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Functioning Pitutary Macroadenoma: Case Report

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Abstract

Background: *Pituitary tumors are a common neoplasm, along with others. They make up 10% to 15% of all diagnosed intracranial tumors, 90% of which are adenomas. The majority of these tumors are benign. (1.) Clinical manifestations result from both distant endocrine manifestations that can have an impact on several organ systems and the local effect of the mass. These effects result from eith er too little or too much of a certain stimulating hormone on the target organ. Pituitary tumors can be categorized as macroadenomas (diameters greater than 1 cm) or microadenomas (diameters less than 1 cm) based on size. Another category is Depending on whether or not hormones are produced as functioning or non-functioning. (2.) The most frequently clinically observed functioning pituitary adenoma is prolactinoma. (3.)*

Case Report: *A 35-year-old female patient presented with failure to see menses for the past 5 years. Associated with that she has inability to conceive for the past 2 years with intermittent global headaches & blurring of vision of similar duration. P/E: Visual acuity: 6/6-2(ou) She had difficulty reading the first and last optotype in the same raw. confrontational visual field the patient is unable to count t he finger in the temporal quadrant in both eyes. ONH: normal cupping VCDR(0.3) ou, there is slight pallor over the temporal rim(ou).Humphrey Field Analyser 24-2 threshold plots demonstrating temporal hemianopia in both eyes. Prolactin: 928mg/dl: Head MRI: pituitary macroadenoma(3.2x3x3.7)*

Conclusion: *Although functioning pituitary adenoma represents a small percentage of pituitary tumors and is usually diagnosed early due t o the overproduction of hormones in a few instances delay might occur. The delay occurs especially in poor healthcare systems seen commonly in developing countries like Ethiopia.*

Introduction

About 15% of all primary brain tumors are pituitary tumors, which are relatively common. A large percentage of benign adenomas are nonsecretory and tend to develop in the adenohypophysis. These adenomas commonly go undetected. Silent pituitary adenomas are relatively common in the general population an overall frequency of 16.7%. (4.)

Case Presentation

A 35-year-old female patient presented with Amenorrhea for the past 5 years. Associated with that she has inability to conceive for the past 2 years with intermittent global headaches & blurring of vision of similar duration. She had her menarche at 12 years of age Otherwise no history of galactorrhea, no history of drug intake, no history of psychiatric illness, no history of chronic medical illness, and no history of head trauma. She uses non-prescription eyeglasses for glare. She had been on follow-up at a private clinic for the past 2 years but showed no improvement.

P/E: Visual acuity: 6/6-2(ou) She had difficulty reading the first and last optotype in the same raw in snell's chart; IOP: 13(od); 14(os); confrontational visual field the patient is unable to count finger in temporal quadrant in both eyes; Colour vision is normal on ischiara test; Pupil: regular, round, reactive in both eyes; RAPD: Absent(ou); Motility: full(ou); anterior segment: normal(ou); posterior s egment: ONH: normal cupping VCDR(0.3) ou, there is slight pallor over the temporal rim(ou); Background retina: attached, pi nk(ou); Amsler grid showed a positive distortion of the grid and areas of missing lines on the temporal field of both eyes; Humphrey Field Analys er 24-2 threshold plots demonstrating temporal hemianopia in both eyes.

