Continuing Professional Development | Business Success | Clinical Skills

vet360

Vol 07 | Issue 05 | November 2020

An Overview of Interdog Aggression

CPD Article:

Approach to Respiratory Emergencies in Small Animals

Business:

How to Engage Cat Owners in Lifelong Preventive Care

NEW

70% OF THE IMMUNE SYSTEM IS ACTIVE IN THE GASTROINTESTINAL TRACT (GIT)[5]

REINFORCING INTESTINAL HEALTH

- Inhibits intestinal growth of *E.coli, Salmonella* spp. and clostridia;[2]
- Increases beneficial bacteria within GIT;[1]
- And enhances mucosal immunity.[3,4]

PROBIVET

For more information, speak to your Sales Representative.

Reg. No. V30518 Act 36/1947
Registraton Holder: Ascendis Vet (Pty) Ltd. Reg. No. 2001/017471/07
31 Georgian Crescent East, Bryanston, Johannesburg, 2191. **Tel:** 0108800778 E -**mail:** vet-info@ascendishealth.com PRO.20.04/1

PROBIVET | Ascendis ANIMAL HEALTH

REFERENCES:
1. Pinna, C. & Biagi, G. (2012) The utilisation of prebiotics and synbiotics in dogs. *Italian Journal of Animal Science*, 13:1, 3107, pp. 169-178. doi: 10.4081/ijas.2014.3107
2. Benyacoub, J. Czarnecki-Maulden, G.L. Cavadini, C. Sauthier, T. Anderson, R.E. Schiffrin, E.J. & von der Weid, T. (2003) Supplementation of food with Enterococcus faecium (SF68) stimulates immune functions in young dogs. *The Journal of Nutrition*, 133:4, pp. 1158-1162. https://doi.org/10.1093/jn/133.4.1158
3. Raa, J. (2015) Immune modulation by non-digestible and non-absorbable beta-1,3/1,6-glucan. *Microbial Ecology in Health and Disease*, 26:1, 27824. doi: 10.3402/mehd.v26.27824
4. Stier, H. Ebbeskotte, V. Gruenwald, J. (2014) Immune-modulatory effects of dietry Yeast Beta-1,3/1,6-D-glucan. *Nutrition Journal*, 13:38. doi: 10.1186/1475-2891-13-38
5. Wortinger, A. (2010) Nutrition know-how: prebiotics and probiotics: what they can do for dogs and cats. Retrieved from *Yardley, USA, Veterinary Learning Systems Inc.* website: https://www.vetlearn.com/veterinary-technician

Editor's Note

The last edition of the year.

In some ways this year has flown by, and in others it couldn't move fast enough!

This edition has an article by Dr Brogan Atkinson, a resident in small animal medicine, on the approach to the dyspnoeic patient, a panicky moment for any vet. In the first edition next year I will have an article on the management of thoracic trauma to complement this one. There is also a nice section on ultrasound of the eye and eyelid surgery. Eric Garcia also has some tips on retaining and attracting more clients to your practice, a definite must in these tough economic times. The behavioural article on interdog aggression, by Dr Aileen Pypers is a good read and we will follow up on this first one. We always make sure we provide tick control treatment for a biliary but don't always make sure that the dog with bite wounds is safe to go home and why it happened and how to prevent it again. Behavioural medicine takes time. Time is a scarce commodity. The least we could do is supply reading material for the client with good reliable information.

Lastly I would urge you to contact support@vetlink.co.za or myself at lieselvdmvet@gmail.com for any topics you feel would be relevant in the magazine. We all work in different spheres.

I wish you all a relaxing happy and safe summer holiday season and will "see" you again with the next edition in February/March.

Liesel

Index:

PREVIOUS EDITION: September 2020

- Managing Immune-mediated Haemolytic Anaemia
- Anaesthesia & Management of Peri-Anaesthetic Hypotension for Critical Patients
- Diagnosis and Management of GI Motility Disorders

Vet360 is a source of current, relevant educational material for practising veterinary professionals in Southern Africa.
Published Bi-monthly in hard copy and electronically on www.vet360.vetlink.co.za.

Distribution: Southern Africa, 3 500 copies.

Editor: Dr Liesel van der Merwe BVSc (Hons) MMedVet (Med) Small Animals.
Layout and design: Heinrich van Rijn
Publisher and Owner: Vetlink Publications
Other Publications by Vetlink: Vet360 Mobile App, Livestock Health and Production Review, Hooo-Hooo, Equine Health Update

We welcome any comments, contributions, topic suggestions and letters for publication. Send them to:
The Editor, PO Box 232, GROENKLOOF, 0027
Tel: (012) 346 1590, 082 575 6479. Fax: 086 671 9907
Email: lieselvdmvet@gmail.com
(Dr Liesel van der Merwe)

Advertising Enquiries: The Publisher. Vetlink.
Madaleen Schultheiss: madaleen@vetlink.co.za

Madaleen Schultheiss

vetlink

Suicide Prevention: How to be Someone's Person

Meghann Berglund, DVM

After I shared my own story with the veterinary world regarding depression and suicidal thoughts, I learned how valuable it is to be there for that person and how an inch can, in fact, be a mile.

Question: What's the difference between enjoying the scenery and falling off a cliff?
Answer: One inch.

Earlier this year, I shared the story of my struggle with post-partum depression and suicidal ideation. I was incredibly honoured, humbled and overwhelmed by the responses I received. Total strangers thanked me for helping shine a light into their darkness. They connected with the description of my anxious, over-analytical mind – something I dubbed "border collie brain." And mamas with babies of all ages told me over and over: "This is me" and "I needed this today." As I read the responses, I felt a sense of responsibility to those taking the time to share their stories with me. I took the better part of a day making sure that I responded to every single comment and message I received. Thank you for sharing. Thank you for staying. I see you. Just keep going.

I began to wonder if I was doing enough. Now that the weight of these struggles had been shared with me, what was my responsibility in carrying them and honouring those who opened themselves up? Knowing there were veterinarians and mothers out there who were hurting, what was my role in helping them? It felt like something for which I was utterly under-qualified.

During my conversations with those who reached out, I was surprised to find that no one was asking me to "fix them." No one expected me to have the answers, to be an expert or to know how to make everything OK again. They were simply happy to know that there was someone else out there like them, and if there was eventual light for me, perhaps there would be for them, too.

I started to wonder if perhaps-beneath the social media campaigns, task forces and informational brochures-the actual frontline fight against veterinary suicide is waged on a microscopic basis, one fibre of connection at a time.

It's sometimes said by people when recounting times of suicidal ideation that an interaction with a single person helped to pull them out of the darkness. Spoken this way, it sounds incredibly weighty and intimidating. It seems like a realm reserved for psychiatrists, clergy or self-help gurus. But I'm here to tell you that there is absolutely no qualification required to be "someone's person." But what does that mean to fill that role?

Being someone's person means really seeing them.

It's recognizing something "off" in the way someone sounds or carries themselves. It's noticing the changes in routines or priorities. It's asking "How are you?" and hearing the unspoken words behind "I'm fine." It should be emphasized that you don't have to be close to the person to see that they're struggling. Some of the most meaningful conversations I've had about mental health have been with people I don't know very well. "You seem quieter than I usually see you ... is there anything troubling you, or anything I can help you with?"

Being someone's person means embracing the uncomfortable.

It's knowing (or suspecting) someone is struggling and not shying away. No matter how awkward or unqualified you may feel, there is no downside to trying to connect with someone who may be considering suicide.

It's rejecting the myths surrounding suicide, and understanding that asking someone if they're thinking of hurting themselves is not planting an idea-in fact, it's one of the best tools for getting people help: "People who are experiencing the struggles you are sometimes think about taking their lives. Are you having any thoughts like this?"

Being someone's person means understanding that emotions are complex and difficult.

It's normalizing the emotions: the fear and anxiety, the hopelessness and the shame-while still rejecting the action being contemplated.

It's understanding that, at first, you may be met with denial or even anger, but that having someone "alive and mad at you" is far better than the alternative.

Being someone's person doesn't mean you have to fix them.

If you saw someone having a heart attack, you wouldn't be expected to perform bypass surgery just because you were the one who asked them if they were having chest pain. You wouldn't be expected to be their exercise coach and personal nutritionist afterwards. Your only obligation is to recognise the signs of an emergency, stabilise them if possible and get them to a place where they can be assessed and treated appropriately.

Similarly, being someone's person doesn't mean that you are required to solve their problems or fight their battles for them. It doesn't mean you have to be their therapist. And most importantly, if they do end up taking their life, it does not mean that you failed.

For those looking for more information on how to recognize and assist those at risk for suicide, QPR (question, persuade, refer) Gatekeeper Training was created to fill the same role in mental health that CPR and Heimlich Manoeuver training does for physical health. The more people can be trained to recognize signs of a mental health crisis and assess and intervene quickly and appropriately, the more lives may be saved..

Being someone's person can be an incredibly small and simple gesture, with astoundingly deep and long-lasting effects. It's leaning in toward someone who is struggling instead of being frightened away. It's asking the hard questions and listening carefully to the answers, both spoken and unspoken. It's holding space for another human, even if you can't shoulder their burdens for them. It's knowing that opening yourself up for someone to connect with you doesn't mean you have to single-handedly save them-just see them. It's meeting someone where they are, shining a light for them and nudging them back towards safety. Even if it's only an inch.

Dr. Meghann Berglund is a proud Colorado State University Ram and the owner of Red Dog Veterinary Relief Services in Colorado.

South African Depression and Anxiety Group
http://www.sadag.org/

LifeLine (Johannesburg)
FREE COUNSELLING
Need to talk? Just call us
Call our 24 hr line on
0861 322 322
011 728 1347

Cipla SADAG Mental Health Line
0800 4567 789 or WhatsApp 076 88 22 775

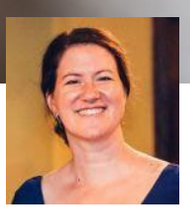
For a suicidal Emergency: 0800 567 567

Department of Social Development Substance Abuse Line 24hr helpline
0800 12 13 14
SMS 32312

Find a Support Group in your area: 0800 21 22 23

TherapyRoute
TherapyRoute is a mental health service directory and resource that helps people find nearby mental health services, e.g. psychologists, social workers, community clinics, NGO's, and psychiatric hospitals throughout South Africa (and beyond).
https://www.therapyroute.com/

An Overview of Interdog Aggression



Dr Aileen Pypers,
BSc, BVSc (UP), PGDip (SU)

Many people who share their homes and lives with a dog have more than one dog and while this can enrich and improve the lives of the people and the dogs in this situation, it can also lead to a situation where dogs living together in a household end up fighting. This can be hugely distressing for everyone involved and can result in significant injury for either or both dogs. Behaviourists refer to this as interdog aggression.

So what is aggression?

There are many misperceptions about aggression and before we go any further, it is important to consider what aggression is and is not.

Aggression is defined as "a physical act or threat of action by one individual that reduces the freedom or genetic fitness of another" .

Aggression describes a group of behaviours – something an animal does - and although we can use the adjective 'aggressive' e.g. an aggressive dog – it is important to remember that this is not the defining characteristic of the dog. In fact, there is no such thing as a non-aggressive dog since ALL dogs have the ability to 'be aggressive' depending on the situation.

Aggression is a component of communication and by necessity involves another being (dog, person, cat, horse, sheep etc). Aggression includes a wide variety of behaviours – body postures, growling, barking, snapping, nipping, lunging and biting. Aggression can be judged as being appropriate or inappropriate to the situation. Aggression DOES NOT explain the cause of or motivation for the aggressive behaviour.

Summarising something as complex as dog behaviour in a blog article is like trying to summarise the history of the world – impossible on the one hand and with so many potential starting points, on the other. There are many factors at play and the complexity around any one of these makes it extremely challenging to summarise succinctly. This should also make you very sceptical of people who try to reduce dog behaviour down to one-dimensional theories that try and explain the variety we observe through over-simplified concepts.

A big challenge of researching and discussing canine aggression is that there is no single classification system. Aggression can be classified based on target, motivation, or situation, which makes discussing different 'types' of aggression very difficult.

In this post, I'm going to cover aggression between dogs who know each other and who are living together in the same household. In part 2, I will discuss the risk assessment we use when dealing with fighting dogs in a household and in part 3, I will discuss aggression towards unfamiliar dogs.

How can you know if dogs have a good relationship or just tolerate each other?

Behaviours such as greeting with relaxed body language, licking around each other's mouths, playing together, sleeping together, resting together, maintaining close proximity or casual body contact are all examples of affiliative behaviours.

Aggression towards familiar dogs

As a social species, dogs are capable of forming relationships with other dogs, people and animals. While most dogs living together in a household are not related to each other, depending on how long they have been living together, it is safe to say that they have some sort of relationship. Sadly, the spectre of 'dominance theory' has resulted in many misconceptions about how this relationship works and hopefully the explanation below will give you a much clearer understanding of why we need to think differently about aggression between familiar dogs.

