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Common immune-mediated skin diseases in dogs and cats



By Karri Beck, DVM, Diplomate ACVD

While immune-mediated skin diseases are not commonly encountered in veterinary medicine, most practitioners will see an affected patient at some point in their careers. Since they can cause significant discomfort to the animal, and grief for the owner, it is important for veterinarians to gain a basic understanding of how to recognize, diagnose, and treat the more commonly encountered diseases.

Pemphigus foliaceus

Pemphigus foliaceus (PF) is the most common autoimmune skin condition in dogs and cats, characterized by pustules, erosions, and crusts.

Skin diseases continues on page 5



Dr. Kelly McInnis with Vincent. Merck Animal Health, Halifax, NS

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Canadian Veterinary Medical
Association Convention,
Charlottetown, PEI

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The cage-side emergency abdominal ultrasound that you can perform FAST!

CHARLOTTETOWN, PEI – Traditionally, the presence of abdominal fluid in trauma patients was assessed using abdominocentesis and radiography. But more recently, emergency patients are being evaluated for intra-abdominal trauma using abdominal focused assessment with sonography for trauma (AFAST). Speaking at the Canadian Veterinary Medical Association Convention, Søren Boysen, DVM, DACVECC, explained that serial AFAST examinations may detect delayed fluid accumulations and can be used to monitor progression or resolution of free fluid accumulations over time. Although originally developed to assess blunt and penetrating trauma, AFAST is now becoming standard of care for all emergent/critical care situations in which an underlying cause is not readily apparent, particularly if the patient is unstable.

Indications for using AFAST

- Any patient with blunt trauma, particularly those that are critical and/or unstable, that have a refractometer total protein reading of less than 60 g/L and/or a

Abdominal ultrasound continues on page 6

Glaucoma in dogs and cats – early intervention is critical

CHARLOTTETOWN, PEI – Glaucoma is an increase in intraocular pressure (IOP) with associated visual deficits. In most cases in dogs and cats, it is caused by an obstruction or stenosis of the aqueous humor outflow pathways. Dennis Brooks, DVM, PhD, DAVCO, speaking at the Canadian Veterinary Medical Association Convention, said that detecting early subtle disturbances of glaucoma and effectively treating it is a challenge for veterinarians. Since delayed or inadequate therapy can lead to irreversible blindness and a painful, cosmetically unacceptable eye, a thorough understanding of the disease, and early intervention and treatment, is critical.

IOP – a fine balance

Aqueous humor is produced in the ciliary body by active secretion and ultrafiltration of plasma. Dr. Brooks explained that in healthy dogs and cats, the balance between formation and drainage of aqueous humor maintains IOP within a normal range of approximately 15 to 25 mm Hg. Most of the aqueous humor flows from the posterior chamber, through the pupil, to the anterior chamber, and exits at the

Glaucoma continues on page 10



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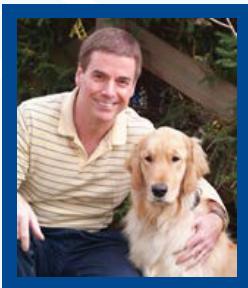
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Joseph C. Wolfer
DVM, DACVO
Toronto, ON



NEWMAGAZINE FOR VETERINARIANS ACROSS CANADA



Karen Tousignant
Publisher, Director of Sales
karen@k2publishing.ca



Shelagh Ross
Managing Editor
shelagh@k2publishing.ca



Jason Praskey
Art Director
praskeydesign@gmail.com

Other information, including change of address: info@k2publishing.ca

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VetLaw

Good ethics make good business:
ethically-based management decisions

Matters that are referred to provincial veterinary complaints and disciplinary committees of regulatory authorities generally fall into two categories: problems with substantive standards of practice (such as failing to make an appropriate diagnosis, or surgical mistakes) and those relating to ethical conduct (for example, making a misrepresentation to a client or colleague). Very often the panels of your peers reviewing your conduct, while reviewing both types of allegations thoughtfully, are more troubled by ethically-based concerns: in such cases, not only is the practitioner alleged to be a “bad veterinarian”, but also a “bad person”. As such, adopting a clinic-wide protocol of engaging in highly ethical conduct will often result in avoiding such allegations, along with offering a number of other business benefits.

Ethically-based decisions

Members of the veterinary profession participate in a self-governed regulatory regime administered by provincial authorities. The public interest is protected not through state intervention but through protocols for the receipt, investigation and, where appropriate, disciplinary proceedings arising from concerns typically expressed by clients. While “unprofessional conduct” or “professional misconduct” definitions differ from province-to-province, all veterinary regulatory authorities are empowered to impose sanctions for unethical conduct demonstrated by veterinarians and those over which he or she has control. The prudent practitioner will have a clear understanding of the tenets of professionalism and strictly adhere to those notions.

Professionalism is demonstrated through a number of ethical characteristics: the willingness to put the client’s interests above those of the professional; the acceptance of responsibility and accountability; demonstrating compassion and understanding for clients of diverse backgrounds; avoiding conflicts of interest; adopting plans for continuing education to ensure competence; respecting fellow members of the profession and clients; accepting the jurisdiction and co-operating with the regulatory authorities; and, generally, presenting oneself with honesty, transparency, good character, and integrity. If one makes business decisions with these tenets of professionalism in mind then there is a high likelihood that one can avoid disciplinary proceedings for ethically-based concerns of clients.

The business benefits

While there is no doubt that conducting oneself in an ethical manner will assist in both avoiding and defending complaints raised by the public, a March, 2016 article published by *The Law Insider* (www.thelawroom.com, www.thelawinsider.com/media/legaltech-media/good-ethics-are-good-for-business) points to the tangible business benefits arising from

adopting ethically-based decisions. Pointing to the recent Volkswagen scandal involving planned efforts to defeat fuel emissions testing protocols, the presence of a “scandal” in the clinic may result in driving existing clients away and difficulty in attracting new ones. The authors of the article also point to the difficulty in attracting and retaining new professional talent. The 2015 Deloitte Millennial Study indicates that the current candidate pool from which new associates will be hired places a high value on ethical conduct: “87% of millennials worldwide agreed that ‘the success of a business should be measured in terms of more than just its financial performance. 25% of millennials thought ethics, trust, integrity, and honesty were the most important values a business should follow if it is to have long-term success.’” Only about 5% thought focussing on profit would propel organizations to long-term success.

Adopting ethical decision-making processes is likely to result in having a more viable and profitable veterinary clinic. If one can avoid the time, stress, and cost associated with defending one’s actions before a discipline panel, then presumably the practice will be more successful. Avoiding scandalous conduct will help in retaining and developing a significant client base and ensure that you can attract new associates to assist with practice succession planning.

Having appeared in countless disciplinary proceedings and assisted practitioners nationally in responding to investigations of complaints, I suggest that there are some recurring acts that can easily be avoided in order to assist in making more prudent business decisions:

1. When an unexpected event occurs with a patient (for instance, an anesthetic death), be candid and honest with the client, and ensure that the unaltered medical records accurately reflect the circumstances of the event;
2. Treat your clients and colleagues with respect; respond professionally and with tact to all inquiries made of the clinic; avoid the solicitation of clients and efforts to belittle the reputation of competitors;
3. Adopt the “golden rule” (as referenced specifically in the Prince Edward Island bylaws - <http://peivma.com/peivma-legislation-and-bylaws>);
4. Treat your regulatory authority with respect and respond candidly and on a timely basis to inquiries made by it; and,
5. Adopt a plan for continuing education to ensure that your technical competence is maintained.

Ethical decision-making results not only in tangible benefits, but also a significantly more pleasant work environment.



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The condition involves the production of antibodies that target various proteins comprising the desmosomes, the intercellular connections that link epidermal keratinocytes together. The destruction of the desmosomes results in the separation of keratinocytes, and these round dark staining cells are referred to as acantholytic keratinocytes.

While most cases of PF are idiopathic, there appears to be a genetic predisposition with a higher incidence of PF in certain breeds, including the akita, chow, cocker spaniel, Doberman, and others. UV light may be involved in some cases, which may account for some seasonal variations. Since drugs may trigger pemphigus, a thorough drug history should be collected. PF most commonly affects middle-aged dogs, and may occur more often in allergic dogs or dogs with a history of chronic dermatitis.

Pemphigus results in a pustular dermatitis usually associated with honey coloured crusts, which mimics a bacterial pyoderma. However, in PF the pustules are often large, irregular, and coalescing. The distribution often differs from pyoderma with the face, pinnae, and footpads commonly involved. Pruritus is variable, and is more likely due to pyoderma arising secondary to PF. Pemphigus will often start on the face and then become generalized.



The major differential is bacterial pyoderma, with *Trichophyton*, demodicosis, and pustular drug reactions as other possibilities. In cats with claw bed involvement, other causes of paronychia should be considered, such as bacterial paronychia, fungal, and bronchogenic carcinomas.



Diagnosis

Cytology of an intact pustule or of the skin beneath a crust will have a variable number of acantholytic keratinocytes, which appear as large, rounded, basophilic, nucleated keratinocytes. A definitive diagnosis is obtained by skin biopsy. Fungal and bacterial cultures should be performed to rule out other causes of acantholysis. Antibiotic treatment for at least a couple weeks prior to biopsy should be considered.



