Nutritional management of canine joint disease

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Seizures and epilepsy, among the most common neurologic conditions in dogs, are typically treated with anti-seizure medications. Because many anti-seizure drugs come with significant adverse effects, however, it can be difficult to balance the need for seizure control while maintaining the dog’s quality of life. Additionally, about a third of dogs continue to have seizures despite anti-seizure drug therapy.

Dietary modification for seizure management has been studied extensively in humans. A new veterinary study analyzed whether a diet high in medium-chain triglycerides (MCTs) would help control seizures in epileptic dogs currently treated with anti-seizure medication.

Twenty-eight pet dogs with idiopathic epilepsy were included in the randomized, double-blinded, multicenter, placebo-controlled, crossover study. The dogs had no bloodwork abnormalities, had previous normal cerebrospinal fluid analysis and magnetic resonance imaging findings, had at least three seizures in the previous three months, were currently being treated with at least one anti-seizure drug and were categorized as resistant to at least one of those drugs.

Dogs in the study group received a daily oil-based supplement high in MCT, while those in the control group received regular olive oil. Seizure frequency was then monitored for three months, after which the study dogs received the placebo and the placebo group received the MCT supplement for another three months.

Study dogs had a significant reduction in seizure frequency (number of days per month on which a seizure occurred) vs the control group. Two dogs were seizure free, three had a 50% or greater reduction in seizure frequency, and 12 had a reduction in seizure frequency. However, 11 dogs showed no response.

Take-home points

A diet high in MCTs may be a useful tool for managing seizures in dogs. While the response does not appear to be as striking as for first-line anti-seizure drugs, a high-MCT diet has significantly fewer potential side effects and appears to be well tolerated.

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I’ve been researching stress and anxiety in our profession and talking to veterinarians about their daily struggles. It’s becoming clear to me that much of our stress stems from our expectations about — and interactions with — our clients. We stress about our diagnostic and treatment success, and our surgery skills, but what seems to hit us the hardest is what our clients think about us, what they say to us and how they treat us on social media.

I believe there are three main assumptions we veterinarians make about clients and their complaints, and if we could think differently, we might do a better job at managing our stress.

Assumption No. 1: We think clients know more than they do

Sure, our clients often check with “Dr. Google” about their pet’s symptoms, and sometimes they’re in the ballpark, but they really don’t have the medical knowledge to discern whether their research makes practical sense or to understand the tests needed to confirm that Dr. Google diagnosis.

When I ask clients questions about diet, clinical signs, length of illness or past medical history, I often get answers that don’t add up. For example, when I see a mammary mass on a dog that’s encompassing one-quarter of the abdomen and the client tells me it just popped up in the past few weeks, I know this cannot be true. I know that this really means the client was busy with everyday life, so they didn’t see anything wrong until it was seriously wrong. If I choose to be upset by this fact, I will cause myself undue stress. If I accept that this is where we are and then do my very best to make proper treatment recommendations from this point, I can proceed without taking on stress about it.

Assumption No. 2: We think we always know what our clients should do

We think we know what’s best for a patient, but ultimately it’s our clients who get to decide what’s best for their pet and their situation. “Best” is a matter of opinion. We may not always agree with the choices our clients make when it comes to their pets, but our job is to give them the options we’ve been trained to give. It’s not up to us to judge their decisions. We’re there to support them in whatever decision they make without taking on the emotions or personal responsibility for these decisions. We should assume they’ll do what they believe is best for their pet and love them through any “best” decision.

Assumption No. 3: We think our clients know how hard our job is

We know we’re not God and cannot save every life. We understand our limitations. We assume that clients realize this as well. We think they know we’re doing our best to help them in every situation. We know how much it costs to run a veterinary hospital, but clients may think us uncaring when we give them a treatment plan they can’t afford. We know we stress over every one of their pets’ problems, but they don’t see our pain. Continuing to communicate with the public about how difficult some of our days can be is the first step in bridging this gap.

Our joint priority

We need to realize that our clients care about the same things we do: loving and healing pets. Clients need veterinarians to be healthy and whole to care for their pets properly. Veterinarians need clients to pay for the valuable work we’re passionate about. We’re on the same team, and we should treat each other with respect, compassion and understanding.

Dr. Cappel works as a small animal and exotic pet veterinarian, as well as a leadership and life coach. She has been a practice owner for more than 20 years, running a four-doctor veterinary hospital in Warren, Michigan.
You got the job … now what? As a new associate at a veterinary practice, you have two choices: You can simply fill that spot and maintain the status quo as a practice filler, or you can be a practice builder. How do you make the leap from filler to builder? By finding your niche, engaging the community and developing an online presence, you could be the injection of energy, inspiration and medicine you, your hospital and your team need.

Find your niche
Entering a new veterinary practice means you’re the fresh pair of eyes. Perform a needs assessment during your first few months as an associate and look for the niche you can carve out for yourself. Try out one or more of these ideas:

- Use a new diagnostic tool. For example, I did additional training to start offering in-house ultrasound exams; I perform the ultrasounds and a board-certified radiologist reads them.
- Offer a new treatment modality. Laser therapy and holistic therapies such as acupuncture and chiropractic are common ones to consider.
- Study more to be the practice expert on a matter involving a specific patient group. Think orthopedic processes for sporting or active breeds, hospice or in-home care for elderly pets, behavior training or breed-specific diseases and/or surgeries.
- Organize a new event at the hospital. I organized an open house around the holidays. We ran a tour of the hospital, drug company reps offered giveaways, and we let people take pet pictures with Santa. Many clients commented they’d never seen the entire hospital and were so excited about the Santa pictures.
- Become the “new client” veterinarian. Develop a spiel about how you and your hospital are uniquely caring. Call all new clients the day after a visit for a quick check-in. You’d be amazed how many clients appreciate hearing directly from their veterinarian.

Build community
Now, look outward to opportunities available in the community. Play to your strengths as you look for ways to become better known in the area. While I enjoy educating the public and feel comfortable speaking to large groups, you may not. There are still many ways to build community as a veterinarian:

- Attend local dog park openings and other pet-focused community events.
- Find opportunities to interact with the owners of feed stores and pet stores. Ask to leave your card on their bulletin boards.
- Join the city council animal advisory board or offer your services to consult on animal issues.
- Support the local school system, and engage with any pre-veterinary or agriculture programs.
- Offer reduced surgery prices for a local animal shelter. This is especially welcome if their building doesn’t house a surgery suite.
- Speak at community events and/or join your city’s chamber of commerce.
- Participate in career days at local schools. Every kid wants to hear from an animal doctor.
- Welcome high school students interested in shadowing or getting volunteer hours at your hospital.

