



CyberKnife® Radiosurgery

2005 FIVE-YEAR REPORT 2010



UT THE UNIVERSITY OF TENNESSEE
MEDICAL CENTER

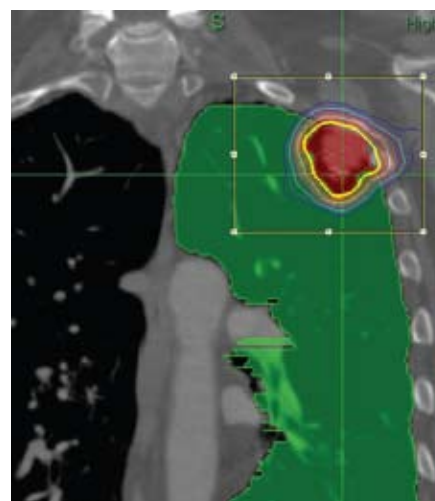
Wisdom for Your Life.

INTRODUCTION

In 2005, The University of Tennessee Medical Center became only the 23rd site in the United States to offer CyberKnife Stereotactic Radiosurgery. Over the first five years of operation, the physicians and staff of the CyberKnife Center provided over 1,600 treatments to patients in our region and throughout the Southeast.

This technology continues to offer options for patients facing complex diseases and conditions. In some cases, CyberKnife is the only option available that may lead to a cure and/or better quality of life for the patients we serve. By 2010, over 100 CyberKnife systems were in operation in the United States. Since treating our first patient in January 2005, research studies published in peer reviewed literature continue to validate CyberKnife as an effective tool in treating both malignant and benign conditions. Based on this research, the use of radiosurgery is expanding and becoming standard of care treatment for many conditions. Advancements in CyberKnife equipment and software also continue to evolve, leading to improved and faster delivery of treatments.

We hope that you will take a moment to read our first Five-Year Report and learn more about how CyberKnife and our medical center team is bringing hope to many in our community.



Daniel M. Green

Daniel M. Green, MD

Medical Director, Radiation Oncology



William S. Reid, MD

William S. Reid, MD

Co-Chair Brain & Spine Institute Steering Committee
Neurosurgery

FOREWORD

We began our CyberKnife journey at The University of Tennessee Medical Center in 2005, and we've come a long way in a short time. Being only the 23rd center in the United States to have this innovative system, there were struggles that all cutting-edge medical technologies face. This included the education of medical professionals, media, patients and the community at large on the advantages and appropriate use of this new service. Additionally, there have been many obstacles convincing insurance providers that this was not an experimental treatment but a proven entity with established success rates.

Over the course of time, we have seen the FDA approve stereotactic radiosurgery for treatment of prostate cancer – a very promising treatment option for men desiring the highest preservation of genitourinary function and minimal side effects. We have seen the National Comprehensive Cancer Network (NCCN) guidelines include stereotactic radiosurgery as a standard for treating stage one lung cancer. Many insurance companies that in the beginning approved only intracranial treatment on the CyberKnife now cover extracranial applications (body radiosurgery) for areas including lung, liver, pancreas, spine or soft tissue.

Along with these challenges, we have seen the rewards of successfully treating hundreds of patients. Success is defined differently for each individual – for some it has been curative and others have avoided the risks and recovery associated with surgical procedures. Some patients have experienced the gift of pain relief or additional time to accomplish a goal they have set. For many, CyberKnife has been the only hope when no other treatment options were left.

In January 2010, our CyberKnife underwent a one-million-dollar upgrade that features more sophisticated treatment planning and delivery. For patients, this means decreased wait times for treatment planning and, most importantly, shortened treatment times. Current clinical trials are exploring the use of CyberKnife for the treatment of breast and other cancers. The technology is ever advancing – fields beyond cancer treatment are being explored including treatment of Parkinson's, essential tremors and cardiac applications such as rhythm aberrancies.

It has been our privilege to serve nearly 700 patients since 2005. The gratitude we have been shown by patients is overwhelming and the satisfaction for us is immeasurable. We look forward to the future with anticipation of the expanded capabilities that will continue to benefit our patients. The one thing that will not change is our dedication to providing compassionate, caring and personalized service to each patient and their family.

