

A Case Report of Isolated Contralateral Adrenal Metastasis after Treatment of Primary Renal Cell Carcinoma

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Abstract

Introduction: Renal Cell Carcinoma (RCC) is the most common kidney-originated neoplasm, which can be aggressive with high metastatic potential. It is reported that RCC can recur or metastasize years after curative treatment. While ipsilateral adrenal metastasis is not uncommon, isolated contralateral adrenal metastasis (CAM) is extremely rare.

Case Presentation: A 67-year-old Chinese man had history of Fuhrman Grade 2 right clear cell RCC (Stage T1bN0M0) with right radical nephrectomy done in 2014. Subsequently, he was diagnosed having prostatic carcinoma in 2016 with the Gleason score of 9 (4+5). On staging CT for prostate cancer, left adrenal mass was noted, measuring 1.7cm x 3.0 cm x 2.5cm (AP x W x CC). He had further undergone Positron Emission Tomography (PET) scan which showed equivocal findings of a mildly hypermetabolic nodule in the left adrenal gland. In addition, there were 2 small hypermetabolic foci in the prostate gland compatible with prostate carcinoma and hypermetabolic mediastinal lymph nodes. Thus, strategy of surveillance for adrenal tumour was adopted. He was treated with radiotherapy and thereafter androgen deprivation therapy (ADT) with intramuscular Lucrin injection. However, the surveillance CT revealed that the left adrenal nodule increased in size. In view of progressive disease despite ADT, left adrenalectomy was done in 2017. Intra-operatively, there was a well-circumscribed, encapsulated left adrenal lesion with no invasion to surrounding tissue. Histopathological examination revealed metastatic clear cell RCC.

Conclusion: Solitary CAM from RCC is extremely rare which will possibly occur at a remote interval following primary radical nephrectomy. Aggressive surgery remains as the feasible treatment option improving prognosis in such patients.

Keywords: Renal cell carcinoma; contralateral adrenal metastasis; prostate cancer

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Consent: Consent was taken from the patient's next of kin for publication of this case report.

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Introduction

Renal Cell Carcinoma (RCC) is the most common kidney-originated neoplasm, which can be aggressive with high metastatic potential to any organ of the body. It spreads via hematogenous route. The common organs of metastasis are the lungs, liver, bones, lymph nodes and mediastinum [1]. In addition, it is reported that RCC can recur or metastasize years after curative treatment of the primary tumour. While ipsilateral adrenal metastasis is not uncommon due to its anatomical location, isolated contralateral adrenal metastasis is extremely rare. In one autopsy study of more than 400 patients who had undergone nephrectomy for RCC, there is only 2.5% found to have the contralateral adrenal gland as the sole site of metastasis [2].

Case Presentation

A 67-year-old Chinese man had history of Fuhrman Grade 2 right clear cell RCC (Stage T1bN0M0) with right radical nephrectomy done in 2014. The resected right adrenal gland was uninvolved. Subsequently, he complained of lower urinary tract symptoms (LUTS) with elevated Prostate-specific Antigen (PSA) and deranged renal profile in 2016, of which he was diagnosed having prostatic carcinoma with the Gleason score of nine (4+5). On staging CT for prostate cancer, left adrenal mass was noted, measuring 1.7cm x 3.0 cm x 2.5cm (AP x W x CC). He had further undergone PET CT which showed equivocal findings of a mildly hypermetabolic nodule in the left adrenal gland. In addition, there were 2 small hypermetabolic foci in the prostate gland compatible with prostate carcinoma and hypermetabolic mediastinal lymph nodes. Thus, strategy of surveillance for adrenal tumour was adopted. He was treated with radiotherapy and thereafter androgen deprivation therapy (ADT) with intramuscular Lucrin injection. However, the surveillance CT revealed that the left adrenal nodule increased in size, which was measuring 3.2cm x 3.8cm x 4.7 cm (AP x W x CC). In view of progressive disease despite ADT, left adrenalectomy was done in 2017. Intra-operatively, there was a well-circumscribed left adrenal lesion with encapsulation with no capsular breach and invasion to surrounding tissue. Histopathological examination of the specimen revealed metastatic clear cell RCC. Up to the time of reporting, he remains asymptomatic while still on ADT.

Discussion

RCC has high metastatic potential to any organs of the body. Lung, bone, lymph nodes and liver are the commonest sites of metastasis in descending order of frequency. Adrenal gland metastasis is not uncommon based on the documented figure of 2-10% of clinical patients and 6-29% in autopsy series [1]. However, metachronous contralateral adrenal metastasis (CAM) is rare and possibly remote, as late as 23 years after primary nephrectomy [2]. It is reported that clear cell type has been nearly always isolated in isolated CAM, similar to this case [1]. The pathogenesis of this type of metastasis is still not clearly defined [2].

Although staging CT for prostate cancer noted left adrenal nodule in this patient, biopsy was not conducted due to technical difficulty after discussion with interventional radiologist. Moreover, the

matter was complicated with diagnosis of prostate cancer, which confused consultants on the cell origin of metastasis as well as the differential diagnosis of primary adrenal tumour. Multidisciplinary meeting between urologists, radiologists and oncologists had concluded that surveillance strategy to be adopted on top of the treatment as metastatic prostatic cancer.

Removal of solitary metastatic lesion as in this case is the most feasible option because other treatments such as chemotherapy, hormonal therapy or radiotherapy are not proven effective [3]. The decision is based on the patient's functional status, resectability and number of metastasis [1]. Complete clearance of isolated metastasis will increase 5-year survival rates. Plawner found out that 5-year survival rate for the patients after resection of metachronous solitary CAM was 20%. This figure was much lower compared to those having synchronous adrenal metastasis, which was reported as 40% [4]. In terms of operative strategy, the possibility of developing CAM after primary radical nephrectomy warrants the practice of adrenal-sparing radical nephrectomy whenever possible to prevent the risk of adrenal insufficiency if bilateral adrenals are involved [2].

The incidence of prostate cancer was showed to be increased in patients with underlying known case of RCC. There could be a common etiological factor; however, the evidence is still scarce. Some had suggested that detection bias is the cause of the correlation [5]. This is because RCC patients who are followed-up by urologists may be prompted more vigorously or due to the incidental findings during staging.

Conclusion

Solitary CAM from RCC is extremely rare which will possibly occur at a remote interval following primary radical nephrectomy. Aggressive surgery remains as the feasible treatment option improving prognosis in such patients. The possibility of developing contralateral adrenal metastasis after primary radical nephrectomy supports the practice of adrenal-sparing radical nephrectomy whenever possible. We hereby present our case as a rare incidence of contralateral isolated adrenal metastasis from renal cell carcinoma.

Consent

The patient was informed to give his consent for image(s) and clinical information related to be reported in the Open Access Journal (both in print and online edition).

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