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PITUITARY MACRO ADENOMA PRESENTING AS BILATERAL OPTIC ATROPHY

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ABSTRACT
Pituitary tumours, of which prolactinoma is the commonest variety, account for 10-15% of brain tumours. Clinically, they present as functioning or non-functioning pituitary adenomas. A variety of visual presentations of pituitary adenomas have been reported, including absence of clinical symptoms or deterioration of visual acuity, visual field affection, and partial or complete ophthalmoplegia. Although rare, non-secretory pituitary macroadenoma variety of Pituitary tumor can present as Optic atrophy, due to their pressure effect. We describe a rare case of Pituitary Macroadenoma which presented as bilateral optic atrophy without any other associated finding. We also explain the immense diagnostic importance of X-ray skull (lateral view) in such patients.

INTRODUCTION

Patients with non-secretory pituitaty Macroadenoma can present to an Ophthalmologist with just visual complaints, due to their pressure effect, without any systemic manifestations. We describe a rare case of Pituitary Macroadenoma which presented as bilateral optic atrophy without any other associated finding. A high index of suspicion and a simple investigation like X-ray skull (lateral view) can help in diagnosing the condition.

CASE REPORT

A 33 years old female patient presented with gradual painless progressive diminution of vision in both eyes for last 3 years. She also complained of dull headache of one month duration.

There was no history of diplopia, ocular trauma, galactorrhea, convulsions, head injury, high grade fever in past, vomiting, meningitis &encephalitis.

General examination was within normal limits. Systemic examination did not reveal any abnormality.

On local examination, vision in right eye was counting finger at one foot and in the left eye was counting finger at 5 meters. In both eyes pupils were 4-5mm in size, very sluggishly reacting to light. Intra Ocular Pressure (I.O.P) in both eyes was 14.6 mm of Hg.

Fundus examination revealed chalky-white optic disc in both eyes with well defined disc margins. Rest of the fundus was normal. Perimetry could not be performed due to poor vision. Colour vision was defective in both eyes. A diagnosis of bilateral primary optic atrophy was made.Plain X-ray skull (lateral view) revealed widening of the sellaturcica with erosion of floor and dorsum sellae. There was no intracranial calcification.

MRI brain (plain and contrast) was done. Post contrast coronal (a) and sagittal (b) images of pituitary showed a large moderately enhancing mass lesion in the sellar and suprasellar region. Mass was also eroding the dorsum sellae and extending into the sphenoid sinuses and compressing cavernous sinuses bilaterally, more on right side. It was also extending towards the third ventricle causing compression and displacement. There was also compression effect on the frontal horn of the right lateral ventricle. All the above findings were suggestive of pituitary macroadenoma. The patient was referred to Department of Neurosurgery for further management.

Fig 1. Fundus photo of both eyes showing Chalky-white optic disc

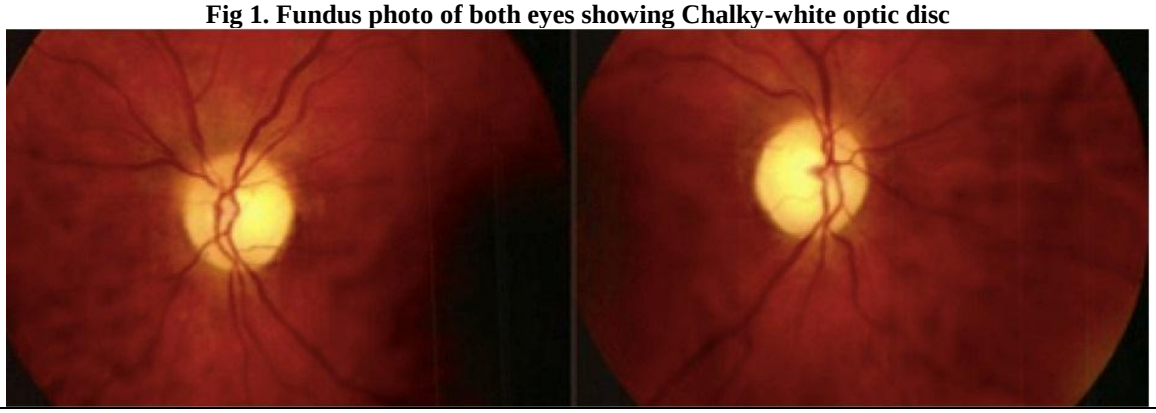


Fig 2. Plain X-ray skull (lateral view) showing widening of the sellaturcica with erosion of floor and dorsum sellae

