Radiation Therapy: IMRT Enhances Cancer Treatment for Companion Animals and Horses

Intensity-modulated radiation therapy (IMRT) allows the treatment of lesions in animals that we couldn't previously treat, such as horses, birds and pocket pets,” says Alain Théon, professor of radiological science and chief of the school's Oncology Service.

Dr. Théon, with his special interest in both equine and avian oncology, says some animals are too small to be treated with conventional radiation therapy without lethal collateral damage to normal tissues. IMRT enables accurate targeting of tumors with optimal radiation dosages while effectively sparing normal tissue.

Computer software is used to design three-dimensional treatment plans based on CT and MRI scans, and to position the beam of a high-power linear accelerator. Radiation is distributed exactly as needed, depending on both the shape and location of a tumor.

Frequent anesthesia is also a drawback in conventional radiation therapy, but IMRT drastically reduces the treatment schedule and the number of times an animal must be anesthetized, which increases the efficacy of treatment and the cure rate.

UC Davis is one of only a few veterinary schools in the nation with IMRT capability and the only school to have a comprehensive equine oncology program. Dr. Théon leads the program in collaboration with the Equine Medicine Service.

“The Center for Companion Animal Health (CCAH) cancer center, which opened in 2004, brings chemotherapy, radiation therapy and surgery all together for a comprehensive approach to evaluation and patient treatment for small animal and equine oncology patients.

It allows us to do more—both in providing clinical therapies, and observing and tracking the response to treatment,” says Dr. Théon. He is collecting data from ongoing clinical research in order to document tumor response of common skin, oral and intranasal cavity tumors.

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