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REGIONAL COLLEGE
OF
VETERINARY MEDICINE

VIRGINIA VETERINARY NOTES



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DIAGNOSTIC TESTING WITH FLEA ANTIGEN

Flea bite allergic dermatitis (FBAD) is the most common primary skin disease affecting dogs and cats. Difficulties in controlling fleas in the patient's environment and an increasing resistance of the flea population to safe and effective topical insecticides have made this dermatosis a major challenge for the practicing veterinarian.

Studies conducted at the University of Florida have revealed some interesting facts about the pathogenesis of FBAD. Firstly, intermittent rather than continuous exposure to fleas, especially early in life, predisposes dogs to FBAD. Atopic dogs are also at risk.

Positive skin test reactions to flea antigen are present in 40% of the dog population, and in 80% of atopic dogs. Type I immediate and delayed-onset IgE-mediated hypersensitivity, type IV (cell-mediated) responses, and cutaneous basophil hypersensitivity may be involved in the pathogenesis of the disease. Immediate and delayed skin test reactions appear randomly in affected dogs (in comparison to experimental studies in the guinea pig), and most patients have both immediate and delayed reactions at the time of evaluation. In the author's practice area, about 20% of affected dogs have delayed reactions only at the time of presentation.

Intradermal testing with whole flea antigen is an easy and reliable method for demonstrating the hypersensitivity state in dogs. The test has particular merits for confirming the presence of FBAD in patients with atypical signs (especially in young dogs), for determining the presence of FBAD in patients with concurrent pruritic dermatoses, and lastly as an aid in client education.

Whole flea antigen may be purchased from several sources. For testing, the author uses a 1:1000w/v solution diluted from the 1:100w/v concentrate supplied by the manufacturer (Greer Laboratories, Inc., P.O. Box 800, Lenoir, N.C. 28645). Fresh testing antigen, positive control (histamine phosphate 1:100,000), and negative control (sterile preservative-free saline) are prepared every 14 days and kept refrigerated.

0.05 ml of each test solution is injected into the inguinal skin of the dog. The flea antigen test site is evaluated at 15 minutes for enlargement, turgor, and erythema, compared with the negative control. If the reaction is negative at this time, the test site is reevaluated by the owner at 8, 12, 24, 48, and 72 hours for an erythematous, indurated nodule, the sign of a positive delayed response. Positive flea antigen reactions often break through the influence of recent corticosteroid therapy, even in the presence of a weak histamine reaction (<10mm diameter).—John R. August, B.Vet.Med., M.S., M.R.C.V.S., Diplomate A.C.V.I.M., Virginia-Maryland Regional College of Veterinary Medicine.

THOUGHT FOR THE MONTH

It is not true that possums are born dead
by the side of the road.

LYME DISEASE IN THE DOG

The first account of Lyme Disease in the dog was in 1984 (Lissman et al., 1984, JAVMA 185:219), followed by two other studies in 1985 (Magnarelli et al., 1985, JAVMA 186:955; Kornblatt et al., 1985, JAVMA 186:960). All studies have been from the New York/Connecticut areas.

In the first study, a dog was admitted to the hospital because of stiffness and pain in all four limbs. Rectal temperature was 40.2°C and differential diagnosis included septicemia, rheumatoid arthritis and Rocky Mountain Spotted Fever. Serology for three locally endemic tick-borne diseases was performed (i.e., RMSF, Babesiosis, Lyme Disease) but only Lyme Disease was positive. In the other two studies, seropositive dogs for Lyme Disease were followed prospectively and 39% developed intermittent lameness. Spirochetes were identified in the blood and serum antibody reacted with the Ixodes dammini spirochete at a titer of 1:1,000 to 1:2,000 by indirect immunofluorescence. ELISA is now being used. The dog was started on an oral treatment regimen of 500 mg ampicillin 3x/day for 10 days. Four days later the dog was less stiff and less sensitive in the hind limbs. The dog was clinically normal after one week of treatment with ampicillin.

