VIRGINIA COOPERATIVE EXTENSION SERVICE

EXTENSION DIVISION - VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY - BLACKSBURG, VIRGINIA 24061

VIRGINIA-MARYLAND
REGIONAL COLLEGE
OF
VETERINARY MEDICINE

VIRGINIA VETERINARY NOTES

March-April, 1988 No. 32

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EMPYEMA IN THE CAT

Empyema or pyothorax is a relatively common cause of sudden death in cats. Usually, the onset of dyspnea is acute and is the only presenting clinical sign. Although a few cats survive a diagnostic physical examination and subsequent treatment, most die while being transported to the veterinary clinic or during the manipulation of the initial physical exam. It's not uncommon for cats to die suddenly, at home, without any clinical signs noted, even by the most observant owners.

One of the most characteristic gross lesions, often overlooked, is the overall contour of the chest. Normally a cat's chest has an overall "V" shape. This ventral tapering which can be found in all but the most severely obese animals, is lost in a cat with empyema. These cats have a moderate to markedly obvious barrel shaped chest.

At necropsy, the thoracic cavity contains abundant fibrin necrotic foul smelling debris and fluid. The color of the inflammatory exudate is variable, appearing grey green, yellow tan, or red. The lungs are diffusely collapsed and layers of fibrin and occasionally fibrous connective tissue are adherent to the pulmonary and costal pleura. When the lungs are palpated only a small focus of firm parenchyma is found. Even though collapsed and covered with inflammatory debris most of the lungs are soft and pliable. Careful examination of the firm area usually reveals the presence of an abscess that has ruptured. The inflammatory reaction is more intense in this area and there are often fibrous adhesions present. Adhesions may occur between the ruptured abscess focus and an adjacent lung lobe or that focus and the costal pleura. If the prosector carefully inspects the abscess within the lung parenchyma or the inflammatory exudate a small bit of foreign material, most often a plant awn, is found. Most texts report that Nocardia asteroides is the primary cause of feline pyothorax and it is true that if the inflammatory exudate is cultured, growth of this organisms will result. However, this is likely because this opportunistic organism grows most favorably in the environment provided by the thoracic cavity. Although a penetrating chest wound may cause empyema, a thorough necropsy reveals the true cause: a ruptured lung abscess secondary to foreign body inhalation.--**Lois Roth, DVM, PhD, DACVP, VA-MD Regional College of Veterinary Medicine.**

TREATMENT OF SNUFFLES

Practitioners are frequently presented with pet or show rabbits for treatment of snuffles. Antibiotic treatment prior to or without culture and sensitivity tests is commonly practiced. Although therapy response to Pasteurella multocida (or other agents such as Staph. spp., Klebsiella pneumoniae or Bordetella bronchioseptica that may also cause snuffles) infection may be poor, certain initial antibiotic choices may yield superior results. Amoxicillin IM or orally at 22-33 mg/kg BID for 7 to 10 days, IM or oral Tribrissen® (24%) at 1.1 mg/kg BID for 7 to 10 days, IM Liquamycin® (5 mg/ml) at 15 mg/kg TID for 7 days or BID cephaloridine at 11 mg/kg IM or SC for 7 days are excellent choices. Injectable therapy is generally thought to be indicated over per os treatment due to the possibility of antibiotic-induced colitis and cecitis. Intramuscular injections may be given in the flank (paralumbar area). Subcutaneous injections in the neck area may cause induration and anorexia. Oral medication is simply given via a syringe inserted at the corner of the mouth.--**Jim Jensen, DVM, Clin. Assoc. Prof., Texas A&M Univ., College Station, TX; AJVR, Vol. 48, No. 8, August 1987, pp. 1261-1263, as reported in Texas Agricultural Extension Service Veterinary Quarterly REview, Vol. 3, Number 3, Fall 1987.**

GANGLIOSIDOSIS IN PORTUGUESE WATER DOGS

GM_1 gangliosidosis in Portuguese Water Dogs has been recently documented by clinicians at the Virginia-Maryland Regional College of Veterinary Medicine. GM_1 gangliosidosis is an inherited storage disease that results from a deficiency of gangliosidase, a lysosomal enzyme that metabolizes gangliosides. Deficient enzyme levels result in an accumulation of substrates which interrupt cell function and eventually cause cell death. Clinical signs appear as the functional capacity of the cell is decreased.

