

Research Article

Pituitary tumors presentation: key concepts for an early clinical diagnosis

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ABSTRACT

Pituitary tumors are mainly represented by benign adenomas which arise from the adenohypophysis. Because of their pathophysiological characteristics, anterior hypophysis tumors can be generally divided in functional and non-

functional. Being familiar with both possible clinical scenarios is extremely important to detect these benign tumors in the very early phase, thus making possible an extremely positive outcome in the vast majority of cases.

Introduction

Pituitary tumors are mainly represented by benign adenomas which arise from the adenohypophysis. Tumors originating from the posterior hypophysis (pituicytomas) are rare. Because of their pathophysiological characteristics, anterior hypophysis tumors can be generally divided in functional (secreting) and non-functional (or endocrinologically inactive). This simple classification leads to two different patterns of clinical presentation different one from the other.¹ Being familiar with both possibilities is extremely important to detect these benign tumors in the early phase, thus making possible an extremely positive outcome in the vast majority of cases.

In this paper we are going to review the most important features of both patterns of clinical presentation in the early phases.

Secreting adenomas (endocrinological presentation)

About 65% of pituitary adenomas secrete an active hormone (48% prolactin, 10% GH, 6% ACTH, 1% TSH).¹

Prolactinomas

The most common secretory adenoma, accounting for about one half of all cases (functional and non-functional adenomas).² Manifestations are due to prolonged hyperprolactinemia (acute prolactinemia can be physiological condition and has no clinical consequences). We should distinguish the presentation between the two genders:

Females: amenorrhea-galactorrhea syndrome (Ahumada-dal Castello syndrome or Forbes-Albright syndrome). The clinical presentation can be subtle and generally patients refer to the GP for oligomenorrhea, irregular menstrual cycles, galactorrhea (spontaneous or expressive through squeezing on the nipples). It is important to remember that the main cause of amenorrhea in females of reproductive potential is pregnancy!

Males: galactorrhea and gynecomastia are rare (estrogens are also required) but the very early symptoms are represented by impotence and decreased libido. This presentation can be easily misdiagnosed: in fact, at the time of diagnosis, 90% of prolactinomas in females are microadenomas (< 1cm) against 60% for males.

In both genders, hyperprolactinemia is a significant cause of infertility and leads to reduced bone mineral density with increased incidence of fractures.

ACTH secreting adenomas

Persisting hypercortisolism is the pathophysiological foundation of Cushing's syndrome, while the endogenous hypercortisolism due to hypersecretion of ACTH by a pituitary adenoma is the basis for Cushing's disease. The most common cause for Cushing's syndrome is iatrogenous! Considering only endogenous causes, a pituitary adenoma is responsible for almost 80% of cases, being other possible causes adrenal hypersecretion (adenoma or carcinoma), ectopic ACTH production, hypothalamic CRH production (very rare). In the early phases, patients complain about one of the symptoms, but after a careful inspection, a constellation of signs and symptoms can be detected.^{2,3}

Sexual dysfunction with decreased libido is one of the main initial complaints (eventually with amenorrhea in women and impotence in men). Weight gain (with centripetal distribution, buffalo-hump, supraclavicular fat pad), arterial hypertension, ecchymoses and purple striae on flanks and lower abdomen are all possible presenting signs. Nevertheless, hyperpigmentation is a possible but rarely observed finding. Sometimes a psychiatric condition can be associated and, in a more advanced phase, osteoporosis and muscle wasting can become evident.

Cushing's syndrome should be considered in different clinical scenarios frequently encountered in clinical practice such as hirsutism and poor controlled diabetes.

General laboratory findings mainly include hyperglycemia and hypokalemic alkalosis.

GH secreting adenomas

Acromegaly is the constellation of symptoms due to persistently elevated levels of GH and is due in more than 95% of cases to a pituitary adenoma. Other rare case includes ectopic neoplastic secretion. If the hypersecretion starts in the children, before epiphyseal closure in the long bones, it will constitute gigantism.

Clinically, patients present with overgrowth of hand and foot size, frontal bossing, prognatism. Sometimes, cardiac findings can be the first flag (arrhythmia, valvular dysfunction, myocardial hypertrophy with concentric features, hypertension). Glucose intolerance and hyperhidrosis is very common in the first phases. Other symptoms include arthropathy, nerve entrapment syndromes, headache, greasy skin, sleep apnea and macroglossia, fatigue.⁴

TSH secreting adenomas

These rare forms produce central hyperthyroidism with the classical symptoms: palpitations (with atrial fibrillation eventually), anxiety, heat intolerance, tremor, hyperactivity. Exophthalmous is present only in Grave's disease (primary hypersecretion).⁵

Non-secreting adenomas (neurological presentation)

Hormonally inactive tumors tend to get to a larger size before detection. Non-specific symptoms include headache. Bitemporal hemianopsia is classically produced by compression of the optic chiasm. Hydrocephalus and pituitary apoplexy are rarely encountered and found only in advanced cases.⁶

An important consideration to bear in mind is that, when dealing with an underproduction of a pituitary hormone, always suspect non secreting pituitary adenoma compressing the normal gland.

Moreover, each secreting mass can compress the normally functioning gland and the specific hypersecretion and the undersecretion syndromes can be mixed in the same clinical scenario, making the diagnosis much more complex.

Conclusions

A subtle constellation of symptoms, that can easily be underestimated, is usually the early presentation of pituitary adenomas. A high suspicion index and an accurate clinical knowledge is essential to early recognize these tumors.

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