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(CASE REPORT)

Mixed corticotropic and somatotropic pituitary adenoma: A case report

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Abstract

Multi-secreting pituitary adenomas are relatively rare. The mixed somatotropic and corticotropic pituitary adenoma is very rare. The most widely described association is that coupling hypersecretion of GH and prolactin. We report the case of a patient with a pituitary adenoma bi-secreting GH and ACTH.

He was a 28-year-old patient admitted for pituitary tumor syndrome, cushing syndrome. The hormonal assessment found a dependent ACTH cushing syndrome. The otherhypothalamohypophysial axes were without abnormality. The hypothesis of a pituitary adenoma was raised. The brain scan confirmed the diagnosis by showing a macroadenoma with supra-sellar development with infiltration of the cavernous sinus. After trans-sphenoidal surgery, there was a complete regression ofcushing syndrome. The pathology examination showed a pituitary adenoma; at immunohistochemistry cells expressing anti-ACTH and anti - GH antibodies with KI 67 at 1%.

Keywords: Pituitary Adenoma; Plurihormonal adenoma; Cushing; Somatotropic

1. Introduction

Pituitary adenomas are the second leading cause of intracranial tumors (15%) after gliomas. These are benign, well-differentiated tumors with monoclonal development at the expense of the anterior pituitary, which can be responsible for serious complications, in particular endocrino-metabolic and visual [1]. Multisecreting pituitary adenomas (HA) represent approximately 10 and 15%. of all pituitary adenomas [2]. Mixed somatotropic and corticotropic pituitary adenoma is extremely rare.We report the observation of a patient having been operated on for Cushing's disease with immunohistochemistry of cells expressing anti-GH antibodies and anti-ACTH and discuss the different hypotheses of this association.

2. Case report

This is the 28-year-old M M patient with Cushing's syndrome with facial obesity, buffalo hump, purple abdominal stretch marks. The confirmation assessment:

- Urinary Free Cortisol high at 515µg / 24h (12.8-80µg / 24h) (6x normal);
- Minute braking test high at 13µg / dl (greater than 1.8µg / dl)

An etiological assessment showed an ACTH high at 66µg / dl with hypothalamic-pituitary MRI had shown a left lateral-sellar lesional process measuring 14x22x10.5mm with infiltration of the cavernous sinus on the left side with engulfment of the ipsilateral intracavernous carotid (figure 1). The diagnosis of cushing's disease was retained, the

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patient was operated on the procedure consisted of a total transphenoidal excision of the tumor, the pathological examination of the surgical specimen showed a pituitary adenoma; to immunohistochemistry, cells expressing anti-ACTH 50% and anti -GH 30% antibodies with 1% KI 67. IGF1 levels returned to normal. The immediate postoperative course was uncomplicated. Cushing's syndrome had completely regressed after 6 months. The postoperative evolution at 2 years was marked by an estimated weight gain of 5 kg, a waist circumference of 112 cm, a CLU 473.4 µg / 24h (5x the normal) with a control hypothalamic-pituitary MRI which showed a left latero- sellar lesional process infiltrating the cavernous sinus in relation to a residue measuring 14x8x12mm vs 14x22x10.5mm (figure2)

