Case Report

# Left renomegaly and right adrenomegaly: An unusual presentation

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## ABSTRACT

Renal cell carcinoma (RCC) is an uncommon malignancy and is often associated with distant metastasis at the time of diagnosis. The adrenal glands, despite their close anatomical location to the kidneys, have a lower risk of tumor infiltration. The risk of metastatic deposits to adrenals is increased due to their high vascular supply. We present a young patient with RCC and metastases to the contralateral adrenal gland. We present the case to highlight the synchronous and the metachronous presentation of adrenal metastasis in renal cell carcinoma.

**Key words:** Adrenal metastasis, nephrectomy, renal cell carcinoma, synchronous

## INTRODUCTION

Renal cell carcinoma (RCC) is an uncommon malignancy with poor survival rates. The 5-year survival rate ranges between 0% and 30% in treated cases of RCC.[1] The disease is often associated with distant metastases at the time of diagnosis. The metastases are common to highly vascular tissues like liver and lungs. The spread to the other intrabdominal organs is rarely reported in the literature.[2] Adrenal metastases are detected mostly during the autopsy studies in RCC patients and are rarely seen simultaneously along with the primary tumor. The involvement of the contralateral adrenal gland in RCC is extremely rare. The rate of solitary adrenal metastases to ipsilateral adrenal is about 3% and only 0.3% to the contralateral adrenal gland.[3] Involvement of bilateral adrenal glands also poses a therapeutic dilemma of lifelong steroid replacement after the surgery.

The metastatic spread of the tumor is divided into synchronous and metachronous based on the time of diagnosis. The term synchronous is used for simultaneous detection of the tumor and metastasis whereas, metachronous spread denotes the occurrence of a metastatic deposit after the primary is treated. Routine preoperative evaluation is not recommended to screen for the metastases in all cases of RCC.[4] RCC patients with solitary metastases have reported higher survival rates after nephrectomy along with removal of the metastasis.[5] We recently encountered a young man who presented with a painful hematuria and an evaluation revealed the diagnosis of RCC with contralateral adrenal metastases. We plan to highlight the rare and the variable presentation of RCC along with its predilection for adrenal metastases in this report.

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## CASE REPORT

A 35-year-old man presented with a history of hematuria and pain abdomen for 3 days duration prior to the admission. The patient denied history of fever, dysuria, polyuria and graveluria. He also denied history of bleeding tendencies, swelling legs, distension of abdomen, hematemesis, melena and pruritus. Past and family history details were not contributory. Examination revealed normotensive individual with no palpable abdominal mass and clear renal angles. The rest of the systemic examination was normal.

Investigations showed normal hematological and biochemical parameters. Urinalysis showed the presence of numerous red blood cells and mild proteinuria (285 mg/24 h). Ultrasonography of the abdomen showed an ill-defined mass

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lesion of about 4 cm × 4 cm over the superior pole of the right kidney and another mass of 5 cm × 6 cm involving the left kidney. Computed tomography (CT) scan of the abdomen showed an isodense mass of 4.9 cm × 6.2 cm × 5.7 cm with lobulated margins and patchy enhancement in the superior pole of the left kidney [Figure 1]. The mass is largely restricted to within the perinephric space except in its anterior border, which is abutting the anterior renal fascia in its superior aspect. There is another 5.9 cm × 2.7 cm × 3.7 cm isodense patchily enhancing mass is seen rising from the right adrenal gland. The characteristics of the imaging lead to the possibility of RCC with spread to the contralateral adrenal gland. Evaluation for the adrenal hormonal dysfunction was negative, and the patient was subjected to left nephrectomy and right adrenalectomy simultaneously.

The involvement of the ipsilateral adrenal gland was suspected peroperatively, and the same was removed en bloc with the kidney. Histopathological examination of the specimen revealed RCC, clear cell type with Fuhrman Grade 2 [Figure 2]. Postoperatively, the patient had hypotension and the evaluation revealed adrenal insufficiency (stimulated cortisol of 2.3 mg/dl). He was treated with hydrocortisone in the immediate postoperative period followed by prednisolone 10 mg/day in divided doses and fludrocortisone 0.1 mg/day. A follow-up positron emission tomography CT scan revealed no abnormal fluorodeoxyglucose avid lesion 3 months after the surgery and the patient is under further follow-up for any recurrence.

