



HEALTH news

University of Maryland Medicine

RADIATION ONCOLOGY

WHAT SETS THE UNIVERSITY OF MARYLAND APART FROM THE REST

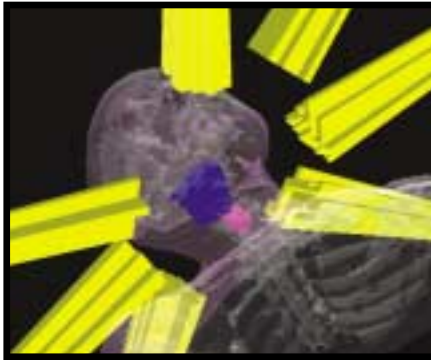
The goal of radiation oncologists is universal. They strive to kill cancer cells within the body, while sparing the healthy, surrounding tissue from radiation. The Radiation Oncology Department at the University of Maryland Greenebaum Cancer Center offers patients with all types of cancer the most advanced radiation therapies available. In addition, patients receive compassionate and individualized care.

Intensity Modulated Radiation Therapy, or IMRT, is considered by most physicians to be the most advanced radiation available to destroy cancer cells without damaging normal tissue. By using computer-generated plans, IMRT delivers high doses of radiation directly to the diseased area. This type of radiation has opened the doors to patients who may not have been candidates for radiation because their tumors were located near vital organs.

Recognized as a national leader in IMRT, the University of Maryland has helped perfect this method of treatment by developing Direct Aperture Optimization, or DAO. This radiation delivery technique dramatically cuts the treatment time. It also increases patients' comfort and helps ensure they remain still and therefore receive the most effective dose of radiation, right at the site of the tumor.

"We are a technologically driven specialty. With the continuing advancement of computers and equipment, we will be able to more effectively kill tumor cells without damaging normal tissue," explains William F. Regine, M.D., professor and chairman of the Department of Radiation Oncology at the University of Maryland School of Medicine and chief of radiation oncology at the University of Maryland Medical Center.

DAO is a clear example of how the University of Maryland is a leader in developing and implementing technology in a clinical setting.



Using DAO radiation from seven beam directions, the tumor of a head and neck cancer patient is targeted while sparing surrounding normal tissues such as the spinal cord.

Another example is Spatially Fractionated Radiation Therapy, or Grid, which can be used to attack larger tumors when traditional radiation therapy fails. The University of Maryland is one of just a few places in the country using Grid therapy. Using pencil sized beams, a five to ten times greater dose of radiation is directed at the large tumor.

The uniqueness of the University of Maryland's Department of Radiation Oncology can be seen in its current study of the effect of cancer on family members and caregivers. This new study is designed to identify stress factors and to find ways to help caregivers cope when the cancer is first diagnosed. Anyone taking part in the study answers a series of questions about the kind of stress they have encountered while caring for a cancer patient. Many of the questions focus on the impact cancer has on the caregivers' financial, emotional and physical well-being.

In the pages that follow, the Gamma Knife program and a new internal radiation therapy for early-stage breast cancer patients called MammoSite® are highlighted. These are two more examples of what distinguishes the University of Maryland Greenebaum Cancer Center—where hope is a way of life. ■

Radiation Oncology affiliated with the University of Maryland is available at these locations:

University of Maryland Greenebaum Cancer Center
Baltimore, MD 410-328-7237 or 1-800-492-5538

Tate Cancer Center at North Arundel Hospital
Glen Burnie, MD 410-553-8100

Central Maryland Oncology Center
Columbia, MD 410-740-9300

Montgomery General Helen P. Denit Cancer Center
Olney, MD 301-260-3700

THE BLOODLESS, BLADELESS GAMMA KNIFE

- The University of Maryland Medical Center established its Gamma Knife Center in 1992, making it the most experienced gamma knife program in the region.
- The gamma knife is used to treat malignant tumors, many benign tumors and arteriovenous malformations.
- The gamma knife is also used to treat some functional disorders like trigeminal neuralgia.
- It is a non-invasive treatment with minimal side effects.
- Gamma knife technology has been in clinical practice since the 1950's. There is a lengthy history of its success.
- In the spring of 2004, the multidisciplinary team that makes up the Gamma Knife Center at the University of Maryland Medical Center is expected to treat their 2000th patient.