It has been known for some time that dogs as well as most vertebrates in areas endemic for Lyme Disease carry antibody to the spirochete. However, not all individuals become symptomatic. Furthermore, this was the first documented case of Lyme Disease in the dog. Practitioners in the northeast have long suspected it, but isolation of the organism from a suspect dog has only occurred recently.—Stephen J. Brown, Ph.D. and Allan J. Paul, University of Illinois College of Veterinary Medicine. *Veterinary Topics*, Vol. 10, #3, 1985.

VIRGINIA AGRICULTURE

Based on Virginia Department of Agriculture statistics, agricultural production in the Old Dominion achieved the following results in 1984:

<u>Commodity</u>	<u>Acres</u>	<u>Cash Receipts</u>	<u>Producing States</u>	<u>Virginia's Rank</u>
Tobacco	53,840	\$223,900,000	16	4
Peanuts	97,000	69,315,000	9	5
Tomatoes	3,600	17,793,000	27	12
Barley	96,000	5,779,000	29	12
Sweet potatoes	600	2,401,000	12	12
Rye	14,000	486,000	26	12
Sweet corn	3,400	4,624,000	24	19
Cattle & calves		379,569,000	50	22
Milk		269,660,000	50	18
Broilers		212,948,000	50	10
Turkeys		101,300,000	32	6
Hogs		81,296,000	50	19
Sheep & lambs		3,910,000	41	22
Wool		575,000	41	20

SHEEP NOTES

Wetting agents (surfactants), when added to foot baths -- copper sulfate, zinc sulfate -- will increase hoof penetration. The spray, dried, powdered form of zinc sulfate is easier to mix than the granular form. When water is added, the combination will harden unless mixed thoroughly for several minutes. If only a small portion of water is added gradually in the mixing process plus one cup of dishwater detergent, a slurry can be quickly made, then the rest of needed water can be added.

Veterinarians have been acquainted with abortions in sheep flocks and usually, when the condition was called to their attention, the "storm" was over. In case they are called to the scene early in the course of the disease, there are some general rules to follow:

- a. Immediately isolate aborted animals and burn aborted fetuses and contaminated bedding.
- b. Put flock on high level antibiotic therapy in case an outbreak of vibriosis (*Campylobacteriosis*) or *Chlamydia ovis* exists.
- c. Procure freshly aborted fetus and placenta for diagnostic purposes. Submit blood sera from ewe at the same time. Obtaining a diagnosis aids in setting up preventive programs for next lambing.
- d. Be aware of BVD and toxoplasma as both can cause abortions. Watch for the hairy-shaker syndrome caused by the BVD virus. It is diagnostic!
- e. Flock owners need the counsel of a veterinarian to prevent against such outbreaks. Recently a midwestern veterinarian advised a client not to buy 500 imported sheep with *Chlamydia ovis*. The client's neighbor bought them and had a 22% abortion rate -- due to chlamydia.

Flock owners who continuously have problems with lamb pneumonia, *Pasteurella haemolytica* (Biotype A Strain), obtain satisfactory clinical results with the administration of sulfonamides in the drinking water of the flock for 7 days prior to lambing period.

Cow colostrum doesn't contain enough fat for the orphan lamb. Add 250 cc of corn oil to 1 gallon of bovine colostrum.--**Fort Dodge Veterinary Extension Newsletter, Fall 1985.**

VETERINARY COLLEGE NEWS

Recent faculty arrivals on the Blacksburg campus are:

David Moore, D.V.M. Dr. Moore has been appointed Director of Animal Resources at Virginia Tech. A graduate of Louisiana State, he has worked for NASA and BioTechnics Corporation and completed a residency in lab animal medicine at the University of Texas Medical School in Houston.

Leighton Richards, B.V.Sc., M.R.C.V.S. Dr. Richards is a new assistant professor in anesthesiology. He graduated from the University of Liverpool and comes to Blacksburg from Mississippi State University where he was a visiting assistant professor.

Gareth Moore, D.V.M. Dr. Moore is a graduate of the Ontario Veterinary College at the University of Guelph. He comes to Blacksburg as an ambulatory service clinician following completion of a residency and master's degree program at Ohio State. He has special expertise in small ruminants.