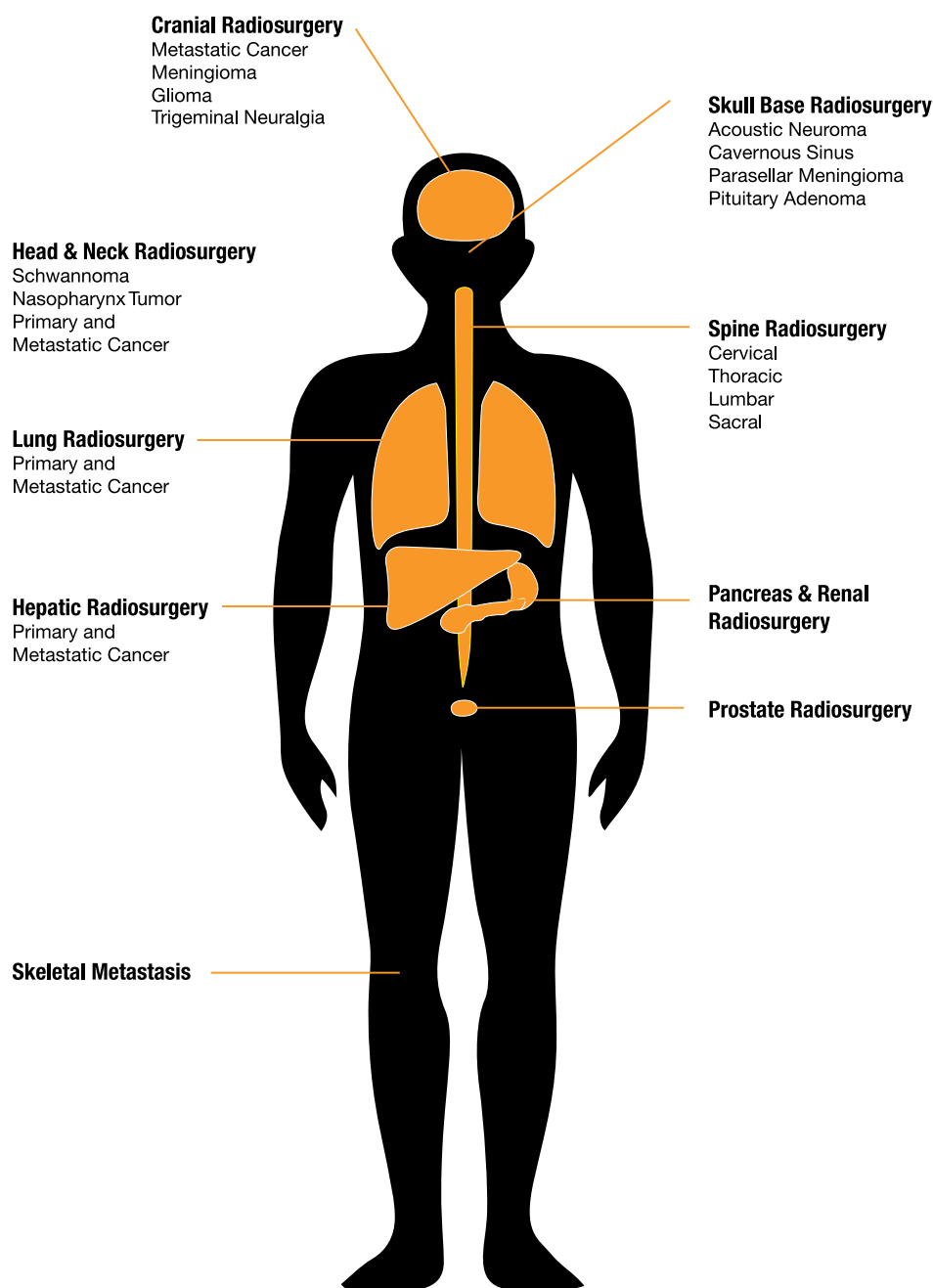
Terri McDonald, RN

Terri McDonald, RN
CyberKnife Nurse Coordinator



ABOUT CYBERKNIFE

CyberKnife Body Indications

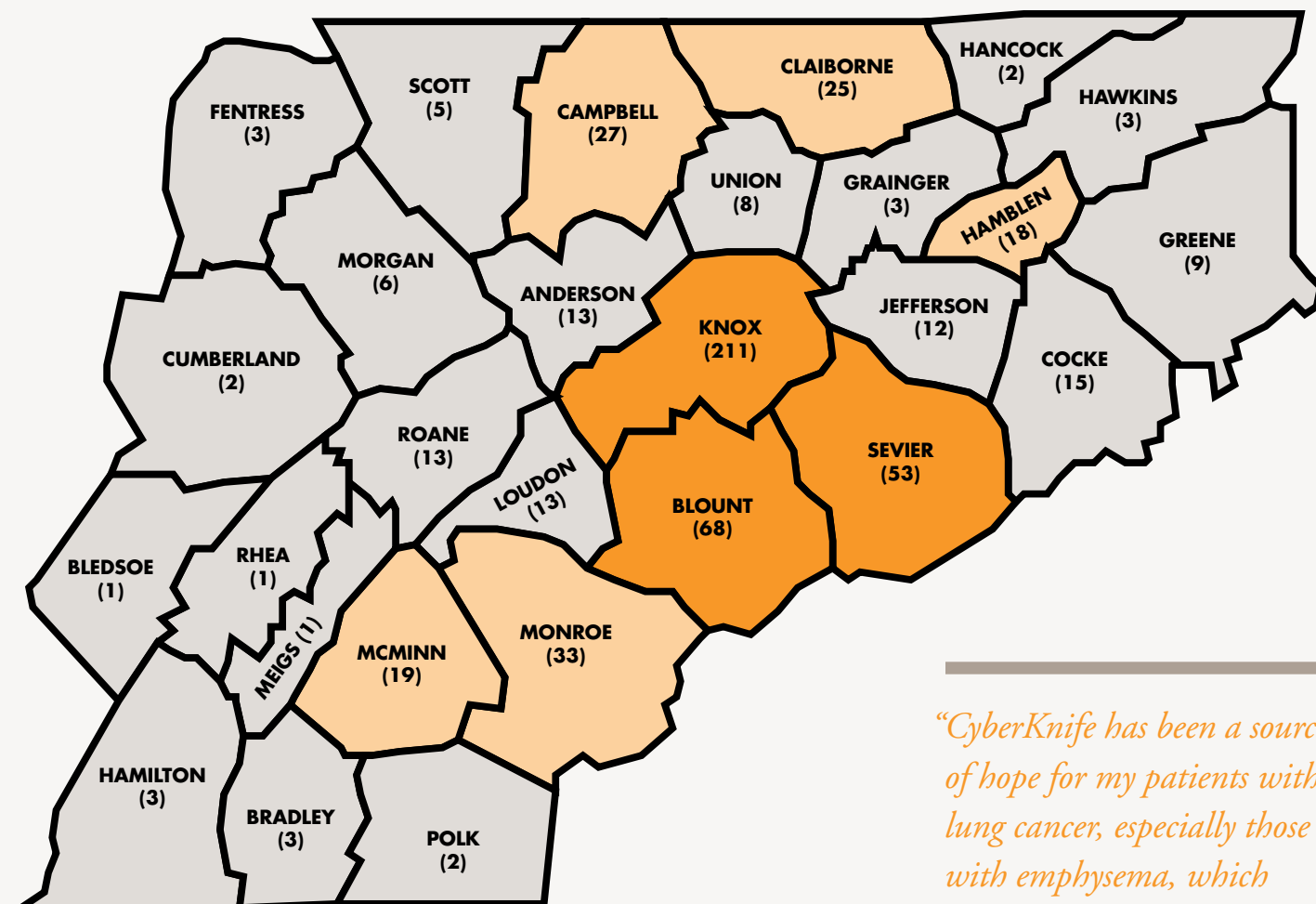


The University of Tennessee Medical Center is proud to be the only facility in Knoxville to offer CyberKnife Stereotactic Radiosurgery. CyberKnife's revolutionary technology enables treatment of tumors throughout the body with greater precision as well as convenience and comfort to the patient. Using a multidisciplinary approach, the CyberKnife team at the medical center consists of radiation oncologists, medical oncologists, neurosurgeons, surgeons, physicists, radiation therapists and nurses to ensure the highest quality of care.

“CyberKnife has given us a marvelous new technology for the treatment of metastatic lesions in the brain and spine. Prior to CyberKnife, the patient would have been subjected to multiple open surgeries requiring anesthesia and long recovery times. I am now able through precise planning to spare healthy tissue while targeting irregularly shaped tumors.”

