

Herpes Simplex Virus-1 Encephalitis Secondary to Whole Brain Radiation Therapy

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Background: Encephalitis is inflammation of the brain parenchyma with associated neurological dysfunction. Herpes simplex virus-1 (HSV-1) encephalitis (HSE) is the most common cause of encephalitis. HSV-1 characteristically remains dormant in the trigeminal ganglion and reactivates during states of immunosuppression, including stress, cancer or chemotherapy. There have been few reported cases of HSE following whole brain radiation therapy (WBRT) for treating intracranial tumors. Importantly, reported HSE cases following WBRT demonstrate an atypical presentation of encephalitis. We report a case of HSE following WBRT to treat brain metastases of renal cell carcinoma.

Case Presentation: A 67-year-old female patient who recently underwent WBRT to treat brain metastases from renal cell carcinoma presented with an elevated temperature, weakness and altered mental status. The patient was admitted, and baseline CT imaging did not demonstrate any acute abnormalities. The next day the patient's neurological status declined substantially, prompting MR imaging that revealed lesions in the temporal lobes, encompassing the amygdala and hippocampus bilaterally. Extra limbic lesions were also demonstrated. Empirical intravenous acyclovir was initiated upon suspicion of possible HSE. Later imaging revealed cerebellar folia enhancement, suggesting probable leptomeningeal carcinomatosis. CSF PCR was positive for HSV-1, confirming the diagnosis of HSE. The patient's condition significantly improved and ultimately returned to baseline.

Conclusion: We present a case of HSE following WBRT. HSE must be promptly treated to avoid catastrophic outcomes. However, rapid treatment may be difficult due to a delay in diagnosis, which is difficult due to the atypical presentation of HSE secondary to WBRT.