Interception® Plus is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis* and for the treatment and control of adult roundworm (*Toxocara canis, Toxascaris leonina*), adult hookworm (*Ancylostoma caninum*), adult whipworm (*Trichuris vulpis*), and adult tapeworm (*Taenia pisiformis, Echinococcus multilocularis, Echinococcus granulosus and Dipyldium caninum*) infections in dogs and puppies 6 weeks of age or older and 2 pounds of body weight or greater.

Important Safety Information

Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention. Prior to administration of Interceptor Plus, dogs should be tested for existing heartworm infections. The safety of Interceptor Plus has not been evaluated in dogs used for breeding or in lactating females. The following adverse reactions have been reported in dogs after administration of milbemycin oxime or praziquantel: vomiting, diarrhea, depression/lethargy, ataxia, anorexia, convulsions, weakness, and salivation. For full prescribing information call 888-545-5973 or see Interceptor Plus package insert.

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Cannabis in veterinary medicine: the new “Wild West”
Hill’s Prescription Diet GI Biome demonstrated clinical results in cats with constipation or diarrhea\(^1\) and dogs with diarrhea\(^2\) in as little as 24 hours.

\(^1\)Wernimont, S.M., et al. Food with Specialized Dietary Fiber Sources Improves Clinical Outcomes in Adult Cats with Constipation or Diarrhea (in a 2 Month Study). FASEB J. 2020;34(1). Some cats may require multimodal management.

Cannabis in veterinary medicine: the new “Wild West”
When treating four-legged patients, make each moment matter.

—

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How to drive change successfully in your practice

For most businesses, implementing change is fraught with challenges. That’s why it is crucial for veterinary practice leaders to be able to answer the staff question, “What’s in it for me?”

By Kristina Guldbrand, CVT, BS, CSP

Have you ever tried to create change in your hospital only to have your team resist your efforts? Even small changes can cause resistance, largely because change brings uncertainty.

People typically don’t like change unless it brings something great for them. Implementing change can go well, but it can also lead to decreased staff morale or even a walkout. Nancy Rothbard, PhD, chair of the Management Department at the University of Pennsylvania’s Wharton School, famously said, “The sinkhole of change is communication and motivation. It’s where change projects go to die.”

The trouble with change

We’ve come to realize that employees are the reason why companies run smoothly and produce quality products and services. And to stay competitive, businesses must be growing and changing continually. In veterinary practice, communication and culture are crucial to success. If your team is lacking in communication skills and your culture is not ideal, then implementing change is not going to be easy—even if it ultimately will bring something great to the team.

Sean Dixon, organizational development doctoral candidate at Colorado Technical University and founder of LifeElevated Consulting, says that one of the most important questions for leaders to answer for their employees during times of change is this: “What’s in it for me?”

Consider this scenario. Two emergency hospitals faced a similar issue of missed charges. Both hospitals assigned technicians to enter charges at the end of their shift, but charges were getting missed due to miscommunication, unclear handwriting, and human error. This was costing the practices a substantial amount of money over time.

Each practice decided to use an orange highlighter to mark off treatments that had been charged for and paid, a visual cue intended to help keep everyone on track.

At one hospital, implementation of this seemingly small change was smooth. At the other, the employees resisted the change. The difference? The cooperating hospital’s leadership answered the what’s in it for me question by initiating a conversation with staff about how charges were being missed. In doing so, the manager learned that the staff didn’t mind the new process but also didn’t want more work at the end of the day. Explaining how the solution would ultimately make the process quicker and easier for staff helped them to accept the change more readily with better compliance.

Dixon says, “Employee resistance comes from fear. Any time you introduce something new into the organization, people are going to be resistant because they don’t understand it.” In the scenario described, the employees’ concerns revolved around how much extra work this new protocol would add, how it would affect their daily work flow, and whether they would be reprimanded if this new tactic didn’t work.

Leaders who know and understand their employees can get staff buy-in and make a transition like highlighting charges more efficient and pleasant for everyone. Addressing their questions and concerns about the change will also help create a better bond between the employees and their leaders.

When change is coming from the top of an organization, it can be difficult for leaders to answer the what’s in it for me question accurately. Dixon recommends three tactics to bridge the gap.

Utilize middle managers

Shift leaders and technician managers are valuable assets for implementing change. Individuals in these positions typically know the staff well enough to understand who they are and what concerns they might have. This knowledge also means they will have a good idea of which staff members might resist the change.

Resisters or outliers, as Dixon refers to them, come in different
forms: those who voice that they won’t accept the change and those who say they will but will sabotage the effort discreetly.

Knowing who the outliers and resisters are creates the opportunity to address them directly. Managers can listen to their concerns, and then discuss with the employee how to make the change easier for everyone. Doing so also creates future communication opportunities and provides knowledge on how to implement change that everyone is okay with.

**Develop clear and consistent communication**

Because a lot is happening during times of change, having a communication plan is key to a smooth transition. “Communication needs to be factual, frequent, and can never be overinflated,” Dixon says. “You can never oversell results. This style of communication resonates with people and because of that, people believe you’re telling the truth.”

Creating a plan for each department will help keep communication clear and direct. To stay on track and productive, leadership should be prepared from the outset with answers to questions that may arise from staff about the change:

- What are the expectations for staff?
- Why is this change important to the practice?
- How will the staff be affected by this change?

**Create a psychologically safe environment**

Because change often ignites fear, it is important that people feel safe to voice their concerns, and to feel heard and supported with no risk of repercussions.

If your team does not come to you, go to them. There is an opportunity to grow and build trust when a staff member is resistant to change. Dixon suggests seeking more information directly from resisters, keeping in mind that the most important aspect of the conversation is letting the staff member explain their position. When they are done, ask as many questions as you can without projecting your personal views.

Another factor in creating a psychologically safe space for employees is to be clear on what safety means to them. “The English language is ambiguous, and everyone has a different definition of what safety means,” Dixon says. As leaders guide others into unknown territory, it is important to be as clear as possible. Define what “safety” means to each member of your team and come up with a common definition. When everyone is starting from the same place, everyone can progress at the same pace.

Guiding staff through a change, big or small, brings challenges. As a leader, it’s crucial to recognize that the journey is about the people who will get you to the destination. Providing ways to boost morale and communication will make the difference between holding on to the way it’s always been and embracing a new and better way of operating.

Kristina Guldbrand worked as a CVT for 12 years before becoming an account manager for Veterinary System Services. In this role, she discovered her love of leadership and wellbeing. She has received training through the International Coaching Federation and provides workshops, leadership and wellbeing coaching, as well as team-building for practices.

