

# Solitary Choroid Plexus Metastasis of Clear Cell Renal Carcinoma 11 years after nephrectomy : A case report

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## Case Report

**Keywords:** Renal Cell Carcinoma, Choroid plexus tumor, Brain metastasis, Intraventricular tumor

**Posted Date:** November 8th, 2021

**DOI:** <https://doi.org/10.21203/rs.3.rs-1054679/v1>

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# Abstract

Brain metastasis are the most common intracranial tumours amongst adults. While brain metastasis of Renal cell carcinoma (RCC) are less common, intraventricular localisation is particularly rare. There are few small series and mostly case reports which have noted intraventricular involvement of RCC metastasis. Here we report a new case of Solitary choroid plexus metastasis of clear cell renal carcinoma 11 years after nephrectomy.

It's about a 51-year-old patient, diagnosed with renal tumor in 2010 and a nephrectomy was performed. He presented with a frontal syndrome consecutive to a left frontal intraventricular tumor with ipsilateral ventricular dilation. He was operated on for a complete excision of this tumor. Histopathological examinations revealed a metastasis of clear cell renal carcinoma. He underwent 3 radiosurgery sessions one month later. At 6 months of follow-up, he has described an important clinical improvement, mainly of his frontal syndrome.

BM secondary to RCC tend to be located in the ventricular system with close association to the choroid plexus. Early detection of brain metastases, and a therapeutic strategy including surgery and radiosurgery can offer patients an extended survival.

## Introduction

Brain metastasis (BM) which commonly arises in patients with lung cancer, breast cancer and melanoma are the most common intracranial tumours amongst adults. While brain metastasis of Renal cell carcinoma (RCC) are less common, intraventricular localisation is particularly rare. There are few small series and mostly case reports which have noted intraventricular involvement of RCC metastasis.

## Case Presentation

51-year-old patient, diagnosed with renal tumor in 2010 and a nephrectomy was performed. He presented confusion, memory loss and concentration disorders during 4 months. Nevertheless, a weakness of his right half-body was noted by the patient since two months without any signs of HTIC or comitiality. Clinical examination showed a delirium, memory disturbances and aphasia with a lack of words and dysarthria, without motor deficit. A brain MRI was done showing a left frontal intraventricular tumor with ipsilateral ventricular dilation (Figure 1). The CT-TAP didn't show a suspicious lesions. He was operated on April 2021 for a complete excision of this tumor. Histopathological examinations revealed a metastasis of clear cell renal carcinoma. He underwent 3 radiosurgery sessions one month later. At 6 months of follow-up, he has described an important clinical improvement, mainly of his frontal syndrome.

## Discussion

The most common intraventricular tumor in adults is meningioma, whereas choroid plexus papillomas, carcinomas, and ependymomas tend to appear in children and young adults (3% of all intracranial tumors in children and 0.5% in adults)[1]. Intraventricular metastasis is rare. Usually the metastasis of the brain is present by multifocal intraparenchymal lesions. It is rare to have only one metastatic lesion at the choroid plexus (CP).

Metastases to the CP are mostly reported as series of autopsied patients. Schreiber *et al.* *Study with 737 autopsied cancer patient* described only 19 cases (2.6%) of choroid plexus metastasis. Only one of these cases is a single metastasis of the choroid plexus (0.14%)[2]. In Japan Brain Tumor Registry, 37 cases (0.9%) of metastases to the lateral ventricle are observed among 3917 cases of brain metastasis.

RCC Metastases to the brain are described in less than 15% of cases, and metastases to the choroid plexus tended to be a relatively late complication of the disease. When the brain metastasis occurs, the prognosis is worst with a median survival of 1 - 3 months in untreated patients [3]. After brain surgery, a median length survival of 12.6 months has been reported.

A study conducted by Shapira el Al. [4] proved that BM secondary to RCC tend to be located adherent to the choroid plexus in the ventricular system. The reason for this association is still unknown. however, it may be related to chemokine-based homing processes, which play a key role in a wide range of physiological processes during brain development [5]. Another study suggest a relationship between immunohistochemical expression of RCC marker and other papillary carcinomas like papillary choroid carcinoma [6].

The mean time interval to initial metastasis after nephrectomy is 47 months (range 5–189 months, 132 months in our case). A very slight male versus female predilection was demonstrated with a predilection for the right lateral ventricle. Our case is male but with a left sided localisation.

