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CASUISTIC PAPER

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Granular cell tumor of the neurohypophysis – a case report

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ABSTRACT

Introduction. The granulomatous tumor (GCT) is formed from the posterior pituitary (neurohypophysis) or its pedicle. The location of such a tumor in the region of the Turkish or supra saddle is a very rare matter.

Aim. To present a case report.

Description of the case. This article describes the case of a 39-year-old man admitted to the Department of Neurosurgery with a MR-diagnosed head tumor in the suprasellar area growing out of the pituitary funnel. The tumor appeared to be an epileptic fit.

Conclusion. Herein we described a clinical case of granulomatous tumor. GCTs in the pituitary nerves are benign tumors, which makes treatment dependent on the individual case. After the operation, the H-P study showed a granulomatous tumor (GCT) of the posterior pituitary gland.

Keywords. granulomatous tumor, pituitary gland, MRI, Turkish saddle

Introduction

Pituitary tumors are a frequent abnormality, often noticed accidentally in routine imaging using magnetic resonance. These tumors are largely mild, but they can cause clinical symptoms related to the effect of mass, opacity of the visual junction, excessive hormone secretion or pituitary insufficiency.[1] Tumors of the Turkish saddle and its surroundings are a very heterogeneous group of changes of various origins. The endocrine symptoms, which are often the first and longest manifestation of the disease, are specific for this location. The neurological symptoms are dominated by visual and ocular disorders, therefore patients usually go to an ophthalmologist. Due to slow growth, the symptoms are small or underestimated, and at the time of diagnosis the tumor is already large.[2] Therefore, the recognition and treatment of these tumors requires a coordinated interaction between a neurosurgeon, endocrinologist, ophthalmologist, neurologist.[1] Pituitary tumors are classified in four ways: on the basis of size, endocrine

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function, clinical symptoms and histological structure. With regard to size, it is assumed that the microadenoma is a tumor with a diameter of less than 1 cm. If microadenomas cause clinical symptoms, it is usually due to excessive hormone secretion, whereas macroadenomas they usually cause a symptom through the compression of normal secretory or nervous structures. The second axis of classification is hormonal activity or its lack. According to this, tumors are divided into secreting or non-secreting ones. Usually, the first two characteristics are used from the general classification because most of these tumors are histologically mild and clinical symptoms generally reflect the size of the tumor and its endocrine function.[1]

The granulomatous tumor (GCT) is formed from the posterior pituitary (neurohypophysis) or its pedicle.[3] The first described the tumor of Boyce and Beadles in 1893.[4] GCT operated under different names - pituicytoma, infidibuloma or choriostoma because its origin was unknown.[5,6] Currently, after the new classification in 2016, the WHO classification of central nervous system (CNS) included pituicytoma and GCT tumors as separate types of OUN tumors of the Turkish saddle region.[8] GCT is a cancer that is very rare in adults, occurs more often in women, in the 4th or 5th decade of life, and is rarely a symptomatic tumor.[7] It consists of large cells rich in cytoplasm containing eosinophilic PAS-positive granules and centrally located small nucleus. Cancer cells are characterized by the expression of NSE, S-100 proteins, while they are GFAP- and cytokeratin-negative. The mitotic index is very low. 1 The granulomatous tumor of the posterior pituitary gland is defined as a low-grade tumor.[8] In previous studies and reports, there are no definite specific images in radiological studies that can distinguish GCT from other cancers in the Turkish saddle region.

Description of the case

A 39-year-old man admitted to the Department of Neurochirugia with a tumor diagnosed in the MRI of the supra-horn area and an ambiguous change that strengthens after contrast in the left temporal lobe. In the history of alcohol dependence syndrome, congenital glaucoma, facial-cranial trauma. A tumor diagnosed in July 2010 during hospitalization in the Department of Neurology, where he was ill after the first epileptic seizure. He did not consent to surgical treatment at that time. In February 2011, another epileptic seizure. Control magnetic resonance imaging of the head without differences compared to the previous one. He consented to surgery. On the day of admission to the Department of Neurosurgery in neurological examination the patient: conscious, in logical contact, meets the right eye blindness (residual state after congenital glaucoma), field of vision and eye bottom in the norm, without limb paresis, walking alone. The profile of hormonal tests in the field of norms.