**REFERENCE**

Veterinarians prescribe all kinds of treatments for their patients, from medications (both on and off label) to supplements to devices and more. As practitioners and consumers, we put a certain amount of trust in manufacturers and regulatory agencies that the products we provide to our patients are what they say they are. But when it comes to cannabidiol (CBD), hemp, and marijuana, however, that trust may be misplaced.

The FDA approves and regulates prescription drugs for animals (and people) but only monitors the unregulated veterinary supplement industry for egregious medical claims, illegal substances, and misleading marketing. The FDA has “discretionary enforcement” on whether to pursue action against an animal supplement company for any of these offenses.

Just as with the products we use to help our patients, we assume similar monitoring or vetting is happening with what we read in trade publications, hear at lectures, and see in online forums. But again, this is not necessarily the case.

A booming industry begets many “experts”

The cannabis industry is estimated to hit $25 billion by 2021, and credible research is finding more and more promise for therapeutic application. The industry also spends billions of dollars to keep this topic relevant in the media, and I do not see this stopping anytime soon. In fact, CBD may soon become part of our “normalized” mainstream culture.

As someone who has lectured on this topic for the past handful of years (both on behalf of industry and independently), I am concerned about the influx of passengers I am seeing on the CBD bandwagon and the quality of the content being shared.

Distinguishing novices from true authorities

By and large, today’s CBD experts are self-driven pioneers and academics. Some are practitioners who have used these products extensively on their patients, are well informed about current research efforts, and/or are part of clinical trials. Others, however, have simply read a few papers on the pharmacology and clinical efficacy of CBD in companion animals, and then regurgitate that information to an unknowing audience. I fear that this latter type of “expert” is becoming more common.

Determining who is a credible speaker or author on cannabis-related topics in animals can be tricky and nuanced. To help you decide whether an “expert” is going to provide accurate, timely information about a topic that many of your clients are sure to ask about, ask yourself these questions before reading that article or attending that lecture.

Is the speaker/author biased?

One of the easiest ways to uncover bias is to learn more about the speaker or author. Check to see whether they are affiliated with, or if the lecture or article is sponsored by, a CBD manufacturer. Veterinary professionals who attend conferences or read trade publications expect a certain amount of bias from affiliated or sponsored speakers and authors. In general, however, information should be considered trustworthy if the speaker or author provides references and summarizes studies or data in ways that agree with the conclusion. Opinions about the data should be evaluated with a bit more caution.

Are they talking about marijuana or hemp?

It is incumbent on the expert to explain at the beginning of the article or lecture whether marijuana or hemp is being discussed because the two are vastly different when it comes to the law and therapeutic manifestations.

The industrial hemp plant is in the same family as the marijuana plant. Hemp contains less than 0.3% delta-9 tetrahydrocannabinol (THC, the psychoactive portion of the compound) by dry weight, whereas the marijuana plant...
contains more than 0.3% THC by dry weight. Therefore, these plants fall under completely different federal and state legislation.

Marijuana, also referred to as cannabis in many pieces of legislation, remains a Schedule 1 drug, which means all use is illegal at the federal level. While it is important to learn about how some people are using marijuana in pets, any suggestion of use in your practice could be considered not only unethical but illegal.

**Do credentials matter?**
Yes and no. Keep in mind that CBD products work on the endocannabinoid system, yet 99% of veterinarians did not learn about this physiologic system or these products in school. Until recently, it was not possible to earn a degree to define yourself as a CBD expert. Today, multiple universities offer a variety of degrees related to the topic of cannabis.

Specialty credentials do come in handy, especially depending on the topic. For instance, a licensed pharmacologist speaking or writing about CBD may provide a deeper understanding of pharmacology than someone who is not a pharmacologist. However, the same in-depth information could be provided by someone who is not a pharmacologist but has lots of practical experience using these types of molecules in practice.

You see how choppy this line can get?

**What is their practical experience or knowledge?**
This is a probably one of the most critical questions to ask. I take my credibility and integrity as an educator very seriously and would never lecture on a topic in which I had no practical experience. Yet I have seen several colleagues speaking about cannabinoids with no practical experience using them, outside of THC toxicity cases. Unless their lack of practical experience is plainly noted at the beginning of the article or lecture, take the information they provide with a grain of salt and understand that they may not be fully informed.

**Citing studies or anecdotes?**
When it comes to providing information, references are crucial. It is time we finally put to rest the “we do not have any research” argument. We have pharmacokinetic studies, efficacy studies, and hundreds of translational studies available on this topic. We just have to look for them.

The second argument that regularly comes up is “those studies were done in lab animals or humans, not companion animals.” I challenge all readers to take any medication or supplement off the shelf and look for specific data on that product for the indication, dose, and species you use it for. The other nuance to discussing and citing clinical efficacy studies is understanding what was actually used in that study. Because CBD products come from plants, it is unlikely that any two products are exactly the same. In fact, both the FDA and independent research have shown that some CBD products labeled for pets contained no CBD at all. Understanding this will change any anticipated outcome in our patients.

**Final thoughts**
It is important to understand that the AVMA and most state veterinary medical associations are not regulatory bodies. Lectures or publications on cannabis, hemp, and CBD from these associations take largely the most conservative approach, so they may not provide pragmatic answers to real-life questions about these products in veterinary medicine.

Now that you have a few tools to help guide you in learning about this hot topic, start engaging yourself. Regardless of whether large veterinary medical boards and associations agree with using these products, it is the veterinarian’s duty to at least know about them and their potential to help or harm patients. Your clients are going to use these products with or without your blessing, and they should get their information from you, not the gas station attendant. Finally, keep in mind that simply having a conversation with clients about what you do (and do not) know, the science behind these products, and which products are backed by clinical safety and efficacy data is not the same as you recommending them.

Stephen Cital is an independent cannabis researcher and lab manager at Stanford University. He is also the co-founder of the Veterinary Cannabinoid Academy.

**REFERENCE**

**Legal cautions**
As intelligent as the speaker or author may be, veterinarians and veterinary technicians are not attorneys. Opinions are founded either in fact or misunderstanding, so use caution when a non-attorney discusses the legal aspects of CBD in veterinary medicine. For a clear and accurate understanding of the legal ramifications involved, consult with a knowledgeable cannabis/hemp attorney who is also familiar with veterinary malpractice law.
The primary purpose of any veterinary practice website is to attract new clients, but what many people fail to recognize when creating their site is that the brain operates using 2 distinct neural systems that affect the viewing experience of potential clients. The strategy behind many practice websites speaks to the brain’s cortex, with straightforward facts and logic about who you are, what you do, and where and when you do it. But the brain’s cortex does not control emotions, social relationships, or decision making—that’s the job of the limbic system. And the limbic system is asking a different question altogether: Can I trust you?

