

Isolated Metachronous Contralateral Adrenal Metastasis from Renal Cell Carcinoma

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Abstract

Isolated contralateral adrenal metastasis from renal carcinoma is extremely rare. Patients who present with this entity often undergo surgery with the presumed diagnosis of an incidentaloma. A mass in the contralateral adrenal diagnosed following radical nephrectomy for renal carcinoma should be viewed with a high index of suspicion for the presence of metastatic disease. Surgery is the only effective management option and should be offered to these patients.

Key Words: Adrenal, incidentaloma, mass, renal carcinoma, metastasis, adrenalectomy.

Introduction

ALTHOUGH RENAL CELL CARCINOMA (RCC) frequently presents with distant metastases, involvement of the contralateral adrenal gland in the form of an isolated metastasis is rare. We present a patient with a solitary, metachronous metastasis to the contralateral adrenal gland. The relevant literature is briefly reviewed.

Case Report

A 73-year-old woman presented with gross hematuria and flank pain. Diagnostic evaluation, including abdominal computed tomography (CT), revealed a left renal tumor. Bone scan and CT of the chest were negative for metastatic disease. At this time, abdominal CT was without pathologic findings from the right adrenal. Left radical nephrectomy was performed with en bloc resection of the left adrenal gland. Pathologic examination revealed renal cell carcinoma without regional lymphatic metastases. Abdominal CT, performed 6

months later for routine re-evaluation of the patient (follow-up) showed a homogeneous enlargement of the right adrenal gland (d=5 cm), with regular, smooth margins, and without invasion of the adjacent anatomic structures. Due to the marginal diameter of this lesion, 3 months later, we recommended that a repeat abdominal CT be done. This showed an increase in the size of the right adrenal gland (d=5.5 cm), again with the same characteristics (Fig. 1). Laboratory investigation showed that this adrenal mass was not associated with any endocrine activity. Due to the previous history of RCC, computed tomography of the head and the thorax was performed to exclude metastatic disease before surgery. The results were negative. The patient underwent surgery with the presumed diagnosis of an adrenal neoplasm ("incidentaloma"). A right adrenalectomy was performed through an extended right Kocher incision. At surgery, the right adrenal gland was enlarged, but without invading adjacent structures. The postoperative course was uneventful and the patient was discharged on postoperative day 5. Pathologic evaluation (including immunohistochemistry) showed the presence of adrenal metastasis from the previous RCC (Fig. 2). The patient was doing well 6 months after surgery.

Discussion

Adrenal glands represent a usual site of metastasis for tumors of several solid organs, including lung, stomach, esophagus, liver, kidney, and breast

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Fig. 1. The right adrenal mass (curved arrow), with smooth regular margins and without invasion of the adjacent anatomic structures.

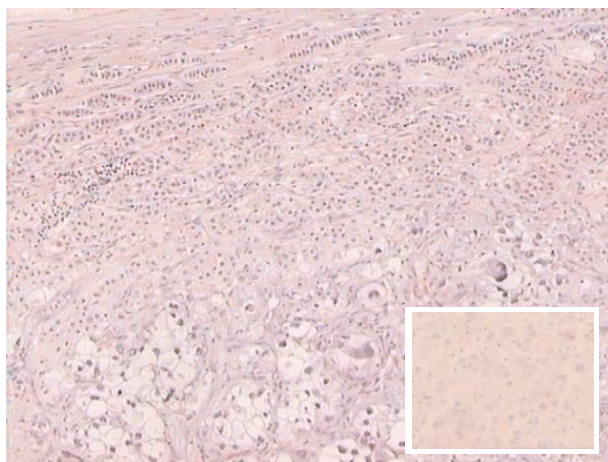


Fig. 2. Histological section from the right adrenalectomy specimen showing metastatic deposits of RCC (conventional clear cell type). Carcinoma cells show irregular nuclei and prominent nucleoli. A rim of normal adrenal tissue is identified (Hematoxylin-eosin stain, magnification $\times 100$). Inset: Histological section from the left nephrectomy specimen, showing RCC.

(1). Even though RCC has the ability to invade almost all organs, and by the time of diagnosis the tumor has already spread in 20–30 % of patients (2), adrenal involvement is not very common. During autopsy of patients who had generalized RCC, metastasis to the ipsilateral adrenal was found in 7–23% of patients (3, 4), whereas involvement of the contralateral adrenal was observed in only 11% (5, 6). Solitary metastasis of RCC to the ipsilateral adrenal was observed in only 3% and to the contralateral one in less than 1% (7–10). Therefore, isolated, contralateral adrenal metastasis of RCC is extremely rare. Most commonly, solitary contralat-

eral adrenal metastases are synchronous tumors diagnosed during the initial evaluation and staging of primary renal tumor. Less often, these are metachronous lesions, and diagnosis is made during routine follow-up of patients having already been treated by radical nephrectomy. The time from primary treatment to metastasis varies (up to 23 years) (9). Dieckmann et al. (6) reported a mean time of 5.3 years after nephrectomy, whereas Lau et al. (1) reported 6.2 years. The spreading pathway that may explain the appearance of this solitary metastasis to the contralateral adrenal remains unclear. A possible explanation could be that adrenal cells show an endogenous “predisposition” for invasion from metastatic renal carcinoma cells (4, 11, 12).

Diagnosis of metachronous contralateral adrenal metastasis occurs during regular follow-up, most frequently by using abdominal ultrasonography and/or abdominal CT. CT scan is the diagnostic method of choice for the evaluation of these patients. MRI has no advantages over CT (10).

Given that conservative treatment, such as chemotherapy, hormonal therapy and radiotherapy, has not proved to be effective in metastatic RCC, surgical removal of solitary adrenal metastasis remains the only treatment option for these patients. Only surgical treatment can achieve satisfactory survival rates; however, it is difficult to estimate overall survival due to the small number of such cases. Some authors have reported that adrenalectomy can achieve a 5-year survival of about 60% of patients with contralateral adrenal metastasis from RCC (11). Kessler et al. (7) reported a relationship between survival and the time from nephrectomy to diagnosis of metastasis. They set a cut-off limit of 18 months from primary treatment, beyond which patients show better survival rates. According to these authors, the longer the interval between nephrectomy and the appearance of the adrenal metastasis, the better the prognosis. Probably this latency in the appearance of metastasis represents a less aggressive behavior of cancerous cells, with slower progression that connotes a better prognosis.

In general, adrenal masses represent non-functioning benign tumors. These are often incidentally discovered (“incidentalomas”) during diagnostic evaluation of patients for other, unrelated complaints or indications. These tumors are most commonly asymptomatic and without any clinical significance when their diameter is < 5 cm. However, the risk of underlying malignancy increases if the diameter of the lesion exceeds 5 cm. Expectant management (follow-up) is therefore indicated for lesions < 5 cm. However, if the lesion is > 5 cm or if its size increases, surgery is indicated. In the presence of a history of a malignant disease, and in par-

ticular RCC, every adrenal mass should be viewed with a high index of suspicion for the presence of metastatic disease, even if the mass has been diagnosed many years following nephrectomy. These metastatic lesions are not easily distinguished from primary non-functioning adrenal tumors. Adrenalectomy is indicated for these patients, since there is no other effective treatment of metastatic disease from RCC (6). Although the discovery of an adrenal metastasis in patients with RCC automatically means that they have advanced stage disease, adrenalectomy can occasionally achieve long-term survival for them (1, 7, 13). The role of adjuvant therapy is limited in the management of these patients, since chemotherapy is ineffective in RCC (14). Immunotherapy may be used as adjuvant therapy, but it should be used as an investigational method in the frame of a research protocol.

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