

Stereotactic Radiotherapy for Spine Metastasis

by > John Breneman, MD and Ronald Warnick, MD

Clinical problem

This 72-year-old man underwent a T1 corpectomy for metastatic renal cell carcinoma in January 2003, followed by external beam radiotherapy to 50 Gy. Follow-up imaging in March 2004 showed a recurrence at the level of T1-T2, impinging the spinal cord within the previous field of radiation. His surgeon in St. Petersburg, Florida evaluated him and advised no further surgery. He was referred for consideration of re-irradiation of his recurrent tumor.

Treatment

The patient had already received maximal radiation doses to his spinal cord, making further conventional radiotherapy impossible. Stereotactic body radiotherapy using intensity modulation was recommended to allow retreatment of the metastasis with sparing of the adjacent spinal cord. A treatment plan was devised using multiple conformed beams with daily stereotactic localization using the Novalis Exactrac positioning system. Using real-time stereoscopic x-ray positioning, daily treatment reproducibility of +/- 1-2 mm was achieved. This allowed delivery of an additional 4000 cGy of radiation to the tumor with less than 1000 cGy reaching the adjacent spinal cord. The patient completed treatment without side-effects and is currently pain-free.

Comments

Current technology allows retreatment of recurrent spinal lesions that have received "maximal" radiation. This permits palliation and extended improvement of quality of life for previously untreatable patients with recurrent spinal metastasis and cord compression. Additionally, use of this technology in previously untreated patients may allow escalation of radiation doses, resulting in more effective and durable palliation of pain.

References

1. Ryu S, Fang Yin F, Rock J, Zhu J, Chu A, Kagan E, Rogers L, Ajlouni M, Rosenblum M, Kim JH. Image-guided and intensity-modulated radiosurgery for patients with spinal metastasis. *Cancer* 97(8):2013-8, 2003



Stereotactic intensity modulated body radiotherapy can deliver ablative doses of radiation to spinal metastases while limiting spinal cord doses to tolerable levels.

How to refer

Because of the specific nature and complexity of the services we provide, patients must have a consultation with one of our physicians prior to being referred to the center. To schedule an appointment with one of our physicians, please contact Precision Radiotherapy at 513-475-7777. Additional information is available on the web at www.precisionradiotherapy.com.



The Precision Radiotherapy Center

The Precision Radiotherapy Center provides an option for patients with tumors or other neurological disorders. Developed by the Mayfield Clinic and University Radiology Associates, two nationally recognized neuroscience programs affiliated with the University of Cincinnati College of Medicine, Precision Radiotherapy is the region's first center to offer high-precision radiotherapy/radiosurgery for tumors and other abnormalities both inside and outside the brain. We can target benign and malignant tumors of the brain, head and neck, as well as tumors elsewhere in the body, such as the prostate, spine, liver and lung. Patients also come to us for treatment of vascular malformations, trigeminal neuralgia, acoustic neuromas and pituitary adenomas.

Hours of Operation

Monday-Friday, 8:00 a.m. - 5:00 p.m.

Directions

The Precision Radiotherapy Center is conveniently located on I-75, just north of Cincinnati at University Pointe, 7710 University Court, in West Chester, Ohio. For detailed directions, visit our website:

www.precisionradiotherapy.com

The Precision Radiotherapy Team

Precision Radiotherapy is one of the most progressive treatment centers in the Midwest, featuring a team of internationally recognized specialists and highly skilled staff:

Radiation Oncology

Radiation oncologists of University Radiology Associates are board-certified physicians with specialized training in treating tumors and other lesions with various forms of radiation.

William Barrett, MD
John Breneman, MD
Kevin Redmond, MD

Neurosurgery

Neurosurgeons of the Mayfield Clinic provide initial patient evaluation, treatment planning and follow-up for all neurosurgical patients treated.

William Tobler, MD
John M. Tew, Jr., MD
Ronald Warnick, MD

Radiology

Radiologists from University Radiology Associates work with the team to precisely identify the target area for radiation treatment.

Robert Lukin, MD
Mary Gaskill-Shiple, MD
Gavin Udstuen, MD

Radiation Therapy

Radiation therapists of Precision Radiotherapy are state-licensed, highly trained health professionals who deliver radiation treatment according to specific protocols. They are registered by the American Registry of Radiologic Technologists (ARRT).

Medical Physics

Medical physicists of Precision Radiotherapy are health professionals with special training in radiation physics, are responsible for maintaining and calibrating the equipment used to deliver radiation.