

RapidArc—Revolutionary Results for SBRT



RapidArc[®] radiotherapy technology for stereotactic body radiation therapy (SBRT) enables unprecedented speed and shorter treatment times.

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New Options in the Fight Against Cancer

At Cancer Treatment Services Arizona, a part of Cancer Treatment Services International (CTSI), clinicians are using RapidArc® radiotherapy technology to deliver stereotactic body radiation therapy (SBRT) treatments more quickly than was previously possible.

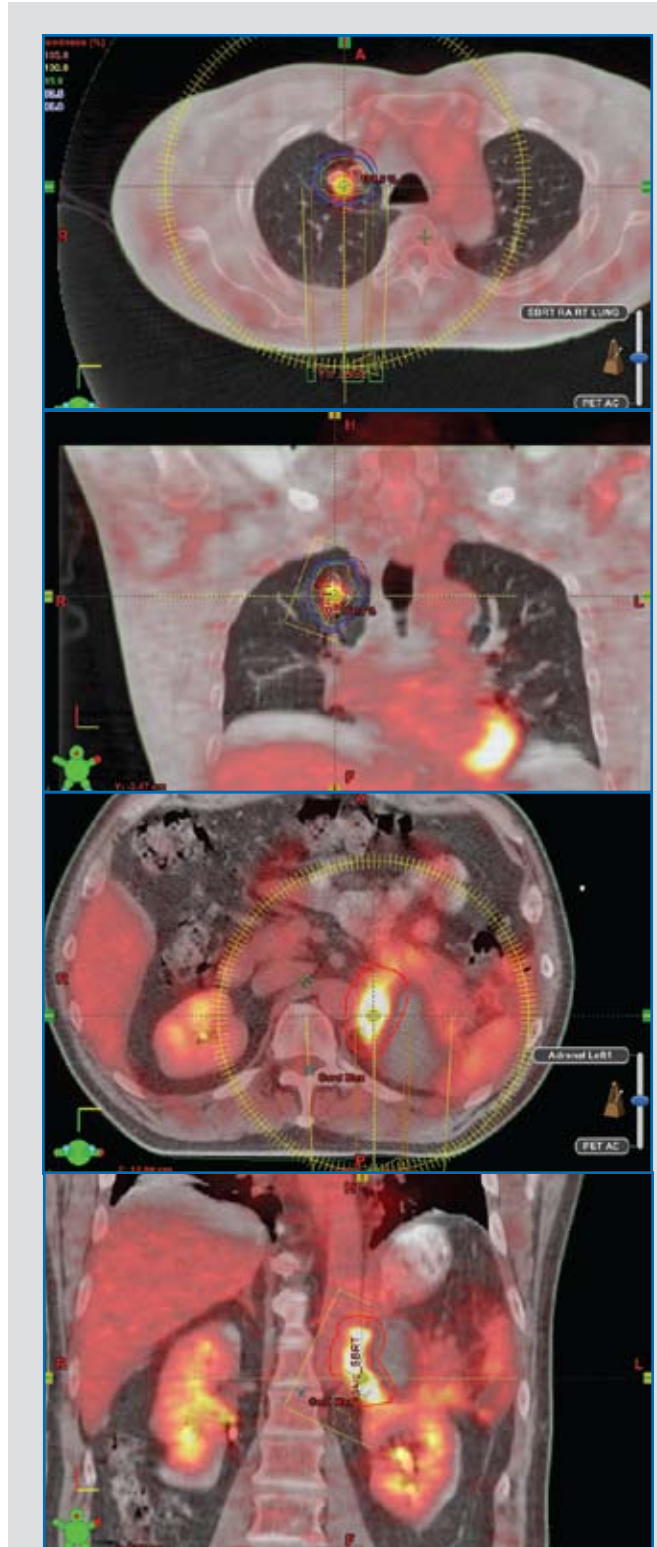
Stereotactic body radiation therapy (SBRT), a new type of treatment for tumors outside the central nervous system, is giving clinicians options for treating difficult-to-reach (or inoperable) tumors at sites throughout the body.

