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

1.1 History of Gamma Knife at Research Medical Center
1.2 Stereotactic Radiosurgery, How the Gamma Knife Works
1.3 Conditions Treated with Gamma Knife
   - Metastatic Brain Cancer
   - Acoustic Neuroma
   - Trigeminal Neuralgia
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1.4 Your Physician Partners and Gamma Knife Team
1.5 How to refer a patient for consultation
History of Gamma Knife and new ICON

1.1

- 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

- 1991: 6.98k
- 1992: 11.3k
- 1993: 16.7k
- 1994: 26.67k
- 1995: 40.4k
- 1996: 58.07k
- 1997: 78.46k
- 1998: 100.49k
- 1999: 125.23k
- 2000: 152.41k
- 2001: 180.77k
- 2002: 213.99k
- 2003: 252.52k
- 2004: 298.69
- 2005: 347.6k
- 2006: 401.23k
- 2007: 451.86k
- 2008: 504k
- 2009: 553.45k
- 2010: 610.26k
- 2011: 674.25k
- 2012: 740.17k
- 2013: 809.96
- 2014: 884.2k
- 2015: 961.17k
- 2016: 1m
How does the Gamma Knife Work?

1.2 a

• 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:

1.2 b

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

1.2 c

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

1.2 d

- 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: 67,372 (27.6%)
- Malignant Tumors: 120,970 (49.6%)
- Functional Disorders: 37,960 (15.6%)
- Vascular Disorders: 17,460 (7.2%)
- Ocular Disorders: 146 (0.7%)
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
- Jayson Neil, MD
- William Rosenberg, MD

RADIATION ONCOLOGISTS:
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- Graham Lee, MD
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MEDICAL PHYSICIST:
- Bob Gilliam, MS
- Eddie Dickenson, MS

NURSE SPECIALIST:
- Jeff Chung, RN
Sample Patient Information Guide

GAMMA KNIFE
STEREOTACTIC RADIOSURGERY

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To refer a patient, please call Midwest Gamma Knife Center:

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