ORIGINAL RESEARCH PAPER

General Medicine

A GIANT PROLACTINOMA: A CASE REPORT

KEY WORDS: giant prolactinoma, pituitary adenoma, hyperprolactinemia.

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ABSTRACT

A 38-years-old woman presented to our hospital 2 years ago with 5-year history of reduced vision, chronic cephaleea and secondary amenorrhea. Her baseline prolactin level was 46504 μIU/mL (reference range=127-637mUI/ml) with secondary hypogonadism, and pituitary magnetic resonance imaging revealed a giant prolactinoma (4 × 2.2 × 2.6 cm3) with suprasellar extension, optic chiasma and right cavernous sinus compression. She was initially treated with cabergoline in order to reduce the prolactin level and tumoral mass, but after 6 months of medical treatment she proceed to transsphenoidal tumor debulking surgery. Prolactin level dropped in the normal range only after the addition of cabergoline treatment after surgery (1 mg/day 3 times/per week). However, the extensive tumour was not completely resectable so she remained amenorrheic requiring hormone replacement therapy as well as thyroxine replacement due to the development of TSH deficiency (free T4 6.03 pmol/L).

INTRODUCTION

Prolactin-secreting adenomas (prolactinomas) are the most common secreting adenomas of the pituitary. Giant prolactinomas, measuring >40 mm, are rare, accounting for only 1–5% of all prolactinomas [1]. Due to their large size, giant prolactinomas tend to invade adjacent structures, especially the suprasellar and cavernous sinuses, causing compressive mass effects, visual disturbances, cranial nerve palsies, and hypopituitarism [2]. As in every prolactinoma, dopamine agonists are the first-line treatment allowing rapid alleviation of neurologic symptoms in the majority of the cases, a significant reduction in tumour size in three-fourths of the patients and PRL normalization in 60–70%. These extensive tumours are usually not completely resectable and neurosurgery has significant morbidity and mortality [3].

Case presentation:

A 38-year-old romanian female patient presented with a 5-year history of blurred vision, chronic cephaleea, galactoreea and infertility. Clinically, she had bitemporal hemianopsia and reduced visual acuity for both eyes. She had no cushingoid or acromegaly features. Her baseline prolactin level was 46504 μIU/mL with low gonadotropin levels (FSH =0.62mIU/ml, respectively LH <0.1mUI/ml). The TSH (2.25 mUI/ml) and morning cortisol levels (15.02 μg/dL) were within normal limits. Pituitary MRI revealed a macroprolactinoma (4 × 2.2 × 2.6 cm^3) with suprasellar extension and optic chiasma compression (figure 1). Cabergoline was initiated at 1 mg/day thrice weekly for 6 months. Despite the adherence to dopaminergic agonist (DAs) treatment, her prolactin level dropped only to 50% from baseline level, and bitemporal hemianopsia, chronic cephaleea and secondary amenorheea persisted.

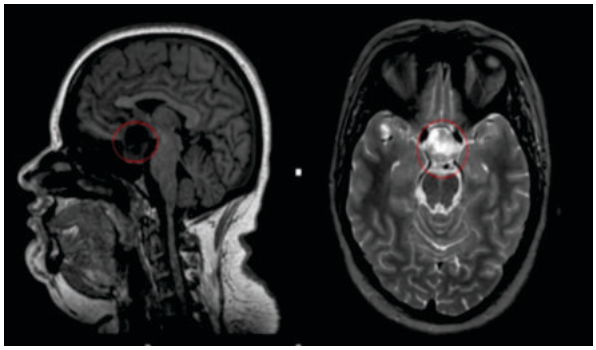

Fig. 1. Preoperative sagittal and coronal T1-weighted magnetic resonance imaging pituitary performed revealed a tumor size of 4 × 2.2 × 2.6 cm^3 with a larger suprasellar component compressing optic chiasma and right cavernous sinus.

PEG precipitation for macroprolactin ruled out macroprolactinemia. Repeated MRI after 6 months of DAs treatment did not showed a significant reduce in tumor size (3.3x2.0x2.2 cm^3). Because of the resistance to medical treatment, in January 2021 she underwent transsphenoidal surgery (TSS), when histopathology examination revealed a typical pituitary adenoma, positive for synaptophysin, with a mitotic activity of 2–3/10 HPF and Ki-67 proliferative index <3-4%. Postoperatively, her prolactin dropped to 7623,40 μIU/ml. The pituitary MRI (Fig. 2 & 3) showed an residual tumoral tissue measuring 1.2 × 0.9 × 1.1 cm^3. However, she still remained amenorrheic and hormone replacement therapy was started as well as thyroxine replacement due to the development of TSH deficiency (free T4 6.03 pmol/L).