Treatment

Glucocorticoids are the cornerstone of treatment, with prednisone or prednisolone used most commonly. Starting doses are typically 2-4 mg/kg/day. Methylprednisolone may be considered if side effects of prednisone are unacceptable. In cats, prednisolone should be used rather than prednisone due to the reduced bioavailability of prednisone; dexamethasone may be more effective in some cases.

Steroids are usually tapered by about 25% every 4-6 weeks, monitoring closely for signs of relapse. Maintenance doses may be in the range of 0.5-1 mg/kg every other day.

Azathioprine is usually the second choice in dogs, requiring regular monitoring. A CBC biweekly and biochemical profile every 2-4 weeks should be performed during initial therapy.

In cats with PF that fail to respond to glucocorticoids, chlorambucil has been the most common drug added. CBCs should be checked biweekly for one month, then 4 weeks later, then quarterly. Biochemical profiles should be considered where indicated. Although cyclosporine has variable success in treating canine PF, a good response was reported in one small study treating cats with PF.

Topical tacrolimus may be helpful for localized or few stubborn lesions. High-dose pulse oral or intravenous glucocorticoid administration has been reported to treat refractory cases of PF in dogs.

Prognosis for canine PF is guarded. Many dogs experience side effects due to the high doses of immunosuppressive medications required in

Examples of pemphigus foliaceus



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some cases. Once dogs are on maintenance doses of drugs, their prognosis improves significantly. Cats with PF have a fair to good prognosis, often responding to steroids alone.

Discoid lupus erythematosus

Discoid lupus erythematosus (DLE) or cutaneous lupus is another common immune-mediated disease in the dog, and extremely rare in cats. The exact pathogenesis is unknown, but there is a definite exacerbation of clinical signs when exposed to UV light. Breed predisposition exists; collies, shelties, shepherds, and huskies are most commonly affected.

DLE is generally localized to the nasal planum, initially starting as depigmentation, erythema, and loss of the normal cobblestone appearance. Scaling, erosions, and ulcers may follow. In some dogs, the disease will affect other mucous membranes such as the lips, eyelids, and genitals. The ear pinna and distal extremities are occasionally affected.

Diagnosis

Histopathology reveals an interface pattern with apoptotic cells in the basal layer at the epidermal-dermal junction. A lichenoid band comprised of inflammatory cells is usually present. DLE will appear similar to the cutaneous signs that may be found with systemic lupus, but lack the systemic manifestations and dogs are ANA negative. Mucocutaneous pyoderma and cutaneous T cell lymphoma, which often affects the nasal planum, may appear identical to DLE.

Treatment

Because mucocutaneous pyoderma can appear identical to DLE and the two diseases are very difficult to distinguish histopathologically, treating with antibiotics several weeks prior to biopsy is recommended. If the condition resolves with antibiotics alone, a biopsy may no longer be needed and a diagnosis of mucocutaneous pyoderma may be made.

Topical tacrolimus with or without systemic tetracycline (or doxycycline) and niacinamide is the treatment of choice in many cases. Vitamin E and omega 3/6 fatty acids may be beneficial. Intense sunlight should be avoided and topical sunscreens can be applied. Refractory cases can be treated with systemic steroids or other immunosuppressive medications to induce remission. Hydroxychloroquine and cyclosporine have been reported as effective treatments in the more generalized variant. The prognosis for DLE overall is quite good.



Examples of discoid lupus erythematosus

Symmetric lupoid onychitis

Lupoid onychitis, also known as symmetric lupoid onychodystrophy (SLO), is an immune-mediated disease that affects multiple digits on multiple paws. It results in separation of the hard keratin claw from the nail bed, splitting

and sloughing of claws, and regrowth of misshapen brittle claws. The cause and pathogenesis is unknown and is likely multifactorial.

Lupoid onychitis usually affects young to middle aged dogs, particularly large breeds. Typically, the presenting complaint is a torn nail and trauma will be suspected. Within a few months most, if not all, claws are affected.

Clinical signs include hemorrhage from broken claws; purulent discharge and a paronychia may be visible in acute cases at the claw bed, and onycholysis and onychomadesis may occur. After the claws have sloughed, regrowth is characterized by short, misshapen, dry, or brittle claws. Secondary bacterial or even *Malassezia* infection may be present. Some dogs are painful and lame.



Examples of symmetric lupoid onychitis

Diagnosis

Because SLO is one of the only diseases that affects multiple claws on multiple paws without other cutaneous signs, a biopsy is not considered mandatory for a diagnosis.

Some investigation for underlying etiologies should be pursued. Although most cases are idiopathic, a thyroid profile should be considered and a food trial may be performed if there is a poor response to initial treatment.

Treatment

Tetracycline with niacinamide is the treatment of choice. Pentoxifylline may be added if there is not a sufficient response. All dogs should be put on an omega 3/6 fatty acid supplement and vitamin E can be added. In more severe cases or if there is a poor response to initial treatment, oral steroids can be used. The claws should be trimmed to reduce the likelihood of breakage.

The prognosis for SLO is generally good, although these dogs will usually never have normal claws. The goal of treatment is that the claws become stronger and are no longer breaking, causing discomfort. Lifetime treatment is usually required.

Dr. Karri Beck received her veterinary medicine degree from the Ontario Veterinary College in 1996. After spending 14 years in general small animal practice, she became board certified by the American College of Veterinary Dermatology. Her research on methicillin-resistant Staphylococcal infections was published in the journal Veterinary Dermatology. Dr. Beck works out of the VCA 404 Veterinary Emergency and Referral Hospital and Veterinary Emergency Clinic of Toronto.

This article is based on Dr. Beck's presentation at the Canadian Veterinary Medical Association Convention in Charlottetown, PEI.

Abdominal ultrasound *continued from page 1*

decreased PCV, an elevated serum alanine transaminase (ALT), and/or pelvic fractures, have a high probability of being AFAST-positive

- Any patient with penetrating abdominal trauma
- Any patient in which intra-abdominal free fluid is suspected
- Any collapsed and/or unstable patient regardless of trauma, particularly if the underlying cause is uncertain
- Any patient with acute abdomen/abdominal pain
- Any patient with anemia of unexplained origin, particularly if compensatory tachycardia is present
- Any patient with a fever of unexplained origin
- Post-surgical patients that become unstable or in whom there is a concern for bleeding or risk of dehiscence/peritonitis

Serial AFAST exams are warranted to monitor progression/resolution of intra-abdominal fluid in AFAST positive patients, and re-assess AFAST negative patients, particularly those that remain or become unstable, and/or have received significant quantities of intravascular fluids. Dr. Boysen noted that since not all trauma-induced abdominal injuries produce free fluid, a positive finding is significant and helps direct therapy, however a negative scan does not rule out pathology. Positive findings in trauma patients typically indicate blood; however, ascites, urine, bile, and other forms of peritonitis cannot be ruled out, particularly in non-trauma patients. Collection of fluid via centesis for cytological and biochemical analysis is recommended.

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Contraindications

AFAST exams are rapid, non-invasive, do not require sedation or anesthesia, and do not compromise patient stability with special positioning or restraint. Patients that struggle with gentle positioning in lateral recumbency can be assessed in the standing or sternal position. Dorsal recumbency should not be used due to the risk of decompensating hemodynamically and respiratory fragile patients. In the unstable patient, dorsal recumbency can compromise venous return and ventilation by transferring the weight of the abdominal organs onto the caudal vena cava and diaphragm, respectively.

What you'll need

- Ultrasound machine capable of B-mode
- A curvilinear probe (also called microconvex) with a 5 MHz setting for larger patients (> 20kg) and 7 MHz setting for smaller patients (≤ 20 kg) and a maximum capable depth of 10-20 cm is used for the abdomen
- Alcohol and/or ultrasound conducting gel or alcohol-based hand sanitizer
- Clippers (optional)

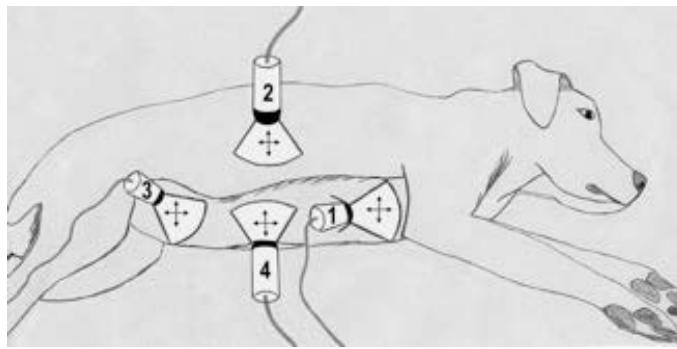
Patients generally tolerate the procedure well without the need for sedation or anesthesia, however patients presenting with evidence of pain should receive analgesia.

Procedure

In patients with thick undercoats, shaving a small 5x5 cm area may improve image quality. The fur should be parted and the probe location sites soaked with alcohol. Some images are improved with the addition of ultrasound gel as well as alcohol, but the fur should be parted and alcohol applied first to decrease the incidence of bubbles if the gel is used directly on the fur.

