

Successful Surgical Treatment of Renal Cell Carcinoma With Calvarial Metastases

Dear Editor,

Renal cell cancer (RCC) accounts for 3% of all cancers. Isolated haematuria or pain is the most common form of presentation. However, the symptoms of RCC are unpredictable and patients may admit with non-specific symptoms such as fatigue, weight loss or fever. One-third of patients with RCC have metastasis at the time of diagnosis. Of the approximately 30% of patients with RCC who present with metastases, only 1.5% to 3.5% have solitary metastasis. Nephrectomy and resection of metastases render few cures.¹ We present a 71-year-old female patient who was admitted with a solitary calvarium metastatic lesion on the left occipitoparietal region and successfully treated with nephrectomy and metastasectomy. This case illustrates the variability in RCC presentation and the success of surgical excision of the primary tumour and its metastases.

The patient was first admitted to another hospital with a painless, non-tender and fixed mass with a diameter of 2 cm on the left occipitoparietal region. Radiographic examination showed a solid mass with lytic invasion of the parietal bone (Fig. 1). Because of its highly vascular appearance, the surgical excision plan had been modified to incisional biopsy. Pathological examination revealed tumour cells with abundant clear cytoplasm and hyperchromatic round nuclei, and the diagnosis was that of metastasis of RCC. Subsequently, she was referred to our hospital. Abdominal ultrasonography and computed tomography (CT) revealed a mass of a size of 72 x 68 mm on the upper pole of the right kidney. Vascular, lymphatic or perinephritic invasion was not observed. Chest X-ray

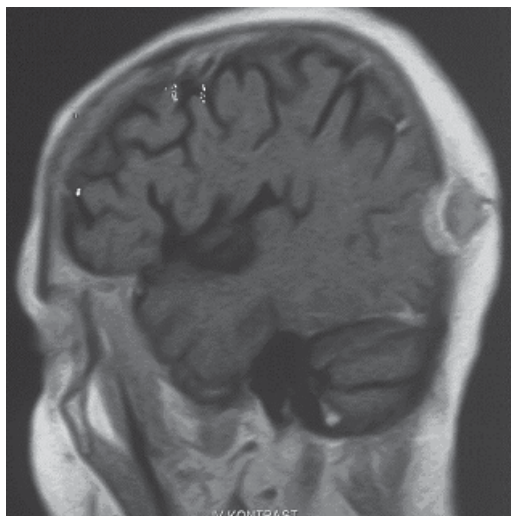


Fig. 1. Posterior parietal bone destruction of soft tissue lesion (42 x 37 mm) with no brain parenchymal invasion.

was normal. Urine analysis, complete blood count, liver function tests, electrolytes and uric acid were in the normal range. Sedimentation rate was 28 mm/hour, urea was 55 mg/dL and creatinine was 1.39 mg/dL, calcium was 8.87 mg/dL and lactic acid dehydrogenase was 516 U/L at the time of diagnosis. The calvarial lesion was totally excised with the surrounded bone. Pathological re-examination confirmed the diagnosis of RCC metastasis. Nephrectomy was performed and the diagnosis of clear cell subtype RCC was established. The patient was continuously observed; neither chemotherapy nor radiotherapy was given. In her 30th postoperative month, she is healthy, without any evidence of tumour recurrence or metastasis.

RCC manifests in various clinical symptoms. Higher incidence of RCC in recent years may be attributed to improved technique of renal imaging and more frequent and liberal application of radiodiagnostic interventions. RCC can metastasise everywhere, and common sites of metastasis are the lung, bone, kidney, liver and retroperitoneum. However, several unusual sites may be a target for the metastasis of RCC such as the neck, nose, larynx, thyroid, parotid gland or renal allograft. The majority of metastases occur in the subsequent 5 years of diagnosis and the frequency of metastases are well correlated with the stages of RCC.² Patients with solitary metastasis synchronous with a primary lesion have decreased survival compared to patients who developed metastasis after removal of the primary tumour. RCC has a high propensity for early metastasis and evidence of metastasis is present in about one-third of patients at presentation. Solitary osseous metastases are relatively frequent, occurring in about 2.5% of all patients with RCC.¹ Approximately 15% of patients with RCC have extracranial head and neck metastases. In 8 of the 16 cases reported by Boles and Cerny,³ the renal primary was unsuspected until the metastatic lesion in the head and neck was biopsied and evaluated histologically as metastatic carcinoma from the kidney, as in the case of our patient. A total of 31 cases with calvarial metastases from RCC have been reported in the literature. The initial symptomatology was seen in 16 cases; abdominal mass in 5, haematuria in 4 cases, and abdominal mass and haematuria together in 1 case. In 5 cases, calvarial metastasis was the first sign of the disease.⁴ The paths of distribution of metastasis in RCC are important to the understanding of the site of secondary deposits and their frequency in particular organs. Haematogenous dissemination is the most important mechanism of metastasis. The route is renal vein to vena cava to right atrium to lung. Invasion of the renal vein or

vena cava by a neoplastic thrombus is a distinguishing characteristic of RCC. Two other venous routes have some preferential localisation. The spermatic or ovarian veins allow reverse metastasis in the pelvic organ. The vertebral vein or plexus of Batson, with their low pressure and inversion of flow, lead to preferential localisation in the vertebral column, thyroid, and central nervous system.⁵

Surgical excision of metastases in RCC has been questioned. Studies showed that the 10-year survival rate of patients with RCC limited to local abdominal disease at presentation who have undergone nephrectomy is approximately 30%, but late local or metastatic recurrences can occur in up to 11% of them. Patients with metastases at diagnosis are reported to have a 5-year survival of 0% to 7%. Other reviews have found that the excision of solitary metastatic lesions of RCC following nephrectomy results in a 41% survival at 2 years and 13% at 5 years, regardless of the interval between nephrectomy and diagnosis of metastatic lesion. It appears that the biologic aggressiveness of the tumour is a greater prognostic indicator than the site of the metastasis; it is generally thought that metastatic lesions of RCC should not be excised. However, metastases of the head and neck ought to be considered in a different manner, as they are likely to lead to airway compromise, bleeding, cerebrospinal fluid leak, loss of vision, or other catastrophic occurrences. Rapidly growing or symptomatic tumours that are unresponsive to other treatment modalities, and solitary lesions with otherwise limited metastatic disease, are the indications of surgery in calvarial metastasis. Many authors advocate local excision of the solitary head and neck metastases.^{4,5}

We presented an unusual case of RCC metastasise to the calvarium which was treated with nephrectomy and excision of metastases. The experience described herein confirms that bizarre sites of RCC metastases should be kept in mind by clinicians. There are isolated reports of regression of metastatic RCC. Following removal of the primary tumour, only 4 (0.8%) of 474 patients in 9 series who underwent nephrectomy experienced regression of metastatic foci.¹

Our patient had solitary calvarial metastasis at first presentation but there was no parenchymal brain invasion. After nephrectomy and metastasectomy, our patient is still healthy, without any evidence of tumour recurrence or metastasis. It is possible that some of the microscopic metastasis of our patient regressed after the nephrectomy. Therefore, if it is possible all oligometastatic and resectable RCC cases should be treated surgically with excision of the primary site and the metastasis.

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