By finding your niche, engaging the community and developing an online presence, you could be the injection of energy, inspiration and medicine you, your hospital and your team need.
Go online
Practice builders take to their keyboards and smartphones to increase their reach as veterinarians. These days the search for knowledge is continuous — taking place at all hours in online forums and on social media platforms. Building an online presence is important for reaching new clients and promoting yourself (and your hospital). Here are ways you can engage on the internet:

- Help develop or improve your hospital’s Facebook and Instagram (or other social media) pages.
- Make educational videos for pet owners based on client questions, requests and input.
- Educate yourself on ways to generate “actionable” social media posts. I’m a fan of Snout School on Instagram for tips and tricks.
- Write articles on hot topics in veterinary medicine. (Editor’s note: Submit them to, say, dvm360.)
- Put your practice logo on everything. Branding is important for subconscious recognition. Need help making a logo? Canva.com is a great place to get started.
- Start your own podcast. (Editor’s note: Check out “The Vet Blast Podcast,” hosted by our Chief Veterinary Officer Adam Christman, DVM, MBA, on dvm360.com!)
- Produce a personal website. No, not a rambling blog about life, but a pet-owner-facing site to educate and interact with the public. Whiskercloud is my website creator of choice. Check out my site at drcrockerpetvet.com.
- Start a YouTube channel. Update it regularly with instructive videos for both pet owners and other veterinary professionals.

You do you
As a new veterinarian, you’re passionate about your job, and it’s time to share that enthusiasm in the exam room, in the neighborhood and online. Think about your strengths. Maybe you’re a great writer and you explain things best in blogs, essays and posts? Maybe artistic creativity is your secret superpower? Look inside yourself and see what lights your fire, then use those gifts to create your opportunities. The extra energy you put into these outside endeavors will pay off and mold you into a practice builder.

Dr. Crocker worked as a solo equine ambulatory practitioner for three years before transitioning to small animal medicine. She currently practices in Grapevine, Texas at Northwest Animal Hospital and the Animal Emergency Hospital of North Texas. In her free time, Dr. Crocker can be found with her family and friends riding horses and enjoying the outdoors. Contact her on Instagram @dr.tannetje.crocker.
A practice manager reflects on the many protocol changes implemented during COVID-19 that will benefit veterinary hospitals, clients and patients well into the future.

By Emily Shiver, CVPM, CCFP

As a result of the COVID-19 pandemic, veterinary practices have been forced to change how we serve our clients. While at first these changes may have seemed like a great hindrance to practicing veterinary medicine, the reality is that many of the innovative protocols we devised will continue to benefit our practices, clients and patients long after the pandemic is over.

Curbside care
Many clients have really appreciated the convenience of curbside service. In my practice, we had discussed offering curbside service for a couple years, but just never ripped off the Band-Aid because we were comfortable with the status quo. With no other choice during COVID-19, we realized how successful curbside care could be, and we will continue to offer this option to our clients for several services:
• Prescription and food pickup
• Grooming and lodging drop-off and pickup
• Medical appointment admits and discharges
• Technician appointments (nail trims, anal gland expression, vaccine boosters, etc.)

Patient history collection
We knew during our first week of curbside service that we had to come up with ways to improve efficiency. The demand for appointments far outweighed (and still does) anything we had ever experienced. But our appointments were consistently exceeding their allotted time slots, causing us to fall behind most days. When we analyzed our system, we saw that what was
Once clients start coming back to your practice, obtaining as much information as possible prior to the appointment will continue to be beneficial. Collecting patient histories in advance can shorten 30-minute appointments to as little as 15 to 20 minutes, and the doctors can review the information before the appointment. With their thoughts already on the case, they pair that with the physical exam and are able to convey treatment options more efficiently.

Payment options
The “witching hour,” typically the stretch from 4 to 6 p.m. when everyone comes to pick up their pets, prescriptions or food after work, can cause stress even for the most well-run practices. Combine that mayhem with your scheduled appointments, and your client service representatives need a floatie to get through those rough seas.

When we implemented curbside service, we had no choice but to switch gears when it came to processing payments. About a week in, we had two clients dispute a credit card “phone authorization” and had to jump through hoops to prove we performed the services in question. After a quick chat with our merchant service provider, we started emailing invoices with a link for payment.

Sending invoices to clients ahead of time allows them to pay via the link in their email, so when they come to the practice all we have to do is deliver the pet, prescription or food right to the car. Clients love not having to wait, and it really speeds up the checkout process and makes the “witching hour” less chaotic. We should have started this years ago and will continue to do so after the pandemic is over.

Telemedicine
Over the past few years, telemedicine has incited panic in some practices and excitement in others. No matter what your opinions were prior to COVID-19, there is no doubt that telemedicine has been beneficial for clients and practices alike during the pandemic. With some clients unable or unwilling to visit the practice and some practices short-staffed due to quarantined staff, telemedicine became a game changer. What’s more, telemedicine consults can be completed in almost half the time of a regular appointment. After the pandemic, we will continue to use telemedicine in our practice for several types of appointments, including skin checks, limping/lameness, vomiting/diarrhea and patient rechecks.

Communication
Manning the eight phones lines in our practice has been a monumental challenge during the pandemic. Fortuitously for us, we onboarded with practice management software provider VitusVet just before the pandemic hit. We encouraged our clients to download the app and use it to reach us with almost instantaneous results:

- Two-way texting
- Picture messaging
- Appointment requests
- Prescription refill requests
- Client access to medical records

Because our phone traffic has lessened dramatically, we can now serve our clients in the practice more proficiently.

Looking back — and forward
As I reflect on our practice experiences over the past couple months, I am amazed by our ability to adapt to change. Practices that make pandemic changes part of their ‘new normal’ protocols will be the ones that will thrive once it is over.

Emily Shiver is practice manager at Cleveland Heights Animal Hospital in Lakeland, Florida.
Mobility matters: nutritional management of canine joint disease

Osteoarthritis in dogs is often diagnosed late owing to several factors. Here’s why, plus tips for managing this debilitating disease through nutrition.

By Kara M. Burns, MS, MEd, LVT, VTS (Nutrition)
T

he disruption of normal joint mechanics may lead to or result from injury to the various components of a joint. Frequently, this injury results in osteoarthritis (OA), which often leads to physical incapacity, pain and reduced quality of life for the affected pet. OA is the most common form of arthritis and is recognized in humans and in all veterinary species. It is often a slowly progressive condition characterized by two main pathologic processes: degeneration of articular cartilage with a loss of both proteoglycan and collagen, and proliferation of new bone. In addition, there is a variable, low-grade inflammatory response within the synovial membrane.