William E. Snyder, MD,
Neurosurgery

PATIENT ORIGIN



“CyberKnife has been a source of hope for my patients with lung cancer, especially those with emphysema, which makes surgery too risky.”

**Paul R. Branca, MD, FCCP,
Pulmonology**

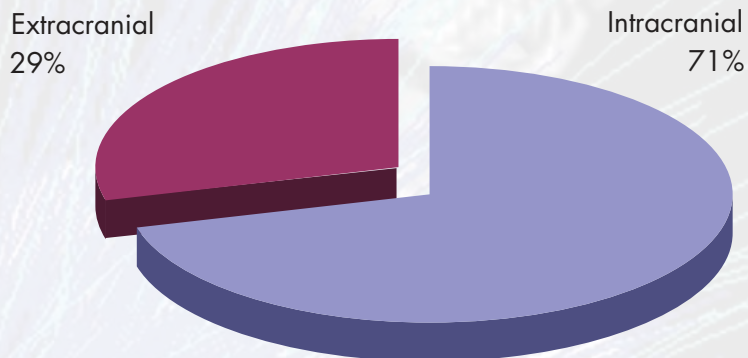
“We are the only hospital in the region to offer CyberKnife treatment. What is so exciting is that this technology can be utilized not only for metastatic brain tumors but other soft tissue tumors of the lung, liver and pancreas and has the potential to be used in other areas beyond these.”

**Wahid T. Hanna, MD,
Medical Oncology**

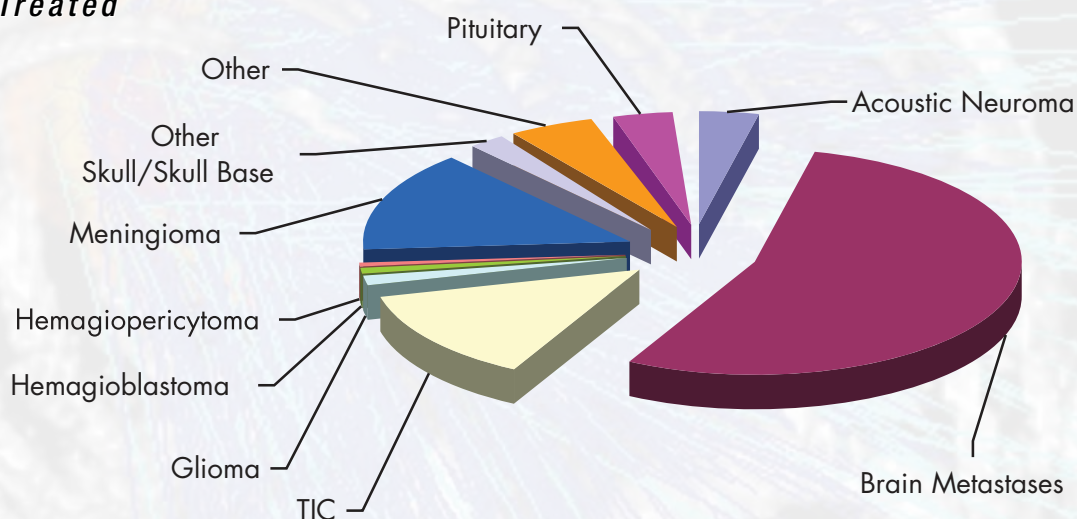
Other Areas Served By CyberKnife	
Kentucky	14
Tennessee (Outside East Tennessee)	8
North Carolina	6
Virginia	3
Alabama	2
South Carolina	2
Georgia	1
Nebraska	1
Outside U.S.	
India	1

