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## Case report

### RARE PRESENTATION OF PITUITARY ADENOMA WITH OPHTHALMOPLEGIA

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#### ABSTRACT

Pituitary Adenomas are benign intracellar tumours accounting for 10% to 15% of all intracranial neoplasms. They usually affect the adult population between the fourth and sixth decades of life. The prevalence of Pituitary Macro adenomas, with a diameter of more than 1cm, is estimated to be only about 0.2%. Pituitary macroadenomas can be either functioning or non-functioning depending upon the endocrinological status of the patient. Non functioning Pituitary macroadenoma extending laterally into the cavernous sinus resulting in ocular motor palsies is uncommon. Rarely is it the presenting sign. We report a case of Pituitary Macroadenoma presenting with left sided Ptosis and complete Ophthalmoplegia due to extension into the ipsilateral cavernous sinus.

**Keywords:** Pituitary Adenoma, Ophthalmoplegia, Pituitary gland, Cavernous Sinus

#### INTRODUCTION

Pituitary adenomas are benign tumours which arise within the anterior lobe of the pituitary gland in the sellaturcica. Pituitary adenomas can be classified by different methods, including size, hormonal activity, and histologic staining pattern. Tumours more than 1 cm are called macroadenomas and less than 1cm are called microadenomas<sup>1, 2</sup>. Macroadenomas are relatively rare with a prevalence reported to be 0.2%.<sup>3</sup> Clinical symptoms depend on whether the tumour is secreting or non-secreting. Non secreting (non functioning) adenomas accounting for 25% to 35% of pituitary adenomas, are hormonally inactive, and are the most common form of macroadenomas<sup>4</sup>. Pituitary macroadenomas can present with mass effect, causing pressure on the adjoining structures or endocrinological disturbances. Mass effect causes headache, decrease in visual acuity, hypopituitarism and visual field defects associated with compression of the optic chiasma<sup>5,6</sup>. In fact, pituitary adenomas are the most common cause of Optic chiasm

compression<sup>7,8</sup>. Rarely 6-10% of macroadenomas extend laterally into the cavernous sinus and result in 3rd, 4th and 6<sup>th</sup> cranial nerve palsies. We report a case of Pituitary Adenoma presenting with left sided Ptosis and complete Ophthalmoplegia due to extension into the ipsilateral cavernous sinus.

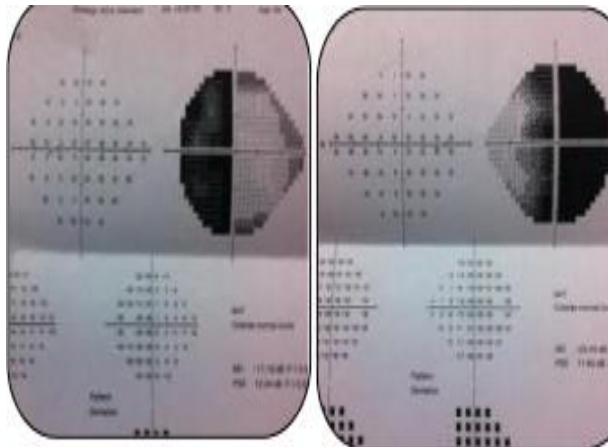
#### CASE REPORT

A 70 year old male presented to the ophthalmology department with complaints of acute onset drooping of left eyelid, severe throbbing retro orbital pain and 3 episodes of vomiting which was non projectile since 2 days. Patient had unilateral, left sided, dull headache since the last 1 month. There was no history of fever, giddiness, convulsions, weakness in any limb, blurring of vision or ataxia. Patient was not a known case of hypertension or diabetes. On examination, he was conscious, oriented, with blood pressure of 142/70 mm of Hg and pulse of 72/min.

Physical examination revealed a thin built, adequately nourished male. Ophthalmological examination showed BCVA of 6/12 and 6/18 in the right and left eye respectively. There was a complete aptosis on the left side. Retraction of left upper lid revealed mild proptosis and total ophthalmoplegia with marked restriction of ocular movements in all directions of gaze. (Fig 1) The left pupil was semi dilated with absent direct and consensual light reflex. Slit lamp examination of both eyes showed early nuclear cataractous changes in both eyes but was otherwise normal. Fundus examination of both eyes was within normal limits. The rest of the neurological examination, including other cranial nerves was essentially normal.