In North America, OA prevalence is reported to range from 20% in dogs older than 1 year up to 80% in dogs over age 8. The objectives of OA treatment are multifaceted: reduce pain and discomfort, decrease clinical signs, slow disease progression, promote repair of damaged tissue and improve quality of life.

It has been suggested that the best results in dogs with chronic pain due to OA result from a combination of anti-inflammatory and analgesic medications, disease-modifying OA agents, specific nutrients, nutraceuticals, weight reduction, exercise programs, physical therapy and therapeutic diets. Applying an individualized combination of these management options to each patient will enhance quality of life, which is the ultimate goal of therapy.

**Obesity as a risk factor**

It is well recognized that obesity is epidemic in companion animals. In 2018, the Association for Pet Obesity Prevention estimated that 56% of dogs in the United States were overweight or obese. In addition, a long-term study has documented that the prevalence of OA is greater in overweight/obese dogs compared with ideal weight dogs (83% vs. 50%). Given these data, it is reasonable to assume that a significant portion of arthritic dogs will be overweight/obese and vice versa. Managing these comorbid conditions presents a variety of challenges.

As disease entities, OA and obesity present diagnostic challenges for very different reasons. Clinical signs of OA may not be obvious on examination, particularly early in the disease process. Although signs of pets being overweight or obese are readily apparent, these signs are often overlooked or dismissed as inconsequential. Diagnosis of OA generally requires a combination of history, physical examination findings and radiographic evidence of degenerative joint disease. Although this seems straightforward, historical clues, which are vital to creating an index of suspicion, may be elusive and clinical signs are often subtle and not evident on routine veterinary examination. Owners may attribute many signs of OA to normal aging and therefore fail to report them unless prompted (see Stages of osteoarthritis on page 10).

Owners of dogs at risk for obesity and OA should be educated on the importance of lifelong weight management. The incidence and severity of OA secondary to canine hip dysplasia can be influenced significantly by environmental factors such as nutrition and lifestyle.

**Clinical signs**

Clinical signs of OA include difficulty rising from rest, stiffness and lameness. A thorough disease-specific history may reveal evidence of subtle changes early in the course of OA, such as reluctance to walk, run, climb stairs, jump or play. Signs may be as inconspicuous as lagging behind on walks. Veterinary teams must listen to owners when they are describing that their dog is reluctant to walk on tile or hardwood floors, and their pet no longer wants to go for car rides — something that was once a favorite activity.

Owners are often unaware of the correlation between behavior changes and OA. Yelping or whimpering, and even personality changes such as withdrawal or aggressive behavior, may be indicative of the chronic pain of OA. Additionally, the veterinary team may uncover subtle signs caused by OA pain that the owner did not notice, such as longer nails (indicating that the dog is not walking and so nails are not being worn down by hard surfaces) or abnormal fur patterns over joints (indicating the dog has been licking the area). Consistent use of an owner questionnaire may facilitate early detection of OA.

**Managing mobility with nutrition**

Dietary factors can potentially modify some of the underlying processes involved in OA, including modulation of the inflammatory response, provision of nutrients for...
Stages of osteoarthritis

OA is a progressive disease consisting of four stages:

- **Stage 1**: Patient experiences early signs, which are often difficult to identify and most likely to occur in growing or young adult dogs. The signs are typically sporadic, lasting a few seconds/minutes.

- **Stage 2**: Patient experiences intermittent signs that are considered the first flare-ups. These signs, which last a few hours, are easy for owners to rationalize and ignore. This stage is typically seen in young adult dogs.

- **Stage 3**: Patient experiences performance impairment involving progressive loss of the ability to perform activities of daily living. This stage is more impactful and recognizable by the owner. It is often seen in adult dogs and is evident through exercise intolerance and difficulties for the dog in performing activities of daily living.

- **Stage 4**: Patient experiences loss of mobility, strength and fitness. As the patient has lost the ability to walk, this stage is much harder for the owner to manage.

It is important to remember that both young and old dogs can be in any of these stages. Historically, most dogs with OA have been diagnosed in stage 3 or 4. Ideally, however, veterinary teams must be cognizant of the earlier stages so they recognize the signs of OA sooner.

cartilage repair and protection against oxidative damage. Where effective, dietary management may help reduce or eliminate the need for conventional drugs, some of which are associated with adverse effects.

**Amino acids**

As the building blocks of proteins, amino acids play a role in the makeup of tissues and organs throughout the body. Methionine is a unique amino acid that produces several important molecules that are essential for proper cell function. Methionine, which contains sulfur, and can produce other sulfur-containing molecules in the joint and is involved in protein production. Manganese is an essential nutrient involved in many chemical processes in the body, including bone formation. Manganese plays a role in the health and maintenance of bone and cartilage in joints. In addition, manganese supports collagen formation for joint strength. Methionine and manganese are building blocks for cartilage in joints.

Carnitine is an amino acid that enables the body to turn fat into energy. Carnitine aids in muscle maintenance and transports long-chain fatty acids and their derivatives into the mitochondria of cells. By strengthening skeletal muscle and turning fat into energy, the severity of OA may be lessened.

Hyaluronic acid is a principal component of synovial fluid and works in the joint to maintain joint viscosity, aid in joint lubrication and help with shock absorption. Additionally, vitamins C and E are antioxidants that neutralize free radicals to maximize mobility. N-acetyl-D-glucosamine “short-cuts” the glycosaminoglycan pathway to maintain healthy joint structure and function.

**Omega-3 fatty acids**

Omega-3 fatty acids have been shown to aid in canine OA management. Studies show that foods with high levels of total omega-3 fatty acids and eicosapentaenoic acid (EPA) can improve the clinical signs of canine OA.4,7,10

In normal canine cartilage, there is a balance between synthesis and degradation of cartilage matrix. In arthritic joints, damage to chondrocytes incites a vicious cycle that culminates in cartilage destruction, inflammation and pain. The mechanisms responsible for the demonstrated clinical benefits of omega-3 fatty acids include controlling inflammation and reducing the expression and activity of cartilage-degrading enzymes.