CYBERKNIFE TREATMENTS 2005-2010

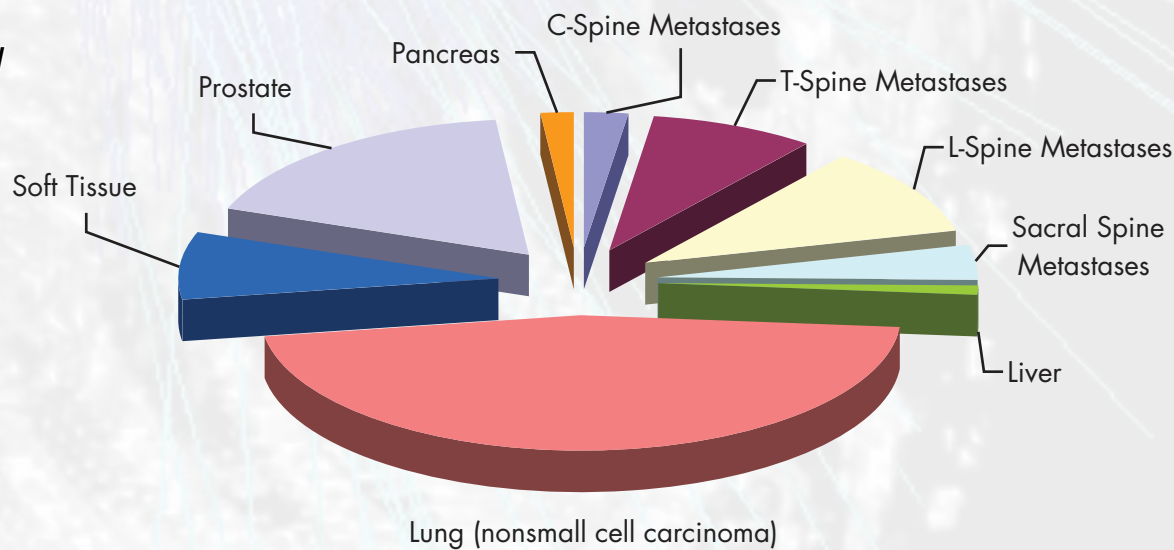
TOTAL Lesions Treated



INTRACRANIAL Lesions Treated



EXTRACRANIAL Lesions Treated



INTRACRANIAL

Brain Metastases	248
Meningioma	66
Trigeminal Neuralgia (TIC)	61
Other	26
Acoustic Neuroma	17
Pituitary	17
Other Skull/Skull Base	11
Glioma	7
Hemagioblastoma	4
Hemagiopericytoma	2
	459

EXTRACRANIAL

Lung (nonsmall cell carcinoma)	88
Prostate	34
L-Spine Metastases	20
T-Spine Metastases	16
Soft Tissue	15
Sacral Spine Metastases	8
C-Spine Metastases	4
Pancreas	3
Liver	2
	190

Total **649**

GAMMA KNIFE VS. CYBERKNIFE

EXCERPT FROM ONCOLOGY ISSUES SEPTEMBER/OCTOBER 2006

Gamma Knife vs. CyberKnife

by S. Christopher Hoffelt, MD

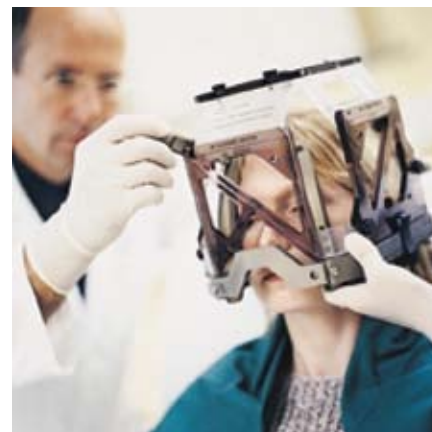
A fair comparison regarding CyberKnife and Gamma Knife must be limited to their ability to treat lesions in the head, as the latter cannot treat extracranial sites. The need for precision in SRS treatments within or adjacent to sensitive brain tissues is obvious, hence accuracy is a reasonable first point of discussion. Both the Gamma Knife and CyberKnife employ regularly scheduled, strict quality assurance measurements, including film, to simulate a treatment. For both, the accuracy of treatment delivery can usually be confirmed to within less than 0.5 mm. Other sources of error are unaccounted for in these measurements. The CyberKnife real-time image capture may generate an additional 0.5 mm error.¹ The Gamma Knife head frame is not entirely rigid, and may account for less than 0.5 mm up to 1.7 mm inaccuracy.^{2,3} Regardless of these potential sources of error, most users will agree that accuracy of both units is more than adequate for treatment of appropriate intracranial lesions.

Clinical efficacy is a second important point of discussion. For the numerous applications listed in Table 1, use of the Gamma Knife has been arguably the dominant resource for published literature regarding efficacy of SRS for the past 30 years. Literature specific to the newer CyberKnife is far less abundant but continues to emerge. It is fair to consider CyberKnife efficacy similar to most linear accelerator-based radiosurgery system using similar beam energies. These systems have also contributed substantially to the SRS literature for intracranial lesions, establishing their use as standard for appropriate patients.

The ability to treat any body site distinguishes CyberKnife from the Gamma Knife. Tomotherapy, Trilogy, Novalis, and Elekta Body Frame are other systems sharing this capability. Extracranial radiosurgery has enormous potential as a standard treatment option but is still largely an emerging application. Data, yet limited, have demonstrated promising results for certain tumors of the liver,⁴⁻⁶ lung,⁷⁻⁹ and spine,¹⁰⁻¹¹ and for radiation-resistant histologies. Results from larger published studies, including RTOG 0236, a clinical trial for early stage lung cancer, are expected within a few years.