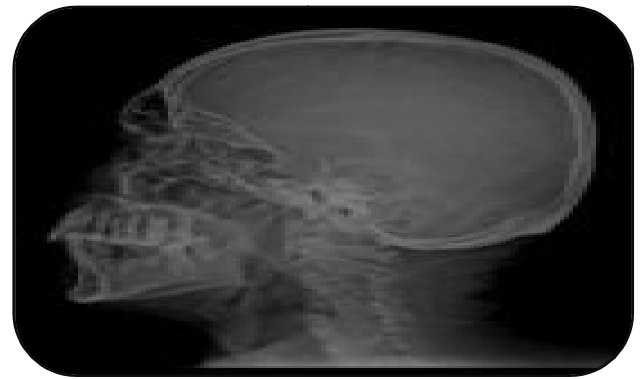


**Fig 1: Ocular movements in all directions**

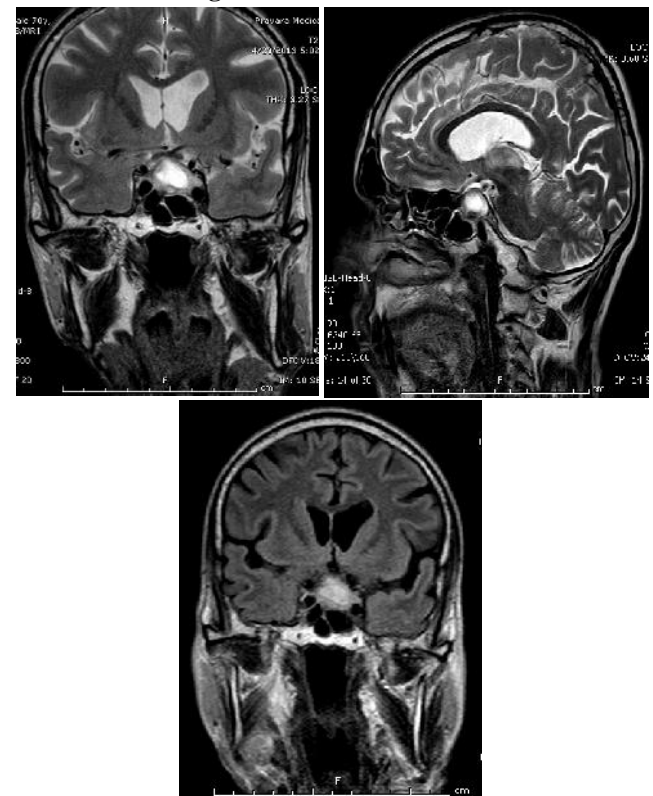


**Fig 2: Directions of gaze**

Perimetry revealed classical Bitemporal hemianopia (Fig 2). Plain X-ray skull (lateral view) revealed widened sella with thinning and erosion of floor of sella (Fig 3).



**Fig 3: Plain X-ray skull (lateral view) revealed widened sella with thinning and erosion of floor of sella**



**Fig 4: MRI Brain and Orbit**

MRI Brain and Orbit (plain and contrast) revealed 2.10×2.05×1.73 cm sized, mildly enhancing, round to oval, well defined mass in sellar and suprasellar region which also showed extension into the left cavernous sinus (Fig 4). The supra-sellar cistern was obliterated & optic chiasma pushed upward. Diagnosis of Pituitary Macroadenoma, extending into the left cavernous sinus was made.

In view of this finding of cavernous sinus extension, patient was referred to a neurosurgeon for management.

## DISCUSSION

Pituitary adenomas are benign tumours which arise within the anterior lobe (adenohypophysis) of the gland in the sellaturcica. They account for 10-15% of all intracranial neoplasms<sup>1</sup>. With regard to size, pituitary adenomas have been classified as Macroadenomas ( >10mm) and Microadenomas (<10 mm). Macro adenomas are rare and constitute only 0.2% of all pituitary adenomas. Adenomas can also be differentiated as Functional or Non functional tumours based on their hormonal activity in vivo as determined by immunohistochemistry and electron microscopy. Pituitary adenomas can further be divided by their staining pattern on histology as eosinophilic, basophilic and chromophobes (which are very often nonfunctioning adenomas).

Most pituitary adenomas are soft, well-circumscribed lesions that are confined to the sellaturcica. Expansion may lead to bony erosion of the anterior clinoid processes and sellaturcica<sup>9</sup>. Macroadenomas may be secreting or non secreting adenomas. Functioning adenomas secrete hormones and manifest with many endocrine syndromes hence these tumours present earlier and are of smaller size and confined to the gland. Non secreting adenomas present very late and symptoms appear due to mass effect i.e they grow large in size and compress the adjacent structures by suprasellar extension and optic chiasma involvement leading to visual disturbances. Very rarely non secreting adenomas extend laterally into the cavernous sinuses, resulting in 3<sup>rd</sup>, 4<sup>th</sup> and 6<sup>th</sup> cranial nerve palsies leading to total Ophthalmoplegia. It has been observed in a large series by Kim SH, et al (2007) that out of 1000 patients of pituitary adenomas only 59 patients had a lateral extension into the cavernous sinus<sup>10</sup>, making it a very rare complication of pituitary adenomas.

Indications for surgery are severe neuro-ophthalmic signs such as severely reduced visual acuity, severe and persistent or deteriorating visual field defects, or deteriorating level of consciousness.

## CONCLUSION

Total Ophthalmoplegia due to lateral extension into the cavernous sinus is an extremely rare complication of pituitary adenomas. Timely diagnosis by imaging studies can help decrease the morbidity and mortality. Conservative management with steroids is given to

hemodynamically unstable patients. Surgical intervention is offered to patients with severe neuro-ophthalmic signs.

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