

Glioblastoma Multiforme: Improving Quality of Life with Intensity Modulated Radiotherapy (IMRT)

by > John Breneman, MD and Ronald Warnick, MD

Clinical problem

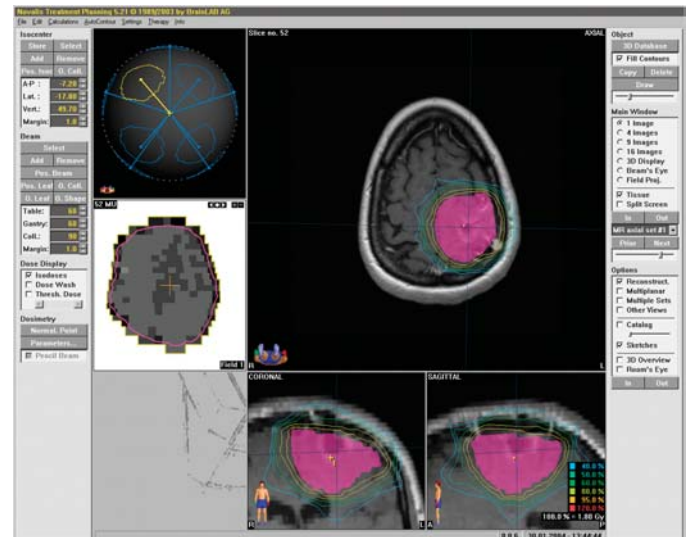
This previously healthy 45-year-old woman presented to the emergency department with her first grand mal seizure. An MR scan showed an enhancing, partially necrotic lesion in the left posterior frontal lobe. A gross total excision of the lesion was performed which was pathologically confirmed to be a glioblastoma multiforme.

Treatment options

Glioblastoma multiforme requires multi-modality treatment, beginning with maximal surgical resection. Following surgery, radiotherapy is given to the tumor bed and surrounding brain tissue. The volume targeted with radiation is the radio-graphically involved tissue based upon T2 or FLAIR images, plus a 1 to 2 cm margin to account for potential sub-clinical extension of disease. A radiation dose of 60 Gy is given using 2 Gy daily fractions. Concurrent or sequential administration of an alkylating chemotherapy agent with the ability to cross the blood-brain barrier (typically BCNU or temozolamide) prolongs survival in patients under age 50. Median survival for these patients is approximately 1 year, though many patients can survive substantially longer with aggressive follow-up and re-treatment of recurrent disease (1).

Comments

Quality of life issues are very important for these patients – most of who cannot be cured of their tumor. Oral chemotherapy regimens using temozolamide are usually well tolerated and can be taken by the patient at home. Radiation side effects are related to the volume of normal tissue that is incidentally included in the treatment field. New radiotherapy techniques such as intensity-modulated radiotherapy (IMRT) offer improvements in normal tissue sparing compared to more conventional techniques such as 3D conformal radiotherapy (2). This results in less treatment-related fatigue and hair loss, and a smaller risk for radiation injury to normal brain.



IMRT allows delivery of highly conformal radiotherapy to complex tumor volumes, minimizing the risks and side effects of treatment.

References

1. Fiveash JB, Spencer SA. Role of radiation therapy and radiosurgery in glioblastoma multiforme. **Cancer J** 9(3):222-9, 2003.
2. Chan MF, Schupak K, Burman C, Chui CS, Ling CC. Comparison of intensity-modulated radiotherapy with three-dimensional conformal radiation therapy planning for glioblastoma multiforme. **Med Dosim** 28(4):261-5, 2003.

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.

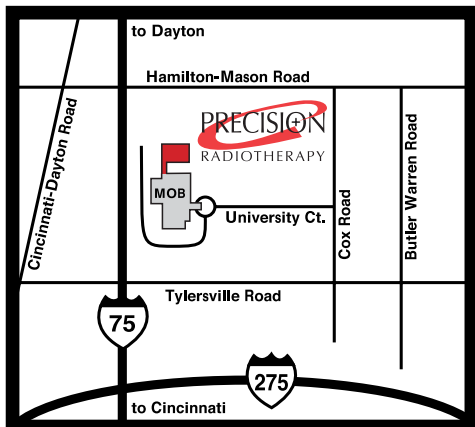
Hours of Operation

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-ShIPLEY, 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.