

STEREOTACTIC RADIOSURGERY:

A Non-invasive Treatment for Spine Tumors

The Rose Ella Burkhardt Brain Tumor and Neuro-Oncology Center, in partnership with the Center for Spine Health, offers a comprehensive Spine Tumor Program with specific expertise in stereotactic spine radiosurgery.



By Lilyana Angelov, MD, FRCS(C)

To refer a patient to call 866.588.2264.

This unique treatment option, primarily used for patients with spine metastases, delivers radiation directly into the spine tumor, thereby minimizing the radiation exposure to nearby organs and tissue.

Cleveland Clinic's Spine Tumor Program, established in 2006, offers referring physicians and their patients the proven radiosurgery experience and latest diagnostic and treatment technologies for optimal tumor control and pain relief outcomes. The program was the first in the state of Ohio, and one of the earliest in the country.

Stereotactic spine radiosurgery (SRS) is a specialized form of radiation therapy that combines high doses of radiation with sophisticated imaging technology to target the treatment site with surgical precision. Radiosurgery was first used to treat brain cancer, but over the past decade SRS has revolutionized treatment of spinal metastases. Spine metastases can occur in more than 50 percent of cancer patients which, if left untreated, can lead to pain and neurologic dysfunction — including weakness, sensory disturbances and sphincter control deficiencies.

SRS can be delivered with various devices, including the state-of-the-art Novalis® radiosurgery system. Cleveland Clinic has been a pioneer in using Novalis to treat spine tumors, starting with the Novalis Classic and more recently with the addition of a second treatment system in 2011 — the Novalis Tx®. These two systems offer patients with a wide-range of

spine tumor diagnoses several distinct and significant advantages over other treatment options including:

- It is an outpatient procedure with proven safe and effective outcomes. In general, SRS patients can experience local tumor control rates range from 80 to 90 percent with excellent local pain relief rates for average 80 to 85 percent.
- Treatments are typically delivered in one day so that any ongoing chemotherapy is only briefly interrupted and can resume immediately post treatment.
- Treatment times are often short, averaging 30 minutes.
- Can be used as salvage therapy when conventional radiation treatments in the same region have failed previously.
- Given the negligible dose of radiation to the fascia and skin, radiosurgery can be undertaken soon after open spine surgery.
- This noninvasive modality, verses conventional surgery, chemotherapy or standard radiation, results in minimal hospital-based treatment time for patients who often can be quite debilitated and have a limited life expectancy.
- Treatment side effects are typically minor and may occasionally include sore throat, GI upset or fatigue.
- Most patients can resume their usual activity level immediately after treatment.

CASE STUDY:

Treating Recurrent Spine Metastases Through Radiosurgery

At 69 years old, Susan D. was a veteran of conventional open surgery such as the 2005 procedure during which one of her kidneys was removed. When her renal cell cancer subsequently spread to her upper spine, she underwent another open surgery to remove that tumor and then had conventional radiation. All too soon, however, she started feeling numbness in her left leg and foot, and learned that the tumor in her upper spine was growing back.

The patient's husband conducted research and learned about radiosurgery, a noninvasive outpatient procedure that delivers a high dose of radiation to precisely targeted tumors, without damage to nearby normal structures. This innovation provides rapid pain relief and requires virtually no recovery time.

When a nurse called to see how she was doing, the patient inquired about radiosurgery. The nurse told her that Cleveland Clinic offers stereotactic spinal radiosurgery, when appropriate, for patients with spine metastases.

She subsequently met with Cleveland Clinic radiation oncologist Samuel Chao, MD, and neurosurgeon Lilyana Angelov, MD, FRCS(C), who specialize in spine radiosurgery. They told her she was a candidate for the procedure.

The patient and her husband drove from their home to Cleveland for an early surgical appointment. After the procedure and short postoperative recovery, the couple drove home the same day.

"She has done extremely well post-spine radiosurgery," says Dr. Angelov. The tumor growth and numbness that the patient previously suffered from have been controlled since the surgery. She has been required only to return to Cleveland Clinic for checkups every three months; recently, doctors told her she could return every four months.

"Now more than three years from her radiosurgery treatment, the patient is pain free and neurologically normal, with no evidence of spine tumor progression," says Dr. Angelov.