Introducing New Gamma Knife ICON at Research Medical Center
Gamma Knife Icon Overview:

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1.2 Stereotactic Radiosurgery, How the Gamma Knife Works
1.3 Conditions Treated with Gamma Knife
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History of Gamma Knife and new ICON

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- First used in 1968, has been used to treat more than one million patients
- Research Medical Center treated first patients in 1994
- Treated more than 2,000 patients at Research Medical Center
- Only facility in region, one of only 17 in the nation with the Gamma Knife ICON
- New ICON offers neurosurgeon expansion into new treatment areas

OVER 1,000,000 PATIENTS TREATED THROUGH 2016, WORLDWIDE
How does the Gamma Knife Work?

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- Alternate to conventional open skill brain surgery and traditional radiation therapy
- Is the most advanced cranial stereotactic radiosurgery
- A sophisticated system to treat brain conditions without incisions, general anesthesia or an overnight hospital stay
- Effective to treat some lesions in difficult-to-access areas
- Delivers high dose radiation to a small / critically located target in brain
Gamma Knife ICON:

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- Up to 192 radiation beams intersect at single point
Gamma Knife ICON:

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- With Icon, dose to normal brain is 2-4 times lower than stereotactic radiosurgery, extracranial dose 10 – 130 times less
Stereotactic Radiosurgery

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- Motion Management system monitors the patient in real time
- 0.15 accuracy, six times better than industry standard
- If the patient moves outside of the pre-set threshold, the system’s gating functionality instantly blocks the radiation.
Conditions We Treat:

- **Benign Tumors**: 27.6% (67,372 cases)
- **Malignant Tumors**: 49.6% (120,970 cases)
- **Functional Disorders**: 15.6% (37,960 cases)
- **Vascular Disorders**: 7.2% (17,460 cases)
- **Ocular Disorders**: 1.3% (146 cases)
Metastatic Brain Cancer

- All tumor histologies including radioresistant tumors such as melanoma and renal cell carcinoma
- Patients with surgically inaccessible tumors
- Patients with multiple lesions
- Recurrent or new metastatic lesions in patients who have completed prior whole brain radiation therapy
Acoustic Neuroma (Vestibular Schwanoma)

- Radiosurgery avoids the risk of facial nerve injury.
- Hearing is preserved in 50-75% of patients who have useful hearing prior to treatment.
- Radiosurgery is most effective for tumors less than 3cm diameter but can be a reasonable alternative for larger tumors in older patients with significant co-morbidities.
Trigeminal Neuralgia

- For patients with severe facial pain
- High dose radiation to trigeminal nerve at root entry
- Pain relief 3-4 weeks, 85% of patients see complete relief
- Can be used in conjunction with percutaneous needle procedures or open skull neurosurgery for microvascular decompression
Arteriovenous Malformations (AVM’s)

- Obliteration of the AVM after Gamma Knife radiosurgery usually occurs over a time period of three to five years.
- Approximately 75% of patients will achieve complete obliteration within three to five years of treatment.
- Obliteration rates range between 60% for lesions greater than 3 cm in diameter to around 95% for lesions less than 1 cm in diameter, with the option for re-treatment after three to five years in patients with residual AVM.
Other Brain Tumors

- Can be treated with the Gamma Knife ICON including meningioma, glioblastoma multiforme (GBM), astrocytoma, pituitary adenomas and skull base tumors.
Tremor

- May be used to treat patients with disabling hand tremor due to Benign Essential Tremor, Parkinson’s disease or Multiple Sclerosis.
- Target tremor cells within the thalamus
- Excellent or good relief of tremor in 80% of patients
References:

Gamma Knife ICON Treatment Team

NEUROSURGEONS:
- Peter Basta, MD
- Geoffrey Blatt, MD
- Jonathan Chilton, MD (Medical Director)
- Jayson Neil, MD
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Sample Patient Information Guide
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To refer a patient, please call Midwest Gamma Knife Center:

816 276 4262
http://researchmedicalcenter.com/service/about-gamma-knife