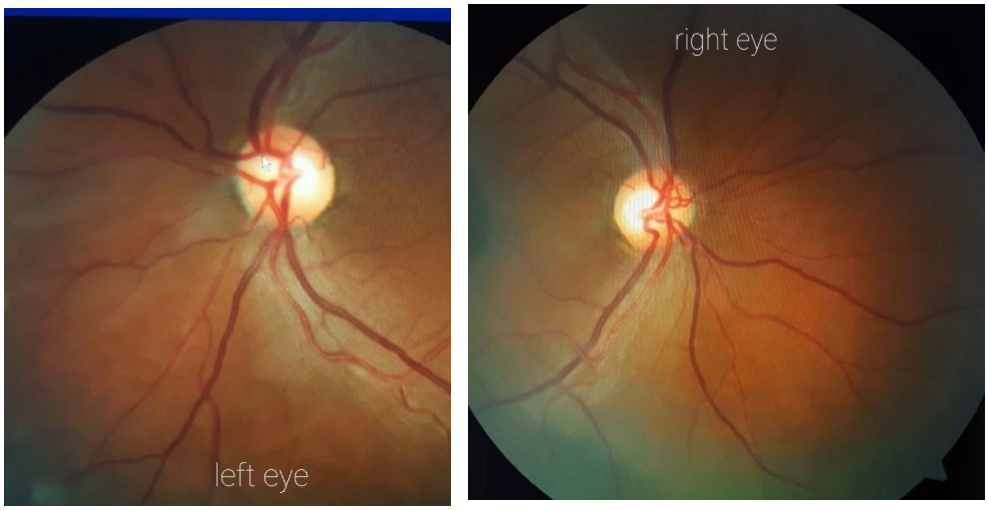
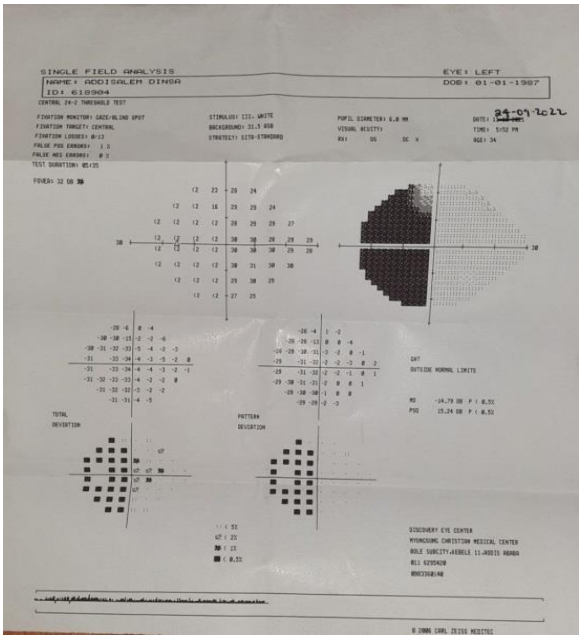
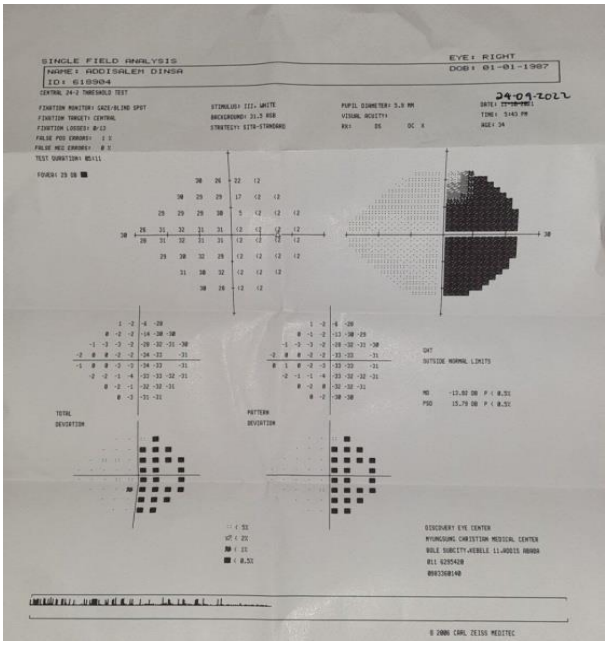
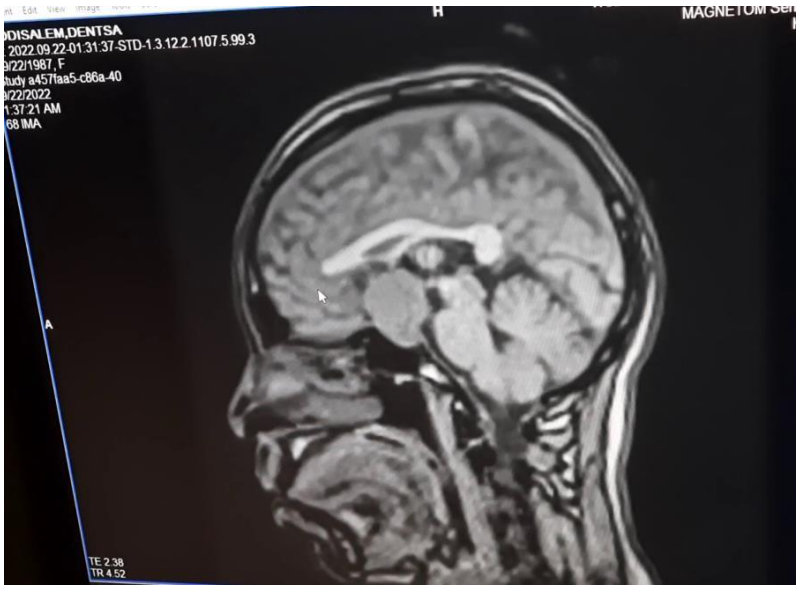


