OSVS Vitals

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Editor: Jodi Kershaw
March 2002

Volume 1 Issue 2

# *Radiology Corner*

## Tales from the Dark Side….

As this is my first contribution to the OSVS newsletter, I would like to begin by thanking everyone who has referred cases, films, and questions to me during this past year. My transition from academia to private practice has been made easy by your patience, candor and good will, and hopefully things will continue to improve as we all get to know each other better. The Radiology corner in the OSVS newsletter will be devoted to three broad categories:

1. Brief discussions of recent journal articles as they pertain to diagnostic imaging,
2. Radiology tips, techniques and tricks of the trade,
3. Updates on services the radiology service offers to clients and referring DVMs

**Recent literature:** I have to start with an article that came out a while ago, but I think was missed by many as it was published in the American Journal of Veterinary Research . A colleague and friend of mine (John Graham) did a very simple study with some normal research kitties (and student owned volunteer kitties) while we were both at the University of Florida. He gave them small barium impregnated capsules (same size as many medications) per os, and sat them under the fluoroscopy machine (in a dark quiet box so stress was minimized) watching for swallowing. In these kitties, 52.8% of the time the capsules were passed into the upper esophagus just behind the cricopharyngeus muscle and became entrapped there (stayed in place for 6 minutes or more). Only a food bolus would move them, giving water per os did not budge them. Only 27.8% of the time was there normal passage of the capsule through the esophagus, with rapid transit into the stomach. The remainder had delayed passage (sat in the esophagus for over 30 seconds, but less than 6 minutes) to the stomach. The implications for medication-induced esophagitis are self-evident, and since then I have recommended to give a small chaser of food if possible following pill administration (and do the same for my own kitty on chemo).

**Morgan Lines:** These are the small white crescent lines seen on the femoral necks of many dogs, just distal to the physeal scars on the V/D view of the pelvis. Often this is the only abnormality seen in dogs which are not lame, but are being evaluated for OFA certification. These white lines are actually a ridge of osteophyte formation (a caudolateral curvilinear osteophyte or CCO to be exact) at the attachment of the hip joint capsule on the femoral neck. The significance of these lines has been debated amongst the radiology community for some time. Some radiologists believed they were associated with degenerative joint disease, while others believed the clinical significance was minimal. A recent paper in JAVMA by PD Mayhew et al (Vol 220, 2002, pp 472-476) looked at the association between these lines, other signs of coxofemoral degenerative joint disease, and hip joint laxity, as measured by the Penn Hip methods in 25,968 dogs. They found that 25% of dogs with Morgan lines also had other evidence of DJD, while only 4% of dogs without Morgan lines had DJD. They concluded that an association exists between the presence of the Morgan line and increased hip laxity, and between the presence of a Morgan line and degenerative joint disease.

**Cervical survey radiographs:** A recent paper in JAAHA (ME Somerville et al, Vol 37, pp 563-572, 2001) looked at the accuracy of survey radiographs to identify sites of disc extrusion. Even with radiologists reviewing the films, the accuracy in 64 dogs was only 35%! They concluded that survey radiographs were inadequate (which I completely agree). When dogs present for neck pain, and disc disease is suspected, I recommend that a survey lateral view be taken not to identify sites of disc disease, but to eliminate other diseases such as discospondylitis, overt spinal trauma or bony neoplasia. The lateral view is all I recommend, the V/D view is pretty unhelpful for these cases, and difficult to acquire particularly in awake patients. If the survey film is unremarkable, general anesthesia and myelography is the next logical step. I still prefer cervical myelograms over CT scans for cervical discs, especially if a dynamic component (i.e. wobbler) is a concern.

