

Diagnostic Insights

Kansas State Veterinary Diagnostic Laboratory
www.ksvdl.org



Accredited by the American Association of Veterinary Laboratory Diagnosticians

May 2013

75th Annual Conference for Veterinarians

The conference will be held June 1-4 at the Hilton Garden Inn in Manhattan. The program can be found at

<http://www.k-state.edu/vet/annual-conf-13/>

The KSVDL will have a booth at the conference in the trade show area. Please stop by and see us!!!

We will be signing up practices for our on-line test-result access system which is now offered through KSVDL.

Those practitioners who stop by the KSVDL booth and fill out a short survey will be eligible to win a prize.

The winners will be announced at the barbecue in the Hilton Courtyard on Monday evening.

Three prizes will be awarded:

1. 2 tickets to a 2013 K-State home football game of the winner's choice and one night's lodging
2. Kindle Fire HD™ 8.9" device
3. \$100 gift certificate from Varney's in Aggieville

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**To set up an account go to:
www.ksvdl.org**



KSVDL Price Changes

KSVDL will undergo a price change effective July 1, 2013. All samples received on or after this date will be subject to the new prices. The updated price list will be available on our website www.ksvdl.org starting on June 3, 2013. If questions regarding the price change, please email vdlbusiness@vet.k-state.edu or call 785-532-3294. Remember you can always pay for testing with your credit card by visiting www.ksvdl.org and clicking the yellow pay now button!

Daignosis and Treatment of Alopecia-X

Dr. Bill Fortney and Dr. Gordon Andrews

Alopecia-X is an incompletely understood endocrine-related hair cycle abnormality disorder characterized by progressive bilaterally symmetric, noninflammatory alopecia with hyperpigmentation. Heritability is suggested by strong breed predilections described in the pomeranian, keeshond, chow chow, samoyed, husky, malamute, and miniature poodle breeds. Previous names for this condition include adult Onset Growth Hormone Deficiency; Growth Hormone/castration -responsive dermatosis; adrenal sex hormone imbalance, follicular dysfunction of plush coated dogs, and more recently Adrenal Hyperplasia-Like Syndrome.

Alopecia-X affects dogs of both sexes regardless of neuter status. The hair loss most often occurs between 9 months and 2 years of age, often around the onset of puberty, but can occur as late as 10-12 years of age. The typical clinical presentation is a gradually progressive symmetrical alopecia over the trunk, neck and proximal legs, sparing the head, distal limbs, and distal tail. **(Figure 1)** In some cases the skin may become intensely hyper-pigmented.

The symmetrical alopecia is related to an arrested normal hair growth cycle associated with an abnormality of growth hormone; or adrenal androgen synthesis; or cortisol precursors (especially 17-hydroxyprogesterone). However unlike the more common endocrine diseases i.e. hypothyroidism

and Cushing's disease, alopecia-X has no systemic signs and is considered a "cosmetic" disease.

Clinical differential diagnoses include other endocrinopathies such as hypothyroidism, hyperadrenocorticism, Sertoli cell tumor associated alopecia, female hyper-estrogenism, and follicular dysplasia.

Diagnosis

There is no test that can definitively diagnose a dog as having Alopecia X. Ruling out the common endocrinopathies such as hypothyroidism and Cushing's syndrome are appropriate early steps. A complete adrenal panel evaluation (cortisol, estradiol, androstenedione, 17-hydroxyprogesterone, progesterone, and aldosterone) is sometimes beneficial. An expanded endocrine profile is currently available at the University of Tennessee College of Veterinary Medicine.

Histopathology is helpful, but is not in itself diagnostic. The skin biopsy will determine if the alopecia is due to some other cause or if the microscopic changes are compatible with those of alopecia X, and if there are other secondary infections. **Multiple skin biopsies should be taken from areas of advanced or long-standing alopecia. A biopsy of normal**



Figure 1

appearing skin may be helpful for comparison. The interface of normal and abnormal appearing skin should be avoided. Histopathology shows hair follicles in hair cycle arrest. All follicles are in catagen or telogen phase with no actively growing anagen follicles. Follicles may or may not contain hair shafts. Flame follicles which are characterized by excessive tricholemmal keratin arranged into spikes that protrude through the outer root sheath and are usually devoid of hair shafts are seen. **(see Figure 2 on next page)** Tricholemmal keratin is seen normally in catagen and telogen hair follicles however, and normal resting telogen follicles of plush coated breeds also have prominent tricholemmal keratin, so this finding must be interpreted cautiously. Dysplastic follicles may also be seen.

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ALOPECIA-X | continued from Page 2

All other endocrine alopecia conditions should still be considered when hair cycle arrest is observed histologically. A final diagnosis of Alopecia-X is based on the combination of clinical history, progression of the alopecia, breed predilection, hematology and serum biochemical profiles, endocrine function tests, and histopathology.

Treatment

Some intact dogs with alopecia-X will regrow hair following neutering of the male or spaying of the female dog. Oral melatonin therapy has been shown to work in about 30% of alopecia-X cases. Growth hormone has been shown to be effective in some cases, but also carries potentially serious side effects. Lysodren (mitotane, OP'ddd) used to treat Cushing's disease has been used effectively in some dogs by inhibiting production of sex hormones by the adrenal cortex, but side effects are related to mineralocorticoid and cortisol deficiency.