Cartilage degradation starts with loss of cartilage aggrecan followed by loss of cartilage collagen, resulting in the inability to resist compressive forces during joint movement. EPA significantly decreases the loss of aggrecan in canine cartilage by inhibiting the upregulation of aggrecanases by blocking the signal at the level of messenger RNA.4

Omega-3 fatty acids result in a decrease in membrane arachidonic acid (AA) levels because omega-3 fatty acids replace AA in the substrate pool. This produces an accompanying decrease in the capacity to synthesize inflammatory eicosanoids from AA. Studies have documented that inflammatory eicosanoids produced from AA are depressed when dogs consume foods with high levels of omega-3 fatty acids. In addition to its role in modulating the production of inflammatory eicosanoids, omega-3 fatty acids have a direct role in the resolution of inflammation.

**Green-lipped mussel**

Shellfish supplements have been used to manage arthritis in humans
and, in recent years, interest has focused on the potential benefits of a nutritional supplement prepared from the New Zealand green-lipped mussel (GLM), *Perna canaliculus.* GLM is known to contain anti-inflammatory components and other nutrients that benefit joint health. Heat processing of GLM has been shown to destroy its activity. Therefore, the processing of whole GLM and incorporation of the GLM product into food products requires special care and processing techniques to avoid destroying any efficacy of the final product.

Successful treatment and prevention of obesity and OA require a comprehensive approach that includes preventive measures and a multimodal treatment program.

**Conclusion**

Nutrition, and specific nutrients, provide an effective and safe way to manage OA in dogs. Foods with high levels of omega-3 fatty acids have the dual benefit of controlling inflammation and pain while slowing disease progression by decreasing cartilage degradation.

Successful treatment and prevention of obesity and OA require a comprehensive approach that includes preventive measures and a multimodal treatment program. Documenting the presence of comorbid conditions is critical.

Clinical signs of OA are often not obvious on examination, particularly early in the disease process. Early diagnosis of OA facilitates early intervention, which will likely improve long-term outcome. Nutritional management should be part of the multimodal approach in dogs with joint disease. Mobility is powerful and allows humans and dogs to live healthy and happily in body and mind. Joint health is fundamental to moving in comfort and should be addressed with every dog that comes into the hospital.

**REFERENCES**


Kara Burns is a licensed veterinary technician with masters’ degrees in physiology and counseling psychology. She is the founder and president of the Academy of Veterinary Nutrition Technicians and teaches nutrition courses around the world. Kara is a consultant for Lintbells, manufacturer of YuMOVE, the UK’s No. 1 veterinary hip and joint supplement for dogs. She’s a member of, and holds board positions on, numerous associations, including the American Academy of Veterinary Nutrition, Western Veterinary Conference, NAVTA, Pride VMC and the Pet Nutrition Alliance.
It’s no secret that dental care is one of the fastest-growing segments in veterinary practice. If your practice is among those increasing the number of dental cleanings and other procedures, you may be considering adding a dedicated space. Before you move forward, consider these factors for a well-designed dental suite.

**Location and space setup**

The location of a dedicated dental space in existing clinics will depend on what space is available, but in general you are looking for a place that is out of the main traffic flow but close to the treatment area. Dental cleanings will aerosolize bacteria, so you want a separation from other treatment stations. On the other hand, proximity to other team members is important. Staff doing the cleanings need immediate access to doctors should any issues arise. A separate room adjacent to or an alcove off of the treatment area is ideal.

The space for and around your dental table is very important. Allowing a width of approximately eight feet will provide about 36 inches of space on either side of the table. This gives sufficient clearance for the technician to work from either side of the patient as well as at the head of the table and still allow for an easy reach to side countertops as well as space for equipment carts. The table depth should also be about eight feet, which allows enough space for the table and a technician working at the patient’s head.

If there is a countertop at the foot end of the table, add another two feet.

Lighting has traditionally been supplied via ceiling-mounted fixtures and that is still common today. Adjustable LED lamping has made lighting much more efficient and cooler. Gaining in popularity is the use of loupes that can be made to fit prescription glasses.

Oxygen must be supplied at the table. Depending on the type of anesthesia machine and its location, oxygen can be supplied via a ceiling drop, wall outlet or a small tank with the machine.

An exhaust fan above the dental table will help create negative air pressure to minimize bacterial spread. Because it is not needed when there are no active procedures, the fan can be controlled using a simple on/off switch.

Waste anesthesia gas disposal (scavenging) is also necessary. If you are not using canisters, an active system is highly recommended. These days central waste anesthesia gas disposal systems are available for a relatively small investment and can serve not just this station but also your treatment and surgery areas, so there’s no reason not to include this important safety feature.

**Equipment options**

Table options are several. The first thing to decide is whether you prefer a wet table or a collection-type table:

- A plumbed wet table is always more expensive due to the combined cost of the equipment as well as the waste and supply piping. On the positive side, a wet table can be used for non-dental procedures as well, such as endoscopy.
- A small amount of water is used during most dental cleanings, so...
collection tables are becoming more popular. Most collection tables can be adjusted for height and are on casters so can be moved or repositioned easily. Height adjustability is strongly preferred for improved ergonomics, but there are more choices in the collection type than wet tables.

Thought needs to be given to purchasing and location of the dental unit and X-ray. Consider where they will be located both when they are in use and when parked out of the way. Some dental units are cart mounted with an on-board vacuum. Others can be mounted on swing arms and require connection to central systems.

Dental X-ray units can be wall, cart or hand-held units. If using a mobile unit, again consider where it will live when not in use. For wall-mounted units, the reach range is the first thing to resolve. The head of the unit needs to extend beyond the head of the table to give the greatest number of angle possibilities. The arms of mounted units fold against the wall when stored. Plan so that they do not block access to cabinets.

**Keep the future at the forefront**
Multi-table dental suites can leverage your equipment for greater utilization. A single wall mounted X-ray can cover the working end of both tables if positioned such that both fall within the swing of the supporting arms. If that’s not possible a mobile unit is the next choice. Two anesthesia machines can use a single oxygen drop by using a splitter. When we design for a growing practice we almost always plan for dual tables even if the second station comes later.

Paul Gladysz is a principal of BDA Architecture, a firm specializing in the planning, design and construction of animal care facilities. He has over 30 years’ experience in design and managing animal care facility projects.
The drug-resistant client: Why owners refuse anti-anxiety drugs for pets — and what to do about it

When veterinary clients refuse medications that can ease patient fear and enhance staff safety, it’s time to pull out all the stops. Here’s a plan for how to do it.

By Sally J. Foote, DVM, CABC-IAABC, LSHC-S

Advances in animal behavior have helped veterinarians provide less-stressful care to patients both large and small. The ability to read the body language of stress correctly before it escalates to aggression — and then respond to it by changing something about the environment in the exam room, treatment area or hospital ward — helps keep staff safe and prevent aggression.¹ There are some cases, though, in which reducing environmental stress is not enough to produce a non-anxious or nonaggressive animal.

