with multiple cysts with active extravasation of contrast within the inferior aspect of the mass.

Results

An aortogram demonstrated a calcified abdominal aortic aneurysm extending into the origins of both common iliac arteries without contrast extravasation. The origin of the right renal artery arose from the proximal right common iliac artery, and portions of the kidney were noted to be hypervascular with multiple areas of extravasation. Renal artery angiogram showed early bifurcation into anterior and posterior divisions with the larger trunk supplying the hypervascular regions of the kidney with extravasation. Branches from the smaller trunk were also seen to provide flow to the sites of hemorrhage.

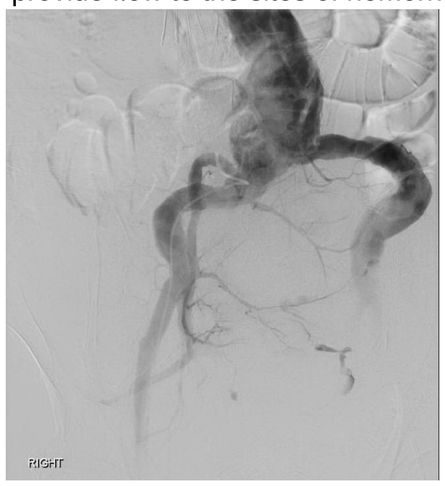

Figure 2: Renal angiogram demonstrates the origin of the right renal artery arising from the proximal right common iliac artery. There is early bifurcation into anterior and posterior divisions with the larger trunk supplying the hypervascular tumor with areas of extravasation in the left pelvis.

Ultimately, four separate segmental arteries were embolized with a combination of coils and microspheres resulting in near-complete embolization of the entire renal vasculature. A tunneled dialysis catheter was placed for presumed future dialysis.

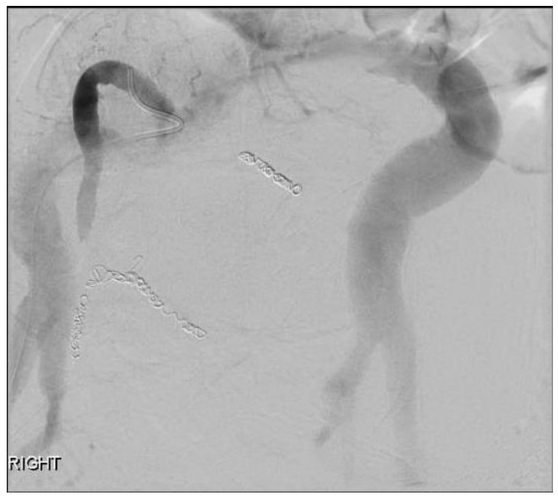

Figure 3: Post-procedural angiogram demonstrates successful coil embolization of three separate hemorrhage sites.

Conclusion

Hemorrhagic metastatic renal cell carcinoma in a pelvic kidney is an extremely rare entity. In the setting of a known AAA, it can be difficult to identify the source of new-onset hemoperitoneum. This case demonstrates the utility of interventional radiology in managing emergent intra-abdominal hemorrhage in the context of challenging and unique anatomy and pathology.

References

Cinman, Nadya M., et al. “Pelvic Kidney: Associated Diseases and Treatment.” *Journal of Endourology*, vol.21,no.8,Aug.2007,pp.836–842.

Loffroy, Romaric, et al. “Transcatheter Arterial Embolization in Patients with Kidney Diseases: an Overview of the Technical Aspects and Clinical Indications.” *Korean Journal of Radiology* , vol. 11, no. 3, 2010, pp. 257–268.

Wang, Baojun, et al. “Bilateral Synchronous Sporadic Renal Cell Carcinoma: Retroperitoneoscopic Strategies and Intermediate Outcomes of 60 Patients.” *Plos One* , vol. 11, no. 5, 2 May 2016.

Wang, Hong Liang, et al. “Emergency Transcatheter Arterial Embolization for Acute Renal Hemorrhage.” *Medicine* , vol. 94, no. 42, Oct. 2015.