spotlight on health

Non-Invasive Technique Lets Doctors Painlessly Treat Brain Afflictions

(NAPS)—A proven medical device considered by many physicians to be on the cutting edge of technology, has helped to eliminate almost all of the complications often associated with brain surgery.

The device, known as the Gamma Knife®, is a radiosurgery system that uses high doses of radiation—delivered in the form of up to 201 converging beams—to painlessly treat lesions deep within the brain.

The technology has helped to change the face of brain surgery by letting doctors perform different types of deep brain procedures without actually making an incision in the patient's head. Patients remain conscious during the entire procedure and can often go home the same or following day.

According to Doctor Thomas A. Gennarelli, Chair of the Department of Neurosurgery at the Medical College of Wisconsin, the benefits of the Gamma Knife are significant. "There's virtually no chance of bleeding or infection inside the head."

The device uses three dimensional software to pinpoint the exact area in the brain that doctors want to treat. The extreme precision with which the dose of radiation is applied minimizes damage to healthy adjacent nerves or tissue.

"The surrounding tissue is not disturbed in any way, whereas in surgery, we have to risk moving healthy tissue in order to get to where a tumor is." says Gennarelli, regarding Gamma Knife treatment.

The precise mapping technology lets doctors treat many conditions that would otherwise be untreatable using conventional surgery.

For example, 52-year-old Delores Poindexter from Milwaukee, Wisconsin was diagnosed with a small tumor in the fibrous tissues covering the brain's surface. The tumor pressed against her optic nerve and was causing an increasing level of discomfort.

A non-invasive medical procedure lets patients like Delores Poindexter return to their normal routine almost immediately after being treated for tumors or brain abnormalities.

Poindexter's tumor was considered too small to operate on using conventional surgery without risking injury to nearby nerves, and she was advised by doctors to wait for the tumor to grow larger before attempting to treat it.

After consulting with Dr. Gennarelli, however, she learned that Gamma Knife technology could effectively treat her condition on the spot.

"The device is a real tool for a tumor like this that we couldn't treat before," explains Gennarelli. The extreme accuracy with which the knife's radiation can be focused often allows experts to effectively treat tumors like Poindexter's early in the growth process—this may help doctors treat dysfunctions before they become major medical problems.

The actual treatment procedure involves attaching a lightweight frame to the patient's head. This frame, which keeps the head immobile and helps target the problem site, is affixed to a helmet which contains 201 tiny holes. The helmet's holes can be plugged or unplugged by physicians to control where radiation meets the brain.

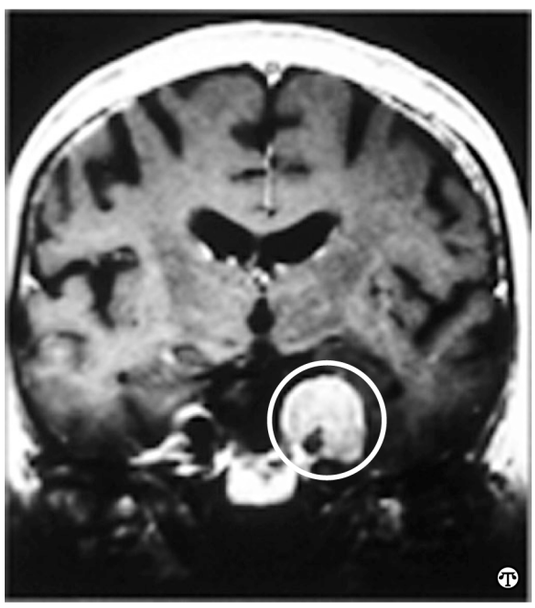
Patients lie on the Gamma Knife's moving bed and, similarly to a CAT scan, are moved into the Gamma Knife machine.

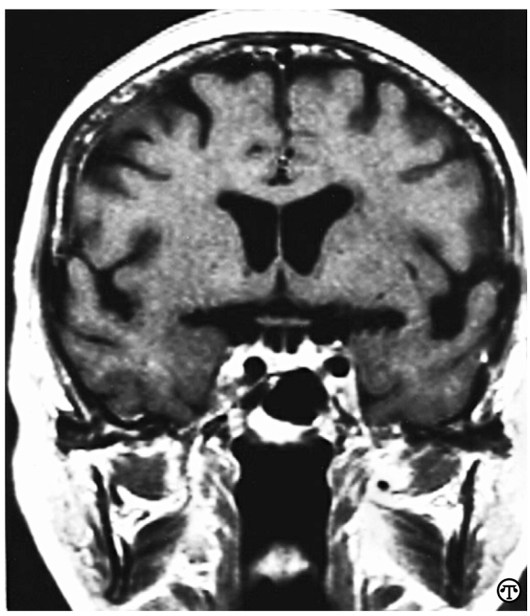
The treatment takes one to five minutes and can be repeated any number of times within one session—a sharp contrast to cobalt or radiation treatments which often cannot be repeated within a close time period and can require months of ongoing treatments. Doctors are continually in contact with the patient through video and audio feeds.

For nearly three decades the technology has been used to successfully treat patients for a variety of conditions ranging from malignant or benign tumors, to functional disorders.

The technology is used at more than 140 institutions worldwide and is recognized and covered by most health insurance companies.

Some experts expect the treatment method's success to lead to developments in other types of non-invasive surgeries. For more information on the Gamma Knife, including a list of locations, consult your healthcare professional, or visit www.gammaknife.com or call 1-717-671-1701.





Courtesy: L. Steiner, MD, PhD; D Prasad, MD; UVA Charlottesville, USA.

Instead of open-brain surgery, a 67-year-old woman is treated with the Gamma Knife for a brain tumor called a meningioma (circled).

After one Gamma Knife session, the woman's tumor began to dissolve. Two years later, it was completely gone.