

Saint Luis University Hospital: Feature Story

Ties That Bind: Partnership Brings Advanced Technologies Closer to Home

Summary:

Myrtle Chidester, a healthy 51-year-old athlete, faced a surprise diagnosis of Stage IV lung cancer. She pursued aggressive treatment, including CyberKnife® at Saint Louis University Hospital. Collaborating with Missouri Cancer Care, her multidisciplinary treatment involved advanced techniques like the superDimension™ bronchoscopy for precise biopsy and fiducial placement. CyberKnife provided effective radiation, controlling her tumors with minimal side effects. Myrtle's success showcased the benefits of cutting-edge technology, offering hope for complex cases. This collaborative approach between medical facilities illustrates enhanced patient care and treatment innovation, extending lives like Myrtle's.

YouTube commercial highlighting Myrtle Chidester: <https://www.youtube.com/watch?v=DZja9r9rIMQ>
Her impact continues with sharing awareness through a 5K walk:
<https://secure.ggiv.com/event/rwb2023/>

Full article:

Myrtle Chidester, 51 years old, is not your typical cancer patient. Myrtle was the picture of health, leading a fit lifestyle which included working out four to five times a week. She continually pushed herself to improve and had recently completed a challenging half-marathon in California.

That is why in July, the diagnosis of metastatic Stage IV advanced non-small cell carcinoma of the lung was a surprise to her. Characteristically, Myrtle decided to tackle her diagnosis with as aggressive an approach as possible. She began concurrent chemotherapy and radiation, with an additional four rounds of chemotherapy treatments a few weeks later.

Myrtle was determined to find alternatives and the latest treatments to her cancer. She began researching her disease and spent hours reviewing message boards and cancer-related articles on various Web sites. While searching on a cancer message board, she noticed information about the CyberKnife® Stereotactic Radiosurgery System at Saint Louis University Hospital, the only CyberKnife in the St. Louis region. The technology, located in the Radiation Medicine department at Saint Louis University Hospital, applies radiation to malignant and benign tumors and vascular malformations. It also is used to treat tumors and lesions of the brain, lung, spine, liver, prostate and pancreas.

Myrtle learned that the CyberKnife is designed to treat tumors anywhere in the body non-invasively and with precise accuracy. The CyberKnife automatically tracks, detects and corrects for tumor and patient movement in real time throughout the entire treatment. The treatment delivers high doses of radiation to tumors and offers new hope to patients who have inoperable or surgically complex tumors, or who may be looking for an alternative to surgery.

She decided to discuss her findings with her physician and was referred to Greg Dickerson, MD, radiation oncologist at Missouri Cancer Care and professor at Saint Louis University School of Medicine.

The Medical School and Saint Louis University Hospital are partnering with Missouri Cancer Care for a second CyberKnife facility in Lake St. Louis, Mo. It is expected to be operational later this summer.

With the combination of services offered at the center, patients will be able to visit their physician, receive diagnostic testing and treatments and even be involved in research in the one location. There also will be a comprehensive cancer information center where patients and families can go for resources and activities that will benefit the overall treatment plans.

Because Myrtle is one of the first patients benefiting from this collaborative initiative, she is a pioneer for the specialized treatment at this location. The physician practice with Missouri Cancer Care provided Dr. Dickerson with an opportunity to discuss Myrtle's treatment with the multidisciplinary team at Saint Louis University Hospital.

Working together, the team from Missouri Cancer Care and the Saint Louis University Cancer Center team formulated an aggressive treatment plan for Myrtle. Keith Naunheim, MD, SLUCare cardiothoracic surgeon at SLU Hospital, the Vallee L. and Melba William professor of surgery and director of cardiothoracic surgery at Saint Louis

University School of Medicine, discussed the current treatment options for Myrtle. "We decided to use the superDimension™ bronchoscopy system as opposed to using a percutaneous diagnosis. With the superDimension, we were able in real time to map, diagnose and remove a sample of the tumor, then deploy the gold fiducials," says Dr. Naunheim. Fiducials act as reference points, so the tumor site can be precisely located.

The superDimension bronchoscopy system provides a minimally invasive pathway to peripheral lung lesions. It enables physicians to locate, test and plan treatments for lung lesions and lymph nodes difficult to access with traditional bronchoscopy.

"The superDimension system is GPS-like technology that detects the stages of lung cancer and allows us to probe the deepest regions of the lungs with guided sensors and 3D mapping software. Fiducials are implanted into the tumors, and we are able to track into regions far into the lungs," says Dr. Naunheim.

Carl A. Kaplan, MD, professor of internal medicine, senior medical director of the critical care program and director of fellowship in pulmonary disease and critical care medicine, was instrumental in bringing the superDimension technology to Saint Louis University Hospital. He is principal operator of the electromagnetic guidance system and is director of the hospital's bronchoscopy services.

"Traditionally, we would have used a CT guided thoracic needle aspiration for the biopsy," Dr. Kaplan says. This generally resulted in at least a third of the patients experiencing pneumothorax. By using the superDimension, less than 10 percent experience a pneumothorax, which is a significant improvement."

"You can compare the pulmonologist using the superDimension or electromagnetic navigation system to a pilot using a search engine map," Dr. Kaplan says. He adds that the software tracks the difficult, curving highways of the bronchial path, providing a detailed map of the microscopic area to ensure that the physician can find the best route to the designated location, or tumor.

"Before the software was created, the physician was flying blindly in the peripheral recesses of the lungs. With this system, we are now navigating with more instruments," Dr. Kaplan says.

Now, he adds, the physician is capable of observing the blocked areas of the bronchial path that are impossible to reach. The low frequency electromagnetic energy helps track in space coordinates X,Y, Z axis positions and the exact pitch, yaw and roll orientation for the accurate, deployable instruments and fiducial placement.

“It also was helpful in Myrtle’s case because she had two lesions being treated in the lung that were in complex locations,” says Dr. Kaplan. “Some patients like Myrtle, who previously were inoperable, are offered a potentially curative therapy.”

After Myrtle received the biopsy and fiducial placement via the superDimension bronchoscopy, she was then able to undergo CyberKnife treatment.

“With the dose of radiation given to the primary lung cancer with the CyberKnife, we have a chance of controlling it for the rest of Myrtle’s life,” says Dr. Dickerson.

“She responded remarkably well to the initial course of aggressive treatment she received. There are only two small residual areas that remain, and they have shown no growth.”

Dr. Dickerson adds that his main concern was to be careful treating one of the residual areas that remained because it was close to vital organs. “We provided a special course in five smaller fractions to deliver a significant dose to this area. The CyberKnife lends itself well to complex treatments, especially when two areas need to be treated that are close to vital organs. The amount of lung treated to a high dose with the CyberKnife was insignificant compared to other technologies, and there were no worries about side effects,” says Dr. Dickerson.

Patients benefit from the systems flexibility, as well as the comfort of the treatment process compared to similar modalities.

Myrtle’s first tumor was treated with three CyberKnife radiosurgery treatments. The second tumor, which was more difficult to treat, was treated using five fractions due to the critical location.

“This is pushing the limits of what technology can do. I felt fortunate to have these treatment options available and to know that it has extended my life already,” says Myrtle.

To refer an inpatient to Saint Louis University Hospital, call the Inpatient Referral Line at 866-491-0858.

To refer an outpatient to a SLUCare physician, call the Physician Access Line at 800-637-5463.

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