Other important considerations exist. A reported but uncommon limitation of the Gamma Knife or any frame-based SRS system is the ability to treat peripheral brain or base-of-skull lesions. This situation can result in a collision of the frame or patient with the hardware if the target location extends beyond the treatable volume. The small size of the Gamma Knife collimators may be advantageous in sparing dose to critical tissues,¹² but can create difficulty in treating lesions larger than 3-4 cm. Errors in the CyberKnife or other image-guided SRS systems may result from image resolution and registration, the quality of the planning images, and errors in couch and robot arm positioning.

Cost is certainly an important consideration for any institution. Formal written estimates for the unit cost obtained from each company can vary by region but are comparable, ranging from \$3.4 to \$4 million dollars. It is also important to consider installation, physics, and therapist training and support, and maintenance costs for these units. Because these costs also vary by region, it is important to discuss these factors with their respective companies.



Gamma Knife Head Frame

TABLE 1: Common Conditions for which Stereotactic Radiosurgery is indicated

Neoplasms
Brain metastases
Acoustic neuroma/
Vestibular schwannoma
Meningioma
Pituitary adenoma
Glioma/astrocytoma
Chordoma/Chondrosarcoma
Craniopharyngioma
Hemangioblastoma
Ocular melanoma
Nasopharynx carcinoma
Glomus jugulare tumors

Vascular Disorders of the Brain
Arteriovenous malformations (AVM)
Arteriovenous fistulas (AVF)
Cavernous malformations

Other Disorders
Trigeminal neuralgia (tic douloureux)
(painful condition of the face)

The long, established history of Gamma Knife certainly contributed to the development of the CyberKnife and other intracranial and extracranial SRS systems. Direct, formal clinical comparisons will likely be available in the future, as more data for intracranial and extracranial applications emerge. While costly, both units are practical and effective for appropriate patients.

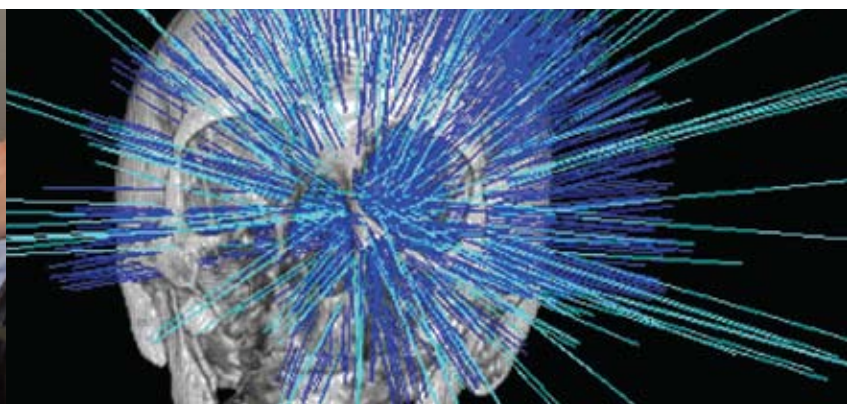
S. Christopher Hoffelt, MD, is medical director of Radiation Oncology at Southwest Washington Medical Center and assistant professor of Radiation Oncology at Oregon Health Sciences University in Portland, Ore.

What makes CyberKnife different?

CYBERKNIFE®	GAMMA KNIFE®
Developed for treating tumors in the brain, spine, and throughout the body	Designed for treating tumors only in the brain and neck
6-megavolt photon beam produced by a linear accelerator	1.25-megavolt cobalt-60 source of radiation
Frameless; soft mesh face mask or body cradle used for guidance and immobilization	Rigid head frame screwed to the outer skull used for guidance and immobilization
Collimators allow for 12 different beam sizes	Collimators allow for only 4 different beam sizes
Can treat 1 to 5 times to minimize radiation exposure preserving normal tissue	Must treat with only one large radiation dose
1,200 beam positions	201 beam positions
Treatment planning from various orientations	One orientation for planning
CT, PET and/or MRI scans, planning, and treatment occur over multiple days	CT and/or MRI scans, planning, and treatment must be done in one day
Real-time tracking allowing for beam adjustment for any movement by the patient	Targeting based only on previous acquired images

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PATIENT CASE STUDY

CASE HISTORY

73-year-old male with the diagnosis of recurrent meningioma in the left cervical spine region. Patient initially had a partial resection of the lesion in 1970 and subsequently a second surgery in 2005 for recurrence performed by a neurosurgeon at Vanderbilt University Medical Center in Nashville, Tennessee. Patient recovered well and continued follow up with physicians at Vanderbilt. In May 2007 the patient experienced increased pain in the left neck, arm and hand numbness and weakness along with an inability to raise arm from a side position. MRI at Vanderbilt revealed an extradural soft tissue mass extending through the right and left C4-C5 and C5-C6 neuroforamina that extended along the anterior epidural space to the C3 level. A small component extended upward along the anterior paravertebral region that was continuous with the soft tissue mass on the left. The mass displaced the cervical cord to the left with severe flattening of the right half of the cord. No abnormal enhancement was noted within the cord itself. The patient was referred to Dr. Robert Bertoli for consideration of possible radiotherapy/stereotactic body radiosurgery treatment with CyberKnife.

CYBERKNIFE TREATMENT RATIONALE

The patient required an approach with stereotactic body radiosurgery as he was not considered a candidate for further definitive surgery. Because of the limited radiation tolerance of the spinal cord and other adjacent normal tissues, the dose of conventional radiation therapy required to control these tumors is often prohibitive. Doses of conventional radiation that are used for control of meningioma are higher than what is considered safe for spinal cord tolerance. Fortunately, spinal radiosurgery offers an alternative to surgery and conventional radiation for select patients.

