received 1 November 2023 | accepted 1 November 2023 | published 8 November 2023 (in press)

Teaching images | ARCHIVOS DE NEUROCIENCIAS

Doi: 10.31157/an.v29i2.637

GIANT INVASIVE PROLACTINOMA

Jiménez-Ruiz Amado[1] | Ayala-Alvarez Juan Carlos [1] | Riojas-Barrett Margarita [2] | Becerra-Aguiar Naomi Nazareth [1] | Gamboa-Gauna Rebeca Soledad [1] | Ruiz-Sandoval José Luis [1]

1. Servicio de Neurología, Hospital Civil de Guadalajara Fray Antonio Alcalde, Guadalajara, Jalisco, México.
2. Escuela de Medicina y Ciencias de la Salud, Tecnológico de Monterrey, Monterrey, Nuevo León, México.

Correspondence
Naomi Nazareth Becerra-Aguiar
Isla Ciclades 2409-B, Jardínes del Sur, Guadalajara, Jalisco.

naomiba2002@gmail.com

Authors of the present study have no conflict of interest to disclose.

This study received no funding from any comercial, academic or governmental entity.

Introduction

Prolactin-secreting adenomas are the most common pituitary tumors and a common cause of pathological hyperprolactinemia. Prolactinomas are classified according to their size: microprolactinomas are <1 cm in diameter and macroprolactinomas range from 1 to 4 cm. Giant prolactinomas are > 4cm. Giant prolactinomas are rare and account for only 1-5 % of all prolactinomas[1].

In giant prolactinomas, the prolactin levels are usually between 1,000-100,000 ng/mL. They may be locally aggressive leading to visual damage and ophthalmoplegia[2]. The typical clinical manifestations in men include hypogonadism, erectile dysfunction, visual symptoms, weakness, and headaches. Women usually present amenorrhea, headaches, visual dysfunction, and galactorrhea[1].

Treatment goals include normalizing hormonal levels and promoting tumor shrinkage[3] with dopamine agonists. Surgery and radiotherapy may be considered for refractory cases[4].

Keywords: *Prolactinoma, Hyperprolactinemia, Pituitary gland.*

Case presentation

A 27-year-old man with a one-year history of headache, diminished visual acuity (VA), erectile dysfunction, and decreased libido. History was remarkable for atrial septal defect with Eisenmenger syndrome and cryptogenic cirrhosis.

Physical exam revealed bitemporal hemianopsia (Optical Coherence Tomography of the optic nerve revealed loss of the nasal ganglion cells of both eyes). Laboratory testing revealed low luteinizing hormone (LH), follicle-stimulating hormone (FSH) and testosterone (0.48 mUI/mL, 0.93 mUI/mL, and 0.28 mUI/mL respectively) with elevated prolactin (PRL), >2,000 ng/mL (reference 2.64 – 13.13 ng/mL). Contrast-enhanced T1-weighted magnetic resonance imaging (MRI) revealed a giant pituitary macroadenoma measuring 35 x 42 x 51 mm (Figure 1).

We started treatment with cabergoline 0.5 mg/day twice weekly. After three months of therapy, PRL was normalized (0.48 ng/mL), and VA improved notably.

