

UNIVERSITY LEADS THE FIGHT AGAINST COMMON BRAIN TUMOR

By Diana DeCouteau

More than 20,000 new incidences of meningioma arise each year, making it the most widespread brain tumor. This tumor typically occurs in adults in their 40s or 50s, and in women twice as often as men.

And yet technically, meningiomas are not brain tumors at all. They grow in the layers of tissue covering the brain and spinal cord known as meninges. They are usually noncancerous and do not spread to the rest of the body. But depending on their location, meningiomas can range from asymptomatic to life-threatening.

“It’s not uncommon to see a patient with a tumor almost the size of a large orange and the only symptom is forgetfulness,” says Randy L. Jensen, MD, PhD, Professor of Neurosurgery, Radiation Oncology and Oncological Sciences, investigator at Huntsman Cancer Institute. “Because they grow slowly, they can displace the brain and symptoms can be subtle. But a small tumor right next to the optic nerve can give a patient a big visual field deficit. So it’s all location, location, location.”

University of Utah Health Care (UUHC) treats the most meningioma patients in the Intermountain West, thanks to expertise in radiation and surgery, leading-edge technology, and extensive research. Patients are also fortunate to have an internationally recognized expert in skull base surgery on the front line. William Couldwell, MD, PhD, FACS, and department chair of neurosurgery, frequently removes tumors in critical locations.

Diagnosis of a meningioma often begins with a neurological exam. If a patient has troubling symptoms—such as vision or hearing loss, confusion, headaches, or nausea—she usually undergoes an MRI or CT scan to get a picture of the brain and nearby structures.

“The imaging is pretty characteristic 80 to 90 percent of the time,” says Dr. Jensen. “The tumor comes from the covering of the brain and takes up the MRI dye in a very uniform pattern.” A doctor may also perform a biopsy to confirm a meningioma.



Several different treatment options are available depending on factors such as size and location of the tumor and neurological problems it presents. The first option: Do nothing. “If a patient is not having symptoms and the tumor isn’t large, we’ll just watch it over time,” says Dr. Jensen. “We’ll do MRIs every six months to make sure it’s either not growing or growing slowly.”

Another option many patients undergo at UUHC is stereotactic radiosurgery. “It’s a completely noninvasive, outpatient procedure,” says Dr. Jensen. “For patients who have a small tumor, it’s a very effective and easily tolerated treatment.”

This technique uses an MRI scan, which is loaded into a treatment planning computer. A mask is made to hold the patient’s face in a set position, and a CT scan is done with her face in the mask. The computer combines the scans and designs a plan that precisely delivers radiation to the tumor with only a minimal amount to surrounding areas.

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Dennis C. Shrieve, MD, PhD, professor and department chair of radiation oncology, and Dr. Jensen lead the stereotactic radiosurgery program. The team of radiation oncologists, physicists, neurosurgeons, and dosimetrists is the most experienced in the Intermountain West. They’ve used the technique to treat almost 2,000 patients with brain tumors, including more than 250 with meningiomas.

Chemotherapy is not yet an option for meningioma treatment, due to lack of a good agent. “Chemo works by killing cells that are dividing, but meningiomas grow so slowly that cells don’t turn over much on a daily basis,” Dr. Jensen says.

The final option is traditional surgery, which can take up to 24 hours depending on tumor size and proximity to critical neurological structures that control functions like vision, hearing, swallowing, and facial movement. Meningiomas may also grow close to blood vessels that, if injured, could cause a stroke or neurological deficit.

The meningiomas most difficult to remove lie beneath the brain itself, a realm where Dr. Couldwell’s expertise is crucial. Under his leadership, the surgical team has gained the specialized knowledge and skill to treat meningiomas and to attract outstanding new doctors as well.

Research to treat tumors without surgery remains an ongoing focus of the meningioma tumor program. “We conduct laboratory and clinical research to investigate the molecular underpinnings of meningioma biology looking for new treatment avenues,” says Dr. Jensen. “We hope that soon we’ll be able to offer even better options to treat meningioma patients.”