Giant plurihormonal pituitary neuroendocrine tumor

Of all the tumors reported in studies as Plurihormonal PIT-1–Positive pituitary neuroendocrine tumor (PP1) or silent subtype 3 (SS3), 99% were macroadenomas and 18% were giant pituitary neuroendocrine tumors (>4 cm) [1].

In the case series of Aydin et al. twenty-four patients (88.8%) had macroadenomas, including 6 giant adenomas (≥4 cm) (22.2%) [2].

Case reports

A 12-year-old girl with a rare plurihormonal pituitary macroadenoma secreting prolactin (PRL), growth hormone (GH), Thyroid stimulating hormone (TSH), and alpha subunit (α-SU).

The patient experienced recurrent headaches and progressing loss of vision in one eye. During the examination, abnormalities such as tall stature, coarse facial features, enlarged feet and hands, tachycardia, hand tremor, hyperhidrosis, galactorrhea, and goiter were observed. Cranial magnetic resonance imaging (MRI) revealed a solid tumor in the anterior and middle cranial fossa, measuring 80 × 50 × 55 mm. A stereotactic biopsy revealed plurihormonal Pit-1 positive pituitary neuroendocrine tumor secreting PRL, GH, and TSH. A pituitary hyperfunction with PRL, GH, TSH, and α-SU excess was diagnosed. The patient was successfully treated pharmacologically with dopamine agonists and somatostatin analogue, and a decrease of tumor volume (30%) was achieved.

When neurosurgery is not possible, long-term pharmacological treatment of Giant plurihormonal pituitary neuroendocrine tumor can be a safe and relatively effective alternative [3].

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a case of a monomorphous plurihormonal pituitary neuroendocrine tumor that co-secreted TSH and GH in a pediatric patient. A 13-year-old male presented with increasing height velocity (17.75 cm/year, 9.55SD), weight loss, and visual impairment. Initial biochemical evaluations revealed secondary hyperthyroidism. A giant pituitary tumor compressing the surrounding structures was detected by magnetic resonance, and a transsphenoidal surgery was initially performed. Pathological examinations revealed an atypical, monomorphous plurihormonal Pit-1 lineage tumor with mixed features of silent subtype 3 adenoma and acidophil stem cell adenoma. In the postoperative period, secondary hyperthyroidism recurred with high levels of both GH and IGF1. In addition, due to tumor re-growth, a multimodality treatment plan was undertaken including surgery, somatostatin analogs, and radiotherapy. We report the first pediatric case of a plurihormonal TSH- and GH-secreting pituitary neuroendocrine tumor, further expanding the clinical manifestations of pediatric pituitary tumors. Comprehensive pathological evaluation and close follow-up surveillance are crucial to the prompt delivery of the best therapeutic options in the context of this particularly aggressive pituitary tumor [4].

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