

PVSEC – Radiation Therapy
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Radiation Therapy Handout

Facts about radiation therapy

Our radiation therapy machine (linear accelerator) produces X-ray beams which are much stronger than those produced by diagnostic machines. These X-rays kill tumor cells. Our machine also is capable of producing electron beams, which have biological effects that are very similar to X-rays. Our radiation therapy machine allows patients to be exposed to radiation in a manner that maximizes exposure to the tumor while minimizing damage to normal tissues. Your pet will NOT be radioactive after radiation therapy because they are exposed to radiation, but NOT treated with radioactive substances that remain in the body.

There are two general categories of radiation therapy: one involves many daily treatments, and the other involves fewer weekly treatments. Both protocols encompass approximately 4 weeks. Radiation therapy is done in multiple smaller treatments to protect normal tissue by spreading out the total dose of radiation. The outcome depends on multiple factors, including the type of protocol, the type and location of the tumor, and the size of the tumor. Radiation therapy is most effective when the tumor is small. Therefore, we often perform radiation therapy to treat remaining tumor cells after the bulk of the tumor is removed surgically.

Anesthesia

Because radiation treatment requires precise, repeatable positioning, general anesthesia is mandatory for all pets. Therefore, it is very important that you do not allow your pet to eat after midnight the night before treatments. Water may be provided until the morning of treatment. Anesthesia always carries a small risk, even for “healthy” pets. The risk, however, is extremely small, and is far outweighed by the potential benefit of radiation therapy. Your pet will be monitored closely throughout anesthesia to further minimize anesthetic risks.

Your pet may seem sleepy after radiation therapy until the effects of anesthesia wear off. In addition, your pet may seem to be producing excess tears after radiation therapy because we apply a lubricant to the eyes to prevent the tear film from drying out during anesthesia.

Side effects of radiation therapy

Radiation beams are directed to the area of the tumor. However, it is impossible to completely avoid irradiating normal tissues, which can lead to radiation side effects. If the benefits of controlling the tumor do not significantly outweigh the risk of side effects, radiation therapy will not be performed.

Radiation side effects can be classified to two categories: acute (early) side effects and chronic (late) side effects. Acute side effects typically start in the third week of radiation therapy and progress for 10-14 days AFTER completion of radiation therapy. Acute side effects, although unpleasant, are usually temporary and are not serious in most cases. Chronic side effects are uncommon; however, some chronic side effects can be serious. It takes many months, or even years, for chronic effects to become evident. There is a small (<5%) risk of developing a non-healing wound, which can be difficult to manage conservatively or even with surgical intervention. There is also a very small risk of developing a secondary malignant tumor in irradiated tissues several years after treatment. Radiation side effects are limited to the irradiated areas. The side effects your pet may experience depend on the types of organs or tissues that were irradiated.

Raw, sunburn-like skin reactions are the most common side effect. It is extremely important to keep your pet from licking, rubbing, or scratching the irradiated area during and for several weeks following completion of treatment, since this can result in formation of a non-healing wound. In most cases, these are successfully managed using medications to reduce pain and inflammation, and Elizabethan collars to prevent additional self-induced tissue trauma. Hair may be lost in the irradiated area, and may or may not grow back. When hair grows back, it often is white or grey in color. Skin can also have increased or decreased pigmentation, but this is only a cosmetic problem. If irradiated tissue sustains an injury (such as a wound or fracture), it will heal more slowly than normal tissue. If your pet requires surgery to repair the irradiated area, surgery should be performed by a surgeon who is familiar with the healing of irradiated tissues. Side effects involving other specific tissues within the radiation treatment area will be discussed with you on an individual basis.

Gastrointestinal side effects of radiation are uncommon and only occur when part of the gastrointestinal tract is irradiated. Anesthesia occasionally is associated with transient vomiting. Stress- or diet-induced diarrhea may develop while boarding.

Boarding

You can bring your pet in for each treatment at a scheduled time, drop off your pet each day for treatments, or have your pet boarded overnight. If you choose to board your pet, we recommend taking them home over weekends if possible. Bringing your pet's food and all medications will minimize costs and vomiting or diarrhea while boarding.

After the treatment is over

It is important for your veterinarian to check your pet periodically after radiation therapy and contact us with any concerns. Both the tumor and normal tissue side effects should be monitored at recheck exams.

Other

1. If your pet has a tumor on the head or neck, please avoid using a collar when on a leash. This can increase blood pressure in the head/neck.
2. The treatment area may be marked with ink to enable the treatment to be directed to the same location every time. Please maintain the marks as directed.

The MOST important points to keep in mind;

- Please DO NOT feed your pet in the morning.
- Please DO NOT let your pet traumatize the irradiated areas.
- Radiation side effects temporarily get worse AFTER completing radiation therapy
- Please bring all food and medications if boarding your pet.
- Please call with any concerns or questions so that our staff may address them.