

NEWS RELEASE

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FOR IMMEDIATE RELEASE

“Knife-less Surgery” Used by Team of Harbin Clinic Physicians to Successfully Treat Inoperable Brain Tumor

ROME, GA, March 8, 2011 – A team of Harbin Clinic doctors have used tiny beams of radiation to successfully destroy a tumor (cancer) deep in a patient’s brain that previously would have been considered inoperable. The Rapid Arc Radiotherapy surgery made no incision in the patient, required only a few minutes to perform, caused the patient no pain, and the patient went home immediately following the procedure.

Harbin Clinic Radiation Oncology has commenced treating cancer patients with Rapid Arc radiotherapy, a fast, precise form of treatment using advanced technology from Varian Medical Systems.

While Harbin Clinic has been treating inoperable brain tumors with stereotactic radiosurgery (SRS) for years, the new Rapid Arc treatment is two to eight times faster

than conventional forms of radiotherapy and establishes Rome and Harbin Clinic's cancer program as a comprehensive center for the treatment of what were formerly called inoperable brain tumors and other difficult to reach cancers.

Performing the procedure were Radiation Oncologist Matthew Mumber and Neurosurgeon Andy Stevens. The doctors used a frameless approach to stereotactic radiosurgery in combination with pretreatment CT based image guidance. The treatment was delivered on the Varian linear accelerator radiation treatment machine using the Varian Rapid Arc planning and delivery system. This combination resulted in one of the most technologically advanced radiosurgical treatment processes available in the world.

At Harbin Clinic, patients receive care from world-class cancer doctors in partnership with other Harbin Clinic specialists who have similar expertise in their fields. Teams of clinical experts work together to determine the best treatment options for individual patients based on the particular aspects of their cancer. The new brain tumor surgery program is a partnership between Harbin Clinic's Radiation Oncology and Neurosurgery Departments.

According to Dr. Stevens, with advanced stereotactic navigation and micro-dissection techniques, open resection is used to treat a majority of brain tumors. The Harbin Clinic neurosurgeons, Drs: Stevens, John Cowan, Jr., and Carl Herring, routinely perform complex brain surgery to treat brain cancer and conditions effecting the brain and spine.

“However, despite advanced surgical techniques, some brain tumors are classified inoperable because of their location or size,” Dr. Stevens explained. “While open surgery

may not be an option, the Harbin Clinic approach to stereotactic radiosurgery provides us with a tool to reach and often eliminate these brain tumors without damaging other parts of the patient's brain," he said.

Patients with inoperable tumors have traditionally received a series of radiation treatments. The goal of radiation therapy is to shrink or destroy the cancer over a period of time. According to Dr. Mumber, "Traditional radiation treatments may also be used as companion therapy with stereotactic radiosurgery and traditional surgery." Harbin Clinic's radiation oncologists, Drs. J.C. Abdou, James Santoro and Mumber all have expertise in the treatment of brain tumors with radiation therapy.

The RapidArc System creates a micro fine high intensity radiation beam which is used like a scalpel to perform radiosurgery deep in the brain without creating an incision. The procedure is performed by the Radiation Oncologist based on a radiation plan developed in partnership with the Neurosurgeon. "RapidArc makes it possible for us to deliver highly-precise intensity-modulated radiotherapy (IMRT) treatments quickly," said J.C. Abdou, M.D. "These treatments target tumors accurately while sparing the surrounding healthy tissues. Because they're fast, RapidArc treatments are also easier on the patient. It's hard for people to hold still for long periods of time. By delivering doses more quickly, we can simultaneously improve the quality of care and make our patients more comfortable." RapidArc technology may also be used for treating other cancer sites including prostate, gastrointestinal, gynecologic, and cancers of the head and neck.

According to Drs. Mumber and Stevens, most of the work is done several days before the surgery. "We use Computed Axial Tomography (CAT) Scanners and Magnetic

Resonance Imaging fused together in order to optimally target tumors,” Dr. Stevens said.

Dr. Mumber explained that the radiation plan may take several days and many hours to complete. Patients first come to the Harbin Clinic Radiation Oncology facility for the CT and MRI scanning performed in the treatment planning position. Data from the scans are then stored in the Varian treatment planning system and a team of dosimetrists and physicists work with the physicians to develop an individualized and highly targeted plan. The patient returns to the facility for the procedure after the plan is developed and tested.

“It is a true partnership,” Dr. Mumber said. “The two departments (Radiation Oncology and Neurosurgery) work together developing computer models defining the radiation procedure. Tumors are usually not centric balls but rather odd shaped clusters with many tentacles. The final plan is comprehensive and complex addressing the entire tumor.”

The procedure takes approximately 5 minutes and usually destroys the tumor. The patients feel no discomfort, and since there is no incision, they are able to go home right after the treatment. Additional radiological services and/or medical oncology treatment may also be used depending on the specific needs of individual patients.

According to Drs. Mumber and Stevens, this new procedure should successfully treat many patients who have been diagnosed with what has been considered inoperable brain tumors. It is anticipated that a growing number of patients from outside the area will be referred to the Harbin Clinic cancer program for this service.

“The real strength of our program – what makes it special – is the partnership and cooperation among Harbin Clinic specialists,” Dr. Mumber said. “Harbin Clinic’s Radiation Oncology and Medical Oncology Departments (which are now in separate buildings) will move to the new Cancer Center (currently under construction) early this coming year. This will further enhance the ability to Harbin Clinic physicians to work together, providing better medical services to our patients.”

The name of the first patient to receive this procedure at Harbin Clinic and the date of the procedure were not released to insure patient confidentiality.

Harbin Clinic currently includes more than 150 physicians in 20 locations. For more information on Harbin Clinic, visit www.Harbinclinic.com.

