VIRGINIA-MARYLAND VETERINARY NOTES

Veterinary Teaching Hospital, Virginia-Maryland Regional College of Veterinary Medicine

October - December 2004 No. 112

WHAT'S INSIDE!

Thought for the Month

Try not to lose an hour in the morning and then spend the rest of the day looking for it.

Dr. K.C. Roberts

Virginia Tech

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

This newsletter is published quarterly in support of the outreach program of the Veterinary Teaching Hospital VMRCVM, Blacksburg, VA and is prepared for and distributed to veterinarians in the Mid Atlantic Region

Microsporum Canis Spores in Households of Infected Cats and Dogs

Microsporum canis is the dermatophyte most frequently recovered from canine and feline ringworm cases. Untreated animals infected with *M. canis* usually recover, but the infection may last for months to years in some cases. Both effective therapy of the infected individual and environment control are required to eradicate the infection. A contaminated environment acts as a source of infection and reinfection for both animals and humans and up to 1000 arthrospores per cubic meter of air space were recovered in a house with an *M. canis*-infected cat. The household environment can be contaminated either by symptomatic cats or by cats with asymptomatic *M. canis* carriage. For this reason, and the fact that arthrospores are very resistant and can remain infectious in the environment for 12 to 24 months, the potential for human exposure from the environment is high. It is estimated that approximately 50% of humans exposed to infected cats acquire the infection, and in about 30 to 70% of all households with infected cats at least one person becomes infected.

Direct contact with infected hairs and scales or fungal arthrospores and hyphae on fomites and contact with a contaminated environment are the modes of transmission of the disease. Combing, ectoparasites, pruritis and disorders of keratinization may disrupt the integrity of skin barrier predisposing the host to the infection. Dermatophytosis is both a contagious disease among animals and an important zoonosis. *M. canis* is the leading agent of both tinea corporis and tinea capitis in humans.

The load of *M. canis* arthrospores was determined in households harboring infected pets in order to evaluate the infectivity of the animals versus the environment. The environments inhabited by 30 symptomatic animals (21 cats and 9 dogs) infected by *M. canis* were examined by sampling both surfaces and indoor air. The surfaces were examined by means of contact plates; the air sampling was performed with a Sas super- 100 AIR SAMPLER (PBI, Italy). Environmental contamination (surface and/or airborne) was present in all houses with infected cats, and in four of nine houses harboring infected dogs. In highly contaminated environments (n=8) all the surface specimens were HC and contamination of the air was always observed at the same level (HC). Households with intermediate contamination of surfaces (n=7) yielded intermediate (n=4) or low (n=3) contamination of air specimens. The heavily contaminated households harbored cats aged from 2 to 12 months, mostly with extensive lesions, while a low level of contamination was found in households with adult cats or dogs.

Infected owners were observed in five HC and three IC environments, all harboring cats. In most cases where human co-infection was present, there was a kitten in the house. Symptomatic co-inhabiting pets were also found in four of the 30 households. Recovery of the dermatophytes from asymptomatic pets' hairs was obtained in an additional four households, inhabited by seven cats (one household), three cats (one household) and two cats (two households): this situation was considered a state of passive *M. canis* carriage. No history of human dermatophytosis in households harboring dogs was found.

Infected cats appeared to be a striking source of contamination in their environment, and also provoke a massive airborne presence of viable fungal elements. Dogs seemed to be of lower importance in the environmental contamination of *M. canis*.

Taken from: Mancianti, F.,et al, J Feline Med and Surgery 323-328, 2003, as reported in Vet-Med, Vol. 10, Issue 3, May, 2004, Iowa State University, Ames IA

Would You Believe?

One dollar invested in gold 200 years ago would now be worth $21.44, invested in bonds it is worth $16,451, and in stocks it is now worth $9,170,000. This huge increase in the value of stocks represents an average annual return of 8.3%.

Stocks for the Long Run – Jeremy J. Siegel

Group Housing Exerts a Positive Effect on the Behavior of Young Horses During Training

In an experiment on the effects of social environment and training on the human-animal relationship, 20 horses were handled according to a defined schedule. Eight horses were housed singly and 12 horses were housed in four groups of 3 horses. Horses were handled three times per week in 10 min sessions from an age of 6 months until 2 years of age during two winter periods. A total of 50 and 70 sessions were given in the first and second period, respectively. Five randomly allocated people performed the training. The training scheme involved leading, tying up, touching, lifting feet, etc. in 43 stages. The horse had to fulfill the performance criteria of each stage in order to get to the next stage. In the first winter period, horses were led to the stable when they had "passed" a stage or after 10 min of training. In the second winter period, horses would start off at stage 1 again, and when they "passed" a stage they went on to the next stage within the same training session. Because of the change in training procedure results were analyzed separately for the two winter periods. There was a significant difference between trainers in the number of times they allowed a horse to "pass" a stage within each winter period (32, $P<0.05$; 32, $P<0.001$ for the first and the second winter period, respectively). Group housed horses "passed" more stages than single housed horses (17 versus 14; 27 versus 18 in the first and second winter period, respectively; $P<0.05$ for the interaction). Singly housed horses bit the trainer more frequently than did group housed horses ($P<0.01$). The responses of group housed horses to training clearly demonstrate the benefits of raising young horses in groups.

