LIVS IN PLAIN VIEW

Long Island Veterinary Specialists

Where You Refer Your Patient First Makes All The Difference

INSIDE THIS ISSUE

JULY/AUGUST 2023
VOLUME 16 - ISSUE 4

Integrative Approach to Pets with Cancer

Michel Selmer, DVM, MS, CTCVMP (Integrative Medicine), CVMMP (Chiropractic) Practice Limited to Integrative Veterinary Medicine

Cancer is a complex disease that benefits from integrating Traditional Chinese Veterinary Medicine (TCVM) with Conventional Western Veterinary Medicine (CWVM) for diagnosis and treatment.
Western medicine has made significant strengths in understanding and treating cancer through surgery, chemotherapy, radiation therapy, immunotherapy, and other targeted therapies. These treatments have been extensively researched and have demonstrated effectiveness in many cases.
Diagnosing cancer is extremely important and requires Western Conventional Diagnostics like laboratory testing, imaging, fluid analysis, and biopsies. Sometimes western conventional treatments for cancer, medical and surgical, are indicated. But, even post western treatment, the dog will still have to heal and may benefit by integrating Traditional Chinese Veterinary Medicine and Veterinary Medical Manipulation. In cases of cancer, western therapies alone may fall short for long-term management whereas integrating Traditional Chinese Veterinary Medicine and Veterinary Medical Manipulation could be beneficial for an optimal outcome.
Conventional Western Veterinary Medicine truly provides the best options for diagnosing cancer.
But when we consider cancer a chronic disease, Conventional Western Veterinary Medicine may fall short to acquire the most desirable outcome and the patient may be left with unwanted and adverse side effects from the treatments provided. Traditional Chinese Veterinary Medicine allows us to look at this disease from a different perspective and through a different lens. Traditional Chinese Veterinary Medicine takes an approach to look for the root cause by providing a Chinese Pattern Diagnosis, which aims to identify the specific imbalances and patterns present in the body and implementing long-term lifestyle changes.
Let us dive a little bit deeper. How do we formulate a Chinese Pattern Diagnosis? We use a combination of "Zang Fu Physiology" (The "Where") and the "Eight Principles" (The "What"). First, we have to determine the "Where", the origin of the disease and then we need to determine the "What" of the disease; is the disease acute or chronic? Acute disease would be considered "Excess" whereas chronic disease would

Continued on page 6

A NOTE FROM THE EDITOR

All year long, but especially during warm summers, treats play an important role in the health and well-being of pets and we all are tempted to reward them as a way of showing our love but. . .during COVID, in the US, 2% admitted to giving more than 15 treats a day! Pet treats without nutritional labels are exempt from registration, e.g., bones, toys and exercisers made of animal skin hide, hooves, ears, animal bones, ligaments, snouts and pizzles.

High fat and high calorie treats should be skipped; low calorie vegetable treat options like carrots, half a cucumber, green beans, celery stalks, half a zucchini (zucchini is plural). . . average 7 to 30 calories per item, but rawhide can be over 100 calories and some chew bones may be over 1000 calories! One should be careful since pigs' ears and pizzle sticks can transmit salmonella and E. coli and some human foods can transmit campylobacter and toxoplasma. Do not give xylitol, garlic, grapes, and chocolate. Xylitol can cause liver damage, chives and onions can cause gastric irritation and red blood cell damage leading to anemia. Grapes and raisins cause kidney disease, chocolate can be fatal. Items like chicken, duck, or sweet potato jerky pet treats, if imported from China, can sometimes cause severe illnesses. Some foods like carrots, celery, green beans, parsnip, and summer squash contain oxalate which can cause uroliths. Fresh fruits such as blueberries and cranberries can be good low calorie treats for most dogs as they contain antioxidants, fiber, vitamin C and vitamin K, however they are higher in sugar and calories and should be given in moderation. Giving treats is a popular way for pet owners to show affection to their pets but, as Aristotle said. . . moderation in all things.

Now that 5G rollout is increasing, we should note that some people and pets may be affected by pulse-modulated microwave radiation. In October 2022, animals were exposed to a 5G frequency of 3.5 GHz for 2 hours a day, 5 days a week for one month. This caused oxidative stress and an increase of degenerated neurons in the hippocampus in addition to decreased irisin levels, a hormone positively correlated with healthy cognitive function. A woman exposed to 5G quickly developed a large array of debilitating symptoms after the replacement of a 4G tower with 5G on an adjacent building. These symptoms included headache, dizziness and balance problems, cognitive dysfunction—including memory, confusion and loss of focus—as well as extreme fatigue, anxiety, cough, nose bleeding and disorders of urinary function and the skin, including spontaneous bruising and skin eruptions.

The woman reported that when she relocated to another apartment not near a 5G base station, all her symptoms quickly resolved, only to return within 24 hours of her return to her own apartment. The condition has been variously termed radiofrequency sickness syndrome or microwave syndrome. The non-thermal effects—effects unrelated to a build-up of heat—depend primarily on the modulation and/or pulsation of the signal as well as on the peak and average intensity. Safety limits for exposure to RF radiation applied by most countries around the world are still based on acute heat or thermal effects that appear within a short time from exposure, thus failing to assess other effects of

long-term exposure. These symptoms are eerily similar to "Long Covid" and even "Long Post Covid Vaccination Syndrome."

The woman's dog also showed signs of ill health after the 5G installation. The dog contracted diarrhea soon after the 5G was installed which disappeared during the retreat to the other apartment with no 5G but returned when they moved back to her own apartment. Also, the dog was reluctant to re-enter the apartment after being taken out for a walk. Smart dog!

