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A Rare Case of Visual Field Loss In A Young Female

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Abstract : *A 37 year old female presented to our Out Patient Department with complaints of visual loss in LE since 4months.Visual acuity in RE 6/6 and LE 6/60 not improving with pin hole. Anterior segment examination in RE was within normal limits LE revealed 0.3 log units RAPD. A routine confrontation test showed field defects inferotemporal field defects in BE. 30-2 HFA visual field test showed bi temporal hemifield defects. Fundus examination with 90 D in RE was normal and LE showed temporal pallor of optic disc. MRI scan revealed pituitary macroadenoma with mass effect over left optic chiasma and left optic nerve. Endocrinological reports revealed raised prolactin hormone levels suggestive of prolactin secreting pituitary tumour.*
Keywords: *Temporal pallor, Pituitary macroadenoma, Optic chiasma, Prolactinoma ,Cabergoline.*

I. Introduction

Pituitary adenomas represent from 10% to 25% of all intracranial neoplasms and the estimated prevelance rate in the general population is approximately 17%. [1] Based on its size a pituitary adenoma can be classified as a microadenoma (<10mm) or a macroadenoma (>10mm).However this classification has now been augmented by a more comprehensive system based on immunohistochemistry and electron microscopy. [2] Patients with pituitary tumours commonly present to clinics with the following symptoms:

- Fifty to sixty percent present with visual symptoms due to compression of optic nerve structures.
- The presentation of a pituitary macroadenoma relates to its mass effect and pressure on surrounding structures.
- Nonspecific headache can be seen.
- Lateral extension can result in compression of the cavernous sinuses and may cause ophthalmoplegia, diplopia, and/or ptosis.
- Talkad et al recently reported an isolated, painful, postganglionic Horner syndrome as the initial sign of lateral extension of a large prolactinoma. [3]
- Extension into the sphenoid sinuses can cause spontaneous cerebrospinal fluid (CSF) rhinorrhea.
- In addition to visual symptoms, endocrine dysfunction may be seen. Tumours that grow more rapidly, even if they are hormone inactive, are capable of producing symptoms of an intracranial mass, such as visual field disturbances. [4]

Lesions of the optic chiasma can produce a variety of visual field defects including bitemporal hemianopia, junctional scotoma (anterior chiasmal defect), quadrantanopia and bitemporal, or unilateral temporal scotoma depending on the site and extent of the lesion.[5]

Visual field improvement following resection of the pituitary tumor occurs in three stages.[6] Stage one is the early fast phase of recovery seen within few days to a week of the surgery. In a few individuals, there can be complete normalization of the visual fields. Stage two is the phase of slow recovery which is seen within a few weeks of the surgery to a few months. During this stage, the visual fields show significant and presumably slow and sustained improvement. Stage three is the late phase starting a few months after decompression to a few years. During this stage, there is minimal improvement of the visual fields. Some studies have identified improvement as long as 5 years following surgical resection. Poor prognostic signs for improvement of visual fields include dense and extensive preoperative visual field deficit,[7] pituitary tumor volume greater than 5 cc[8] and the postoperative development of a surgically "empty sella"[9] Treatment of choice must be individualized and is dictated by the type of tumor , the nature of the excessive hormonal expression, and whether or not the tumour extends into the brain around the pituitary. [10 11]

Standard treatments for patients with pituitary tumors include:

- Surgery.
- Radiation therapy.
- Medical therapy.
- A combination of surgery, radiation therapy and medical therapy.

Transphenoidal microsurgical approach to a pituitary lesions and represents a major development in the

safe surgical treatment. Progressive deterioration of visual fields is often the primary neurological criterion on which surgical management is based. [12]

Conventional radiation therapy is an effective adjunct to the treatment of pituitary tumours. [13]

Most prolactinomas respond to medical therapy. Surgery should be considered if medical therapy cannot be tolerated or if it fails to reduce prolactin levels, restore normal reproduction and pituitary function, and reduce tumor size. If medical therapy is only partially successful, this therapy should continue, possibly combined with surgery or radiation treatment

Cabergoline commonly prescribed drug for treating prolactinoma is an ergot derivative, is a potent dopamine receptor agonist on D_2receptors. Rat studies show cabergoline has a direct inhibitory effect on pituitary lactotroph (prolactin) cells.It is frequently used as a first-line agent in the management of prolactinomas due to its higher affinity for D_2 receptor sites, less severe side effects, and more convenient dosing schedule than the older bromocriptine.

