

Stereotactic Radiosurgery

University Neurosurgery Information Sheet

General indications for the procedure:

Stereotactic radiosurgery is a procedure which is indicated in some cases of a brain tumor, vascular malformation or functional conditions of the brain and cranial nerves. The hope is that the radiosurgery will control or eliminate the condition.

Description of the procedure:

Stereotactic radiosurgery is performed with a fixed cranial device attached to the skull to allow accurate measurements and dose treatment to your condition. The procedure begins with sterile prep of the scalp, infusion of local anesthetic into the scalp and then screw fixation of the frame into four points in the skull. This is done in a way to minimize discomfort and maximize the security of the device. After the cranial device is affixed to the skull, the patient then undergoes further imaging followed by dose planning, which is done in conjunction with the neurosurgeon, the radiation oncologist and the physicist and then finally dose treatment. At the end of the procedure, the cranial frame is then removed and bandages are placed over the small holes.

Risks of the procedure:

The risks of radiosurgery are similar to the risks of open intracranial surgery, with less risk of bleeding but with the added risk of radiation effects. These risks include but are not limited to, brain swelling, seizure, infection at the cranial pin sites, pain, a condition called radiation necrosis where areas that are radiated die, no benefit, tumor or condition continuation, bleeding, need for further therapy, and neurologic injury specific to the area radiated. Depending on the area radiated, this could include cognitive problems, numbness, weakness, speech problems, paralysis, sensory loss, difficulty with swallowing, speech or other neurologic deficits based on location of the radiation treatment.

Procedure alternatives:

The alternative to radiosurgery would be open intracranial surgery, needle rhizotomy in the case of trigeminal neuralgia, medical therapy or observation of the natural history of patient's disorder.

Probable Consequence of Refusing the Procedure:

Worsening of patient's current symptoms due to progression of the disorder.

Persons performing the procedure:

The team involved in radiosurgery is a large team. The members of the team include but are not limited to the attending neurosurgeon, resident neurosurgeon, radiation oncologist and resident radiation oncologist, radiation oncology techs, radiology techs, and the physicist. Everyone involved will be performing important tasks related to the surgery in accordance with the hospital policies, and based on their skill set and under the supervision of the responsible practitioners.