Renal cell carcinoma pituitary metastases

Isolated pituitary metastases are an extremely rare event in renal cell carcinoma.

Case series

Gopan et al., in the largest case series reported, described the clinical features, treatment, and outcome of 5 patients. Over a 6-year period (2000-2006), they treated 5 patients (3 males; mean age 61 years) with large sellar masses and RCC. Four patients had a history of RCC, while in one, RCC was diagnosed after surgery. RCC was diagnosed with a median of 11 years prior to diagnosis of MP (range 0-27 years). Four patients had previously developed distant metastases. Clinical presentation included bitemporal hemianopia (3 patients), lethargy (3), headaches (2), and diabetes insipidus (DI) (2). Panhypopituitarism was present in 3 patients and the other two had a deficiency of at least ACTH and gonadotropin axes. Elevated prolactin was seen in 3 patients. MRI showed an enhancing sellar mass with suprasellar extension and chiasmal compression in all; prominent vascular flow voids were seen in 2. Three patients underwent transsphenoidal surgery and radiation, while 2 underwent radiotherapy alone. Four patients are alive (follow up 6-46 months); 1 patient died due to systemic metastases at 12 months. Metastases to the pituitary from RCC cause more severe hypopituitarism and visual dysfunction compared to those from other primaries, whereas DI is less common. MRI shows contrast enhancement, stalk involvement, sclerosis and/or erosion of sella, and presence of vascular flow voids. Combined treatment using decompressive surgery and stereotactic radiotherapy may result in better outcomes [1)].

Case reports

Öven et al. presented a unique case of isolated pituitary metastasis of renal cell carcinoma and a systematic review of literature.

In this case, a screening abdominal ultrasonography in an asymptomatic 51-year-old female patient showed a mass in her left kidney. Radical nephrectomy was performed and the tumor was diagnosed as a stage 1 clear cell carcinoma. Throughout the 3 months of the follow-up period, the patient started complaining of visual disturbances and headaches. A pituitary mass was found on brain magnetic resonance imaging and was suspected to be a macroadenoma. Surgical resection of the tumor was performed and the final pathological diagnosis was a pituitary metastasis of the renal cell carcinoma. After surgery, radiotherapy with sunitinib, a receptor tyrosine inhibitor, was performed.

The clinical symptoms are usually related to the mass effect of the tumor and anterior pituitary involvement. Most of the cases mimic pituitary macroadenoma on MRI. The most preferred treatment combination is surgery and radiotherapy. They recommended adding sunitinib to this combination. This illustrative case and those found in a systematic review of the literature highlight the importance of histopathologic diagnosis and appropriate management since isolated pituitary metastasis is challenging to preoperative diagnoses [2)].

Murrone et al. in 2021 published a 67-year-old Italian female who complained of severe headache and

visual impairment. For increasing headache, she was transferred to our department. There was no history of trauma or another systemic disease. Ophthalmological examination revealed deteriorating right vision and bitemporal hemianopsia. The ocular motion was normal and there was neither paresis nor sensory disturbance of the extremities. Endocrinological study indicated panhypopituitarism. Magnetic resonance (MR) imaging showed on T1-weighted image an isointense intrasellar mass with suprasellar extension, which compression of the optic chiasm and heterogeneous enhancement after administration of gadolinium. MR angiogram detected displacement of the carotid siphon bilaterally with the normal signal intensity of flow. Computed tomography (CT) scan demonstrated clear demineralization and ballooning of the sellar floor and upper clivus. The patient underwent a trans-sphenoidal tumor biopsy. Histological examination revealed metastasis of renal cell carcinoma. Post-operatively CT scan of the abdomen revealed renal mass without signs of other metastatic sites. She underwent a right radical nephrectomy, radiotherapy with local irradiation of 41 Grey to the pituitary region, and replacement hormonal therapy [3].

Pituitary gland metastases from renal cell carcinoma: A case report and literature update

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A case of an advanced clear-cell renal cell carcinoma in which pituitary metastasis progressed but extracerebral metastases showed partial response to sorafenib treatment [4].

A 50-year-old man who had renal cell carcinoma with distant metastases in skin, bone, and lymph nodes was referred to our department. Clinically he showed severe cognitive function disorder. The endocrinological evaluation revealed central adrenal and gonadal insufficiencies. Brain magnetic resonance imaging demonstrated a hemorrhagic mass in the left frontal lobe and a sellar mass with suprasellar cistern extension. After hormonal replacement and surgical removal of the frontal tumor, he immediately recovered from his cognitive function disorder. Subsequently, whole-brain radiotherapy for the metastatic pituitary tumors was performed. At present, he is being treated with molecular targeting drugs for other distant metastases and he presents no neurological deficit. Palliative therapy for CNS metastases from renal cell carcinoma may result in a better quality of life for patients with advanced stages of renal cell carcinoma [5].

A 74-year-old man had progressive vision deterioration, over the 30 days prior to consultation. He did not complain of headache or polyuria but referred to intestinal constipation. Five years ago, he underwent right radical nephrectomy for renal cell carcinoma, followed by chemotherapy and radiotherapy for lung and parotid metastases. On ophthalmologic examination, there was a left abducens nerve palsy and bitemporal hemianopia. Magnetic resonance imaging demonstrated a sellar mass with suprasellar cistern extension compressing the optic chiasm. The endocrinological evaluation revealed central adrenal and gonadal insufficiencies. The patient underwent a transsphenoidal tumor resection that revealed renal cell carcinoma. This case illustrates that metastatic pituitary lesions can mimic typical symptoms and signs of pituitary macroadenoma. Furthermore, clinical diabetes insipidus, a common finding of pituitary metastases, can be absent [6].

An unusual case of pituitary metastasis from renal cell carcinoma mimicking an adenoma is reported. Panhypopituitarism and chiasmal compression were the first manifestations of the tumor. The clinical, endocrinologic, and pathologic features of pituitary carcinomatous metastasis are discussed [7].

A 59-year-old man with a hypernephroma tumor of the right kidney, metastasis in the pituitary gland of this neoplasm was diagnosed 9 years after removal of the kidney. However, metastases were also found in the left kidney. It cannot be established whether the metastasis in the pituitary gland came from the original tumor or from the other diseased kidney [8].

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