In Portuguese Water Dogs, the signs of the disease are first observed at 4-6 months of age. The dog may appear clumsy to the owners at first; however, the signs rapidly progress to an unsteady gait, ataxia, and head tremors. Spasticity of the limbs, a wide base stance and truncal sway, hypermetria and nystagmus may also be observed. Menace responses are absent or delayed and spinal reflexes may become exaggerated. The signs are usually so severe that the animal is incapacitated by 7-8 months of age. Results of routine laboratory testing (hemogram, chemistry profile, urinalysis, spinal fluid analysis, spinal and skull radiographs) are usually normal.

Routine histopathology of the brain and spinal cord will suggest a storage disorder, but confirmation of the specific type of storage disease can only be accomplished by biochemical analysis of blood or tissues. If a storage disease is suspected, brain, liver, and spinal cord samples should be collected at necropsy and stored without fixative in an airtight container at -4°C for biochemical analysis. An antemortem diagnosis can be made by determining enzyme activity levels in leukocytes or liver tissue. Preliminary analyses of pedigrees indicate that the trait is transmitted as an autosomal recessive one in this breed. If you have a Portuguese Water Dog with the above signs and wish further information, then please contact Dr. Shell at the Virginia-Maryland Regional College of Veterinary Medicine.--**Linda Shell, DVM, Diplomate, ACVIM/Neurology, Assistant Professor, VA-MD Regional College of Veterinary Medicine**

FELINE CORONAVIRUSES

Antigenically related feline coronaviruses cause two distinct disease manifestations in infected cats. The diseases are feline infectious peritonitis (FIP), in which the virus is widely disseminated, and feline enteric coronavirus (FECV), a mild disease in which the virus is usually limited to the villi. These two viruses were found to differ in their growth in cell culture. FIPV grows to higher titer, forms larger plaques and switches off host cell protein synthesis more effectively than FECV. Cross neutralization studies show antigenic differences between the strains. There also appeared to be a difference in the nucleoprotein molecular weight of the viruses causing these two different disease syndromes.

Although the strains causing enteritis and peritonitis in cats were antigenically and biologically similar, neither protected against infection with the other.--**G.T. Tupper, J.F. Evermann, R.G. Russell and M.E. Thouless, Arch. Virol. 1987, 96:29-38. Supplied by Luis V. Melendez, Professor of Virology, VA-MD Regional College of Veterinary Medicine.**

RETAINED PLACENTA

Prostaglandin injection (10 mg $PGF_{2\alpha}$) within one hour after INDUCED parturition reduced the incidence of retained placenta from 90.5% to 8.8%. Sixty-six cows and heifers were induced to calve with dexamethazone five days before expected parturition. Prostaglandin injected animals released fetal membranes in 7.4 ± 1.35 hr vs saline treated controls, 98.3 ± 10.93 hrs after parturition. ($P<0.001$). **--Theriogenology 26 (Sept. 86):365 as reported in University of Vermont Herd Health, Aug 87.**

COMPARISON OF TREATMENTS FOR OVINE FOOT ROT

Vaccination and/or hour long footsoaks, with and without hoof paring, were compared for treatment of foot rot in sheep. In the absence of foot paring, vaccination combined with foot soaking resulted in a higher cure rate than did vaccination or foot soaking alone. However, the resulting cure rates were not acceptable for a good control or eradication program. An acceptable response rate was achieved with the combined treatment methods of hoof paring, vaccination, and repeated medication applied topically by either foot soaking, foot bathing or aerosol spray.**--C.V. Bagley et al., J. Am. Vet. Med. Assoc., 1987: 191:541-546; Communications in CE, Vol. 3, No. 6, Dec. 1987, Hoechst Roussel.**

SCOUR REMEDY

A homemade remedy will help calves suffering from diarrhea, thus staving off deadly secondary infections, says Dr. Duane Miksch, veterinarian with the Kentucky Extension Service.