When treating benign spinal tumors with radiosurgery, the primary intermediate objective is to stop all tumor growth. Over the long term, these tumors will gradually shrink in size which may take a period of several years. Preliminary results with CyberKnife radiosurgery for meningioma and schwannoma show excellent control of tumor growth.

Treatment with CyberKnife radiosurgery utilizing a hypofractionated treatment regimen was indicated for maximum local control and to minimize the chance of injury to the spinal cord.

TREATMENT PLANNING PROCESS

The patient was immobilized with a cervical collar and facemask during the setup procedure prior to the planning imaging studies to ensure reproducibility and positioning for the five daily treatments. The tumor target volume and critical structure volumes were contoured and reconstructed in three-dimensions from the fusion of the CT myelogram and MRI of the cervical spine. The target volume was measured at 39.20 cc. The inverse treatment plan was prescribed at 82% isodose line to the margin of the recurrent and progressive meningioma and prescribed to deliver 25 Gy in five fractions of 5 Gy each. The tumor volume was covered 95.0% with a 1.34 conformity index score and 1.22 homogeneity index score using this plan. Xsight spine tracking was employed.

CyberKnife Case Study

Demographics

Sex: Male

Age: 73

Histology: Cervical spinal meningioma, recurrence and progressive

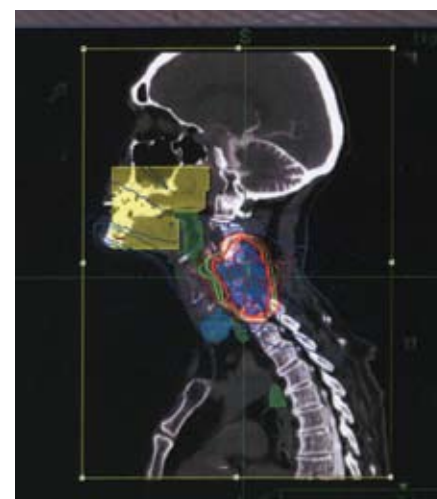
Neurosurgeon: Dr. William Reid

Treatment: 5 fractions August 2007

Follow-up: Last visit June 23, 2010

“CyberKnife provides a treatment option for some patients who have no other options. It is really exciting when patients come back for follow-up visits with a good report!”

**Kelley York, RT,
Chief Therapist**



TREATMENT DELIVERY

The inverse treatment plan utilized 327 nonzero beams with a combination of 7.5 mm and 15 mm Cyberknife collimator sizes to target the tumor site. Three hundred and forty-two imaging nodes were planned per stage of treatment. The plan delivered 25 Gy at 5 Gy per fractionated treatment with dose specified at the margin of the recurrent and progressive meningioma. Daily maximum dose within the volume of the meningioma was 6.1 Gy and cumulative maximum dose was 30.48 Gy. Dose volume histograms for the multiple critical structures in the head and neck region were very favorable in relation to the dose to the tumor. Maximum point doses were also very favorable in relation to the dose to the tumor.

OUTCOME AND FOLLOW-UP

At 3-month follow-up:

- * Neck, shoulder and arm pain dramatically decreased
- * Neck and left arm mobility much improved
- * MRI study showed no progression of meningioma

9-month follow-up:

- * Improved neck and left shoulder mobility
- * Left arm strength increasing
- * Some numbness in left upper arm but improved compared to last visit

12-month follow-up:

- * Increased left shoulder and neck mobility
- * Increased left arm function
- * No new symptoms or problems

22-month follow-up:

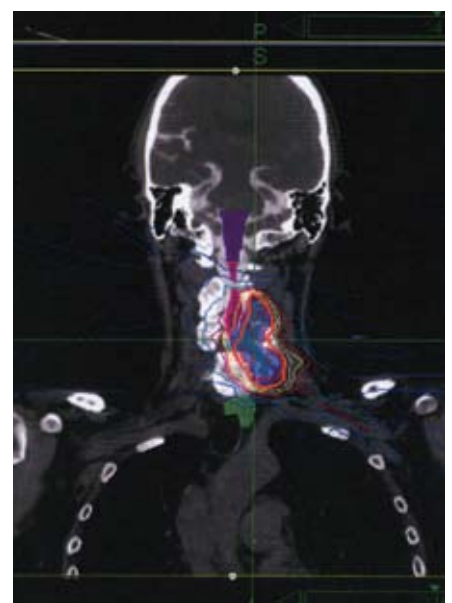
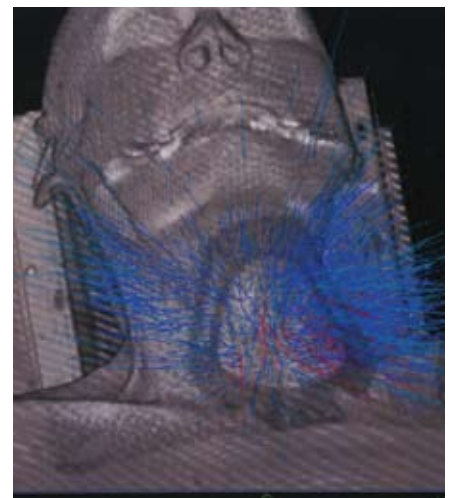
- * Left arm range of motion improved, arm strength stable, mild residual weakness
- * No new problems
- * No neck pain
- * Follow-up MRI reveals no evidence of tumor progression and stability of the previously treated lesion

CONCLUSION

The patient has experienced significant improvement since undergoing stereotactic radiosurgery. MRI shows no evidence of tumor progression. Follow-up will occur on an annual basis with continued MRI surveillance.