Transducer depth is generally set between 5-10cm depending on the size of the patient and the organs to be identified. At each site, the ultrasound probe is initially placed longitudinally to the underlying organs and fanned through an angle of 45° and moved 2.5 cm in cranial, caudal, left, and right directions to increase the likelihood of detecting abdominal fluid and properly identifying the target organs. Dr. Boysen said that he prefers to scan in both longitudinal and transverse orientation, as incidental pathology within target organs is often detected during AFAST exams, and becoming familiar with the different organ planes facilitates further learning of sonographic principles.

While the AFAST scan could be done in any order, Dr. Boysen recommended developing a systematic approach. He likes to start at the subxiphoid (DH) view followed by the urinary bladder (cysto-colic view) as these sites tend to be the easiest to find and the presence of liquid in the gall bladder and urinary bladder allows the gain to be optimally adjusted for detection of free fluid



1) subxiphoid or diaphragmatico-hepatic (DH) site, 2) the right paralumbar or hepato-renal (HR) site, 3) off midline over the bladder or cysto-colic (CC) site and 4) the left paralumbar or spleno-renal (SR) site. At site 4 the probe can be moved to the umbilical region and tilted towards the table to identify free fluid at the most gravity dependent region of the abdomen. Adapted from *Veterinary Emergency and Critical Care*, 3rd ed. Mathews, 2017, LifeLearn, Guelph, ON, Canada; with permission.

in the remainder of the abdomen. The gravity-independent view (right paralumbar (HR) or left paralumbar (SR) view follows, depending on what lateral position the patient is in) should be scanned. Finally scanning the most gravity-dependent site (right paralumbar (HR) or left paralumbar (SR) view, depending on what lateral position), completes AFAST and is generally a favourable safe site for abdominocentesis, particularly if ultrasound guided centesis is used.

If the results are negative or equivocal with the probe placed longitudinally, then a transverse view of the organs should be obtained with fanning and movement of the probe repeated at that site.

Interpreting the findings

Free fluid is hypoechoic to anechoic (black), often forming triangles/sharp angles around organs. Fluid identified on AFAST may be blood, urine, ascites, septic, or inflammatory; ultrasound guided fluid aspiration is necessary when fluid is safely accessible to confirm the type of fluid present.

An Abdominal Fluid Score (AFS) specific to trauma has been applied to dogs. AFS is determined by recording the number of AFAST sites at which free abdominal fluid is detected: AFS 1 is positive for free fluid at one site; AFS 2: positive at any 2 sites; AFS 3: positive at any 3 sites; AFS 4: positive in all 4 sites. Dr. Boysen noted that the AFS has only been validated in lateral positions.

If there is an increase in the AFS, ongoing intra-abdominal hemorrhage may be occurring; further patient evaluation and serial monitoring of the AFS is warranted. A decrease in the AFS indicates resolving hemorrhage.

Important to note

AFAST scans are not good at detecting intrapelvic injury, and it is not known how reliable they are for detecting retroperitoneal free fluid in small animals. As well, AFAST scans detect the presence of fluid and help collect samples, but do not locate the source/origin of the free fluid in many cases. They also omit large areas of the abdomen and can easily miss localized organ injury.

Dr. Boysen noted that adjusting the depth and focus at each location enhances the organs of interest and decreases the chance of missing small free fluid accumulations.

Summary

Dr. Boysen said that AFAST examination requires practice but is worthwhile to learn because it is a good way to identify abdominal fluid in all emergent/critical care situations in which an underlying cause is not readily apparent, particularly if the patient is unstable. As proficiency improves, veterinarians may be able to diagnose other conditions requiring acute intervention. CV

Identifying common triggers for undesirable behaviours in cats

WASHINGTON, DC – Behaviour issues in cats continue to be the main reason that cat owners relinquish them to shelters. And in veterinary practice, the top three feline behavioural problems likely to be seen are still inappropriate elimination, aggression, and destructive scratching. The first step in treating all three disorders is identifying and addressing the root cause, explained Amy Pike, DVM, DACVB, speaking at the American Association of Feline Practitioners Conference.

History taking

A thorough history will help clarify the underlying reason for the problem and determine what steps need to be taken. Dr. Pike said that as with any medical problem, it is important to determine the “who, when, where, why, what, and how”. Who are the culprits of the behaviour? When is the behaviour occurring and when did it start? Where does the behaviour occur? Why does the owner believe the behaviour occurs? What triggers have been

identified for the behaviour? How has the behaviour been treated in the past, and how has that worked, or not?

Medical versus behavioural

The first step is to determine whether there is a medical problem causing the unwanted behaviour. This involves performing a complete physical examination and the necessary diagnostics. A minimum database for the most common problems includes a CBC, general chemistry profile, urinalysis, and a total T4 and free T4. Further diagnostics, such as imaging studies, may be warranted. Dr. Pike cautioned that in some cases, the behaviour might remain even once the medical diagnosis has been treated.

Once medical etiologies have been ruled out and/or treated appropriately and resolved, the next step is to determine if the behaviour is considered normal for the species, or if it is an abnormal or aberrant behaviour. It is important to note, said Dr. Pike, that normal behaviours can be as frustrating

or dangerous to owners as abnormal behaviours, and they must be addressed to prevent relinquishment and/or injuries.

Normal but unwanted behaviour

Dr. Pike said that as clinicians, we must remember that although our client has chosen to share their life with the cat, ultimately, if they are unable to live with the behaviour, it is the cat that suffers. Therefore, in most cases we must determine ways in which the living arrangements can be made manageable for all involved.

Abnormal behaviour

Behaviours that are aberrant are most likely the result of a serious medical or neurological problem. However, in some cases, pharmacologic intervention may be successful.

Scratching

Scratching is a normal part of a cat's life, for conditioning the claws, marking, stretching the forelimbs and body, and likely for stress relief. Unfortunately, despite the best efforts to provide a cat with appropriate scratching opportunities, the cat may still use the furniture, draperies, and carpet. If this is unacceptable to the owner, other methods of treatment (nail caps, declawing, or digital flexor tendonectomy) may be sought out. Many cats prefer used scratching posts, so owners should be encouraged to only replace them if necessary. Even declawed cats will need to have scratching opportunities in order to deposit pheromonal signals and relieve stress. The opportunity to mark in this way may help to prevent unwanted urine marking as well.

Elimination disorders

Urine and fecal elimination outside of the litter box continues to be the primary behavioural problem in feline medicine and the top reason for relinquishment of cats to shelters. For inappropriate urination, it is necessary to determine whether the owner is describing normal urination (horizontal surface, normal-large volume, with or without a substrate preference) or marking (vertical surface, small volume, socially significant locations), as the triggers and treatment protocols may be different depending on the underlying etiology. Urination outside of the litter box can fall into the categories of a substrate or location preference/aversion, which can be a learned behaviour, due to social conflict in the house, environmental stressors, or due to a number of factors related to the box or location itself. To be successful at stopping these behaviours the triggers *must* be identified.

Aggression

Aggression remains the second reason for relinquishment of cats to shelters. Aggression towards other cats in the household may be a result of inappropriate territory allotment and resource distribution; incompatible personalities and social conflict; redirected, inappropriate play; or as a result of the cat's overall anxiety and arousal level. Aggression towards human members of the household may be a result of inappropriate or misdirected play; redirected, inappropriate territory allotment and resource distribution; or as a result of the cat's overall anxiety and arousal level. In each case, identifying the trigger is important in creating an effective treatment plan, but also in educating the client about the normal behaviour of the cat. For cats with an identifiable trigger, psychopharmacologic intervention may be warranted.

Conclusion

When presented with a behaviour problem, the clinician must take a thorough history, identify whether there is a medical etiology, then determine whether this is a normal (but unwanted) or abnormal behaviour, and then identify the trigger(s) of the behaviour. Successful outcomes are dependent on thorough history taking, client education of normal feline behaviour, and addressing both the human and feline concerns. CV



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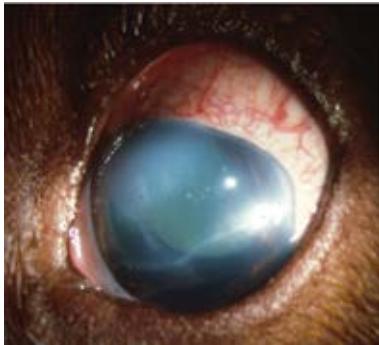
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Glaucoma *continued from page 1*

iridocorneal angle into the intrascleral venous plexus. A small percentage of the outflow in dogs and cats also exits through the iris, ciliary body, choroid, and sclera.

An elevated IOP eventually affects all of the ocular tissues, and may present as a “red eye,” corneal edema, mydriasis, blepharospasm, blindness, or buphthalmos. If the IOP cannot be reduced, an overall increase in the size of the globe may result. This change may occur more rapidly in young dogs and cats. Ruptures of the cornea’s inner limiting (Descemet’s) membrane may accompany the elevated corneal tension and buphthalmos to produce multiple, linear corneal striae. Persistent corneal endothelial damage can result in corneal edema. Buphthalmos causes increased tension on the lens zonules, which can lead to lens subluxation or luxation. The elevated IOP eventually compresses the axons that form the optic nerve to cause blindness. Unfortunately, this permanent blindness can occur rapidly in some dog breeds.



