

What you need to know about radiation therapy in dogs and cats

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Radiation therapy is used for local disease control — to damage and ultimately kill the primary cancer, usually as a follow up treatment to surgery. For example, if a dog has an incomplete resection — which means that there are cancer cells detected in their surgical scar on the biopsy report (dirty margins) — we would follow the surgery with radiation treatments to “clean up” those microscopic cancer cells. This is pretty common when it comes to a skin mast cell tumor or a soft tissue sarcoma. These conventional radiation therapy treatments usually require fifteen to twenty treatments, which are also called fractions (see below). Each session requires a short anesthesia, and pets are usually treated daily Monday to Friday with the weekends off. Yes, that’s a lot of anesthesia.

Why SO many treatments? It’s all about the normal tissue in the radiation field. To minimize damage to the normal cells, the dose is divided up into many small treatments. These “fractions” are helpful because normal cells can repair themselves more efficiently after smaller, multiple doses. For example, if your dog has a tumor in the nose, conventional radiation therapy will probably expose other nearby body parts to the harmful radiation: the mouth, eyes, and brain may get radiation because it is in the treatment field.

It’s this damage to otherwise healthy tissue that has motivated oncologists to look for a way to deliver radiation with more precision, fewer side effects, and fewer treatment sessions. The new technique called “radiosurgery” aims at getting the radiation energy directly to the tumor – even inoperable tumors – while avoiding healthy body parts that might be damaged by the beam or by its scatter.

By the way, I personally think the radiosurgery name is silly because there is no surgery in radiosurgery. There is no actual cutting – the name is meant to imply that radiation is accomplishing what surgery would do if it could actually get to the tumor.

Radiosurgery is not good for every type of tumor (for example, mast cell tumors and soft tissue sarcomas are not good candidates). But it does offer hope to some patients whose tumors were once considered inoperable. Here’s why:

The new, modified linear accelerators (radiation therapy machines) can generate very controlled, narrow beams that deliver radiation very precisely. The machine has five “arms” and rotates around several axes. It can approach a tumor from almost any angle the radiation oncologist wants it to, and while a traditional linear accelerator has two to four ports (holes where the radiation exits), the CyberKnife has hundreds.

Planning the radiation is critical when you’re dealing with radiosurgery. First, a CT (computed tomography) scan is done to get a very detailed three-dimensional image of the tumor. (For brain tumors we need both a CT and MRI for planning.) Then, our radiation oncologist, uses a complex computer program to plan precise coordinates for the radiation beam.

The precision involved in radiosurgery is amazing, and it also makes radiation therapy more appealing to dog and cat lovers. For example, a nasal tumor that requires fifteen to twenty conventional sessions and exposes the mouth, eyes, and brain to radiation can be treated in only three consecutive CyberKnife sessions. That's five times less anesthesia, five times fewer trips to the hospital, and fewer side effects. And the results are comparable to traditional radiation therapy. Some brain tumors are treated in just one treatment. It is pretty amazing!

My practice, the Animal Specialty Center in Yonkers NY was the first to offer CyberKnife Radiosurgery to animals, and we have been treating dogs and cats since March 2008. More recently a handful of practices are offering this advanced type of radiation. We've treated over 600 cases, and I am thrilled to offer such amazing technology to my patients.

Live longer, live well

Dr Sue