Behaviour displayed by an adult dog is influenced by their genetic makeup (breeding), their life experiences (learning) and the environment they live in (daily life). Their current emotional state and motivation to do something also influences how a dog behaves.

Dogs are what we've made them

When people talk about the wolf as the common ancestor of the dog, it is easy to forget that the 40000 odd years between when wolves were hanging around our ancestor's fires and now, have had an enormous influence on what dogs look like and how they behave. The majority of dog breeds in existence today were selectively bred to look a specific way and act a specific way. This means that a typical Jack Russell Terrier is likely to be more energetic than a typical Cocker Spaniel and a typical Golden Retriever is likely to be more human-orientated than a typical Basenji. But, like most biological systems, while the majority of individuals fall within the average range, there are outliers at both extremes and so it is possible to have a very laid back and lazy Jack Russell Terrier and an aloof Golden Retriever. The important thing to remember is that by selecting and breeding dogs that have specific physical characteristics, we are at the same time selecting for specific behavioural characteristics.

Every dog is an individual

This may seem like an obvious point, but one that gets forgotten very quickly when pronouncements are being made about a particular dog's actions. Dogs have different personalities which means that an individual dog may be more motivated or less motivated to engage in species specific behaviour like barking, digging, hunting, chasing, running and sniffing. Every dog has needs that are more, or less, important to them – case in point, the dog who would do ANYTHING for food versus the dog whose favourite thing is chasing small rodents versus the dog whose favourite possession is their soft teddy.

Dogs communicate primarily through body language

As a species who communicate primarily through verbal language (speaking and listening), we may find it hard to understand that a dog's main form of communication is not barking but all the (often subtle) body language signals that they use as easily as a chatty toddler. Body language can communicate:

- emotional state e.g. the scared dog with the lowered posture, ears pulled back and tail tucked between its legs,
- intentions e.g. the dog whose body stiffened and eyes widened as you reached towards their food, and
- attempts to influence a social encounter e.g. the dog who offers a flamboyant play bow to their friend in the park.

Aggression is a last resort

Aggression is a costly strategy. If a dog is aggressive to another dog, they could end up getting injured in the process and damaging important relationships. Often there is a lot going on prior to overt aggression that aims to defuse a potentially problematic situation and yet this can be subtle enough that the people living with them miss these.

So, what does it mean when dogs who know each other and have had a good relationship start fighting? (In some cases, the dogs have never had a good relationship, and it has just deteriorated over time to the point that it has become serious enough for the owner to address)

- A fundamental change in the relationship
- A breakdown in communication
- A new stressor
- Depleted emotional resilience

A fundamental change in the relationship

Dogs go through various developmental periods in their journey from birth to death which we tend to reduce to puppy vs adult, when, in reality, it is far more complex. The socialisation period (3-14 weeks of age), sexual maturity (6-9 months of age), and social maturity (1-3 years of age) are all normal phases of dog development which involve brain changes and

associated 'personality' changes. Perhaps your young puppy has grown into an adult dog and is wanting to claim additional cuddle time on the couch or your teenage dog has discovered that female dogs smell good. These things can alter the relationship between dogs and may result in transient squabbles and bickering while re-establishing the relationship or they can result in more serious issues that require careful management to restore harmony.

A breakdown in communication

Dogs may experience physical issues that affect their ability to communicate effectively – it's easy to understand how sensory changes such as deteriorating vision or hearing loss can impact the communication between two dogs, less obvious is how pain and discomfort can alter expression of body language to the point that a communication breakdown occurs. Think of the last time you had a terrible headache that made speaking above a whisper impossible and how this possibly impacted communication with those around you. Now imagine a dog with chronic osteoarthritis trying to make their body stiff and tall to communicate with a rambunctious young puppy.

A new stressor

Just as our lives involve stress, so too do our dog's lives. The difference lies in what we consider to be a stressor. While moving to a new home may be a stressful yet ultimately exciting step for us, the process of packing up, moving and unpacking in a new home can be extremely stressful for our canine companions. Major changes such as a new baby or pet, home renovations or family members moving in or out all affect our dogs just as much as they affect us. Even small changes such as new furniture, a changed work routine or a friend coming to stay for a weekend can be stressful and deplete emotional resources.

Depleted emotional resilience

Which brings me to the last point. Our dogs are exceptionally good at coping with the complex, confusing and ever-changing world we expect them to live in. But how they cope with this depends on many factors. Chief amongst these is the dog's ability to cope, i.e. the coping skills they developed while they were small puppies trying to get the best teat, being separated from their mom and litter mates, and being introduced to new people, animals, situations and events. Our dogs are learning all the time and may quickly learn that they don't like the way somebody greets them but that they get into trouble if they try and avoid this or even 'worse' try and show this by growling or showing their teeth. So instead, they learn to tolerate it and 'cope' and this uses up a bit of emotional energy. And so it goes with the myriad of situations in a day – the cat who jumped on the kitchen counter that they wanted to chase but didn't because their human doesn't like that, their buddy who came to lick out their bowl before they had even finished, having to wait FIVE MINUTES while their human put on her shoes to take them walking. When lots of these things happen in one day, their 'bucket' of emotional energy may be drained and the final infraction, their buddy coming to jump up on their human's lap when they were already there getting a prime cuddle, may be the tipping point that results in an act of aggression. While many dogs will respond to an outburst like this by backing off or offering appeasing behaviour, there may be times when both dogs are at this point and then a fight can ensue.

What next?

Once dogs have had a big fight, it breaks down the relationship between them and can cause anxiety and wariness. This alters the way they behave around each other, the body language they use, and how they respond to interactions which can ultimately lead to more fights. The 'victim' may decide to launch an offensive attack to protect themselves before the other dog can attack them or the aggressor may remember that they were able to gain the upper hand in a previous fight and may therefore behave more assertively towards the other dog, upsetting the social balance.

Behaviour therapy, overseen by a professional behaviourist, is about fixing this relationship through helping to re-establish an appropriate relationship dynamic, repairing a breakdown in communication, reducing stressors and helping dogs to cope with the things that are stressing them out.

Dogs fighting with each other can have a number of terrible repercussions. A qualified animal behaviourist or veterinary behaviourist can help you to navigate this difficult time and restore harmony within the house so it is critical to seek professional help as soon as possible.

References

1. Landsberg G, Hunthausen W, Ackerman L. Behavior Problems of the Dog and Cat. 3rd ed. Elsevier; 2013.
2. This is often why sterilisation is recommended for dogs exhibiting behavioural characteristics such as generalised anxiety, aggression or compulsive disorders. Since there is a genetic element to behaviour, we want to eliminate these characteristics from the population.

The Blue Patient:
Approach to Respiratory Emergencies in Small Animals

Atkinson, B.K. BSc Veterinary Biology,
BVSc Veterinary Science (Hons), MMedVet (Small Animal Medicine)
Resident. University of Pretoria, Onderstepoort Veterinary Academic Hospital, Old Soutpan Road (M35), Onderstepoort, Pretoria, 0110. Email: brogan.atkinson@up.ac.za

Introduction

Respiratory distress is a common clinical emergency veterinarians are faced with. Respiratory pathology may be the reason these animals are presented or be the unfortunate consequence of in hospital management or procedures. As with any emergency, prompt identification of the underlying cause with appropriate management are essential to improve the chances of a successful outcome. However, unlike other organ systems, diagnosis of pathology of the respiratory system may prove challenging and often lifesaving interventions are made based on an educated guess. At least until more in-depth diagnostics are possible.

As respiratory distress is a life-threatening emergency, initial stabilisation is the priority. Provision of supplemental oxygen, although potentially not necessary will do no harm and may potentially save a patient's life. Supplemental oxygen will also allow the veterinarian time to think as well as conduct a thorough physical examination to attempt to localise the site of pathology and obtain a basic pertinent history to guide the initial treatment and diagnostics. A logical stepwise approach is the best when investigating respiratory disease. Although there are some constant key elements, this a recipe that will have to be adjusted to the patient, the veterinarian as well as the equipment and facilities available.

Supplemental oxygen therapy

A dyspnoeic patient should be placed in a quiet area (avoid stress) and started on supplemental oxygen using one of the following methods:[3,6,7]

Oxygen administration technique	Mean FiO_2 Achieved (%)	Advantage	Disadvantage
Oxygen cage	21-60%	Administration of known FiO_2, low stress, non-invasive	Large amount of oxygen utilised, expensive equipment, risk of overheating, accumulation of CO_2 with homemade cages
Flow-by oxygen	24-45%	Simple	Wasteful of oxygen, Manpower intensive
Face-mask, loose fitting	35-55%	Simple, better FiO_2 than flow-by	Wasteful of oxygen, manpower intensive, stress in patients not tolerant of mask, close fitting may inhibit loss of CO_2 and heat
Oxygen hood	30-50%	Cheap and easy to make with elisabethan collar, reasonably high oxygen levels administered	CO_2 and heat accumulation if hole at the bottom not made, difficult to control FiO_2, stress animals not tolerant of collar
Unilateral nasal catheter	30-50%	Well tolerated, patient assessment possible without removing oxygen, minimal manpower	Requires humidification, nasal mucosal irritation, no control of FiO_2
Bilateral nasal catheter	30-70%	Well tolerated, patient assessment possible without removing oxygen, minimal manpower, improved oxygen supply vs unilateral	Must be humidified, nasal mucosal irritation, unable to determine FiO_2 given
Intra-tracheal catheter	40-60%	Oxygen can be supplied despite upper respiratory obstruction; patient can be ventilated if necessary	Invasive, irritant to tracheal mucosa and discharge accumulation, increased risk of pneumonia
Positive pressure ventilation	21-100%	Complete control of respiration, ventilation and FiO_2, may be life saving	Intense ICU monitoring, costly, increased risk of ventilator-induced lung injury, success rate variable (underlying disease)

Fig. 1a - Home-made oxygen cage.

Fig. 1b - Basic structure of a self build oxygen cage.

Additional emergency stabilisation

- Sedation or anxiolysis is often required. Stressed patients will only perpetuate the problem, increasing energy expenditure and may contribute to hyperthermia and respiratory failure.[2,6,7]
  - Butorphanol 0.1-0.4 mg/kg
  - Acepromazine 0.01-0.025 mg/kg
  - Diazepam (0.2-0.5 mg/kg)/Midalozam (0.1-0.5 mg/kg) – can be used in combination with the above drugs.
- If upper airway oedema is suspected intravenous dexamethasone may be given.[2]
- Hyperthermia should be addressed and patients cooled using fans, cool towels on the body (replaced as soon as they get warm), wet the coat, cool intravenous fluids, alcohol on the foot pads and ice packs in areas of large blood vessels (neck, axilla, inguinal).[6,7] Hyperthermia will only worsen respiratory distress and may eventually lead to disseminated intravascular coagulation and multiple organ dysfunction if left unattended.[7] Cool patients down to 39.4 – 39.7^{0}C.[3,7]

Localisation

A good clinical examination and identification of breathing patterns can provide important clues. Although localisation of the pathology is very useful many animals may have more than one area of the respiratory tract affected.[5] Further diagnostics must be performed as soon as the patient is stable. As with most cases the older the dog the more likely they will have more than one problem and identification of these is important when it comes to treatment and prognosis.

Upper airway disease

Narrowing or obstruction of the upper airways will result in increased resistance to airflow and greater inspiratory effort to achieve adequate alveolar filling. Inspiratory dyspnoea appears to be more common in dogs than cats with upper airway disease.[5] In addition to increased inspiratory effort stertor or stridor may also be noted. Stertor refers to a snore-like sound and anatomically involves the nasal and nasopharyngeal regions. Stridor on the other hand can be heard as either a whistle, squeak or roar-like sound and is associated with laryngeal obstruction or narrowing. The resistance to airflow may be from a fixed or dynamic obstruction resulting in continuous or intermittent clinical signs. The last anatomical location of upper airway disease will be the trachea.[2]

Complete obstruction will result in no respiratory noise and can rapidly lead to respiratory arrest if not addressed. Possible causes of obstruction or narrowing of upper airways include foreign bodies, neoplasia, oedema/inflammation/infection of soft tissues, laryngeal paralysis, tracheal collapse, trauma and brachycephalic airway syndrome.[3,7]

Lower airway disease

This is a condition affecting the bronchial tree and is often associated with wheezes (whistling of air through narrowed bronchi), occasionally crackles on thoracic auscultation and expiratory dyspnoea.[2,3,7] The breathing pattern noted is characterised by a shorter inspiratory phase and longer expiratory phase with a terminal expiratory push involving the abdomen.[3]

In normal lungs inspiration is active - expiration is passive (elasticity of the ribs and inflated lungs) If the lung parenchyma is affected - inspiration may become more active and with increased effort as the elasticity is lost

Normal respiratory sinus arrythmia - with expiration there is an increase in vagal tone and the heart rate slows slightly. In a patient with pulmonary oedema.

