Suprasellar ganglioglioma
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Section: Neuroradiology
Area of Interest: Neuroradiology brain
Procedure: Diagnostic procedure
Imaging Technique: CT
Special Focus: Neoplasia Case Type: Clinical Cases
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Patient: 25 years, male

Clinical History:
A 25-year-old man with chronic headaches and recent onset of violent behaviour was transferred from outside the medical facility due to “aqueductal stenosis”.

Imaging Findings:
Brain CT: A large predominantly isodense irregular soft tissue mass occupying the suprasellar cistern, most of the prepontine cistern and interpeduncular cistern, extending to the anterior perimesencephalic cisterns on both sides of the midline. There was secondary posterior displacement of the midbrain resulting in secondary aqueductal stenosis at the entrance of the aqueduct from the third ventricle, with supra-aqueductal ventricular dilatation. The fourth ventricle was narrowed by posterior displacement of the brainstem. There was remodelling and erosion of the dorsum sella and clivus suggesting chronicity.

Brain MRI: Mixed cystic and solid intrasellar/suprasellar mass with compression of the normally enhancing adenohypophysis inferiorly, with marked mass effect and superior-posterior displacement of the hypothalamus and the floor of the third ventricle. The mass extends into the prepontine and interpedicular cisterns with splaying of the cerebral peduncles and mild flattening of the ventral pons. Susceptibility signal loss throughout the lesion likely reflects calcification.

Discussion:
Ganglioglioma (GG) is a predominantly temporal lobe mixed glioneuronal tumour, occurring mostly in the paediatric population, with rare occasional occurrence in the frontal and parietal lobes [1]. It preferentially affects young men, presenting with medically refractory epilepsy. However, symptoms vary according to the location of the tumour. The occurrence in the suprasellar/hypothalamic region is not typical, including involvement of third and lateral ventricle from septum pellucidum, fourth ventricle from its floor, and third ventricle from thalamus and hypothalamus. Involvement of sellar and suprasellar areas is rare, with very few reported cases. [4]

Gangliogliomas tend to be hypodense or less often isodense on plain CT, with 30% showing mixed hypodense cystic changes. Calcification is relatively common. Superficial lesions may expand the cortex and remodel the bone. Haemorrhage is rare. Contrast enhancement is variable, from moderate and uniform to solid, rim, or nodular. It often shows a cyst with an enhancing nodule. [3]

The MRI features of ganglioglioma can be divided into cystic, cystic–solid, and solid. The mass is T1 hypointense to isointense compared to grey matter; rarely hyperintense. Calcification has variable signal intensity. FLAIR/T2 may best show associated cortical dysplasia. T2 hyperintense behaviour of its mass is typical, which may be heterogeneous, with no surrounding oedema. T2* GRE may show Ca++ as areas of susceptibility signal "blooming."

There is variable enhancement, usually moderate but heterogeneous, and occasionally minimal, ring-like,
homogeneous enhancement. Some gangliogliomas do not enhance. Meningeal enhancement is rarely seen [2].

A ganglioglioma should be suspected in tumours with the following features: a solid lesion located in the temporal lobes near or at the cortical surfaces with mild or no oedema and homogeneous enhancement on SE T1W images; or a small cystic lesion or cystic-solid mixed mass with wall enhancement or a markedly enhanced nodule [3]. Surgical resection is usually the treatment of choice but in critically eloquent locations it may be questionable, when observation and adjuvant therapy may be more appropriate. Aggressive surgery is reserved for recurrent tumour or where clinical progression can be documented [2].

**Differential Diagnosis List:** Suprasellar ganglioglioma, Craniopharingioma, Meningioma, Epidermoid tumour, Germinoma, Hypothalamic glioma

**Final Diagnosis:** Suprasellar ganglioglioma

**References:**


Description: A large predominantly isodense irregular soft tissue mass in the suprasellar cistern, filling most of the prepontine and interpeduncular cisterns, extending to the perimesencephalic cisterns.

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Description: Susceptibility changes are seen throughout the lesion, likely reflecting calcification. Origin: Augusta university