It was a December day a year ago when Barbara Higdon had a seizure while running errands. The breast cancer that had metastasized to her bones, liver and lungs had invaded even more of her body. Unbeknownst to her, the cancer had spread to her brain, causing the seizure.

Following a course of radiation, Ms. Higdon discussed with her oncologist if there was another possible treatment option to attack the tumors in her brain. Since she had multiple tumors, surgery was not an option. Together they wondered if gamma knife treatment at the University of Maryland Medical Center might be the way to go.

Patients with brain tumors who once relied on surgery, multiple applications of radiation therapy or a combination, often have another option called gamma knife. The gamma knife is a "bloodless" procedure in which a "bladeless" knife emits 201 finely focused beams of radiation directly into the brain at the exact location of the disorder. It is used to treat malignant tumors like Ms. Higdon's. It is also used for many benign tumors, arteriovenous malformations, and functional disorders, according to Lawrence Chin, M.D., associate professor of neurosurgery at the University of Maryland School of Medicine and medical director, Gamma Knife Center and Brain Tumor Center at the University of Maryland Medical Center.

"I had no fear because I knew there was no-cutting involved," says Ms. Higdon when recalling her initial reaction about having gamma knife treatment.

The University of Maryland Medical Center established its Gamma Knife Center over a decade ago, making it the first gamma knife in the region. "To date, more than 1,900 patients have been treated with gamma knife at the University of Maryland. Because

there is little in the way of pain, anesthesia, hospitalization, or recovery time, it appears to be far more cost effective and more advantageous for the patient than conventional surgery," explains William F. Regine, M.D., professor and chair of the Department of Radiation Oncology at the University of Maryland School of Medicine.

The gamma knife team at the University of Maryland Medical Center is among the most experienced in the nation. Specialists from Neurosurgery, Radiation Oncology, and NeuroRadiology work together to determine whether a patient is a candidate for gamma knife. This specialized procedure requires experience and particular attention to detail.

"The team explained everything to me. They are so organized and they made me feel so relaxed, comfortable and reassured," explains Ms. Higdon.

On the day of the treatment, Ms. Higdon says she felt "no pain." She dozed in and out as the music of new age singer Enya played in the procedure room. A day later she returned to her home in Baltimore County.

The results were positive. The tumors in Ms. Higdon's brain had shrunk to half their size. "The gamma knife gave me hope when I thought there were no other treatment options. It also gave me a sense of closure in that I am no longer anticipating another seizure," says Ms. Higdon. ■



USING THE GAMMA KNIFE TO TREAT MORE THAN BRAIN TUMORS

For almost four years, Pastor George Snyder suffered with inexplicable and unexpected pain. "It was like a lightning bolt hit my head. The pain started in my tooth and shot through the left side of my face. It could happen at any time and would last for about 30 seconds."

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[Gamma Knife]
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After countless visits to dentists and several root canals, Pastor Snyder was ultimately diagnosed with trigeminal neuralgia, a condition that affects one of the largest nerves in the head and is associated with sharp, piercing pain in the jaw or cheek. Oral medications helped control the problem, but the pills played havoc with Pastor Snyder's brain. He could no longer remember the sermons he would write, and he could barely recall how to get to the grocery store.

Finally out of frustration he called a local hospital to find out what kind of treatment was available for

trigeminal neuralgia. The person on the other end of the line told him to contact the Gamma Knife Center at the University of Maryland Medical Center. Pastor Snyder made the call and scheduled an appointment soon after.

The gamma knife has been used for decades to treat patients with brain tumors. In recent years, it has also been shown to be effective in treating patients with functional disorders like

trigeminal neuralgia. "Our experience in treating more than 200 patients with this disorder shows that pain is significantly reduced and quality of life is improved by the gamma knife," says Dr. Chin.

