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Tumor-to-tumor metastasis of an adenocarcinoma to a glioblastoma with review of the literature on tumor-to-tumor metastasis to gliomas

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Abstract

Tumor-to-tumor metastasis (TTM) is a process where one tumor metastasizes to another tumor. It is an exceedingly rare phenomenon, particularly in the central nervous system, where it most commonly occurs with meningiomas as the recipient. Herein, we present a case of tumor-to-tumor metastasis of an adenocarcinoma to a glioblastoma in a 75-year-old female. The patient had a history of high-grade ductal carcinoma in situ of the breast 8 years prior, treated with lumpectomy and radiation. She presented with a left fronto-parietal mass. Histologically, the lesion showed a glioblastoma, IDH-wildtype, WHO grade 4, associated with a metastatic adenocarcinoma (positive for estrogen receptor, progesterone receptor, and mammaglobin), suggesting a breast primary. The patient passed away 5 months after surgery. Involvement of glioblastoma by TTM is especially rare; only 1 case of TTM to glioblastoma is thus far reported in the English literature. The mechanism by which TTM occurs is poorly understood. TTM may be the first presentation of an occult malignancy and warrants thorough clinical, laboratory, and imaging investigation.

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