The best websites create a compelling and emotional user experience, speaking directly to the limbic part of the brain. This article introduces the actors in this fascinating play, outlines how trust emerges, and offers some practical steps you can take to attract the right clients via your website.

Speak to the limbic system
The brain’s cerebral cortex gives us the ability to reason, plan, and understand language. It is the defining feature of humanity and our brain’s most recent addition—it likely evolved to help our ancestors become savvier masters of their terrain, solve more complex problems, and think ahead.

The limbic system, on the other hand, controls our emotions and social behavior. It is full of practical vestiges of our early life as mammals, enabling us to quickly discern friend from foe, sew the seeds of cooperation, and bond with others.

When we meet someone new, our limbic system is always working out that question of trust: Should I put my faith in you? Are you safe to cooperate with? Or should I be wary? When trustworthiness is absent, you can feel it. You may experience this lack of trust when dealing with a seedy mechanic, when peering down a dark alley, or when engaging with a product or service on a website. The limbic system’s evaluation of social relationships is always at work, sussing out who we can cooperate with and who we should steer clear of.

If your website is not designed strategically to speak to the limbic brain, most pet owners will feel uncomfortable proceeding. They may rationalize their trepidation—perhaps they would like to look at other options, or maybe they’re just...

A hospital website that is both visually and emotionally inviting will generate more clients. Here’s how to make yours stand out.

By Robert Sanchez

We’ve got your back

We practice uncommonly exceptional veterinary medicine. But that’s not the only reason why our clients drive past many other veterinarians to get to our doors. We have built a culture of taking care of people. It is so important to us that you feel, in your bones, that you can trust us. That your pet is receiving the best care there is. And that your experience truly matters. Because to us, you are a hero. You devote so much of your time and attention caring for your beloved companion. And because of that, once you walk through our doors, you are family. And we wouldn’t have it any other way.
Which of your patients could it help?

You know your patients...

Patients who you’ve seen since they were a puppy. Patients who are a little grayer and a little slower, but still have just as much personality. For those patients, there is Chroniquin™ Hemp Oil Extract, a supplement from a company with a history of quality.

TRACEABLE
Select farmers grow our hemp from traceable leaf cuttings to maintain consistent levels of phytocannabinoids across batches.

TESTED
Every batch is tested for contaminants including heavy metals, and contains the phytocannabinoid levels stated on the packaging.

FULL SPECTRUM
Full spectrum hemp oil, like our proprietary blend, NMXCB1220™, provides a range of phytocannabinoids, flavonoids, and terpenes found in hemp.

ORDER NOW FROM YOUR SALES REPRESENTATIVE OR AUTHORIZED DISTRIBUTOR OR VISIT CHRONIQUIN.COM

CHRONIQUIN™
FULL SPECTRUM HEMP OIL EXTRACT

AGE IS JUST A NUMBER.
too busy to make a decision right now, among other reasons. But the real reason they choose not to check out your practice is because nothing on your website told them they could trust you.

Build trust
The subconscious brain acts fast, so communicating through emotion from the outset is the key to speaking to the limbic system. Within fractions of a second of viewing your site, the user starts discerning the safety and attractiveness of working with you. Canadian journalist Malcolm Gladwell calls this phenomenon “thin slicing,” and behavioral economists call it the “representativeness heuristic.” Basically, it means that we extrapolate early evidence to fill in the gaps of what we don’t know about someone or, in this case, a business. For example, if your site is modern, users are more likely to think you have a more modern approach to veterinary medicine.

Providing that evidence for the potential client viewing your website is not difficult. Your site’s fold—the area that appears on screen before scrolling down—should be contemporary and attractive, with messaging that accurately reflects your beliefs about veterinary care (more on this in a bit).

The best websites make you forget you are even on a website at all. Today’s software makes it easy to layer in HTML5 video backgrounds instead of still images. You can find plenty of stock videos that create an emotional experience for users, but the gold standard of website introductions is an HTML5 video background that is created with custom footage from your practice that captures interactions and connections among your team, your patients, and your clients. This is where the magic happens.

Get the messaging right
An uncluttered website filled with pictures or videos that evoke genuine emotional experiences is only one side of the coin. The other, more neglected element is messaging. Most veterinary practice websites use the same tone and tenor of messaging—mainly because they are speaking to the cortex. So, how do we speak to the limbic part of the brain?

It’s simple: Flip the script. Your website should highlight the main strengths of your practice, but instead of touting your practice, write about how everything you do affects the pet owners who visit your practice. Intersperse pictures or videos that help tell the story, and drive the point home in a way that makes it all about the pet owner. Figures 1 and 2 are examples of excellent messaging courtesy of Countryside Veterinary Hospital in Toney, Alabama.

Next steps
Evaluate your practice website, page by page. Ask yourself about the emotional experience you are creating for visitors. Are you speaking to them in a meaningful way? Are you demonstrating empathy, building trust, and artfully positioning your skills and differentiators? The ultimate goal is to create a website that peels back the layers of the onion, gets to the heart of why you do what you do, and tells a story that makes the visitor go, “wow.”

Robert Sanchez is the founder and CEO of Digital Empathy, an award-winning web design and marketing firm for veterinary practices. He frequently lectures at national conferences, leads a team of wonderful employees, sits on the board of VetPartners, and shares his home with two very spoiled dogs—Cole and Lula.
A bout 59,000 people worldwide die each year from rabies, with the overwhelming majority of cases occurring after a dog bite. Thanks to aggressive rabies vaccination campaigns in the 1950s, the annual death rate from rabies in the United States is usually fewer than 3 people, demonstrating the essential role of vaccination in rabies control programs.

In a lecture at the 2020 AVMA Virtual Convention, Richard Ford, DVM, MS, DACVIM, DACVP(MH), stressed that it is the veterinarian’s responsibility to vaccinate pets for rabies to protect public health. He discussed the essential information that all veterinarians should know about rabies law and cautioned practitioners that clinics may incur significant liability if clients or staff are exposed to a rabid patient.