In 2019, 258 EMF scientists from 58 countries appealed to the United Nations to impose a moratorium on the roll-out of 5G until health effects could be properly assessed. In the appeal, the scientists said:

"Wireless communication technologies are rapidly becoming an integral part of every economic sector. But there is a rapidly growing body of scientific evidence of harm to people, plants, animals, and microbes caused by exposure to these technologies. Hope they listen.

LIVS recently hosted a "Canine Tactical Emergency Casualty Care Review" course for veterinarians, military, police, EMTs, Vet Techs and others. Dr. Dominic Marino led the course which was fully booked and enthusiastically attended.

Meanwhile, in New York City, there was a recent spike in parvovirus. The state Department of Agriculture and Markets was not aware of any parvovirus cases on Long Island so far but the northeast receives many rescues from southern shelters as many of the puppies have not had early shots and may only look healthy. The New York City dogs were mainly in the Bronx and Manhattan with over a dozen being diagnosed, which is more than what is seen in a single year! It spreads by contact with animal feces and can be very severe causing sepsis shock and death since treatment is largely supportive care like fluids, electrolytes and quarantine, it's important that dogs be vaccinated. Nine thousand puppies were imported into New York last year. The AVMA is promoting a congressional bill that would ban importation of dogs younger than six months into the United States (since over a million dogs are imported every year). Those caring for dogs with parvo also should not take care of healthy dogs if possible as the virus spreads on hands, clothing and shoes.

LIVS employees on June 25th volunteered and participated in a charity event at the Ronald McDonald House in New Hyde Park. They prepared and provided brunch to 60 families who reside at the house while caring for their sick and hospitalized children. They also brought coloring books and crayons for the kids who were happy to welcome the LIVS contingent. As a pleasant surprise, Hill's Science Diet was kind enough to sponsor an Ice Cream Truck Day on July 7th to the LIVS staff. It was a nice treat and break from the heat. Delicious! And remember what Aristotle said. . . ☺

-Leonard J. Marino, MD, FAAP, LVT

WHERE YOU REFER YOUR PATIENTS FIRST MAKES ALL THE DIFFERENCE

Jonathan Goodwin, DVM, MS
DACVIM (Cardiology)
Cardiology

Shadi Ireifej, DVM
DACVS
Director, Emergency Services

Christian Blauvelt, DVM
Dermatology Clinician
Dermatology & Allergy

Michel Selmer, MS, DVM
CTCVMP, CVMMP
Integrative Medicine

Joshua W. Tumulty, DVM
DACVIM (SAIM)
Internal Medicine,
Radioiodine Therapy

Neil Mittelman, DVM
DACVIM (LAIM; Neurology)
Neurology/Neurosurgery

Patrick F. Roynard, DVM, MRVCS
DACVIM (Neurology)
Neurology/Neurosurgery

Nicole Leibman, DVM
DACVIM (Oncology)
Oncology, Radiation Therapy

Kay Kim, VMD
DACVO
Ophthalmology

John S. Sapienza, DVM
DACVO
Ophthalmology

Kevin Barber, DVM
DACVS-SA
Surgery, Neurosurgery

Jaclyn Holdsworth, DVM
Surgery Clinician
Surgery, Neurosurgery

Catherine A. Loughin, DVM
DACVS, DACCT
Surgery, Neurosurgery

Dominic J. Marino, DVM
DACVS, DACCT, CCRP
Surgery, Neurosurgery,
Radiation Therapy, Physical Rehab

Robert Waddell, DVM
DACVS-SA
Surgery, Neurosurgery

John Wagner, DVM
Surgery Clinician
Surgery, Neurosurgery

EMERGENCY DEPARTMENT OPEN 24/7

Long Island Veterinary Specialists

Where You Refer Your Patient First Makes All The Difference

163 S. Service Road, Plainview, NY 11803
(516) 501-1700 | **livs.org**

AAHA ACCREDITED REFERRAL

Integrative Medicine

The best of both worlds in veterinary medicine.

The Integrative Medicine Team takes a holistic and gentle approach to treating animal disorders and puts an emphasis on the patient's emotional and mental well-being. Dr. Michel Selmer is one of only a handful of Traditional Chinese Veterinary Medicine Practitioners that holds a Master's Degree in the United States.

Services offered include:

- Acupuncture
- Chinese Herbology
- Class IV Cold Laser Therapy
- Medical Manipulation (Chiropractic Care)
- Food Therapy
- Herbal Medicine
- Nutritional Consults
- Tui-na Massage

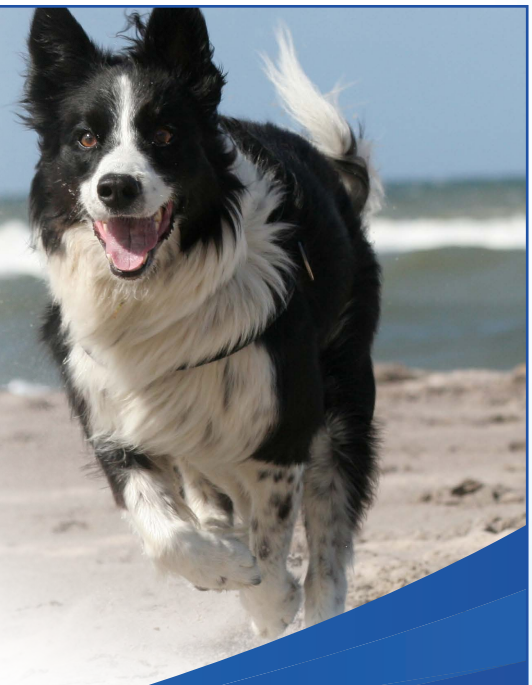
To refer your patients to Dr. Selmer, call 516-501-1700 or visit livs.org

516-501-1700 | livs.org

Long Island Veterinary Specialists

Cutting-Edge Surgical Care

When surgery is determined to be the best option, your patients will be in excellent hands at LIVS.



