NEWS RELEASE

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College of Veterinary Medicine Offers New Cancer-Fighting Tool

FOR IMMEDIATE RELEASE

Cancer is one of the leading causes of death in dogs and cats, and while a cure is unlikely in some patients, new treatment options are becoming available every day. North Carolina State University's College of Veterinary Medicine has just obtained a new tool in the fight against cancer in companion animals – a linear accelerator.

The linear accelerator generates high-energy radiation that is used to treat solid tumors in dogs and cats. The machine produces electrons, similar to a filament of an incandescent light bulb, and then accelerates them.

"We can either use those electrons for superficial treatment, or we can direct them onto a target, where they will result in the creation of high-energy X-rays that are much more penetrating," said Dr. Donald Thrall, a professor in the Department of Molecular Biomedical Sciences.

The advantage to electron therapy is that it can be used to treat superficially located tumors that are located over the top of important structures that veterinarians don't want to irradiate, like vital organs, for example. "Treating those areas with high-energy radiation becomes problematic in protecting the underlying things that you don't want to treat, but that's not a problem at all with a linear accelerator," Thrall said.

According to Thrall, the linear accelerator allows the College of Veterinary Medicine to keep pace with the latest treatments. "Animal owners are extremely sophisticated – they go online and learn about the latest techniques and therapies. They know a lot about how cancer in animals is treated. We want to be able to provide those treatments," he said.

Thrall says a linear accelerator is particularly well suited to treating two very common tumors in cats and dogs – MAST cell tumors in dogs and Vaccine Associated Sarcomas in cats. Removal of those tumors can sometimes leave microscopic traces of cancer cells behind, but a linear accelerator is very effective way of killing any remaining cancer cells, Thrall said.

The new device also benefits students. “It provides the opportunity for veterinary students to learn more about cancer treatment and to be prepared for working in a veterinary practice. Radiation oncology instruction in veterinary schools is still fairly new; it’s only recently become a recognized specialty,” Thrall said.

The linear accelerator cost the College of Veterinary Medicine approximately $100,000 and was previously used in a human health cancer center. New state-of-the-art linear accelerators can cost upwards of $1 million. There is only one other linear accelerator in North Carolina dedicated to veterinary medicine.

The College of Veterinary Medicine has offered radiation therapy since 1984 with a cobalt machine, a device which contains a radioactive source of cobalt-60 and emits high-energy radiation.

“A cobalt machine works well for many kinds of cancer, but it does have a disadvantage in that it is difficult to use this machine to treat superficial tumors, because the energy is so high,” Thrall said. The radioactive cobalt also decays over time, he says, which makes the machine less efficient. “Eventually the cobalt-60 needs to be replaced, and that is expensive. In this day and age of bioterrorism, large radioactive sources are becoming much more difficult to maintain,” he said.

Presently, Thrall is the only radiation oncologist in the College of Veterinary Medicine, but that will soon change. “We’ve got this great facility now and we’ve created a new faculty position for a full-time radiation oncologist,” he said.

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