The goal of treatment in prolactinomas is to return prolactin levels to normal, reduce tumor size, correcting any visual abnormalities, and restoring normal pituitary function .Careful monitoring of clinical signs and symptoms, coupled with pituitary imaging and with serial measurements of serum hormone levels remains the cornerstone of follow up for these patients. [14]

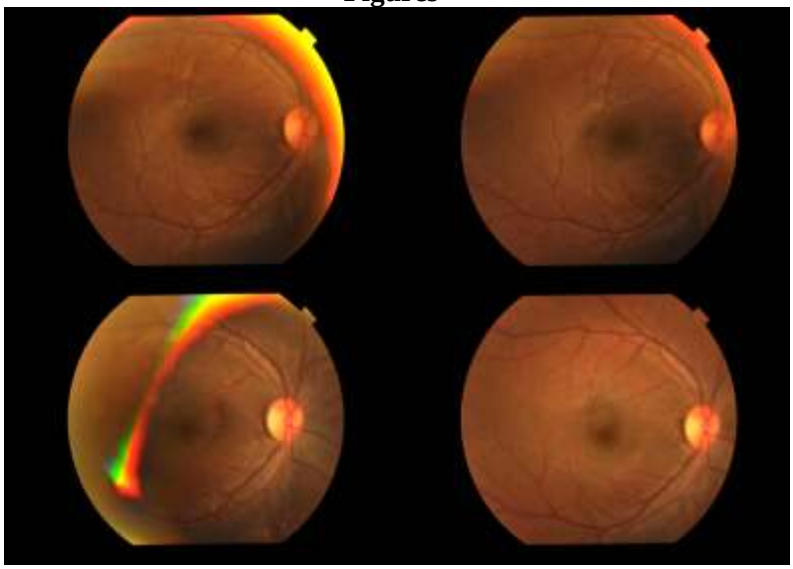
II. Clinical Course

A young 37 year old female presented to our out patient department with loss of vision in LE. Visual acuity in RE 6/6, LE 6/60 not improving with pin hole. Anterior segment findings in RE were within normal limits, 0.3 log units RAPD was noted in LE. An undilated fundus examination with 90 D lens showed fundus findings normal in RE, while the LE showed temporal pallor.Fig1,2 Confrontation test was done which showed field loss in inferotemporal quadrants. HFA 30-2 fields showed. ,bitemporal visual field loss.Fig3,4 A lesion compressing the optic chiasmal was suspected and an MRI brain and orbit was ordered.

