

# The Complete Response to Targeted Drugs Without Surgery or Radiotherapy: A Case of Pituitary Metastasis From Renal Cell Carcinoma

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**Abstract-** Pituitary gland metastasis was seen in elderly patients, and the incidence of pituitary metastasis is 1% to 4% of all cancer patients. Renal cell carcinoma is a primary malignancy in only 2.6% of pituitary metastases. We reported a 50-year-old man with pituitary metastasis from renal cell carcinoma that had signs of diabetes insipidus. He had multiple lesions in both lungs, and bone scan involved L12 and L1 vertebrates. He was treated with combination bevacizumab 600 mg/month and sunitinib 50 mg/D for four weeks with two weeks rest for 6 months. Treatment with targeted drugs without surgery of pituitary or radiotherapy improved metastatic renal cell carcinoma in the patient.

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**Keywords:** Diabetes insipidus; Pituitary metastasis; Renal cell carcinoma; Sunitinib

## Introduction

Metastasis to the pituitary gland is an infrequent complication typically seen in elderly patients with diffuse malignant disease, and the incidence of pituitary metastasis is 1% to 4% of all cancer patients (1). Malignancies like to Gastrointestinal, prostate, kidney, thyroid, and pancreas primary tumors are possible sources of pituitary metastases (2) that the treatment of pituitary metastasis are usually conservative, ranging from surgical removal, radiation therapy, surgery or systemic chemotherapy, focusing on the extent and condition of the primary tumor (2). Renal cell carcinoma (RCC) accounts for 2-3% of all adult malignancies (3).

In our case, for the first time, we treated a patient

with pituitary metastases from RCC with target therapy without surgery or radiation

## Case Report

In Nov 2013, a 50-year-old man referred to Clinic of Oncology, Kermanshah, Iran, with a chief complaint of polydipsia and polyuria (signs of diabetes insipidus). In his brain, MRI was detected a hyperdense lesion in sella turcica (a bony caudal border of the pituitary gland) (Figure 1), and hormonal evaluation has been showed in (Table 1). In further images evaluation, we found that his right kidney had a heterogeneous mass. The patient referred for nephrectomy.

**Table 1. Results of hormonal evaluation of the patient with sella turcica metastasis from renal cell carcinoma**

Hormone	Result in case	Normal range
T4 (µg/dl)	5.23	7.4-13.1
T3 (ng/ml)	0.94	0.16-0.75
TSH (mIU/l)	4.17	<17.4
IGF-1 (ng/ml)	57	88.3-210
LH (mIU/ml)	0.1	2.8-6.8
FSH (mIU/ml)	0.395	2.3-11.8
Prolactin (µIU/ml)	614	86-324
Cortisol (nmol/ml)	88.87	171-536
ACTH (pg/ml)	11.52	9.7-48.8
Growth hormone (ng/ml)	0.1	0.03-2.47

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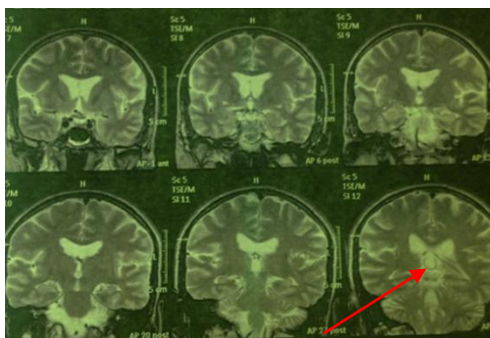


Figure 1. Brain MRI of pituitary gland before target therapy (arrow shows pituitary metastasis)

In his pathology report was reported renal cell carcinoma (RCC) (clear cell type). In computed imaging staging was detected multiple lesions in both lungs and in the bone scan was involved L12 and L1 vertebrates. He was treated with a combination of antiangiogenesis drug (Avastin® or bevacizumab) 600 mg per month and kinase inhibitor (Sutent® or sunitinib) 50 mg/D for four

weeks with two weeks rest for 6 months. At final evaluation, the lesions were cleared of sella turcica (Figure 2) and in lung computed tomography (CT) nodules on lungs decreased significantly in size. Until June 2014, he was well and under treatment with Sutent® 50 mg/D and sirolimus 1 mg /D.

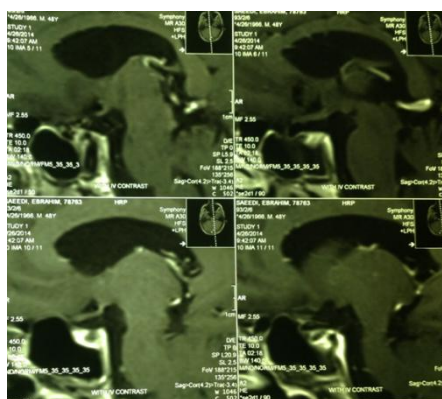


Figure 2. Brain MRI of pituitary gland after six months of target therapy

## Discussion

Metastatic tumors involving the pituitary gland are an uncommon finding and occur in up to 1% of all pituitary tumor resections (3). Two-thirds of pituitary metastases are from breast and lung cancer, although metastases from almost all malignancies have been reported. Additionally, RCC is a primary cancer in only 2.6% of pituitary metastases (4).

A study (2) reported that 45.2% of patients with pituitary metastasis had diabetes insipidus, whereas, it is less prevalent (24%) in patients with pituitary metastases from RCC compared with other metastatic tumors. Our patient referred to clinic with signs of diabetes insipidus.

Two studies (1,4) reported that there were a few cases of pituitary metastasis from RCC in the literature,

and also we reviewed in among of other studies that found the trans-sphenoid surgery was used as the first line therapy in patients refused the surgery, stereotactic radiotherapy was performed. Two studies showed that sunitinib was effective and safe in metastatic RCC patients with brain metastasis (5,6). Also, a study (7) reported that bevacizumab uses for pituitary metastasis. Herein, in our case, an RCC patient with pituitary, lung and bone metastasis had a complete response to targeted drugs (sunitinib and bevacizumab) without pituitary surgery or radiotherapy and combination of two drugs with each other cleared all of the lesions in pituitary and decreased the lesions in lung significantly in size and improved overall survival in the patient.

The results of the study suggested that first of all, pituitary metastasis from RCC is a rare case. Second,

signs of diabetes insipidus are public in pituitary metastasis. Third, treatment with targeted drugs (combination of bevacizumab and sunitinib) without surgery or radiotherapy is better than other treatment in patients with metastatic RCC.

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