Linear areas of corneal edema can occur in glaucoma

Early indicators of glaucoma

In the early stages, pupillary light reflexes may be normal, slow, or absent, depending on the functional status of the iris sphincter muscle, retina, and optic nerve. Elevation of IOP greater than 45 mm Hg causes paralysis of the iris sphincter and dilator muscles. Prolonged or recurrent elevations lead to degeneration of the retina and optic nerve.

Primary and secondary glaucoma

Glaucoma is divided into primary (including congenital) and secondary categories.

Primary glaucoma in dogs is a breed-related, hereditary condition. In both dogs and cats, affected animals may present with only one eye involved, but the risk is very high for development of glaucoma in the other eye.

Secondary glaucoma is more commonly encountered than primary glaucoma in dogs and cats. The elevated IOP results from other disease processes within the eye. The condition tends to affect only one eye, without an inherited basis.



The right eye of this puppy is large due to congenital glaucoma

Symptoms of glaucoma

A patient that presents with a painful, red eye may have conjunctivitis, uveitis, or keratitis, but glaucoma must be ruled out as well. Dogs and cats that are experiencing pain associated with glaucoma commonly present with depression, anorexia, eye rubbing, and squinting. As the IOP increases, symptoms include episcleral vessel congestion, diffuse corneal edema, a fixed and dilated pupil, and blindness. Dr. Brooks noted that the onset of clinical signs in cats is often insidious, as they are less likely to demonstrate the acute intense corneal edema and episcleral congestion exhibited in dogs. Signs of chronic glaucoma are dramatic and include combinations of the early signs with buphthalmos, lagophthalmos, exposure keratitis, luxated lens, corneal striae, optic nerve atrophy with cupping, and retinal atrophy.

Diagnosing glaucoma

The normal canine and feline IOP is 15 to 25 mm Hg. An IOP greater than 30 mm Hg is considered pathologic and diagnostic for glaucoma. The Schiottz’s indentation tonometer allows the practitioner to diagnose and evaluate treatment in small animals with glaucoma, and the human Schiottz table is accurate for the dog. Dr. Brooks said that the Tonopen and Tonovet applanation tonometers have made it much easier to diagnose and treat glaucoma in animals.

Drug therapy

The objectives of therapy are to maintain vision and eliminate pain by increasing aqueous outflow, decreasing aqueous production, and preventing or delaying glaucoma in the other eye. Primary glaucoma may be more difficult to control

than secondary glaucoma because it is eventually bilateral, and blindness is a possible result despite therapy. Dr. Brooks said that he recommends prophylactic therapy for the unaffected eye in animals afflicted with unilateral primary glaucoma. In secondary glaucoma, the cause is identified and either removed or suppressed. Topical corticosteroids may be indicated to diminish inflammation when nonseptic anterior uveitis is also present.

Medical therapy is the treatment of choice in animals with a history of acute primary or secondary glaucoma to reduce the IOP to alleviate pain and preserve vision. Animals presented with a history and clinical signs of chronic glaucoma should be considered for medical and surgical therapy. Dr. Brooks noted that surgery is the only option available when vision continues to diminish in spite of maximum medical therapy.

Multiple drug therapy to decrease IOP by reducing production of aqueous humor and diminishing the resistance to aqueous humor outflow is the most effective approach. Dr. Brooks cited one study¹ in which Betaxolol and demecarium were each effective at delaying onset of glaucoma in dogs when administered topically. Carbonic-anhydrase inhibitors reduce ciliary-body production of aqueous humor independent of diuresis. These drugs can cause metabolic acidosis, and the dosage should be carefully adjusted to minimize side effects, which include panting, nausea, and vomiting. Dr. Brooks stressed that non-carbonic anhydrase-inhibiting diuretics do *not* significantly reduce IOP. Topical parasympathomimetic drugs act primarily to cause ciliary muscle contraction, increasing the outflow of aqueous humor. This is independent of their effect on the iris sphincter muscle. However, parasympathomimetics are contraindicated in glaucoma associated with anterior uveitis, and they should be used with caution in glaucoma associated with anterior lens luxations. Sympathomimetic drugs reduce IOP by increasing production of aqueous humor and increasing outflow. These drugs are most effective in reducing IOP when combined with parasympathomimetics. Beta-adrenergic antagonists decrease production of aqueous humor, but the specific mechanism of action is not known. Prostaglandin type drugs are also effective in animals with glaucoma.

Oral and intravenous hyperosmotic agents lower IOP rapidly by osmotically reducing the volume of the vitreous. They are used to treat emergency cases but are ineffective or impractical for long-term or maintenance therapy.



Maine coon kitten on left with congenital glaucoma in both eyes. The adult cat on the right has glaucoma and a lens luxation in the right eye

Surgical therapy

Surgical procedures are divided into those that increase aqueous humor outflow and those that decrease aqueous humor production. Surgery is considered when the IOP cannot be controlled medically, especially when vision is still present. Dr. Brooks said that transcleral cyclophototherapy (laser) and cyclocryotherapy (nitrous oxide freezing) have been found to be effective in decreasing production of aqueous humor by the transcleral freezing of the ciliary body with nitrous oxide. Gonioplasty can be placed to shunt aqueous humor past the blocked iridocorneal angle. Anteriorly luxated lenses should be removed in functioning visual eyes to relieve pupillary block and prevent corneal damage due to the lens touching the corneal endothelium.

Enucleation or evisceration with prosthetic silicone implants is indicated when vision is lost in uncontrolled glaucoma. The source of pain is removed, and no further medication is necessary. Prosthetic implants should not be used when glaucoma is or may be associated with intraocular infection or neoplasia. Dr. Brooks added that intraocular silicone prosthetic implants have been used successfully in dogs and cats with buphthalmos and absolute glaucoma.

Reference

1. Miller PE, Schmidt GM, Vainisi SJ, et al. The efficacy of topical prophylactic antiglaucoma therapy in primary closed angle glaucoma in dogs: a multicenter clinical trial. *J Am Anim Hosp Assoc* 2000, Sep-Oct;36(5):431-438. [CV](#)

Massey postgraduate degree leads to veterinarian's selection for prestigious residency



The quest for an intellectual challenge, after moving to Singapore, led veterinarian Anna Kokosinska to further study.

Wanting to explore her new home base and the surrounds of Asia rather than having to work weekends and being on call, Anna sought to spend her time more wisely with distance learning, leading her to Massey University's Master of Veterinary Medicine (MVM).

"Furthering my veterinary career while still having the flexibility to travel and spend evenings with my husband and two rescue dogs, is why I chose to start the MVM programme," she says.

At a crossroads in her career, Anna was also trying to decide if she wanted to pursue further training as an Anatomic Pathologist or continue as a veterinarian in local practice.

"I felt the MVM training would give me the edge required for selection into the highly competitive residency program, and I was right! The MVM programme not only got me selected into an Anatomic Pathology

residency, but also opened the door to some of the best connections at Massey University, and also globally within the Pathology world," Anna says.

Completing the course from Singapore, Anna valued the flexibility of the distance learning with Massey. "It allowed me to manage my own work hours in and around other commitments. The programme is extremely flexible and the online resources such as recorded lectures were very useful, so there were very few schedule conflicts."

"There's a wide range of units offered, with flexibility in timelines and required contact hours. I really felt that I was able to choose units that suited my intended specialisation and areas of interest," she says.

Another stand out for Anna were Massey's educators, particularly for her Cardiorespiratory and Endocrinology units. "Both are world experts in their fields and make these subjects far easier to tackle. By the end of these courses, I could confidently interpret an ECG and an echo, and those complicated Addison's and Cushing's cases no longer scared me!"

Anna feels the MVM has made a significant impact on her veterinary career and says, "Electing to complete the research component of the Masters was instrumental in broadening my professional network, not only throughout New Zealand but also globally given Massey's breadth of contacts and partnerships."

Through introductions and recommendations from the Massey University faculty, Anna is about to commence the final year of her Anatomic Pathology residency at the University of Georgia. "Without the contacts that I made during the Massey MVM course, this would not have been possible," she says.

Find out more about Massey University's Master of Veterinary Medicine at www.massey.ac.nz/mvm



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Impact of service dogs for veterans with PTSD and substance abuse

By Colleen Anne Dell, Cheryl Arratoon, Marc Lapointe, and Chris Lohnes

About OSI/PTSD in veterans and first responders

Operational stress injury (OSI) resulting from military duty is a serious concern in Canada. It refers to psychological struggles resulting from operational duties, with post-traumatic stress disorder (PTSD) the most common form. According to Veterans Affairs Canada, 14,372 veterans suffering from PTSD are receiving benefits, including war-service veterans and peacekeeping forces. Of these, 3,578, or approximately 10%, served in Afghanistan. OSI is also prevalent among first responders, including police officers.