E. Sondergaard, Dept of Animal Health and Welfare, Danish Inst of Ag Sciences, Research Centre Foulum Denmark and J. Ladewig Dept of An Sci and An Health, The Royal Vet and Ag University, Denmark, Applied Animal Behaviour Science Volume 87, Issues 1-2, July 2004, Pages 105-118, as reported in Veterinary News, July 2004, Penn State University, University Park, PA

Mast Cells and Eosinophils in Feline Allergic Dermatitis

Mast cells (MCs) and eosinophils are prominent in the perivascular infiltrate of cats with allergic dermatitis. In the skin of allergic cats MCs were mainly observed diffusely in the superficial dermis, while eosinophils were found mainly in the deep dermis in a perivascular pattern. MC counts were significantly higher in cats with allergic dermatitis ($P<0.05$) than in healthy control cats, but the number varied widely. Moreover, the numbers of eosinophils in the skin of allergic and control cats differed significantly ($P<O.O5$), none being found in the latter. There was no significant correlation between numbers of mast cells and eosinophils in the same biopsy sample. In the allergic cats, a significantly lower number of MCs was detected by staining for tryptase than by staining for chymase or by Astra blue staining. Additionally, the chymase: tryptase ratio in healthy cats was reversed in cats with allergic dermatitis. These changes were observed in lesional and nonlesional skin of cats with allergic dermatitis. The findings indicate a generalized effect on MCs in allergic dermatitis. In addition, eosinophils are an important indicator of allergic dermatitis.

P. J. Roosje, and T. Willemse, Dept of Clinical Sciences of Companion Animals, J. P. Koeman, Dept of Pathology, Faculty of Veterinary Medicine, T. Thepen, Dept of Dermatology/ Allergology, Faculty of Medicine. All Utrecht University, The Netherlands
Journal of Comparative Pathoiogy Volume 131, Issue 1, July 2004, Pages 61-69, as reported in Veterinary News, July 2004, Penn State University, University Park, PA

Investing

Please remember that stocks cannot out perform business for long. This was forgotten during the late 1990's. Stocks should be selected for investment based on a company's sound business fundamentals, not current popularity. Successful investing is a rather boring, long term proposition.

Unknown

Pentobarbital Poisoning of Eagles

Residue from sodium pentobarbital remains in the tissues of animals long after they have been euthanized, and fatal poisoning of more than 130 eagles in 16 states and British Columbia is known to have occurred due to consumption of contaminated carcasses. Birds may die immediately after consuming tissues containing pentobarbital, or they may fly several miles and die due to vehicle collision, electrocution, predation, drowning, falling, or hyperthermia while they are sedated by the drug. Species confirmed with accidental pentobarbital poisoning include bald eagles, golden eagles, and other scavenging birds, such as ravens and magpies. Many other species of avian and mammalian scavengers, including pet dogs and cats, may become intoxicated or die after ingestion of carcasses.

Proper disposal of the carcasses of euthanized animals is essential, and education of veterinarians, clients, staff, and operators of solid waste disposal facilities can help prevent this problem. Incineration is the preferred method of disposal; however, proper burial or disposal in a landfill also is effective. Burial must comply with local and state requirements. Proper disposal at a landfill may involve immediate burial of the contaminated carcass; however, when immediate burial is not possible sequestration in secure containers is acceptable.

Improper disposal of euthanized animals may lead to prosecution under state and federal laws, including the Golden and Bald Eagle Protection Act, Endangered Species Act, and the Migratory Bird Treaty Act. These laws are enforced by the FWS and carry penalties of fines and imprisonment for criminal or civil offenses resulting in harm to wildlife. FWS Special Agents conduct investigations of all reported incidents, including the circumstances of the poisoning and the source of the contaminated carcass. Penalties vary on a case-by-case basis with fines for criminal violations as high as $250,000 per individual and $500,000 per organization, forfeiture of vehicles and equipment, and up to 2 years in jail. Civil penalties range from $500 to $25,000.

