**What is Gamma Knife?**
The Gamma Knife is a machine that delivers a single, finely focused, high dose of radiation to its target, while causing little or no damage to surrounding tissue. Abnormalities measuring less than 3 centimeters, or 1 inch in diameter, can be treated with the Gamma Knife.

This technique requires precise positioning, and is performed with the aid of a device that stabilizes the patient’s head in a certain position. This device is called a stereotactic head frame, and is combined with imaging scans (like CT or MRI) to identify the tumor’s exact location and precisely focus the gamma radiation beams to converge on it. The size of the radiation beams can also be adjusted, so that a high radiation dose can be precisely accumulated within a tumor of almost any shape.

**Why might I need Gamma Knife radiosurgery?**
Gamma Knife radiosurgery is most often used to treat:

- Small and medium tumors and lesions in the brain
- Trigeminal neuralgia, when pressure on the trigeminal nerve causes spasms of extreme facial pain
- Acoustic neuroma, a noncancerous tumor in the brain that affects nerves that control hearing
- Blood vessel lesions such as arteriovenous malformation (AVM)

Your healthcare provider may have other reasons to advise Gamma Knife radiosurgery. Gamma Knife radiosurgery may be used when a brain lesion can’t be reached by standard surgery. Or it may be used when a person can’t have standard surgery, such as craniotomy. The effects of a Gamma Knife treatment occur slowly over time. Because of this, it is not for people who need immediate effects. Talk with your healthcare provider about the reason for your procedure.

**What are the benefits of Gamma Knife radiosurgery?**
Gamma Knife surgery is different from conventional radiation therapy of the brain because it is only directed to the target and spares unnecessary treatment of adjacent, normal brain tissue. It differs because only a one-day treatment is required rather than daily treatments over several weeks from whole brain radiation. It can be used in conjunction with conventional surgery as a boost and can be used in previously inoperable cases. Gamma Knife surgery can replace brain surgery in some patients with brain tumors and vascular malformations. An individual who would be at risk for complications by conventional surgery may be a candidate for Gamma Knife surgery. It can be used when prior surgery or radiation therapy has failed to control the disease process. It is bloodless, virtually painless, no loss of hair with rapid return to activities of everyday living.

**Where can I find additional resources?**
Vidant Health has assembled a wealth of resources to support you and your family during your cancer journey. It’s our mission-minded commitment to your health and well-being. If you or a loved one is facing cancer, explore these resources to help along the way. Visit the Vidant Health Library at [vidanthealth.com](http://vidanthealth.com) for more information.

**Who can I contact with questions?**
If you have specific questions about Gamma Knife ® and procedures, please visit Vidant Cancer Care at [vidanthealth.com](http://vidanthealth.com) for more information about services and treatments.