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LETTER TO THE EDITOR

Non-functioning gangliocytoma of the pituitary gland

Gangliocitoma hipofisario no funcionante

To the Editor:

Pituitary gangliocytomas are uncommon benign tumors (less than 100 cases have been reported to date)[1-6] with a low proliferation potential and a slow growth.

Histologically, most pituitary gangliocytomas are mixed tumors consisting of neuronal ganglion cells and an adenomatous proliferation of adenohypophyseal cells[4,7,8]; both components may occur as a single nodule or coexist as separate but adjacent tumors. Most cases are associated with hormone hyperproduction. GH is the most commonly secreted hormone[3], but prolactin[1,2] or ACTH are also produced in rare cases. However, non-functioning tumors, such as the one reported below, also occur.

We report the case of a 43-year-old male patient with high blood pressure who had undergone surgery for nodal tuberculosis at 28 years of age. The patient's father (who died from an aortic aneurysm) had been diagnosed with a non-secreting pituitary adenoma with suprasellar expansion at 60 years. The patient consulted for severe occipital headache, and an MRI of the brain revealed a round lesion in the right side of the pituitary gland, 10 mm at largest diameter, with elevation of the sellar diaphragm. The lesion was hyperintense on T2 images, showed no contrast enhancement, and was consistent with a pituitary adenoma. No clinical signs of pituitary dysfunction or hypopituitarism were found. Physical examination was unremarkable, except for grade 2 obesity (body mass index, 35 kg/m^2). Basal measurements of adenohypophyseal hormones and target organs were all normal, except for basal (8:30 h) cortisol levels of 30 µg/dL and basal ACTH levels of 72 pg/mL (normal range: 0-46 pg/mL); 24-hour urinary cortisol levels were normal, and plasma cortisol levels after dexamethasone 1 mg were less than 2 µg/dL. Complete surgical resection of the tumor was performed though a transsphenoidal approach. The pathological report described a neuroepithelial tumor consisting of mature ganglion cells arranged in groups of bipolar neurons, with stroma of non-neoplastic glial cells and reticulin fibers. At immunohistochemistry, ganglion cells were positive for synaptophysin (Fig. 1) and chromogranin. Glial cells were stained with glial fibrillary protein. No adenomatous proliferation was found. After surgery, the patient remained asymptomatic and with no radiographic evidence of residual tumor or relapse, and had no clinical signs of hypercorticoidism.

Gangliocytomas are uncommon lesions in sella turcica which are usually associated with hypersecretion of pituitary hormones[1-4] (mainly GH and, to a lesser extent, prolactin and ACTH), but endocrinologically non-functioning tumors, such as the one found in this patient, may also occur. Gangliocytoma coexists with pituitary adenoma in 0.52% of sella turcica lesions[5]. The majority of cases have been reported in women[6].

The origin of these tumors is controversial, and different hypotheses have been proposed. The first hypothesis is that pituitary adenoma results from paracrine or endocrine stimulation by the hypothalamic hormone releasing pituitary hormones, secreted by heterotopic and intrasellar ganglion cells on adenohypophyseal cells (although this would not explain why an adenoma occurs, instead of hyperplasia)[5]. The second theory postulates that gangliocytomas are formed due to neuronal differentiation of cells from a poorly granulated adenoma, but does not explain all types of

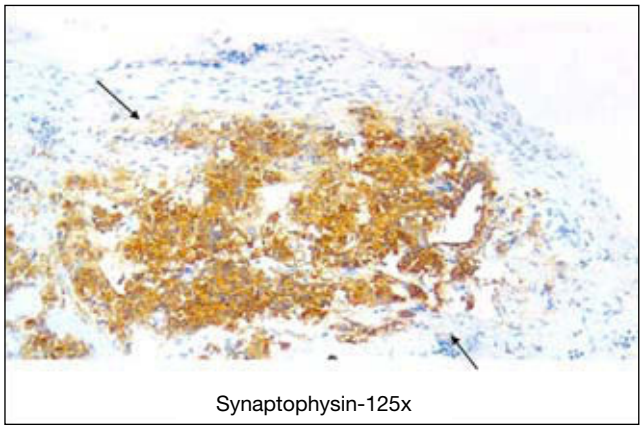

Figure 1 The image shows immunohistochemical positivity of ganglion cells for synaptophysin, thus confirming the neural origin of proliferating cells with no atypia.

tumors[2]. The third theory suggests as origin embryonic remnants containing cells with intermediate characteristics between ganglion and adenohypophyseal cells[8]. This is the most likely hypothesis because it provides the best explanation for the characteristics of both mixed tumors and pure ganglion cell tumors.

These lesions cannot be distinguished from an adenoma based on clinical, biochemical, and radiographic findings. Diagnosis is therefore made after surgery based on histological examination. Immunochemistry with neuronal and glial markers (mainly synaptophysin and specific neuronal enolase) and antibodies against pituitary hormones confirms diagnosis. Ultrastructural studies are also helpful.

Management should be the same as for an adenoma.

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