IOWA STATE UNIVERSITY
Lloyd Veterinary Medical Center

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Vet Pulse

IMPORTANT INFORMATION FOR OUR REFERRING VETERINARIANS

Taking Aim at Cancer

BY Tracy Ann Raef

Radiation therapy is now available at the Lloyd Veterinary Medical Center to treat pet cancers, in addition to surgery and chemotherapy.

"Radiation therapy is specifically useful for treating many different types of tumors," said Dr. Chad Johannes, veterinary oncologist at the LVMC.

Since February when the service opened, the cancer care team has treated several patients. "But, not every patient is a candidate for radiation therapy," says Dr. Johannes. "For those that are, the goal of radiation therapy is different for each."

"Radiation therapy is often administered for a curative intent, to achieve long-term tumor control, or sometimes it's used to relieve pain and/or improve function, palliative therapy," says Dr. Johannes.

Radiation therapy works by causing disruptions in the tumor cell's DNA so they can't replicate. The tumor shrinks and blood vessels that feed the tumor close off over time after treatment.

What is the process?

The first step involves a consult with the client and patient to determine whether radiotherapy is the best choice of treatment. This step involves taking diagnostic CT and, possibly, MRI scans for the radiation oncologist to review.

Second step, if radiotherapy is indicated, is the development of the therapy plan by the radiation oncologist. The dose of radiation is calculated to attack the tumor while sparing the surrounding normal tissue and organs. The doses and the positioning of the machine's beam are done by computer software housed in the machine.

Third step, while under anesthesia, the patient is precisely positioned on a table. While the patient remains immobilized, the machine rotates around the patient delivering the radiation from many different angles, using an advanced tracking technology.

The entire process from induction of anesthesia to recovery takes about 20-45 minutes depending on the case and treatment plan.

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Dr. Chad Johannes, veterinary oncologist, and Drema Lopez, radiation therapist, with Vince in the radiation oncology facility at the LVMC. Photo: Paul Gates

TYPES OF TUMORS TREATED?

- Nasal tumors
- Brain tumors
- Soft-tissue/skin tumors
- Pituitary tumors
- Bone tumors
- Urinary bladder tumors
- Many others

COST OF TREATMENT?

Range from $1,500 to $8,000

SRT MACHINE?

Varian Trilogy Stereotactic System
(previously owned by human medical center)

Referring a Patient for Total Hip Replacement

Karl H. Kraus, DVM, MS, DACVS
Professor of Orthopedic and Neurosurgery

Total hip replacement, also known as total hip arthroplasty, is a procedure where the hip joint is removed and replaced with an artificial and manufactured joint. It is a relatively common procedure in dogs and carries a good prognosis. Success rate is reported to be up to 96%. The cost at Iowa State University is $4,500 per hip, and an additional $500 if there are any complications in the immediate postoperative period. The reason for the set costs is so the client knows what to expect and is not burdened with unexpected costs of complications. Follow-up examinations are not included in this figure.

We perform up to 5 hip replacements per year. We have had one major complication in the last 11 years. We are very selective in case admission. Complications can be very difficult to deal with and include infection and luxation of the joint.

Currently there are two types of total hip arthroplasty systems, cemented and non-cemented. Though non-cemented systems have the theoretic advantage of decreased infection rate and better longevity, they have somewhat increased complication rates that include the femoral component subsiding into the femur. Some surgeons combine cemented and non-cemented components. Presently at Iowa State University we use the **Biometrix CFX** which is a cemented system.

Because of the expense of the procedure and the severity of complications, it is reasonable to aim to keep complication rates as low as possible. Since some patients have higher complications rates than others, case selection is important. Not all patients are candidates for hip replacement and some have higher than acceptable complication rates.

Some cases are not suitable candidates for hip replacement even though they have radiographic evidence of osteoarthritis secondary to hip dysplasia.

A list of conditions or situations where a patient is **not an acceptable candidate** include:

- Concurrent neurologic disease
- Concurrent cranial cruciate conditions
- Obesity
- Severe development luxation
- Traumatic hip luxation

Some conditions result in higher complications and they should be corrected prior to hip replacement surgery or the client advised of increased risks.

A list includes:

- Concurrent infection
- No prior medical management including addressing weight and inactivity
- Poor pelvic anatomy
- Aggressive patient
- Severe muscle atrophy or lameness

The ideal candidate is one where there are none of the above conditions, conservative management was attempted, and the condition is worsening and the patient is still in relatively good condition. The patient is cooperative and anatomy is adequate. With rare exception, the first visit to the specialist will be to evaluate the patient and not admit for surgery. Surgery will be scheduled at a future time since other treatments may need to be prescribed and adequate preoperative planning is performed.

Total hip arthroplasty is an excellent procedure with good to excellent outcome in a high percentage of cases. Case selection is important in keeping complication rate to a minimum. We look forward to working with you for your client that is considering this procedure for their dog.