**Radiology tips:** I receive inquiries about X-ray machines frequently. Usually the inquiry is made because the radiograph quality had decreased over the last few months to years, and the films are too light and do not have as much contrast as they once did. Does this sound familiar? In my experience, the culprit is usually the film-screen system, and in particular the screens being used versus the X-ray machine itself. The problem is that the screens age with time, and become less responsive to radiation. One option is to update the technique chart periodically, and increase the total radiation being used to make an exposure. Tinkering with the development process is another option. These changes will help the overall film blackness but not the poor contrast of the radiograph. Screens age about 10%



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per year (i.e. a 2 year old screen is 20% less radiation sensitive or "slower" than a new screen). A 20 year old screen is basically useless… and how many of you have similar generation screens? In the human field periodic replacement of cassettes with new screens is a requirement, as increasing the kVp or mAs and thus increasing patient exposure is not an option!

So, what are the options out there? First of all, the ideal scenario is to buy screens and film as a package (the film screen system). The big four companies make film and screens to go together, so that the film choice and the screen choice complement each other and the best image is made. Who are the big 4? In no particular order they are Kodak, 3M, Fuji and Agfa (formerly Dupont/Sterling). The generic film available by many companies such as Diagnostic Imaging or whomever provides tour processor service is exactly that… generic. A similar comparison is a Honda Accord versus a Hyundai or Yugo…inconsistencies in manufacture amongst batches of film can lead to very frustrating experiences trying to have consistent radiographs if one uses generic film and screens.

Film screen systems are sold according to speed, and can range from 50 to 800. In veterinary medicine, the best system is a 400 speed system for regular chests, abdomens, and large bones, and a 100 speed system for detail work such as small extremities or skulls/spines made with the patient still. Mammography cassettes and film are another option for the smaller subjects (kitties, avian, ferrets). The detail with mammography systems is outstanding.

Please feel free to contact me at OSVS if you wish to discuss any of the details of film screen systems or the radiology process in general. I am also available for in hospital visits to establish technique charts, trouble shoot the radiology system and instruct technical staff on correct radiographic procedures. This is particularly useful if a switch in film/screen systems is planned.

**Radiology Services:** Film interpretation is available at OSVS. The cost is $25 per case, and the turn around time is within 24 hours from receipt of the films for a written report faxed to your clinic. Comments on technique, positioning and overall film quality can be made if desired (or not, just ask!). I have had several local clinics instruct their client to drop the films by, versus waiting for the US postal service, which speeds things up by several days. Any questions please call OSVS.

Thank you again for your continued support of OSVS, and the radiology service. Both myself and Amy Cardwell, the superwoman radiology technician, are happy to help in any way.

Susan M. Newell DVM, MS, DACVR

# *Internal Medicine*

## Patience With The Prednisone

As an internal medicine specialist I of course am no stranger to the indications and benefits of glucocorticoid therapy. There are countless numbers of cases which have benefited from steroid therapy and I, like many of you, adhere to the old adage that "you never let an animal die without the benefit of steroids." That said, there are some specific situations where steroid therapy can exacerbate clinical signs or make it more difficult to obtain a definitive diagnosis. My article in this issue of our newsletter will give some examples of this concept and demonstrate how grabbing for the pred or dexamethasone "prematurely" can in fact be detrimental to your patients, some of which may ultimately be seen on referral.

Animals with suspected but unconfirmed lymphosarcoma should not be started on steroids without making every effort to obtain a histologic or at least a cytologic diagnosis. Enlarged peripheral lymph nodes does *not* always equal lymphoma. I have seen three referrals in the past year with presumptive diagnoses of lymphoma; one that ended up having systemic fungal disease, one with systemic lupus, and one with infectious lymphadenitis. All of these patients came to see me after their "lymphoma" got worse after being started on steroids. It may also be harder to confirm a diagnosis of lymphoma in animals on steroids since lymph node biopsies and aspirates may be harder to interpret. Another issue with regard to lymphoma and steroid use involves beginning steroid therapy to try and induce remission but then waiting to begin more aggressive chemotherapy. Recent studies have shown that the likelihood of inducing remission and possibly the duration of a dog's first remission may be negatively effected by the use of steroids by themselves for more than a few days prior to initiating more intensive chemotherapy. My experience with dogs that have been on steroids for weeks in advance of referral supports this belief.