Figure 1







Systemic examination: No LAP; thyroid not palpable; female type hair distribution; no galactorrhea

Lab results:

TFT: normal; FSH: normal; Prolactin: 928mg/dl: Head MRI: pituitary macroadenoma(3.2x3x3.7) She was started on bromocriptine 1.25mg po bid for 1 week then 2.5 mg po bid.

After 1 month the patient was re-evaluated and the patient prolactin decreased to 24mg/dl; the confrontational &Humprey VF defect persisted; Her ONH still had slight temporal pallor; her menses hadn't returned yet.

Discussion

The fully developed pituitary gland is pea-sized and weighs approximately 0.5 g. (5.) The adenohypophysis constitutes roughly 80% of the pituitary and manufactures an array of peptide hormones including growth hormone (GH), thyroid stimulating hormone (TSH), adrenocorticotropic hormone (ACTH), beta-endorphin, follicle-stimulating hormone (FSH), luteinizing hormone (LH) and prolactin (PL). The neurohypophysis is not glandular and does not synthesize hormones but store vasopressin and oxytocin. The lateral aspects of the pituitary are adjacent to the cavernous sinuses that contain cranial nerves & internal carotid artery.

Pituitary tumorigenesis may be influenced by a variety of oncogene aberrations. Adenomas in the pituitary gland are caused by a variety of factors, including anomalies of the G-protein, ras gene mutations, p53 gene deletions, mutations, and rearrangements, as well as the relationship of pituitary tumors with the condition of multiple endocrine neoplasias. (6.)

Functioning adenomas are often monoclonal, which means they emit just one hormone. Approximately 1 to 2% of adenomas secrete 2 or more hormones, with growth hormone (GH) and prolactin (PRL) being the hormones most commonly elevated concomitantly. (7.)

Prolactinomas are the most common functioning adenomas. There is a direct relationship between the tumor mass of prolactinomas an d hormone production, but even tiny microadenomas can secrete enough to cause symptoms. Although galactorrhea is the usual sig n of prolactinomas, it is not consistently present.

Although the natural history of prolactinomas is unclear, most macroprolactinomas (up to 95%) do not progress to macroadenomas Hence, the patient can be monitored closely. However, if a patient with micro prolactinoma has significant effects from hyperprolactinemia, treatment is indicated. Any patient with macroprolactinoma needs treatment because the tumor has already shown a propensity to grow.

Most patients with prolactinomas are treated medically with dopamine agonists (bromocriptine, pergolide, or cabergoline).. Normalization of PRL levels occurs in 85-90% of all patients with prolactinomas. In contrast to patients with microadenomas, the resolution of hyperprolactinemia is often incomplete in patients with macroadenomas. However, the extent of reduction in tumor size is not well correlated with the changes in serum PRL levels. Nevertheless, reductions in PRL levels always precede tumor shrinkage, and patients who do not show a drop in PRL do not have any tumor shrinkage. (6.)

In our case, the patient showed normalization of PRL level before she showed any signs of tumor shrinkage clinically. She sti ll has bitemporal hemianopia, ONH pallor, Amenorrhea. The delay in diagnosis resulting in the longstanding mass effect on the adjacent tissues may be the reason why the above signs persisted.

Conclusion

Functioning pituitary adenoma represents a small percentage of pituitary tumors early diagnosis and management can result in cure especially in cases of prolactinomas. Our case shows that functioning pituitary adenoma that was diagnosed late(5 years) which resulted in infertility & visual field defect. This case is usually diagnosed early in good healthcare systems due to the early clinical signs of the hormone overproduction.

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