

Gamma Knife Integrated Cranial Radiosurgery Program Guidelines

Indications for Radiosurgery

Patients may be referred to the Gamma Knife Centre for consideration of radiosurgery for the following standard clinical indications:

Neuroscience - Gamma Knife Program (4C)

1. Intractable typical **Trigeminal Neuralgia** refractory to medical management.
2. Brain **Arteriovenous Malformations (AVM)** less than 14 cc in volume, and not well suited to surgical resection or embolization. Larger lesions may be considered for staged radiosurgery in select circumstances. Evaluation by a multidisciplinary vascular malformation clinic is strongly recommended prior to referral to the GK Center.
3. **Benign Brain Tumors** less than 4 cm in maximal dimension, and where surgical resection or fractionated radiotherapy is not the preferred treatment. Evaluation by a neurosurgeon and/or radiation oncologist is strongly recommended prior to referral to the GK Center.
4. Severe **Tremor** as a result of Parkinson's disease, essential tremor, or multiple sclerosis, if deemed not to be a candidate for conventional surgical treatment. Evaluation by a functional neurosurgeon is strongly recommended prior to referral to the GK Center.
5. Medial Temporal Lobe **Epilepsy** refractory to medical management, and where surgery is not the preferred treatment. Evaluation by an epileptologist and neurosurgeon is strongly recommended prior to referral to the GK Center.

Cancer Program – Perfexion

6. **Brain Metastasis** less than 4 cm in maximal dimension, where surgical resection is not the preferred treatment, and when considered technically advantageous over alternate radiosurgical approaches. Evaluation by a radiation oncologist is strongly recommended prior to referral to the GK center.
 - a. 1-3 brain metastases as boost therapy in combination with whole brain radiotherapy (WBRT) in patients with limited or controlled extracranial disease and KPS $\geq$ 70
 - b. Brain metastases as salvage therapy at the time of local failure after WBRT in patients with limited or controlled extracranial disease and KPS $\geq$ 70
7. **Malignant Brain Tumors** less than 4 cm in maximal dimension at the time of local failure after radiotherapy where surgery is not the preferred treatment.

Neuroscience patients planned for 4C treatment may be alternatively treated on the PFX unit if delivery is otherwise impossible or prohibitive. The above indications are guidelines; other cases not listed herein may be assessed on an individual basis.

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