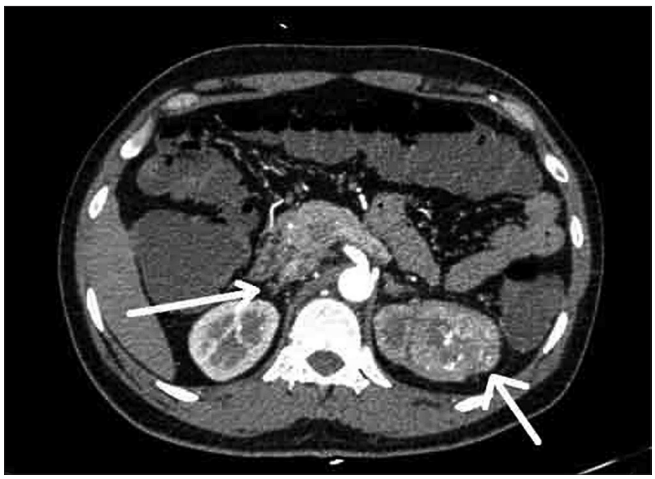

**Figure 1:** Computed tomography scan of the abdomen showing left renal mass and right adrenal mass

## DISCUSSION

Our case is unique in its rare presentation of contralateral adrenal metastasis with RCC. Such atypical presentation is seen in only 0.3% of patients with RCC. Metastases from RCC are seen in 25% to 35% of the patients at the time of diagnosis.[6] The most common sites for metastases include lymph nodes, lungs, liver, and bones. The disease is also characterized by the high incidence of paraneoplastic and systemic manifestations. The adrenal metastases are rare and often silent with RCC leading to a limited clinical experience in the management of such patients.[1,6] The unusual features in our patient in comparison to the previous reports are the synchronous presentation, involvement of the contralateral adrenal gland, adrenomegaly and complete cure following the excision of the primary and metastatic lesion. Previous reports suggest that the synchronous presentation leads to reduced survival than the metachronous presentation.[7] Our patient had no evidence of recurrence at the end of 3 months follow-up. Further long-term surveillance is required to assess the cure rates in this disease.

Surgical removal of the involved metastases is the only hope for remission, and our patient had solitary metastases that were amenable to surgical removal. Our patient is complicated by the removal of both the adrenal glands requiring lifelong steroid replacement. The adrenal insufficiency may increase the morbidity and occasional mortality due to poor compliance with the glucocorticoid

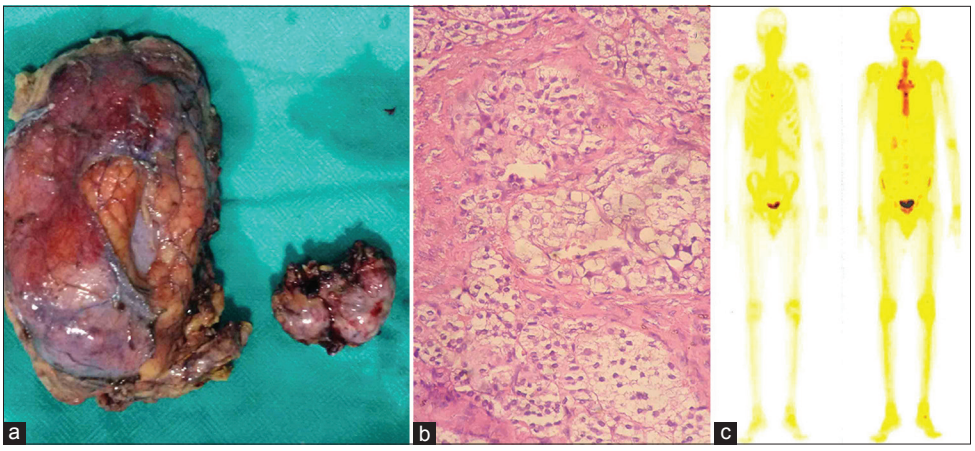


**Figure 2:** (a) Specimen of kidney and adrenal gland, (b) microscopic picture of clear cell carcinoma and (c) a follow-up positron emission tomography computed tomography image showing no metastatic lesion

replacement.[8] In view of the poor survival rates after bilateral adrenalectomy, few authors have advocated the preservation of the ipsilateral adrenal gland during the nephrectomy.[9] Our patient had RCC involving the upper pole of the kidney and hence such an approach was considered inappropriate.

Adrenal mass lesions in the adults are usually secondary to neoplastic lesions with primary being lung, liver, and breast. Other common conditions leading to adrenal enlargement are adenoma, infections, abscesses and adrenal hemangiomas. There is a long latency period observed between the primary tumor and the metastasis in RCC patients. The slow growing nature of the disease lends support for the initial aggressive treatment of this cancer. The recommended histological grading system is Fuhrman and is based on the microscopic morphology of the neoplasm. This grading is ideal for clear cell carcinoma as in our case and is not ideal for other subtypes of RCC.[10]

## CONCLUSION

We present an interesting case of RCC with synchronous metastasis to the contralateral adrenal gland. Our case highlights the rare presentation, a high index of suspicion for adrenal insufficiency in the postoperative period and the diagnostic challenge of identifying the adrenal mass lesion.

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