

NEUROLOGY & NEUROSURGERY

New Brachytherapy
Device Takes Aim at
SRS

OCTOBER 04, 2023

Researchers to test new GammaTile device against stereotactic radiosurgery in brain tumors.

Stereotactic radiosurgery (SRS) remains the most common adjunctive treatment for metastatic brain tumors. While radioactive seeds are frequently placed in other types of tumors, in brain tumors, the risk of seed migration, exposing healthy brain tissues to radiation, has been too significant.

In 2021, GT Medical Technologies pioneered a brachytherapy device that may change that paradigm. The device, called [GammaTile](#), was designed to keep radiation seeds in situ and improve circumferential coverage of the operative bed. GammaTile is FDA-approved for [newly diagnosed, malignant and recurrent brain tumors](#).

At Vanderbilt University Medical Center, neurosurgical oncologist [Lola Chambless, M.D.](#), and [Reid C. Thompson, M.D.](#), chair of the Department of Neurological Surgery, are site investigators on a [large, multicenter trial](#) comparing GammaTile with SRS in controlling brain metastases.

“For focal areas of recurrence, where we don’t typically re-radiate patients, the benefits for local controlled radiation are evident.”

“What they’ve tried to do with GammaTile is create a brachytherapy method that is as equally or more effective than conventional radiation, while avoiding most of its side effects and inconveniences, and that’s really exciting,” Chambless said.

“We don’t have any data yet to know whether these are better than conventional radiation up-front, but for focal areas of recurrence, where we don’t typically re-radiate patients, the benefits for local controlled radiation are evident.”

Anatomy of a GammaTile

GammaTile is a bioabsorbable collagen matrix (gel foam) device about the size of a postage stamp that is embedded with radioactive titanium pellets. Placement of dose-appropriate tiles after tumor removal can deliver radiation treatments that target the entire margin of the resection cavity, but not beyond.

“Our physicists and radiation oncologists help us plan and model the surgery and select the tiles with the appropriate dosages ahead of time,” Chambless said. “It’s very straightforward to use surgically, since it mimics the material that we have long used in the operating room to control bleeding and obtain hemostasis.”

[Fifty percent of the dose](#) is delivered in 10 days, and 95 percent or more by six weeks. Small inactive titanium sources remain. This single treatment approach is comparable to a focused course of up to five days of radiation with SRS, Chambless said.

Indications for Use

At Vanderbilt, the team is poised to use GammaTile for locally aggressive meningiomas.

“We don’t have great options when they recur,” Chambless said. “We’re often redoing surgery because external beam radiation is not particularly effective. The GammaTile option for these patients is appealing because it is designed to comprehensively cover the margin, and that is always the site for meningioma recurrence.”

Thompson, Chambless and their team also expect to use the tech off-label for recurrent glioblastomas, for which SRS is rarely used.

GammaTile Versus SRS

“The company has demonstrated safety and overall efficacy,” Chambless said. “Now we are joining in a trial to see if GammaTile is actually better than conventional external beam radiation in brain metastases. Is there actually a survival or local control benefit?”

In prior trials, researchers compared the GammaTile with other treatment modalities. GammaTile placement was followed by significant delays in treatment-site recurrence in patients with [meningiomas](#) and [brain metastases](#), as well as higher median overall survival rates for patients with [recurrent glioblastomas](#)

“These small trials are encouraging, but we need larger studies, like the upcoming trial, which will be randomized and have tight controls, including isolating metastatic disease with a certain number of lesions,” Chambless said. “Importantly, we will be able to do subgroup analyses to determine whether GammaTile works better in some pathologies than others, and better understand who the outliers were in the original trials that did really, really well.”

Enrollment is underway for the new trial, and Vanderbilt plans to begin recruitment within the next six months. Since the trial involves multiple centers, it will also test institutional variability and illuminate the most effective OR practices.

Patient and Staff Benefits

GammaTile is designed to protect healthy tissue, minimizing radiation side effects such as hair loss. Because of its protective matrix and metered dosage schedule, GammaTile use also limits perioperative exposure to the staff, Chambless said.

“To me, this is a huge benefit,” she said. “As the surgeon, you are the captain of the ship for those hours that you’re in the operating room. That patient has obviously entrusted you to do this incredibly invasive operation on their brain, but also the anesthesiologist, and that scrub nurse and all the staff in the room are counting on you to make sure they are also safe.”

Beyond the primary interest in patient efficacy, Chambless also notes benefits from being a “one-and-done” type of procedure.

“Eliminating a second phase of radiation treatment is really helpful to these patients. These are people with cancer, who need to be living their lives,” she said.



FEATURED



Lola Chambless, M.D.

SHARE THIS