This respiratory sinus arrhythmia will be absent due to increased sympathetic system activation due the underlying heart disease and decreased cardiac output (Increased heart rate and blood pressure). A quick method to exclude pulmonary oedema as the cause of a cough.

During inspiration the low intrathoracic pressure opens the bronchi/bronchioles but during expiration, the increased intrathoracic pressure contributes to the narrowing or occlusion of diseased lower airways.

Bronchoconstriction can be seen with reactive airway diseases such as feline lower airway disease. Other causes of bronchial disease in dogs include chronic bronchitis and eosinophilic bronchopneumopathy, these patients often present with a history of coughing and wheezes on thoracic auscultation.

Pulmonary parenchymal disease

Parenchymal disease is associated with decreased pulmonary compliance requiring higher inspiratory pressures to achieve adequate tidal volume.[7] Increased bronchovesicular (breath) sounds and crackles can be audible on auscultation. Inspiratory and expiratory dyspnoea may both be present. The alveolar ducts, alveoli, interstitium and pulmonary vasculature can be affected. The differential list of conditions involving these components is extensive and for this reason further diagnostics are essential.

Differential diagnoses included cardiogenic (tachycardia/arrhythmia) or non-cardiogenic pulmonary oedema, pneumonia, pulmonary contusions, haemorrhage (coagulopathy), interstitial pulmonary disease, parasitic disease, pulmonary thromboembolism, lung lobe torsion, pulmonary hypertension, acute respiratory distress syndrome and neoplasia.

Pleural space disease

Pleural effusion, pneumothorax or soft tissue within the pleural space often results in dyspnoea depending on the extent of lung compression or restriction of lung expansion. Previously a restrictive pattern of breathing (rapid, shallow) was associated with pleural space disease, this however is more commonly seen in normal stressed cats. Instead, costoabdominal and asynchronous (ribcage expands during inspiration while the abdomen moves inward) breathing is associated with pleural space disease.[5] Muffled heart and lung sounds may increase your suspicion of pleural space disease.

Pneumothorax and diaphragmatic hernias are often associated with trauma, other causes of pleural space disease include right heart failure, neoplasia, infection, idiopathic (chylothorax), haemorrhage (trauma/coagulopathy), lung lobe torsion and severe hypoproteinaemia.

Conditions mimicking respiratory disease[2,3,8]

- Chest wall disease (trauma, rib fractures, pain).
- Severe abdominal distension may compromise respiratory efforts (GDV, pregnancy, ascites, intra-abdominal masses).
- Hyperthermia may be the primary contributor to increased respiratory rate and effort to promote cooling.
- Certain drugs such as opioids.
- Metabolic acidosis with respiratory compensation.
- CNS disease (neoplasia, inflammation, trauma) causing stimulation of the respiratory centre.
- Pain affecting any region of the body may cause an increase in respiratory rate.
- Stressed cats often present with rapid, shallow breathing that may be mistaken for pleural space disease.
- Pericardial disease (often acute pericardial effusions).
- Cardiovascular anomalies leading to right-to-left shunting (PDA, VSD, ASD, Tetralogy of Fallot etc.).
- Severe neuromuscular disease (botulism, polyradiculoneuritis, myasthenia gravis).
- Anaemia.
- Toxicity due to ingestion of agents that affect the oxygen carrying capacity (haemoglobin molecule) of red blood cells (acetaminophen, nitrates/nitrates etc.).

Diagnostic investigation

Signalment of a patient is often the first useful tool in our arsenal of diagnostics because it will increase the suspicion of particular diseases which can help guide emergency management.

History

A thorough history is pertinent to the investigation.
The information to be obtained:

- Duration and progression of clinical signs
- Clinical signs other than dyspnoea (coughing, vomiting, anorexia, regurgitation, pyrexia, exercise intolerance, attempts to bring up hairballs, sneezing, facial pawing, nasal discharge, changes in breathing sounds, weight loss)
- Prior therapy and response
- Current medication
- History of sedation/anaesthesia
- Exposure to toxins
- Environmental changes
- Underlying/additional conditions

Radiographs

One of the best diagnostic tests as it will give information on the airways, lungs, pleural space, thoracic wall, diaphragm and heart. This should be performed with caution in severely dyspnoeic patients, minimal restraint should be used to minimise stress and oxygen supplementation should be continued throughout the procedure. Most lung patterns noted on radiographs are mixed patterns

Diagnostic investigation examples include:

Condition	Breed
Tracheal collapse	Yorkshire terriers, toy pom, toy poodle, Maltese
Brachycephalic airway syndrome	Bulldog, Boston terriers, pug, staffordshires
Chronic bronchitis	Older, small breed dogs
Laryngeal paralysis	Labrador retriever
Spontaneous pneumothorax	Golden retriever, husky, malamutes
Eosinophilic bronchopneumopathy	Husky, malamutes
Interstitial lung disease	West Highland White Terrier
Cardiogenic pulmonary oedema	Small breed older dogs with heart murmur, Doberman pinscher (DCM)
Pyothorax	Hunting dog breeds(grass awns), male cats (fighting)
Feline lower airway disease	Colour Pointed cats (Siamese, Himalayan)
Non-cardiogenic pulmonary oedema	Puppies chewing electric cords, brachycephalic dogs with upper airway obstruction
Pulmonary haemorrhage due to anticoagulant toxicity	Young dogs

Quick guide to radiographic lung patterns:[2,4]

Lung pattern	Characteristics
Bronchial	Tramlines and doughnuts noted on radiographs Calcification of bronchial walls (thin lines) Bronchiectasis (changes in shape and size of bronchial lumen) Often accompanies other lung patterns (broncho/alveolar)
Alveolar	Border effacement of soft tissue structures (heart, blood vessels) Air bronchogram Lobar sign
Interstitial (unstructured)	Loss of detail but NO border effacement Lung parenchyma appears more radio-opaque
Nodular interstitial	Nodules More obvious in upper aerated lung on lateral radiographs (improved contrast, air vs soft tissue)

and often progress from one pattern to the another (interstitial to alveolar with cardiogenic pulmonary oedema). Certain anatomical locations are associated with certain conditions such as the right middle lung lobe (aspiration pneumonia) and right caudal lung lobe (first region to identify cardiogenic pulmonary oedema and then perihilar).

TFAST (thoracic focused assessment with sonography for trauma)

Rapid assessment of the thoracic cavity utilising ultrasound to identify pleural effusions, pericardial effusions, pneumothorax and presence of fluid filled lungs. Sedation and shaving is not necessary and both sides are evaluated with this technique, to improve identification of unilateral pathology.[1]

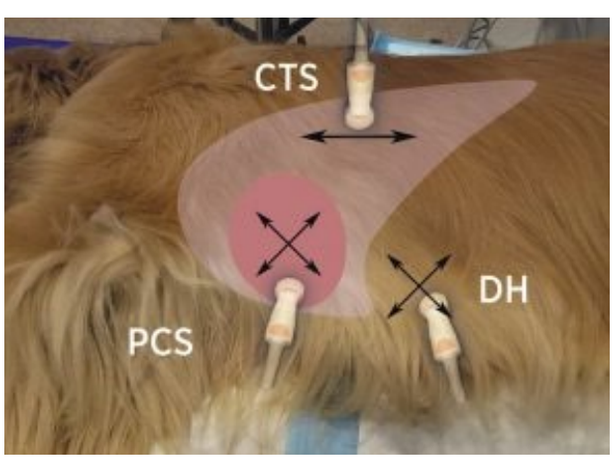


Fig. 2 - Schematic diagram of a TFAST examination performed in right lateral recumbency. The CTS, chest tube site; DH, diaphragmatic-hepatic window; PCS, pericardial site.

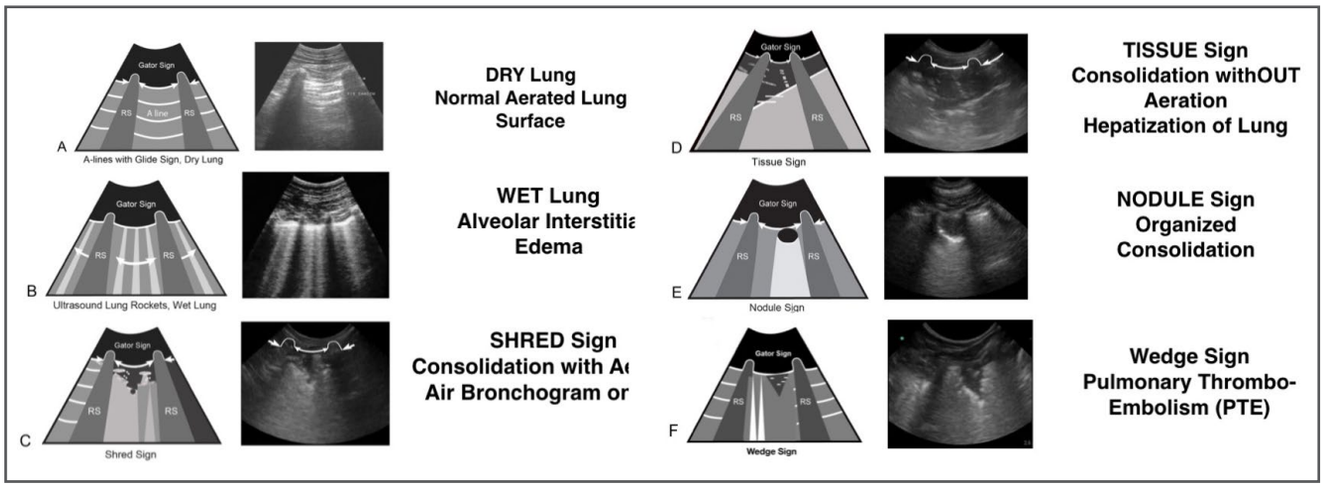


Fig. 3 - Examples of the 6 lung signs on T Fast.

Chest tube sites (CTS): Left and right lateral, longitudinal view, the 7th–9th intercostal space on the dorsolateral thoracic wall.

Pericardial sites (PCS): Left and right lateral, transverse and longitudinal view, the 5th–6th intercostal space on the ventrolateral thoracic wall.

Diaphragmatico-hepatic view (DH): Just caudal to the xyphoid process, tranverse and longitudinal view.

Pneumothorax is diagnosed at the CTS and is based on the absence of the glide sign. The glide sign is the normal gliding movement of lungs along the thoracic wall during respiration, seen ultrasonograhically as a hyperechoic line moving backward and forward at the lung margin. Pleural and pericardial effusions are diagnosed at the PCS, seen ultrasonographically as hypoechoic fluid. The presence of 'wet lung' (pulmonary oedema, pneumonia etc.) is noted by an increase in B-lines (comet tails) at the lung margin. The DH view allows for evaluation of caudal lung margins, accessory lung lobe and the heart/pericardium.

Thoracocentesis and thoracostomy tube placement

Thoracocentesis is both a diagnostic and therapeutic tool. The removal of air (pneumothorax) or fluid (pleural effusion) will decompress the lung and stabilise a patient in many instances. The fluid collected from the thorax must be analysed.[3]

Ideally thoracocentesis should be done following confirmation of pathology on radiographs or TFAST and ultrasound guidance is advised during the procedure. The procedure is done in lateral recumbency for pneumothorax drainage between the eighth or ninth intercostal space at the highest point. For fluid the seventh or eighth intercostal space at the level of the costochondral junction is used. These patients can be in sternal recumbency or mildly tilted with the dorsum away from the operator.[3,7]

A butterfly catheter can be used in smaller animals, in larger animals an 18-gauge to 20-gauge, 1.0-inch to 1.5-inch needle or catheter may be required. If the drainage is peformed without ultrasound guidance then a catheter is advised to minimise complications such as haemorrhage (avoid caudal aspect of ribs where blood vessels and nerves lie), cardiac puncture and iatrogenic pneumothorax. Exercise caution not to drain too rapidly if adhesions between lung and pleura (long standing problems) are suspected as this may lead to tearing of trapped lung.[7] Contra-indications to thoracocentesis include severe coagulopathies and diaphragmatic hernia (abdominal viscera puncture).

Fine needle aspiration

Ultrasound guided procedure into a solid mass or a consolidated or severely affected lung lobe. Patients should be sedated for this procedure to avoid possible complications (pneumothorax, haemorrhage, cardiac puncture) and monitored for worsening respiratory distress there afterward. This may be diagnostic or give an idea behind the pathomechanism involved such as inflammation, infection, neoplasia.

