



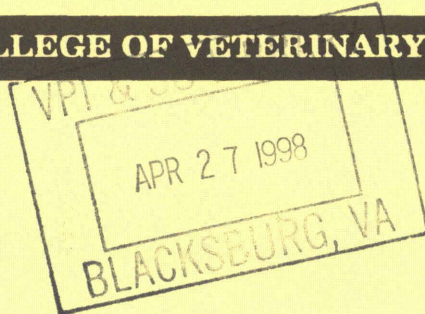
# VIRGINIA VETERINARY NOTES

VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE

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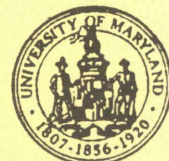
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## RESPIRATORY DISEASE IN HORSES

Diseases affecting the lower respiratory system of horses are commonly encountered. Out of a total of 4,255 horses (excluding fetuses) which were necropsied from January 1993 through December 1996 at the Livestock Disease Diagnostic Center, 448 cases (10.5%) of lower respiratory system diseases were diagnosed.

The most common diagnosis was bacterial pneumonia, which included cases of pneumonia, bronchopneumonia, and suppurative pneumonia. Of 255 cases, 41% were in foals less than one month of age, 39% in foals 1-12 months of age, and only 20% in horses greater than one year of age. Although post mortem decomposition and prior antibiotic therapy adversely affect the ability to isolate bacteria, cultures from the lung of 67% of cases yielded bacteria.

The next most commonly diagnosed respiratory condition, with 56 cases, was interstitial pneumonia. These instances differed from the bacterial pneumonia cases in pathogenesis, lesion distribution, and microscopic appearance. Two-thirds of the cases were in foals 1-12 months of age.

Twenty-two cases were classified as aspiration pneumonia. Aspiration results from inhalation of material, usually foodstuffs or gastrointestinal fluid. The majority of these cases were in foals less than one month of age.

Mycotic or fungal pneumonia was relatively uncommon, with only eight cases. In seven, the causative fungus was cultured and determined to be *Aspergillus spp.* or resembled *Aspergillus* microscopically. One case was the result of *Histoplasma capsulatum* infection. Five cases were diagnosed in horses over one year of age.

Seven cases were classified, based on the nature of the pathology, as necrotizing pneumonia. The cases were distributed among all ages of horses and were caused primarily by bacterial infection. There were 42 cases of pleuritis and pleuropneumonia involving lung tissue and inflammation of the membranes covering the lung. Two-thirds of these cases were in horses over one year of age.

Eleven cases of strangles caused by *Streptococcus equi* were diagnosed. Although strangles is primarily a disease affecting the peripheral lymph nodes, seven of the cases also had lung involvement. Eight of the 11 cases were in horses greater than one year of age.

While viral abortion is a fairly common diagnosis in fetuses, viral pneumonia caused by equine herpesvirus was diagnosed in nine foals less than one month of age. In eight, equine herpesvirus type 1 (EHV-1) was isolated, and in the remaining case EHV-4 was the isolate.

An assortment of conditions complete the respiratory diagnosis. Neoplasia is an uncommon finding in the lung of horses. Five cases were seen over this 4-year period, and all were in adult horses. There were three carcinomas, one granular cell tumor, and one metastatic mesothelioma. Other diagnoses included four cases of hyaline membrane disease, three cases of chronic obstructive pulmonary disease, two cases of emphysema, two cases of pneumothorax, and one case of *Pneumocystis carinii* infection.

Although a variety of different respiratory conditions were diagnosed at the LDDC, pneumonia and pleuritis due to bacterial infection were by far the most important causes of death due to respiratory disease in horses. --Dr. Neil Williams, *Livestock Disease Diagnostic Center, Equine Diseases Quarterly, April 97. Equine Veterinary Newsletter, June 97, as reported in Florida Veterinary Scene, Vol. 6, No. 9, Nov 1997, University of Florida, Gainesville, FL.*

## WHY SOME DOGS CHASE THEIR OWN TAILS

Occasionally, a dog can be seen circling round and round at high speed and chasing its own tail. It snaps its jaws at the vanishing tail and spins round in hot pursuit, sometimes circling so many times that it becomes dizzy and disoriented.

