



Evaluating the Use of Fluorescent Dyes in Surgery to Improve Lymph Node Staging in Dogs with Lung Cancer

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WHAT IS A VETERINARY CLINICAL TRIAL?

A veterinary clinical trial is a research study involving client-owned animals with the ultimate goal to advance animal and human health care! An **interventional clinical trial** allows us to measure outcomes through data and sample collection of a new or novel therapeutic approach compared to one that is standard of care. These studies evaluate new and improved ways to prevent, diagnose or treat diseases.

What is Sentinel Lymph Node Mapping?

In the field of veterinary oncology, identification of metastatic disease (or spread) is critical for determining the extent of disease, prognosis, and developing treatment plans. Many cancers will metastasize to the local lymph nodes. The first lymph node that the tumour drains to is called the sentinel lymph node (SLN). By mapping the SLNs, we can identify and assess the draining lymph nodes of a tumour. This is critical for many cancer types, as metastasis occurs via the lymphatics. Failure to identify and assess the SLNs can lead to incomplete treatment, worse prognosis, and poor patient outcome.

What is the Purpose of this Study?

Currently in veterinary patients, there are limited protocols in place to identify SLNs. The purpose of this study is to evaluate new techniques for SLN identification before and during surgery in dogs with lung tumours. By developing new protocols, we can ensure accurate evaluation of the most important lymph node(s) to make better follow-up and treatment recommendations. This will help to improve patient treatments and outcomes for dogs diagnosed with lung tumours, as well as dogs and cats with other solid tumour types in the future. We are also working closely with human clinicians at the University Health Network (UHN) for this study.

INCLUSION CRITERIA

Dogs with a single lung tumour $\leq 5\text{cm}$ and interested in pursuing CT and surgery will be eligible for this study.

EXCLUSION CRITERIA

Dogs with multiple lung tumours, metastatic disease and/or markedly enlarged (or confirmed metastatic) lymph nodes will not be eligible to participate in this study.

Financial Incentives

The study appointment, CTL procedure and anesthesia, follow-up chest x-ray, fluorescent dye (ICG), specialized camera (NIRF) and the additional anesthesia (~30 minutes) required during surgery for fluorescence observations will be covered by the study,

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1

After consultation with a member of the research team (and/or OVC Oncology service), your dog will undergo a routine CT scan for staging and surgical planning. During this scan, your dog will receive an intravenous (IV) injection of an iodine-based contrast agent, which is standard of care for cancer staging.

2

Approximately 18-24 hours after the first CT scan, a second scan will be performed. During this scan, the contrast agent will be injected locally into the lung to identify the SLNs.

Your dog will be monitored for several hours and have a chest x-ray performed to ensure that there are no complications following the CTL.

Depending on the schedule, your dog may be discharged from the hospital to your care until surgery.

3

Within the week, your dog will undergo surgery to remove the primary tumour (lung lobectomy) and associated lymph nodes (lymphadenectomy).

During surgery, the surgeon will use a special dye called Indocyanine Green (ICG) and a near-infrared fluorescence (NIRF) camera to make the tumour and lymph nodes 'glow-in-the-dark.'

Following surgery, your dog will recover in ICU under careful monitoring.

4

Approximately 48-72 hours after surgery, the standard timeline for postoperative patients, your dog will be discharged from the hospital. Postoperative care instructions and any necessary medications will be provided to you by your dog's clinician.

Collected samples will be assessed by a pathologist and compared to data obtained during surgery.

A follow up appointment will be booked at OVC 10-14 days after surgery to remove your dog's sutures. Results of this study including any publications will be provided to you, if interested.



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**Questions about this study?
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