**Essential questions about rabies vaccination law**

State public health veterinarians develop the laws surrounding rabies vaccination in each state. However, the content of these regulations varies widely between states, and local jurisdictions may have additional laws or regulations that must be followed. Dr. Ford stressed that there are several essential questions that veterinarians must be able to answer to be assured that their rabies vaccination protocols fulfill all state and local obligations.
What species must be vaccinated?
Surprisingly, only 39 states mandate rabies vaccination for dogs; 11 states have no statewide legal requirement for rabies vaccination of any species. Feline rabies vaccination is required in 34 states, and vaccination of ferrets is required in 20 states.

Who is authorized to administer a rabies vaccination?
Depending on the jurisdiction, those who can legally administer a rabies vaccination range from licensed veterinarians to veterinary technicians or assistants under direct veterinary supervision. In some states, pet owners are authorized to administer the vaccination.

Can a practitioner exempt a patient from rabies vaccination on medical grounds?
Medical exemption varies by state. What is consistent between states is that a vaccine titer is not recognized as an index of immunity and cannot be used in lieu of revaccination.

Understanding laws surrounding rabies exposure
Rabies exposure is determined by the state public health veterinarian, not the examining veterinarian. A pet may be considered exposed based on contact with a known or suspected rabies-infected animal.

Even in states that do not have rabies vaccination laws, there are laws surrounding rabies exposure. The consequences of exposure depend on the pet’s vaccination status. For an exposed pet that is not currently vaccinated, most states recommend euthanasia and testing. However, the owners may elect to pay for a 4- to 6-month quarantine at a state facility. A pet is only considered “currently vaccinated” by law when the following criteria are met:

- The pet has received a USDA-licensed rabies vaccination. Some states require specific state-approved vaccinations.
- The vaccine was administered by an authorized individual.
- The vaccine was administered at an appropriate age, and at the correct dose and interval.

Because the immune system takes time to mount a response to a vaccine, a pet is not considered currently vaccinated until 28 days after receiving its first rabies vaccine, regardless of age. Legally speaking, a pet is no longer current on vaccination if it is even 1 day past due for a booster. However, after any subsequent vaccination, a pet is considered currently vaccinated immediately after receiving a booster, even if overdue.

Approach to human bite cases
If a pet bites a human, regardless of vaccination status, the pet must be quarantined for 10 days. An infected animal will only shed the virus for 6 to 8 days before displaying clinical signs of the disease. Thus, even if they were infected at the time of the bite, if they are healthy at the conclusion of a 10-day quarantine, they were not shedding the virus at the time of the bite. A pet that is not currently vaccinated at the time of the bite should be revaccinated on release.

The first crucial step of post-exposure prophylaxis (PEP) for a human following an animal bite is proper wound management. The rabies virus is fragile and can be killed by soap and water. Subsequent PEP depends on whether the bitten human was previously vaccinated and has a current positive titer.

Protect yourself and your clinic
Because rabies laws vary by state, and sometimes by local jurisdiction, it can be frustrating for practitioners to know for certain that they are fulfilling their legal duty to their patients and the public. In an effort to help raise awareness of rabies law, Boehringer Ingelheim and the National Association of State Public Health Veterinarians have developed a centralized website (RabiesAware.org) that compiles state laws, rabies surveillance data, and contact information for the appropriate public health officials. Take a few minutes to review your state and local laws surrounding rabies vaccination. The knowledge can save you and your clinic from liability and might save the life of a patient, a client, or a team member.

Dr. Boatright is an associate veterinarian and freelance speaker and author in western Pennsylvania. She is involved in organized veterinary medicine at the local, state and national levels and is a former national officer of the Veterinary Business Management Association.

REFERENCE
SENERGY™ (selamectin), the new smart option from Virbac, is a topical parasiticide that provides parasite protection for kittens and cats that can be used all year.

**ESSENTIAL**
protection for cats, both indoor and out

**TRUSTED**
for kittens (≥ 8 weeks of age) and their mothers

**SUITEABLE**
for use during pet's pregnancy and lactation

**Important Safety Information:** SENERGY™ (selamectin) may be irritating to the skin and eyes for people. Wash hands after use. Do not use in sick, debilitated or underweight animals. All dogs and cats should be tested for heartworm disease before starting a preventive protocol. Use only on cats that are at least 8 weeks old and dogs that are at least 6 weeks old. For full prescribing information, contact Virbac at 1-800-338-3659 or visit us.virbac.com. See full prescribing information on page XX.

Topical Parasite For Dogs and Cats

CAUTION:
US Federal law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION:
SENERGY (selamectin) Topical Parasite is a colorless to yellow, ready to use solution in single dose tubes for topical (dermal) treatment of dogs six weeks of age and older and cats eight weeks of age and older. The content of each tube is formulated to deliver a minimum of 2.7 mg/kg (6.6 mg/kg body weight of selamectin). The chemical composition of selamectin is (5Z,25S)-25-cyclohexyl-4’-(1-methylpropyl)-22,23-ethylidene-5-hydroxyiminoavermectin A1a.

INDICATIONS:
SENERGY is recommended for use in dogs six weeks of age and older and cats eight weeks of age and older for the following parasites and indications:

**Dogs:**
- SENERGY kills adult fleas and prevents flea eggs from hatching for one month and is indicated for the prevention and control of flea infestations (Ctenophthalmes felis), prevention of the development of adult heartworms caused by Dirofilaria immitis, and the treatment and control of ear mite (Otodectes cynotis) infestations. SENERGY is also indicated for the treatment and control of sarcoptic mange (Scabies) and for the control of tick infestations due to Dermacentor variabilis.

**Cats:**
- SENERGY kills adult fleas and prevents flea eggs from hatching for one month and is indicated for the prevention and control of flea infestations (Ctenophthalmes felis), prevention of heartworm disease caused by Dirofilaria immitis, and the treatment and control of ear mite (Otodectes cynotis) infestations. SENERGY is also indicated for the treatment and control of roundworm (Toxocara cati) and intestinal hookworm (Ancylostoma tubaerum) infections in cats.

WARNING:
- Never use man. Use. Keep out of the reach of children. In humans, SENERGY may be irritating to skin and eyes. Reactions such as hives, itching and skin redness have been observed in humans in rare instances. Individuals with known hypersensitivity to SENERGY should use the product with caution or consult a health care professional. SENERGY contains isopropyl alcohol and the preservative butylated hydroxyanisole (BHA). In any product use and wash off any product in contact with the skin immediately with soap and water. If contact with eyes occurs, then flush eyes copiously with water. In case of ingestion by a human, contact a physician immediately. The safety data sheet (SDS) provides more detailed occupational safety information. To report suspected adverse drug effects, for technical assistance or to obtain a copy of the SDS, contact Virbac, Inc. at 1-800-338-3659 or www.virbac.com.

