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VM Library

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JUN 17 1986
BLACKSBURG, VA

DIAGNOSTIC LABORATORIES ARE REPORTING AN INCREASE IN THE INCIDENCE OF CRYPTOSPORIDIOSIS

Cryptosporidia, like coccidia, are protozoans capable of infecting a variety of animals including man. They are a problem in calves under one month of age and inflict damage to the epithelial cells of the small intestine. Destruction of the small intestine's epithelial lining decreases the GI tract's absorptive surface and results in watery diarrhea. The inability to digest and absorb nutrients results in further compromise to the infected calf, precipitating a syndrome of starvation which leads to progressive emaciation and weight loss.

The importance of cryptosporidia in neonatal calf diarrhea is unclear, however, it is increasingly reported as a finding in calves with diarrheal disease. Experimental infections in calves often resolve themselves in 1-2 weeks, whereas naturally acquired infections which are often complicated by E. coli or rotavirus may lead to death. As with other pathogens previously discussed, cryptosporidia can be isolated from the gut of calves not exhibiting disease.

There is growing evidence that host resistance factors may be important to the occurrence of disease by cryptosporidia and at least one study has shown that neonatal calves deficient in colostral antibody are at increased risk of developing cryptosporidial associated diarrhea. There is no effective treatment at the present time other than good nursing care.

The best advice for prevention is to insure that calves receive colostrum at birth. Continued feeding of colostrum through the first week of life may provide some additional protection against cryptosporidia as well as other infectious agents likely to infect calves during this period.--**Veterinary Extension Newsletter, Fort Dodge Laboratories, June 1985.**

PRACTICE TIPS NEEDED FOR 1985 AABP MEETING

The organizers of the 1985 AABP meeting at Buffalo invite you to contribute practice tips.

We are aiming for:

1. Short, 5 minute tips. In the last few sessions we have been getting into "mini-papers" and we want to see it go back to the practice "tip" style.
2. One tip per speaker.
3. Our goal is 20 speakers with limited questions.

Feel free to submit all the tips you have. If you have a good tip, but don't want to present it, send it anyway. We are going to try and complete all the tips submitted and have them published in the Newsletter.

Please send tips to Robert C. LaDue, Box 175, Cherry Valley, NY 13320 before June 15. Include your name, address, and phone number. Thank you in advance!

RECOMMENDATIONS FOR FLEA CONTROL

Since fleas spend a short period of their lifetime on the animal and tend to live in the pet's environment (the house and/or yard) for the remainder of their existence, proper control of fleas on both the pet and in its environment is critical. As a rule of thumb, for every flea seen on the patient, there are about 100 in the environment.

Fleas on the animal

1. Flea collars. These are of little or no use for dogs and cats with significant flea problems.
2. Flea shampoos. These provide only an immediate kill with no residual activity.
3. Long-acting pyrethrin sprays (Sectrol® or Adam's Flea Off 14 day®) may be very effective. These sprays may have to be applied as often as every 3-4 days to provide proper flea control on dogs.
4. Fenthion (Pro-Spot®) applied every 2 weeks in combination with a long-acting pyrethrin (used as above) appears effective in controlling the signs of flea bite allergic dermatitis in many dogs.
5. Insecticidal dips, combined with pyrethrin sprays or carbamate dusts (10% Sevin dust for adult dogs, 5% for puppies) may be used for dogs. The brand of dip should be changed every 6 weeks. Dusts or sprays should be applied every 3 days between dips.
6. Micro-encapsulated pyrethrin foams (Sectrol®) are well tolerated and effective for cats.

Fleas in the environment

A. Indoors

1. Check with a professional exterminator for his recommendations and cost estimates.
2. Room-foggers (such as D-Con Flea Kill®, Strike® or Black Flag®) are a **very effective** method for removing fleas out of carpet, upholstery and bedding. They are best used every 4-6 weeks in rooms frequently used by the pet. Hard-to-reach areas should be treated with a premise spray prior to fogging. Only use foggers and premise sprays that kill pre-adult and adult fleas.
3. Frequent vacuuming of areas used by the animal is useful, especially prior to fogging. Avoid vacuuming of whole house for 14 days after fogging to allow insecticide to work. Placing a flea collar in the vacuum cleaner bag helps reduce infestation.
4. If the dog or cat has a bed, either wash the bedding frequently in **hot** water or substitute newspaper (changed frequently) for the bedding. The bedding should be sprayed weekly with a premise spray.
5. Do not forget to **treat all other dogs and cats** in the household. Although they may be showing no signs of distress from fleas, they remain a source of fleas for other animals.