Trilostane (4-alpha, 5-alpha-epoxy-17-beta-hydroxy-3-oxoandrostane-2-alpha-carbonitrile) is a synthetic steroid analogue that has been shown to be effective in managing numerous cases of alopecia-X in Pomeranians, Miniature Poodles and Alaskan malamutes. The hair re-growth is speculated to be the result of trilostane's down-regulation

of adrenal steroids and/or of the noncompetitive inhibition of the estrogen receptors at the hair follicle level. The potential side effects of trilostane include vomiting, reduced appetite, weight loss, diarrhea and tiredness. Rare instances of death have also been reported. As each patient reacts differently to trilostane, arriving at the appropriate

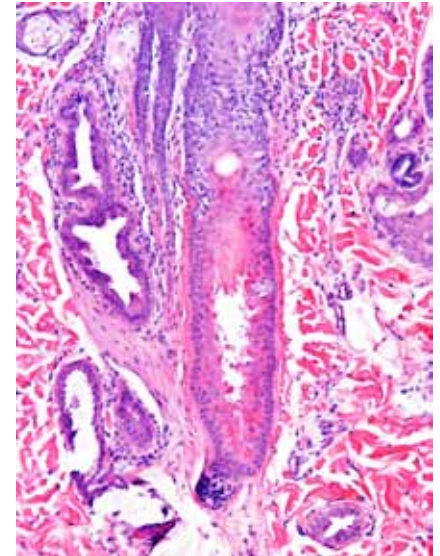


Figure 2

dosage is crucial in preventing overdose while achieving the best possible outcome. The treatment options for alopecia-X run the entire safety spectrum from a very safe "does nothing" approach, to the possible death associated with Trilostane therapy. In those cases that do initially respond to some therapy, recurrence is common.

Shipping for Rabies Diagnosis During the Summer

With the seasonal increase of temperature, we would like to remind clients of the importance of using a reliable parcel carrier. In the past, we have had problems with clients utilizing USPS (United States Postal Service) with the misunderstanding that 'priority' shipping meant over-night service. This is untrue and occasionally delays package delivery for several days.

During the hot months, we unfortunately report-out many results of 'Unsuitable' because samples have decomposed because of excessive in-transit times. A sample worthy of an accurate rabies diagnosis is also worthy of over-night shipping. We understand the need to keep your clinic costs down and that often the USPS option is cheaper.

With that in mind, the Kansas State University Diagnostic Laboratory has partnered with UPS to

provide a low cost over-night rate that is available for all of Kansas and some of Nebraska and Missouri practitioners.

The cost is \$6.00 for any package under 15 pounds, and includes free UPS pickup.

To participate in this flat rate shipping offering, you will need to pre-purchase the shipping labels from the Kansas State University Diagnostic Laboratory to use at your convenience.

To request pre-made labels please call KSVDL Client Care:

Talk to either: Leah or Hollie

Toll free: 866-512-5650



Bovine Trichomoniasis Vaccine Efficacy in Beef Cattle

Dr. Gregg A. Hanzlicek and Dr. Jen Lehr

In the May 23, 2013, issue of the Journal of Veterinary Internal Medicine was an article by Baltzell et al. critically reviewing peer-reviewed manuscripts investigating the efficacy of a killed Trich vaccine in beef cattle. To the authors' knowledge, this is the only critical review of all pertinent studies investigating the efficacy of vaccination against bovine Trichomoniasis.

A short summary of the article follows:

This was an analysis (Meta-analysis) and review of all the published literature through 2012. Overall the quality of evidence in the studies was considered to be moderate to low due to small study size, non-randomization, and possibly selective reporting and publication bias.

The overall conclusion of the manuscript authors after assessing the published studies was:

- There is limited to no evidence that vaccines decrease infections, or decrease open-risk in vaccinated compared to non-vaccinated beef heifers.
- There is moderate evidence that vaccinated heifers remained infected about 22 days less than non-vaccinates.
- There was some evidence to suggest that vaccination does decrease abortion risk, but again the quality of the

evidence was considered to be low due to study design flaws and small sample size.

- The body of evidence describing efficacy in bulls was lower than the quality observed in the female studies. Only one study was a randomized study and it included only 4 vaccinates and 8 non-vaccinates—this would make it difficult to expect veterinarians to base their recommendations on only one study of this sample size.

Does this information suggest that Trich vaccination is not warranted in all operations? No, there may be herds (even in light of the low level of evidence of the vaccine studies) which may benefit from its use. The level of herd disease risk, level of producer risk-aversion, and the potential economic benefits of vaccine usage in some herds need to be considered.

Still, appropriate biosecurity programs and routine Trich testing of herd bulls are the mainstay management practices for Trichomoniasis prevention and control.

A Critical Review and Meta-Analysis of the Efficacy of Whole-Cell Killed *Trichomonas foetus* Vaccines in Beef Cattle. P. Baltzell, H. Newton, A.M. O'Connor. J Vet Intern Med. May 23, 2013.