Surgery Services

- Emergency Surgery
- Interventional Radiology (stents)
- Minimally-Invasive (arthroscopy, thoracoscopy, laparoscopy, rhinoscopy)
- Neurosurgery
- Oncologic Surgery
- Orthopedic Surgery
- Soft Tissue Surgery
- Stem Cell Therapy

Diagnostics

- CT
- Digital Radiography
- Endoscopy
- Fluoroscopy
- MRI
- Ultrasound

Now offering Synovetin OA,®

a new therapy that can help restore a dog's active life. One injectable treatment has been proven effective in the treatment of dogs with elbow OA and can last up to one full year!

516-501-1700

Long Island Veterinary Specialists

Integrative Approach to Pets with Cancer

Continued from front cover

be considered "Deficiency". Lastly, we need to determine what the "Excess" is or what the "Deficiency" is. Once these steps have been completed, we would then have a Chinese Pattern Diagnosis. According to "Zang Fu Physiology", we have a few pathways in which cancer can occur. One of the spleen's responsibilities is for transformation of food and transportation of the nutrients throughout the body. When the spleen does not do its job properly, we are left with improperly transformed food and therefore improperly transported nutrients, which leaves an accumulation of "Yin Substances" or "Phlegm" and we are left with a mass. Chronic inflammation can lead to an increased rate of cell mutations and when combined with a weakened immune system (Wei Qi Deficiency) we are left with abnormal cells which then reproduce . . . and POOF we have a mass. So we have the "Where". If there is a cancer, we have an issue with the spleen and the Wei Qi. Now we need the "What". If the cancer is due to an "Excess", it would typically be of acute onset, in a younger patient from an accumulation of toxic heat, stagnant Qi, or blood stasis. If the cancer is due to a "Deficiency", it would typically be of chronic course of an illness in an older patient due to overwork, a poor diet, chronic stress, aging, and/or a genetic deficit (like Wei Qi, Spleen and Yin Deficiency). The Chinese Pattern Diagnosis would allow us to formulate a treatment plan inclusive of Acupuncture, Herbal Therapy, and Nutritional Therapy and would be guided towards tonifying the spleen and Wei Qi, relieving any Blood and/or Qi Stagnation, eliminating Heat, tonify Yin and Qi. . . . All dependent upon which Chinese Pattern Diagnosis the patient presents with. Here are some common patterns that Chinese medicine practitioners may consider when diagnosing cancer:

1. **Heat-Toxin Accumulation:** This pattern typically involves symptoms such as fever, inflammation, pain, and the presence of masses or tumors. The tongue may appear red or have yellow coating, and the pulse may be rapid and forceful.
2. **Qi Stagnation and Blood Stasis:** This pattern often manifests with symptoms such as pain, distention, or masses that have a fixed location. There may be dark or purple discoloration in the affected area. The tongue may have a bluish or purplish hue, and the pulse may be choppy or wiry.
3. **Qi and Yin Deficiency:** This pattern is often seen in advanced stages of cancer and may involve symptoms such as fatigue, weakness, night sweats, dryness, and weight loss. The tongue may appear pale and dry, and the pulse may be weak and rapid.
4. **Spleen Deficiency:** This pattern is commonly observed in chronic cancer patients and may manifest with symptoms such as fatigue, poor appetite, loose stools, and edema. The tongue may appear pale and swollen, and the pulse may be weak.

Treatment in Chinese medicine aims to restore balance and harmony to the body's energy systems. Depending on the specific pattern diagnosis, treatment may involve a combination of acupuncture, herbal medicine, veterinary medical manipulation (VMM), dietary modifications, and lifestyle recommendations. It is crucial for owners with pets diagnosed with cancer to consult with an Integrative Veterinarian – one who is licensed and certified in both Western Conventional Veterinary Medicine - a qualified Chinese Veterinary Medicine Practitioner to ensure comprehensive and appropriate care and who can formulate a Chinese Pattern Diagnosis in order to provide appropriate guidance and treatment options. Integrative approaches that combine Traditional Chinese Veterinary Medicine (TCVM) with Conventional Western Veterinary Medicine (WCVM) should be considered to potentially attain the best possible outcome. Integrative Veterinary Medicine will blend modalities such as acupuncture, herbal medicine, diet therapy, veterinary medical manipulation and other supportive techniques as a complementary therapy for cancer treatment and help manage symptoms, improve overall well-being, and support the body's natural healing processes.

Here is a breakdown of some of the treatment modalities that may be integrated in cancer care: Acupuncture, Herbal Therapy, Food Therapy and Veterinary Medical Manipulation.

- **Acupuncture** - inserting thin needles into specific points on the body based upon the Chinese Pattern Diagnosis to help restore imbalances, stimulate energy flow, reduce inflammation, improve immune function, alleviate pain, reduce nausea, improve digestion, promote healing and enhance overall well-being during cancer treatment.
- **Herbal formulas** - often prescribed to support the immune system, enhance organ function, overall health of the patient and help manage symptoms such as pain, nausea, and fatigue. The selection of herbs depends on the individual Chinese Pattern Diagnosis. Certain herbal formulas are believed to have anti-cancer properties, but their effectiveness in treating cancer is dependent upon each individual's response to them.
- **Proper nutrition** - and a balanced diet is essential for supporting the body's natural healing abilities and promoting health. Dietary recommendations are tailored to the individual's constitution, Chinese Pattern Diagnosis, any imbalances and specific cancer diagnosis. Foods with specific energetic properties may be recommended to strengthen the body, improve digestion, and support the immune system.
- **Veterinary Medical Manipulation (VMM)** - a form of chiropractic therapy that involves various techniques such as motion palpation to assess for any restrictions or decreased range of motion in joints. It aims to promote the flow of Qi and blood within the body, alleviate pain, and improve overall well-being. VMM may be beneficial for pets experiencing orthopedic discomfort or muscle tension related to cancer or its treatments.