Miksch recommends mixing one package of fruit pectin, one teaspoon of Lite salt, two teaspoons of baking soda and one can of beef consomme in enough warm water to make two quarts of solution.

Sick calves should be fed the solution two to three times per day until 24 hours after diarrhea has ended. Milk should be withheld during treatment. If the calf refuses the mixture or becomes ill, a veterinarian should be consulted. **--Northeast Improver, September, 1987; Communications in CE, Vol. 3, No. 6, Dec. 1987, Hoechst Roussel.**

TREATMENT FOR GRAIN OVERLOAD

Activated charcoal, 1 to 3 g/kg of body weight and 2 g/kg sodium bicarbonate mixed in a slurry and administered via stomach tube.

SuperChar Vet is a new activated charcoal with two to three times the absorptive capacity of other leading charcoals; it contains about 65% water, and is the consistency of brown sugar. SuperChar Vet is produced by Gulf Biosystems, Inc., 5310 Harvest Hill Road, Dallas, Texas 75203.**--Utah Veterinary Newsletter, December 1986; Veterinary Newsletter No. 234, Jan. 1988, University of Georgia.**

CLINICAL IMMUNOLOGY

The College of Veterinary Medicine has recently established a Clinical Immunology Laboratory, which offers important unique services for the diagnosis of immunodeficiencies, immunosuppressions, autoimmune diseases and some infectious diseases as well. The laboratory is located in the Veterinary Teaching Hospital in Blacksburg.

Immunosuppression is a temporary state of decreased responsiveness to infectious agents. It appears physiologically (e.g., during pregnancy and stress) or in association with various diseases (e.g., pyoderma). It is usually undiagnosed and requires a combination of tests, including lymphocyte transformation.

Immunodeficiency is a permanent defect of the immune mechanisms, which may be inherited (e.g., combined immunodeficiency of horses, IgG immunodeficiency of cattle) or acquired (e.g., various forms of leukemia). Some immunodeficiencies have been accepted and are diagnosed, but many remain undiagnosed because the animals die of various secondary infections before immunodeficiency is determined. Early diagnosis of immunodeficiencies is important for the prevention of secondary infections and for the establishment of sound breeding programs.

Autoimmune diseases are very rare in young and middle aged animals, but increasingly frequent in older animals. They may be multisystemic (e.g., systemic lupus erythematosus, rheumatoid diseases) or those affecting only a single population of cells or tissues (e.g., bullous skin diseases, thyroiditis). Their diagnosis is possible using various tests. The tissue immunofluorescence test will be available when the College receives a cryostat for sectioning frozen tissues.

The Clinical Immunology Laboratory also performs tests to detect canine brucellosis, mycotic diseases, toxoplasmosis and occult heartworm disease. Additional tests will be added in the near future. The present list of tests and fees follows.

The Director of the laboratory is Dr. Ota Barta, who recently came to Blacksburg after directing the Clinical Immunology Diagnostic and Research Laboratories in Baton Rouge, LA for the past 12 years. He has published numerous articles on immunologic problems in animals and is the editor of Laboratory Techniques of Veterinary Clinical Immunology (Charles C. Thomas, Springfield, 1984). He is also the Chairman of the Veterinary Immunology Committee of the American Association of Immunologists and the past President of the American Association of Veterinary Immunologists.

For information on sample submissions call (703)961-4320 and for consultation call Dr. Barta (703)961-7666 or 4282. Laboratory Central Receiving of the Veterinary Teaching Hospital will mail you (for a nominal charge) more detailed information on the tests available, sample handling, and interpretation of results if you request it.

LABORATORY TESTS AND FEES
OFFERED BY CLINICAL IMMUNOLOGY LABORATORY

Effective date: October 1, 1987.