Veterinarians and livestock owners can be held liable for accidental poisoning. Most cases pursued by FWS agents involve large animal carcasses left exposed to scavengers, oftentimes because the need for rapid disposal of carcasses containing pentobarbital was not communicated to the animal owner by the veterinarian. Thus, misunderstanding, rather than malice, is the most frequent cause of pentobarbital poisoning. However, even persons unintentionally causing harm to protected animals may be held liable under criminal or civil law, and everyone involved with euthanasia and disposal of animals should take measures to prevent accidental poisoning of wildlife. The FDA's Center for Veterinary Medicine is adding an environmental warning to the labels of euthanasia solutions that contain pentobarbital to help prevent future poisonings of wildlife. Additional information can be found in a fact sheet titled Secondary Pentobarbital Poisoning of Wildlife at the FWS website: http://mountain-prairie. fws.gov/poison.pdf. (Prepared by John Fischer)

Taken from: Southeastern Cooperative Wildlife Disease Study 19:8-9, 2003, as reported in Vet-Med, Vol. 10, Issue 3, May, 2004, Iowa State University

Would You Believe?

The United States ranks 140th out of 163 of the world's democracies in average voter turnout. Perceived to be the world's greatest democracy, the USA had a 44.9% voter turnout in the 1990's, while almost 75 countries had better than a 70% average turnout during this same period.

Scientists at Indiana University & Leiden University in the Netherlands have discovered that parrots, like humans, can use their tongues to shape sound. Motor control of the tongue is an important part of voice communication, and even minor changes in the position of the parrot's tongue result in significant differences in the sounds emitted.

Estimation of Heritability of Atopic Dermatitis in Labrador and Golden Retrievers

Objective: To estimate the heritability of atopic dermatitis in Golden and Labrador Retrievers.

Animals: 429 dogs related to 13 dogs with atopic dermatitis.

Procedure: Atopic dermatitis was defined on the basis of the type and frequency of clinical signs recorded in the clinical records, and each dog was classified with atopic dermatitis or probable atopic dermatitis or as nonatopic. By use of data from atopic and nonatopic dogs, regression analyses of parental status on offspring status were performed to estimate heritability.

Results: There was no difference in the frequency of atopic dermatitis between sexes or between breeds. There was a marked association between the atopic status of the parent and that of the offspring, particularly for sires. By use of data from 32 litters in which the status of both parents was known and considering only those dogs classified with atopic dermatitis or as nonatopic, the heritability (± SE) of atopic dermatitis was estimated to be 0.47 (± 0. 17).

Conclusions and Clinical Relevance: Atopic dermatitis has a strong genetic component, and breeding of dogs with clinical signs of atopic dermatitis should be discouraged.

S. C. Shaw, J.L.N. Wood, J. Freeman, D. Hannant, Animal Health Trust, Kentford, Newmarket, Suffolk, UK
D. Littlewood, Veterinary Dermatology Referrals, Landbeach, Cambridge, UK
Am J Vet Res 2004;65:1014-1020, as reported in Veterinary News, July 2004, Penn State University, University Park, PA

Owner Considerations in Preventing Zoonotic Disease

Some people are uniquely susceptible to certain vector-borne infections and parasites. Special care should be taken by veterinarians and staff in counseling clients, including:

- Individuals who are mentally disabled
- Individuals with occupational risk
- Immunocompromised individuals, such as:
    - People with HIV infection
    - People under going immunosuppressive therapy (e.g. chemotherapy patients, organ transplant patients, patients undergoing treatment for autoimmune disease)
        - People with advanced Liver disease
        - Diabetics
        - Pregnant women
        - Infants and young children
        - Elderly individuals

People in contact with animals that may transmit zoonotic parasites should be advised of the risks and made aware risks are increased by pregnancy, underlying illness or immunosuppression. Examples of these conditions can be cited without obtaining a medical history on the client and his/her family. Pet owner concerns about human illness should be directed to their physicians. For additional information refer to the CDC at www.ced.gov/healthypets.
2004 Companion Animal Parasite Council; www.capcvet.org, as reported in Vet Med, Volume 10, Issue 4, July 2004, Iowa State University, Ames, IA

Esophageal Obstruction Caused By Vascular Anomalies

A 3-month-old female intact German Shepherd was presented to the University of Pennsylvania Veterinary Hospital for evaluation of regurgitating soon after weaning from liquid to solid food. A male littermate of the affected female puppy was also intermittently regurgitating. Both dogs were examined but a veterinarian who heard a grade V/V continuous heart murmur and referred the dogs for further evaluation. On Physical examination, the dogs were underweight (4.5 kg) and much smaller than a male intact littermate that weighed 9 kg. The cervical esophagus was palpable as a flaccid, air filled tube in the neck. The dogs had a grade V/V continuous murmur loudest at the left heart base with a palpable thrill. The heart rate was 160 beats per minute. Thoracic radiographs were made and showed an enlarged left heart, a dilated esophagus containing food and air cranial to the heart, and deviation of the trachea to the left of midline in the cranial mediastinum. There was continuous blood flow in the pulmonary artery compatible with a paten ductus arteriosus, mild pulmonic and aortic insufficiency, and mild mitral regurgitation.