Remember: these complementary approaches should be practiced under the guidance of a licensed veterinarian who is certified as a TCVM practitioner and can provide a tailored treatment plan to ensure the best course of treatment based upon the individual pet's needs.

Complimentary/Integrative Veterinary care is not intended to replace the services of conventional medicine but instead should be *integrated* with it.

VETTRIAGE

After-Hours Video Telehealth Triage Services

DVM Video Sessions

24/7 video telehealth services provided by experienced, US-based veterinarians that triage client-perceived pet emergencies. Connect in minutes, no software downloads or appointments needed, connect in minutes in 3 easy steps from any computer or mobile device.

No Cost to the Clinic

VetTriage services are offered at **no cost to your clinic!** The client pays a small triage session fee to video chat with our veterinarians. Save money by eliminating the need for an after-hours answering service, whom are not medically trained and a source of frustration for the client.

Maintain Veterinary Quality of Life

Eliminate the need for a veterinarian or technician to be on-call after-hours and overnights. This has shown to **substantially improve recruitment efforts** for new vets and technicians for clinic partners.

Cases are Triaged for Actual Emergencies

Nearly 80% of cases do not require a visit to the ER and the unnecessary expense associated with it. These cases are given advice and are re-directed back to the clinic for follow-up, diagnostics, and treatment. While actual emergencies are sent to the ER for immediate evaluation.

Your Cases Stay Your Cases

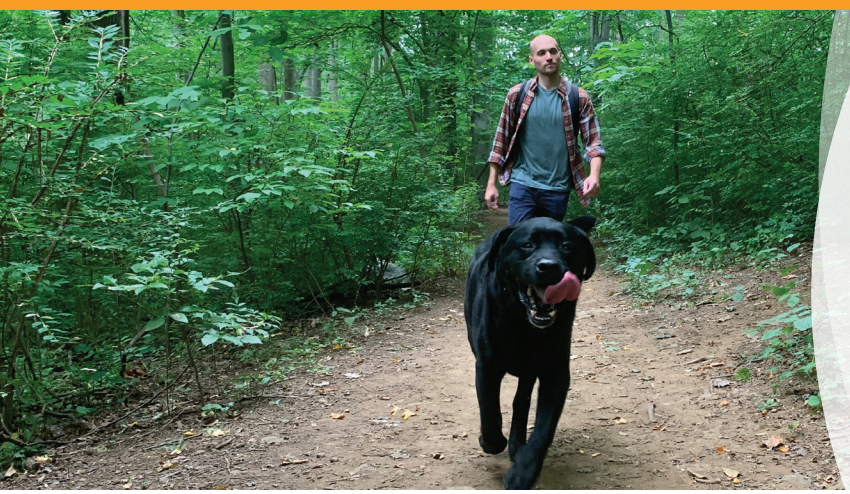
VetTriage is a **seamless extension of your clinic**, and are recommended to follow-up with you, their primary veterinarian. A session summary is emailed to both your office and your client allowing you to reference their triage session and insert it into the medical records.

Enhance Client Loyalty and Trust

Instill comfort in your current clientele that a reliable and experienced telehealth service is available during times of limited office hours and for emergency triage during after-hours, overnights, and holidays.

For more information contact our medical director Shadi Ireifej, DVM, DACVS at (845) 527-9812 or shadi.ireifej@vettriage.com

A revolution in chronic elbow OA pain management



Synovetin OA®

1 simple treatment relieves OA pain up to 1 full year.

For easy, enduring relief of chronic OA pain, use Synovetin OA.

- **Long-lasting relief:** Up to 1 full year of OA pain relief
- **Consistent effectiveness: 92%** (12/13) in mild to moderate elbow OA[1], **71%** (10/14) in severe[2]
- **Non-systemic:** No systemic adverse effects[3]
- **Convenient:** 1 simple, targeted procedure

Available here!

Long Island Veterinary Specialists

For more information, contact us at (516) 501-1700

1. Aulakh KS, Lopez MJ, Hudson C, et al. Prospective clinical evaluation of intra-articular injection of tin-117m (117mSn) radiosynoviorthesis agent for management of naturally occurring elbow osteoarthritis in dogs: A pilot study. Veterinary Medicine: Research and Reports. 2021;12:1-12.
2. Donecker J, Fabiani M, Gaschen L, Aulakh KS. Treatment response in dogs with naturally occurring grade 3 elbow osteoarthritis following intra-articular injection of Sn (tin) colloid. PLoS ONE. 2021;16(7). e0254613.https://doi.org/10.1371/journal.pone.0254613.
3. Lattimer JC, Selting KA, Lunceford JM, et al. Intraarticular injection of a Tin-117m radiosynoviorthesis agent in normal canine elbows causes no adverse effects. Vet Radiol Ultrasound. 2019:1-8. doi: 10.1111/vru.12757.

Homogeneous Tin (^{117m}Sn) Colloid] Veterinary Device for Use in Dogs

NAME: Synovetin OA®

Tin (^{117m}Sn) stannic colloid in ammonium salt. It is supplied as a 2–4 mCi (74–148 MBq)/mL suspension for intra-articular (IA) injection.

NET QUANTITY

Vials contain a prescribed dose up to 6.0 mCi (222 MBq) at the date and time to treat one dog.1 mL of suspension contains 2–4 mCi (74–148 MBq) of tin (^{117m}Sn) stannic colloid in ammonium salt at the date and time of end use.