Specific handling techniques to reduce patient stress can also create a calm care experience. Training staff in correct towel-wrapping methods to limit patient movement and appropriate ways to reward patients greatly reduces patient stress and aggression during veterinary visits. Advanced skills in Low Stress Handling will lead to a less-stressful exam for an unmedicated animal.
But when you’re presented with a patient whose anxiety is increasing to the point of aggression despite a less-stimulating environment and high rewards, appropriate anxiety-reducing medication is needed for improved patient welfare. A better understanding of both animal behavior and pain management has provided veterinarians with a broad base of medications to use in these cases.

The case for pre-visit pharmaceuticals
Pre-visit pharmaceuticals are given to create a less-anxious and easier-to-handle animal. These medications must be given to the pet a few hours before the veterinary exam. They don’t eliminate the need for less-stressful handling or a less-stressful environment; rather, the medications are tools to prevent the damaging effects of stress-increased heart rate, struggle that can lead to injury and retaining a memory of fear associated with the veterinary practice.

Before the profession developed greater awareness of the need for less-stressful veterinary care, the use of pre-visit medications was limited to strong oral sedatives such as acepromazine, one of the few oral sedatives approved for veterinary use. Today, there are recommendations for other medications such as trazadone, gabapentin, alprazolam and clonidine. These medications are not approved for animal use and are used off label. There are few, if any, documented studies of how any of these drugs affect behavior.

It is, therefore, important to know your drugs and how effective they are for modifying specific behaviors. Trazadone is a popular drug to reduce physical activity, but it’s not a sedative. In other words, it will not by itself prevent a dog from lunging up to bite you. Alprazolam will help reduce fear but may disinhibit aggression. When prescribing these medications, tell the client why you’ve chosen a certain drug and what they should expect as the response. It’s best to have the client give a trial dose to see the effect on the animal.

Why clients might be resistant
Some pet owners are resistant to pre-visit medications, for a variety of reasons. Many have been prescribed the same drugs we would like to use for their pet, and if the client didn’t like how the medication made them feel, they’ll naturally be concerned that their pet will have the same experience. Asking a client to sign a waiver for off-label drug use can also cause concern. And some clients simply don’t want their pet to be affected for hours when the medication is needed for just a 15-minute appointment.

Take the time to ask the client why they’re hesitant about a medication. Listen more than you speak. Then suggest an option that addresses what they’re fearful about. For example, if the client is afraid of how the medication will affect the pet, offer day care and give the trial dose at the clinic. You can observe the response, take a video to show the client — you may be able to provide the care that day as well. You can also empathize with clients who worry their pet will feel as weird as they did on a particular medication. Discuss the differences in animal and human metabolism.

It’s possible you may not have an answer to the client’s specific fear. Even so, you’ll often influence someone to take your recommendation just by listening attentively and compassionately.

A plan for minimizing medications — with limits
So, what should you do if the client is still resistant after that initial conversation? The first step is to follow low-stress care practices strictly. Understand the handling techniques, including how to recognize triggers immediately and eliminate or reduce them. Early use of pheromones and transmucosal pain medication or topical anesthetic will work quickly to reduce aggression and anxiety. (Even drug-resistant clients often accept these forms of medication as they are immediate, short-acting and local to the source of pain.)

Be sure to verbalize what you’re seeing in the animal’s response to touch and examination. This is how you educate your client about your efforts both to reduce stress and to recognize the body language of stress in our patients.

In my practice, about 85% of patients experience reduced signs of anxiety and aggression without needing medication when we follow the principles of Low Stress Handling. The remaining 15% still need medication or supplements to provide mental calming. Verbalizing what we see, and pet owners’ witnessing our adaptation to the patient to reduce the stress, helps our clients understand why medications or supplements are still needed for care.

But many of my clients are still drug-resistant. Why? It may be the rural, small-town, conservative approach to life here in Tuscola, Illinois, where I live. Many farmers tough out injuries, so why can’t their animals do the same?

In these cases I often find that a supplement will overcome the client’s drug resistance and reduce anxiety and mild aggression in the patient. Supplements do not have the potential side effects that a drug would, won’t cause disinhibition of aggression and are more readily accepted by the client than a prescription drug.
Defining fear language
Fear-related negative welfare states in dogs can be difficult to differentiate. Barbara Sherman, MS, PhD, DVM, DACVB, DACAW, recently retired clinical professor emerita at North Carolina State University, describes these related terms:

• **Fear** is an emotion of alarm and agitation caused by a real or threatened danger. Fear in animals is manifest by physiologic responses, (e.g., tachycardia, hypersalivation, elimination) and behavioral responses associated with escape, avoidance or defensive-ness. Fear reactions occur in response to the presence or proximity of an object, individual or social situation.

• **Anxiety** is a reaction to an unreal or imagined danger or uncertainty. Its effects include both physiologic signs (e.g., increased respiratory and heart rates, vasomotor changes, trembling or paralysis, increased salivation or sweating, gastrointestinal disturbances) as well as behavioral signs (e.g., immobility, pacing, circling, restlessness, reluctance to eat).

• **Stress** describes a state of chronic anxiety and distress that impairs normal functioning and competence. It is characterized by increased heart and respiratory rates, and may be associated with frustration, fatigue, agitation and an inability to relax.

• **A phobia** is a marked, persistent and excessive fear of clearly discernible, circumscribed objects or situations. Exposure to a phobic stimulus almost invariably provokes an immediate anxiety or fear response. The response may take the form of a situationally-bound or situationally predisposed “panic attack.” Phobias often lead to avoidance behavior.

We also create a clear, specific outline on how the client should prepare for the exam. Scheduling appointments during a quiet time in the practice, fasting the patient and bringing its favorite treat along are all important components of the plan.

But there are still a handful of patients who need medication for their welfare and ours. The supplements and plan are not enough to prevent bite risk. And this is where I draw the line on drug-resistant clients — when either patient or staff safety is at risk. If a dog or cat is struggling, urinating or cowering despite receiving less-stressful veterinary care, I will stop everything and require my staff to stop as well. I tell the client that this experience is harming the patient’s heart and joints and creating a firm memory indicating that it needs to stay panicked or aggressive.

If the client still will not accept the need for medication, then I refuse care. I often mention the $350,000 average educational cost to create a DVM or $50,000 cost to create a licensed technician and note that my practice cannot afford to lose either. At this point, many clients agree to use the medications. If they don’t, I refer them to a house call veterinarian.