The procedure involves fitting a patient with a stereotactic frame, which attaches to the head using four pins that penetrate about 2 millimeters. Local anesthesia prevents discomfort. The patient is then given a MRI and placed into the gamma knife where the 201 gamma rays converge to target the trigeminal nerve.

When the day arrived for treatment, Pastor Snyder was concerned that he may become claustrophobic, but he was quickly calmed by the gamma knife team. "I felt fine. They explained everything to me, and the nurse practically held my hand throughout the procedure. I was only in the gamma knife for 45 minutes," remembers Pastor Snyder.

"The process is unique because no surgical incision exposes the brain, which eliminates the risk of infection and hemorrhage," points out Dr. Chin. "The procedure also eliminates side effects of general anesthesia," adds Dr. Chin.

For three weeks after the treatment, Pastor Snyder had infrequent and less intense pain—and then all of a sudden, the pain was gone permanently. He could resume delivering sermons he had memorized, and he no longer had to take 30 second breaks during conversations when he would become silent and touch his face.

The gamma knife was a godsend for this Hagerstown man. So much so, that Pastor Snyder's daughter has been known to refer people with trigeminal neuralgia to the University of Maryland Medical Center and its Gamma Knife Center. ■

For more information about the Gamma Knife Center, please contact 1-800-492-538 or visit www.umm.edu.



A NEW TREATMENT OPTION FOR PATIENTS WITH EARLY-STAGE BREAST CANCER

The University of Maryland Medical Center is the first hospital in Baltimore to offer a targeted "internal" radiation therapy called MammoSite® for patients with early-stage breast cancer who have had lumpectomies. Approved by the U.S. Food and Drug Administration last year, the MammoSite system delivers high-dose radiation directly to the site where the tumor was removed, targeting the area where the cancer would most likely recur and sparing nearby healthy tissue.

"MammoSite represents the next generation of internal radiation therapy. It is minimally invasive, has been shown to be safe and can be performed as an outpatient procedure," says William E Regine, M.D., professor and chairman of the Department of Radiation Oncology at the University of Maryland School of Medicine.

With the MammoSite system, doctors place a thin spaghetti-like catheter into the cavity of the breast created by the lumpectomy. Then a radioactive "seed" attached to a thin wire

is threaded through the catheter into the lumpectomy site, delivering radiation directly to the former tumor's location. The seed remains there for only a few minutes until the wire is withdrawn. The catheter is removed after the final treatment, and no radiation remains in the body.

Internal radiation therapy, or brachytherapy, has been used successfully for years to treat prostate, gynecologic, lung, soft tissue and many other types of cancer. It has been used only sporadically to treat breast cancer, but may now be much simpler due to the ease of inserting a single, flexible catheter that allows outpatient treatment.

At the University of Maryland Greenebaum Cancer Center, doctors are using MammoSite to boost conventional radiation therapy. Patients receive two MammoSite treatments over a day and a half, followed by five weeks of daily radiation treatments to the whole breast.

MammoSite may make it easier for some women with breast cancer to choose to have a lumpectomy, followed by radiation therapy, rather than undergoing a mastectomy. Recent studies have shown that patients with early-stage breast cancer who have lumpectomies have the same success rate as those who have a modified radical mastectomy to remove their breast. But an estimated 50 percent of women diagnosed with early-stage cancer still choose to have a mastectomy.

With the availability of MammoSite, many patients with early-stage breast cancer have a treatment option that may improve their quality of life while they are receiving state-of-the-art radiation therapy. ■

For more information about MammoSite, contact 1-800-492-5538.



MammoSite® is a form of radiation therapy that delivers radiation from inside the breast. It may help more women avoid a mastectomy.



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22 S. Greene Street, Baltimore, MD 21201

1.800.492.5538

www.umm.edu

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Bone and Soft Tissue Oncology
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Hematologic Malignancies Program
Medical Oncology/Hematology Program
Pediatric Oncology
Radiation Oncology
Surgical Oncology
Thoracic Oncology Program