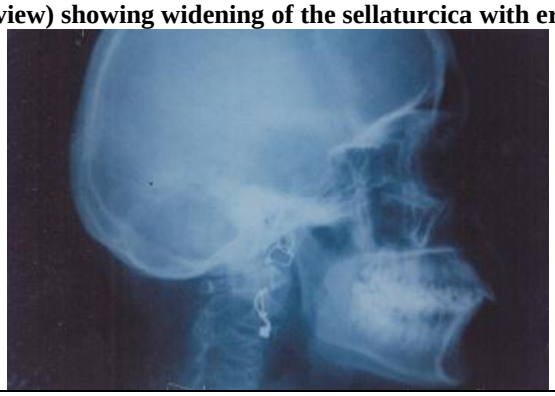
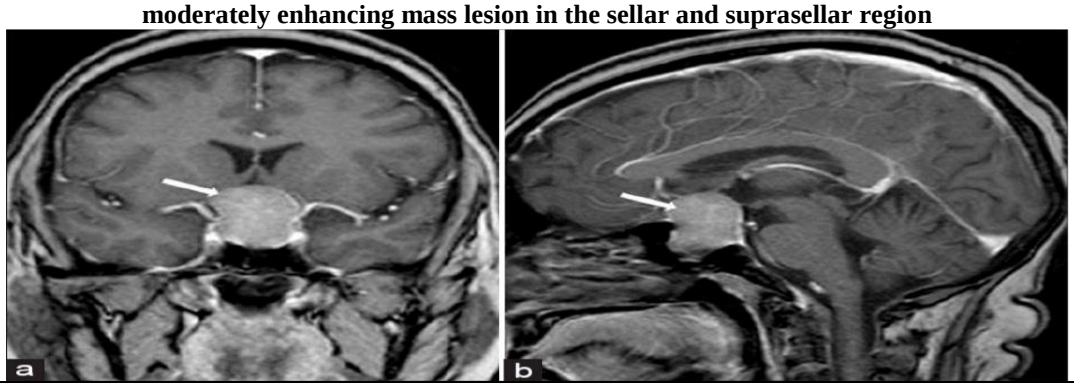


Fig 3. MRI brain (plain and contrast). Postcontrast coronal (a) and sagittal (b) images of pituitary showing a large moderately enhancing mass lesion in the sellar and suprasellar region



DISCUSSION AND CONCLUSION

Pituitary adenomas are common lesions comprising 10 to 15% of all primary brain tumors [1]. Incidental pituitary tumors are found in approximately 15% of autopsies [2]. The majority of these lesions are histologically benign. Clinically, they present as functioning or non-functioning pituitary adenomas.

A variety of visual presentations of pituitary adenomas have been reported, including absence of clinical symptoms or deterioration of visual acuity, visual field affection, and partial or complete ophthalmoplegia [3]. Visual field defects caused by pituitary adenomas are unique, with bitemporal hemianopia being most common, because of the distribution of visual fibers in the chiasma and their anatomic proximity to the sellaturcica. The prevalence of visual field defects in pituitary adenomas varies from 37 to 96% in different studies [4–6]. However, other types of defects may be observed and, in fact, visual field examination may remain normal in small pituitary adenomas not causing significant optic compression [7]. There can a variety of Visual field defects and there is a high correlation between the tumor volume and the severity of Visual field defects [8].

Pituitary adenomas are generally slow-growing, benign neoplasms which can compress the anterior visual pathway, resulting in loss of vision. Anatomic relationships suggest that tumor extension 10 mm above the diaphragmasellae is necessary for the anterior visual pathway to become compressed. Results from a study by Ho R-W et al, show that pituitary adenomas larger than 2 cm cause defects in vision while adenomas 2 cm or smaller

do not cause significant visual impairment [9]. Optic nerve changes are common in patients with pituitary adenomas. Longstanding compression by pituitary macroadenoma leads to optic atrophy.

Bilateral optic atrophy represents a late stage complication of Pituitary Macroadenoma. Ignorance, lack of medical facilities and misdiagnosis by the doctor contribute to the tumor being detected at a very late stage.

Despite ongoing advances in the medical and radio therapeutic management of pituitary tumors, surgical resection remains the therapy of choice for the vast majority of these lesions [7]. Surgical resection is indicated in cases with progressive visual field deterioration. Trans-sphenoidal surgery is performed when adequate resection is possible while sparing the normal gland. Trans-sphenoidal surgical resection or craniotomy can decompress the anterior visual pathway, leading to visual recovery. Visual improvement occurs in three phases, with the earliest phase of improvement taking place one week after surgery [10]. It has been postulated that the initial improvement in vision is the result of recovery of nerve conduction. Later improvement is thought to be due to remyelination of decompressed optic pathways. Trans-sphenoidal surgery is the surgical treatment of choice for most pituitary adenomas because it is minimally invasive and highly successful [6].

This case highlights the fact that a simple investigation – X-ray skull (lateral view) is of immense diagnostic importance in patients with unexplained optic atrophy. The patient remained undiagnosed for many years since this simple investigation was not done and the tumour reached massive dimensions. Thus a high index of suspicion is necessary and X-ray skull (lateral view) is mandatory for all patients with unexplained visual loss.

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CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

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