For information on sample submission see the appropriate section of the Procedures and Fee instructions.

	SPECIES[1]	FEE	BULK FEE (8 or more samples)
HUMORAL IMMUNITY		$	
Serum electrophoresis	Any	10.00	NA[2]
IgG quantitation	Bo,Ca,Eq	8.00	5.00
IgM quantitation	Bo,Ca,Eq	8.00	5.00
IgA quantitation	Ca, Eq	8.00	5.00
Complement (hemolytic)[3]	Ca	10.00	8.00
CELLULAR IMMUNITY			
Lymphocyte function[3]	Any	30.00	NA
AUTOIMMUNITY			
Antinuclear antibody (ANA)	Ca,Eq,Fe	11.00	NA
Rheumatoid factor (RF)	Ca	9.00	NA
Antiglobulin (Coombs) test, direct	Ca,Eq,Fe	9.00	NA
*Immunofluorescence of tissues (skin, kidney) (IgG deposits in tissues)	Ca,Eq,Fe		NA
*Indirect immunofluorescence (circulating antibody to tissues)	Ca		NA
SEROLOGY			
Brucella canis, slide test	Ca	7.00	NA
ME-tub test	Ca	8.00	5.00
Toxoplasma gondii	Ca,Fe	10.00	NA
Blastomyces dermatitidis	Any	10.00	NA
Histoplasma capsulatum	Any	10.00	NA
Cryptococcus neoformans	Any	10.00	NA
Coccidioides immitis	Any	10.00	NA
Dirofilaria immitis (occult heartworm disease)	Ca	12.00	NA

SUPPLIES:

Michel's fixative, for 1 biopsy with container 3.50

NOTES:

[1]SPECIES: Bo = bovine, Ca = canine, Eq = equine, Fe = feline, Any = any species.
[2]NA = Not applicable.
[3]Special arrangement necessary for testing lymphocyte function and complement. Call the laboratory director, Dr. O. Barta, (703) 961-4282 or (703)961-7666.

MARYLAND EXTENSION VETERINARIAN

The University of Maryland has appointed a new livestock extension specialist to the Maryland faculty of the Virginia-Maryland Regional College of Veterinary Medicine at College Park. He is Douglas Carmel, DVM, MS, a 1985 graduate of the University of Minnesota who has a MS degree in parasitology from the University of Wisconsin. Prior to his arrival at College Park, Dr. Carmel was a member of a veterinary practice in New York State.

THOUGHT FOR THE MONTH

The greatest thing in the world is not so much where we stand as in what direction we are moving.

Oliver Wendell Holmes

SPRING 1988
CONTINUING EDUCATION OPPORTUNITIES

		Contact Hours
March 23-24	Small Animal Medicine Update Tidewater (23) Charlottesville (24)	4
*March 25-26	Practical Surgery of the Eye & Ear Lecture/Wet Lab - Blacksburg, VA	10
April 10	Small Animal Medicine Update Charleston, WV	4
April 14	Local Associations Meeting Airport Marriott - Roanoke, VA	2
*April 29-30	Canine Joint Surgery Lecture/Web Lab - Blacksburg, VA	10
May 1	Pet Bird Medicine Dr. Susan Clubb - Springfield, VA	6
May 14	Food Animal Practice Seminar Waynesboro, VA	6

*Limited enrollment course

For further information on these CE courses, please contact:

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(703) 961-7666

Note: Program brochures are normally mailed approximately six weeks prior to the course date.

Virginia-Maryland Regional College of Veterinary Medicine Extension Staff:

Dr. J.M. Bowen - Extension Specialist - Equine
Dr. C.T. Larsen - Extension Specialist - Avians
Dr. K.C. Roberts - Extension Specialist - Companion Animals
Dr. C.F. Shipley - Extension Specialist - Swine & Small Ruminants
Dr. W. Dee Whittier - Extension Specialist - Cattle

K.C. Roberts, Editor
Barbara A. Baber, Managing Editor of VIRGINIA VETERINARY NOTES

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