For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or http://www.fda.gov/reportanimali.

Flammable - Keep away from heat, sparks, open flames or other sources of ignition.

**PRECAUTIONS:**
Prior to administration of SENERGY, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, SENERGY may be administered to adult heartworms. Selamectin is not effective against adult D. immitis and, while the number of circulating microfilariae may decrease following treatment, selamectin is not effective for microfilariae clearance.

Hypermobility reactions have not been observed in dogs with patent heartworm infections administered three times the microfilaricidal dose of selamectin. Higher doses were not tested.

**ADVERSE REACTIONS:**
- Pre-approval clinical trials:
  - Following treatment with selamectin, transient localized alopecia with or without inflammation at or near the site of application was observed in 159 treated dogs (cats observed rarely) of 5.9% of (1743) treated cats and dogs included vomiting, loose stool or diarrhea with or without blood, anorexia, altered appetite, and vomiting. Post-approval experience:
  - In addition to the aforementioned clinical signs that were reported in pre-approval clinical trials, there have been reports of peripheral erythema, urticaria, alopecia, fever, and rare reports of death. There have also been rare reports of seizures in dogs (see Warnings).

**DOSEAGE:**
- The recommended minimum dose is 2.7 mg selamectin per pound (6.6 mg/kg) of body weight.

Administer the entire contents of a single dose tube (or two tubes used in combination for dogs weighing over 130 pounds) of SENERGY topically in accordance with the following tables. (See Administer dose chart for by DPP treated and untreated intervals.)

For cats over 12 lbs use the appropriate combination of tubes.

**Ear Mite Treatment in Dogs and Cats**
For the treatment of ear mites (O. cynotis) infections in dogs and cats, SENERGY should be administered once as a single topical dose. A second monthly dose may be required in some dogs. Monthly use of SENERGY will control any subsequent ear mite infestations. In the clinical field trials ears were not cleaned, and many animals still had some debris after the first dose. Cleaning of the infested ears is recommended to remove the debris.

**Sarcoptic Mange Treatment in Dogs**
For the treatment of sarcoptic mange (S. scabiei) in dogs, SENERGY should be administered once as a single topical dose. A second monthly dose may be required in some dogs. Monthly use of SENERGY will control any subsequent sarcoptic mange infestations. Because of the difficulty in finding sarcoptic mite mites on skin scrapings, effectiveness assessments were also based on resolution of clinical signs. Resolution of the pruritus associated with the primary outbreaks was in approximately 50% of the dogs 30 days after the first treatment and in approximately 90% of the dogs 30 days after the second monthly treatment.

**Tick Control in Dogs**
For the control of tick (Dermacron variabilis) infestations in dogs, SENERGY should be administered on a monthly basis, in heavy tick infestations, complete efficacy may not be achieved after the first dose. In these cases, one additional dose may be administered two weeks after the previous dose, with monthly dosing continued thereafter.

**Nematode Treatment in Cats**
For the control of intestinal hookworm (A. tubaerum) and roundworm (T. cati) infections, SENERGY should be applied once as a single topical dose.

**SAFETY:**
Selamectin has been evaluated over 250 different pure and mixed breeds of healthy dogs and over 15 different feline breeds of healthy cats including pregnant and lactating females, breeding males and females, puppies six weeks of age and old, and adult and geriatric animals. Selamectin has been evaluated at 1, 3, and 5 times the recommended dose to six-week-old kittens. No adverse reactions were observed. The safety of SENERGY administered to breeding males and females, breeding males and females, puppies six weeks of age and old, and avermectin-sensitive collies. A kiten, estimated to be 5-6 weeks old (0.3 kg), died 8–9 hours after receiving a single treatment of selamectin at the recommended dose followed by additional treatments every 30 days, which included muscle spasm, salivation and neurological signs. The kiten was a stray with an unknown history and was malnourished and underweight. SENERGY was administered on a monthly basis.

**DOGS:**
In safety studies, selamectin was administered at 1, 3, 5 and 10 times the recommended dose to six-week-old puppies, and no adverse reactions were observed. The safety of SENERGY administered to mixed breeds of healthy cats and dogs, and no adverse effects were observed. The safety of SENERGY administered to mixed breeds of healthy cats and dogs, and no adverse reactions were observed. Oral administration of 5 mg/kg orally, one avermectin-sensitive collie became ataxic for several hours, but did not show any other adverse reactions after receiving subsequent doses of some 10 and 15 mg/kg orally. In a topical safety study conducted with avermectin-sensitive collies at 1, 3 and 5 times the recommended dose, one animal died and 6 others were observed in all treatment groups, including the vehicle control. Selamectin also was administered at three times the recommended dose to heartworm infected collies, and no adverse reactions were observed. In well-controlled clinical studies, selamectin was used safely in animals receiving other frequently used veterinary products such as vaccines, anthelmintics, antiparasitics, antibiotics, antiparasitics, antiparasitics, and shampoos and dyes.

**STORAGE CONDITIONS:** Store below 25°C (*77°F)

**HOW SUPPLIED:** Available in eight separate dose strengths for dogs and cats of different weights (see DOSAGE). SENERGY is available in cartons containing 3 single dose tubes. SENERGY for puppies and kittens and SENERGY for dogs and cats is available in cartons containing 3 single dose tubes.

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LA13661
Enough is enough: It’s time to put yourself first

How promoting self-care in your practice can help address the suicide crisis in veterinary medicine.

By Shana Bohac, DVM

Suicide in veterinary medicine must come to an end. We go home at night and worry about our patients, how to make ends meet, and how to keep everyone around us happy—from our staff to our clients to our family. But are we happy?

We need to focus more on our well-being and what we can do to improve our quality of life. This might mean turning away that emergency in the middle of the night to get a good night’s rest and then giving your all to your patients the next day. Or maybe you can work 3 days a week, or take a few months off for a physical or mental break. Whatever it takes to keep your sanity, do it and don’t apologize for it. After all, if you don’t take care of yourself, you can’t take care of anyone else.

Look out for each other
Surround yourself with supportive staff members who build you up, not tear.
WELL-BEING

you down. I love the fact that my staff has my back. If I have worked several weekends in a row, they will make me take a weekend off. If I am sick, they will tell me to rest and they forward the phones to another clinic. They help protect me from myself. You only have one body, so you need to take care of it. If you don’t take care of yourself because you don’t want to let anyone down, you will end up letting yourself down.