The Canadian Mental Health Association acknowledges that people can turn to alcohol or drugs as a way to cope with PTSD. Common symptoms include feeling on edge or anxious, experiencing distressing memories, being easily startled or angered, and disinterest in the future. A study involving male Canadian military veterans with PTSD found they scored higher on a measure of alcohol use disorders compared to those with subthreshold or no PTSD. It is also reported that veterans delay treatment for OSI generally because of stigma, and by the time they seek assistance they have coped for many years in unhealthy ways, including misusing substances.

Expanding research

According to a recent report by the Canadian Institute for Military and Veteran Health Research, there is a lack of quality evidence on service dogs for veterans with PTSD, while noting that the research field is expanding. There is also a growing presence of service dogs among veterans with PTSD, and emerging stories about their benefits. Veteran Affairs Canada recognizes this and is spearheading the development of a voluntary national standard for service dogs. It is also funding a study to assess their impact on veterans' PTSD.

Despite this growing attention, the role of service dogs in the problematic substance use area remains overlooked. In response, AUDEAMUS Inc., the University of Saskatchewan, and the Canadian Centre on Substance Abuse, undertook a pilot study with specific attention to the impact of the human-animal bond. To date, studies overwhelmingly focus solely on the tasks service dogs are trained to do for OSI (e.g., tactile stimulation to disrupt emotional overload).

AUDEAMUS Inc. study on the impact of the human-animal bond

Seven military veterans (5 male, 2 female) and two police officers (1 male, 1 female) with OSI/PTSD paired with an AUDEAMUS Inc. service dog were asked to participate in the pilot study. On average, the participants had been paired with their service dog for two years, and each had a history of problematic substance use. The participants responded to two questions:

1. How has your service dog helped you in general (physical, mental, social, spiritual); what changed in your life because of your service dog, and
2. How, if applicable, has your service dog helped you reduce or eliminate your problematic use of substances, specifically alcohol (and illicit drugs), as well as any prescribed medications, like opioids/narcotics, which have the potential for abuse?

Study results

In response, most participants provided a brief life history before and after their service dogs and of the event(s) causing their PTSD. The responses were reviewed for common themes.

The participants' childhoods ranged from loving homes to distressing upbringings. Several, but not all, spoke about companion animals in their past; several saw their pets as confidantes and themselves as caretakers. All of the participants suffered traumatic events in the line of duty. Many referred to the debilitating cumulative impact of witnessing and/or experiencing cruelty, injustice, violence, death, abandonment, and inhumanity.

The participants discussed their suicide attempts, inconsolable grief, flashbacks and nightmares, anxiety, intense anger, numbness, and depression. In their attempts to survive, they often engaged in reckless and self-destructive behaviours involving licit and illicit substances, which resulted in shame, hospitalization, family hardship, and isolation. The veterans and police officers also identified being both overmedicated with prescription drugs, and often misusing these drugs.

All said their service dog 'saved my life', 'changed my life', and 'alleviated my symptoms'. This included a significant reduction in substance use as

a means to cope, including licit (alcohol), illicit (e.g., cocaine), and prescribed drugs (opiates/narcotics). They also shared about their increased compliance in taking prescribed medication, and decreasing dosages of medications with troubling side effects, including poor concentration and low energy levels. One veteran commented: 'She [the dog] keeps me sober'. The participants also shared an unconditional love for and bond with their service dog. One veteran commented: 'She is the greatest thing since the birth of my child'.

Psychologically, the participants in this study commonly shared about the positivity their service dogs brought into their lives, offering a new outlook for some; 'She reminds me that there is good in the world'. They expressed being able to be 'present and in the moment' with the service dog in their lives and said that it introduced a sense of calmness and stability. One police officer commented: 'He is my rock'. The dog is identified as an unwavering source of comfort and companionship; 'She is with me 24/7 and no human [or therapist] can do that'. The service dog offers the veterans a means to regain their sense of dignity, practice leadership, and confidence in place of escalating self-identified failures.

The veterans' and police officers' care for a sentient being translated into increased care for themselves and their families. The service dogs also clearly facilitated socialization – ranging from going to the grocery store, to visiting family and friends, to travelling. It was also mentioned that just spending time with the service dog itself was social because the dog naturally breaks down barriers with its presence. One participant recently retired his service dog, commenting that "It's like walking and carrying my crutches in my hands, you're thankful to have been able to rely on them but in a way you don't really need them anymore".

Biologically, or physically, the service dogs woke individuals from nightmares, assisted with tasks for hearing impairment, interrupted harmful behaviour, and provided panic prevention in public, for example. In addition to physical assurance, the service dogs provided a routine to the participants' daily lives, thereby increasing physical activity with regular walks and play.

Spiritually, the participants shared about regaining a sense of purpose in their lives through the introduction of the service dog. They shared that they were using their knowledge and skills to once again contribute to society. They also spoke of experiencing a deeply significant and inseparable bond to their 'life saving' service dog.

Although it was not a focus of this study, an additional theme to emerge from the participants is the importance of the ongoing peer support and after-care offered by AUDEAMUS Inc. They shared that meeting others 'like me' with OSI/PTSD and service dogs is very profound and meaningful. As well, assisting other persons traumatized in the line of duty is very fulfilling, and replicates a sense of camaraderie from their military and first responder service. It is also well documented that individuals in recovery from problematic substance use gain personally from assisting others (e.g., Alcoholics Anonymous).

Conclusion

This pilot study provides sufficient reason to further investigate the role of the human-animal bond for veterans with PTSD and paired with a service dog, and specifically those who problematically use substances. The service dogs supported physical health, a sense of psychological acceptance, social connection, and a spiritual purpose. This broadens the concept of service dogs from being solely a 'device' to a combination of a therapeutic intervention, form of supportive companionship, and motivator for caretaking. This study supports the need for innovative, holistic, non-stigmatizing, and therapeutic approaches to respond to the needs of persons traumatized in the line of duty.

AUDEAMUS Inc. is an injured veteran-run Canadian nonprofit organization, founded in 2016, dedicated to providing service dogs to persons traumatized in the line of duty. The term "audeamus" means 'May We Dare', and it is the motto of the Canadian Special Operations Regiment. Service dogs are increasingly recognized as a support for some veterans suffering an OSI, including PTSD. To date, AUDEAMUS has paired 87 fully trained service dogs to persons traumatized in the line of duty and whose quality of life depends on the support.

This article is based on the Dr. Dell's presentation at The Working Dog Conference in Banff, AB.

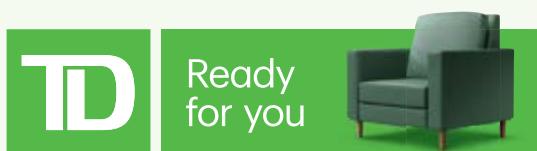
For more information visit www.audeamus.ca.

For references please go to www.k2publishing.ca/Impact_of_service_dogs.pdf

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The secret life of pet and human obesity



By Ernie Ward, DVM, CVFT

There's a secret life of pets we don't often talk about. The secret begins with the fact that over 50% of dogs and cats in North America are now classified as overweight or obese by their veterinary healthcare provider. In addition to confronting pet obesity and its associated maladies and complications, I've also been uncovering another secret of pet obesity: inflammation.

In fact, I'd go as far as to say inflammation is the new obesity, and is the real secret we need to reveal to both pet parents and the public.

Deep down most folks know obesity is dangerous; they just don't think anything bad will happen to them or their pet. Psychologists call this phenomenon of believing you or your pet is at less risk for harm despite evidence to contrary "optimism bias." It's a necessary coping mechanism that allows us to get through our days without succumbing to a Woody Allen movie neurotic crisis. It also gets in the way of change. Maybe it's time we change how we talk about pet obesity.

For over five years, I've begun altering the way I describe obesity to clients and veterinarians. Pet owners see a "big pet." Most veterinarians see a "fat pet." I see an "adipokine storm." Adipokines?

Adipokines are signal proteins produced by fat tissue. Leptin, adiponectin, and interleukin-6 (IL-6) are examples of adipokines. We know adipokines cause or contribute to hundreds of harmful inflammatory processes throughout the body. Think of every fat cell as a little factory pumping out hundreds of potentially toxic compounds. Multiply that image by millions or billions in an obese pet. The real danger of excess fat isn't the fat; it's the inflammation the fat causes. That's what I've been communicating the past few years: Inflammation is the new pet obesity.

The popular medical media has latched onto the idea that inflammation is bad in a big way. Rarely does a week pass without a story on inflammation making the news. This public awareness offers veterinarians an opportunity to pivot the conversation from "your cat is obese" to "your cat is experiencing severe systemic inflammation." Take it one step further and connect the dots between inflammation and diminished quality of life and you're well on your way to discovering the secret life of pet obesity.

“ Pet owners see a ‘big pet.’ Most veterinarians see a ‘fat pet.’ I see an ‘adipokine storm.’ ”

In my pet obesity book, appropriately titled, "Chow Hounds," I speculate that obese dogs must feel lousy most of the time. This is based on studies of humans suffering from obesity who confront chronic fatigue, malaise, decreased energy and vitality, and a laundry list of aches and pains. The common denominator with these ailments is obesity-related chronic inflammation. I can't imagine pets diagnosed with obesity feel any better. I think it's time we clearly convey to pet owners how lousy obesity makes pets feel. Obesity creates an inflammatory stew of chemicals and compounds that negatively affect every organ system in a dog or cat's body. Blame poor quality of life on the inflammation obesity produces.