PRODUCT DESCRIPTION

Synovetin OA® is a conversion electron therapeutic veterinary device comprising a colloidal, sterile suspension with a pH between 6.5 and 9.0 where at least 90% of the particles have a size between 1.5 µm and 20 µm (HORIBA light scatter instrument). The ^{117m}Sn emits monoenergetic conversion electrons (significant energies 127–158 keV; emission probability 113%) and imageable gamma radiation (159 keV, 86% abundant). Accompanying low-energy emissions are Auger electrons (<22 keV) and X-rays (<30 keV). The half-life of ^{117m}Sn is 14 days. 117mSn decays by isomeric transition to stable ^{117}Sn.

Excipients include ammonium carbonate ($(NH_4)_2CO_3$), ammonium chloride (NH_4Cl), ammonium iodide (NH_4I), iodine (I_2) and trace tin (Sn) salts.

MECHANISM OF ACTION

Synovetin OA® is a veterinary device consisting of a homogeneous tin colloid which emits discrete (<300 µm) low-energy conversion electrons confined to the joint space. The colloid is composed of microparticles (1.5 µm to 20 µm) that are retained in the joint space of the dog. The particles are absorbed and retained by synoviocytes and macrophages in the synovium, resulting in apoptosis and reduction of inflammatory cells. Elimination of the pro- inflammatory cells reduces inflammation of the joint synovium, thereby reducing pain associated with synovitis. The data, including radiographic evidence, supports use in Grade 1, 2, and 3 osteoarthritis (OA) of the elbow joint.

CAUTION

Federal law restricts this device to sale by or on the order of a licensed veterinarian trained in the use of radioactive veterinary medical products. Use of this product is restricted to facilities with a compatible Radioactive Materials (RAM) license.

INTENDED USE

Synovetin OA® is intended to reduce synovitis and associated pain of canine elbow joints afflicted with osteoarthritis.

WARNINGS

Do not exceed 6.0 mCi (222 MBq) of radiation activity per dog per treatment. Not for use in humans. Keep this and all medications out of reach of children. Consult a physician in case of accidental injection or ingestion by humans.

PRECAUTIONS

Injection should be performed only by a licensed veterinarian skilled in the delivery of intra-articular (IA) injections who is located at a facility that has a RAM license.

Rigorous aseptic technique must be ensured during injection

ROUTE OF ADMINISTRATION

Intra-articular injection. The product must NOT be administered by any other route. Confirmation of needle placement is recommended, whether by anatomical landmarks, fluoroscope, C-arm, ultrasound, or radiography.

DIRECTIONS FOR ADMINISTRATION

Dogs should be appropriately anesthetized or deeply sedated prior to administration to prevent vocalization and resistance to dosing. A 22-ga. needle can be used to inject Synovetin OA® directly into the elbow joint. Pain during and after treatment may occur. Administration of non-steroidal anti-inflammatory agents at the labeled dose may help any post-treatment pain.

FREQUENCY OF ADMINISTRATION

If needed, Synovetin OA® can be readministered to a previously treated elbow at least 12 months after the last treatment.

DURATION OF EFFECT FROM ADMINISTRATION

Effectiveness has been shown to last up to 12 months following a single treatment of dogs with naturally occurring OA of the elbow.

MAXIMUM ANNUAL DOSE

Total radiation dose per joint should not exceed 3.0 mCi/joint, with the total body dose not exceeding 6.0 mCi (i.e., two elbow joints during a 12-month period).

ADVERSE REACTIONS

Dogs participating in clinical studies to evaluate safety and effectiveness (n=74 dogs, 97 elbow joints) exhibited no significant adverse reactions when administered Synovetin OA®. Discomfort in the treated elbow has been rarely reported in some dogs up to 72 hours after treatment. If adverse events are observed or suspected, please report them by calling Exubrion Therapeutics® Customer Service at 1-833-942-1247.

POST-INJECTION CARE

Following administration of Synovetin OA®, the dog can recover with other post-operation animals in the general clinic population. Once the dog has fully recovered from anesthesia, it can be discharged to go home with the approval of the facility radiation safety officer or authorized user. All treatment site policies and license requirements should be observed.

OWNER INSTRUCTIONS FOR POST-TREATMENT CARE

When the level of radiation is determined to be below the established levels for release, the dog can be discharged. The dog will, however, retain a low level of radioactivity in the treated joint(s) for a short period of time. Specific written instructions based on the post-treatment radiation dosimetry for care and proximity to the treated dog will be provided by the radiation safety officer (RSO) or authorized user (AU) of a radioactive materials (RAM)-licensed veterinary hospital to the dog owner. These instructions include information on limiting proximity to the dog in the post-treatment period. If in the judgement of the veterinarian, the dog owners are not likely to comply with the release instructions, the product should not be administered. A RAM-licensed veterinary hospital RSO or AU should contact Exubrion Therapeutics® if there are specific questions. Apart from the proximity requirements to protect people there is no requirement for restraint of the dog itself, and it can resume its normal level of activity subject to the distance requirements.

MANUFACTURED BY Theragenics Corporation for Exubrion Therapeutics®

Manufacturer's contact information:
Theragenics Corporation
5203 Bristol Industrial Way
Buford, GA 30518
Customer Service Phone: 833-942-1247
info@exubrion.com

STORAGE INSTRUCTIONS

Store in the shipping container at controlled room temperature (10°–30°C or 50°–86°F) until ready to use.