Further diagnostic tests and treatment in the stable patient

Laryngeal evaluation

Laryngeal evaluation is done under anaesthetic. Evaluate the abduction of the arytenoids (doxapram can be injected to exaggerate movement) and evaluate for massesoedema.

Fluoroscopy

Fluoroscopy is very useful to evaluate the trachea and mainstem bronchi during breathing and coughing. This is a dynamic study that allows visualisation of the airways during the different phases of respiration as well as other intrathoracic organs (cricopharyngeal region, oesophagus) for dysfunction that may predispose to respiratory disease. This is a non-invasive procedure requiring little to no sedation.

Thoracic fluid analysis

Fluid	Total protein (g/dL)	Nucleated cell count (x 10^3/µL)	Cells noted	Some causes
Transudate	<2.5	<5, usually <1.5	Macrophages, neutrophils, lymphocytes, mesothelial cells (rare in cats), variable RBC	Uncommon, neoplasia, cardiac disease, lung lobe torsion
Modified transudate	>2.5	<5	Macrophages, neutrophils, lymphocytes, mesothelial cells (rare in cats), variable RBC	Neoplasia, cardiac disease, lung lobe torsion
Chylous effusion	>2.5	Variable, >3	Large numbers of small lymphocytes, lipid vacuoles in macrophages; neutrophils may dominate if longstanding	Cardiomyopathy (cats), idiopathic, neoplasia
Exudate	>2.5	>5	Mainly neutrophils (may be degenerate), macrophages can also be present, may not bacteria/causative agent	Bacteria, foreign body, neoplasia, secondary to pneumonia, fungi, parasites
Haemorrhage	>2.5	>5 usually but depends on peripheral count	Many red blood cells, little or no platelets, white cells are blood associated unless concurrent inflammation is present	Trauma, rodenticide toxicity, neoplasia
Neoplastic effusion	Variable but often >2.5	Variable	Neoplastic cells (often round/ epithelial cell tumours). Fluid often transudative, but can be exudative (necrosis, inflammation), may have haemorrhage	Lymphoma, carcinoma, mast cell tumour, mesothelioma

Bronchoscopy and broncho-alveolar lavage

This a procedure that is done under general anaesthetic in a stable patient, the risk of the procedure should be weighed against information gained. Bronchoscopy should only be done in patients where the procedure will yield a diagnoses such as eosinophillic bronchopneumopathy and tracheal collapse (if fluoroscopy is not available) or in cases where initial therapy was unsuccessful and sample collection will allow for culture/fluid analysis/ infectious agent identification, guiding a more specific therapy. In generalised lung disease such as inflammatory conditions the BAL can be performed without the use of brochoscopy.

Computed Tomography

CT is the gold standard for thoracic imaging and assists with diagnosis and surgical planning. It is done under general anasthetic but is usually a very quick procedure requirng minimal time under anasthesia. Indentification of neoplasia, pulmonary fibrosis, granulomas/abscesses, foreign bodies and more is possible.

Thoracostomy tube

Thoracostomy tube placement may be necessary for the management of pleural space diease. Should a patient require more than 3 to 4 therapeutic, large-volume thoracocentesis procedures within a 24-hour period, placement of a thoracostomy tube placement should be considered. Depending on the extent and localisation this may be unilateral or bilateral.

References

1. Boysen SrR, Lisciandro GR 2013 The Use of Ultrasound for Dogs and Cats in the Emergency Room. Veterinary Clinics of North America: Small Animal Practice 43:773-797.
2. Johnson MS, Martin M 2008 Investigation of dyspnoea in dogs. In practice 30:558-566.
3. Junaid J 2018 Textbook of Veterinary Internal Medicine, 8th edition. Canadian veterinary journal 59:769-769.
4. Schwarz T, Johnson V, British Small Animal Veterinary A 2008 BSAVA manual of canine and feline thoracic imaging. Quedgeley, Gloucester, British Small Animal Veterinary Association.
5. Sigrist NE, Adamik KN, Doherr MG, Spreng DE 2011 Evaluation of respiratory parameters at presentation as clinical indicators of the respiratory localization in dogs and cats with respiratory distress. Journal of Veterinary Emergency and Critical Care 21:13-23.
6. Silverstein DC, Hopper K 2015 Small animal critical care medicine (Second edition. edn). St. Louis, Missouri, Elsevier.
7. Sumner C, Rozanski E 2013 Management of respiratory emergencies in small animals. Vet Clin North Am Small Anim Pract 43:799-815.
8. Tilley LP, Smith FWK, Jr. 2016 Blackwell's five-minute veterinary consult. Canine and feline (Sixth edition. edn). Ames, Iowa, USA, John Wiley and Sons, Inc.

CPD Questions
AC/0372/20

The Blue Patient: Approach to Respiratory Emergencies in Small Animals

Web-based: www.cpdsolutions.co.za - choose Onlinevets/VET360. SMS number available through website.
*CPD reserved for Vet360 subscribers (R360 per annum) Call 012 346 1590 for assistance. SMS code a82572

01. Anxiety will increase oxygen utilisation in the body. Which one of the medications below is least indicated to be used in dyspnoeic patients?

a. Butorphanol 0.1-0.4 mg/kg.
b. Acepromazine 0.01-0.025 mg/kg.
c. Diazepam (0.2-0.5 mg/kg.
d. Midalozam (0.1-0.5 mg/kg.
e. Morphine (0.2 mg/kg).

02. Heat stroke and dyspnoea are often concurrent. Which of the methods listed below is NOT indicated as a management tool for this condition?

a. Anxiolysis.
b. Dexamethasone IV.
c. Ice packs packed around the patient.
d. Wet the cat and fans on the patient.
e. Eventual GA and entubation if dyspnoea worsens.

03. Which one of the statements below regarding respiratory sounds is INCORRECT?

a. Inspiratory dyspnoea is more common in dogs than cats with upper airway disease.
b. Stertor is a snore sound and involves the nasal and nasopharyngeal regions.
c. Stridor is a "roaring" sound and is associated with tracheal collapse.
d. Upper airway disease can be dynamic and intermittent.
e. Complete obstruction can cause no audible sound.

04. Which of the statements regarding lower airway disease is INCORRECT?

a. Lower airway disease include conditions affecting the bronchi.
b. History of a cough is present in these patients.
c. Wheezes are often heard with lower airway disease.
d. The breathing pattern has a longer inspiratory phase than expiratory phase.
e. Crackles can be auscultated in same cases with lower airway disease.

05. Which of the statements below regarding breathing patterns is CORRECT?

a. Parenchymal disease requires decreased inspiratory pressures due to decreased compliance.
b. Elasticity and compliance of the ribs and normal lung tissue allows expiration to be a passive process.
c. Normally expiration and inspiration phases are equal.
d. Inspiration causes a respiratory sinus arrhythmia in normal dogs.
e. Bronchial disease causes increased inspiratory effort.

06. Pleural space disease is most likely identified by which of the following breathing patterns?

a. Shallow breathing.
b. Costo-abdominal breathing.
c. Panting.
d. Increased expiratory effort.
e. Increased inspiratory effort.

07. Bronchial disease is best described by which one of the following descriptions?

a. Tramlines and donuts on the radiograph, history of a cough, increased expiratory effort.
b. Air bronchograms, history of a cough, increase inspiratory effort.
c. Tramlines and donuts on the radiograph, increased inspiratory effort, stridor.
d. Calcification of bronchial walls on the radiographs, increased inspiratory effort, history of a cough.
e. Loss of detail in lungs on radiographs, history of a cough, increased expiratory effort.

08. The TFAST is basically a quick ultrasound to assess the thoracic cabity, mainly used in trauma cases. Which one of the following statements regarding its use is INCORRECT?

a. Normal lungs have a hyperechoic line moving backward and forward at the lung margin (glide sign).
b. Pneumothorax is diagnosed on the absence of the glide sign – i.e. a static hyperechoic line.
c. The presence of pulmonary oedema is noted by an increase in B-lines (comet tails) at the lung margin.
d. Pleural effusion is seen as a hypoechoic line/ accumulation beneath the ribs.
e. Pneumothorax will cause increased B lines (comet tails) at the lung margin.

09. In an emergency situation, thoracocentesis can be preformed based on clinical and ausculation findings only. Which one of the following concepts listed below is INCORRECT?

a. Pneumothorax will quite severely muffle the lung sounds on auscultation.
b. The patient will have asynchronous respiration with a pleural effusion.
c. In very distressed patients the procedure will need to be performed with them in sternal position or sitting.
d. You will need to remove the majority of the fluid/ air to stabilise the patient.
e. You can provide anxiolysis with butorphanol.

10. Which one of the conditions below has not been noted to mimic respiratory disease?

a. Chest wall disease (trauma, rib fractures, pain).
b. Partial complex seizures.
c. Metabolic acidosis with respiratory compensation ("blowing" off $C0_2$).
d. Stressed cats (panting).
e. Paracetamol toxicity in cats.

Ocular Ultrasonography in Small Animals

Part 1: Patient Preparation, Technique and Normal Appearance

Sam Mauchlen MRCVS BVM&S

Ultrasound is used routinely by veterinary ophthalmologists to evaluate ocular and orbital structures. Ultrasonographic assessment of eye facilitates the examination of intraocular structures in cases where pathology is obscuring the normal anatomy and can aid in the detection and evaluation of intraocular conditions such as neoplasia. Additionally, ultrasound can be used to examine the structures within the orbit and retrobulbar space.

Patient preparation and technique

As the ocular structures are superficial, appropriate ultrasound transducer selection and optimising the ultrasound machine set up is important. Medium to high frequency transducers capable of producing ultrasound frequencies of 12 – 20MHz are ideal for ocular ultrasound. However, lower frequency transducers (or a reduced ultrasound frequency setting) can be used to examine the posterior globe and retrobulbar tissue. The depth setting on the ultrasound machine should be altered so that the area of interest occupies 75% of the screen and the focal zone(s), which represents the area of optimal lateral resolution, should be positioned at the level of the area of interest.

Ultrasound examination of the eye is ideally performed with the patient conscious as sedatives or general anaesthetic can lead to globe retraction and/or rotation. Before commencing the exam, a topical local anaesthetic such as 1-2 drops of 0.5% proxymetacaine should be applied to the corneal surface. The patient can then stand or sit with the head held securely by an assistant. A water-soluble acoustic coupling gel is applied to the ultrasound transducer and the transducer is placed directly on the corneal surface (Fig. 1).

Fig. 1 - Direct corneal placement of the ultrasound transducer in a conscious patient. In this example a high frequency linear "hockey stick" transducer is used.

Ocular ultrasonography should not be performed if there is evidence of significant corneal ulceration. In cases where there is deep corneal ulceration or a descemetocele, the pressure from the transducer can lead to corneal rupture. In patients where there is intense blepharospasm, globe trauma or the patient is uncooperative, the transducer can be placed on the closed eyelid. However, the image quality is reduced using this method.

Following ultrasound transducer placement, small angulation (fanning) or sliding motions can be made to examine the globe. This should be performed in a horizontal and vertical plane using the transducer marker to help image orientation. It is imperative to examine both eyes, in cases with unilateral disease this allows the images from the normal and affected eyes to be compared.

Once the examination is completed, the acoustic coupling gel should be gently flushed from the eye.

Normal Appearance

By applying adequate amounts of acoustic coupling gel, the cornea can be visualised as a convex hyperechoic structure. Utilising a high frequency transducer can allow the two parallel echogenic layers representing the anterior corneal epithelium and the posterior corneal endothelium to be seen (Fig. 2).

It is important to be aware of the pressure applied to the corneal surface, as the anterior chamber is compressible, and transducer pressure can result in flattening of the cornea.

The aqueous humour filled anterior and posterior chambers are anechoic (black) with the iris appearing as an echogenic structure that tapers towards the pupillary margin and is continuous with the ciliary body. The anterior and posterior lens capsules are highly echogenic whereas the normal internal lens fibres and nucleus appears anechoic (Fig. 3).