Another situation where steroid therapy can adversely impact an animal's health involves animals with GI disease where one is trying to distinguish between inflammatory bowel disease and GI lymphoma. This is a common dilemma in cats with any combination of weight loss, vomiting, anorexia and diarrhea. Starting these animals on steroids without a histologic (endoscopic or surgical biopsy) diagnosis may initially help both conditions but the prognosis with steroids alone for lymphoma is significantly worse than for IBD. Clients may get a false sense of security when their pet initially responds when in actuality more aggressive chemo is warranted and might be an option some owners would pursue. If an animal on "empiric steroids" responds initially but then relapses, one must then figure out whether this is relapsing/refractory IBD, versus lymphoma coming out of remission– each of which requires a different medical approach. Some animals with IBD may be able to be managed without steroids, using dietary therapy, antibiotics, anthelmintics, etc. Steroid therapy in these animals may unnecessarily put them at risk for steroid complications and side effects such as secondary infections, GI irritation and diabetes.

Animals with signs of CNS disease may also benefit from "steroid restraint" if one is considering referring them for additional diagnostics such as serologic testing, CT scan or CSF tap. The composition and analysis of cerebrospinal fluid can be dramatically altered by steroids making it difficult to diagnose conditions such as sterile encephalitis (common in cats), granulomatous meningoencephalitis (dogs) and certain CNS neoplasms.

In many cases, discontinuing steroids for a period of time is all that is necessary to maximize the yield of subsequent diagnostics. Even if you aren't sure about whether you may be referring a patient for a medicine consult, please don't hesitate to call to discuss the case, but in particular whether or not steroid therapy prior to referral may affect the anticipated medical workup.

Gary Block DVM, MS, DACVIM

# Dermatology Update

## Allergy Season - HELP!

Spring and summer bring outdoor fun but also bring unwanted clinical signs of allergy in many of our patients. Atopy is one of the most common causes of pruritus in dogs and its signs include licking the paws, rubbing the face, scratching the abdomen, axillae and groin as well as otitis. Signs can vary tremendously from dog to dog and tend to begin between 1- 3 years of age. Most dogs' signs start seasonally but then become non-seasonal as the years progress. When medical therapy is not working, it is time to consider allergy testing. Dermatology For Animals offers both intradermal skin testing and in-vitro testing with the capability to make antigen serum on site so that patients may begin hyposensitization therapy right away. Call Dr. Tapp for more details about this option.

*Hyposensitization is effective in 65 to 70% of canine patients*

## Important Withdrawal Times For Skin Testing

Having the opportunity to refer a case for skin testing is wonderful. However, it can be both frustrating to the client and embarrassing if a case is referred without proper withdrawal from medications that can interfere with skin testing. Here are some guidelines:

- Oral steroids: approximately 4-6 weeks depending on type and length of time pet has been taking them.
- Injectable steroids: 4 weeks for short-acting steroids like Dexamethasone. Up to 16 weeks or more for long-acting steroids like Vetalog.
- Antihistamines: 10-14 days
- Topical eye and ear drops: 10-14 days
- Oral fatty acids: this varies among dermatologists although most recommend approximately 7-10 days
- Topical steroids like panalog: 10-14 days
- Hydrocortisone: 7 days

Hopefully this will provide a guide to follow that will help you determine when a case is eligible for IDST. I usually recommend going ahead with the referral even if you have not met the correct timeline as many patients have infections that require treatment before skin testing can be performed. Thus, I can often clear up the infection during the withdrawal time. The important thing is educating the client that if they are still in a withdrawal timeframe, the allergy test cannot be performed. If you have questions, don't hesitate to call!