B. Outdoors

1. Dog pens and lawns may be sprayed with Malathion or Diazinon every 1-2 weeks.
2. Dog houses should be treated weekly (a premise spray can be used for this purpose). One half of a Shell Vapona® peststrip may be nailed to the underside of a dog house to reduce the flea population.
3. Dust or spray areas in the yard that the pet prefers to use for sleeping (10% Sevin dust and Malathion or Diazinon sprays are useful for this purpose).--John R. August, B.Vet.Med., M.S., M.R.C.V.S., Diplomat A.C.V.I.M., Virginia-Maryland Regional College of Veterinary Medicine.

ARSENIC TOXICITY IN MARYLAND CATTLE

A two-year-old Holstein heifer was submitted to the Maryland Department of Agriculture Animal Health Laboratory in Frederick for necropsy in February of 1985. This heifer was belligerent and staggering for a short period of time, then died. At necropsy, the only lesion seen was some inflammation of the gall bladder. There was no evidence of gastro-enteritis.

Toxicologic screening of tissues of the heifer revealed 13 and 30 ppm respectively of arsenic in liver and rumen content. These levels were compatible with arsenic toxicity. In addition, there was 100 ppm of lead in the rumen content; there was no lead found in the liver.

The heifer was one of about 100 head of dry cows and heifers on a pasture of several hundred acres. Within the pasture was a falling-down house built about 1870. Associated with this house were ramshackle smokehouse, summer kitchen, wash house, and other dependencies usually associated with a farm of that period. Cattle frequently entered these buildings, even the house! In fact, the cattle were largely responsible for the major disrepaired state of the buildings.

Sampling of numerous sites around the premises revealed 3000 ppm of arsenic in the soil of the smokehouse. No arsenic was found anywhere else. Also, there was 7000 ppm of lead in the smokehouse soil. Apparently, some lead arsenate spray material had been placed in the smokehouse at some time long past and then forgotten about. There was a small, very grown-up orchard on the farm.

There were several interesting aspects of this case: (1) the acuteness of death - this heifer was found sick and died even before a veterinarian could get there, even though one was called right away, (2) the relative lack of lesions - this may have been because of the acuteness of death, (3) the symptoms were more suggestive of a neurologic disorder rather than a gastro-intestinal one; of course, these symptoms were seen by the owner only, and (4) morbidity and mortality of only one animal.

The case emphasizes the fact that arsenic toxicity can be a cause of sudden death in cattle. Also, in both Virginia and Maryland, there are many cattle grazing premises on which there are abandoned buildings. In instances of sudden deaths of cattle kept in such premises, arsenic and lead poisoning should be checked for when possible.—**Stauffer Miller, D.V.M., Maryland Department of Agriculture, Animal Health Laboratory, Frederick, MD.**

USING THE NEW FeLV VACCINE

After several years of research, Norden Laboratories has developed a vaccine, Leukocell®, to aid in the prevention of feline leukemia and diseases associated with the virus.

Experimental studies by Norden have been promising. Eighty percent of the vaccinated cats remained healthy after exposure to the feline leukemia virus compared to 30% of the nonvaccinated controls. The safety of the vaccine has also been evaluated in a field trial of 667 cats. While the vaccine was safe in most cats, it did produce a reaction in 13% of the cats. These reactions included local pain or discomfort at the site of vaccination. About 3-4% of vaccinated cats developed transient fever and malaise.

It appears that Leukocell® is reasonably safe and effective, providing a useful aid in reducing the incidence of feline leukemia virus infection in cats. The vaccine is only effective in healthy, FeLV negative cats. Practitioners should develop a policy for use of the vaccine in conjunction with the manufacturer's recommendations. The Veterinary Medical Teaching Hospital at Cornell University has established the following policy for use in the Small Animal Clinic:

1. Before vaccination or at the time of vaccination the cat should be tested for the feline leukemia virus.
2. Cats which have the greatest potential for infection should be vaccinated (eg. show cats, shelter cats, negative cats going into multiple households, outdoor cats).
3. A series of three intramuscular injections should be given in the following intervals: 9 weeks or older; 3 weeks later; and 3 months later. Thereafter, an annual booster to maintain immunity.
4. If the initial blood test is positive do not vaccinate or discontinue the vaccination program and retest in one month. Also do not vaccinate cats that are pregnant, blood donors or isolated cats in single cat households.
5. If the second test is negative the cat has experienced a transient viremia and may now be naturally immune; however, vaccination should be initiated or resumed to further booster immunity.
6. If the second FeLV test is positive, the cat is persistently viremic and should be handled accordingly. Vaccination of positive cats has no detrimental or beneficial effects.--**Cornell Feline Health Center Veterinary News, Spring 1985.**

GASTROENTEROLOGY NOTES

Low bowel motility is a characteristic of diarrhea in both dogs and humans. Anticholinergics are not indicated or effective as a treatment for diarrheas.