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Sidebar Story on Brain Tumors

Diagnosis and Treatment of Brain Tumors

The human brain is a marvelous work. Its network of nerves carries messages back and forth to the entire body. It directs things like walking and talking, and even those things we do but are not conscious of, like breathing. What’s more, the brain is in charge of our senses, memory, emotions and personality.

Understanding the importance of healthy brain function helps us to understand the serious, life-threatening potential of a brain tumor. About 110,000 people in the United States are diagnosed with a brain tumor each year.

A brain tumor, a cluster of abnormal cells growing in the brain, can be either benign (non-cancerous) or malignant (cancerous). A primary tumor is one that starts growing in the brain and about half of all primary tumors are benign. A metastatic brain tumor is one that is formed when cancers of other organs (i.e. lung, breast, colon, prostate and skin) spread to the brain. All metastatic tumors are malignant. Metastatic tumors are much more common than primary brain tumors.

Brain tumors are treated by specialists, including neurosurgeons, radiation oncologists and medical oncologists. Harbin Clinic includes Departments of Neurosurgery, Radiation Oncology, and Medical Oncology. When a patient presents symptoms of a brain tumor, there are several procedures that may be done to confirm diagnosis. These include:

- Physical exam: to check for general signs of health
- Neurologic exam: to check for alertness, muscle strength, coordination, reflexes and responses to pain. The doctor will also check the eyes for swelling.
- CT scan: an x-ray machine takes detailed pictures of the brain
- MRI: a powerful machine that makes detailed pictures of areas inside the body

Additional tests may include an angiogram, skull x-ray, spinal tap, spine x-ray and biopsy.

Treatment for a brain tumor will depend on a number of factors, including type, location, size and grade of tumor as well as other health conditions of an individual patient. Options may include surgery, radiation therapy, and chemotherapy. Radiation therapy may include stereotactic radiosurgery (SRS), conventional fractionated conformal radiotherapy, or both. In many cases, patients will receive a multi-therapy treatment plan.

Surgery

Surgery is a common treatment for most brain tumors. Using an operating microscope, a brain surgeon will perform the surgery while viewing the brain under high magnification. This allows the surgeon to see the tumor, brain tissue, blood vessels and

nerves. For benign tumors, complete removal of the tumor may be a cure and additional treatment may not be necessary. However, malignant tumor cells can extend far beyond what can be seen on an MRI or even with a microscope, often making these tumors impossible to treat using surgical resection alone. In this case, patients may receive radiation or other treatment.

Radiation Therapy

Radiation therapy uses high-energy xrays to kill tumor cells. A large machine aims radiation at the tumor and the tissue close to it. Radiation therapy usually follows surgery, although it may serve as primary treatment in those patients who cannot have surgery.

Chemotherapy

Chemotherapy is sometimes used to treat brain tumors. This treatment involves the use of drugs to kill cancer cells that are given by mouth or by injection. Chemotherapy is usually given in cycles so that a recovery period follows each treatment period.

Side effects of various treatment options may vary, depending on the location of the tumor and extent of the treatment. It's important to know that side effects may be different for each person and may change from one session to the next.

Patients should be sure to discuss various treatment options, and possible side effects, with his or her physician. It's also important to discuss a rehabilitation plan. Rehabilitation may include physical therapists, speech therapists and occupational therapists. In every case, regular follow-up care will be necessary after treatment for a brain tumor to check that the tumor has not returned.

Image-guided Radiotherapy

Now available at the Harbin Clinic Radiation Oncology and a few specialty centers around the world, Image-guided Radiotherapy (IGRT) is the ability to image a

patient directly before treatment to verify accurate patient positioning and tumor targeting. Focused high-intensity radiation beams are then used to destroy the tumor based on a plan developed by the physicians.

Integrative Oncology

Integrative oncology is an approach that addresses the whole patient, including their family and caregivers on the level of mind, body and spirit. The Harbin Clinic integrative approach includes multidisciplinary assessments and programs for nutrition, mind body and spiritual states.

Sidebar Story

Signs and Symptoms of Brain Tumors

A brain tumor, a cluster of abnormal cells growing in the brain, can be either benign (non-cancerous) or malignant (cancerous). A primary tumor is one that starts growing in the brain and about half of all primary tumors are benign. A metastatic brain tumor is one that is formed when cancers of the lung, breast, colon, prostate and skin spread to the brain. All metastatic tumors are malignant.

Common symptoms of a brain tumor may include:

- Headache: caused by pressure on pain-sensitive areas
- Seizures: caused by the disruption of the normal flow of electricity through which brain cells communicate
- Nausea and vomiting: caused by increased pressure within the skull

- Vision or hearing problems: caused by increased intracranial pressure and tumors growing on or near sensory nerves
- Behavioral or cognitive symptoms: caused by brain tumors located in the brain's cerebral hemispheres
- Motor problems: caused by tumors affecting brain areas responsible for body movement
- Balance problems: caused by the disruption of normal control of equilibrium

It's important to know that people of all races, economic levels and lifestyles are diagnosed with brain tumors. However, research has shown that people with specific risk factors are more likely to develop a brain tumor. These risk factors include:

Being male: brain tumors are more common in males than females

Race: brain tumors occur more often in white people than people of other races

Age: brain tumors are most often detected in people aged 70 or older, but are also the second most common cancer in children younger than eight years old.

Family history: people with family members who have tumors may be more likely to develop the disease

In addition, there are certain environmental factors that may produce a risk factor. This includes exposure to such chemicals as formaldehyde, vinyl chloride, acrylonitrile and radiation. Scientists are also studying if cell phones increase brain tumor risk; although studies so far show that there is no clear connection between the two.