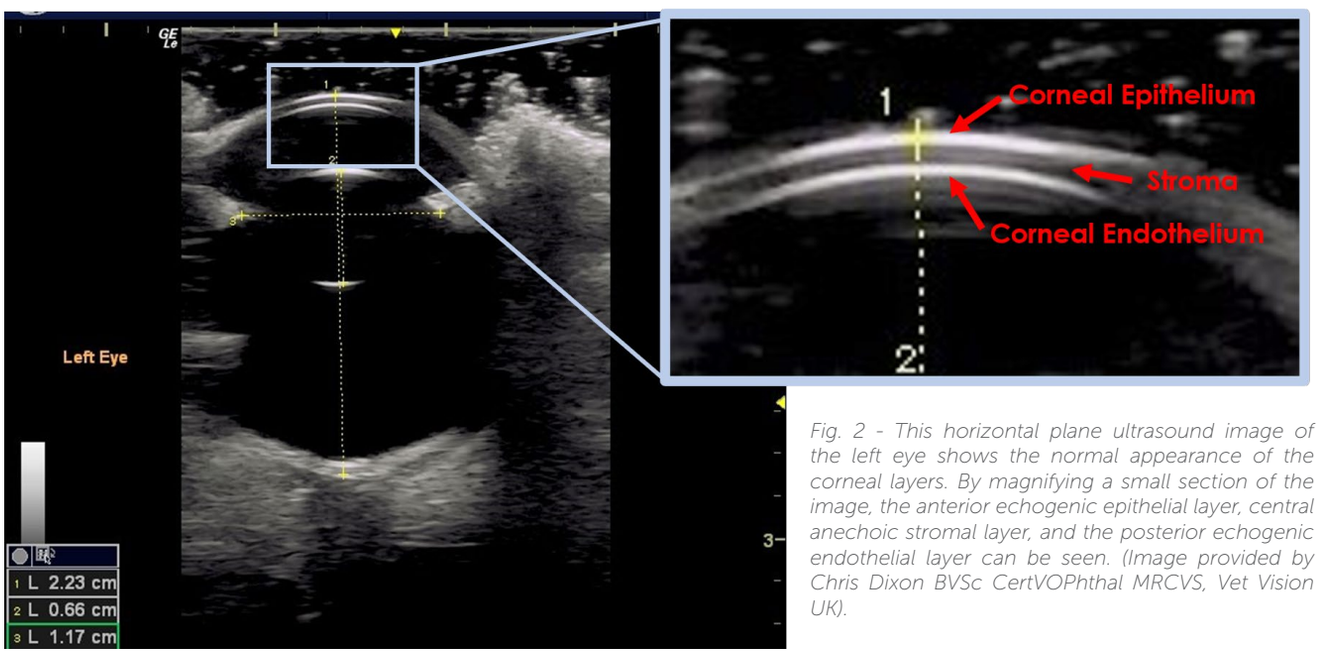


Fig. 2 - This horizontal plane ultrasound image of the left eye shows the normal appearance of the corneal layers. By magnifying a small section of the image, the anterior echogenic epithelial layer, central anechoic stromal layer, and the posterior echogenic endothelial layer can be seen. (Image provided by Chris Dixon BVSc CertVOPhthal MRCVS, Vet Vision UK).

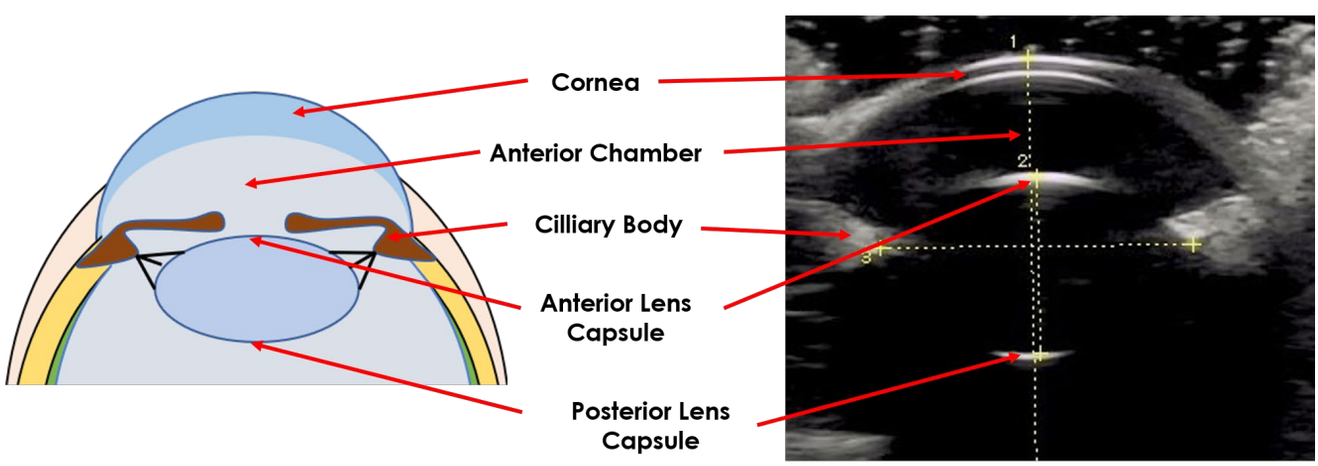


Fig. 3 - A schematic illustration of the anterior globe anatomy is shown beside a section of a B-mode ultrasound image of the canine eye. The echogenic lens capsule can be seen surrounding the anechoic internal lens fibres and nucleus.

The anechoic vitreous body fills much of the posterior segment of the globe with the posterior tissue layers of the retina, choroid and sclera visible as a single hyperechoic curved line in the normal eye. The optic disc may be visible as a recessed hyperechoic area on the posterior wall of the globe (Figure 4.). Posterior to the globe, the retrobulbar space contains the extraocular muscles, retrobulbar fat, optic nerve, and vasculature. The retrobulbar fat forms triangular hyperechoic areas medial to the thin hypoechoic muscle bands. With the central optic nerve appearing as a hypo-anechoic linear area.

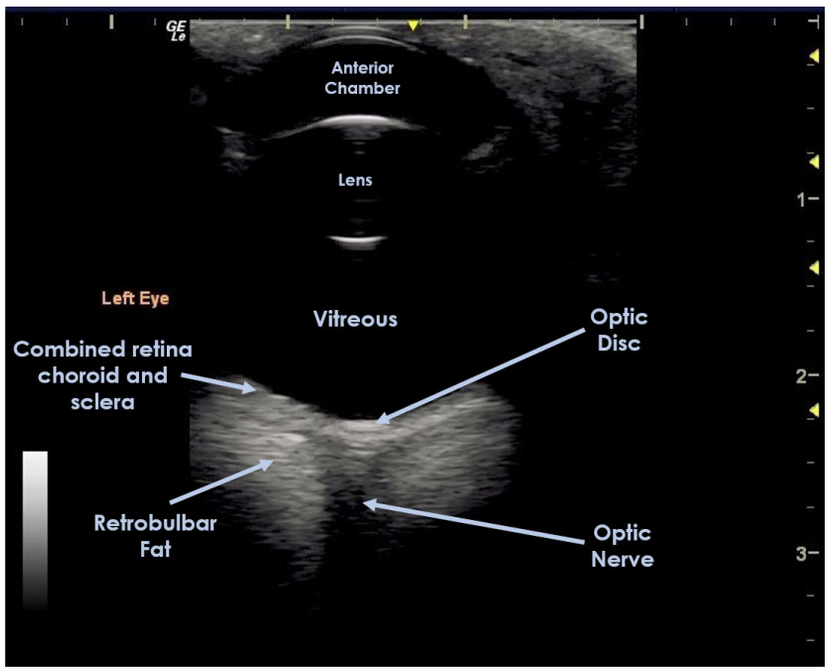


Fig. 4 - This horizontal plane image of the eye shows the posterior segment of the globe and part of the retro-bulbar anatomy. (Image provided by Chris Dixon BVSc CertVOPhthal MRCVS, Vet Vision UK).

As with ultrasound in general, successful ocular ultrasonography is dependent on a systematic approach, appropriate equipment, good image optimisation and confidence in normal findings.

Keep an eye out for Part two of this series on ocular ultrasonography, where we will present examples of the ultrasonographic changes seen in a range of small animal ocular conditions.

Further Reading

1. Boroffka S.A.E.B. (2011) Eyes, In: BSAVA Manual of Canine and Feline Ultrasonography., Eds: Barr F. and Gaschen L., BSAVA publications, Gloucester, pp 183-192.
2. Gonzalez E.M., Rodriguez A., Garcia I., (2001) Review of Ocular Ultrasonography, Veterinary Radiology and Ultrasound 42, pp 485-495.
3. Mackay C.S. and Mattoon J. (2015) Eye, In: Small Animal Diagnostic Ultrasound 3rd edn., Eds: Mattoon J. and Nyland T., Elsevier, St. Louis, pp 128-154.
4. Moore D. and Lamb C., (2007) Ocular Ultrasonography in Companion Animals: A Pictorial Review, In Practice 29, pp 604-610
5. Pizzarini S., Penninck D. and Spaulding K., (2015) Eye and Orbit, In: Atlas of Small Animal Ultrasonography 2nd edn., Eds: Penninck D. and d'Anjou M.A., John Wiley & Sons, Chichester, pp 19-54.

How to Engage Cat Owners in Lifelong Preventive Care

Eric D. Garcia
Simply Done Tech Solutions, LLC
Tampa, Florida, USA
Ericgarciafl.com

"Time spent with cats is never wasted." - Sigmund Freud

The unique relationships we form with animals is something of a spiritual experience. The way that they can sense our emotions, or that we can read their moods just by looking at their eyes, all hints at a connection that's extraordinary.

But despite our love of animals and pets, some are represented constantly across websites, social media channels and presentations, while others are left behind. I've found that practices rarely post about cats, both within social media and across their marketing efforts as a whole.

When I'm consulting with veterinary practices across the world, I'm combing through everything I see to get a holistic impression. This includes everything from the learning about marketing materials in their waiting room, to their website, Facebook Page, brochures, etc. I've noticed that kittens are sometimes used in picturesque settings (yes, that picture of a basket of kittens in a sun-drenched field is oh so realistic), but cats as a whole are mostly neglected.

While this presents an issue, it also presents an opportunity.

To take a more comprehensive look at this, let's begin with some impactful data directly from the American Association of Feline Practitioners (AAFP). The AAFP has found that 50% of cat owners report they didn't seek to own a cat, but instead their cats "found them." 69% of those responding to the same survey state they paid nothing for their cats.

This means that the majority of cat owners received little to no instruction on proper veterinary care for their cats, so while we've bonded with our cats early and often, we may lack professional insights into how to best care for these lovely animals.

I believe that many who own a cat can relate. One day, you're leaving some extra cat food outside for an occasional visit, and soon enough, you've bonded and you're the proud parent of a cat!

With this being said, where do first time cat owners go to learn more about the best way to care for their new feline friend? Well, of course they turn right to the Internet. While this used to make me cringe a bit (considering the amount of unvetted blogs and forums circulating about), I'm happy to report that an increasing number of online searches tend to endorse quality information that the majority of veterinarians would recommend.

This is thrilling for somebody like me, who loves when proud pet owners have access to the information they need! This being said, the Internet (I won't call out any specific social media network by name...except for YouTube) is still absolutely ripe with horrible advice on cat care.

As veterinary professionals, it's up to us to represent all sorts of pets and to provide equal representation. This is also effective for marketing to more people, and for showcasing our commitment to all species of animals we care for. I challenge you to become more pro-active about sharing the stories of cats in your practice to ensure they are properly represented.

You can start off small, by sharing just a few pictures or an anecdote. During my routine social media audits (a process that helps me quickly hone-in on the strengths and weaknesses of existing social media strategy) I actually look to see the last time your practice shared content about a cat. Content that I routinely audit looks a lot like this:

- Dog Post (Monday)
- Dog Post (Tuesday)
- Dog Post (Wednesday)
- Dog Post (Thursday)
- Dog Post (Friday)
- Cat Post (Saturday)
- Dog Post (Sunday)

You get the picture. Not only does this content become redundant, but it underrepresents two specific groups: cats and consequently, cat owners. I'd like to see certain themes that show more interest in cats, like "Featured Feline Friday," which gives practices the chance to share something about cats that will resonate with cat owners directly on an on-going basis.

Looking again at some crucial data from the AAFP, their statistics show that 51% of clients believe cats are "low-maintenance" while a whopping 70% do not believe that cats regularly hide symptoms. 81%, yes 81% of cat owners in this poll believe that their cats are in excellent health and are self-sufficient.

Now we're beginning to see that the underrepresentation also creates an environment where misinformation can too easily spread and become the "norm" of what's largely believed. I'm confident when I say that it's rare to find a veterinarian who believes that cats don't hide symptoms! A lot of this misinformation comes from pet owners going to the wrong sources for info, like a pet store employee or their local Facebook group instead of a tried-and-true veterinary professional.

The AAFP also notes that "veterinarians estimate that 50% of cat owners consider a trip to the veterinarian to be stressful, versus 20% of dogs." **Now we've got a scenario where cat owners don't believe their cats hide illnesses and also believe their cat hates going to the vet.**

Do we see a troubling trend emerging here?

Yes! So how do we overcome it?
What's the best way to inform pet owners that cats do indeed hide illness and that yes, our veterinary practice can provide care that truly accommodates the needs of their feline friend?

We need to tell the stories of the cats we see in our practices! Not just telling but showing too. These narratives are crucial to connecting to the hearts and minds of pet owners!