EXUBRION THERAPEUTICS

Printed in USA. June 2022 EXN-SYN-190

INTEGRATIVE TREATMENT MODALITIES IN SMALL ANIMAL VETERINARY NEUROLOGY

Review of the literature and suggestions for implementation in clinical practice – Part 4

Patrick F. P. Roynard, DVM, MSc, MRCVS, DACVIM (Neurology), certified disk arthroplasty surgeon

PHYSICAL THERAPY FOR DEGENERATIVE MYELOPATHY

A retrospective study reported on the effects of varying intensities of physical rehabilitative therapy on survival and length of ambulatory status in 50 dogs with presumptive degenerative myelopathy (DM) (Kathmann et al 2006). Survival time was positively associated with the degree of physical rehabilitation therapy, with dogs that received intensive physical rehabilitation (n = 59) having longer survival time (mean 255 days) than dogs with moderate (n = 56) (mean 130 days) or no (n = 57) (mean 55 days) rehabilitation (P = 0.05). The authors reported that, comparing with the group with intensive physiotherapy, the risk of death was 5.8 times higher (P=0.046) for dogs with moderate physical rehabilitation and 112 times higher (P = 0.001) for dogs without physical rehabilitation (Kathmann et al 2006). Another retrospective study on 20 dogs with presumptive degenerative myelopathy (DM) receiving a combination of rehabilitation therapy and either one of 2 different laser therapy protocols showed no difference in survival time compared to historical controls for one of the groups, but there was significantly longer time to reach non-ambulatory paraparesis along with longer survival time for the group receiving intense laser therapy treatment ($p<0.05$) (Miller et al 2020). Despite study limitations (e.g. only few dogs with confirmed DM at necropsy, selection bias between groups), these are the only clinical therapies documented that suggest slower disease progression.

LASER THERAPY

Photobiomodulation, also called low-level laser therapy or "cold laser" therapy, has been suggested to be of interest in CNS disorders due to optimized oxidative neuronal metabolism, reduced pro-inflammatory mediators' expression and reduced glial scar formation. (Hamblin 2017, Hashmi et al 2010). Although no adverse effects attributable to the use of laser is reported in the veterinary literature, no consensus exists regarding evidence-based benefits. An unblinded, unrandomized prospective study of non-ambulatory paraparetic or paraplegic dogs with IVDD treated surgically reported shorter time to achieve independent ambulation post-operatively in the laser treatment group compared to untreated controls (respectively 3.5 and 14 days) (Draper et al 2012). However, a blinded, randomized, prospective study also evaluating laser therapy with or without physical rehabilitation, in the post-operative management of non-ambulatory dogs recovering from IVDD surgery revealed no statistically significant difference in recovery (Bennaim et al 2017). Another retrospective study comparing outcome in dogs recovering from TL IVDD surgery based on whether they received a rehabilitation protocol with or without laser, showed a tendency for shorter time to regain ambulation but this did not reach statistical significance (4.2 ± 8.55 days in the laser group versus 24 ± 18.49 days in the no laser group)(Bruno et al 2020).

ELECTRO-MAGNETIC FIELD THERAPY

Pulsed electromagnetic fields (PEMF) therapy has been shown to reduce post-operative pain through anti-inflammatory effects and studies on SCI models have shown possible neuroprotective effects. A randomized, controlled clinical trial over 16 dogs recovering from TL IVDD surgery evaluated the effect of PEMF (15 min every 2 h for 2 weeks then twice-daily for 4 weeks) vs placebo on post-operative pain and neurological recovery. Although sample size was small and the authors concluded that larger studies were warranted, incision-associated pain evaluated by mechanical sensory thresholds (MSTs) and proprioceptive placing were significantly improved at 6 weeks (Zidan, Fenn et al 2018). One study over 22 dogs with diverse cervical neurologic lesions treated surgically or medically, described a combination of therapies including treadmill training, substrate walking, LASER, transcutaneous electrical neuromuscular stimulation (TENS), pulsed-magnetic therapy, and NMES to improve recovery. Despite suggesting that 72.8% returned to functionality

and autonomy, the outcome measurements used were not clear and the significance and calculations used to make that determination are ambiguous (Inês Rodrigues Gonçalves et al 2016).

HERBAL MEDICINE

A variety of classical herbal formulas have been used for over 4,000 years in China to treat a wide array of diseases, including neurological disorders. Most of the different formulas have between 10 and 20 different herbs, fungi and other organic/ inorganic compounds, with synergistic and balancing effects. Research has shown multiple benefits of the use of such herbal formulas, such as promoting neural regeneration, helping control seizures, alleviate pain, reduce hemorrhage, and treat peripheral nerve injuries (Chen et al 2008, Wang & Jiang 2009, Seo et al 2009, Huang et al 2007, Zhu et al 2014, Zhang et al 2014, Wei et al 2008, Shu et al 2010). A comprehensive review of all herbal indications in small animal neurology is beyond the spectrum of this chapter, and other texts have been published on the topic (Wynn & Fougere 2007). Several case reports document the use of herbal medicine to treat neurological disorders in dogs and cats, with a retrospective study on 50 dogs and 6 cats treated for pelvic limb paresis/paralysis reporting significantly higher success and faster recovery when using Chinese Herbal Medicine and EA (compared to conventional medical treatment alone) (Cahyono 2020). Some of the Chinese Herbal formulae commonly used for neurological disorders are modified Jing Tong Fang (Cervical Formula) for cervical disorders and modified Da Huo Luo Dan (Double P II) for acute myelopathies and pain.

ENCEPHALOPATHIES

TBIs/STROKES/POST-OPERATIVE

A study in a rat model of cerebral ischemic stroke showed that the benefits of acupuncture in SCI discussed previously in this text may extend to brain injury, as EA treatment improved motor impairment following middle cerebral artery occlusion, via inhibition of microglia-mediated neuro-inflammation and significantly ($P<0.05$) decreased levels of TNF-α, IL-1β and IL-6 in both sensorimotor cortex tissue and blood serum (Liu & Wang et al 2016). The author uses electro-acupuncture regularly post-operatively following brain surgery, with similar principles as for myelopathies (see Figure 4).

