

# **INTRODUCTION TO RADIOSURGERY'S USE FOR METASTATIC CANCERS TO THE BRAIN**

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Brain metastases are nodules of cancer that have spread from sites of malignancy in the body.

A variety of different cancers can spread to the brain. The most common are those that began in the breast or lung, but include such diverse malignancies as kidney cancer, melanoma and intestinal malignancies.

Treatment of brain metastases has changed dramatically in the last several years. Previously, radiation to the whole brain was offered to shrink the tumor, promote better neurologic function and a higher quality of life.

A randomized study conducted several years ago showed that if a single nodule of cancer was present in the brain and the patient was in reasonably good health, surgical removal followed by whole brain radiation resulted in a higher quality of life and length of life than traditional radiation alone.

The rationale for surgical resection is to remove the bulk of the tumor, allowing the radiation to eradicate microscopic disease.

A new development has been stereotactic radiosurgery. Stereotactic radiosurgery results in the eradication of brain tumors - benign and malignant as well as brain metastases using thousands of pencil-thin beams of radiation all directed at the tumor, while minimizing doses to the normal brain, thereby protecting it.

Six recent studies have evaluated hundreds of patients with brain metastases. Stereotactic radiosurgery controlled the metastases in the vast majority of patients with four of the six studies having success rates of 94% or higher.

Stereotactic radiosurgery is carried out while avoiding the cutting, bleeding, operating and post-operative convalescence of standard open surgery.

Stereotactic radiosurgery is performed with the patient lying on the radiation table while the beam rotates about the tumor protecting the normal brain. The patient feels nothing during the procedure. After radiosurgery, one returns to normal activities.

Radiosurgery's success has been noted in a variety of other diseases in the brain, including arteriovenous malformations and meningiomas.

Thus, medical science offers advanced care with results probably equal to surgical resection while avoiding the trauma and convalescence of major surgery.

An additional advantage of stereotactic radiosurgery is that it can be performed in patients that have recurrent disease after traditional surgery. Furthermore, patients having undergone stereotactic radiosurgery can have repeated therapy if necessary because the radiation is deposited in the area of concern - the tumor - while avoiding the normal brain.

Stereotactic radiosurgery is considered one of the great medical advances of the 1990s.