Read on to learn how to tell these stories and how to adhere to industry-standard best practices along the way:

Remember first and foremost, permission is required from a cat's owner and/or caregiver before sharing any of their information. This consent must be written.

1. Find a cat you've seen recently at your practice.
2. Secure written permission to share a story about the cat.
3. Briefly, gather information including the following:
    a. What illness was the cat brought in for?
    b. How did you help to discover the cat was ill?
    c. How did you help to treat this cat from a veterinary perspective?
    d. How is this cat doing today?

When you combine these elements, you're ready to begin telling the story itself, which may look something like this:

Example:
Gazpacho, a 4-year-old calico, came into All Animal Clinic, a **Cat Friendly Practice®**, after her caregiver, Emily, noticed that she had not been eating a lot lately, and had started hissing and avoiding being petted. Dr. Gray carefully examined Gazpacho using feline-friendly handling and discovered that she had severe dental issues. So, we worked with Emily to take care of Gazpacho's painful mouth. While we had to do a few tooth extractions, we were also able to clean and do preventive treatments. After a short recovery time, we are happy to report that Gazpacho is feeling much better. She is eating well again and since she is no longer in pain, she is no longer hissing or avoiding being petted. Keep your cat's mouth healthy and pain free with regular check-ups at All Animal Clinic. Our staff use gentle, feline-friendly handling to help keep your cat calm.

Why is this story so impactful? Again, let's look at the data! According to the AAFP, 56% of clients report that they would bring their cat to the veterinarian more frequently if they knew this could prevent problems!

This data shows us that increased information, including storytelling and specific examples, would likely lead to increased engagement from cat owners.

To take things even a step further, I recommend that practices consider becoming a Cat Friendly Certified Practice, which really takes the commitment to

delivering remarkable feline care to the next level. While I'm not a veterinarian, I know there's more we can be doing to create a better experience for cats.

I also think it's equally important (whether you decide to become certified or not) to proactively share the things your practice does to make visits for cats easier.

This could mean using pheromone diffusers or sprays to create comfort for a cat while explaining how this works and why it's important. Then and only then can you show me the cat cuddled up and content inside a blanket!

The same goes for sprinkling cat nip on a blanket in the exam room. Explain to me that cats prefer a blanket over a cold, sterile table and that the cat nip is just the icing on the cake to enhance the experience further. Do you use feline-friendly handing techniques or have a cat friendly waiting area? Great, tell me more and show me too with pictures or even video!

Without this type of content being shared regularly both via social media and on your veterinary practice's website, getting cats to come back to your practice is a lost cause.

But if you're willing to engage in thoughtful ways and go the extra mile to care for these beloved felines, well, they'll be beating a path to your door in no time at all.

Share your story, and the rest will follow.

Tell Your Story

People are often under the impression that social media is only for peer-to-peer interactions. This, however, couldn't be further from the truth. Facebook is a platform that's become as universal as the water cooler itself. Successful veterinary practices around the world leverage Facebook as a place to tell their unique story. Your veterinary practice has a story and details that make it entirely unique: the year it was founded; your founder (or two, or more); your **Cat Friendly Practice®** designation; and your practice style and perspective.

Use social media to tell your story!

It is a perfect platform where you can capture and captivate your audience. Tell your followers about success stories at your practice such as:

- How and why you chose to become a **Cat Friendly Practice®**?
- How being a **Cat Friendly Practice®** has improved visits for cats and their caregivers?
- What differences your practice has made today in the lives of cats and other animals?

Sharing this kind of information with your followers in a story format fosters community, trust, interactions, and keeps your trusted cat clients coming back to you. Stories like these are also known as:

Case studies – a story particular to a specific cat client, place, and time.

Case studies are crucially important for a variety of reasons, but primarily to help your audience know about the stellar care your **Cat Friendly Practice®** provides!

When you are creating your case study, be sure to provide your audience with:

- The reason the cat came in to receive veterinary care.
- Details regarding the type of care you provided for the cat.
- How being a **Cat Friendly Practice®** improved the veterinary visit and overall care for the cat and the caregiver.
- An update on how the cat is doing today.
- A photo, or quick video of the pet.

When you provide this level of in-depth information on a cat, you tell the story of your patient and demonstrate that you can deliver the same quality of care to any prospective client. You can to forge an immediate bond with cat caregivers who appreciate your attention to detail, and the accountability needed to provide optimal care for their cat.

Your followers and their friends want to hear of your successes, which will brighten their day and instill them with confidence about your **Cat Friendly Practice®**. In exceptional circumstances, news coverage has even come about after particularly sincere and uplifting stories. This results in tremendous positive publicity, and simultaneously helps you to market your services to a wider audience. This wider audience can soon grow and enhance your veterinary practice online, and in your local community.

Case studies are also a great opportunity to educate your clients. By highlighting a particular health concern (like lily toxicity in cats), you can spread important information in your success story that will resonate with cat caregivers. These posts can be timed for specific times of year (the "chocolate holidays," the start of flea season, holiday dangers) to help your clients stay aware of how to best care for their cat, and to keep your practice at the top of their minds.

Get Permission

Yes, you should receive permission from the cat caregiver to share their story, pictures, or a video of their cat on social media or elsewhere. This is an important thing to note and emphasize, as some

members of your staff may be appointed to collect signed photo/video release forms, to ensure that you're permitted explicitly to share various types of media.

Most cat caregivers don't hesitate at the opportunity to share the joy of their cat with the world and online but receiving permission firsthand is definitely a must.

Sample topics for case studies can include:

- Dermatology: Before and after skin cases
- Dental: Before and after dental care with photos
- Surgical Case Examples
- Laser Therapy Cases

By using Facebook with photos and videos to create and communicate compelling stories, you can enhance your marketing efforts, stay on the cutting edge, and attract more clients to your **Cat Friendly Practice®**.

Appreciate Cat Owners

In a world that's moving so quickly, who really has the time to say "please" and "thank you"? We might think that our world is so filled with stimuli, that nobody would hear it if we said, "Thank you", just a little more often.

It may feel like these tiny, syllable-sized gestures are antiquated or meaningless in our modern-day environment. However, this couldn't be further from the truth. In fact, those precious two little words might be more important now than ever before. Scarcity solicits demand, right? As **Cat Friendly Practices®**, we might be busier than ever before, but our need to express gratitude is also more prominent than ever.

Our need to express a heartfelt, "Thank you", has never been more relevant or imperative, than it is right now.

Despite what you might have been told, this simple phrase is emblematic of a whole lot more. It can make or break a friendship or even a relationship with one of your clients. In feline medicine, we are so intent on acquiring new business, that often times we do not designate enough attention to telling our existing clients how much we appreciate them, or thank them for coming in. Now, why would we work so hard to build our **Cat Friendly Practice®**, market effectively, and provide stellar service, only to stop short of giving thanks to our clients?

With a few simple phrases you can help retain your clients, but even more importantly, create an ongoing, genuine bond of solidarity and trust. I recommend that you make saying the following few sentences a habit. You'll thank me later:

"Thank you for bringing your cat in to see us. Thank you for being a wonderful cat caregiver, and most of all, thank you for choosing to trust our **Cat Friendly Practice®** with your cat's health care needs."

This type of response to a new or established client may only take seconds to say but can make a world of difference. Of course, it's got to be genuine, even when you're busy and the phone is ringing again. You can't overlook the importance of sincere gratitude as a cornerstone of building any healthy relationship.

The central point here is this; the effort really matters, because we really matter. Simply taking time out of each day to thank your clients and letting them know explicitly of your appreciation and their importance can be surprisingly rare.

I used to work closely with a widely respected veterinarian, Dr. Eddie Garcia (no relation, I promise) who would call each and every one of his clients within 72 hours of their initial visit. He would do this with no ulterior motive or hidden reasoning. He would simply call to say, "Thank you for visiting our practice. If there is anything, we can do for you, we are only a phone call away." He strongly encouraged both positive and negative feedback, in whatever form it came. He would use this feedback to learn about the wants, needs and fears of his clients, and thank them for it - even if their visit was sub-par, as well. I can hear you asking, "Wouldn't this level of openness leave him vulnerable to hours of time-consuming critique?" While that's a fair question, the kicker is this:

- A majority of phone calls were left on an answering machine (well, voicemail box nowadays).
- People were so excited about the calls that they called him back simply to express their gratitude.
- Dr. Garcia boasted a 90% success rate of retaining upset or displeased clients.

I watched Dr. Eddie Garcia make these types of phone calls every day for over 10 years (watch him in action). Yes, he really made these calls each and every day, and yes, they really did make a difference.

Calling both new and existing clients is equally important and can't be emphasized enough.
Whereas most of the time clients might simply express their grievance or general feedback to a spouse (if anyone at all), Dr. Garcia used their direct feedback to forge a bond, improve his practice, and retain his clients in a single call. You can do the same.

When I used to ask Dr. Garcia what motivated him to go above and beyond to make these phone calls, he had quite a simple explanation: to stay true to his mission. In his mission, he outlined that his veterinary practice, "will meet and exceed expectation". These phone calls were his little way of making sure that he exceeded his client's expectations of what an attentive and caring veterinarian looked like. And it did. From phone calls

to automated "Thank You" emails, there are plenty of ways to effectively implement gratitude into your **Cat Friendly Practice®**. Here is a 3-step-solution to implementing 'Thank You' into your practice today:

3 Steps to Saying Thank You at your Cat Friendly Practice®

1. Implement a protocol to have your team members print two reports at some point, consistently, each day. These should consist of two parts:
   - New client report from the day before.
   - Appointment schedule report from the day before.
2. Decide in your practice who the appropriate person is to make the call. I usually recommend that associates call their own clients in order to create a genuine bond. If associates do not have the time to do so, the practice owner or medical director may make the call. I've recently heard the idea of practices delegating this responsibility to a receptionist or technician. The reason they do this is because they've expressed that cat caregivers are more likely to share a negative experience with the receptionist vs. the owner or associate. Choose the person who you feel would be great at taking on this type of task.
3. Begin by calling all new clients and only choosing 3-5 existing clients from the appointment schedule report from the previous day. You don't need to call back every existing client to say thanks but spot-check and call a few.

Optional Recommended Step

You may also choose to include an automated 'Thank you' email to supplement the phone calls. This email can add a wonderful touch to a follow-up phone call and coincides with my line of thinking:

You can never be too thankful.

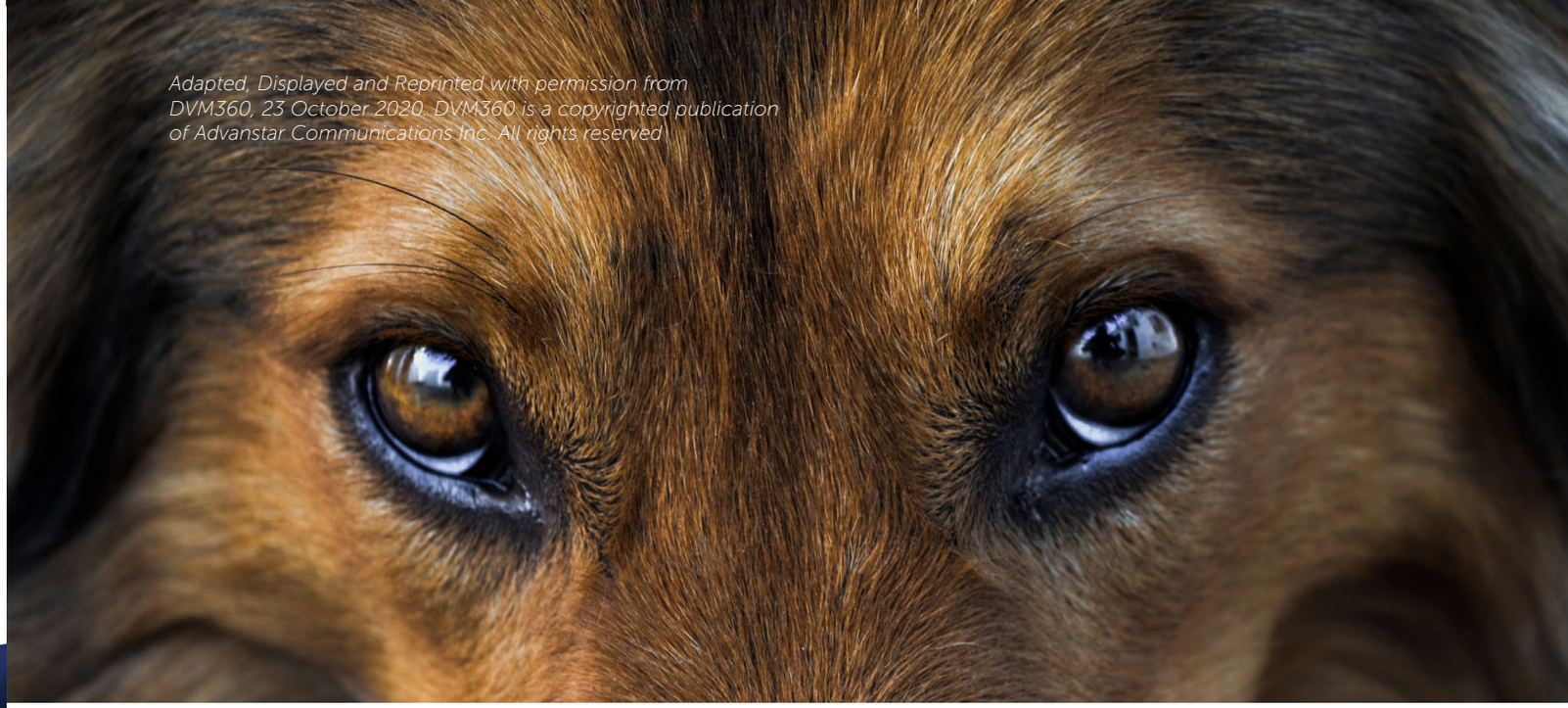
I hope that these tips will help you implement new and improved techniques for your cat caregiver experience now and into the future.