In my opinion and experience, obesity and its low-grade inflammation is the biggest health threat our pets face. That's a bold statement, but I'm confident that it's soundly supported by science. The more we learn about excessive inflammation in pets, the more we understand the importance of keeping it at safe levels. Our bodies are a biological broth comprised of hormones, proteins, and toxins competing for chemical reactions that create our physiological future. If we add too many adipokines from excess fat into the mix, the resultant stew can be deadly. Excess fat tissues generate inflammation. Inflammation is harmful and decreases quality of life in pets. So why do veterinarians keep obesity in pets a secret?

Perhaps the biggest obstacle in the war on pet obesity is our silence.

Many veterinarians complain they aren't comfortable talking candidly about a pet's weight for fear of inadvertently offending the client. I understand their concerns. They're wrong in their assertion but I appreciate their reticence. I urge my veterinary colleagues to "forget fat; start talking about inflammation." Learn about adipokines, cytokines, and disrupted metabolic pathways caused by inflammation. It's a fascinating world of biochemistry that has real impact on the lives of our patients. I'll be the first to admit I didn't realize back in college how important biochemistry would be to my future medical practice and patients. It is and now I wholeheartedly admit how much I love the Krebs cycle!

It's time veterinarians reshape the obesity conversation to centre on inflammation. I'm also calling on our profession and the human medical community to help me accomplish the following:

- 1. Define obesity.** Currently, veterinarians can't define what "clinically obese" is in animals. This confuses and clouds the issue. We don't have a consensus for the terms "overweight" and "obese." I'm officially offering the independent organization, the Association for Pet Obesity Prevention, to help jumpstart the conversation. Now, I need your help, academicians, practitioners, and industry representatives.
- 2. Standardize Body Condition Scores (BCS).** This is long overdue. There are at least three major BCS used worldwide. BCS is the pet world's closest equivalent to Body Mass Index (BMI). I'll be the first to agree that there are limitations to the BCS. The advantage is BCS is simple to administer, works well in most situations, and is already widely accepted and used in clinical practice. in use. Our profession needs to come together and settle on one scale and move forward. Now.
- 3. Define obesity as a disease.** This is an idea I've warmed to over the past decade. The American Medical Association (AMA) officially defined obesity as a human disease in 2013. I'd like to see the American Veterinary Medical Association (AVMA), Canadian Veterinary Medical Association (CVMA), World Small Animal Veterinary Association (WSAVA), and the American Animal Hospital Association (AAHA) follow. I think classifying obesity as a disease would ultimately encourage more veterinarians to talk with clients about the condition and inspire our industry to innovate better solutions.
- 4. Define prediabetes.** For years, I disagreed with the concept of "prediabetes" until I started looking at studies on humans who were diagnosed as prediabetic. Prediabetes screening and discussions appear to help raise awareness of diabetes and offers a potential early intervention point for clinicians. There's growing evidence we may be able to apply the prediabetes strategy in veterinary medicine, especially in cats with obesity. There are useful veterinary biomarkers that could help general practitioners identify at-risk pets earlier. Prediabetes will also help steer the conversation toward the real problem: inflammation.
- 5. Develop better technology.** We need a technological solution to quickly and accurately assess body fat composition in dogs and cats. At this point I'd even settle for biomorphic software that estimated underlying fat. As I frequently tell my colleagues in industry, "Give veterinarians something to do, not something to sell." We desperately need improved tools for tracking weight, BCS, and dimensions.

Inflammation is one of the secret lives of pet and human obesity. Obesity is perhaps the most complex, challenging, and, ultimately, one of the most important medical conditions in both human and veterinary medicine. Obesity affects nearly everyone – human and animal – in some harmful manner, creates billions of dollars in medical bills, and robs quality of life and life expectancy. That's why the battle to cure obesity is so important and why I'm committed to fighting as long as I'm able. Let's link veterinary and human medical arms and efforts to benefit the people, children, and pets we love and cherish. Ultimately, the real secret I want to share is a healthier and happier future for all living things.

This article is based on Dr. Ward's presentation at the Canadian Veterinary Medical Association Convention in Charlottetown, PEI.

The power of food: setting up for success

HALIFAX, NS – Increasingly, pet owners are looking to the veterinary health care team for advice about what to feed their pets. Meeting a pet’s optimal nutritional needs requires simple tools to assess and adjust nutritional recommendations for each patient at development milestones, to prevent disease and maintain health. Integrating nutrition protocols will not only provide a cornerstone to preventive care, but will help to develop a partnership between the owner and the veterinary healthcare team, leading to healthier pets, explained Julie Churchill, DVM, PhD DACVN, speaking at the Atlantic Provinces Veterinary Conference. In this way, pet owners become bonded to the clinic and benefit from individualized care.

Tools to help make nutrition a part of every pet’s visit

The WSAVA Global Nutrition Committee has developed a suite of practical tools and resources (www.wsava.org/nutrition-toolkit) to help the veterinary team make nutritional assessments and recommendations more efficiently. It also contains client education materials for the team to share with pet owners.

The Pet Nutrition Alliance (PNA) (www.petnutritionalliance.org) was created to help raise awareness about the importance of proper pet nutrition, and the value of nutritional assessments for every pet and every visit. The PNA is also developing practical tools for the entire veterinary healthcare team to assist in implementing these nutritional guidelines for every pet. Dr. Churchill said that making a pet-specific nutrition recommendation for healthy pets can be done quickly, by recommending the amount and type of high quality food that matches the pet’s nutritional life stage requirements. She stressed the importance of using every visit as an opportunity to educate pet owners on how to check their pet’s body condition score (part of the WSAVA toolkit), and to always emphasize what the pet owner is doing right. To avoid confusion and/or misunderstandings, it is important to verify and clearly document the current feeding plan.

Starting at the beginning: pediatric patients

The goal of feeding plans for puppies and kittens is to achieve healthy growth, optimize immune function and behavioural development, minimize developmental orthopedic disease, and minimize the risk of unhealthy weight gain and obesity. To meet these objectives, pet food companies are formulating products for the various periods of growth. For example, in dogs, the length of time and rate of growth differ between small, medium, large, and giant breed dogs. Dr. Churchill said that pets

should eat a product formulated for growing animals until they reach at least 80% of their mature height.

How much to feed?

Not only is it important to select a product that meets the need for growing puppies or kittens, it is important to feed the right amount to maintain healthy growth. She recommended counselling owners about the importance of preventing unhealthy weight gain to reduce the risk of obesity and the associated health risks, taking time to

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teach owners how to perform a Body Condition Score at two-week intervals, and adjusting the amount of food to maintain a healthy weight (4.5-5/9 on the 9-point scale). The BCS assessment should be reinforced at every visit and validated when pets are at an ideal weight. Finally, the feeding recommendations should be reiterated at each visit, including the specific type of food, the amount and frequency of feeding (avoid free feeding), and a monitoring plan such as BCS checks.

“...making a pet-specific nutrition recommendation for healthy pets can be done quickly, by recommending the amount and type of high quality food that matches the pet’s nutritional life stage requirements.”

Large breed puppies: special considerations

Large breed puppies are breeds that will weigh approximately 30 or more kg at adult healthy weight. These breeds are particularly at risk for developmental orthopedic disease (DOD) such as hip dysplasia, osteochondrosis, angular limb deformities, and osteoarthritis. There are three nutritional factors known to increase risk of DOD:

1. Excess Calories

Feeding puppies excess calories results in too rapid growth before body fat has accumulated. Dr. Churchill said that owners should be taught to regularly

perform a BCS and to adjust food to maintain a BCS of 4.5-5 out of 9 on the scale. This will slow the puppy’s growth rate and extend its growing period, without affecting its ultimate size.

2. Excess calcium

Young large breed puppies are unable to regulate the amount of calcium absorbed by the gastrointestinal tract, so when *excessive calcium is consumed*, it is rapidly absorbed and results in abnormal growth in bones and joints. Therefore, large breed puppies should be fed foods that meet the growth requirement but contain more modest levels of calcium than many puppy foods.

Pet food labels for puppies and for all life stages will soon have to have one of two qualifiers for the nutritional adequacy statement (AAFCO statement): [Pet Food Name] is formulated to meet the nutritional levels established by the AAFCO Dog Food Nutrient Profiles for growth/all life stages *including or except for* growth of large-size dogs (70 lbs or more as an adult). Dr. Churchill stressed the importance of the small, but critical difference between “except for” and “including”.

3. Nutritional Balance

Several factors may contribute to *nutritional balance* when feeding puppies. Commercial pet foods are formulated to meet the nutritional needs for the life stage when fed in the correct amount and when fed as the majority (90-95%) of the pet’s intake. Any supplemental food, including treats, is more likely to imbalance the nutrient profile needed for proper growth and development than provide benefit, so it’s important to communicate this to pet owners, and help them find treat options that are complete and balanced so it doesn’t interfere with the nutritional intake.