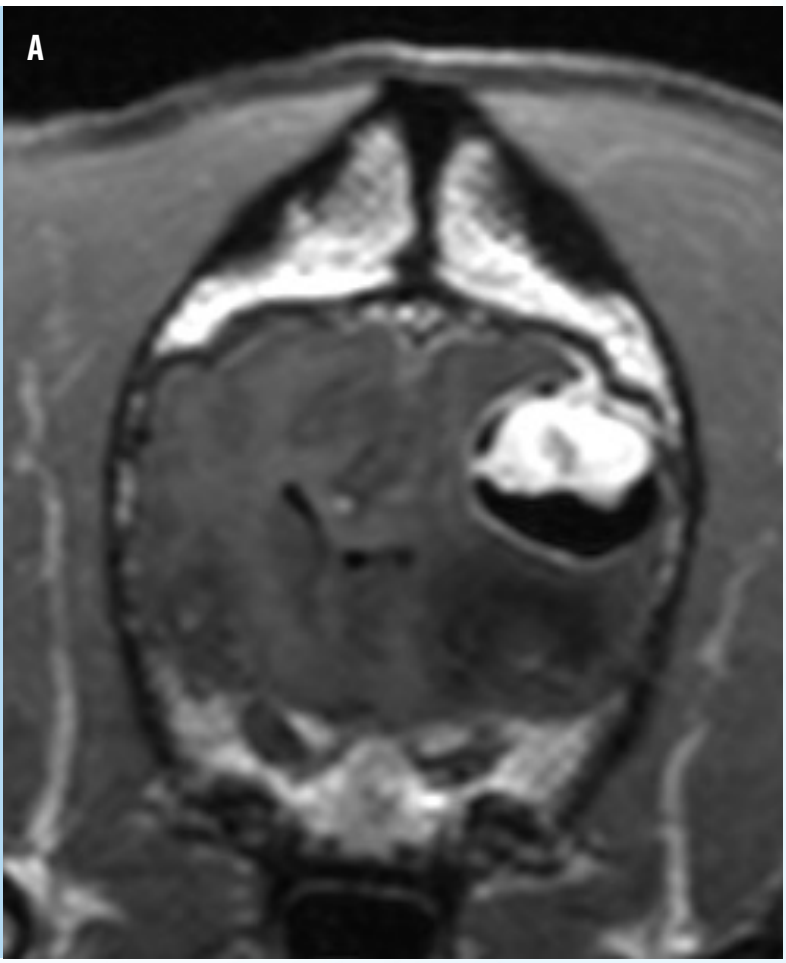
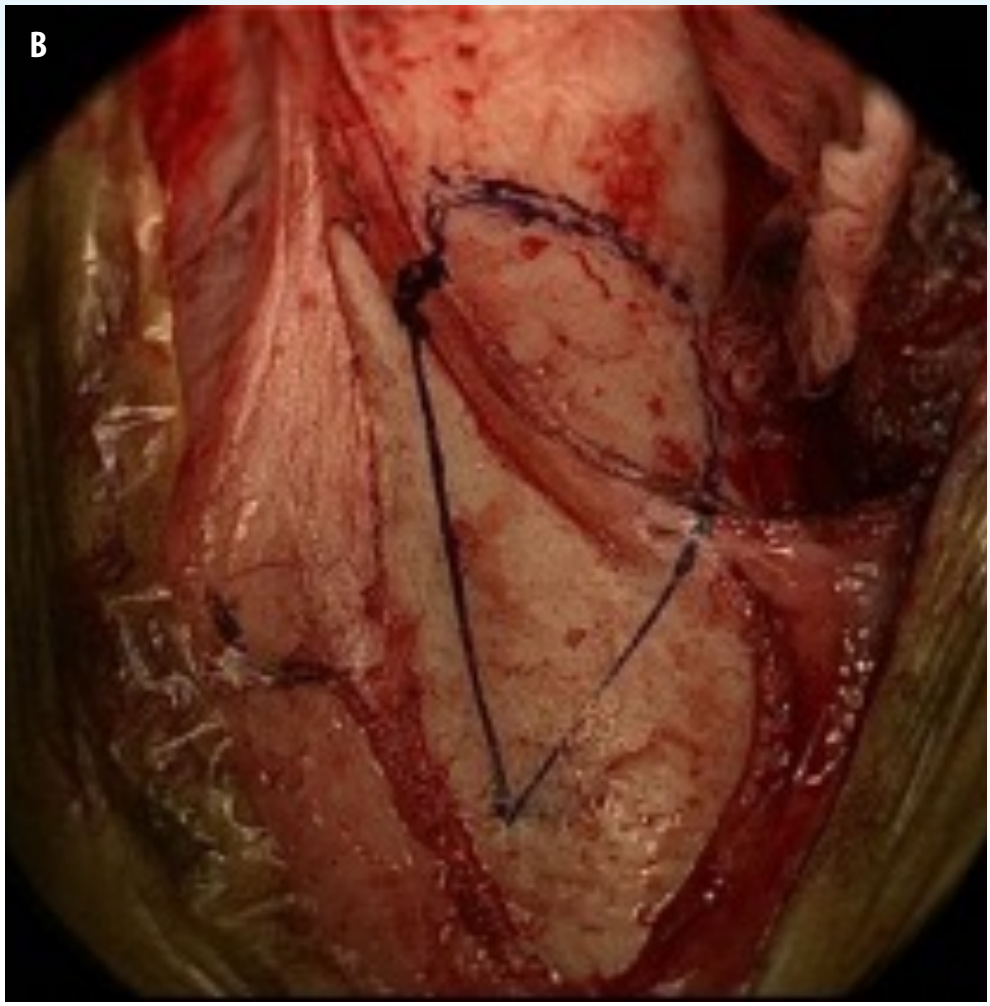
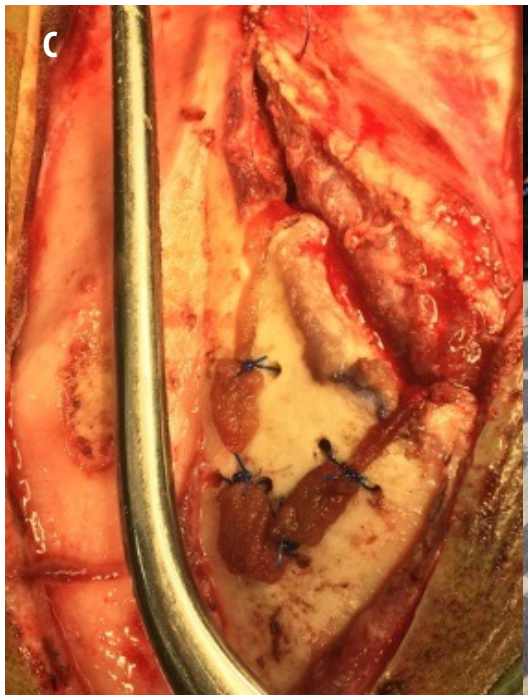