MAKING LIFE BETTER FOR THEM, MAKES LIFE BETTER.

Elanco welcomes Bayer Animal Health.

Making life better means keeping pets safe and healthy. That's why we're coming together with Bayer Animal Health to make an even better Elanco. Together, we're committed to providing a comprehensive suite of products along with unparalleled service and support to you, so you can do more for them.

Elanco™ | BAYER Animal Health



Help with Challenges in Eyelid Surgery

Ron Ofri, DVM, PhD, DECVO

Conditions in which the eyelid rubs against the eyeball, as well as drooping eyelids, can only be corrected surgically. Here's a look at the appropriate procedures for various conditions.

Proper eyelid anatomy is essential for protecting the globe, as well as for distributing the tear film on the ocular surface. However, many dog breeds suffer from inherited eyelid abnormalities that affect their function. This article discusses surgical correction of some of the more common disorders of this critical organ.

Entropion

Entropion, or inward rolling of the eyelid margin, causes eyelashes and facial hair to contact the conjunctiva and cornea (Fig. 1), leading to conjunctivitis, keratitis, and possible ulceration. There are 3 types of entropion: conformational (caused by anatomic abnormalities of the eyelids themselves) spastic (caused by marked contraction of the orbicularis oculi muscle), and cicatricial (caused by scarring from an injury or previous surgery).

Conformational entropion is by far the most common presentation. It usually affects both eyes, and more commonly the lower eyelid. Severe cases may involve the entire lid, but typically just a portion of the margin

Fig. 1 - Lower eyelid entropion. Note the facial hair rubbing on the cornea. This defect can be corrected with a modified Hotz-Celsus technique.

is affected. In brachycephalic dogs, conformational entropion is more notable at the medial lower eyelid, whereas in large, broad-skulled dogs it often affects the lateral part of the lower eyelid and the lateral canthus. Upper eyelid involvement is usually seen in dogs with very heavy brows, such as bloodhounds,

Fig. 2 - Excessive skin folds causing upper eyelid entropion in a Shar-Pei. In adult dogs. this defect is best corrected using the Stades technique or rhytidectomy.

Shar-Peis (Fig. 2), and chow chows. Conformational entropion is believed to be inherited in a large number of dog breeds, including the chow chow, English bulldog, Irish setter, Labrador and golden retrievers, Saint Bernard, Shar-Pei, Rottweiler, Great Dane, and Chesapeake Bay retriever.

Although conformational entropion may manifest soon after eye opening, it often does not become clinically evident until later in life as the skull and associated facial skin gain their adult conformation. Conversely, maturation may also be associated with reduction or sometimes even resolution of entropion. For these reasons, surgeons should use temporary tacking and postpone definitive surgery until facial maturity is achieved, although such a delay is not advisable in severe cases.

Surgical Correction

The surgical method chosen to correct entropion depends on the patient's breed and facial maturity, mechanism and severity of the condition, and position of the eyelid abnormality. Of these, mechanism is perhaps the most important, as the entropion may be caused by excessively long or short eyelids, excessive facial skin, an overly tight or misdirected canthal ligament, or a painful process causing spastic entropion. Regardless of the technique chosen, accurately assess the extent of skin resection before sedation, premedication, or anesthesia induction. Consider use of a dermatologic marker pen. Always apply topical anesthesia to eliminate other causes of spastic entropion before deciding on the extent of surgical resection. Keep in mind that the goal is to correct for the conformational or anatomic component only, not the spastic component. Correction of the conformational component will also alleviate the spastic component.

The majority of simple, breed-related entropion cases can be addressed using the Hotz-Celsus procedure. For this technique, make the initial incision parallel to the eyelid margin at the haired-nonhaired junction while protecting the ocular surface with a lid plate (Fig. 3). Avoid placing this incision too far from the eyelid margin. This is a common error that causes a significant loss of "mechanical advantage" and achieves less eversion. The length of this first incision is dictated by the length (extent) of inverted eyelid. First, apply gentle pressure with the thumb at the point of entropion to roll out the eyelid until the eyelid margin (meibomian gland orifices) can be seen along the whole length; this will assist with outlining the full lateral and medial extent of entropion. Other clues are provided by the pale discoloration, blepharedema, and alopecia that occur secondary to rubbing of eyelid skin against the cornea.

Fig. 3 - A lid plate to protect the corneal surface while making eyelid skin incisions is an essential component in an eyelid surgical pack.

Next, make a curvilinear incision joining the 2 ends of this first incision. The real art of entropion surgery is in deciding on the amount of tissue to resect (ie, the distance between the first and second incisions). This was predetermined during the examination of the awake patient (using topical anesthetic) and can be confirmed during surgery by applying the same clues used to determine the length of the first incision. The most important point is to ensure that the widest tissue resection is planned for the most inverted section of the eyelid, even if this creates an asymmetric area of resected tissue.

Remember:

- Undercorrection with the need for a second operation is preferable to overcorrection, which may cause cicatricial ectropion.
- Do not remove the orbicularis oculi muscle; doing so increases hemorrhage, operating time, postoperative edema, and infection risk.
- Use 5-0 or smaller suture material with swaged-on, cutting suture needles to suture the 2 incision lines to each other.

- Place multiple, closely spaced sutures of small "bites" with the goal of excellent apposition. Sutures will not be under great forces postoperatively.
- Use an Elizabethan collar until at least 2 to 3 days after suture removal.
- Provide adequate postoperative analgesia for the first 7 to 10 days.
- Delay any decision regarding a second operation for at least 4 to 6 weeks.

Temporary Tacking

A number of patients will benefit from some form of temporary relief of entropion until permanent blepharoplasty is performed. This has traditionally been achieved with a series of temporary tacking sutures placed so as to evert the eyelid (Fig. 4). Temporary tacking procedures may be considered to treat entropion in the following patients:

- Patients with an underlying treatable cause (eg, keratoconjunctivitis sicca, corneal ulcer) should be tacked while that cause is corrected or controlled.
- Immature patients. Because entropion may progress or resolve with maturity in some animals, permanent surgical correction is best delayed until facial maturity is reached.
- Patients with a temporary cause of entropion, such as transient enophthalmos caused by dehydration or lack of orbital fat, as seen in neonatal animals, especially foals and lambs.

Surgical staples have been used recently in place of sutures for temporary tacking because they are quicker, less traumatic, less irritating, persist in the tissue longer than sutures, and can usually be applied without general anesthesia. Animals may be sedated, but do not infuse local anesthetic into the eyelids. This disrupts the eyelid anatomy and hinders corrective tacking. Place as many staples as necessary to evert the affected eyelid margin (and canthus in some patients). Each staple should be perpendicular to the eyelid margin. Leave the staples or sutures in place for as long as necessary. In some animals, tacking may have to be repeated several times until facial maturity is reached and permanent corrective surgery can be performed.

Upper Eyelid Entropion

Upper eyelid entropion is seen most commonly in dogs with excessive brow tissue, such as chow chows, Shar-Peis, basset hounds, and bloodhounds. In these patients it is usually the upper eyelashes that irritate the cornea because of ptosis of the heavy upper eyelid and the consequent "flat" angle at which these lashes approach the cornea. As such, standard entropion procedures such as the Hotz-Celsus technique may not alleviate the problem. Rather, these dogs usually require correction using the Stades technique.

Fig. 4 - Skin sutures are used for temporary tacking of excessive skin folds in a Shar-Pei puppy.

To start the Stades technique, resect a large, approximately semicircular or crescent-shaped piece of tissue from the dermal side of the upper eyelid (including the cilia themselves, avoiding the Meibomian glands). Then, bring down the dorsal wound border toward (but not meeting) the wound nearer the eyelid margin. Suture to leave an exposed strip of subcutis about 3- to 4-mm wide. This tissue is left to heal by second intention such that the contraction and cicatrization during this process further everts the upper eyelid and forms a relatively hair-free margin. Severe cases may benefit from highly involved stellate rhytidectomy procedures (skin fold resections from the top of the head) to alleviate the heavy skin that contributes to the upper eyelid ptosis.

Ectropion

Like entropion, ectropion (eversion of the eyelid) almost always affects the lower lid only. Clinically significant ectropion is less common than entropion. The most common type is conformational or breed-related ectropion. The condition is seen in dogs with loose facial skin, such as retrievers, Saint Bernards, bloodhounds, and cocker spaniels. It can cause secondary lagophthalmos, keratitis, or conjunctivitis.

Depending on the severity of the ectropion, it can be resolved using one of two techniques: wedge resection or V-to-Y blepharoplasty.

Fig. 5 - Mild ectropion, due to an elongated lower eyelid, can be corrected by a wedge resection of the lateral eyelid.

Wedge Resection

When ectropion is secondary to mild euryblepharon (elongated eyelids), shorten the lower eyelid by resecting a full-thickness wedge from the lateral end of the lower eyelid (Fig. 5). Then, use a standard 2-layer closure to perfectly appose the sides of the eyelid margin.

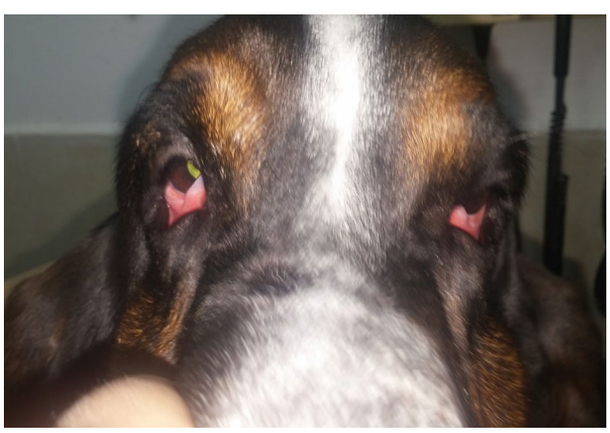


Fig. 6 - Severe ectropion is best corrected with a V-to-Y technique.

V-to-Y Blepharoplasty

The V-to-Y (or Wharton-Jones) blepharoplasty procedure is used in moderate and severe cases of ectropion, and for cicatricial ectropion (Fig. 6). Begin by outlining a triangular piece of skin with the base being parallel to the eyelid margin and sufficiently wide to encompass the section of everted eyelid. Do not make any incision at the base of the triangle. Rather, incise the skin along the two sides of the triangle, and elevate a V-shaped flap of skin between them toward the base. Excise all scar tissue beneath and surrounding this flap. Then, suture the incision beginning at the apex farthest from the eyelid margin; use simple interrupted sutures of 3-0 to 5-0 braided nylon or silk to form a vertical line perpendicular to the eyelid margin. This vertical portion forces the triangle and eyelid margin toward the globe. The length of the vertical portion depends on how much elevation or inversion of the eyelid margin is required to return it to its normal position. To allow for subsequent wound contraction, it should be about 2- to 3-mm longer than required. Finally, suture the remaining parts of the 2 incisions to the free edges of the flap so that the sutured skin forms a Y.

Lower Medial Entropion Canthoplasty (Brachycephalic Syndrome)

A syndrome of eyelid, conjunctival, and corneal lesions is seen commonly in brachycephalic dogs. This so-called brachycephalic ocular syndrome consists of any combination of the following features:

- Lower medial entropion
- Breed-related exophthalmos
- Macropalpebral fissure
- Lagophthalmos or sleeping with the eyelids incompletely closed
- Medial caruncular trichiasis
- Nasal fold trichiasis
- Pigmentary keratitis
- Epiphora caused by kinking of the lower nasolacrimal canaliculi and puncta

Brachycephalic ocular syndrome is sometimes exacerbated by distichiasis and decreased tear production or quality. Medial canthoplasty neatly corrects many of the signs associated with this syndrome. It reduces the palpebral fissure size, removes the medial caruncle, and everts the lower medial entropion, thereby reducing corneal exposure, frictional irritation from trichiasis, and functional nasolacrimal apparatus obstruction.