We also need to utilize safe places to talk with other veterinary professionals to get advice and to vent. If you feel you need more assistance, then seek professional help. There is nothing wrong or embarrassing about needing a safe outlet.

Take the pressure off
We have to stop beating ourselves up for lost lives, cases that didn’t have a good outcome, and the clients who left unsatisfied. We live in a world that expects perfection (from imperfect human beings) and something for nothing quick, fast, and in a hurry. If you don’t do everything to their “standards” for a cheap price, they will blast you all over social media so they can ruin your reputation. They don’t care that they are ruining your life or livelihood. We constantly worry about being turned in to the board or sued. Take a step back and stop being so hard on yourself. You are going to make mistakes, just learn from them.

When clients become unbearable
A client can show up intoxicated for an appointment, leave happy and then decide 2 hours later to decimate your reputation on Facebook because they decided they were no longer satisfied with their experience at your clinic. I have been cussed out in the middle of the night for requiring a deposit for emergencies. I have been told that I don’t care about animals if I won’t treat them for free. We live in a keyboard-happy, entitled world. We can draw together to protect our work family by not tolerating this type of behavior. The client is not always right, and we need to stop pretending they are. Don’t be afraid to let go of rude and incorrigible clients.

Schedule some me time
We have to set boundaries with our clients, families, friends, and ourselves. Facebook is not a place to ask for free advice. Just say no! Work on yourself by working less. Your overall well-being and quality of life are more important than trying to make everyone happy.

Try to find some time to get away in the middle of your workday. Leave your office, take a walk, eat lunch, run errands, read a book or magazine, take a nap, shop, or exercise. Do something that helps you to decompress. On some days, a good run clears my head, but on other days my head is spinning from challenging cases, and sometimes I just need a quick cat nap to help me recharge. When you are away from work, make some time for yourself as well.

Cut the debt
If debt is a stressor for you, seek financial planning to help you get your life on track. Student loan debt is the bane of my existence. It disturbs me that our government is making tons of money off student debt. With that said, we cannot change the interest rates. We have to find a way to get the balance down fast. Avoid income-based repayment plans at all costs. They are going to cost you an insurmountable amount of money in the long run and no one will tell you this, especially not your loan company.

Leaving it all behind
When we come home at the end of the day, we are expected to give 100% to our family and put aside whatever kind of day we had. Our emotions have to be compartmentalized and tucked away. Allow yourself to be emotionally and physically invested in your family because that is what matters most.

In this career, our mental health is challenged on a daily basis. We have to fight this battle head on and look out for ourselves and each other. I don’t want to see another beautiful human being take their life over the challenges of this profession. You have been blessed with the gift of caring for animals, but at the end of the day it is a job and it is not worth your life.

If practice is too much, seek other options. There are opportunities to teach, conduct research, work in public health, and much more. You are not stuck, and you are not a failure for wanting to change your situation.

Dr. Bohac is the owner of Navarro Small Animal Clinic in Victoria, Texas. She has a passion for surgery as well as compassionate wellness care. She has a husband, Brandon, daughter, Aiden, 3 crazy cats, 2 dogs, and a handful of horses.

Reaching out for help
This article discusses suicide and mental health issues. If you’re experiencing feelings of depression or suicidal ideation, please contact the National Suicide Prevention Lifeline (800-273-TALK; 800-273-8255; suicidepreventionlifeline.org). It’s 24 hours a day, 7 days a week. No matter what problems you are dealing with, people on the other end of the line will help you find a reason to keep living.
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Drugs & supplements: Working together to manage veterinary pain

When your patients are really hurting, a one-size-fits-all approach won’t cut it. Alleviating pain and discomfort is best achieved through a combination of modalities, including pharmaceuticals and supplements.

By Heather Carter, BS, LVT, VTS (Anesthesia/Analgesia)

Today, appropriate pain management in veterinary patients extends beyond the use of pure mu opioids or nonsteroidal anti-inflammatory drugs (NSAIDs). A variety of analgesics and supplements provide the veterinary team with myriad options for relieving both acute and chronic pain. This article outlines some of the analgesics and supplements commonly used for pain management in companion animals.

Pain is a function of the nervous system. It is unique to each patient and can present as a cognitive or emotional response to nociception that occurs in the higher centers of the central nervous system. Attempting to manage pain in the same way for every patient can result in inadequate analgesia for some.

One of the negative effects of untreated pain is windup. Left untreated, pain causes neurophysiologic changes in the brain by disrupting normal pain pathways. This central sensitization, or windup, occurs after neurons in the brain and spinal cord become hyperexcitable, leading to changes in synaptic neurotransmitter levels and resulting in heightened or exaggerated pain states. Often, these exaggerated pain states do not respond well to conventional analgesic therapy.
Pharmaceutical options
When evaluating pain management options, the first step is to rethink predetermined protocols. Because pain is a unique experience for every patient, treatment should be tailored to each patient’s needs. Identifying the appropriate interventions begins with a thorough physical exam and assessment. Once the pain protocol has been determined and implemented, repeated exams are recommended for ongoing assessment and to guarantee that the correct drugs and doses are being used.

**Ketamine**
Ketamine can prevent sustained and excruciating states of pain. It is associated with the treatment of windup pain through blockade of the N-methyl-D-aspartate (NMDA) receptor. Ketamine can be a key component in the treatment or prevention of chronic pain, and can have analgesic effects even at subanesthetic doses. When used in an anesthetic protocol, ketamine reduces minimum alveolar concentration requirements, promotes a synergistic effect with other anesthetics, and improves cardiovascular and respiratory parameters. Ketamine also is an ideal rescue analgesic in opioid-tolerant and/or opioid-hyperalgesic patients.

**Amantadine**
Similar to ketamine, amantadine mitigates the effects of windup. It antagonizes the NMDA receptor as well but is not recommended as a solitary analgesic; rather, it enhances the effects of other drugs in the cocktail. It is most effective when used with an opioid or NSAID, but is also effective when used with gabapentin. Because of its use in chronic pain management, amantadine is ideal when introduced during the weaning of ketamine in a postoperative setting.

**Gabapentin**
The primary use of gabapentin is as an anticonvulsant, but it also works as an anti-nociceptive and anti-hyperalgesic agent to offer relief for chronic and neuropathic pain. Gabapentin is ideal for patients that are experiencing severe pain and need adjunctive analgesic drugs. The addition of gabapentin can reduce the required dose of opioids or other drugs in a pain management cocktail. Preoperative administration of gabapentin reduces the potential for hyper-excitability of secondary nociceptive neurons in the dorsal horn, preventing wind-up.