When to spay and neuter?

Though highly controversial, the traditional recommendation of spaying/neutering at 6 months of age remains common. Early spay/neutering positively impacts animal population control and the risk of mammary cancer in females, but potentially negatively impacts growth, orthopedic health, and weight gain. At whatever age it occurs, it will reduce the caloric requirement by as much as 25%, so this is a good time to reassess the pet and adjust the feeding recommendation. If the pet is still growing, use a lower calorie high protein growth product and vigilantly monitor its BCS.

Improving preventive care

Mind the gap

The usual schedule for puppies and kittens is a visit between 6 weeks and 4 to 6 months to get the vaccine series, and then again for spay/neutering. The first ‘annual’ visit is often scheduled 12 months after the rabies vaccine, given at 16-18 weeks of age. This creates a gap in veterinary care of 10 to 12 months. This gap from ~ 4 months of age until 16 months old is a time of significant development and growth and it occurs without input or oversight of the veterinary health care team. This can potentially lead to irreversible or difficult behavioural or physical problems.

Add a new sequence: 2,3,4,6,9,12

The vaccine series occurs at approximately 2, 3, and 4 months. If gonadectomy is done at 6 months, the pet should be seen every 3 months until age 1. Dr. Churchill said that these visits should include weight, diet, and obesity prevention, behavioural assessment and intervention, parasite control, and the first annual (12 month) visit. This will allow the health care team to create a proactive approach and establish future intervention points. It further establishes veterinary visit habits and ensures proper dosing changes to food and medications. It also establishes the value of preventive care, with additional opportunities to bond and establish credibility as the trusted source of pet health information.

Maintaining adult health

Once a pet reaches adulthood it is important to complete a nutritional assessment at every visit. Prevention, early detection, and intervention are the first line of defense when talking about disease management and the same is true for nutritional problems. Any nutritional risk factors should be addressed with a revised nutritional recommendation and follow-up. CV

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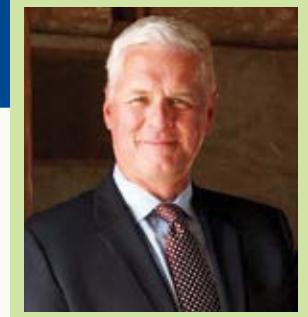


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Veterinary Business Today

Great staff turning sour? Create a survey to find out why!



By Mike Pownall, DVM, MBA

As a veterinary business owner or manager there is nothing more frustrating than having a veterinarian, or support staff member that just doesn't seem to care. They started their career with you full of enthusiasm and motivation working as part of the team, and then over time their energy seems to drain, they take more days off, and they aren't as polite or respectful to co-workers. Even worse is when their attitude starts to spread and infect other team members. When you ask your staff why they seem disengaged they give generic responses that don't provide any information that you can use to improve their situation. Ultimately, this loss of employee engagement leads to decreased productivity, reduced revenue, and higher employee turnover.

A couple of years ago this was what we faced in our practice. We try to create a culture of collaboration and support between team members, but we had noticed that some of our vets were getting close to burnout in the busy season, and we had a revolving door of technicians and receptionists, which led to more frustrations for our vets. It was a vicious cycle that we had to stop but didn't know how. Then one day I read an article about employee engagement surveys and thought we needed to try this.¹ Maybe this could help us identify how great staff are turning sour over time.

Employee engagement is the emotional commitment that an employee has for the company and its goals. Engaged employees *care* about their own work and the work of the company – they are more willing to go the extra mile for clients and each other. Studies have shown that companies with highly engaged employees are more productive.²

With this in mind, we sent an online survey of 34 questions to all our employees. The survey was anonymous other than job role, and the questions were measured on a 5-point scale. Space was left after each question for comments. According to the study I read, total scores between 60-79 were good, but left room for improvement and those above 80 indicated a high level of employee engagement. Where were we on this scale?

The responses were a revelation!

Overall our employee engagement score was 77%, which isn't bad, but we noticed that our vet scores were much lower than those of our technicians and receptionists, who scored above 80%. What was going on with our veterinarians? Why were our support staff more engaged than our vets?

The scores and comments told us that the main areas of concern were that our vets were tired. They were working more and more hours and felt that they were not being compensated appropriately. On top of that our management team was not effectively communicating with our staff. That was on me. I didn't seem involved with the day-to-day activities of the practice and it reflected on everyone else.

The comments were especially revealing. The anonymity of the survey gave everyone carte blanche to share what they wouldn't tell us in person. It gave specific examples of what we needed to do to improve.

Because of the survey, we changed the schedules and compensation of our vets and I really focused more on being more engaged myself in the daily activities of the practice.

This spring we repeated the survey and the results justified our actions the previous year. Our score improved by 3% to just shy of 80%. The big improvement came from the vets' responses; what we did the year before was appreciated. Our vets were much more engaged. What we found this year though, was that we needed to do something for our support staff. Their main concern was their compensation so we gave raises across the board. We were confident to do this since we knew that our efforts the year before were so appreciated.

Beyond scores what has been the impact on our business? For one thing, we are growing beyond our expectations. That is great, but what is even better is the mood around the practice. Even during our busiest season everyone was in good spirits. Vets were smiling. Everyone was working seamlessly together. We weren't losing staff. Being at work was much more enjoyable.

I have seen had the opportunity to share this tool with some colleagues and the insights they gained were as revelatory as they were to me. They are now working on fixing the areas of concern and making sure what they are doing well continues. Having quantifiable scores that can be used as benchmarks makes this survey particularly effective.

Working in a vet practice is a tough job. Finding out what makes it harder than it needs to be, and then *fixing* the problems will improve patient and client outcomes, and increase productivity and profitability. Who doesn't want that?

References

1. http://sloanreview.mit.edu/article/measuring-the-benefits-of-employee-engagement/?article=measuring-the-benefits-of-employee-engagement&post_type=article
2. www.gallup.com/businessjournal/163130/employee-engagement-drives-growth.aspx

Prior to becoming a veterinarian, Dr. Mike Pownall worked as a farrier. His interest in equine lameness led him to attend the Ontario Veterinary College, graduating in 2001. In 2002 he and his wife, Dr. Melissa McKee, started McKee-Pownall Equine Services, an organization represented by three equine veterinary clinics with 11 vets and 20 support staff spread across the Greater Toronto Area. He is also a partner with Oculus Insights, offering business education to veterinarians throughout the world.

Dr. Pownall received his MBA from the Richard Ivey School of Business at the University of Western Ontario, and was the class valedictorian. He presents internationally on business strategy, pricing, digital marketing, and technology for veterinarians. He also contributes to numerous journals on business management topics.

You can visit Dr. Pownall's website at www.veterinarybusinessmatters.com, on twitter @dvmbusiness, and the Veterinary Business Matters Facebook page. The website for McKee-Pownall Equine Services is www.mpequine.com and for Oculus Insights is www.oculusinsights.net.



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Charlottetown pulls out all the stops for annual CVMA Convention, kitchen party and all!

Another successful Canadian Veterinary Medical Association Convention recently wrapped up until next summer. The 2017 CVMA Convention in Charlottetown, PEI boasted over 900 attendees, offering 127 RACE-accredited hours of continuing education (CE), and featured over 40 speakers from Canada, the United States, and overseas. Delegates also enjoyed socializing and networking through events such as the PEI Kitchen Party at the Lobster on the Wharf Restaurant. Special written greetings were received from the mayor of Charlottetown, Mr. Clifford Lee, and the Honourable Jane Philpott, Minister of Health. A number of veterinary professionals were honoured at the Annual Awards Ceremony, held during the Convention:

- Small Animal Practitioner Award: **Dr. David Condon** (PEI), for his compassion towards the animals in his care and his dedication to the student veterinarians he mentors and supervises
- Merck Veterinary Award: **Dr. Stephen LeBlanc** (ON), for his production of high quality applied clinical research in the diagnosis and control of metabolic, inflammatory, and reproductive diseases of dairy cattle
- CVMA Humane Award: **Dr. Anne McDonald** (BC), for her role in the removing of, caring for, and re-homing of almost 600 parrots from the World Parrot Refuge on Vancouver Island
- CVMA Practice of the Year Award: **Mona Campbell Centre for Animal Cancer** (ON), for creating a comprehensive veterinary cancer centre serving central Canada and beyond, while offering unique clinical trial research opportunities, facilitated by U of G's Institute for Comparative Cancer Investigation
- CVMA Life Membership: **Dr. Jeanne Lofstedt** (PEI), for her significant contributions to the veterinary profession worldwide
- CVMA President's Award: **Dr. Bob Bellamy** (SK), for his innovative approach to veterinary medicine communication and his dedication to the profession.

Recognition was also given to the president of the Students of the CVMA, **Ms. Elizabeth Hartnett**, for her work to promote student interests in the Association. The Registered Veterinary Technologists and Technicians of Canada (RVTTC) also joined the Awards Ceremony to present one of its members, **Ms. Elise Wickett**, with the 2017 Canadian Registered Veterinary Technologists/Technicians of the Year Award.