Medial canthoplasty is recommended for dogs with this combination of signs, especially when the signs are associated with progressive corneal melanosis. It is also suitable for patients with shallow orbits, exposure, or strabismus following proptosis, especially when these are associated with secondary corneal lesions. When performing this procedure, be sure to avoid the lacrimal puncta, meticulously remove all hair follicles from the medial caruncle, carefully incise the eyelids, realign the eyelid margins perfectly, and provide appropriate postoperative management as for other eyelid procedures.

Small Eyelid Tumors (Wedge Resection)

Full-thickness wedge resection is used to remove small eyelid tumors (Fig. 7) or (as previously discussed) to shorten the eyelids from their lateral end when ectropion is due to euryblepharon. Always avoid the medial canthal area and nasolacrimal apparatus. Tumors larger than 25% of the eyelid length in cats

and in mesaticephalic and dolichocephalic dogs, or more than 33% in brachycephalic dogs, should be removed using alternative surgical techniques. When performing a wedge resection, the height of the triangle should be approximately twice its base.Make the skin incision with a No. 15 Bard-Parker scalpel while supporting the eyelid with a Jaeger eyelid plate (see Fig. 3).Cut the subcutis and conjunctiva with straight Mayo or Stevens tenotomy scissors, so that the tissue wedge is resected completely. Appose the lid margin using the 2-layered closure.

Fig. 7 - A small sebaceous adenoma, involving less than 30% of the eyelid length, can be removed using a wedge resection. Note that despite its small size, this tumor is irritating the corneal surface, as evidenced by the elevated third eyelid.

| Transpharm

DO YOU HAVE A BUSINESS?

Any registered company can open an account and start placing orders

WE OFFER

- Surgical equipment & consumables
- Veterinary products
- Frontshop products including Vitamins & Minerals
- All cleaning & equipment products
- Health & beauty products
- Household & office items such as fans, electric blankets, gas stoves & PPE products

- No minimum orders
- Twice a day deliveries in the metro areas of Johannesburg, Pretoria and Cape Town to next-day deliveries in outlying areas

Visit our website at www.transpharm.co.za or contact our call centre for more information

GAUTENG:
Tel: 012 377 9000
Email: clientservice@transpharm.co.za
Email: orders@transpharm.co.za

WESTERN CAPE:
Tel: 021 929 2120
Email: infowc@transpharm.co.za

We're about to reveal some

EXCITING NEWS

Terms and Conditions:

- All participants will be entered into the lucky draw weekly.
- Winners will be announced at the end of the 12 weeks with the big reveal.

For every week there will be a question for you to answer and you can stand a chance to win big prizes over the next

12 weeks.

ONLINE PAYMENT

instantEFT MasterCard VISA

YOU CAN NOW PAY YOUR ACCOUNT ONLINE VIA CARD OR EFT WHEN PLACING ORDERS

The ABCs of Veterinary Dentistry

When Waiting is Wishful Thinking

When it comes to dental care, sometimes immediate action is a must for your patient's health and comfort.

Jan Bellows, DVM, DAVDC, DABVP, FAVD

Sometimes waiting to perform treatment is the best course of action when a patient presents with dental concerns, as noted in the August issue of dvm360® ("The ABCs of veterinary dentistry: W is for waiting to treat"). But other times waiting is simply not an option—the patient's problem needs to be addressed immediately.

Missing teeth

Dogs should have 42 permanent teeth, cats 30. If 1 or more teeth are not present clinically, it is time for detective work This involves examining intraoral radiographs to determine whether a tooth is present subgingivally and, if so, whether a pathologic process (periapical lucency) is at play that needs immediate care. Waiting to diagnose and treat can lead to progression of subgingival pathology in these patients (Fig. 1).

Persistent primary teeth

When a patient presents with persistent primary teeth—primary (baby) and secondary (adult) teeth present clinically in the same alveolus—immediate extraction of the primary tooth is indicated. Persistent primary teeth may overcrowd the dental arch, moving the secondary teeth to abnormal locations and

Fig. 1a - Clinically missing left mandibular first premolar in a 7-month-old dog.

Fig. 1b - Radiograph showing the first premolar present but unerupted.

Fig. 1c - Operculectomy was performed to remove thickened gingiva, exposing the premolar and creating a path for eruption.

Fig. 1d - Clinically missing left mandibular first premolar in a mature dog.

Fig. 1e - Radiograph showing an unerupted first premolar that created a dentigerous cyst requiring oral surgery.

Fig. 2 - Persistent primary right maxillary canine tooth causing swelling and rostral displacement of the secondary canine.

Fig. 3 - Bilaterally fractured maxillary deciduous canines. Extractions are indicated as soon as possible.

causing oral discomfort. Double sets of roots may also prevent normal development of the alveolus and periodontal support around each permanent tooth, leading to early tooth loss.

A persistent primary tooth should be extracted as soon as the permanent tooth is observed to erupt in the same alveolus. When extraction is performed early, the abnormally positioned permanent tooth ideally moves into normal position. Extraction must be done carefully to avoid accidental damage to the unerupted, permanent canine tooth that lies lingual to the mandibular teeth and rostral to the maxillary deciduous canines. Avoid placing the elevator along the lingual surface of the mandibular deciduous teeth. Instead, only elevate along the mesial surface (front), labial surface (toward the lip), and distal surface (caudally) of the mandibular deciduous teeth, and buccally and distally around the maxillary deciduous canines. Examination of intraoral radiographs before extraction is important to confirm that the tooth about to be extracted is a primary tooth (Fig. 2).

Fractured deciduous canine teeth

Normally, deciduous canines exfoliate by 6 months of age. Occasionally, the crowns fracture secondary to chewing on hard objects. Waiting to extract a fractured deciduous tooth can lead to periapical infections and discomfort (Fig. 3).

Discoloured teeth

Discoloured teeth are considered nonvital. Discolouration commonly occurs secondary to concussive or thermal trauma that results in internal bleeding and pulpal necrosis. Dull pain is reported by humans from pulpitis in discoloured teeth. The treatment of choice for discoloured teeth in dogs and cats is either root canal therapy to remove the nonvital pulp or extraction (Fig. 4).

Complicated tooth fractures

Once the pulp is exposed via fracture, oral bacteria infect the area, causing inflammation and pain. If left untreated, the pulp eventually will necrose, leaving an open portal for bacteria to populate the periapical tissues and cause pain. When diagnosed early and treated within 48 hours of the fracture, the tooth may be saved through vital pulp therapy. After 48 hours in the mature dog or cat, either root canal therapy or extraction is the treatment of choice.

Facial swelling after tooth fracture

When an adult maxillary cheek tooth is fractured with pulp exposure, the area below the eye often swells. When this occurs, administering antibiotics and anti-

Fig. 4a - Discolored left maxillary first incisor.

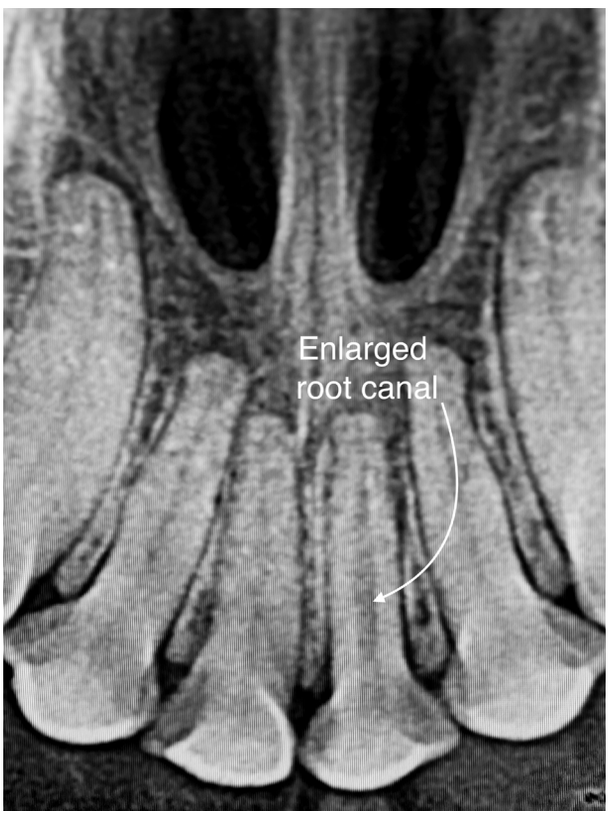


Fig. 4b - Radiograph showing an enlarged root canal consistent with a nonvital tooth. Extraction or root canal therapy is indicated.

inflammatories usually results in temporary resolution. Within days to weeks, however, the swelling returns because it is secondary to complicated cheek teeth fractures with open pulp chambers. Successful treatment in these cases involves root canal therapy or extraction of the fractured tooth (Fig. 5).

Plaque and tartar with inflammation

Once plaque and tartar result in gingival inflammation, it is time for professional dental scaling, irrigation, and polishing under general anaesthesia. Treatment in these cases should not wait until the annual dental exam.

Tooth resorption that is exposed into the oral cavity

We still do not know the cause of external tooth resorption in dogs and cats, but we do know that once the resorption is exposed to the oral cavity, bacteria invades the pulp and causes inflammation and pain. Waiting, antibiotics, and anti-inflammatory medication are not indicated. Extraction is the treatment of choice.

Feline gingivostomatitis

The etiology of gingivostomatitis is believed to be multifactorial. This creates a challenge for any successful treatment other than full-mouth or selective extractions. In rare mild cases, stringent plaque control and a change in diet may be curative. Treating with repositol steroids or anti-microbials is wishful thinking with only short-lived improvement.

Fig. 5a - Facial swelling below the left eye caused by a complicated fracture of the left maxillary fourth premolar.

Fig. 5b - Root canal therapy or extraction is indicated as soon as possible.

In cases of refractory stomatitis despite extractions, CO_2 laser ablation, with or without every-other-day oral prednisolone administration, shows promise in relieving inflammation (Fig. 6).

Overcoming client concerns

Expense

Thanks to wellness plans that include dental evaluation, scaling, polishing, and full-mouth intraoral imaging, fees for needed dental care are less of an issue than they once were. Clients who understand the ramifications of dental disease and believe their dog or cat needs dental care will find a way to afford it. In-clinic and third-party payment plans are an option for most clients, and many pet insurance plans cover dental diseases as long as the pet was covered before the diagnosis was made.

Anaesthesia

Some clients are hesitant to proceed with recommendations because they fear general anaesthesia will harm their pet. Thanks to Fear Free preanesthetic patient evaluation geared to the individual patient's age and condition, patient-tailored preanesthetic and induction medication regimens, and close anaesthesia monitoring during and after the procedure, anaesthesia is considered safe with only rare adverse events.

Waiting in most of the cases outlined here is not wise and can lead to harm. When the moment of truth occurs during an oral exam, it is wise to be proactive in advocating for your patient. Your patient and client will thank you.

Fig. 6a - Marked inflammation surrounding a cat's left mandibular cheek teeth.

Fig. 6b - Resolution 6 months after full-mouth extraction.

Hill's
Transforming Lives

NEW INGREDIENT
TECHNOLOGY

ActivBiome+

HillsPet.co.za/Microbiome

SEE GI ISSUES IN A NEW LIGHT WITH MICROBIOME SCIENCE

A first-of-its-kind nutrition that focuses on microbiome health, **NEW Hill's Prescription Diet Gastrointestinal Biome with ActivBiome+ Technology** revolutionises the way you address fibre-responsive GI issues.

GREAT-TASTING NUTRITION SHOWN IN CLINICAL STUDIES TO:

1. **Resolve diarrhoea in as little as 24 hours** and promote healthy stool[1]
2. **Limit future episodes** of diarrhoea in **100% of dogs**[1]
3. **Nourish and activate the microbiome** to release beneficial anti-inflammatory and antioxidant compounds[2]

Helicopter/Biome/V360

[1]Hill's data on file. Two-month clinical study evaluating dogs with chronic diarrhoea. [2]Hill's data on file. Clinical study on microbiome changes in dogs.

pet remedy

natural de-stress & calming

KYRON
30 Years
SERVING THE VETERINARY INDUSTRY

Travel
Boarding
Thunderstorms
Grooming
Training

Health and beauty for all animals®

Kyron Laboratories (Pty) Ltd. Co. Reg. No. 1990/004442/07
29 Barney Road, Benrose 2094 South Africa
Tel +27 11 618 1544 | kyron@kyronlabs co za

www.kyronlabs.co.za
facebook.com/KyronLabs