Tiffany Tapp DVM, DACVD

# Avian

## Update On Chlamydia

If you are seeing avian patients in your practice, you will encounter Chlamydiosis. This obligate intracellular bacteria, which recently has been reclassified as *Chlamydophila psittaci*, commonly causes disease in Psittacines (parrots) and non-Psittaciformes. This organism is endemic worldwide and disease is more likely to occur in stressful, captive conditions.

The life cycle of this bacteria is complex, but basically there are two important phases or forms - the infectious phase (elementary bodies) and the replicating phase. Antibiotics are only effective in killing this bacteria during the replicating phase. The elementary bodies can be shed in feces, or via eye or nasal secretions and infect other birds. The organism can remain infectious in dried feces for months and fomites can be involved in transmission. Certain species (Cockatiels and Amazons) are frequent carriers of Chlamydophila and may shed the organisms in feces for many months after an active infection.

Birds infected with Chlamydophila may exhibit a large number of symptoms including; lethargy, rough feather coat, conjunctivitis, sinusitis, dyspnea, coughing, lime green urates (biliverdinuria), weight loss and death. The incubation period is extremely variable (42 days - years) and spontaneous recovery is rare. The outcome of the infection varies on the strain of the organism, the age and species of bird and the infective dose.

Accurately diagnosing chlamydiosis is a true challenge. Total white blood cell counts above 30,000 can be indicative of this disease in birds (other rule outs include Mycobacteria and Aspergillosis). Radiographs will often show hepatomegly, splenomegaly and air sacculitis. Elevated AST levels and anemias are also seen. Specific Chlamydophila tests include culture, specific stains, DNA-PCR testing, antigen capture and antibody assays. Needless to say, testing can be confusing, but accurate interpretation requires specific knowledge of the tests being run. DNA based tests are very sensitive and specific in detecting chlamydophila nucleic acid in a given sample. Antigen tests are prone to false positive reactions because of cross reaction with certain gram negative bacteria. Complement fixation antibody assays detect IgG, elementary body agglutination detects IgM, and indirect fluorescent antibody tests detect IgG. A combination of PCR testing (Research Associates Labs, Milford, Ohio) and IFA serology test (Univ. of Miami) are currently recommended tests.

Most infections respond well to doxycycline. Cockatiels and Amazons can be dosed at 50 mg/kg SID-BID PO, while African Grays, and Cockatoos receive doxycycline at 25 mg/kg SID-BID PO. Vibravenos, a preparation of doxycycline for intramuscular injection, given at 75-100 mg/kg can maintain therapeutic blood levels for 5-7 days. Recent work shows doxycycline can be given in drinking water and achieve appropriate blood levels. Treatment should be carried out for a minimum of 45 days.

*Chlamydophila psittaci* is considered a zoonotic disease and client education is very important. Many clients have heard of the Chlamydia organism which causes sexually transmitted disease states in humans and it is important to inform them *Chlamydophila psittaci* is a totally separate problem and has nothing to do with human STD. *Chlamydophila psittaci* is also a reportable disease in Rhode Island.

I view chlamydiosis as a treatable bacterial disease. It is not an "exotic" disease. With accurate diagnosis and treatment, birds with life threatening infection often respond dramatically to treatment and can be saved.

H. T. Wietsma DVM, MS, DABVP

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## *Staff Spotlight*

"Superwoman Radiology Technician"

This quarter we would like to introduce our radiology technician Amy Cardwell. Ms. Cardwell received her Associates Degree in Arts from Santa Fe Community College in Gainesville Florida. She went on to receive her Associates in Science Degree from St. Petersburg Junior College in St. Petersburg Florida. Amy has been a certified technician since June of 1988. Amy moved to Rhode Island to work at OSVS at the urging of our radiologist Dr. Newell. Although Amy is an extremely well rounded technician her main focus is radiology. Amy's radiograph skills are exceptional including avian and exotics.

Amy assists our doctors with ultrasounds, myelograms, barium studies, CT scans, and I-131 studies. Amy's patience and knowledge base make her an excellent mentor for our technician staff.

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