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Case report

Hypophyseal metastases: A report of three cases and literature review

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ABSTRACT

Metastatic tumours to the pituitary gland are rare. The most frequent are metastases from breast and lung. We describe three patients with metastatic tumours: (I) a 54-year-old patient with metastatic renal clear-cell carcinoma and consequent disturbances in visual acuity, cranial nerve paresis and panhypopituitarism, (II) a 60-year-old patient with a diffuse large B-cell lymphoma with panhypopituitarism and diabetes insipidus and (III) a 57-year-old patient with metastasis of breast cancer and panhypopituitarism, visual impairment and cranial nerve paresis. A transnasal endoscopic biopsy and resection of the tumour was performed in all patients, followed by the oncological treatment. Despite the rarity of the disease, it is important to suspect a metastatic pituitary tumour especially in the case of diabetes insipidus, ophthalmoplegia, rapid course of the disease and headaches. In 20–30% of patients, a metastasis to the pituitary is the first manifestation of a tumour of unknown origin. Surgical and adjuvant therapy may improve the quality of life. The survival is not affected, however, and the prognosis of the disease is usually poor.

1. Introduction

Metastatic pituitary tumours are rare complications of malignancy, representing only 1% of surgical tumours of pituitary gland. They are usually encountered in elderly patients with disseminated malignant disease [1,2]. The most frequent are metastases of breast and lung cancer. The incidence of metastatic pituitary tumours is increasing in the last decade due to the improved diagnostics, advances in oncological treatment and longer survival of patients with malignant tumours [3]. In 20–30%, the metastatic tumour to pituitary may signify the first manifestation of a malignant tumour of unknown origin and therefore requires a comprehensive diagnostic workup. There are, however, no clear criteria to distinguish between a pituitary adenoma and a

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metastatic tumour [4]. This report illustrates three patients with metastatic tumours of various aetiologies to the pituitary gland. The biopsies and resections of the tumours were performed through a transnasal endoscopic approach.

2. Presentation of patients

2.1. *The first patient*

In a 54-year-old lady, a nephrectomy due to a renal cell carcinoma was performed six years ago. After a period of stable clinical condition, the disease has eventually relapsed with fatigue, abdominal pain, general wasting and weight loss. The computer tomography (CT) of the chest and abdomen showed metastases in the pancreas and lungs. Three weeks before admission to the neurosurgical department, the patient has inadvertently lost 8 kg and started to experience a burning pain in the eyes and extensive lacrimation, followed by the right eyelid ptosis, worsening of visual acuity with double vision and headache. Imaging of the head showed a tumour in the pituitary gland of 2.5 cm in diameter with the destruction of surrounding bone and tumour invasion into the right parasellar space (Fig. 1).

In clinical examination, severe amblyopia was evident, more pronounced on the right eye (the visual acuity was 0.2 with right-sided visual field defect only on the right eye), paresis of the right oculomotor and abducent nerve and panhypopituitarism. The hormone profile was characteristic for panhypopituitarism. The levels of blood glucose and serum electrolytes were still within the normal range. The fluid balance was not affected. The patient has received hormone replacement therapy and as a result of progressive deterioration of vision, a decompressive operation was indicated. Through a transnasal endoscopic approach, the tumour was extensively reduced. Histology confirmed the metastasis of renal clear-cell carcinoma. Postoperatively, the visual acuity improved bilaterally, while the paresis of ocular nerves and panhypopituitarism persisted. The pain in the eyes as well as the excessive lacrimation gradually subsided. After the operation and recovery, radio- and chemotherapy followed. On the control imaging of the head after surgery, there was no tumour residue visible (Fig. 2). The same clinical status persisted also three months after surgery during the follow-up, when no signs of relapse in the pituitary were documented. The survival time of the patient was eight months.