In conclusion
We cannot force our clients to take our recommendations. We can ask why they are resistant and listen. We can think of ways to address the fears. In the end, my own negotiating position was this: The less medication I was allowed to use, the more I needed the client to cooperate by bringing in a prepared patient, scheduling when it was best for the pet (not the human), and being flexible with unusual areas for exams, such as outside behind the dumpster.

We should not use medications as an excuse not to expand our Low Stress Handling knowledge. But creative, empathetic use of both less-stressful care and appropriate medications can help reduce client drug resistance.

REFERENCES

Dr. Sally J. Foote is a certified animal behavior consultant with expertise in Low Stress Handling. She has practiced in general medicine for over 30 years, including ownership of Okaw Veterinary Clinic in Tuscola, Illinois, one of the first U.S. clinics certified in Low Stress Handling, where she developed a medical record system for recording the positive reinforcers for the veterinary exam. Dr. Foote is also past president of the American Veterinary Society of Animal Behavior and executive director of Cattle Dog Publishing, the legacy of Dr. Sophia Yin.
Diagnosis and management of gastrointestinal motility disorders

GI motility disorders are a diagnostic and therapeutic challenge for many practitioners. Here’s how to narrow down the affected area so you can identify the cause and provide appropriate treatment.

By Albert E. Jergens, DVM, PhD, DACVIM, AGAF

Gastrointestinal (GI) motility disturbances are widely underrecognized in dogs and cats, primarily because we do not have good tools to diagnose them. Delayed transit disorders are suspected commonly by clinicians and may involve the esophagus (megaeosophagus and dysmotility), stomach (delayed gastric emptying), small intestine (postoperative ileus and pseudo-obstruction) or colon (constipation and megacolon).

This two-part article discusses general causes of GI motility disorders affecting the esophagus to the colon, and offers insight for appropriate diagnostic evaluation and treatment options for these disturbances. This article covers the GI tract as a whole; a second article, to be published next month, will focus on esophageal diseases that cause motility disturbances.

Gastric diseases and hypomotility

Vomiting is the predominant clinical sign in dogs and cats with gastric motility disorders. Gastric mucosal disorders may cause motility disturbances due to hypomotility or pyloric outflow obstruction. The most common causes of outflow obstruction are foreign bodies and/or intraluminal masses (e.g., mucosal and/or muscular proliferative diseases), whereas infiltrative diseases may cause generalized hypomotility. Gastric dilatation and volvulus may also cause outflow obstruction but is not further discussed here. Gastric hypomotility and defective propulsion may also be associated with diverse inflammatory conditions and metabolic/systemic diseases (e.g., gastritis, ulceration/erosions, pancreatitis, hypokalemia, hypocalcemia, hypoadrenocorticism).

Gastric retention (i.e., retained gastric contents eight to 10 hours after meal ingestion) has two causes: gastric hypomotility and pyloric outflow obstruction. With pyloric outflow obstruction due to foreign bodies (Figure 1), which is especially common in young animals, an acute onset of vomiting typically occurs. These patients may have pain in the cranial abdomen on physical examination. Clinicians should take the time to rule in or out a foreign body with a diagnostic workup that includes abdominal imaging (survey radiographs for radiodense objects), with barium contrast if necessary to demonstrate a filling defect if the object cannot be visualized on survey radiographs (Figure 2). Contrast radiography can be beneficial if ultrasound is unavailable or unrewarding. Gastroscopy is useful to confirm the cause of obstruction and can aid in removing the obstructing object and/or sampling mass lesions via exfoliative cytology or forceps biopsy (Figure 3).

With infiltrative disease (e.g., nonspecific chronic gastritis, IBD), intermittent episodes of vomiting food and bile, hematemesis, melena, abdominal discomfort and weight loss may occur. In patients with chronic gastritis, retained gastric fluids and ingesta noted on gastroscopy may be a clue that a concurrent motility disturbance is present (Figure 4).

Keep in mind that gastric motility disturbances other than mechanical obstruction (e.g., delayed gastric emptying) have diverse causes, including mucosal inflammation (e.g., chronic gastritis, IBD), infection (gastric Helicobacter spp) and dysmotility of unknown cause. Delayed gastric emptying has also been associated with numerous secondary conditions, including hypokalemia, metabolic disorders (e.g., Addison’s disease, uremia, diabetes mellitus), use of concurrent drugs (e.g., anticholinergics) and acute abdominal inflammation.

Treatment of gastric motility disorders is as follows:
- **Mechanical obstruction**: gastric polyp (polypectomy), tumor (biopsy/gastrectomy +/- chemotherapy), foreign body (endoscopic/surgical removal)
- **Gastric emptying disorders**: inflammation/IBD (hydrolyzed diet +/- prednisone), infection (antibiotics), idiopathic (hydrolyzed/ultra-low-fat diet + prokinetic drugs [e.g., cisapride, ranitidine, erythromycin])
As noted earlier, it can be difficult to document motility disturbances due to inadequate diagnostic tools that yield variable results. For example, methods to measure intestinal transit may include barium contrast studies (with or without food), ultrasonography (very operator dependent) and wireless motility capsule. If a structural disorder (e.g., mechanical obstruction) is suspected, it is advisable to start with survey abdominal radiography followed by contrast radiography to rule out specific intestinal diseases. Ultimately, the key to clinical remission is identifying and treating the underlying disease process. Enteroscopy may be useful for removal of proximal duodenal foreign bodies (Figure 5).

Clinical signs suggestive of small intestinal diarrhea include large stool volume, watery diarrhea, fetid smell, presence of melena and systemic signs (hyporexemia, ravenous appetite and/or weight loss); whereas normal stool volume, hematochezia, mucoid stools and/or frequent attempts to defecate are most characteristic of large intestinal diarrhea.

**Intestinal obstruction**

Obstruction of the small intestine is a common reason for dysmotility,
especially with luminal foreign bodies. While these objects can lodge anywhere along the small or large intestine, many are diagnosed as lodged jejunal foreign bodies. Linear foreign bodies cause obstruction because of their ability to gather/pleat the intestine to cause partial or complete obstruction, and potential perforation, if not resolved. Intussusception in younger dogs and cats (< 1 year of age) can also cause bowel obstruction.

Patients with complete intestinal obstruction often present with acute signs of vomiting, whereas chronic clinical signs (vomiting, diarrhea hyporexia and/or weight loss) are most consistent with chronic obstructive disorders. Other causes of intestinal dysmotility include dysautonomia, postoperative ileus, viral enteritis, opioid-induced dysmotility and the rarely occurring idiopathic pseudo-obstruction (i.e., intestinal dilation with no evidence of mechanical obstruction).