**Amitriptyline**
The selective serotonin reuptake inhibitor amitriptyline produces analgesia at supraspinal, spinal, and peripheral sites. By blocking the re-uptake of norepinephrine and serotonin, amitriptyline enhances the descending inhibitory actions in the spinal cord to allow relief of neuropathic pain.

**Supplement options**
Veterinary supplements are becoming increasingly common as part of a multimodal approach to pain management as well as overall veterinary medical care. Despite their wide availability, however, the American Veterinary Medical Association advises practitioners to be aware of possible concerns about the “safety, efficacy, and quality control of supplements” because, unlike drugs, most supplements are not regulated by the Food and Drug Administration (FDA). Therefore, care should be taken when choosing and administering any supplement to veterinary patients.

**Glucosamine/chondroitin**
Osteoarthritis can cause chronic and severe pain. The chondroprotective combination supplement glucosamine/chondroitin works to boost repair of damaged cartilage between the joints through the induction of biosynthetic activity in the cartilage. It also provides a protective effect when used prior to an acute joint injury. Keep in mind that excess weight can potentiate pain related to osteoarthritis. Therefore, helping patients to obtain and maintain an optimal body condition score will also assist in managing this pain.

**Polysulfated glycosaminoglycan**
Supplements with polysulfated glycosaminoglycan (PSGAG) can

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**Table. Dosing for some pain management pharmaceuticals and supplements**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ketamine</td>
<td>0.5-3 mg/kg loading dose and/or for treatment of wind up pain; 1-10 µg/kg/min constant-rate infusion</td>
<td>Intravenous</td>
</tr>
<tr>
<td>Amantadine</td>
<td>3-5 mg/kg twice daily</td>
<td>Oral</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>10 mg/kg every 8 hours</td>
<td>Oral</td>
</tr>
<tr>
<td>Eicosapentaenoic acid</td>
<td>50-60 mg/kg/day</td>
<td>Oral</td>
</tr>
<tr>
<td>Polysulfated glycosaminoglycan</td>
<td>4.4 mg/kg twice a week for 4 weeks, then once weekly for 4 weeks, then twice monthly</td>
<td>Subcutaneous</td>
</tr>
</tbody>
</table>
aid the management of joint disease as well. PSGAG promotes synovial fluid viscosity through enzymatic degradation of cartilage in osteoarthritic joints, in turn improving joint lubrication. PSGAG injections also assist in the repair of cartilage and the production of new cartilage (Sanchez J, personal communication, Veterinary Cancer and Surgery Specialists, 2020).

PSGAG is administered via injection under the skin. During the initial loading period, twice-weekly injections are administered for 1 month. Thereafter, injections are given once or twice monthly for life. The only FDA-approved PSGAG is Adequan (Luitpold Animal Health).

**Omega-3 fatty acids**

Omega-3 fatty acid supplements reduce joint discomfort though anti-inflammatory properties. Dogs and cats do not produce essential fatty acids naturally, so their only source is through diet or supplementation. The 2 most important omega-3 fatty acids are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), found most commonly in fish (Sanchez J, personal communication). Care should be taken to choose a source of EPA and DHA that is bioavailable and produced in accordance with pharmaceutical standards.

**Cannabidiol**

The use of cannabidiol (CBD) to manage pain in animals has been gaining steadily in popularity. This has resulted in a large and growing market of unregulated supplements, thus allowing for wide variation in product quality and CBD concentration within individual products. Commercial CBD is hemp based and can be costly due to the low amount of cannabinoids found in the hemp plant.

Because CBD is typically used in conjunction with other supplements and analgesics, it can be difficult to determine its exact therapeutic benefits. Only a handful of randomized controlled studies of CBD use in animals have been published (although research is increasing steadily), but it seems to have some merit as an adjunct agent for managing pain. There is evidence that supports its benefits in combating chronic neuropathic pain in people (Weaver C, personal communication, Bush Veterinary Neurology Service, 2020).

**Conclusion**

Recognizing and quantifying pain are integral to patient care. By treating the patient, not the disease, the practitioner can tailor drugs, doses, and supplements to a patient’s individual needs, and thus more effectively manage their pain.

Heather Carter is manager of operational excellence at Bush Veterinary Neurology Service in Frederick, MD.

**REFERENCES**

Dirofilaria immitis infection is diagnosed rarely in cats. Lack of detection is attributed partly to scanty circulating antigen associated with low worm numbers typical of feline infections.¹²

In dogs, current heartworm antigen tests are both sensitive and specific. But when antigen-based canine assays were first developed for detecting D immitis in the 1980s, serum was heated or treated with ethylenediaminetetraacetic acid (EDTA) prior to testing, thereby destroying the antigen-antibody complexes that hampered antigen recognition.³⁻⁵

### Breaking the bonds

To gauge the role of antigen blocking in pinpointing occult D immitis, investigators at Oklahoma State University tested serum samples from cats experimentally infected with heartworms before and after heat treatment. The results, published several years ago but still relevant,⁴ establish the efficacy of heat treatment in revealing heartworm antigen in cats.

In the study, 6 domestic short-haired cats underwent subcutaneous inguinal inoculation of third-stage D immitis larvae at 10 months of age (study days 7, 14, 21, and 28). Larvae (100 per cat) were harvested shortly before inoculation from infected Aedes aegypti mosquitoes.

Whole blood samples were collected from each cat on study days 84, 112, 140, 168, 196, and 224 using vacuum tubes, with or without EDTA. Anti-coagulated blood was assayed for microfilaria by modified Knott tests.

Antibody and antigen testing were performed using commercial assays. For antibody testing, a reference laboratory tested each sample in triplicate, and provided optical density (OD) results for each micrometer well.

For antigen testing, serum samples were placed in a heat block at 103° C for 10 minutes and then centrifuged. The supernatant was then used in each commercial antigen assay. Test kits evaluated before and after heat treatment include lateral flow immunochromatographic assays and enzyme-linked immunosorbent assays (ELISA) in both membrane-bound and microtiter plate formats. For one of the micrometer plates, OD readings were performed by spectrophotometry before and after heat treatment.

### Antigen revealed

All 6 cats developed D immitis infection, evidenced by the recovery of adult worms at necropsy or by histopathology of classic pulmonary lesions. One to 6 worms were recovered from each of 5 cats; worms were not recovered from the sixth cat, but pathognomonic pulmonary lesions were present.