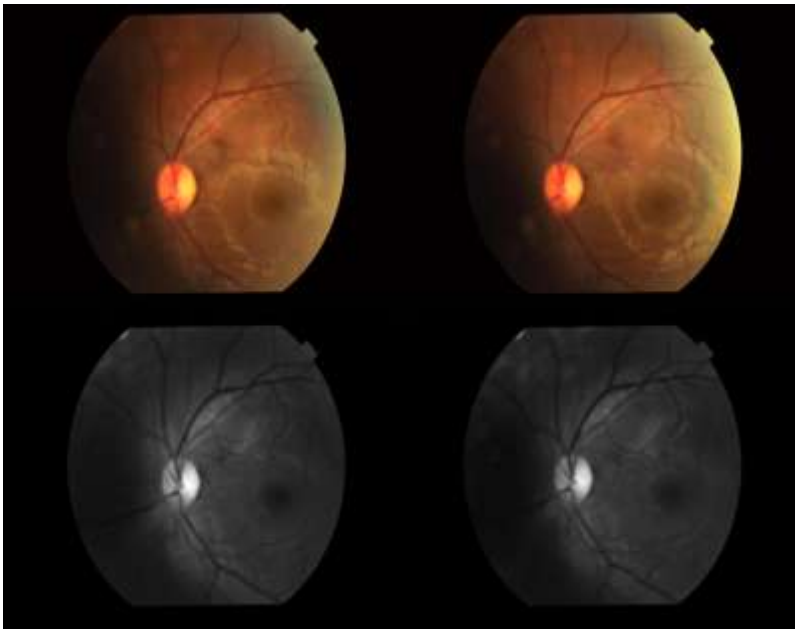
Patient reviewed with the MRI reports in the 2nd visit. The report showed evidence of well defined 4.23(HF) x 2.87(RL) x 2.64(AP) cms round to oval T2 isointense & T1 iso to hyperintense lesion noted arising from sellar region. The lesion is extending out of the sella extending anteromedially towards the left orbit causing compression of left optic chiasma and left optic nerve .Lesion is encasing left carotid artery on left side. Post contrast lesion shows intense heterogenous enhancement**.**Fig 5

After the MRI revealed a pituitary macroadenoma, the patient was referred to an endocrinologist and neurologist to salvage her vision. Patient's history of weight gain, prolonged amenorrhea of 1 year was elicited and her serum hormonal levels showed raised prolactin levels; 250 ng/ml (4-23 ng/ml) suggestive of a prolactin secreting pituitary macroadenoma. Patient is provisionally put on medical treatment of tablet Cabergoline 0.5 mg twice a week for 2 months. The patient is yet to follow up to our OPD after 3 months. After starting the treatment patient's regular menstrual cycle has resumed. A repeat visual fields was done for monitoring the treatment was done and patient was adviced to follow up every 2-3 months.Fig 6,7

