Original Research Paper

Volume - 14 | Issue - 05 | May - 2024 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Pathology

A CASE REPORT ON PITUITARY NEUROENDOCRINE TUMOR (PitNET) WITH ONCOCYTIC CHANGE

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ABSTRACT Neuroendocrine tumors (NET) originate from the diffuse neuroendocrine system. These can arise in almost every organ of the body, although they are most commonly found in the gastrointestinal tract and respiratory system. The skull base and sellar region are extremely rare sites for neuroendocrine carcinoma. Intracranial originating is lower than 0.74 %. A 55year old male was admitted in the neurosurgery department of Owaisi Group of Hospitals (PEH) with chief complaint of severe headache for 15 days, associated with giddiness, nausea and left eye vision disturbance. MRI showed Pituitary macroadenoma. Surgery was performed and the excised specimen of Pituitary adenoma was sent for HPE which revealed that the lesion was a Neuroendocrine tumor.

KEYWORDS : Pituitary, Neuroendocrine Tumor, PitNET, Oncocytic.

INTRODUCTION

NET tumors can arise in almost every organ of the body although they are most commonly found in the gastrointestinal tract and respiratory system.[1,2] The skull base and sellar region are extremely rare sites for NET.[1,2] Majority of the PitNETs occur in the sella turcica, originating within the adenohypophysis / anterior pituitary lobe, with variable extension upwards into suprasellar region and into adjacent structures, such as cavernous sinuses, sphenoid sinus and sinonasal mucosa. Ectopic sites include primary location in the sphenoid sinus; rare examples occur in the suprasellar pituitary stalk and clivus.[3]

Case Study

A 55year old male was admitted in the neurosurgery department of Owaisi Group of Hospitals (PEH) with chief complaint of severe headache for 15 days, associated with giddiness, nausea and left eye vision disturbance. Patient is a known case of Hypertension and on treatment for the same. Patient had cranial nerves 7,8 weakness which resolved, in the past. His clinical examination revealed no neurological deficit other than left temporal hemianopia.

MRI revealed sellar and suprasellar slightly asymmetrical mass lesion with areas of restricted diffusion measuring 36x26x27mm causing elevation of optic chiasma. The mass is invading the cavernous sinus, sphenoid sinus. It is isointense on T1 and slightly hyperintense on T2 and FLAIR- likely Pituitary macroadenoma (Figs 1).

Differential diagnosis on the basis of imaging was Pituitary macroadenoma.

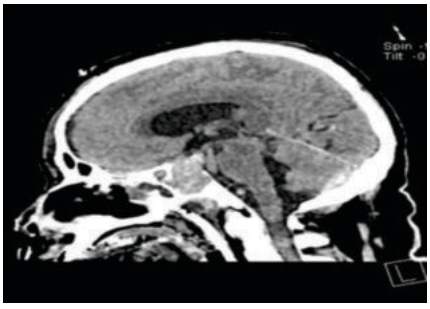

Figure 1: MRI showing Pituitary macroadenoma

Endocrine evaluation showed elevated serum FSH (30.87 mIU/ml) and serum prolactin(30.88ng/ml) levels. The other investigations were within normal range. The patient underwent right pterional craniotomy and excision of pituitary adenoma was done, which was sent for HPE.

The Pathology Dept of OGH received multiple soft tissue bits altogether measuring 1.5x1x1 cm, grey white to grey brown in color.

Microscopic study showed sheets and nests of cells separated by thin fibrovascular core. Cells show monotony with moderate amount of eosinophilic cytoplasm showing granularity (oncocytic change), nucleus round to oval with granular chromatin. Occasional binucleate forms and rosettes(true) seen. No necrosis/ atypia identified. Focal fragments showed capsule on one side.(Fig 2,3,4)

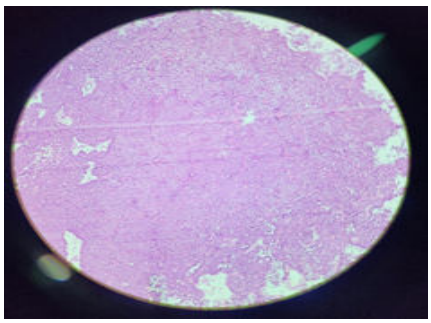

Figure 2 H&E, 4x view showing sheets of cells

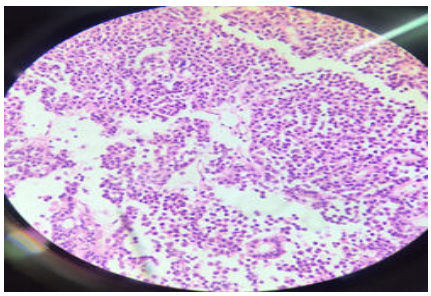

Figure 3 H&E, 10x view showing rosettes

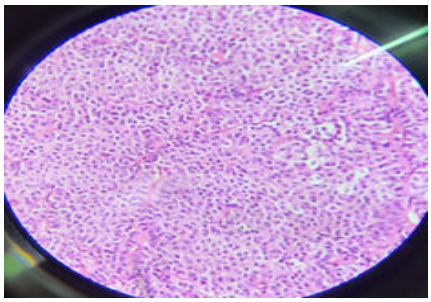

Figure 4 H&E, 40x view showing oncocytic change

These features were suggestive of Pituitary Neuroendocrine tumor with oncocytic change.

DISCUSSION

Pituitary adenomas, the name is still acceptable, but the preferred

terminology is PitNET. Pituitary adenomas are designated arbitrarily as microadenomas (<1cm in diameter) and macroadenomas (>1cm in diameter).

The larger masses>1cm, can be associated with mass effects such as headache, visual disturbances and hypopituitarism. Patients with NET commonly present with no specific clinical features, including focal neurological deficit and intracranial hypertension. Functional tumors secreting one or more hormones would result in the presence of some endocrinal symptoms, and nonfunctional tumors may affect pituitary function and lead to hypopituitarism.[4] Producing images of NET is usually challenging, requiring a combination of functional and anatomical techniques.[1,5,6] Scans by CT and MRI examination are nonspecific, and in the skull base and sellar region, as in our case, NET presented MRI findings similar to more common pathologies such as pituitary adenoma, meningioma, and metastasis.[6] In our reported case, lesion invaded the suprasellar region with optic chiasm elevation and subsequent left temporal hemianopia, along with elevated serum prolactin levels (as it is under inhibition and interruption of hypothalamic signaling can result in hyperprolactinemia). Oncocytic change is a feature of some gonadotroph tumors where it tends to be variable.

CONCLUSIONS

PitNET, though rare, should be included in the differential diagnosis of sellar lesions. The incidence of PitNET is 10 - 15% of intracranial neoplasms. It mainly occurs in fourth to seventh decade, with a female preponderance. Incidental tumors are seen in ~14.4% of autopsies and 22.5% of radiologic studies.[7]

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