For the human observer, what starts out as an amazing folly and seems to be no more than a simple play pattern, eventually becomes disturbing. The stereotypic play begins to look like a behavioral abnormality rather than a rhythmic game. Sadly, this is not too far from the truth. Persistent tail chasing is usually a behavior of dogs that have been kept in unnaturally boring conditions.

Dogs are social beings, and they are also intensely exploratory. If they are deprived of companions --both canine and human -- or if they are kept in constrained and monotonous environments, they suffer disorders.

The worst mental punishment a dog can be given is to be kept alone in a confined space where nothing varies. Fortunately this rarely happens with domestic dogs. But wild dogs in zoos have often been housed in small, cramped, empty cages, condemned to a life sentence of solitary confinement. Observation of such animals has revealed that they frequently develop "tics" and stereotyped actions, such as paw biting, tail chewing, neck twisting, pacing, and other damaging patterns of repetitive behavior. Sometimes these "tics" become so savage that dogs repeatedly bite right through their own flesh and develop running sores.

This self punishment may seem destructive, but it has the effect of providing acute stimulation in a world which has become an unbearable limbo of boredom. Tail chasing is a mild form of this type of behavior. It is often seen in a puppy that has recently been isolated from its litter mates. Taken to its new home, it is suddenly robbed of all the rough and tumble play so typical of a lively litter, and it must seek new forms of stimulation (claustrophobic side effect: curable in the early stages by owner attitude modification and, sometimes, psychotropic drugs).

If the owners do not play with it enough, the puppy may find it difficult to start up a "game," and it is then that the tail becomes the best "companion" available.

There is no harm in tail chasing, provided that the circling does not become a compulsive obsession. Many lonely puppies do it for a while and then grow out of the habit. Only when the habit persists into adulthood does it indicate a fault in the animal's environment and the owner's response. The abnormality can usually be cured by simply increasing stimulation in the animal's life.

The only exception is when the dog is suffering from some stubborn irritation in the tail region, such as swollen anal glands or lasting pain from a badly docked tail. But in such cases, other more specific responses, such as rump dragging and tail nibbling, are more likely to occur. --**Animal Behavior Newsletter of South Africa, as reported in Florida Veterinary Scene, Vol. 6, No. 9, Nov 1997, University of Florida, Gainesville, FL.**

## IT'S IN YOUR GENES

Color blindness occurs in approximately 8 percent of men but only 0.5 percent of women. Why? It is an X-linked gene defect which is required in only one parent to cause the problem in men. To affect women, their father must have the defective gene and their mother must be a carrier of it for the daughter to have a 50 percent chance of having the two defective X genes that result in color blindness. Women are carriers of the gene by inheritance from a father with the defect. --**KCR, October 1997.**

## BACTEREMIA ASSOCIATED WITH CANINE DENTAL PROCEDURES

The nature and extent of bacteremia occurring during routine dental procedures is important in understanding a potential risk to dogs. Research was conducted to evaluate the association between canine dental procedures and bacteremia. Bacteria cultured from the blood over time were compared with bacteria isolated from dental plaque and crevicular fluid. In addition, the severity of bacteremia was compared to the severity of dental disease and the longevity of bacteremia was determined. Twenty adult greyhounds were included in this study. Blood samples were collected for culture before induction of general anesthesia, immediately after incubation, 20 minutes after initiation of the dental procedure, and at 10-minute intervals until 10 minutes after the dental procedure was completed. Samples of plaque were taken for microbiological culture. Sixty to 90% of the bacterial genera isolated from the plaque were present in blood. Dogs classified according to severity of dental disease showed no difference in the total number of different species or number of Gram-negative, Gram-positive, or anaerobic bacteria isolated from plaque or blood. Bacteremia was present in all of the dogs studied, within 40 minutes after initiation of the dental procedure, regardless of the severity of oral disease. Bacteremia can persist beyond the dental procedure. -- **M.A. Nieves, et al., Vet. Surgery 26, '97, as reported in Veterinary News, Feb 1998, Penn State University, University Park, PA.**