**Parvovirus**

Canine parvovirus can cause hypomotility (functional ileus) of the small intestine as a consequence of severe intestinal inflammation or necrosis secondary to viral infection. Because parvovirus is viral in origin, the mainstay of therapy is supportive care. By supplementing nutrition, correcting hydration and providing other supportive measures (e.g., anti-emetic therapy), motility disturbances and clinical remission can be addressed adequately. With infiltrative disease, such as IBD, alimentary lymphoma and GI histoplasmosis, obtaining mucosal biopsies will generally yield a definitive diagnosis and the need for specific therapy.

**Constipation and megacolon**

Colonic motility disturbances are characterized predominantly by constipation and megacolon. Constipation denotes infrequent or difficult defecation with the passage of dry feces. The causes of constipation are numerous and include intra- or extraluminal mechanical obstruction (bones, hair, neoplasia, pelvic fracture), neuromuscular dysfunction (lumbosacral disease, dysautonomia), metabolic/endocrine disease (hypokalemia, hypothyroidism) and medications (opioids, anticholinergics).

Megacolon is characterized by excessive colonic dilation thought to be associated with functional disturbances in colonic smooth muscle. Treatment for colonic dysmotility is aimed at removing the underlying cause; adding dietary fiber; using enemas, stool softeners, and manual extraction of hard feces; and administering promotility drugs (cisapride, erythromycin, misoprostil). When mass lesions present in the colon are causing partial obstruction, the main differentials are adenocarcinoma and inflammatory polyp, both of which usually can be removed (surgically or via endoscopy) without further complications.

**Medical therapy for GI motility disturbances**

The primary drug choices for GI motility disorders include agents that stimulate intestinal smooth muscle. These include cisapride, metoclopramide, erythromycin, ranitidine and misoprostol, each of which has a different mechanism of action. For gastroesophageal reflux and gastric hypomotility, metoclopramide (a dopamine antagonist) and cisapride (a serotonin 5-HT [hydroxytryptamine] agonist) are the primary therapeutic choices because they promote gastric emptying and increase lower esophageal sphincter tone to prevent reflux. Metoclopramide will have limited effect distal to the pylorus but will likely facilitate gastric contractions and movement of fluid/ingesta through the pylorus. Because cisapride affects the smooth muscle of the entire GI tract, it may be beneficial in treating different causes of hypomotility involving the stomach and intestines.

For small intestinal dysmotility, cisapride, ranitidine and erythromycin are good treatment options. Ranitidine is a histamine 2 antagonist but has prokinetic activity, especially when treating small intestinal hypomotility. Erythromycin works through motilin-like activity and has prokinetic activity at sub-antimicrobial doses; it is also useful for stimulating smooth muscle of the small intestine. Occasionally, dogs with small intestinal IBD that are experiencing continued diarrhea despite diet and immunosuppressive therapy will respond to a promotility drug, suggesting that infiltrative diseases are associated with dysmotility. A suggested trial period of four to six weeks is recommended in these cases.

For colonic dysmotility/constipation, cisapride is recommended as a first choice agent. Unfortunately, there are few effective promotility medication options for stimulating colonic motility. Pilot study data suggest that misoprostol following meal ingestion may stimulate colonic motility in dogs.1

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**REFERENCE**


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Dr. Jergens is an internist and holds the Donn E. and Beth M. Bacon Professorship in Small Animal Medicine and Surgery, and serves as associate chair for research and graduate studies in the Department of Veterinary Clinical Sciences at Iowa State University College of Veterinary Medicine.
Managing immune-mediated hemolytic anemia

Best practices for short- and long-term therapy, as well as monitoring, in patients with IMHA.

By Carla Johnson, DVM

Immune-mediated hemolytic anemia (IMHA) is far from a simple disease with a straightforward treatment plan. Difficult to treat and confusing to manage over time, this disease has many clinicians referring patients to internists for both short- and long-term management. The difficulties may be due largely to the fact that each patient is so different in how they present, how the disease progresses, how they respond to treatment and how they fare over the long term:

- **How they present:** A patient with IMHA may present clinically normal with abnormal routine lab work, or may come in nearly dead.
- **How they progress:** A dog with questionable bloodwork can crash in a hemolytic crisis within 24 hours after a normal physical exam.
- **How they respond to treatment:** The protocol that keeps one dog alive can appear to be useless for another patient, or a protocol that worked initially can appear ineffective after a relapse.
- **How they do long term:** One dog never relapses, the next never seems to stop relapsing or ever get out of its initial crisis.

At a recent Fetch dvm360 conference, Elisa Mazzaferro, MS, DVM, PhD, DACVECC, a criticalist at Cornell University Veterinary Specialists and adjunct associate clinical professor at Cornell University College of Veterinary
Mazzaferro will start a second treatment, or in severe cases that require multiple transfusions, Dr. Mazzaferro noted that “at this time, there are no studies to support combination therapy of other immunosuppressive agents with glucocorticoids versus administration of glucocorticoids alone.” According to the American College of Veterinary Internal Medicine guidelines for treating IMHA, a second drug may be added if the patient is very severely affected on presentation, packed cell volume does not stabilize within seven days, the dog continues to be transfusion dependent over seven days or the patient is having severe adverse effects from steroids. The choice of which drug to add may be based on several factors:

- How quickly you want the second drug to start working (i.e., how quickly you want to start weaning prednisone or how quickly you want the immune system suppressed — maybe faster with a severely affected cocker spaniel, for example)
- What is available
- Cost
- What the internist you consult with recommends

**Glucocorticoids and other immunosuppressive agents**

“Steroids, steroids, and more steroids”—this is the one and only proven treatment, and sometimes it is the only immunosuppressive treatment chosen, Dr. Mazzaferro said, adding that “you cannot skip steroids, but you will need to wean them sooner or later and you may need to add a second drug.” The current recommended dose for prednisone (or prednisolone) is 1 to 2 mg/kg/day, divided (it is no longer 2-4 mg/kg/day). With vomiting animals, you can start with injections of dexamethasone sodium phosphate at about 0.1 to 0.2 mg/kg IV every 12 hours, which is roughly equivalent to the prednisone dose.

