

# Optimizing radiation therapy planning using advanced imaging in dogs with soft tissue sarcomas

## Purpose

To investigate differences between computed tomography (CT) and magnetic resonance imaging (MRI) in tumor imaging of dogs with soft tissue sarcomas and to determine how these differences affect radiation therapy planning

## Background

Imaging studies have become an integral part of the diagnosis and therapeutic decision making for cancer patients in veterinary medicine. CT and MRI are standard of care in human medicine for diagnosing cancer and determining its spread. Radiation therapy (RT) is used to treat soft tissue sarcomas in combination with surgery or alone in both people and canine patients. Advanced techniques have been developed in RT planning to maximize dose delivery to the cancer while sparing normal surrounding tissues. MRI is potentially superior to CT in characterizing soft tissue sarcomas because of its ability to distinguish differences in soft tissues. However, direct clinical comparisons have not been performed in dogs.

The purposes of this study are a) to investigate if there are differences on tumor imaging between computed tomography (CT) and magnetic resonance imaging (MRI) in dogs with soft tissue sarcomas and b) to determine how these differences affect the radiation therapy planning and therefore local tumor control when radiation therapy (RT) is applied.

This study is funded by the Alexander McCausland Charitable Trust.

## Eligibility

- Dogs of any age, weight, or breed with cytologically or histologically confirmed superficial soft tissue sarcoma.

## Exclusion Criteria

- Dogs who are not healthy enough to undergo an additional hour of anesthesia to acquire MR images for the study.

## Study Design

**This study takes place at the Animal Cancer Care and Research Center in Roanoke, VA.**

As part of routine clinical assessment, your dog will be offered the standard work up (staging) to assess the extent of your dog's tumor and overall health of your dog. This includes blood work, CT of the thorax, abdomen, and the region of interest, and tumor biopsy. These procedures are part of the routine staging of soft tissue sarcomas and are not part of the research study. For the research study, magnetic resonance imaging (MRI) will be added as part of the work up.

General anesthesia is applied as a standard method in order to immobilize the animal during CT and MRI. MRI as part of the study will add one (1) hour to the overall anesthesia time. The work up is a one-day visit. Your dog will be discharged to you the same day after full recovery from anesthesia. We will discuss and offer standard treatment options for your dog at that day or after we have the results from all examinations.

## Compensation

The CT scan and MRI will be provided at no cost to the client. The information from this imaging will aid in cancer staging and treatment planning for your dog. Imaging using CT is typically recommended as part of the standard work-up for dogs with soft tissue sarcomas, so participation in this study will reduce the out-of-pocket cost of the screening/staging visit.

## Contact

Dr. Ilektra Athanasiadi, Radiation Oncology  
Phone: 540-526-2300

Mindy Quigley, Clinical Trials Coordinator  
Phone: 540-231-1363 | Email: [mindyq@vt.edu](mailto:mindyq@vt.edu)

If your query is urgent, please call the Animal Cancer Care and Research Center on 540-526-2300.