Chromophobe renal cell carcinoma presenting as hemorrhagic shock: case report

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The majority of patients with chromophobe renal cell carcinoma (CRCC) are determined to be asymptomatic, with a small minority of patients having the classic triad of flank pain, hematuria, and abdominal mass. This case report describes a 56-year-old man first seen with hemorrhagic shock from retroperitoneal bleeding attributable to a large renal mass. An emergent exploratory laparotomy and radical nephrectomy were performed and the patient has since remained disease free at 3 year follow-up.

Key Words: shock, chromophobe renal carcinoma, bleeding

Case report

A 56-year-old man with a history of hypertension was first seen in the emergency department with symptoms of severe right flank pain, a blood pressure of 90/55 mmHg, and pulse rate of 130 beats/minute. A computed tomography (CT) scan demonstrated a well-circumscribed, mass within the right kidney that measured approximately 11 cm. Retroperitoneal hemorrhage and a pararenal hematoma were associated with the mass, because of spontaneous rupture. An emergent exploratory laparotomy and right radical nephrectomy were performed and a large, right mid-pole renal mass was identified. Approximately 3 liters of blood were evacuated from the right retroperitoneal space. The patient tolerated the procedure well and was admitted to the surgical ICU. However, his postoperative course was complicated by an acute myocardial infarction and respiratory failure, which required intubation. The patient then developed renal failure, with his creatinine peaked at 4.6 mg/dl. After receiving care in the surgical ICU, the patient was

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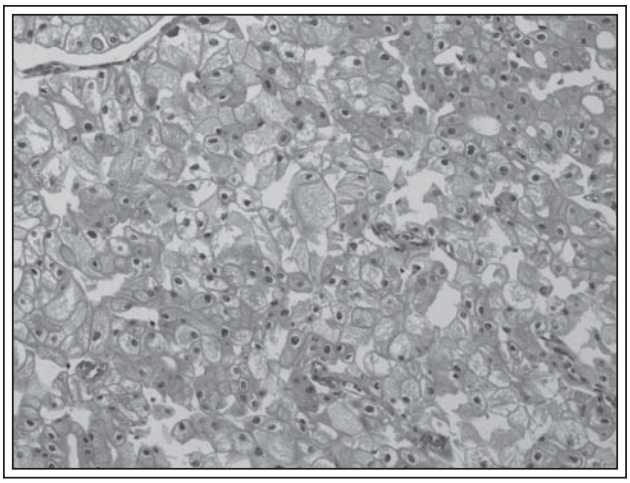

Figure 1. Sheets of tumor cells with abundant pale, flocculent cytoplasm with perinuclear halos (H&E 20x).

extubated and his creatinine fell to 1.8 mg/dl. He has since had an uncomplicated recovery following his discharge home. He is disease free at 3 year follow-up based on CT imaging of the abdomen and pelvis. His most recent creatinine is 1.3 mg/dl.

The pathology report showed CRCC with associated hematoma of the right kidney. The tumor measured 11 cm x 6 cm x 5 cm with a Furman nuclear grade of two. It consisted of large polygonal cells with abundant pale, flocculent cytoplasm, Figure 1. The tumor cells were positive for e-cadherin and Hale's colloidal iron, focally positive for CD10, and negative for vimentin, Figure 2. These stains supported the diagnosis of CRCC.

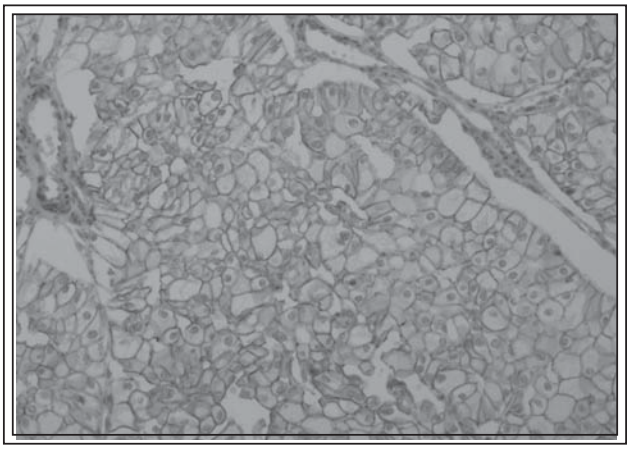

Figure 2. Tumor cells that show positive membrane staining for e-cadherin. (Immunohistochemical stain 20x).

Discussion

CRCC accounts for approximately 4% of all kidney neoplasms, with the mean patient age at 58 years.[1] In 1985, Thoenes and colleagues first reported that this particular variant of renal cell carcinoma demonstrated a finely reticular cytoplasm when stained with hematoxylin and eosin. The chromophobe can also be identified by the strong reaction induced with a Hale's colloidal iron stain.[2] Overall, CRCC has appeared to have relatively low malignant potential in comparison to other renal cell carcinomas.

A study conducted by Peyromaure and colleagues analyzed the presentation and outcomes of 61 patients with CRCC. In their experience, 68% were discovered incidentally. Of those patients symptomatic when first seen, 18% had flank discomfort and 13% had gross hematuria. They also noted that none of the patients had experienced weight loss, poor general condition, or fever, in comparison to this patient who was in hemorrhagic shock upon arrival at the emergency department.[1]

Another study by Crotty and coworkers analyzed the clinicopathological features of 50 patients with CRCC. Of those, the most common tumor-related symptoms were flank discomfort in 26%, gross hematuria in 24%, and weight loss in 12%. The other 52% of patients were identified as asymptomatic with an unrelated illness.[3] Additionally, Crotty and colleagues noted that 86% of their patients had stage I disease with the tumor confined within the renal capsule, whereas only 10% had stage II disease with the tumor penetrating outside of the renal capsule. They concluded that because the majority of patients with CRCC have a low-stage disease, tumor-related symptoms were only present in the minority of those at diagnosis. These data support the uniqueness of our patient first seen with advanced disease.

Although uncommon, spontaneous rupture of renal cell carcinoma has been reported. Okada and coworkers reported a 53-year-old man first seen with sudden right flank pain. The patient required a radical nephrectomy and was determined to have a spontaneous rupture of the right kidney with clear cell renal carcinoma.[4] Dubosq and colleagues reported one patient with hemorrhagic shock in their study of spontaneous renal hemorrhage because of renal cell carcinoma or angiomyelolipoma.[5] However, to our knowledge, the current authors are the first to report hemorrhagic shock as a symptom of the chromophobe variant of renal cell carcinoma. As CRCC is classically determined to be an incidental finding, important to consider is the complications of rupture and shock in determining medical versus surgical management.

Conclusions

Presented herein is the case of a 56-year-old man first seen with hemorrhagic shock from retroperitoneal bleeding attributable to a large renal mass. An emergent exploratory laparotomy and radical nephrectomy were performed. The pathology report showed CRCC. Most cases are discovered asymptomatically, with a small minority of patients having the classic triad of flank pain, hematuria, and abdominal mass. □

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