If there is proof of autoagglutination, or in severe cases that require multiple transfusions, Dr. Mazzaferro will start a second immunosuppressive drug and thromboprophylactic therapy right away, but when to do this is not clear from the literature (see Is combination therapy effective?). None of the drugs below have proven efficacy by themselves in patients with IMHA:

- **Cyclosporine** suppresses T cells and inflammatory cytokines and has a rapid onset; the dose is 5 to 10 mg/kg PO every 12 hours. Side effects include infections, gingival hyperplasia and, occasionally, renal or liver toxicity.
- Azathioprine suppresses T-cell function, and takes one to two weeks to start working; the dose is 2 mg/kg/day PO for five to seven days and then every other day. It can cause vomiting, diarrhea, pancreatitis and myelosuppression.
- Mycophenolate inhibits T and B cells, and inhibits B-cell antibodies; the dose is 10 mg/kg/day PO or IV. This drug has variable bioavailability, and can cause lethargy, vomiting, diarrhea, lymphopenia and pyoderma.
- **Leflunomide**, a newer agent, blocks both T and B cells; the dose is 2 to 4 mg/kg/day PO. Side effects include vomiting, diarrhea and bone marrow suppression. (Leflunomide is not used commonly — consult with your local internist.)

**Transfusions**

If your patient is symptomatic for anemia (weak, pale, elevated respiratory rate or heart rate), or the packed cell volume (PCV) is 13% or lower, immediate transfusion is required. This will likely need to be done at a 24-hour care facility using the freshest packed red blood cells (RBCs) available.

Note that cross-matching can be difficult for dogs that are already macroagglutinating, but the RapidVet-H cross-match kit (DMS Laboratories) is not supposed to be affected by this. If the dog has never had a transfusion, it can be done without cross-matching. If the patient is four days or more out from a recent transfusion, you must cross-match as they may have started making antibodies against foreign RBCs already.

**Other medical therapies**

Several other medications can also be used to treat IMHA. Crystalloids (ideally, intravenous fluids) can help flush out bilirubin, which can be nephrotoxic. >>
An estimated 50% to 80% of dogs with IMHA develop life-threatening thromboembolic complications. Steroids are pro-coagulable, and the systemic inflammation from hemolysis can trigger clots, consumption of clotting factors and other clotting dyscrasias. To prevent these complications, patients should be started on one of the following anticoagulant drugs:

- *Aspirin:* 0.5-1 mg/kg/day PO (can be compounded for small dogs) Dr. Mazzaferro noted that this dose is largely ineffective as an antiplatelet drug in dogs, but this is the “recommended” dose.
- *Clopidogrel:* 10 mg/kg/day PO
- *Rivaroxaban:* 0.8 mg/kg/day PO
- *Unfractionated heparin:* may not widely used or recommended at this time
- *Fractionated heparin (enoxaparin):* 0.8 mg/kg SC every six to eight hours, with dose adjustments based on anti–factor Xa activity measurements, so it is not widely used or recommended at this time

Gastrointestinal protectants, such as proton pump inhibitors, histamine blockers, anti-emetics and/or sucralfate, may also be considered for these patients.

Dr. Mazzaferro prefers to start doxycycline empirically at 5 to 10 mg/kg every 12 to 24 hours in all patients with IMHA. She will stop if there are signs of gastrointestinal upset and restart it later if indicated by the infectious disease panel. Doxycycline can be discontinued if an infectious cause is no longer suspected.

### Monitoring and long-term therapy

These are tailored to the individual patient and also guided by clinician preference. Monitoring and long-term treatment can get complicated, but here are some basic guidelines.

Once the patient is out of the hospital, recheck the PCV/total protein every seven to 14 days initially, then every two to four weeks, and do blood smears and a full complete blood cell count (CBC) as often as owners will allow. Each CBC should have an add-on review by a pathologist.

Taper the prednisone when (1) PCV has risen to a normal level, (2) there are no longer any reticulocytes or evidence of regeneration, and (3) all of the spherocytes and abnormal RBCs (including nucleated RBCs) are gone from the comprehensive CBC with a pathologist’s review. (You can roughly monitor in-house with cytology if you are skilled, Dr. Mazzaferro said, but send blood to the lab for confirmation that everything has normalized.)

Do not taper too hastily. Decrease prednisone by 25% and then recheck every three to four weeks. If the pathologist’s review reveals ongoing evidence of IMHA (spherocytes, reticulocytes, anemia, abnormal blood cells or recurrence of anemia), increase the prednisone dose. If CBCs remain normal with no evidence of reticulocytosis or spherocytosis, lower the dose by another 25% of the original dose every four to six weeks.

Wean steroids in total over three to six months, and be aware that relapse can occur at any time. In the face of an altered immune system, regularly check for urinary tract and skin infections, and treat these based on culture and sensitivity results.

Stop the anticoagulant therapy when prednisone is stopped.

If using adjunctive cyclosporine, start to decrease it in the same way as the prednisone, at about 20 weeks out, and check lab work monthly.

### Summary

Due to patient variability, there will be many exceptions to these guidelines. More often than not, Dr. Mazzaferro says, you will seek a consultation with or refer to an internal medicine specialist — and you should. With a complicated disease, however, having some simplification allows us to manage a good portion of the care, helps us catch relapses and diagnose the disease on initial presentation, and allows us to our part in co-managing these cases. Maybe we can save more of them.

**REFERENCES**


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By Amanda Joslin, DVM, DACVO

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ANSWER: B, indolent corneal ulcer

Also known as spontaneous chronic corneal epithelial defects, indolent corneal ulcers are superficial, non-infected corneal epithelial defects that fail to resolve through the normal wound-healing process. These defects can be a result of any breed at any age. Over 8 to 9 years, but boxers can be affected as early as age of affected dogs is over 8. The condition is mostly impacted by eyelid abnormalities (e.g., entropion, ectropion, step defect from previous trauma or surgery), foreign body, abnormal hairs (e.g., distichia, trichiasis, ectopic cilia), or deficient tear film or conformational issues (e.g., protrusion, ectropion, step defect from previous trauma or surgery).


What is wrong with this middle-aged dog’s eye?

A. Pannus
B. Indolent corneal ulcer
C. Descemetocoele
D. Proptosis

ANSWER: B, Indolent corneal ulcer

The indolent corneal ulcer is fluorescently stained negative. If no debridement is performed, the corneal ulcer is flourescently stained until negative. An topical antibiotic is required until the ulcer clears. Grid keratotomy or anterior stromal puncture can be performed to identify any ulcer. Eyelid abnormalities involving the corneal surface should be performed to identify any ulcer. Eyelid abnormalities involving the corneal surface should be treated.

In all cases, a thorough ophthalmic examination should be performed to identify any ulcer. Eyelid abnormalities involving the corneal surface should be treated.

Dr. Joslin earned her DVM degree from Oklahoma State University in 2013 and became a diplomate of the American College of Veterinary Ophthalmologists in 2018. She practices at Mount Laurel Animal Hospital in Mount Laurel, New Jersey.
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