On CT scan and MRI scan, CP metastases from RCC show strong homogeneous contrast enhancement with surrounding vasogenic oedema. Jelinek *et al.*[7] demonstrated that metastatic tumors are frequently found around the foramen of Monro or in the body rather than in the trigone of the lateral ventricle and that is important to make a differential diagnosis from meningioma, which occurs most frequently at this site. An Intra and/or peritumoral flow-voids are also reported that they are relatively characteristic of brain metastasis from RCC. In the present case, the intraventricular mass was, at first, interpreted as an hemangioblastoma because of absence of peritumoral oedema and the vascular character with unhabitual bleeding during surgery.

Intraventricular tumours are in close association with the choroid plexus and are fed by choroidal vessels. Thus, when contemplating a surgical approach, early control on these vessels is important. Although, preoperative embolization of choroid plexus tumours could be a good solution to minimize bloodloss and facilitate complete tumour removal [8].

The indication of radiosurgery is still be dicussed. Sheehan et Al. conducted a retrospective review of 69 patients undergoing stereotactic radiosurgery for a total of 146 renal cell cancer metastases[9]. They found that that Stereotactic radiosurgery for treatment of brain metastasis of renal cell carcinoma provides effective local tumor control in approximately 96% of patients and a median length of survival of 15 months. Our patient underwent radiosurgery after surgical complete excision.

## Conclusion

BM secondary to RCC tend to be located in the ventricular system with close association to the choroid plexus. Early detection of brain metastases, and a therapeutic strategy including surgery and radiosurgery can offer patients an extended survival.

## Abbreviations

RCC : Renal Cell Carcinoma

BM : Brain Metastasis

MRI : Magnetic Resonance Imaging

CP : Choroid Plexus

## Declarations

*Funding* : None

*Conflicts of interest*: The authors declare no conflict of interest

*Ethics approval* : Not applicable

*Consent to participate* : Not applicable

*Consent for publication* : Not applicable

*Availability of data and material* : Not applicable

*Code availability* : Not applicable

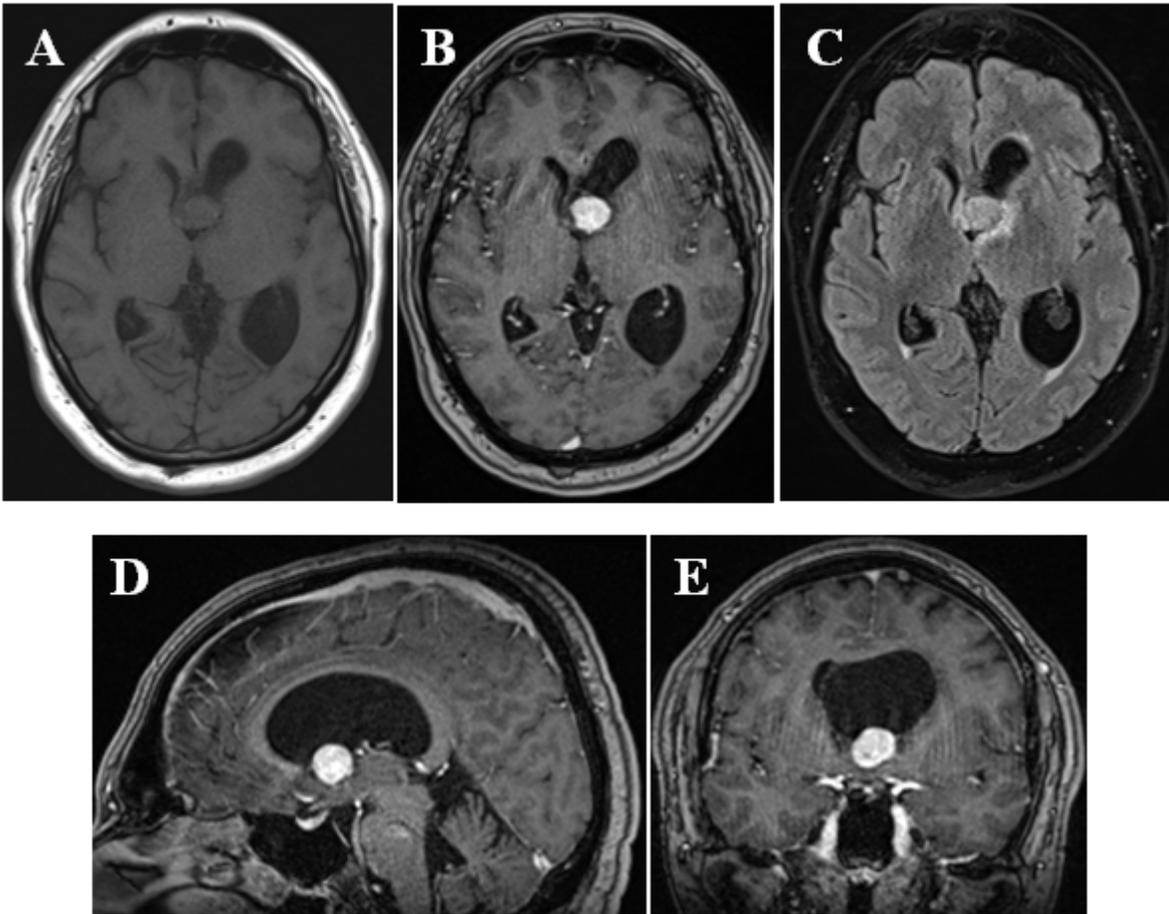
*Authors' contributions* : All authors contributed equally to the manuscript and read and approved the final version of the manuscript.