Clifford Shipley, D.V.M. Dr. Shipley is a clinician in the College's Ambulatory Health Service and a graduate of Iowa State University. He practiced in Iowa following graduation and has a special interest in food animal medicine and herd health management.

Pierre Lessard, D.V.M. Dr. Lessard joins the faculty as an equine clinician and epidemiologist in the Production Management Medicine (PMM) group. A graduate of the University of Montreal School of Veterinary Medicine, he has a degree in Preventive Veterinary Medicine from the University of California at Davis.

Hara Misra, B.V.Sc., Ph.D. Dr. Misra is an associate professor in biomedical research and comes to Blacksburg from the University of Oklahoma Health Sciences Center. He has a D.V.M. degree from the University of Utkal, Orissa, India and a Ph.D. from Virginia Tech.

Anne Zajac, D.V.M., Ph.D. Dr. Zajac, a graduate of Michigan State University, has joined the faculty as a clinical parasitologist with a special interest in the internal parasites of small ruminants. She recently completed her Ph.D. at the Ohio State University.

Clinical Instructor Program:

The College has instituted a clinical training program on the Blacksburg campus to provide broad experience in medicine, surgery and supporting disciplines for recent graduates in veterinary medicine. There are no formal graduate courses as part of the program. Instructors will spend at least 75% of their time in clinical service rotations handling clinic appointments, supervising patient care, providing clinical instruction to senior students and participating in emergency service. It is a 12 month program.

Two large animal and two small animal clinical instructors were selected and started the program in September 1985. They are:

Sophia Avgeris, D.V.M. A University of Tennessee graduate, Sophia is working in small animal medicine and surgery.

Patricia Mallick, D.V.M. A 1985 VA-MD Regional College of Veterinary Medicine graduate, Patty is also in the small animal program at her alma mater.

Leslie Hudson, D.V.M. A graduate of Mississippi State, Leslie is working in large animal medicine and surgery.

John R. Field, B.V.Sc., M.S. A University of Melbourne graduate, John comes to Blacksburg from an internship in large animal surgery at the University of Minnesota.

GENTAMICIN-ASSOCIATED ACUTE RENAL FAILURE IN THE DOG

The cases of gentamicin-associated acute renal failure are discussed. Mean time from initiation of gentamicin therapy until detection of nephrotoxicosis was 9.3 days. All dogs became uremic, with serum creatinine exceeding 6 mg/100 ml. The mean hospitalization period was 20.4 days. Seven out of 10 dogs did not respond to therapy. Disorders of potassium and calcium homeostasis and hypoalbuminemia were common during therapy. Fever and dehydration were the most commonly identified potential predisposing factors.

This study identifies the clinical characteristics of a complication of veterinary therapy. It emphasizes the poor prognosis and complicated hospital course that may be associated with this condition, confirming the need for a monitoring program and reduction in risk factors.--S.A. Brown, V.M.D. *et al.* (April 1985) as reported in JAVMA, Vol. 186:686-690 and North Dakota State University Veterinary News, August 1985. Veterinary Newsletter, University of Florida, October 1985.

EVALUATION OF SEROLOGIC TESTS

The enzyme linked immunosorbent assay (ELISA) and the indirect fluorescent antibody (IFA) tests are really only methods, i.e. techniques. They are a collection of tests but not specific tests. Those commercially available and/or the experimental preparations, vary widely in the antigen's and/or antibodies used. Thus it is an error and very misleading to refer to any such preparation as the ELISA test. It is An ELISA Test, not The ELISA Test.

There is a serious problem in evaluating any given test since there are no standard sera available as a primary base for testing. Even the use of pound dogs followed by careful post-mortem examination will yield different results in different areas, because of different compromising antigenic stimuli. Even a careful post-mortem examination cannot reveal the recent loss of the last adult worm. It can only reveal the current worms in the heart-lung system. It does not reveal developing worms in other tissues. Most reports fail to make any reference to other worms in other parts of the body. He illustrates the subtle nature of the possible cross reaction problem with an example from his own experience. In his initial series of evaluations of one particular assay, he screened several sera from dogs with microfilaremia of Dipetalonema reconditum. All were negative or in the plus/minus category. Thus there did not appear to be any likelihood of cross reaction with that species. Later. In collaboration with Bruce Lindemann he found that there was a cross reaction but it was limited to a short time before and after the onset of microfilaremia, in experimentally infected dogs. At all other times they were negative.

