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Supplemental material

**A quantitative and comparative evaluation of stereotactic spine radiosurgery local control:
proposing a consistent measurement methodology**

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Supplemental Table 1: Summary of clinical trials studies of spinal metastases treated with sSRS and their means of local control assessment.

Study	Assessment of Tumor Control (Using full description from manuscript)
Phase I/II study of stereotactic body radiotherapy for spinal metastasis and its pattern of failure. <i>Chang EL, et al., Neurosurg Spine, Vol. 7, 2007.</i> ¹	<i>"For the purposes of this study, the operational definition of failure is limited to the MR imaging-documented progression of the treated spinal tumor"</i>
A prospective, phase I/II study demonstrating the potential value and limitation of radiosurgery for spine metastases. <i>Amdur RJ, et al., Am J Clin Oncol, Vol. 32, 2009.</i> ²	<i>"Defined local tumor control as no evidence of progression of tumor at the site of radiosurgery based on the results of magnetic resonance (MR) scanning or positron emission tomography (PET) with computed tomographic (CT) registration"</i>
Phase 1/2 Trial of Single-Session Stereotactic Body Radiotherapy for Previously Unirradiated Spinal Metastases. <i>Garg AK, et al., Cancer, Vol. 118, 2012.</i> ³	<i>"Local failure was defined by MRI-documented progression of the treated spinal or paraspinal tumor as determined by the expert opinion of a dedicated radiologist"</i>
Spine Stereotactic Radiosurgery for Patients with Metastatic Thyroid Cancer: Secondary Analysis of Phase I/II Trials. <i>Bernstein MB, et al., Thyroid, Vol. 26, 2016.</i> ⁴	<i>"Tumor control was based on spinal MRI showing an absence of progression. Treatment failures were defined by radiographic assessment. Data were collected on the treated lesions and classified as "progressive" defined as larger in volume, "stable" is defined as radiographically unchanged, or "smaller." When provided, exact differences in the measurement of each dimension - x, y, z, or right-left, anterior-posterior, medial-lateral were utilized to determine response. If initially inconclusive, review with the radiologist decided final disease status by a thorough comparison of the prior and current studies"</i>
Low incidence of late failure and toxicity after spine stereotactic radiosurgery: Secondary analysis of phase I/II trials with long-term follow-up. <i>Ning MS, et al., Radiotherapy and Oncology, Vol. 138, 2019.</i> ⁵	<i>"Local failure (LF) defined as in-field radiographic progression on imaging"</i>
A Phase 2 Study of Post-Operative Stereotactic Body Radiation Therapy (SBRT) for Solid Tumor Spine Metastases. <i>Redmond KJ, et al., Int J Radiat Oncol Biol Phys, Vol. 106, 2020.</i> ⁶	<i>"Bilsky grading was performed by a board-certified neuroradiologist based on the (1) immediately preoperative MRI, (2) postoperative CT myelogram or MRI, and (3) first MRI after SBRT, which was performed approximately 3 months after treatment. Patients were considered to have symptomatic progression if (1) there was radiographic evidence of progression on CT or MRI based on direct comparisons (by at least 2 members of the team) of the most recently obtained radiographic images compared with the immediate pretreatment images and (2) the patient had progressive symptoms, defined as worsening neurologic function attributable to tumor growth at the level treated according to the ASIA Impairment Scale or worsening pain attributable to tumor growth at the treated level according to the MDACC brief pain inventory (short form) defined as a new score \geq 5 at the treated level of spine"</i>
Stereotactic body radiotherapy versus conventional external beam radiotherapy in patients with painful spinal metastases: an open-label, multicentre, randomised, controlled, phase 2/3 trial. <i>Sahgal A, et al., Lancet Oncol, Vol. 22, 2021.</i> ⁷	<i>"Local progression was defined according to recommendations of the SPIne response assessment in Neuro-Oncology group,¹⁴ which consisted of one or more of the following: a gross unequivocal increase in volume or linear dimension,¹⁵ new or progressive tumour in the epidural space, or neurological deterioration attributable to pre-existing epidural disease with equivocal increased epidural disease dimensions specific to the target volume site"</i>
Mature Local Control and Reirradiation Rates Comparing Spine Stereotactic Body Radiotherapy to Conventional Palliative External Beam Radiotherapy. <i>Zeng KL, et al., Int J Radiat Oncol Biol Phys, In Press, 2022.</i> ⁸	<i>"Per SPINO guidelines"</i>

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