A case of high-grade glioma with extremely rapid progression originating from cavernous sinus

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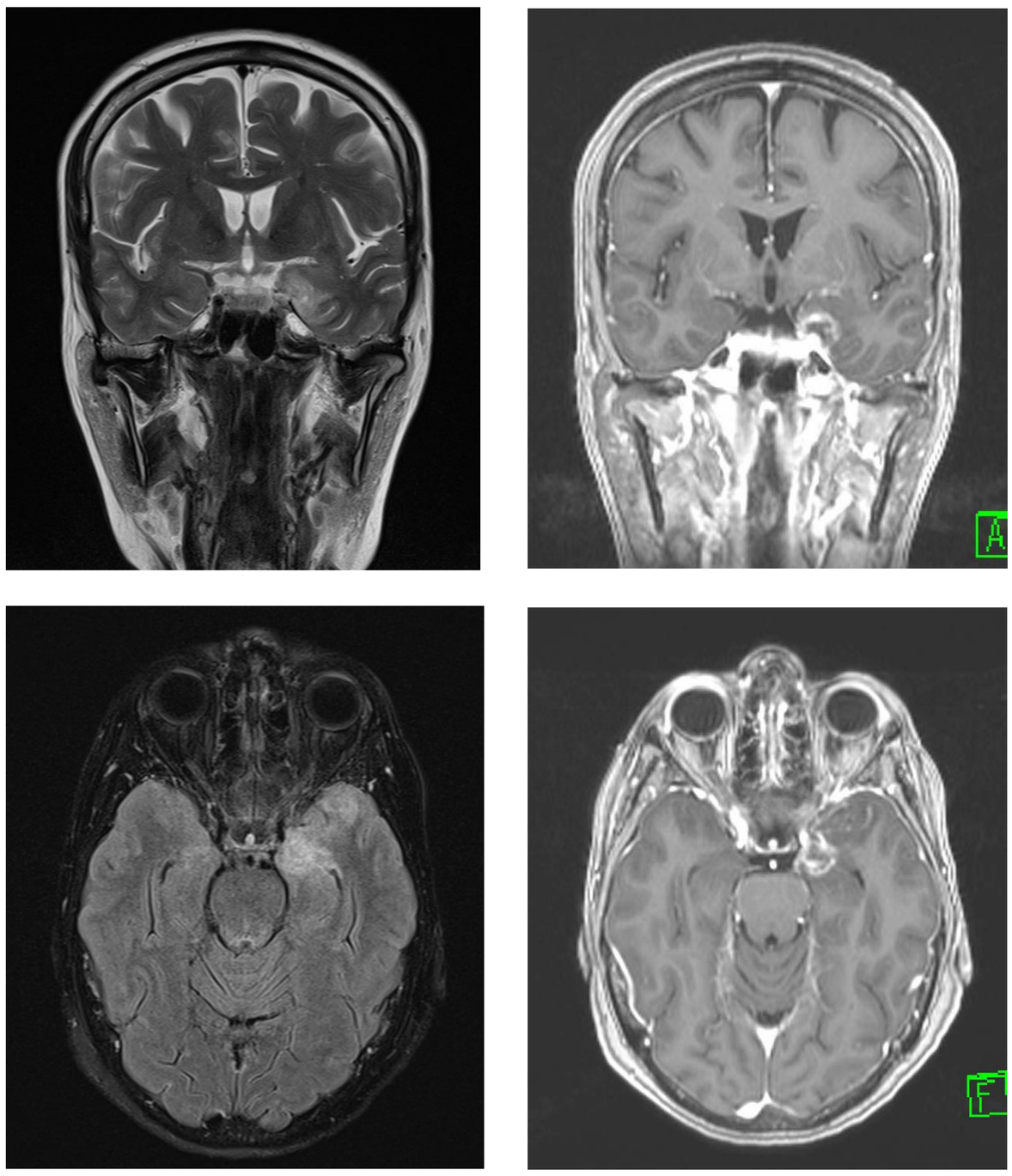
Background

Cavernous sinus pathologies include inflammatory, infectious, vascular and neoplastic causes. Primary gliomas are not generally considered as cavernous sinus tumors and only few cases of glial tumors originating from this site are described in literature.

Case Presentation

- A 64-year-old woman came to the Emergency Department for acute binocular diplopia and a three weeks history of subacute intermittent pulsating left periorbital and fronto-temporal headache
- Neurological examination: negative except for ptosis and diplopia due to left oculomotor nerve palsy
- CT angiography: enlarged irregular aspect of left cavernous sinus and superior ophthalmic vein
- The patient was admitted to the Neurology Department
- Conventional angiography: no evidence of carotid-cavernous fistula
- CSF analysis: physicochemical analysis was unremarkable; cytological analysis showed large atypical cells
- After a few days, the patient complained of increasing bilateral headache, and developed multiple bilateral cranial nerve palsies (left VI and right III, IV, V, VI, VII and VIII)
- Corticosteroid treatment was administered, with efficacy on headache but not on cranial nerve deficits
- Brain MRI (performed three weeks after hospitalization because of the recent pacemaker implantation): infiltrating left temporo-polar and mesial mass, with intralesional bleeding and inhomogeneous contrast enhancement, involving the ipsilateral cavernous sinus, plus a diffuse enhancement of the meninges, the right VII cranial nerve and both the internal ear canals
- Brain stereotactic biopsy: pleomorphic malignant cells compatible with high-grade glioma based on immunohistochemical characterization (p53, OLIG2, S100 positive; synaptophysin, tyrosinase, NSE, HMB45, neurofilament, NeuN, CD3, CD20, CD45 negative)
- Clinical conditions of the patient deteriorated rapidly: she developed dysphagia, right-side paresis and lethargy
- No chemotherapeutic nor radiotherapeutic treatments were administrated due to clinical severity
- The patient died of intracranial hypertension 37 days after hospitalization, about two months after clinical onset



Immunohistochemical characterization	
Positive	**Negative**
P53 OLIG-2 S100	Synaptophysin Tyrosinase NSE HMB45 Neurofilament NeuN CD3, CD20, CD45

Discussion

We hypothesize that the primary localization of the tumor was the cavernous sinus wall, as suggested by clinical presentation and the first CT angiography scan.
Even though glial tissue is not normally present in this site, it is possible that the glial malignancy developed from ectopic glial islands in the context of the cavernous sinus, as described in other sporadic cases.
In our patient, the tumor showed an aggressive and uncommon progression pattern, with rapid diffusion both to the parenchyma of the adjacent temporal lobe, and to meningeal cranial nerve sheaths.

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XLVIII CONGRESSO NAZIONALE – NAPOLI, 14-17 OTTOBRE 2017