

# Clinical Outcomes of Stereotactic Body Radiation Therapy (SBRT) for Metastases from Gynecologic Primary Malignancies: Results from a Multi-Institutional Patient Registry

Hayden A. Ansinelli <sup>1</sup>, Raj Singh <sup>2</sup>, Dana Sharma <sup>3</sup>, Jan Jenkins <sup>4</sup>, John Vargo <sup>5</sup>

1. Department of Radiation Oncology, University of Arizona, Tucson, USA 2. Department of Radiation Oncology, Virginia Commonwealth University, Richmond, USA 3. Department of Radiation Oncology, Marshall University Joan C. Edwards School of Medicine, Huntington, USA 4. Clinical Programs, The Radiosurgery Society, San Mateo, USA 5. Radiation Oncology, West Virginia University

**Corresponding author:** Hayden A. Ansinelli, hansinelli@gmail.com

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## Abstract

**Objectives:** While several studies have investigated the role of SBRT in oligometastatic disease in sites such as lung, breast, and prostate, there is limited data for SBRT in metastatic gynecologic malignancies (MGM). We thus aimed to investigate factors associated with local control (LC), overall survival (OS), and toxicity in patients treated with SBRT for MGM.

**Methods:** A prospectively-maintained multi-institutional registry was examined for information regarding patients with metastases from gynecologic primary malignancies who were treated with SBRT. Potential predictive factors of OS and LC were analyzed via Kaplan-Meier method and a Cox-proportional hazards model for multivariate analysis (MVA).

**Results:** One-hundred and forty-four patients with 223 total lesions treated with SBRT (92 patients with full information available on LC) were identified. Median patient age was 61 years (range: 34-92), median KPS was 90%, median GTV was 23.87 cc (range: 1.32-373.99cc), and the median BED10 was 60 Gy<sub>3</sub> (range: 14.4- 180 Gy<sub>3</sub>). Commonly involved areas included the lung (31.9%), lymph nodes (22.9%), liver and intrahepatic ducts (11.8%), and spine (11.1%). One- and 2-year OS rates were 76.52% (95% CI: 67.6-83.3%) and 57.5% (95% CI: 47.0-66.6%), respectively. Patients with KPS < 90% (34.6 months vs. 16.53 months; p = 0.001), or with bone metastases (34.6 months vs. 23.77 months; p = 0.0034) had inferior OS following univariate analysis. On MVA, KPS <90% was associated with poorer OS (hazard ratio (HR) = 2.01 (95% CI: 1.10 - 3.69); p = 0.024). Metastases from cervical primaries trended towards poorer OS (median OS 28.4 vs. 23.77 months, p = 0.083). One- and 2-year LC rates were 87.3% (95% CI: 76.9-93.2%) and 75.9% (95% CI: 62.9-85.0%). Tumors with GTV <25 cc trended toward superior LC (p=0.053). KPS <90% was associated with inferior LC (p = 0.0415). Metastases from cervical primaries trended towards poorer LC (median time to LC failure: 55.78 months vs. 30.73 months, p=0.08). Approximately 19% of patients reported acute or late toxicities (all Grade 1 or Grade 2).

**Conclusions:** Favorable OS and LC can be achieved with SBRT in MGM without significant

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toxicity, especially in patients with good KPS and non-osseous metastases.