Dr. Lance D. Dworkin Department of Medicine Research Symposium

A Case of a 25-year-old Male with Pituitary and Hypothalamic Extension of Recurrent Anaplastic Astrocytoma

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Introduction: Although brain tumors are most commonly metastatic, primary brain tumors can present due to various local cellular etiologies. Astrocytoma is a type of glioma comprising of astrocytes, which are cells responsible for assisting various essential neuronal processes but also proliferate in response to cellular insults, occasionally leading to pathologic growth (1). These gliomas can range from low-grade pilocytic astrocytoma to high-grade, rapidly-growing glioblastomas and anaplastic astrocytoma (2). Anaplastic astrocytoma most commonly present in the 40s, have a dismal prognosis, and can be distinguished from glioblastoma due to lack of endothelial proliferation or surrounding necrosis (3).

Case Report: We present a unique case of a 25-year-old male with history of recurrent WHO grade three primary CNS anaplastic astrocytoma of the right parietal lobe. The tumor has an IDH1-R132H mutation present, ATRX mutation, unmethylated MGMT promoter, and no deletion of 1p and 19q. Patient had a right frontal craniotomy in 2016, followed by chemoradiation with temozolomide for six months. In 2021, he had a recurrence that presented with seizures, prompting treatment by radiation and temozolomide for 11 months with the seizures being controlled. MRIs done in 2023 showed a new expanding mass at the floor of the anterior third ventricle/prepontine cistern, corpus callosum, pituitary infundibulum and hypothalamus. The extension into the pituitary infundibulum led to a concern for hypopituitarism, prompting testing of pituitary hormone levels which revealed low FSH and LH, testosterone, and cortisol.

Conclusion: Although there have been rare instances of anaplastic astrocytoma coexisting with pituitary macroadenomas, there have not been many reported cases of an anaplastic astrocytoma spreading to the suprasellar region (4). This case illustrates a novel, important factor to consider in evaluating astrocytoma and other base of skull tumors which includes considering the possibility of pituitary dysfunction.

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