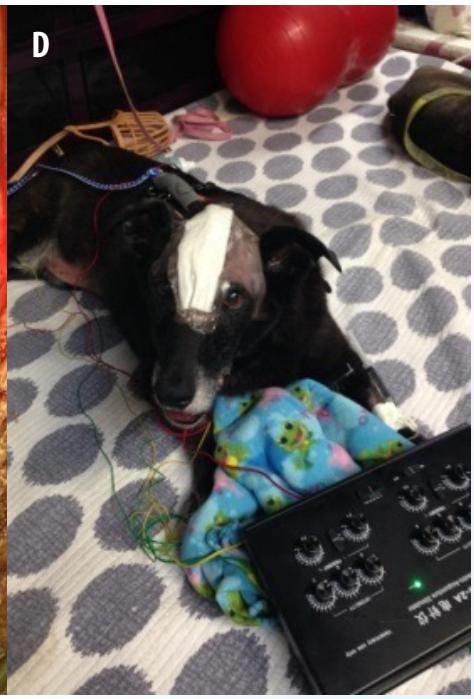
Figure 4. A) T1 weighted post-contrast MR image (transverse view) showing a large, contrast-enhancing, partially fluid-filled, extra-axial mass at the level of the left frontal and parietal lobes in an 11YO mixed-breed dog. This is consistent with a cystic meningioma. The owners elected for surgical removal with immunotherapy ("meningioma vaccine"). The dog was pre-treated the week before surgery with Yunnan Baiyao 1 capsule of 250mg/10kg orally every 12hrs, to help with hemostasis and post-operative swelling. B) Surgery was performed using a combined approach of a modified left unilateral transfrontal craniectomy and a left rostrotentorial craniectomy. After elevation of the left temporalis muscle as for a classical left rostrotentorial craniectomy, the outer table of the left frontal bone and left frontal sinus was removed using an oscillating saw and kept in saline for the duration of the surgery. The craniectomy site is extended through a classical left rostrotentorial approach. C) After tumor removal is complete, the outer table of the left frontal bone/frontal sinus is replaced and sutured in position with sutures to the frontal bone left in place and the left temporalis muscle once repositioned. D) Since the surgical site was in the left frontal/parietal cortex (involving or in close proximity to pre-motor and motor cortex), the patient was treated post-surgically with electro-acupuncture on the right side at ST-36 and LI-10, amongst others. Due to elevated liver values post-operatively, Phenobarbital therapy was weaned-off and the patient treated with Di Tan Tang 0.1g/kg orally every 12hrs.

One of the herbal formulations, Buyang Huanwu, has been used to improve functional recovery after strokes for hundreds of years in China (Pan et al 2017). This formulation has demonstrated to be protective via several mechanisms, has potent anti-inflammatory effects and appears well-tolerated clinically in human patients (Li & Liu et al 2014). A study in a rodent model indicated that it facilitated functional and neurophysiological rehabilitation via an improvement in synaptic plasticity (Pan et al 2017). Furthermore, a recent systematic review and meta-analysis, of 56 studies using 1,270 animals concluded that it "possessed substantial neuroprotective effects" (Wei et al 2013).

Exercise diminishes the extent of ischemic stroke-induced damage (Endres et al 2003, Wang et al 2001, Waagfjord et al 1990) and sustained locomotor training in stroke has been shown to improve motor function in murine stroke model (Zhang et al 2012) and improve endurance in humans (Barbeau 2003). A 2018 meta-analysis on treadmill training and stroke rehabilitation indicated that treadmill training, regardless of intensity and volume, resulted in a significantly greater recovery of motor function than did no training($P = 0.0001$) (Abbasian 2018). NMES has been shown to affect physiological functions of the brain, by activating specific motor centers, decreasing cortical inhibition, and increasing amplitude of motor evoked potentials in both healthy and stroke patients (Hong et al 2018, Smith et al 2003, Han et al 2003). A meta-analysis and systematic review examining RCT using NMES in human stroke patients both showed significant improvements in recovery of speed of ambulation/gait speed (Hong et al 2018, Robbins et al 2006). Another study also suggests that NMES results in increased walking distances in patients with chronic stroke (Pereira et al 2012).







Long Island Veterinary Specialists

Where You Refer Your Patient First Makes All The Difference

DO YOU RECEIVE OUR NEWSLETTER?

Sign up to receive updates and news from Long Island Veterinary Specialists in your inbox. By joining our community newsletter, you'll be the first to know about new team members, service updates, upcoming events, and more!

To join, visit:

livs.org/e-newsletter

Or scan: