Scripps reports results at first all pencil-beam proton center in US

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Carl Rossi, M.D., is medical director of the Scripps Proton Therapy Center, which is reporting an unusually wide range of tumors treated since opening last year. Credit: Scripps Health

The nation's first and only proton therapy center to treat patients

exclusively with pencil-beam scanning is reporting exceptional results in delivering cancer treatment since opening for patient care just more than a year ago.

Carl Rossi, M.D., medical director of the Scripps Proton Therapy Center in San Diego, offered the assessment at the 54th annual Particle Therapy Co-Operative Group (PTCOG) Conference, which is being held in San Diego May 18 through May 23. Presentations and discussions at the conference will focus on the latest technological advances and clinical applications in particle beam therapy for cancer patients.

Dr. Rossi said physicians at the Scripps Proton Therapy Center have treated a breadth of tumor sites in the center's first 15 months that previous new proton centers have taken two years or more to accomplish. A 20-year veteran of proton therapy, Dr. Rossi also noted that the new center is offering remarkably accurate radiation delivery and the ability to treat larger tumor fields than previously possible, while also providing greater efficiency with on-time patient treatments.

Wider range of tumors treated

Earlier proton centers typically opened with a focus on treating relatively straightforward cases, such as prostate cancer, and then expanded over time. But Scripps has branched out more quickly, due to the capabilities of pencil-beam scanning and the exceptional medical team at the Scripps center. Tumor sites treated since the center's opening include lung, brain, spinal column, base of skull, head and neck (e.g., oropharynx, salivary gland), central nervous systems, pancreas, rectum, esophagus, breast (male and female), testis, inter-abdominal lymphoid tissue, thymus gland, bone and others. The center has also delivered a number of re-treatments in areas where patients had prior radiation (an application where protons are especially appealing, because less healthy tissue is exposed to radiation).

Greater precision in radiation delivery

The center's ProBeam pencil-beam technology, developed by Varian Medical Systems, enables doctors to be far more specific with where they deliver the radiation dose compared to earlier passive scatter technology. The system also allows doctors to vary the radiation dose within the tumor target, which previously was not possible. It also opens the door to treat larger and more irregularly shaped fields (up to 40 centimeters in length). Having the ability to treat a single, larger field is far less cumbersome and time consuming than transitioning to treat multiple tumor fields.

More flexibility for timely patient treatment

By exclusively using pencil-beam scanning, every patient's treatment plan at Scripps comes in the form of a data file. This means there is no need to install physical devices outside of the treatment nozzle for each patient, as is needed with passive scatter technology, which is most widely used today. So when a Scripps proton patient needs to be moved from one treatment room to another, the transition can be made easily and quickly, often in a matter of minutes.

Clinical and research collaborations

Dr. Rossi said the center has received patients both from within the Scripps Health system and through its affiliate providers, Rady Children's Hospital-San Diego and UC San Diego Health System. Treatment at Scripps Proton Therapy Center is available to any health system in San Diego and beyond. More than one-third of Scripps' proton patients to date have come from outside San Diego, including nine different states, and as far away as Monaco and China.

As a member of the Proton Collaborative Group (PCG), Scripps Health is participating in multi-institutional research studies to help optimize proton therapy. Currently, Scripps is part of a PCG registry trial to gather clinical outcomes data from all of its patients, regardless of diagnosis, and expects to expand into tumor-specific studies that will explore areas such as hypofractionation. Scripps also plans to be involved in prospective randomized research trials comparing proton and X-ray radiation therapy though its involvement with NRG Oncology, a collaborative research organization of the National Cancer Institute.

Advantages of on-site imaging

Scripps Proton Therapy Center offers advanced technology needed for accurate tumor targeting, including CT and PET-CT scanners and an MRI machine. Dr. Rossi said this eliminates the need for patients to carry their immobilization devices to another location, or to compete with other departments in the health system for access to this technology.

Dr. Rossi noted the advanced imaging tools enable greater tumor visibility, which leads to better treatment plans. "For example, with a prostate patient, I may be able to see within the prostate gland and identify an area I want to hit harder. With head and neck patients, we can differentiate the lymph nodes more easily," he said. Additionally, having this equipment on site enables doctors to quickly and easily order scans to verify patient anatomy and to look at tumor regression during treatment, as well as to rapidly adapt the radiation fields to changes in tumor configuration.

Scripps Health provides the center's clinical management services and Scripps Clinic oversees the medical services. Advanced Particle Therapy is the center's developer and owner. Varian Medical Systems of Palo Alto, Calif., developed, installed and validated the center's ProBeam proton delivery system. The center is located in the Mira Mesa area of

San Diego at 9730 Summers Ridge Road. More information is available by calling 858-549-7400.

Provided by Scripps Health