The Canadian Veterinary Medical Association welcomes three new members on the **CVMA Executive and Council**:

- Dr. Enid Stiles as the new Executive Member. She is also the Quebec representative on Council
- Dr. Leighann Hartnett as the new Nova Scotia representative on Council, replacing Dr. McPherson
- Ms. Kira Moser is the 2016-17 Students of the CVMA President

To view the full list of CVMA Executive and Council members visit the *About CVMA* section on canadianveterinarians.net.

A revised *Transportation of Dogs and Cats* position statement was approved in March 2017 and is available under the *Policy & Advocacy* section of the CVMA website.

If you are a CVMA member, visit the CVMA's Business Management Program section of the CVMA website (canadianveterinarians.net/practice-economics/business-management) to access the **Provincial Suggested Fee Guides** and other veterinary economic reports. This section also includes Veterinary Practice Management Articles and a Career and Business Toolkit providing veterinarians easy access to pertinent online resources and information on personal financial management, veterinary business management and client management.



CVMA staff at the Kitchen Party

World Rabies Day is on September 28 of each year. At the global conference on rabies elimination in 2015, a common goal of **zero human deaths from canine rabies by 2030** was agreed upon by the World Health Organization, World Organisation for Animal Health, UN Food and Agriculture Organization, and Global Alliance for Rabies Control (GARC). Visit the GARC website at rabiesalliance.org/world-rabies-day to find information on how to organize your own World Rabies Day event. Use #WorldRabiesDay for event promotion.



CANADIAN VETERINARY MEDICAL ASSOCIATION

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Some 2017 CVMA Convention delegates enjoying the ocean view in Charlottetown, PEI



2017 CVMA Summit speakers speaking on the topic of "The Future of Veterinary Medicine: Embracing Change & Innovation"



Band during the PEI Kitchen Party



Captivated audience for the 2017 Emerging Leaders Program with Dr. Rick DeBowes

Continuing Veterinary Education Calendar

SEPTEMBER 25-28
COPENHAGEN, DENMARK
World Small Animal Veterinary Association Congress
www.wsava2017.com

SEPTEMBER 28-30
NEW ORLEANS, LA
Veterinary Hospital Managers Association Annual Conference
www.vhma.org

SEPTEMBER 30
KITCHENER, ON
Femoral Head Osteotomies
info@focusandflourish.com
www.focusandflourish.com

OCTOBER 1
KITCHENER, ON
Medial Patella Luxation
info@focusandflourish.com
www.focusandflourish.com

OCTOBER 1-7
ANIMAL HEALTH WEEK

OCTOBER 3
CONCORD, ON
Diagnosing and Dealing with Dermatitis — The Latest in Skin Care
info@tavm.org
www.tavm.org

OCTOBER 14-17
BANFF, AB
CanWest Veterinary Conference
www.canwestconference.ca

OCTOBER 19-22
DENVER, CO
American Association of Feline Practitioners Conference
Feline Infectious Diseases and Pediatrics
www.catvets.com/education/conference

OCTOBER 21-24
SAN DIEGO, CA
American Holistic Veterinary Medical Association Conference
www.ahvma.org

OCTOBER 24
EDMONTON, AB
Reptile and Avian Medicine: How to Improve Our Pet's Lives
www.edmontonvetinfo.com

OCTOBER 25
KITCHENER, ON
Internal Medicine
rlofsky@gmail.com
www.goldentrianglevet.ca

OCTOBER 26-28
PORTLAND, OR
Veterinary Cancer Society Annual Conference
www.vetcancersociety.org

NOVEMBER 2-4
TORONTO, ON
Veterinary Education Today Conference
registration@veterinaryeducationtoday.ca
www.veterinaryeducationtoday.ca

NOVEMBER 3-5
VANCOUVER, BC
CVMA-SBCV Fall Conference
www.canadianveterinarians.net

JANUARY 25-27, 2018
TORONTO, ON
Ontario Veterinary Medical Association Conference
info@ovma.org
www.ovma.org

FEBRUARY 3-7, 2018
ORLANDO, FL
VMX Veterinary Meeting and Expo
info@navc.com
www.navc.com

Email your meeting announcement to shelagh@k2publishing.ca

Industry News

How do I know if my cat is in pain?

The American Association of Feline Practitioners (AAFP) has released two new client brochures: *How Do I Know if my Cat is in Pain* and *Degenerative Joint Disease*. These brochures provide valuable and reliable information for cat caregivers on topics that impact the quality of life for their cat.

Recognizing the signs of pain in cats is difficult and often goes unrecognized leading to unfavourable behaviour changes. This is because cats inherently hide signs of discomfort and pain. The Feline Pain Management brochure provides cat caregivers practical information on:

- Recognition and assessment of pain – including behavioural changes that may indicate your cat is in pain
- Management of pain – including monitoring your cat at home
- Categories of pain

The brochures can be accessed at: www.catvets.com/public/PDFs/ClientBrochures/PainManagement-WebView.pdf
www.catvets.com/public/PDFs/ClientBrochures/DJD-Webview.pdf

K9 Advantix® II approved for killing mosquitoes and reducing biting by mosquitoes and stable flies

Bayer Inc.'s K9 Advantix® II received approval from Health Canada for killing mosquitoes through contact and reducing bites from mosquitoes and stable flies in dogs. These new claims for K9 Advantix II are in addition to existing indications for the control of fleas, ticks, and lice for at least four weeks.

“Unlike many other parasite medications, the active ingredients in K9 Advantix® II stay on the outside of the pet where they can kill pests through contact.” Biting is not required said Dr. Tamara Hofstede, Senior Manager Veterinary Scientific Affairs, Bayer Inc. “Reducing biting is important for pet comfort and reducing the risk of disease transmission, providing pet owners with peace of mind this summer”.

Nova Scotia veterinarian appointed 69th President of the Canadian Veterinary Medical Association

The Canadian Veterinary Medical Association (CVMA) is delighted to welcome Dr. Troye McPherson as its new president.

“I am honoured to be the president of the Canadian Veterinary Medical Association,” says Dr. McPherson. “I look forward to contributing to the voice of our profession and

helping promote animal welfare and optimal care for animals, people and the environment.”

Dr. McPherson, originally from Cape Breton, Nova Scotia, graduated from the Nova Scotia Agricultural College, the Ontario Agricultural College, and the Ontario Veterinary College, University of Guelph. She began her career in western Canada at a mixed animal practice in Saskatchewan. Dr. McPherson was also the acting director of the Lakeland College Veterinary Technician program in Vermilion, Alberta, and an instructor in its agriculture program. She also worked for the Canadian Food Inspection Agency in meat hygiene.

She is currently a member of the Nova Scotia Veterinary Medical Association (NSVMA) committee for RVT licensure and has served as the NSVMA president and its liaison to the Nova Scotia Provincial SPCA and Rabies Task Force. Dr. McPherson is the CVMA council liaison on the NSVMA and the CVMA representative to the Federation of Veterinarians of Europe (FVE).

Dr. McPherson will serve on the CVMA Council from July 2017 until July 2018. The CVMA would also like to take this opportunity to thank Dr. Troy Bourque for his dedication and commitment while serving as president for the past year.

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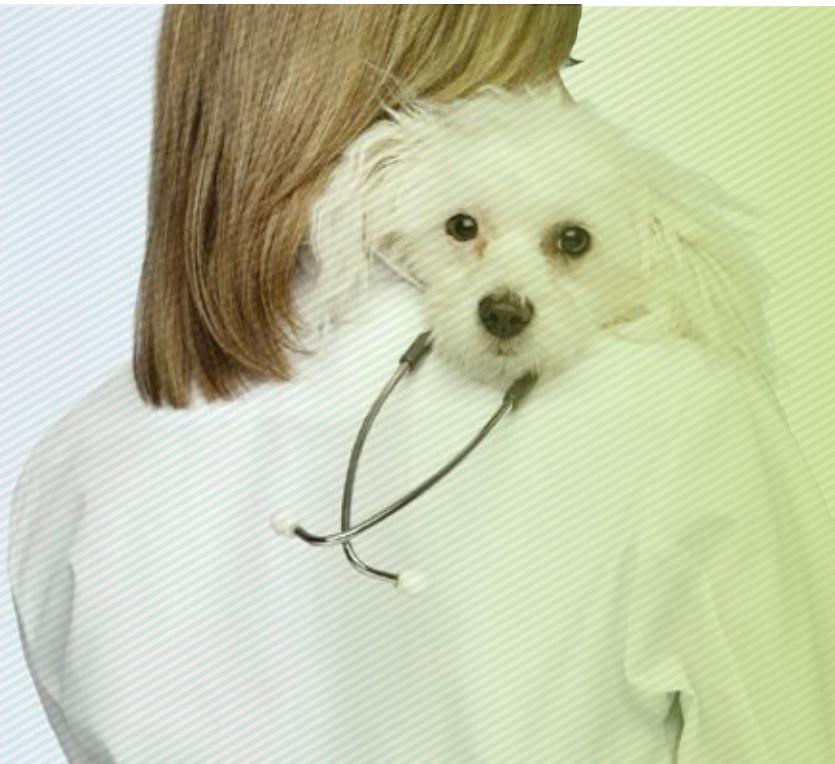
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