## HOW TO MAKE YOUR OWN I.V. FLUID INSULATOR

I.V. fluids should always be administered as close as possible to the patient's natural body temperature. But how do you maintain the fluid temperature, especially when administering larger volumes or working outdoors as I do with deer and marine mammals? I found an inexpensive solution at my local hardware store.

By combining two Styrofoam water spigot insulator cups, you can make an insulated housing for a standard liter bag of fluids. Each cup has a foam gasket attached which is meant to make contact with the outside wall of your building. A perfect seal can be made by joining the two cups, gasket to gasket, forming a top and bottom half. Mount a Velcro® strap on each cup. The Velcro is permanently mounted to the top half with five-minute epoxy. The lower half mounts to its Velcro mate which has been glued to the lower cup.

The particular insulator I bought was equipped with a hook inside for mounting to the spigot. By removing a wing nut, the hook can be mounted on the outside and utilized to hang the whole assembly. Cut a hole in the bottom cup large enough to allow the bottom of the fluid bag or the drip set to hang through. Because of the inside dimensions of the insulator, the fluid bag stood up nicely without having to be hung inside. With this device you can administer an entire liter of warm fluids.

I experimented with cutting a narrow, plastic observation window in the side to monitor the quantity. It proved very hard to see. I found the easiest technique was to undo the strap and take a quick peek inside. --**Jeff Lederman, director of Island Wildlife Natural Care Centre in Salt Spring Island, British Columbia. From Wildlife Rehabilitation Today, Summer 97, as reported in Florida Veterinary Scene, Vol. 6, No. 9, Nov 1997, University of Florida, Gainesville, FL.**

## THOUGHT FOR THE MONTH

Opportunity is missed by most people because it is dressed in overalls and looks like work.

--**Thomas Edison**

## EVALUATION OF DIFFERENT TECHNIQUES FOR WASHING CATS

The purpose of this study was to examine the quantity and distribution of the major cat allergen, Fel d 1, on cats and to evaluate the efficacy of washing, both in removing allergen from the cat and reducing airborne allergen levels. Airborne samples were collected before and 3 hours after serial washing of eight cats. Aliquots of hair and bath water were also collected and assayed for Fel d 1 content.

Extracting cat hair with tap water or pet shampoo for 3 minutes removed mean levels of 191 and 245  $\mu\text{g}$  of Fel d 1 per gram of hair, respectively; the quantity of allergen on samples of cat hair ranged from 1 to more than 1770 micrograms/gm. The highest concentration of allergen was found on hair from the neck. Estimates of the total Fel d I on the cat, based on shaving the whole cat, ranged from 3 to 142 mg (mean = 67 mg). Washing three cats at weekly intervals for 5 weeks in a veterinarian's office produced a mean decrease of 44% in airborne Fel d 1. Washing three cats by immersion for 3 minutes at weekly intervals for a 1-month period produced a mean decrease in airborne allergen of 79%. However, after repeated washing, the airborne levels before the next wash were not consistently decreased. The quantity of Fel d 1 removed by immersion varied from 1 to 35 mg.

**Conclusion:** Cats carry large quantities of Fel d 1, only a small proportion of which (approximately 0.002%/hr) becomes airborne. Washing cats by immersion will remove significant allergen from the cat and can reduce the quantity of Fel d 1 becoming airborne. However, the decrease is not maintained at 1 week. --D.B. Avner, M.S. Perzanowski, T.A. Platts, T.A. Mills, and J.A. Woodfolk, *J. Allergy Clin. Immunol.* 100, 307-312, 1997, as reported in *Feline Health Topics*, Vol. 12, No. 3, Nov. 1997, Cornell Univ, Ithaca, NY.