Even laboratory raised and experimentally infected dogs do not provide the full answer. They are devoid of the antigenic complications encountered in pound dogs and in your client's dog.

The newer techniques to detect antigens rather than antibodies potentially offer a real improvement. However, further evaluation is needed to delineate the extent of the improvement.

New tests are best evaluated against a bank of "standard known sera", before further trials.--Dr. Bob Grieve, School of Veterinary Medicine, Madison, WI, American Heartworm Society Bulletin, Volume 11, #3, September 1985.

A COMPARISON OF REGIMENS FOR TREATMENT OF BOVINE RESPIRATORY DISEASE (BRD)

The efficacy of Liquamycin LA-200 for single-day treatment of BRD was evaluated at levels of 10, 15, and 20 mg/lb body weight in morbid feedlot cattle. A conventional four-day oxytetracycline regimen (5 mg/lb) was also tested. All treatments were administered with an initial dose of sustained-release oral sulfadimethoxine (SRS). In a second trial, 15 mg/lb Liquamycin LA-200+SRS treatment was compared to/administered with penicillin, penicillin+SRS, double-dose SRS, or triple-dose tylosin. Morbidity, mortality, treatment, drug cost, and labor records were maintained in both experiments.

Animals that received either 10 or 15 mg/lb LA-200+SRS showed consistent fever reduction. Duration of treatment favored the 15 mg LA-200+SRS group as 8% of the animals required treatment (2% relapse rate). Cattle administered a four-day oxytetracycline regimen had considerably higher treatment-relapse rates, and much higher labor costs. In the second trial, penicillin or penicillin+SRS groups experienced marked temperature declines. The 24 mg tylosin + 15 mg LA-200 group required a longer duration of therapy, including retreatment, than other animals. Labor charges for the daily penicillin therapy rendered the program excessively expensive as compared to 15 mg LA-200+SRS. Inclusion of 3X-tylosin or 2X-SRS also exceeded the 15 mg LA-200+SRS cost. However, 2X-SRS did affect moderate efficacy improvement.—**Bill W. Bennett, D.V.M. and Gary Rupp, D.V.M., Colorado State University, Fort Collins, CO (as reported in Veterinary Medical Extension Sources Newsletter, Fort Dodge, April 1985).**

CONTINUING EDUCATION OPPORTUNITIES

February 21-22, 1986	Virginia Veterinary Medical Association Annual Meeting - Norfolk, VA
March 28-29, 1986	Orthopedics of the Canine Front Limb Surgery Lecture/Wet Lab - Blacksburg, Va
April 6, 1986	Pet Bird Medicine Workshop Best Western Airport Inn - Richmond, VA
April 22, 1986	Local Associations Meeting Blacksburg, VA
April 23-24, 1986	Small Animal Medicine Update Tidewater 4/23 Charlottesville 4/24

For more information on these meetings, contact:

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SUCCESS IS NO ACCIDENT

Your technical expertise, scientific knowledge and surgical skill are very important to the practice of veterinary medicine -- but they may not be the factors that determine the success of your practice. Enthusiastic clients are the key to a successful practice, and the person-to-person experiences your clients have with your practice are what they base their impressions on.

Clients come to you with problems and they want to interact with sympathetic human beings in the solution of those problems. Canned messages, being left on "hold", failing to return calls, and unthinking rudeness can all send clients away upset. Emergencies are a real test of you and your staff as clients are already upset and particularly in need of compassionate assistance.

Think about your office procedures and client protocol. Are you and your co-workers caring problem solvers? Are your clients getting the service they need?—**Kent C. Roberts, D.V.M., Virginia-Maryland Regional College of Veterinary Medicine.**

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