All Knott tests were negative. Antibodies to D immitis were detected in 5 cats on day 84 and in all 6 cats on days 112, 140, 168, 196, and 224.

Antigen for D immitis without prior heating was detected in 0, 1, and 1 cat, using any of the 3 assay types, on days 168, 196, or 224. After heat treatment, however, antigen was identified on microtiter assay in 1, 5, and 5 cats on days 168, 196, and 224, respectively, and in 4 cats on day 224 for both the membrane-bound ELISA and lateral flow immunochromatographic testing.

### Boiling down the data

The cat is not hospitable to the heartworm life cycle, and these parasites often die or become entrapped in abnormal places like the brain and skin. Furthermore, heartworm infections in cats are usually antigen-deficient because the parasites involved are typically small, few in number, and often do not include antigen-producing females. To complicate matters further, cats infected with D immitis typically develop severe lung pathology that may also hinder antigen detection.

For these reasons, heartworm-infected cats test antigen-negative in 25% to 50% of cases, even when they are symptomatic.⁷ To this day, diagnosis of feline heartworm relies largely on imaging sick cats.

This important study shows that heat treatment of feline serum prior to antigen testing improves detection of D immitis, presumably due to destruction of antibody and release of antigen from antigen-antibody complexes. Likewise, antigen blocking¹² probably leads to false-negative results in antigen-positive serum samples that are not heat treated in advance.

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A strong core team is critical to the success of any veterinary hospital design project. Here are the 3 key players, what each must bring to the table, and some criteria for selecting them.

Lord lender
The lender in veterinary projects is a crucial team member for success. Many lenders, particularly local banks, aggressively pursue the veterinary expansion based on a current business banking relationship. These collateral-based lenders require appraisals with “comps”—recent, comparable-quality veterinary projects—of recent similar projects to gain board approval. Unfortunately, these comps are rarely available, so lower-quality general office buildings are substituted for comparison. These lower-value buildings result in appraisal failure, requiring the veterinarian to inject additional, often unavailable, cash to make up the deficit. The veterinarian must seek alternative financing, resulting at a minimum in lost months to find a replacement, and at worst added expense or abandonment of the project altogether.

What’s an alternative? Many of our clients have found success with veterinary-specific lenders, often found as exhibitors at veterinary conferences and trade shows. These lenders base their decisions on a cash flow model, evaluating your business ability and growth to pay the debt as opposed to selling your building when you fail as local lenders do. Their experience with veterinary businesses and buildings leads to successful appraisals. They also commit to financing approval much sooner in the process and can often distribute draws for land and soft costs early in the process that would be unavailable with asset-based lenders, preserving your cash assets for business needs.

Architect ace
Whatever architect you choose should understand the nuances of veterinary medicine. Knowledge of productivity metrics, staffing complexities, and workflow protocols is just as important as veterinary design trends, materials, and construction costs.

In addition to design, an architect can help select and coordinate a team of mechanical and electrical engineers to design veterinary-specific solutions critical to thermal comfort, patient and staff health, and acoustic and odor control as well as balanced lighting systems and efficient energy consumption. Any weaknesses in this team can result in poor performance in any of these areas.

An experienced architect can also balance design selections with budget concerns. Every project, regardless of size, has a tolerable budget limit, and it’s relatively easy to design an overbudget project. Only the best teams are able to maintain that performance/budget balance.

King contractor
Many projects use competitive bidding when selecting contractors. Our preference—at least on renovations—has been to negotiate with a single contractor as early in the process as possible. Following an interview/vetting process, we work with the practice owner to identify the most comfortable and competent fit. We then bring in that contractor to weigh in on design issues and their effect on budget, schedule, and performance. Our main concern is not on how much we can be “under budget,” but an assurance that our project will be “in budget.” A contractor should be fully vested in our success with regard to schedule, quality, and budget.

At each stage of the design process, from initial floor plans to complex permit drawings and engineering system designs, we want the contractor’s buy-in. Why? After the project is done, the contractor will be largely responsible for any adjustments that will inevitably be required for final approval. All too often, as a project moves along, the architect and practice owner can develop an adversarial relationship with the contractor. If we can eliminate this, we have a much higher probability for success.

Get these 3 design team members right, and you’ll have the best chance to wind up with a design project that meets the functional and economic goals of the practice, the established budget constraints, and financing considerations.

Wayne Usiak, AIA, NCARB, is a senior partner at BDA Architecture based in Albuquerque, New Mexico.
B. Cutaneous vasculitis

Cutaneous vasculitis, a condition that involves inflammation of the blood vessels in the skin, is triggered by an abnormal immune system response that can lead to crusting and ulceration. Underlying causes include infections (bacterial, rickettsial, fungal, viral), medications, vaccines, foods, trauma, immune-mediated disease, and neoplasia. However, in 50% of cases, the underlying cause remains unknown and cutaneous vasculitis is considered idiopathic.

Vasculitis can present in many ways, depending on the underlying cause and severity of the disease process, and the location of affected vessels. Lesions can include erythema, crusts, ulcers, and necrosis. Other common cutaneous vasculitis syndromes include lupus erythematosus, polyarteritis nodosa, and Wegener’s granulomatosis.

Although no single treatment protocol exists for cutaneous vasculitis, a variety of medications can be selected based on clinical signs and suspected underlying causes. Pentoxifylline is often selected as the first therapeutic option. This medication helps erythrocytes become more pliable, allowing them to travel easier through damaged blood vessels and restore blood flow. However, it may take 2 to 3 months to see the most beneficial effects. Other immunomodulatory or immunosuppressive therapies, including dexamethasone and cyclosporine, may be necessary.

Multimodal therapy may be needed in dogs with more severe disease. In patients that are refractory to medical therapy for cutaneous vasculitis of the ear tips, surgical intervention (e.g., partial pinnectomy) may be required.

A 2-year-old, neutered male Rhodesian ridgeback started losing hair at the tips of both pinnae. Over a 2- to 3-month period, the owner noticed erythema, crusting, and eventual ulceration and bleeding of the affected areas. Pruritus does not appear to be associated with the lesions. No other lesions are noted on the body, and the dog is not showing systemic signs of illness. The dog is up-to-date on vaccinations and parasite prevention, and has not been treated with any other medications.

A. Sarcoptic mange
B. Cutaneous vasculitis
C. Dermatophytosis
D. Pemphigus foliaceus

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