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Case Report Open Access

Nonfunctioning Gonadotroph Pituitary Adenoma Presenting as Visual Field Defect: A Case Report

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Introduction

Eye problems could be due to variety of causes. But one of the important causes is tumour within the pituitary gland which compresses the optic chiasm during progressive upward growth [1]. Pituitary gland tumours are common constituting about a quarter of intra cranial neoplasms and the adenomas represent the highest percentage of them [2].

Case History

A 62 yrs. old lady presented to ophthalmologist with blurred vision for few months. On examination she was found to have visual field defect in the pattern of bitemporal hemi-anopsia. She also had tiredness, headache and dizziness in the preceding months. In view of her visual filed defect MRI pituitary was done. It showed 3 cm adenoma in the pituitary gland invading into suprasellar space and compressing optic chiasm.

Her tumour was removed via Trans sphenoidal approach. Histo pathological examination of the resected tissue showed pituitary adenoma. Immuno histochemistry showed strongly positive staining for LH and weak staining for FSH suggesting Gonadotroph adenoma. 6 months later she presented with similar complaints and re operated for recurrence of pituitary tumour (Figures 1 and 2).

Her pituitary hormone profile 1 month after second transphenoidal surgery showed as follows:

Her serum cortisol is low but ACTH is low normal suggesting secondary adrenal insufficiency. The TSH should be higher for the low level of thyroid hormones, but low suggesting secondary hypothyroidism. She is post-menopausal so her LH and FSH should be high but they are low suggesting secondary hypogonadism. All this combined hormone deficiency suggests Hypopituitarism (Table 1).

Diagnosis

Clinically Non Functioning Gonadotrophic and Pituitary Adenoma with Pan-Hypopituitarism

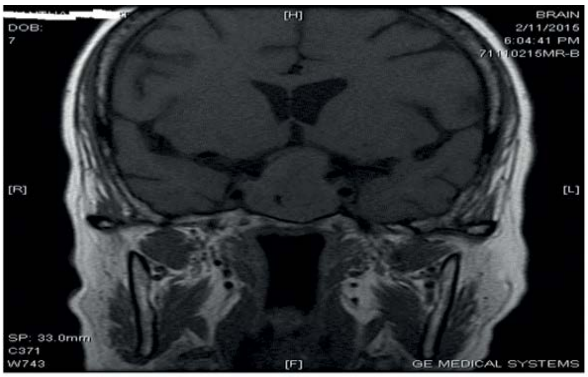

Figure 1: Coronal view showing 6 months after first transphenoidal surgery her pituitary tumour regrown invading cavernous sinus and pressing optic chiasm.

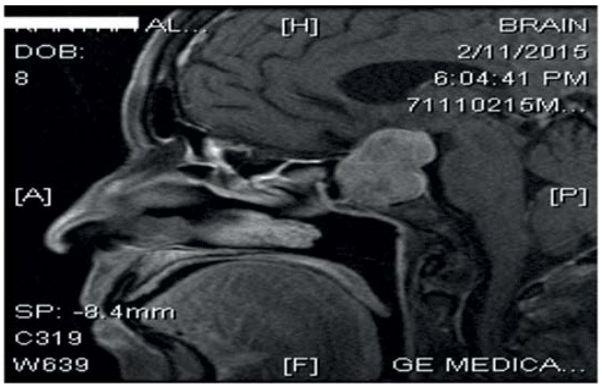

Figure 2: Sagittal view showing 6 months after first transphenoidal surgery her pituitary tumour regrown invading cavernous sinus and pressing optic chiasm.

Further Course

3 months following her second operation she presented again with headache and dizziness. Her latest MRI pituitary showed recurrence of pituitary tumor invading cavernous sinus and 3 mm away from optic chiasm. She was not a candidate for further pituitary surgery in view of cavernous sinus invasion and minimal chance of successful resection. So she was referred to pituitary radiotherapy.

Her current medications are Hydrocortisone 10 mg 8 am and 5 mg 12 noon, Levothyroxine 100 mcg once a day. Her vision improved, headache and dizziness better.

Discussion

Pituitary gland secretes important hormones essential for normal metabolism and functioning of the body (ACTH, Growth Hormone, LH, FSH, TSH, Prolactin, Anti diuretic hormone). Tumors arising in the Pituitary can be functional producing excess hormones or non-functional. Functional tumors overproducing hormones cause Cushing 's disease (ACTH), Acromegaly (GH) Prolactinomas (Prolactin).

Non-functional pituitary adenomas produce symptoms by local pressure effects on optic chiasm (Visual Field defects) or invading cavernous sinus causing cranial nerve palsy (cranial nerves III, IV, V1 or V2 of V, VI). They can also cause temporal lobe seizure, hydrocephalus

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Hormone	Level	Normal range
ACTH	7.8 pg/ml	7.3-63.3 pg/ml
Cortisol	2.8 mcg/dl	6.2-19.4 mcg/dl
TSH	1.2 mIU/ml	0.4-4.5 mIU/ml
Free T_4	0.61 ng/dl	0.8-2.0 ng/dl
Free T_3	0.31	2.3-4.2 pg/ml
Prolactin	30 ng/ml	2-19 ng/ml
LH	3.1 IU/ml	30-220 IU/ml
FSH	1.17 IU/ml	30-240 IU/ml

Table 1: Pituitary hormone profile 1 month after second transphenoidal surgery.

from compression of foramen of Monro or the aqueduct of sylvius, or even symptoms resulting from compression of the brain stem [3].

Medical treatment of non-functioning pituitary tumours is generally ineffective. So the primary treatment is surgical. The preferred surgery is transphenoidal approach, which has low associated morbidity and mortality but craniotomy may be required. Patients who had complete or near complete resection of their tumours can be followed up without radiotherapy as recurrences may be detected early with high resolution imaging [4]. If tumours are not resected completely or recur then radiotherapy should be considered.

Pituitary hormone deficiency is disabling, reduce quality of life and can be potentially life threatening and should be assessed properly pre operatively and reassessed post operatively by Endocrinologist.

Pituitary tumours if assessed and managed properly with the multi-disciplinary team involving Endocrinologist, Neurosurgeon, Radiologist and Radiotherapist should have good prognosis.

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