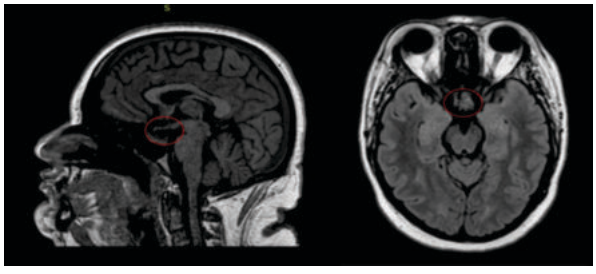

Fig. 2. Postoperative sagittal and coronal T1-weighted magnetic resonance imaging pituitary performed after the transsphenoidal surgery. The magnetic resonance imaging revealed a pituitary lesion of residual mass (size 1.2 × 0.9 × 1.1 cm3) seen mainly in the right suprasellar region.

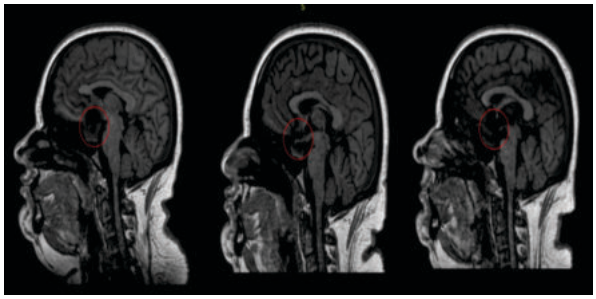

Fig. 3. Comparative preoperative (first image) with postoperative sagittal and coronal T2-weighted magnetic resonance imaging of pituitary gland after 3, respectively 12 months from the TSS (second and respectively third image).

Fortunately, under close monitoring after 12 months of DAs treatment, her prolactin continued to drop within the normal range also with downtitration of cabergoline at 2 mg weekly (fig.4). Her visual acuity improved with resolved bitemporal hemianopsia and repeated pituitary MRI showed a 30%

reduction in tumor size (0.9 × 0.7 × 0.8 cm^3)(fig.3) with asymptomatic status.

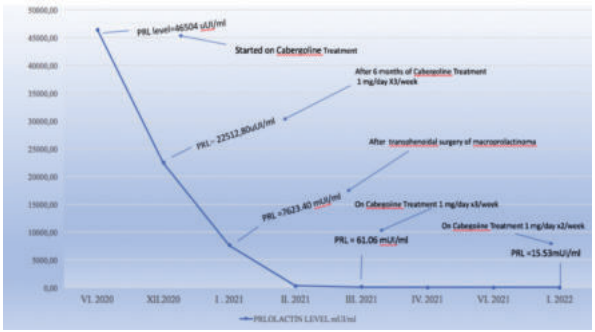

Fig. 4. Trend of PRL level preoperative and postoperative status.

DISCUSION

No reliable pretreatment predictor of tumour response has so far been identified in patients with macroprolactinomas [4,5]. It is also true that for giant prolactinomas: tumour response is not correlated with age, gender, baseline PRL level or tumour size. Giant prolactinoma are rare tumours, often raising both diagnostic and therapeutic challenges. The diagnosis is often delayed, resulting from the occurrence of neurologic complications due to massive extension into the surrounding structures, rather than unrecognized endocrine symptoms [3]. Although there is no current consensus, we define giant prolactinomas as pituitary tumours with a diameter of 40 mm or more, significant extrasellar extension, high PRL concentration usually above or equal to 1000 g/l and no concomitant GH or ACTH secretion. DAs are the first-line treatment modality with cabergoline being preferred to bromocriptine, because of its better tolerance and feasibility of administration. Cabergoline therapy has been reported to achieve normalisation of PRL levels and gonadal function and also reduction of tumour volume in > 50% of patients with prolactinoma [6]. Resistence or intolerance to DAs are main indications for transsphenoidal adenomectomy in patients with macroprolactinomas. External radiation therapy has been used in patients with poor response to medical and surgical procedures.

CONCLUSION

In conclusion our patient revealed a resistence to DAs therapy being necesary to proceed a transsphenoidal adenomectomy in order to obtained an amelioration of neurological symptoms. However, because the extensive tumour was not completely resectable, and normalisation of PRL was not obtained, she remained amenorrheic, so the patient restarted DAs treatment, combined with hormone replacement therapy and thyroxine replacement due to the development of TSH deficiency.

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