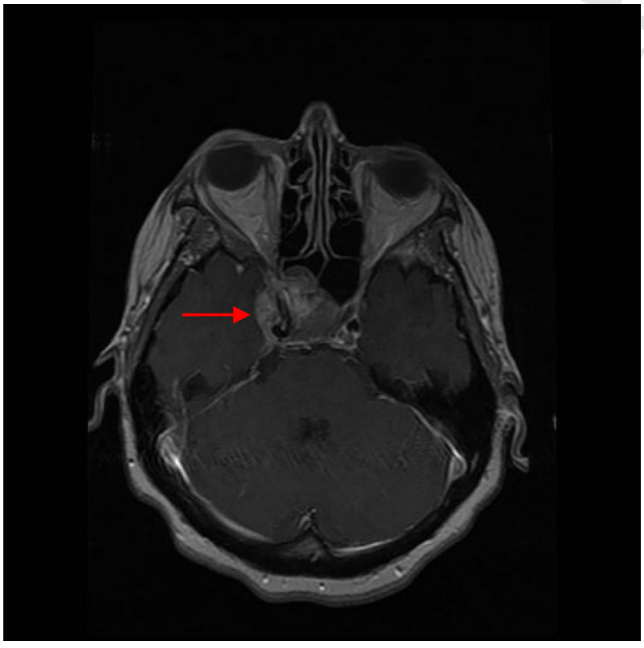

Fig. 1 – The first patient before surgery. MRI reveals a tumour of the pituitary gland (histologically metastasis of renal cell carcinoma), destructing the surrounding bone and invading to the right parasellar space (arrow).

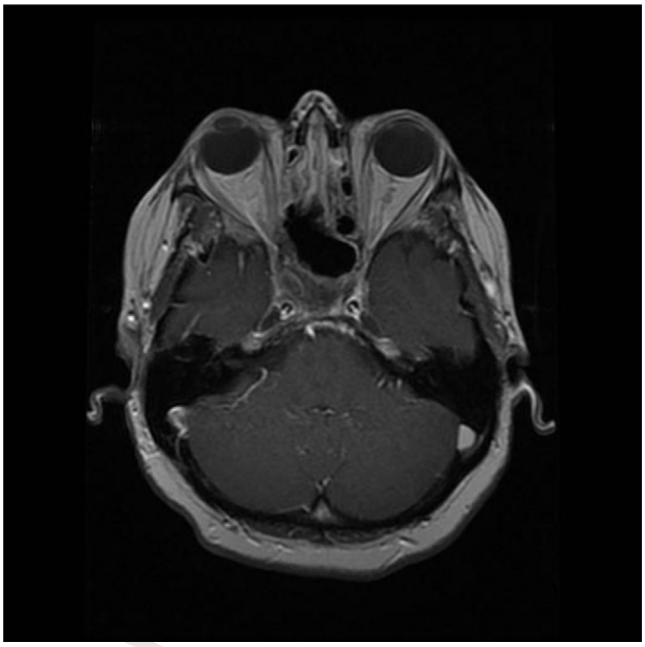

Fig. 2 – MRI of the head after the surgery with postoperative changes and without residual tumour.

2.2. *The second patient*

One month before the admission, a 60-year-old man started to experience fatigue, weight loss, night sweats, pain in the mid abdomen and below the right costal arch, often followed by nausea, vomiting and dizziness. A CT scan of the abdomen showed a lesion in the adrenal glands. Extended diagnostics revealed cystic lesions in the liver, calcified oesophageal lymph nodes and leukopenia. A CT-guided puncture of the right adrenal gland was performed and the histological examination confirmed a diffuse large B-cell lymphoma. Laboratory tests pointed to the hypopituitarism with impaired function of the adrenal, thyroid and gonad axis. Magnetic resonance imaging (MRI) of the head showed a tumour of the pituitary gland, spreading to the suprasellar space and compressing the optic chiasm (Fig. 3). The neurological status, including vision, was normal. Through a transnasal endoscopic approach, a biopsy of the intrasellar tumour was done. The postoperative course was good. Histology confirmed a

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