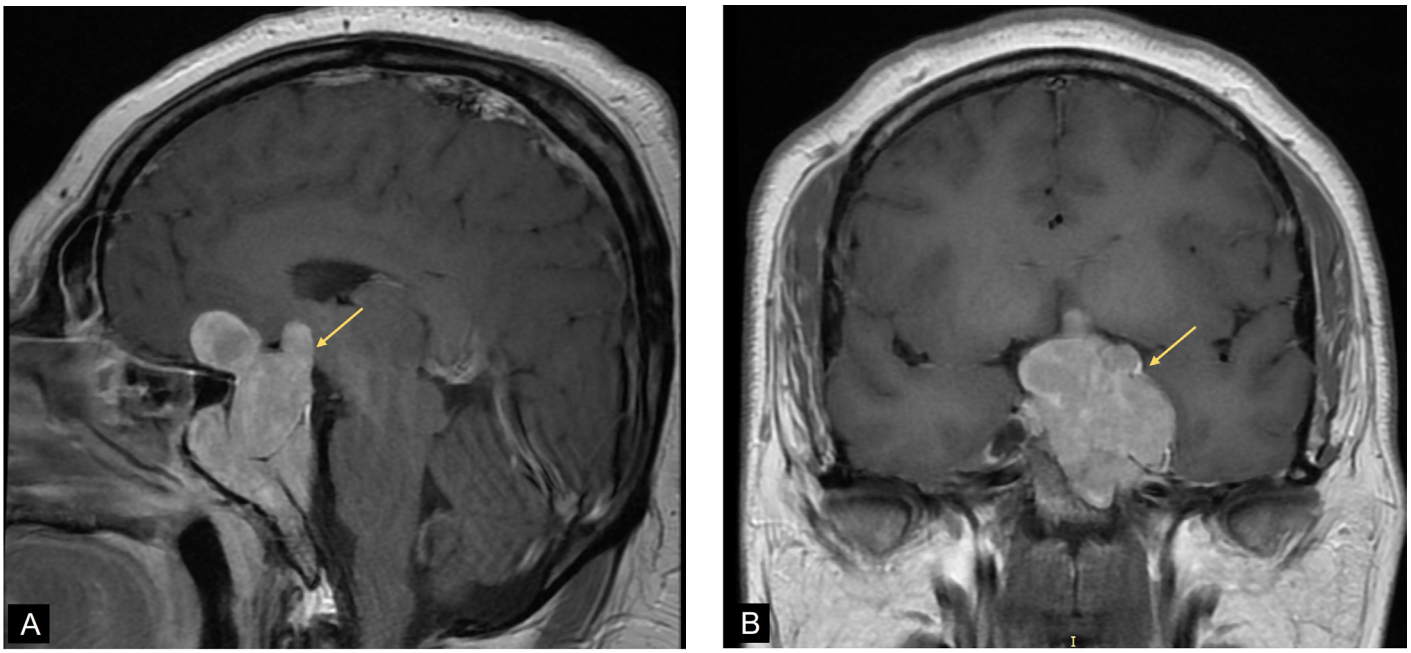

Figure 1. Panel A-B. Pituitary tumor measuring 35 x 42 x 51 mm in T1-weighted enhanced with Gadolinium magnetic resonance imaging, sagittal and coronal views.

Discussion

Our case presents an invasive giant prolactinoma with extremely abnormal prolactin levels. Our patient responded well to dopamine agonists, improving visual acuity (from 20/50 to 20/40 in the right eye, and from 20/200 to 20/100 in the left eye). The first line pharmacological treatment of giant prolactinomas are dopamine agonists such as bromocriptine, quinagolide, or cabergoline; however, cabergoline is the preferred choice due to fewer side effects, higher success rates in terms of prolactin normalization, tumor shrinkage, and decreased probability of resistance[4]. The second line treatment for most patients is surgical (transsphenoidal adenomectomy), especially in those intolerant or resistant to dopamine agonists[5].

References

1. Shimon I. Giant Prolactinomas. Neuroendocrinology. 2019;109(1):51-56. doi: 10.1159/000495184.
2. Shimon I, Sosa E, Mendoza V, Greenman Y, Tirosh A, Espinosa E, Popovic V, Glezer A, Bronstein MD, Mercado M. Giant prolactinomas larger than 60 mm in size: a cohort of massive and aggressive prolactin-secreting pituitary adenomas. Pituitary. 2016 Aug;19(4):429-36. doi: 10.1007/s11102-016-0723-4.
3. Moraes AB, Silva CM, Vieira Neto L, Gadelha MR. Giant prolactinomas: the therapeutic approach. Clin Endocrinol (Oxf). 2013 Oct;79(4):447-56. doi: 10.1111/cen.12242.
4. Chanson P, Maiter D. The epidemiology, diagnosis and treatment of Prolactinomas: The old and the new. Best Pract Res Clin Endocrinol Metab. 2019 Apr;33(2):101290. doi: 10.1016/j.beem.2019.101290
5. Inder WJ, Jang C. Treatment of Prolactinoma. Medicina (Kaunas). 2022 Aug 13;58(8):1095. doi: 10.3390/medicina58081095.