For more explanation about the limiting conditions, please go to our webpage at:
vetmed.iastate.edu/vmc/total-hip-replacement

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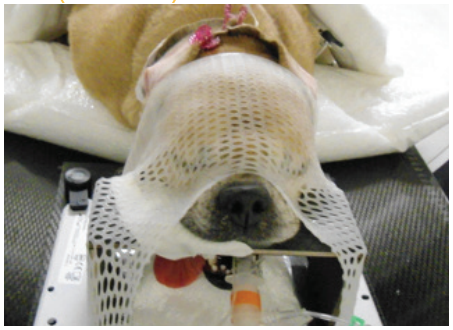
Stereotactic Radiation Therapy

This particular type of radiation (stereotactic radiotherapy) is more advanced than conventional radiation therapy. Previously, the closest stereotactic radiotherapy treatment centers for pets were Colorado State University and a private veterinary specialty center in Wisconsin.

For patients, this advanced linear accelerator uses precision and powerful beams which equals precision treatment and reduced treatment time, compared to conventional radiation therapy. Patients also experience few to minimal side effects from the radiation.

"With this technology, we're able to treat cancers that were previously untreatable with conventional radiation therapy," said Dr. Johannes. "For clients who are traveling from a distance, the length of outpatient sessions is often reduced to five or fewer."

"We're excited to offer this new service and provide Iowa and the surrounding region with access to the most advanced cancer treatment technology for their pets," Dr. Johannes said.



Dog with nasal tumor positioned and immobilized for radiotherapy.

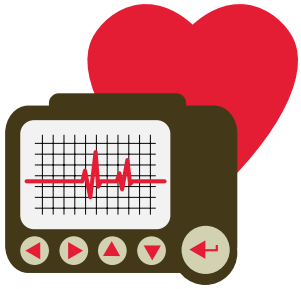
Radiotherapy Care Team

- Two board-certified veterinary medical oncologists
- One board-certified veterinary radiation oncologist (contractual)
- One certified radiation therapist
- One certified veterinary technician
- One medical physicist (contractual)

For more information about radiation therapy, please contact: Dr. Chad Johannes or Drema Lopez, radiation therapist at (515) 294-4900 Or email: oncotech@iastate.edu

Holter Monitoring & Analysis

The Cardiology Service at the Lloyd Veterinary Medical Center is now offering in-house Holter monitoring and analysis. Holter monitors are noninvasive, portable devices used to continuously monitor the heart rhythm in dogs, cats, and horses. Holter monitors are commonly performed in patients who have signs of a heart problem such as an irregular heartbeat or unexplained episodes of fainting. ISU Cardiology also offers screening evaluations for breeding dogs at high risk for heart disease.



For information about pricing or to order a Holter monitor, please contact ISU Cardiology at cardiology@iastate.edu.

Canine Anticancer Immunotherapeutic Agent Clinical Trial Begins

A clinical study for a new canine anti-cancer immunotherapeutic is underway in the College of Veterinary Medicine.

Immunocidin®, an anticancer treatment, has received regulatory approval in the U.S. and Canada to treat mammary tumors. The Iowa State study will observe dogs with stage I or stage II splenic hemangiosarcoma (HSA) who have undergone a splenectomy to determine the effectiveness of Immunocidin® in combination with doxorubicin chemotherapy. A total of 66 dogs will participate in the trial and survival times will be monitored.

"Treatment options and survival outcomes for canine HSA have remained essentially stagnant for the past two decades," said Dr. Chad Johannes, assistant professor of veterinary clinical sciences. "Additional therapeutic options for HSA are needed and we look forward to learning more about how immune stimulation via Immunocidin® may play a role in improving outcomes for dogs."

Current Clinical Trials

The Lloyd Veterinary Medical Center has several ongoing clinical trials. A list of trials and enrollment information are provided at: vetmed.iastate.edu/vmc/clinical-trials

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To view an electronic version of Iowa State University Vet Pulse visit:
vetmed.iastate.edu/VetPulse

From the Director of Hospital Operations

I am delighted to share some of our latest updates with you in this edition of *Vet Pulse*. The Lloyd Veterinary Medical Center is a dynamic place as we keep expanding our services to better support you, our referring veterinarians, and the animals of Iowa and beyond.

The expansion of our pet cancer treatment into radiation therapy modalities has been completed, and our first radiation therapy patients have begun their treatment with our stereotactic radiation therapy unit. Be sure to read all the details under our Taking Aim at Cancer article. Also, don't miss the information on our new in-house Holter monitoring and analysis through the Cardiology Service in this newsletter.

A common question from our referring veterinarians is how to identify an appropriate candidate for orthopedic referral. Dr. Karl Kraus has written an excellent article explaining what to look for in evaluating a potential candidate for total hip replacement. We have more hospital updates than we can fit into one newsletter. We recently upgraded the hospital anesthesia monitoring system to allow centralized oversight of large and small animal patients, in addition to the individual patient monitoring always in place. We have streamlined the processing of large animals to free up our hospital facilities to see more production animal referral cases. We are increasing our staff to provide excellent patient care support as our caseload continues to grow.

This is the time of the year when we learn about which interns and residents have been matched with Iowa State University Lloyd Veterinary Medical Center house officer training programs. Our reputation is growing, and we had a very large number of applicants for this year's "match" program. Many of our programs, such as Equine Surgery, Ophthalmology, and several others are in high demand, meaning that we were able to pick top candidates for advanced training from a large pool. We are excited to welcome the newest house officers this summer.

As always, thank you for trusting your clients and patients to us.

Stephanie West, D.V.M.
Director of Hospital Operations, LVMC

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