Rapid colonic transport is a feature of all diarrheas. This prevents the absorption of water from the bowel contents which normally occurs during slow transport in the anterior segment of the colon.

Blood loss into the lumen of the GI tract is common and should suggest the possibility of a bleeding disorder.

Dogs with a diagnosis of pancreatitis or diabetes mellitus should be checked for pancreatic exocrine deficiency. Symptoms of pancreatic exocrine deficiency are weight loss, diarrhea and steatorrhea. Treatment is the feeding of Viokase powder (or crushed tablets) in the food daily for the life of the animal.

Radiology studies of the upper GI tract are difficult and expensive and not recommended for routine diagnostic use. Barium should be mixed with the food and given to the dog to be of optimum diagnostic value in radiographs of the bowel.
--**Dr. Donald Strombeck, University of California-Davis, DC Academy, June 6, 1985**
as reported by **Dr. K.C. Roberts, VA-Md Regional College of Veterinary Medicine.**

REPTILIAN PRACTICE PROBLEMS

Superficial Infections

A variety of bacteria and fungi can cause superficial infections in reptiles. These infections are usually the result of poor husbandry, such as a damp, dirty environment, or high levels of stress.

Diagnostic procedures may include bacterial or fungal cultures, gram stained impression smears, skin scraping or biopsy.

Therapy should start with drainage and debridement followed by flushing with hydrogen peroxide or a tamed iodine solution. In the cases of bacterial infection, antibiotic therapy is usually indicated, preferably based on culture and sensitivity results. Most reptilian infections are due to gram negative bacteria, especially *Pseudomonas sp.* and *Aeromonas sp.* Aminoglycosides form the backbone of antibiotic therapy, both systemically and topically, in reptiles.

Systemic gentamycin, given intramuscularly to the well hydrated patient with no renal disease, may be used with the following regime:

Snakes/Lizards	2.5 mg/kg every 72 hours
Turtles	10.0 mg/kg every 48 hours

Note: There should be at least one treatment administered after the patient has shown improvement.

Ectoparasites

It is not uncommon for reptiles to be infested with mites or ticks. Both the reptile and its environment must be treated. The simplest way to do this is to place a three inch strip of dichlorvos impregnated tape on top of the animals cage. it is essential that the cage be well ventilated and that the dichlorvos strip be inaccessible to the reptile to prevent a toxic reaction. The strip should be removed after 24-48 hours.--Donald K. Nichols, D.V.M., National Zoological Park, Washington, D.C.

SUCCESS IS NO ACCIDENT

One common and important deficiency found in many veterinary clinics which are otherwise well equipped is a reference library for the use of practitioners and staff.

It is impossible to remember all the facts in today's data base for veterinary practice. The availability of current reference material found in journals and textbooks would seem to be a necessary part of any good clinic or office. The ability to read and refresh one's memory during working hours is essential to good medicine. Employees appreciate having references close at hand. It creates an atmosphere conducive to better practice and it indicates a commitment to learning by you and your staff.

As we attempt to upgrade the quality of our practices, the lack of a good reference library can be a serious oversight. Are you guilty of this oversight?
--Kent C. Roberts, D.V.M., VA-MD Regional College of Veterinary Medicine.

LETTER TO THE EDITOR

I have read the report on control of exuberant granulation tissue in horses in the "Virginia Veterinary Notes", May-June, 1985. The study that was quoted was conducted on ponies using standard wound on the dorsal aspect of the fetlock (Fretz, et al, Vet Surg 12:3, 137-140, 1983). Although the results are accurately presented, they must remain suspect for clinical application, since practical considerations usually result in a different course in such wounds. Wounds with eschar will heal if it is kept intact, but this is not usually the case in the clinical or field situation. It has also been shown that wounds in ponies do heal at a faster rate than in horses (Bertone, et al, Am J Vet Res, in press). This makes research in ponies subject to some question before transferring the data to horses, at least in the wound healing area.