DOI: 10.1111/jvim.12112.

Not All Bovine Autogenous Vaccine Programs Are The Same

The KSVDL now offers a unique service to help practitioners design autogenous vaccine programs for client herds experiencing bovine Infectious bovine keratoconjunctivitis (IBK).

How the service works:

When an IBK (pinkeye) outbreak occurs the practitioner submits several eye swabs from multiple herd animals.

The KSVDL bacteriology lab cultures the swabs and if *Moraxella sp.* is found, the isolates are sent to the KSVDL Molecular Diagnostics Laboratory for analysis.

In the laboratory, analysis of the isolates is completed by PCR to determine the genetic make-up of the isolates found in the culture.

Those isolates (strains) which are genetically dissimilar are then forwarded to an autogenous vaccine manufacturer for product composition.

Rationale and practical use to the veterinarian for this service:

For many years *Moraxella bovis* was considered to be a necessary component cause of pinkeye (IBK) in cattle. Later *Moraxella ovis* was implicated in the disease, and then in 2007 a California scientist discovered the *M. ovis* routinely found in cattle was a different species distinctly different from *M. ovis* found in small ruminants — this “new” organism is now called *Moraxella bovoculi*. Although

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New Tests Available at KSVDL

Canine Parvovirus (CPV) PCR

The KSVDL announces our NEW Canine Parvovirus PCR diagnostic test for CPV 2-a, 2-b, and the new 2-c infections. In-clinic fecal ELISA tests are reportedly quite specific and sensitive even for 2-c strains; however, a recent 2009 study found that the Idexx SNAP test detected 80%, 78%, and 77% of parvovirus 2a, 2b, and 2c, respectively. Our experience has been similar based on our case experience using the gold standard of intestinal histopathology plus IHC of tissue samples.

The PCR is significantly more sensitive and specific than the current in-clinic tests. The assay has been validated on all strains and for canine fecal samples, and is now available.

Send 5-10 grams of dog feces in sterile bag or tube. Ship on ice for overnight delivery to the K-State Veterinary Diagnostic Laboratory. The cost is \$37.50.

Contact Dr. Jianfa Bai (785-532-4332; jbai@vet.ksu.edu) or Dr. Bill Fortney (785-532-4605, wfortney@vet.k-state.edu) for more information.

Bovine Respiratory Bacterial Multiplex PCR panel

A PCR to identify *Mannheimia haemolytica*, *Pasteurella multocida*, *Histophilus somni*, *Bibersteinia trehalosi*, and *Mycoplasma bovis* has been developed at the KSVDL. The test can be completed on either tissue or swabs.

This test compliments the [Bovine Respiratory Viral PCR panel already on-line](#), and the same sample can be utilized for both tests. The cost of the bacterial panel is \$33.50/sample.

Contact Dr. Richard Oberst at 785-532-4411 or oberst@vet.ksu.edu or Dr. Gregg Hanzlicek at gahanz@vet.k-state.edu for more information.

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VACCINE PROGRAMS | continued from Page 4

clinical trials have not been performed to assess if *M. bovoculi* is involved in IBK, the KSVDL continues to routinely isolate this organism from pinkeye clinical cases.

Regardless if *M. bovis* or *M. bovoculi* (or both) are isolated from submitted eye swabs, we routinely find multiple strains of these bacteria are within a herd during an outbreak. Commercial vaccines typically contain 4-5 different strains but it is known there are over 100 *M. bovis* field strains. (At the present time there are no commercial *M. bovoculi* vaccines available.) There is some cross protection between vaccine strains and field strains, but this protection is not absolute. This multi-strain presence and lack of complete cross protection may help explain why pinkeye vaccines are often reported as

being less than effective on many cow-calf and calf-ranch facilities.

Collecting eye swabs and sending the bacterial isolates (leaving out the strain assessment performed by the KSVDL) for autogenous vaccine production may not represent the entire range of *Moraxella* bacteria strains present in the herd, possibly resulting in less than desired vaccine efficacy. Adding the KSVDL genetic step helps assure that the multiple strains present in a problem herd are included in the autogenous vaccine thus potentially increasing vaccine coverage.

If you have questions about this service please contact Muthu Chengappa at chengmu@vet.k-state.edu or Dr. Gregg Hanzlicek at 785-532-4853 or gahanz@vet.k-state.edu.

Developing, Delivering Accurate, Innovative Diagnostic Services

The mission of the Kansas State Veterinary Diagnostic Laboratory (KSVDL) is to develop and deliver accurate, innovative, and timely diagnostic and consultative services to the veterinary and animal health community while providing support for teaching, training and research programs.

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Continuing Education

www.vet.ksu.edu/CE/Conference.htm

June 1-5, 2013

75th Annual Conference for Veterinarians
Hilton Garden Inn and Convention Center,
Manhattan

Test Results and Schedules

Lab results may be accessed online 24 hours a day, 7 days a week!

To set up an account go to:
www.ksvdl.org

KSVDL will be closed on the following days:
Independence Day: July 4th

To receive this newsletter by e-mail, contact: DlabOffice@vet.k-state.edu