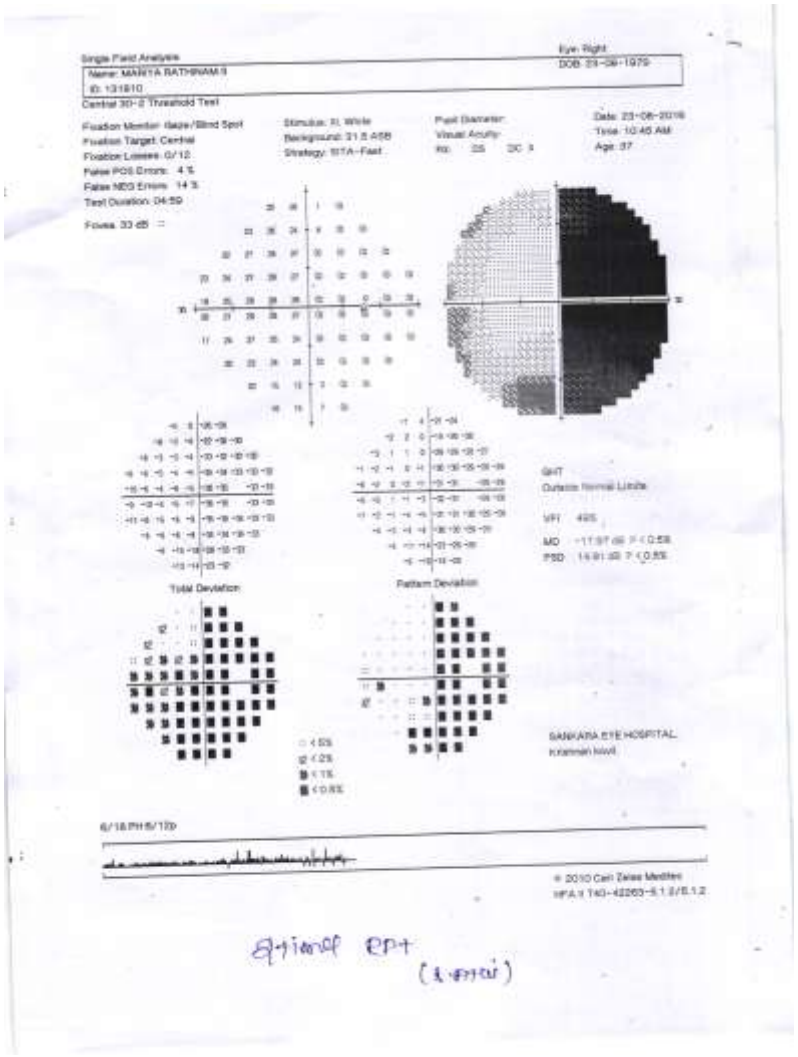
Figures



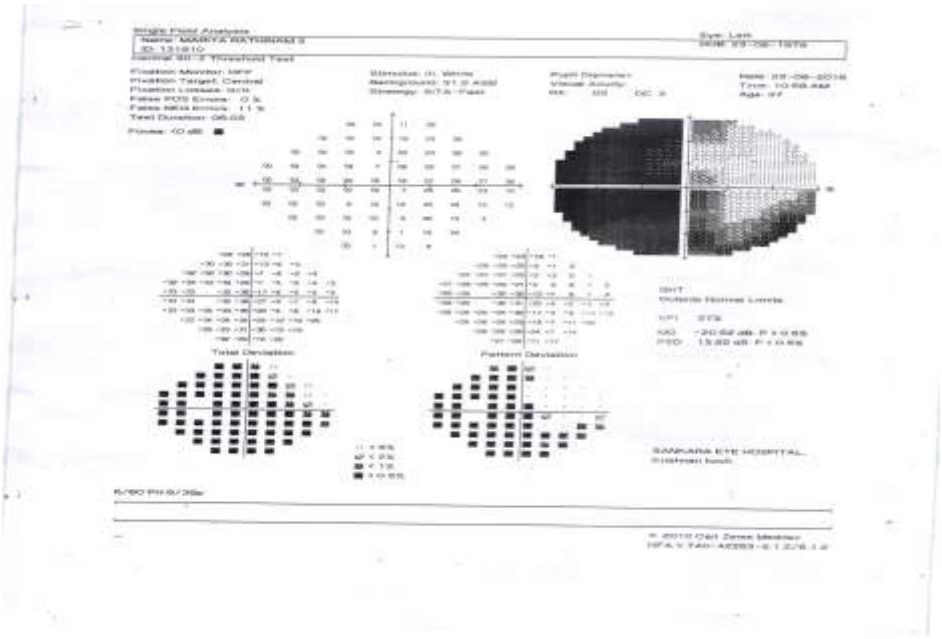
1.Fundus Photo – RE



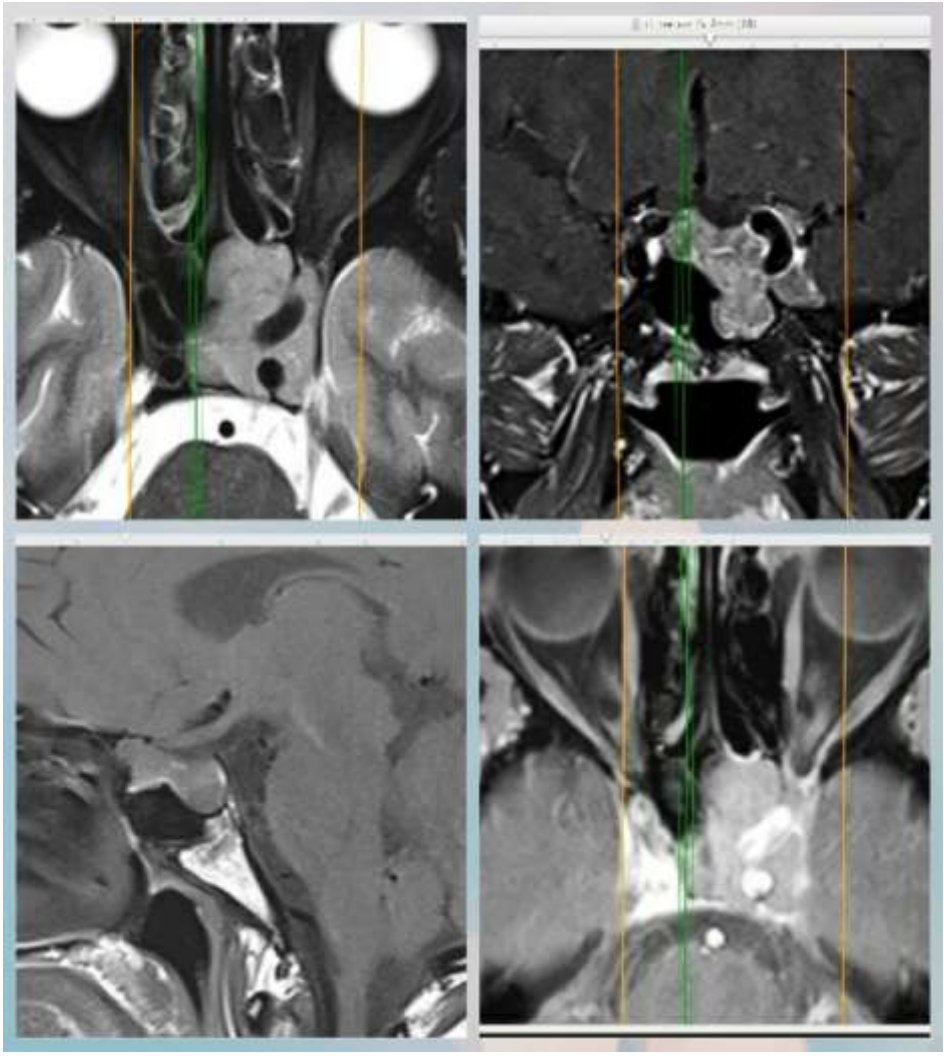
2.Fundus Photo – LE



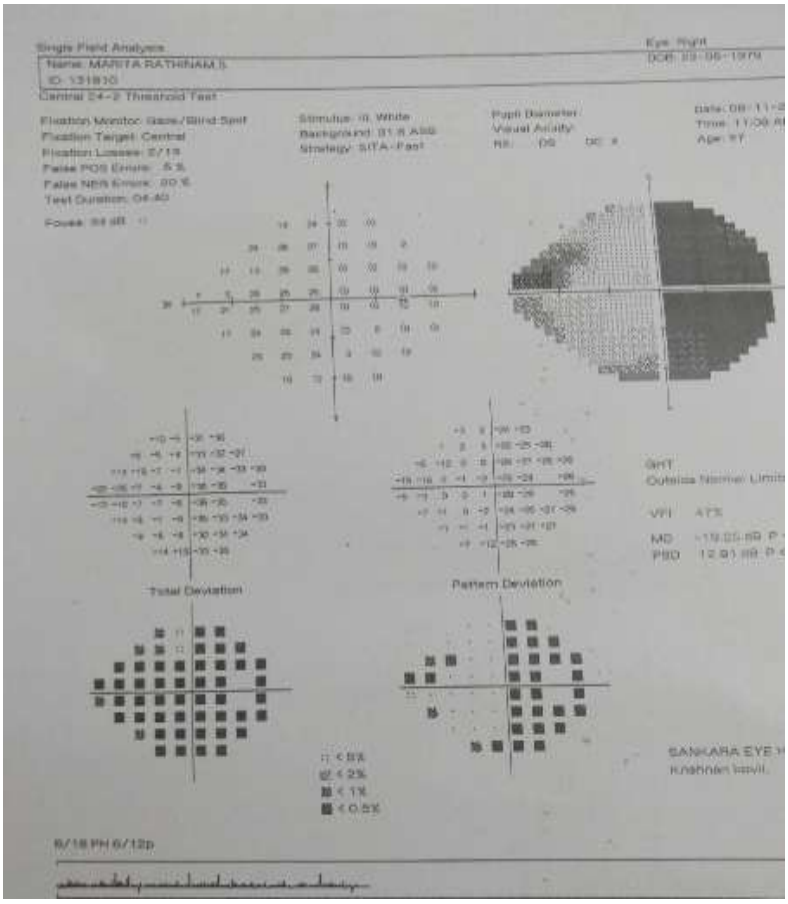
3.HFA 30-2 – RE



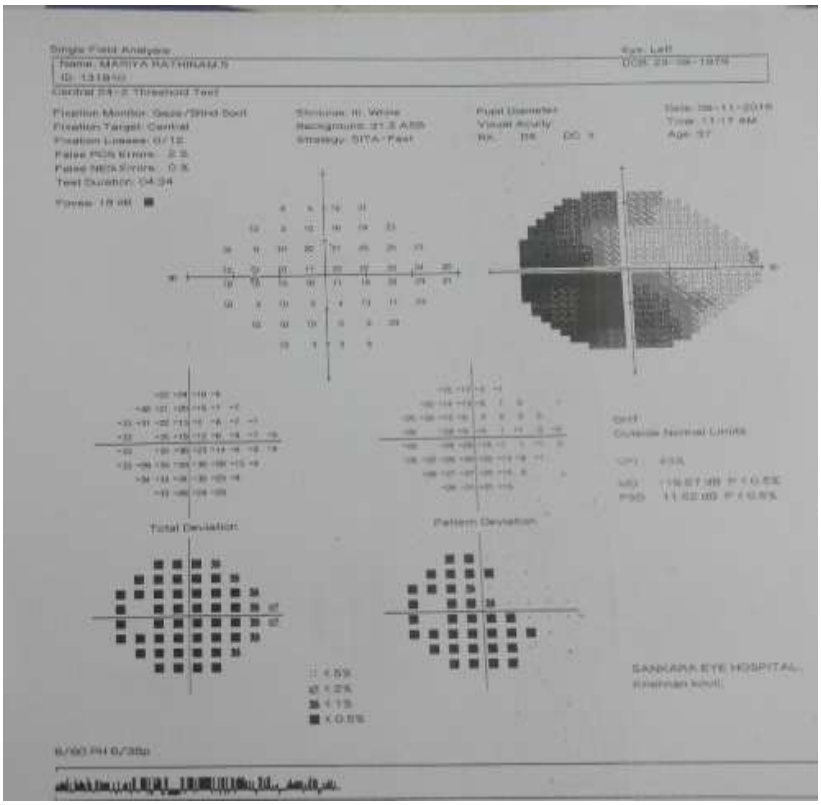
4.HFA 30-2 - LE



5.Mri-Brain And Orbit



6.Follow Up HFA 30-2 P After 3 Months



7.Follow Up HFA 30-2 P After 3 Months

Conclusion

Commonly presenting symptoms to a comprehensive ophthalmology OPD is visual loss. Visual acuity recording along with a routine confrontation test is a simple and yet a very important test that could give a clue to get the visual field testing done in such patients.

90 D examination in this patient at the slit lamp prior to dilatation helped us to assess the patient's optic nerves. Temporal pallor in left eye prompted us to do a visual field test.

The patient's left optic nerve and chiasma were most affected evidenced by the visual acuity loss in OS and temporal field defect with preservation of visual acuity in OD. Neurological fields showing bitemporal hemianopsia is a classical feature of optic chiasmal compression.

MRI Scan is always a superior diagnostic modality than a CT Scan in detecting sellar and suprasellar lesions. An opinion of the endocrinologist and a neurologist is valuable and utmost urgency in an evidence of sellar or suprasellar lesions.

Visual fields should be monitored periodically (1–3 months or more frequently) based on the clinical presentation, type of intervention (surgical, medical, or radiation),lesion characteristics and visual complaints of patient. Pituitary imaging and serial measurements of serum hormone levels is the mainstay in treating these patients.

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