ONCODAILY MEDICAL JOURNAL

abstract

Radiologic Response After Stereotactic Body Radiotherapy for Non-Spine Bone Metastases: A Case-based Review

Rupa Das, Thuraya Al Hajri, Anju Mathews

DOI: 10.69690/ODMJ-018-3101-6818

AMSTRO
Asia and Middle East Society of Therapeutic Radiation and Oncology
Affiliated with ASTF

abstract

Radiologic Response After Stereotactic Body Radiotherapy for Non-Spine Bone Metastases: A Case-based Review

Author: Rupa Das[1], Thuraya Al Hajri[1], Anju Mathews[1]

Affiliation: [1]Department of Radiation Oncology, Royal Hospital, Muscat, Oman

DOI: 10.69690/ODMJ-018-3101-6818

Introduction: Stereotactic body radiotherapy (SBRT) has become a pivotal tool in managing painful bone metastases. While its efficacy for spinal lesions is well established, its application in non-spine bone metastases (NSBM) is emerging. However, there remains no clear consensus on what constitutes radiologic response to therapy. This study presents detailed imaging findings from six illustrative cases, focusing on changes observed on 18F-fluorodeoxyglucose (18F-FDG) PET/CT after Stereotactic body radiotherapy to NSBM.

Methodology: We retrospectively reviewed data from 22 patients who underwent SBRT to non-spine bone metastases at the National Oncology Center, Muscat, between January 2023 and September 2024. Six representative cases were selected based on distinct post-treatment imaging features. Changes in PET/CT findings were analyzed, including variations in maximum standardized uptake value (SUVmax) and structural alterations in treated lesions.

Results: Post-treatment PET/CT scans done at six-month and one-year follow-up intervals revealed diverse radiologic patterns: reduction or increase in SUVmax, variable structural alterations in irradiated lesions, remineralization of previously lytic lesions, demineralization in sclerotic metastases, and radiation-induced lung changes following rib irradiation.

Conclusion: Stereotactic body radiotherapy is a safe and effective modality for non-spine bone metastases. Radiologic responses can vary significantly and may not always align with clinical symptoms or treatment success. This case series highlights the complexity of interpreting post-treatment PET/CT changes and underscores the need for larger prospective studies to correlate radiologic changes with clinical outcomes post-SBRT.

Conflict of interests: The authors declare no conflict of interests.

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.