## DIABETIC KETOSIS AND KETOACIDOSIS IN CATS

The objective of this retrospective study was to determine the clinical signs, clinicopathologic abnormalities, prevalence of concurrent disease, treatment, complications of treatment, and outcome in cats with diabetic ketosis (DK) or diabetic ketoacidosis (DKA). The medical records of 42 diabetic cats with ketonuria were reviewed. In 26 cats, diabetes was newly diagnosed; in 16, diabetes had been diagnosed previously and cats had been treated with insulin ( $n = 14$ ) or sulfonylurea drugs (2). Common clinical findings were lethargy, anorexia, polyuria, polydipsia, and weight loss. Common laboratory findings were hyperglycemia, hyponatremia, hypochloremia, hypokalemia, hypocalcemia, hypophosphatemia, low total  $\text{CO}_2$  content, hyperosmolality, high serum alanine transaminase activity, azotemia, glycosuria, and ketonuria. Concurrent disorders were identified in 39 cats and included hepatic lipidosis, cholangiohepatitis, pancreatitis, chronic renal failure, urinary tract infection, and neoplasia.

Complications during treatment included abnormalities in serum electrolyte concentrations (27 cats), hemolytic anemia (4), hypoglycemia (3), and neurologic abnormalities unrelated to hypoglycemia (2). Eleven cats died or were euthanatized during the initial hospitalization period for treatment of DK or DKA. Azotemia, metabolic acidosis, and hyperosmolality were more severe in cats that died than in cats that survived.

Differences in regard to treatment or complications were not apparent between cats that died and cats that survived. The results of this study imply that a thorough diagnostic evaluation should be performed on cats with DK or DKA to identify concurrent disorders, formulate an appropriate treatment plan, and provide prognostic information to the owner. --K.A. Bruskiwicz, R.W. Nelson, E.C. Feldman, and S.M. Griffey, *J. Am. Vet. Med. Assoc.* 211, 188-192, 1997, as reported in *Feline Health Topics*, Vol. 12, No. 3, Nov. 1997, Cornell University, Ithaca, NY.

## THE APPROACHING MILLENNIUM

As we prepare for the year 2000, indications are that it may cost US businesses \$300 billion to reprogram computers so they recognize that the year 2000 isn't 1900.

There is the potential for massive disruptions in the US economy at one tick after midnight December 31, 1999. Consumers and businesses may be unable to get information on current account balances and a wide variety of records until the conversion process is completed.

Lawyers are anticipating a huge volume of lawsuits by disgruntled businesses and customers, and some class action litigation, as a result of the possible chaos. **--KCR, October 1997.**

## FAT IN COWS' DIET HELPS CALVES KEEP WARM

About 95,000 calves die each year from cold stress. But extra fat in a cow's diet for the last six weeks of pregnancy could help the newborn calf tolerate the cold. Preliminary test results have shown this for the first time. Researchers added safflower with a high concentration of linoleic fatty acid to the diets of 12 cows for 53 days before calving. Eleven other cows ate a standard feed ration. For the first five hours after birth, calves were kept at room temperature. Then they were put in a room at 32°F for 2 1/2 hours. Calves whose mother ate the extra fat maintained their body temperature better than did calves of cows fed the standard diet. The scientists believe the warmer calves had more brown fat, which surrounds organs such as kidneys and helps the animals generate body heat immediately after birth. Researchers are repeating the experiment and hope to determine the significance of fat-influenced body temperature differences. **--Robert Bellows, Agricultural Research, JUN 97 as reported in Herd Health Memo, Dec. 1997, University of Kentucky, Lexington, KY.**

## BEEF COW NUMBERS IN THE US

As of January 1997, the estimated number of beef cows (not cattle) in the 50 states was 34,280,000. These cows were kept on 900,700 farms or ranches. Over 85% of the cows were located in 23 states, including Virginia, which had an estimated 740,000 cows on 26,000 farms.