SBRT treatments consist of ablative doses of radiation delivered directly to tumors outside the central nervous system, with the goal of completely killing the tumor cells. These large doses are delivered either in a single treatment or in a small number of fractions—five or fewer—over a period of one to two weeks. Varian RapidArc® radiotherapy technology is enabling clinicians to deliver SBRT treatments with unprecedented speed for correspondingly short treatment times, with greater sparing of healthy tissue and critical structures.

Community-based cancer care with RapidArc SBRT

At Cancer Treatment Services Arizona (CTSA), radiation oncologist Ajay Bhatnagar, MD, and medical physicist Alphonse Loper have been successfully treating patients using RapidArc for SBRT on a Trilogy® treatment delivery system for more than one year. “We serve a relatively small community, and the closest tertiary cancer treatment center is an hour away,” says Bhatnagar, who is also adjunct assistant professor of radiation oncology at the University of Pittsburgh School of Medicine. “Our goal is to provide sophisticated cancer treatments and technology, eliminating the need for patients—who are mostly retirees—to travel outside their community.”

Treatment plans for patient with right upper lung metastasis and left adrenal metastasis (top two images are of the lung SBRT plan and bottom two images are of the adrenal SBRT plan). Both SBRT plans are fused with pretreatment PET/CT that was also performed at the time of CT simulation.



Bhatnagar has experience with intensity-modulated radiotherapy (IMRT) and SBRT on different treatment devices, and is impressed with the speed and precision enabled by RapidArc. In the past year, he has treated approximately 150 patients with IMRT, 10 patients with stereotactic radiosurgery (SRS), and more than 50 with SBRT. Roughly half of the SBRT patients received treatments with RapidArc. “We are using RapidArc for SBRT to dramatically reduce treatment times in order to maximize precision, and to treat patients who have limited, if any, other treatment options,” says Bhatnagar.

As an example, Bhatnagar describes his recent success with a 56-year-old male patient with advanced esophageal cancer, which had metastasized to both the adrenal gland and the upper lobe of the right lung. An attempt to surgically remove the adrenal tumor was unsuccessful, and the patient was in a great deal of pain. Bhatnagar used RapidArc to treat both tumors, delivering 40 Gy in five fractions to the adrenal metastasis, followed by 50 Gy in four fractions to the lung metastasis. Follow-up PET/CT scans approximately three months after the start of treatment showed that both tumors had been totally eliminated. In both cases, a 4D CT scan showed minimal tumor motion (<4 mm), which was incorporated in the treatment volumes. “With RapidArc, even the 12.5 Gy treatments took less than three minutes of beam-on time,” says Bhatnagar. “With other SBRT devices, it would have taken 10 or 20 times longer to deliver the same dose.”