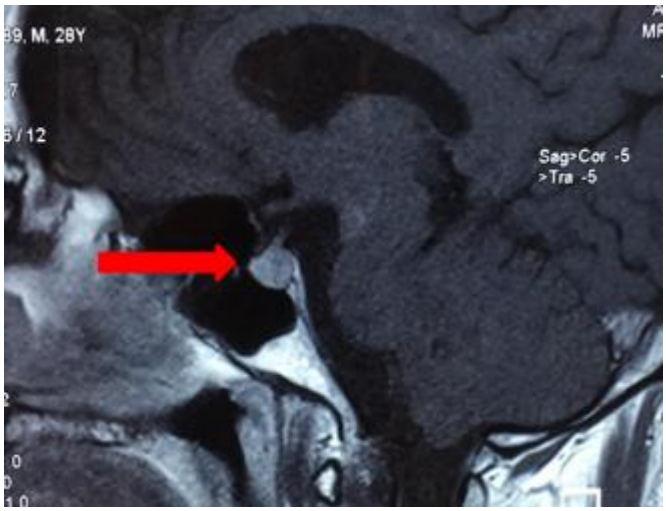

Figure 1 Sagittal section pituitary macroadenoma

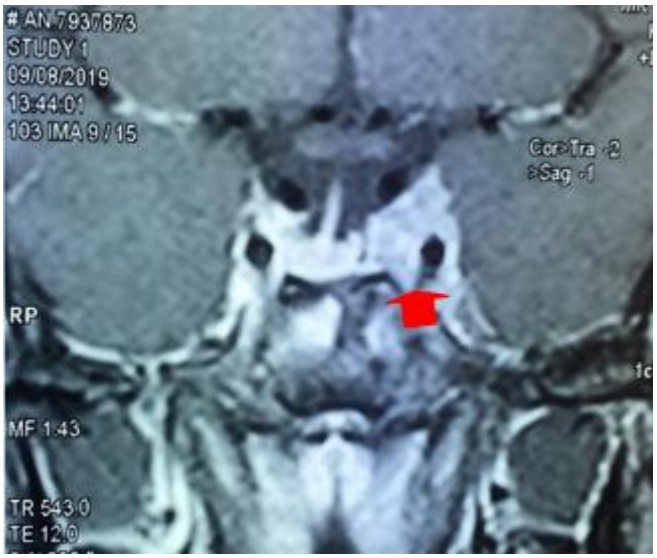

Figure 2 Coronal CT scan of the brain showing a latero-sellar lesion process infiltrating the cavernous sinus

The diagnosis of a mixed corticotropic and somatotropic pituitary adenoma has been discussed. Medical treatment with a somatostatin analogue (1 mg / month) was proposed with the prospect of alpha kinif neurosurgery and symptomatic treatment of Cushing.

3. Discussion

The combination of ACTH and GH markings is a very rare immunohistochemical entity Pituitary adenomas are classified by immunohistochemical labeling, according to their somatotropic (GH), lactotropic (PRL), gonadotropic (FSH / LH), corticotropic (ACTH) or still thyrotropic (TSH) [3]. The most common combinations of these multisecreting adenomas

include growth hormone (GH), prolactin (PRL) and one or more glycoprotein hormone subunits of b- thyrotropin ((βTSH) or follicle stimulating hormone (β-FSH), luteinizing hormone (β-LH) and subunit (αSU) [2]. The other hormonal combinations of a tumor are extremely rare.

To our knowledge, several cases of pituitary adenoma producing both GH and ACTH have been reported, but all of these cases were accompanied by prolactin hypersecretion [4]. Two (2) separate cases of somatotropic and corticotropic pituitary adenomas have been described, whose immunohistochemistry showed diffuse anti-GH and sporadic anti-ACTH antibody uptake without seeing cells expressing both hormones [5]. In our case, the tumor is a mixed adenoma made up of two distinct types of cells expressing anti-GH and anti-ACTH antibodies. Among the hypotheses put forward to explain this phenomenon, there is the occurrence of mutations during tumor progression of the somatotropic adenoma. Most pituitary adenomas are monoclonal, but it may well be that some pituitary adenomas are not monoclonal and the cause of this neoplastic transformation affects two different cells. [5] Alternatively, it is conceivable that some tumors originate from a stem cell. which, due to unknown factors, can differentiate into two separate cell types. This multidirectional differentiation could explain the development of multi-hormonal tumors.

TatsuoTomit and colleagues reported that the incidental discovery of non-functional pituitary adenomas is relatively common in adults, 24% of cases, and the coexistence of pituitary adenomas and granular cell tumors may suggest a possible histogenic link between tumorigenesis. anterior and posterior pituitary [6]. Our case was that of a young man and the hypersecretion of GH was not clinically or biologically evident by immunohistochemistry of cells expressing anti-GH and anti-ACTH antibodies. Pituitary adenomas may be revealed by pituitary tumor syndrome, hormonal hypersecretion syndrome, or anterior pituitary insufficiency. In a series of 67 cases of multisecretory adenomas, only 7% had multisecretory clinical expression [7]. Two or more hormones can also be generated by a single adenoma cell. Arita et al. And in our case, the tumors were mixed adenomas, that is, they were made up of two distinct cell types, one producing GH and the other producing ACTH [8].

The rarity of the combination of GH and ACTH could be attributed to the suppressive effect of hypercorticism on GH secretion [9]. From a therapeutic point of view, medical treatment with somatostatin analogues had been recommended in our patient with the prospect of alpha kinif neurosurgery and symptomatic treatment of Cushing. The role of somatostatin and dopamine receptors in the management of pituitary adenomas is well established. Somatostatin analogues, octreotide and lanreotide, are currently the first-line medical treatment for somatotropic adenomas. According to several studies, they control the hypersecretion of GH and IGF-1 in 65% of cases after long-term administration [10]. Thus, new molecules are in the process of development, such as new analogues of somatostatin exhibiting a binding affinity to the various sub-types of somatostatinergic receptors which is stronger and above all more universal than that of the molecules currently available (octreotide and lanreotide) or even development. a new class capable of binding to somatostatinergic and dopaminergic receptors called dopastatin or chimeric molecule [11].

4. Conclusion

In our study the tumor is a mixed adenoma composed of two distinct cell types expressing anti-GH and anti-ACTH antibodies, composed of two distinct cell populations capable of synthesizing two distinct hormones that differ in chemical composition, immunoreactivity and biological actions.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest:

The authors declare no conflict of interests.

Statement of informed consent:

Informed consent was obtained from all individual participants included in the study.

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