In each dog, the esophagus was obstructed by a vascular ring comprised of the left aortic arch, and anomalous patent right ductus arteriosus, and the pulmonary artery ventrally. In the two dogs described in our report, the vessel encircling the esophagus was patent and three quarter the diameter of the aorta. In each dog, the anomalous vessel originated from the descending aorta and communicated with the pulmonary artery system. The vessel originated from the aorta much further caudally than would be expected. This made identifying the vascular anomaly difficult in the first dog. It was not until the stomach tube was passed medial to the left aortic arch that the RDA was located. This anomalous vessel most likely represents persistence of the right sixth instead of the left sixth embryonic aortic arc as the ductus arteriosus.

The postoperative course for these two dogs was typical for dogs with vascular ring anomalies. Continued regurgitation in the female dog was most likely related to poor esophageal motility postoperatively. Postoperative esophageal dilation can be of varying severity and persisted after surgery in 91% of dogs with persistent right aortic arch in one retrospective study. Persistence of esophageal dilation may not be associated with either continues regurgitation or an adverse long-term prognosis. Neither dog has clinical signs of esophageal disease one year after treatment.

Taken from: Holt, D., et al., Vet Surgery 29:264-270, 2000, as reported in Vet Med, Volume 6, Issue 5, September 2000, Iowa State University, Ames, IA

Central Park

Consisting of 843 acres in the heart of Manhattan, New York's Central Park was built during the Civil War on swampy ground to become the first major landscaped public park in the US. This year marks the 150th anniversary of this noteworthy achievement.
Architects Frederick Law Olmstead and Calvert Vanx won the design competition with their "Greensward" plan. What is now the Great Lawn was originally a reservoir that was later filled in with the construction rubble from Rockefeller Center.

Would You Believe?

Ozone is a form of oxygen in which the molecule contains three atoms instead of the normal two

Equine Extension

Newly appointed Equine Extension Specialist, Dr. Scott Pleasant, is a 1980 graduate of Virginia Tech and a member of the Virginia - Maryland Regional College of Veterinary Medicine's charter class of 1984. Dr. Pleasant spent the first four years of his career in private practice in eastern Virginia. He then went to the University of Illinois where he completed a three year Large Animal Surgery Residency. Following that, he retuned to Virginia in 1991 joining the faculty of the Virginia-Maryland Regional College of Veterinary Medicine as an Assistant Professor and Equine Field Service clinician. In 1993, he became a member of the College's Large Animal Surgery section. He was promoted to Associate Professor in 1997, and served as Chief of Large Animal Surgery from 1999 – 2004.

Dr. Pleasant is board certified in veterinary surgery by the American College of Veterinary Surgeons. His research interests include equine lameness and podiatry. He has authored or co - authored over 75 manuscripts, abstracts, and book chapters. Active in continuing education and outreach, he has given more than 100 presentations to professional and lay groups in Virginia as well as other states and internationally.

Continuing Education Opportunities

Date	Topic	Location	Contact Hours
October 29 & 30, 2004	**Applied Ultrasonography**	**Blacksburg**	**10**
November 19 - 21	**Advanced Echocardiography**	**Blacksburg**	**21**
November – April	**Small Animal Problem Solving**	**Blacksburg**	**30**
December 6 – 10, 2004	**Soft Tissue Surgery Week**	**Blacksburg**	**40**
December 18, 2004	**Technician program – Ophthalmology, Neurology & Catheter placement and management**	**Blacksburg**	**6**
February 7, 8 & 9, 2005	**3-Day Introductory Endoscopy**	**Blacksburg**	**24**
April 8 & 9, 2005	**Diagnostic Ultrasound for Vets & Vet Techs**	**Blacksburg**	**10**

Please note:
The courses listed above are limited enrollment and feature a hands-on laboratory experience under the guidance of clinical faculty members. Program brochures provide course details. For more information, please contact **Anne Cinsavich**, aclapsad@vt.edu (540) 231-5261; or to register for a program, please contact **Conference Registration**, Continuing Education Center, (540) 231-5182.

Virginia-Maryland Regional College of Veterinary Medicine Extension Staff:

Dr. W. Dee Whittier	Extension Specialist – Beef Cattle
Dr. Scott Pleasant	Extension Specialist – Equine
Dr. John Currin	Extension specialist – Dairy Cattle
Anne Cinsavich	Continuing Education/Extension

K.C. Roberts, Editor
Anne Cinsavich, Production Manager of VIRGINIA –MARYLAND VETERINARY NOTES

VIRGINIA-MARYLAND REGIONAL
COLLEGE OF VETERINARY MEDICINE
VIRGINIA TECH
BLACKSBURG, VIRGINIA 24061

Non-Profit Org.
BULK MAILING
U.S. Postage PAID
Blacksburg, VA 24060
Article I. Permit No. 28