Texas had by far the most beef cows (5.46 million) on the most ranches (133,000). Surprisingly, Missouri was second in both categories: 2,075,000 cows on 64,000 farms. Oklahoma was third and Nebraska fourth, followed by Montana and Kansas.

Beef breeding herd were categorized as commercial operations, 72.8% of the total; registered and commercial mixed 21.4%; and registered only 5.8%. **--Beef '97, Part III, US Department of Agriculture, January 1998.**

## BONE REPLACEMENT PROCEDURE IMPROVES LIFE FOR CANINES WITH CANCER

University of Illinois veterinary oncologists are now using a treatment that provides an alternative to amputation for canines with osteosarcoma (bone cancer). This treatment, called "limb sparing," involves removing the affected bone and replacing it with a bone from a deceased animal that is similar in size and shape. The replacement bone acts as a strut to support the limb until the canine's body generates enough cells to incorporate the inserted bone into the skeleton. When combined with other treatments such as radiation and/or chemotherapy, limb-sparing can improve the quality of life for the canine and potentially increase its lifespan. **--AVMA Animal Health News and Feature Tips, Fall 1997, as reported in Vet Med, Vol 4, Issue 1, Iowa State University, Ames, IA.**

## CE OPPORTUNITIES

Date	Topic	Location	Contact Hours
April 18	Equine Dentistry	College Park, MD	8
April 24-25	Equine Necropsy Techniques	Blacksburg	10
May 1-2	Orthopedic Surgery - Canine Hind Limb	Blacksburg	12
May 15-16	Gastrointestinal Endoscopy - Intermediate Level	Blacksburg	10
June 5-6	Small Animal Dentistry	Blacksburg	10
June 13	Practical Cytology for Veterinary Technicians	Blacksburg	6
June 27	Patient Pain Management	College Park, MD	8
July 18	Small Animal Radiology for Veterinary Technicians	Blacksburg	6
August 21-22	Canine/Feline Reproduction	College Park, MD	10

Please note: The courses listed above are limited enrollment and feature a hands-on laboratory experience. Program brochures will provide course details. For registration or more information, please contact:

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### SURGICAL EXCISION OF SOFT TISSUE FIBROSARCOMAS IN CATS

Post-treatment tumor-free interval and survival times were determined for 35 cats with soft tissue fibrosarcoma. Radiation therapy did not prolong the tumor-free interval or survival time. Tumor-free interval and survival time was longer in cats with limb fibrosarcomas treated by amputation than in those treated by wide surgical excision. Cats in group 1 (n=11) were defined as having undergone a single surgery whereas cats in group 2 (n=7) had undergone at least two surgeries. Cats in group 3 (n=17) underwent one or more surgeries followed by radiation therapy.

Overall median tumor-free interval and survival time of the 35 cats were 10 and 11.5 months (range one to 40 months). The medium tumor-free interval and survival times were greatest for cats in group 1 and lowest for cats in group 3. Complete surgical excision was judged to have been performed in 16 cats, on the basis of histological examination of tissue margins. Cats in this group had higher medium tumor-free intervals and survival times (greater than 16 months for both of these parameters) than cats with incomplete surgical excision (four and nine months, respectively). At the time follow-up was completed, 13 cats remained alive, half of which were in group 1. Two cats died, tumor-free, of unrelated disease. Death occurred in nine cats following metastasis to lymph nodes, pelvis, lungs or to multiple organs, six of these were in group 3. Of the remaining 11 cats, one was euthanized following a radiation associated injury, one died of unknown causes, and nine had a recurrence at the site of the original tumor. **--Abstracted from: Davidson, E. B., et al., Vet. Surgery 26:265-269, 1997, as reported in Vet Med, Vol 4, Issue 1, Iowa Sate University, Ames, IA.**

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