“One of the most remarkable attributes of CyberKnife is the ability to precisely treat each patient’s disease. It is amazing that this technology allows us to help patients who we could not have helped in the past due to the unusual size or difficult location of the lesion. I feel blessed to play a small role in their lives.”

Susanne Jackson, MS, Physicist





JIMMIE VANCE
Trigeminal Neuralgia Treatment

By Wendi Hope Hager

The lasting pain that forced a disruption in his life for more than a decade had finally peaked, and 68-year-old Jimmie Vance reached his breaking point. The pain went down his face and around the side of his head. The sharp, electric-like pain came in short bursts but, as time went on, the pain was more intense, and he never really knew when it would occur again.

“You talk about pain... it was pain,” Vance says as he holds his head from the memory. “I never knew when it would hit, but the vibrations of shaving always set it off and sometimes eating. It was unbearable, and it really affected my life. It was the worst pain I ever had.”

The pain was trigeminal neuralgia (tic douloureux), considered to be one of the most painful conditions in medicine, in which a person suffers repeated episodes of severe sudden burning or shock-like facial pain. It is often called the suicide disease because a significant number of patients have taken their lives due to the extreme pain. Trigeminal neuralgia is usually caused by a blood vessel pressing on the trigeminal nerve in the head where it exits the brain stem. Painful attacks may be triggered by normal activities such as brushing teeth, chewing, drinking and shaving.

“We used to find Jimmie sitting on the back porch in his rocker and he would be holding his face in his hands,” says Maedell, Vance’s wife of 46 years. “We didn’t know what was going on with him, and everyone was worried.”

Vance took medication for years to help control the attacks. Eventually, he found that medication was not working for him anymore and needed to seek additional treatment options. Vance’s neurosurgeon recommended he speak with Dr. Robert Bertoli, a radiation oncologist at the University of Tennessee Medical Center. “My wife and I met with Dr. Bertoli about my options,” Vance explains.

“CyberKnife provides significant pain relief for most patients undergoing treatment for trigeminal neuralgia, but without the side effects of traditional surgery.”

Joshua A. Miller, MD, Neurosurgery

“He was very nice and made sure we understood our options. The nurses also were very nice and took care of us throughout the whole process.”

Vance was given the option of surgery to correct the condition, but he didn’t feel good about traditional surgery for trigeminal neuralgia. So, they chose the other option of CyberKnife radiosurgery treatment. In addition to its extreme precision, CyberKnife treatments are pain free, do not require anesthesia or an external head frame, and are performed on an outpatient basis. Patients come to the treatment in their street clothes, listen to their favorite CD, and are able to return to normal activities immediately following treatment.

“Trigeminal neuralgia treatment with radiation requires the highest single dose of radiation used in our specialty to a nerve right next to the brain stem,” Dr. Bertoli explains. “Accuracy is critical as the brain stem is the structure that connects the rest of the brain to the spinal cord. CyberKnife allows us to treat patients for trigeminal neuralgia with a high (90%) change of pain relief and a low chance of long-term side effects.”

Mr. Vance’s one-time treatment took place in November 2009 and took less than two hours. Within two weeks of his treatment, Vance was completely off his medication.

“All of the staff took great care of me,” Vance says. “And Dr. Bertoli, well, I owe him a lot.” At his February 2010 follow-up, the CyberKnife team found that Vance continued to be 100% pain free as he still reports today. He continues to go about his daily activities without worrying about the trigeminal neuralgia pain returning.

EVELYN BOTTS *Lung Cancer Treatment*

By Wendi Hope Hager

With a smile on her face, Evelyn Botts of Knoxville, Tennessee, can't speak highly enough of Dr. Robert Bertoli, a radiation oncologist, and the rest of the staff at the University of Tennessee Medical Center. With three children, four grandchildren and three great-grandchildren, this now 81-year-old was enjoying life with her family and playing bingo with her friends every week. Unexpectedly, test results threw Evelyn's life into the hands of oncology experts at the medical center.

In 2009, Evelyn was worried that she had pneumonia after a terrible cough just wouldn't go away. Her family physician ordered a chest X-ray that revealed not only pneumonia, but a tumor in her lung. She was then sent to James Shamiyeh, MD, Pulmonologist at UT Medical Center, who referred her for a biopsy. "I didn't even feel bad, except for the cough," Evelyn says. "I had a follow-up appointment the next week and, when I walked into the room, I knew from the looks of him what he was going to say. 'It's malignant,' he said." After 50 years of smoking, Evelyn had lung cancer.

More than 220,000 new cases of lung cancer will be diagnosed in 2010, according to the American Cancer Society. It is the second most common cancer in both men and women in the United States. Symptoms may include a cough that doesn't go away, shortness of breath, wheezing, chest pain, loss of appetite and fatigue among other associated symptoms. However, some people do not display any symptoms until it's too late.

Despite initial fears, Evelyn soon felt in good hands. She knew her case was being reviewed by a multidisciplinary team of experts. The multiple doctors who reviewed her case agreed that she was a candidate for CyberKnife stereotactic radiosurgery. Among this team was Robert Bertoli, MD, Radiation Oncologist, who would orchestrate the CyberKnife treatment.

"Mrs. Botts was understandably upset regarding her diagnosis of lung cancer," explained Dr. Bertoli. "Most patients do not realize that there is a well tolerated high dose directed radiation treatment for early stage inoperable lung cancers with the CyberKnife therapy. Only three to five treatments are necessary, and the chance of controlling the lung cancer is higher than with conventional techniques."



"Most patients do not realize that there is a well tolerated high dose directed radiation treatment for early stage inoperable lung cancers with the CyberKnife therapy."