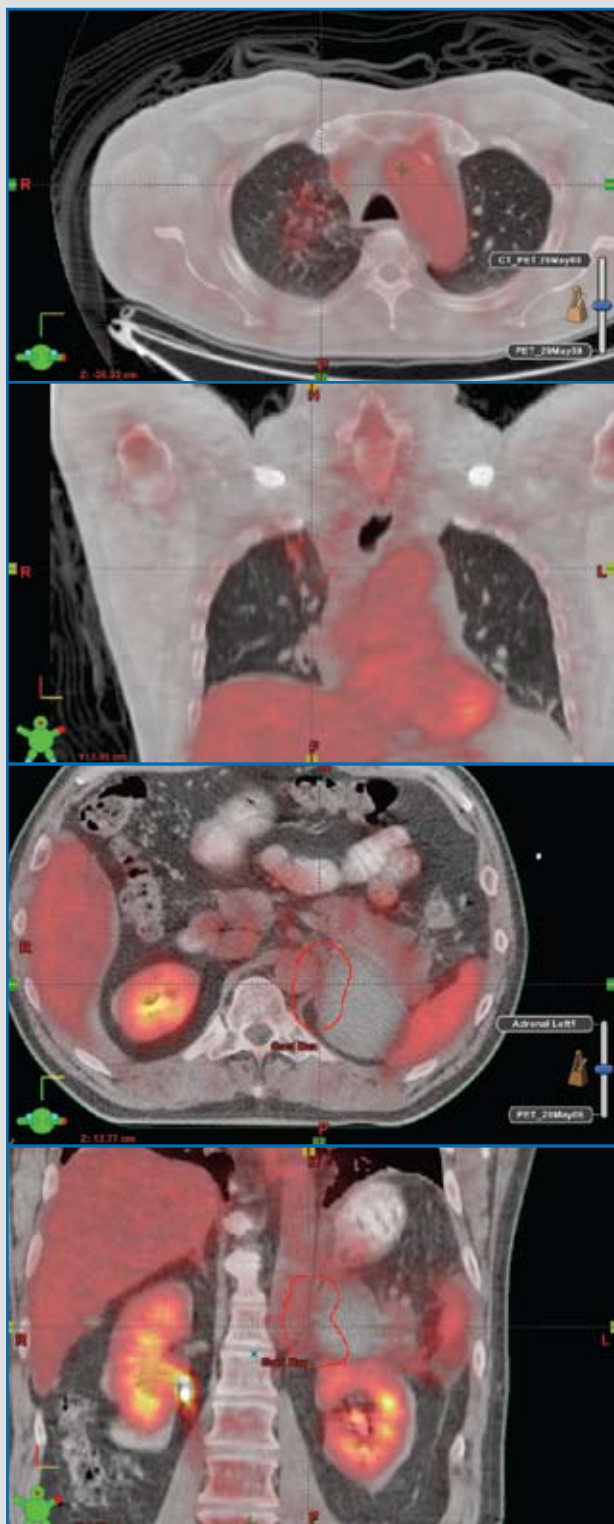
*Ajay Bhatnagar, MD,
Radiation Oncologist,
Cancer Treatment Services
International*

Helping to relieve pain

In several other cases, RapidArc has enabled Bhatnagar to significantly reduce pain for his patients. An 80-year-old patient had cancer of the thyroid that metastasized to her spine, involving the C6 through T1 vertebrae and the nerve roots on the left side. The patient had previously received radiation therapy to this region; however, the tumor had progressed. It was causing significant pain, which radiated down her left arm and could not be controlled with narcotics. Bhatnagar treated the patient with RapidArc SBRT, delivering 27 Gy in three fractions in slightly more than one week. “The patient felt significant pain relief by the third fraction, and was able to stop taking narcotic medication approximately one month after the treatment due to complete pain relief by that time,” says Bhatnagar. He achieved similar results with another patient with cervical cancer involving the pelvic nodes which had significantly progressed in size despite receiving standard pelvic radiation therapy several years ago; the patient could not lie down due to the intense pain caused by the tumor. With RapidArc SBRT, Bhatnagar was able to significantly resolve the tumor and reduce the patient’s pain level. “RapidArc SBRT enables me to quickly and accurately treat patients with few other options, considerably reducing the pain that they experience,” he says.

Ultimately, Bhatnagar is most enthusiastic about how RapidArc helps him and the CTSA staff deliver high levels of technology and treatment within a smaller community. “With RapidArc, we can perform IMRT, SBRT, or SRS as necessary and then quickly and smoothly deliver a different treatment for the next patient,” he says. “RapidArc helps us do what is best for individual patients every day.”

Three-month posttreatment PET/CT for patient with the right upper lung metastasis and left adrenal metastasis. The red line represents the original planning treatment volume, indicating obliteration of the lung metastasis with surrounding inflammatory changes consistent with radiation effect and resolution of the left adrenal tumor.





RapidArc for SBRT

Simply Revolutionary

Stereotactic body radiation therapy (SBRT) is a technique where high doses of radiation are precisely delivered from many directions to a focused target. This results in an ablative treatment with curative intent and spares surrounding critical structures.

RapidArc® radiotherapy technology delivers sophisticated SBRT treatments faster than previously possible and opens up new treatment options for your patients.

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