On February 14, 2011 the patient was operated on: the right-sided pseudorabic cordiotomy was subtotalously removed from the suprasellar area. The tumor had a purse, it grew from the pituitary funnel, did not grow into the Turkish saddle. The tumor fragments joined together with the internal carotid artery were left. There was no association with the change depicted in the magnetic resonance imaging seen in the left temporal lobe. After the surgery, the patient woke up properly, and in the neurological examination it was found as before the procedure. In the postoperative course, symptoms of diabetes insipidus and hypothyroidism. In histopathological diagnosis (preparations contain fragments of tumor formation; whose microscopic image indicates granular cell tumors of the neurohypophysis (GI WHO). Endocrine deficiency supplements were included after endocrine consultation. Written home in good general condition with control recommendations in Neurochirugal, Endocrine and Outpatient Clinic ophthalmology.

Discussion

Although the GCT tumor is rarely described in the medical literature, it can occur quite often undiagnosed. The 1999 work of Tomita and Gates, based on a post-mortem examination of the pituitary, revealed in 100% of cases in 9% of cases of a small GCT tumor, without clinical symptoms during life.[9] Therefore, they are rarely detected in the general population if they do not cause clinical symptoms which results in tumor removal and confirmation in the H-P study of the final diagnosis.[9,10] These data suggest slow tumor growth and the emergence of clinical symptoms only at the final stage of growth.[11] The GCT neurohypofisis tumor is derived from pithycytes which are neurohypofisis and pituitary gliocyte transformed gliocytes. Expression of TTF-1 (thyroid transcription factor-1) in normal pituicytes, pituicytoma and GCT neurohypofisis suggests a common piciicytic line.[12] The best way to distinguish between the H-P pituicytoma and GCT is the lack of Rosenthal filaments and eosinophils in the case of pituicytoma.[9] The change in GCT in CT is isodense or slightly hyper-insoluble compared to gray matter before contrast administration, contrast absorption is typical, change is usually homogeneous, calcification is extremely rare. The MR image is isointense in T1 and hypointense T2, the contrast may be uniform or heterogeneous with moderate intensity.[4,5,10] In our case, the patient started radiological diagnostics of the head after the first epileptic seizure. In the MR study of the head with contrast, a 3x2.5 cm tumor with the pressure of the third brain chamber and the optic nerve intersection was strongly amplified after contrast, in the left temporal lobe not associated with the tumor of the Turkish saddle, the change was

also strengthened after 2 x 1 cm contrast. After surgical treatment and H-P score, a granulomatous tumor (GCT) emerged from the pituitary fungus. The most common symptoms of GCT neurohypophysis are visual disturbances, poluria and polysempsia, headaches and dizziness.[8] Epileptic seizure in the case of tumors near the Turkish saddle occurs in a small number of cases. Kawasaki's work shows in 4% of tumors of the pituitary seizure.[7] No data in the literature on the coexistence of tumor GCT neurohypophisis. The operation remains the treatment of choice in the case of a tumor that appears clinically or shows progression in subsequent radiological examinations, the tumor remaining in the observation.[1-10] Due to the very good blood supply to the tumor, access from craniotomy is more preferred than transcranial access.[1-18] In the case of our patient, tumor removal by craniotomy was justified taking into account tumor size and clinical symptoms.

Conclusion

The occurrence of symptomatic granulomatous tumors (GCT) of the posterior pituitary gland is very rare. Despite the fact that tumor histology is well known, histogenesis and nomenclature remains to be more precisely specified, as is the uniqueness of traits in radiological studies allowing precise determination of tumor type in the case of demonstrating a change in the area of the Turkish saddle to accurately plan the surgical procedure. Surgery remains the treatment of choice in the case of a tumor manifesting clinically or showing progression in subsequent radiological studies of the tumor remaining in the observation.

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