

**Title:** HA2 – History of Radiation  
**PCA:** Headache (traumatic and nontraumatic)  
**Diagnosis:** Any cancer diagnosis  
**IDMT:** Neuro-Oncology/Head and Neck

Clinical Condition	Logic Statement	Published Evidence Review	Grading of Evidence*	
Any cancer diagnosis with nontraumatic headache and history of brain radiation	<Any Diagnosis of Cancer> <b>AND</b> <New or Change in Nontraumatic Headache> <b>AND</b> <History of Brain Radiation>	Barajas RF, Chang JS, Sneed PK, Segal MR, McDermott MW, Cha S. Distinguishing recurrent intra-axial metastatic tumor from radiation necrosis following gamma knife radiosurgery using dynamic susceptibility-weighted contrast-enhanced perfusion MR imaging. <i>AJNR American journal of neuroradiology</i> . 2009;30(2):367-372.	4	
		Goldlust SA, Graber JJ, Bossert DF, Avila EK. Headache in Patients with Cancer. <i>Current Pain and Headache Reports</i> . 2010;14(6):455-464.	5	
		Hatzoglou, V, Ulaner, GA, Zhang, Z, et al. Comparison of the effectiveness of MRI Perfusion and Fluorine-18 FDG PET-CT for differentiating radiation injury from viable brain tumor. <i>Clin Imaging</i> . 2013;37(3): 451–457.	4	
		Hoefnagels FW, Lagerwaard FJ, Sanchez E, et al. Radiological progression of cerebral metastases after radiosurgery: assessment of perfusion MRI for differentiating between necrosis and recurrence. <i>Journal of neurology</i> . 2009;256(6):878-887.	4	
		Mitsuya K, Nakasu Y, Horiguchi S, et al. Perfusion weighted magnetic resonance imaging to distinguish the recurrence of metastatic brain tumors from radiation necrosis after stereotactic radiosurgery. <i>Journal of neuro-oncology</i> . 2010;99(1):81-88.	3b	
		<b>Consensus-based Review</b>		<b>Grading of Evidence*</b>
		The MSK NeuroOncology / Head and Neck Imaging Disease Management Team leveraged consensus-based expert opinion and clinical best practices to supplement the limited evidence in this area to define the appropriate imaging guidelines for this clinical condition.  <i>Key points:</i> <ul style="list-style-type: none"> <li>▪ When a patient has a history of brain radiation, the choice of imaging modality should be primarily directed to identify and characterize new and/or recurrent mass lesions, destructive lesions and infiltrative or diffuse lesions.</li> </ul>	5	

\*Grading of Evidence assigned in accordance with the Oxford Centre for Evidenced-Based Medicine (OCEBM) Levels of Evidence 2009: <http://www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/>