

CASE STUDY

Multiple Intracranial Germinomas: A Case Report

Abdelhamid Jehri¹, Salma Lahlou¹, Karim Baayoud^{1,*}, Abderrazak Bertal^{1,2},
Khadija Ibahioin^{1,2}, and Abdelhakim Lakhdar^{1,2}

ABSTRACT

Germinomas are malignant tumors derived from primitive germ cells located in the midline structures of the brain, namely the pineal and/or sellar region. We report a case of multiple localization of germinoma in a 21-year-old patient with moderate headache of progressive onset; complicated by bilateral ptosis, right hyperacusis and swallowing and walking disorders. Brain MRI showed multiple diffuse nodular lesions above and below the tentorial level. Tumor markers screened in the blood were negative. The patient underwent an endoscopic biopsy and a ventriculoperitoneal shunt. Anatomopathological and immunohistochemical examination confirmed the diagnosis of germinoma. The postoperative evolution was favorable and the patient was scheduled for adjuvant treatment with chemotherapy and radiotherapy. Metastatic germinomas are sensitive to radiotherapy and chemotherapy. The surgical approach is mainly used for histological diagnosis.

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¹Department of Neurosurgery, Ibn Rochd University Hospital, Morocco.

²Laboratory of Research on Neurology, Neurosensory Diseases and Disability, Faculty of Medicine, Hassan II University, Morocco.

*Corresponding Author:
e-mail: kbd9684@gmail.com

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1. INTRODUCTION

Germinomas are primary malignant tumors derived from neuronal germ tissue cells. They account for around 2/3 of intracranial neoplasms [1], [2] and around 2% of all brain tumors. The pineal area is the most frequent location, but they can develop all along the midline structures and even present as multiple lesions in different locations at the same time, including the suprasellar area, the pineal area and the basal ganglia. We present here a case of multiple germinomas.

2. OBSERVATION

This is a 21-year-old man, without any particular pathological history, right-handed, who presented with moderate headaches of progressive onset complicated by bilateral ptosis, right hearing impairment, swallowing disorders and finally walking disorders and speech heaviness.

Clinically the patient was conscious, with a static and kinetic cerebellar syndrome, a pyramidal syndrome, a divergent left strabismus, and cafe au lait spots.

The brain MRI (Fig. 1) showed multiple diffuse nodular lesions above and below the tentorial level, enhancing after injection, with triventricular hydrocephalus. The patient

underwent a ventriculoperitoneal shunt because the floor of the third ventricle was infiltrated, preventing the realization of a ventriculocisternostomy.

A biopsy was also performed showing a germinoma in an anatomopathological study. The postoperative evolution was marked by the regression of intracranial hypertension syndrome with a stable appearance of the tumor (Fig. 2).

3. DISCUSSION

It is worth noting that multiple-site germinomas are a rare occurrence, accounting for only 5%–10% of germinomas. As per the existing literature, there have been only 16 reported cases of this ailment [3].

The clinical symptoms of multiple germinomas depend on the location and size of individual tumors. If the tumors affect the thalamus, brain stem, or basal ganglia, related symptoms will occur [4].

A cranial CT scan typically displays a circular or lobulated well-defined growth, which appears either isointense or hyperintense after the injection of contrast medium. On brain MRI, the tumor has an isointense appearance in T1 and an iso or hyperintense appearance in T2. Additionally,



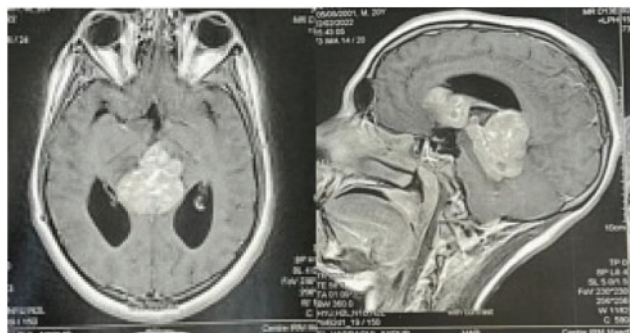


Fig. 1. Cerebral MRI in injected T1 axial and sagittal slices.

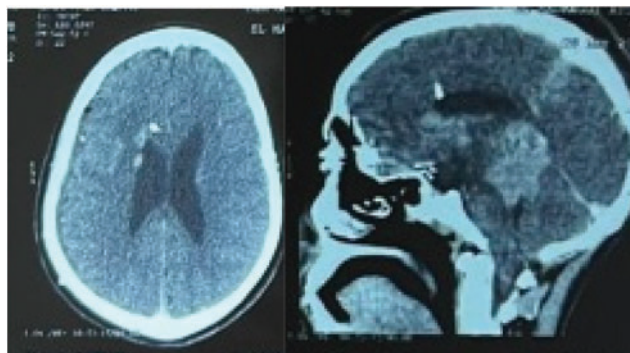


Fig. 2. Cerebral scanner injected in axial and sagittal sections.

it shows even enhancement after the injection of gadolinium contrast [3], [5].

Hydrocephalus can occur due to the narrowing of the Sylvius aqueduct near the pineal region. To check for a spinal location, it is recommended to perform a spinal MRI along with imaging. Germinoma usually has a fleshy component, and in 4% of cases, it also has a cystic component. In suprasellar cases, cysts are found in around 50% of cases, and in 90% of cases involving the base of the skull. Germinomas that occur in multiple sites are usually larger due to their high potential cell proliferation [4], [6].

Intracranial germinomas are a type of cancerous tumor that can be effectively treated with chemotherapy and radiotherapy. If the tumor markers show positive results, then adjuvant treatment with chemotherapy and radiotherapy can provide good outcomes. However, if the levels of tumor markers are not significant, a stereotactic biopsy may be necessary to obtain histological evidence. It is important to note that the presence of β HCG is a significant marker to consider [4].

If the tumour markers cannot be identified, it is advisable to opt for a tumour biopsy. Intracranial germinomas are cancerous tumours that respond well to chemotherapy and radiotherapy treatment. Positive tumour markers indicate that adjuvant therapy with chemotherapy and radiotherapy can yield good outcomes [5].

If the levels are not significant, a stereotactic biopsy may be considered to obtain histological evidence [7].

Ideally, hydrocephalus should be treated with ventriculocystostomy to prevent contamination of the peritoneum by tumour cells. Ventriculoperitoneal shunting can lead to such contamination.

4. CONCLUSION

The management of multiple germinomas must be based on multidisciplinary consultation between neurosurgeons, radiologists and radiotherapists.

CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.

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