Robert Bertoli, MD, Radiation Oncology

CyberKnife stereotactic radiosurgery is used to treat tumors and other conditions throughout the entire body. The CyberKnife synchrony respiratory tracking system allows precise delivery of radiation, even to those organs such as lungs that move with breathing. CyberKnife can even treat tumors that are considered inoperable or untreatable with surgery or other options.

"While we started in 2005 treating primarily brain and spine tumors with the CyberKnife, we have since then been treating an increasing number of body tumors with very good results," states Dr. Bertoli. "Our lung cancer patients have tolerated the CyberKnife treatments universally well, and most have had their lung cancer controlled with the therapy."

In July 2009, Evelyn underwent a five-day treatment, a fairly typical regimen for lung cancer at the time. The CyberKnife system at UT Medical Center underwent an upgrade in December 2009 that may allow even shorter treatments. "CyberKnife is a great alternative to surgery for qualified lung cancer patients," explains Terri McDonald, RN, CyberKnife Coordinator. "You have none of the risks associated with surgery and a very low risk of side effects. We have seen excellent results."

Evelyn's follow-ups resulted in great news: no more lung cancer. "I would recommend UT Medical Center and Dr. Bertoli to anyone," Evelyn says. "Everybody is great here. They are nice and were so good to me and my family. I would recommend CyberKnife to anyone who is a candidate."

Evelyn no longer smokes. She reports that she is now healthy, not taking any medications, and enjoying her life again. "The pneumonia was a blessing," Evelyn says. "You might not know you have lung cancer. It was the pneumonia that helped them find it, and the wonderful staff at UT Medical Center that got rid of it."

DIANE BLAZER *Renal Cell Carcinoma*

By Wendi Hope Hager

Diagnosed in 2008 with renal cell carcinoma of the left kidney, Diane Blazer has had many treatments including chemotherapy and radiation. But she doesn't want you to feel bad for her. Instead, she is thankful for all of the blessings in her life, including her caregivers at the University of Tennessee Medical Center.

Just two years ago, Diane began experiencing bladder issues and sought help from a urologist. Her tests revealed renal cell carcinoma that would require the removal of her left kidney. The cancer has spread over time, and she has experienced the growth of new tumors in her right kidney, brain, spine, elbow and shoulder as well as complications with tissue damage, dehydration, bone spurs, blood clots and a pathological fracture due to a weakened spine.

In March 2009, Diane was referred to Dr. Daniel Green, a radiation oncologist at UT Medical Center, who recommended she undergo CyberKnife for the two metastatic brain lesions. "Utilizing stereotactic radiosurgery with the CyberKnife system allowed high dose treatments to limited areas where the cancer was located in the brain and spine," Dr. Green explains. "This was important because of the need to spare adjacent, critically important, normal nervous tissue in the brain and spinal cord and because renal cell carcinoma often responds better to high dose radiation treatments than to lower dose treatments."

Unfortunately for Diane, despite chemotherapy new brain lesions developed and she underwent CyberKnife treatment again in August 2009. While receiving treatment she noted back pain. An MRI scan was done, which revealed metastatic disease to her thoracic spine. Once again the CyberKnife was utilized, this time to treat an area close to her spinal cord. Due to its precision there was no concern for spinal injury from radiation, and Diane experienced quick relief from her back pain.

"CyberKnife did a great job shrinking and inactivating the tumors, but then they would find more," Diane explains. "I had a total of 14 brain tumors that have required radiation and CyberKnife, not to mention the problems with my spine, elbow and shoulder. I have had no problems with my back since CyberKnife. This treatment has improved my quality of life."

Diane knows that without her treatments, she would not be doing what she does today. Through everything, she has had incredible support from her husband of 34 years, Randy; sisters-in-law Brenda Ellis and Linda Blazer; and her son Dustin. They take her to her treatments and assist her with anything she needs. Linda Blazer has even taken the last two summers off work to help her sister-in-law. "It's been a battle," Ellis says, "but she's tough. We try to do anything we can for her. UT Medical Center has been great to us, too. Even down to the transporters, we all are so well taken care of."



Although independent in spirit and not wanting to ask for help, Diane feels extremely lucky to have such a great family that assists her anyway. "At times I wanted to give up," Diane says. "But God has blessed me with my family to help get me through."

A 52-year-old grandmother, Diane continues the battle and, with the help of her family, she continues working as a secretary and enjoying every second with her athletic grandsons, Logan and Dorian—hardly ever missing a game—and assisting the family in canning food from their farm despite her diagnosis. "She is special to us," says Linda. "By God's grace we got her this far."

Diane doesn't know where she would be right now without the CyberKnife treatment and Dr. Green. "Dr. Green is my hero, and I credit him with everything. When I am at UT Medical Center being treated, it's like I'm the only patient here. There is no better staff anywhere than the UT Medical Center staff and CyberKnife staff. I wouldn't want to go anywhere else."

PHYSICIANS DIRECTORY

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NEUROSURGERY

PULMONOLOGY



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 Fellowship Baylor College of Medicine



Where can I find more information on CyberKnife?

For more information about CyberKnife, call the University of Tennessee Medical Center at (865) 305-6889.

www.utmedicalcenter.org Visit the University of Tennessee Medical Center website for information about our CyberKnife Center.

www.cyberknifesupport.org Contact other patients who have undergone CyberKnife treatment or learn more about the CyberKnife experience through this nonprofit volunteer organization.

www.cksociety.org Visit the CyberKnife Society, a coalition of physicians and healthcare professionals specializing in CyberKnife radiosurgery.

www accuray.com Learn more about Accuray, the manufacturer of the CyberKnife System.



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