

EARLY RADIOSURGERY DEVELOPMENTS IN THE TREATMENT OF MENINGIOMAS

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One of the great advances in both radiation oncology and neurosurgery is the development of stereotactic radiosurgery. Using radiosurgery, tumors in the brain can be obliterated without surgery, by using a precision pencil-thin radiation beam coming from thousands of angles.

Meningiomas have long been felt to be the exclusive domain of the neurosurgeon. Most benign tumors of this type found in the brain are treated with surgery in this country.

Reports over the last decade have shown beneficial effects when radiation therapy is added to certain patients undergoing surgery. It is administered when the tumors shows a high likelihood of recurrence.

Now, evaluation of scores of patients being treated with a new modality of radiation, stereotactic radiosurgery of treatment o meningiomas, shows even more remarkable results.

Over the last five years, 50 patients were treated with radiosurgery for meningioma at one institution. Three-fourths of the patients had prior surgery to remove the abnormality. This was recently reported in The Journal of Neurosurgery.

Other patients underwent stereotactic radiosurgery for a lesions felt consistent with meningioma but not biopsy-proven.

Most neuro-radiologists, neurosurgeons and radiation oncologists are generally able to diagnose meningiomas by their characteristic appearance on CT scan or MRI.

The age range of patients was 14 to more than 70 years old.

Radiation is given in a single treatment, usually lasting 30 to 60 minutes. After completion of the stereotactic radiosurgery, follow up radiographic studies were performed every three to six months.

The remarkable point of the study was that 96% of patients treated for meningiomas with stereotactic radiosurgery had their tumors controlled. The majority had a decrease in size of the tumor and most of the rest of the patients had stabilization of their disease with no further growth.

The vast majority of patients after treatment with stereotactic radiosurgery remained neurologically stable.

Furthermore, there were no immediate post-operative complications, although mild headaches occurred - all treated with simple analgesics.

Three of the 50 patients developed temporary new neurologic deficits which resolved.

While surgery had been the mainstay for treatment of meningiomas, stereotactic radiosurgery is opening up new avenues for patients who are reluctant to undergo traditional open surgery, or for those who have a tumor that has recurred despite prior surgery.

Many aspects of meningiomas make them highly desirable targets of radiosurgery. Authors' noted attributes of meningiomas for making radiosurgery highly desirable include that these tumors are usually well defined and very infrequently invade the brain, that they are easily visible by standard MRI or CT scanning, they can be recognized in a variety of different sizes and are slow-growing, allowing the obliterating radiation beams to effectively reverse the growth pattern.

Furthermore, because the blood supply comes from the lining or the covering of the brain, stereotactic radiosurgery also obliterates it, resulting in a higher likelihood of success.

Some have suggested that radiosurgery also decreases the chance of neurologic complications, as compared to open procedures.

Because meningiomas often occur in an older age group frequently having other medical problems, stereotactic radiosurgery is an appealing approach to this disease.

More patients are having CT scans and MRI's for evaluation of headaches and neurologic deficits. It is likely that more meningiomas will be diagnosed in the future.