*Patient consent* : The patient consented to participate and publish their clinical data

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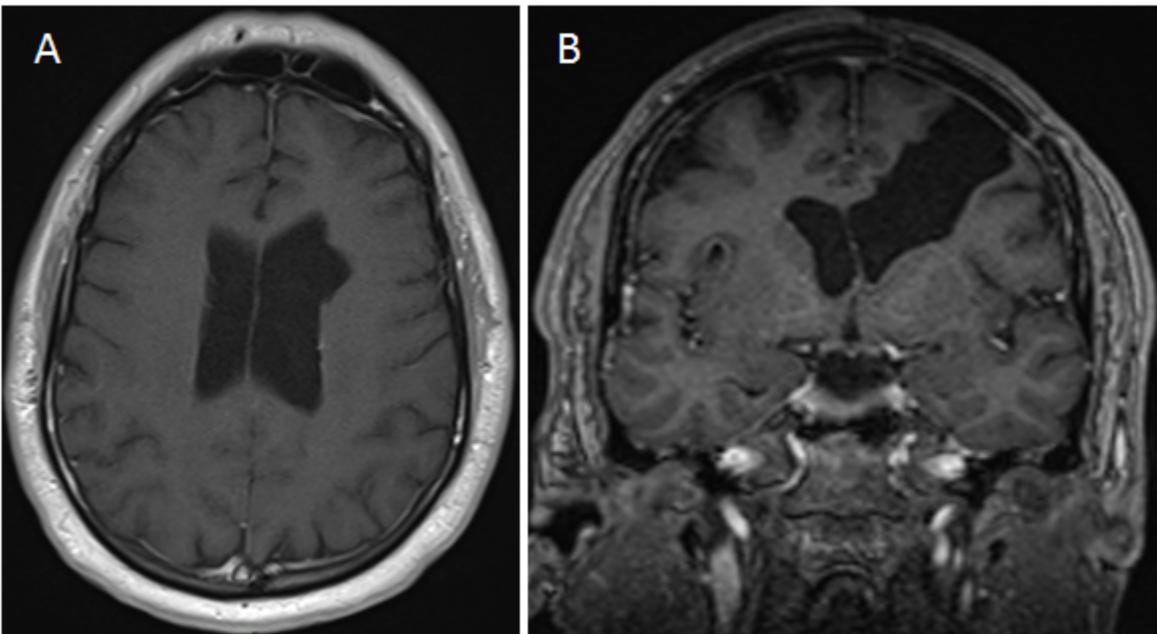
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## Figures



**Figure 1**

Brain magnetic resonance imaging (MRI) axial T1WI without gadolinium (A), axial T1WI with gadolinium (B), axial T2WI FLAIR (C), sagittal T1WI with gadolinium (D), coronal T1WI with gadolinium (E) showing preoperative imaging.



## Figure 2

Brain magnetic resonance imaging (MRI) axial T1WI with gadolinium (A) and coronal T1WI with gadolinium (B) showing postoperative imaging.