Two things concern me in this article. The first is that the actual source is not given for those that may desire to read the first hand data. Extension notes are not adequate references. The second is that field practitioners should not accept this change in protocol for wounds in general since this is the only such data that has surfaced, and clinical experience indicates it may not be satisfactory in the horse.—**Kenneth E. Sullins, D.V.M., M.S., Assistant Professor of Surgery, Marion duPont Scott Equine Medical Center at Morven Park.**

CONTINUING EDUCATION OPPORTUNITIES

- | | |
|-----------------------|--|
| July 8-9, 1985 | Whitewater Rafting on the New River
Bone Tumors in Dogs - West Virginia |
| September 18-21, 1985 | Small Animal Medicine Update
Drs. John August and Mike Leib
September 18, Holiday Inn - Hampton, VA
September 19, Ramada Inn - Charlottesville, VA
September 21, Marriott Inn - Charleston, WV |
| September 26-27, 1985 | Bovine Practitioners Seminar
Sheraton Inn - Frederick, MD |
| October 11, 1985 | Equine Practitioners Seminar
Equine Medical Center - Leesburg, VA |
| October 25-26, 1985 | Surgery of the GI Tract
Lecture/Wet Lab - Blacksburg, VA |
| November 15-16, 1985 | Orthopedic Surgery of the Canine Hind Limb
Lecture/Wet Lab - Blacksburg, VA |

For more information on these meetings, contact:
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ENDOTOXIC SHOCK

Endotoxic shock, a clinical entity of horses related to feeding practices, is an acute, frequently fatal, intestinal disorder that affects horses of nearly all ages. It is most frequently seen in horses being fitted for show or sale. These horses are receiving unusually large amounts of grain pellets and relatively low in roughage, the roughage having been reduced to prevent the horses from getting a "hay belly".

Endotoxic shock develops when highly fermentable feeds alter the bacterial flora of the gut. Excessive gas may be produced, creating ileus and pain. Toxic by-products are rapidly absorbed via the inflamed gut wall. The resultant toxemia produces shock, circulatory collapse and frequently death.

Clinically, the owner discovers a horse in severe distress one to three hours after feeding. Profuse sweating; a rapid, thready pulse; injected mucous membrane; and a distended abdomen or bloated appearance are usually noted. Most of these horses fail to respond to any significant degree to routine colic therapy. Practitioners have reported response in some cases to intravenous infusion of 100-250 cc of Colostridium BCD antitoxin of equine origin.

Post mortem lesions indicate congestion of the lungs, myocardium, adrenals, and liver. The intestines are distended with gas but may appear blanched rather than congested or inflamed. A more advanced state of autolysis than is usual for the length of time following death is present. Pathologists usually question the difference between actual and expected tissue changes. The intestinal tract will be found to contain large amounts of grain. Frequently, excessively large number of Clostridium perfringens organisms can be cultured. These findings help explain the clinical appearance of the horse.

Enterotoxemia in other species usually results in shock and sudden death. Neurological symptoms such as those seen in cattle and sheep do not appear to occur in horses. Just as in the horse, however, autolysis is a regular feature of the disease in other species.

The horse developed as a constantly grazing, grass-eating animal. The anatomy, physiology, and bacterial flora of its digestive tract evolved around this diet. Grass is a moderate energy, moderate protein, high fiber diet. Domestication has imposed some drastic changes that creates problems. High energy, comparatively low fiber diets associated with confinement or reduced physical activity appear to increase the occurrence of endotoxic shock.

Endotoxic shock is difficult to reproduce experimentally. Clinical signs have been produced in healthy horses by injecting filtrates of material from horses dying of the condition. The University of Missouri created some similar clinical conditions by giving ponies starch via stomach tube to produce laminitis. At certain levels, ponies receiving the starch developed shock and died suddenly. Other investigators have shown that high levels of methionine, lysine, and/or protein along with low levels of cellulose may predispose to clostridial toxicosis.

Several field investigations of farms reporting a problem with sudden death or severe fatal colics were conducted this summer and fall. The single consistent factor was a high grain, low hay diet being fed to horses already in good to fat condition.

The horses developed acute, severe, nonresponsive colics or were found dead in stalls or paddocks within three to five hours after feeding. Post mortems revealed the same lesions that were previously discussed. Most notably, culture of Clostridium perfringens organisms, adrenal cortex inflammation and extensive autolysis of tissues were seen.

In all cases these horses were being fed twice daily, receiving more grain than hay by weight. The hay being fed was nearly straight legume.

As a result, we can conclude that feeding practices are more important than nutrients in influencing this condition. The following recommendations have helped in all of the field situations that were observed locally.

1. Feed all feeds (both hay and grain) by weight.
2. Feed 1 to 1-1/2 lbs. or more of hay/100 lbs. BW/day.
3. Feed grain by weight at 1/2 to 1 lb./100 lbs. BW/day.
4. If more than 5 lbs. of grain are fed per feeding, add another feeding to the schedule. Feedings should be at least 4-6 hours apart.
5. Avoid heavy exercise within 1 hour of feeding grain (this includes both before and after feeding).
6. Do not add low level antibiotics.
7. The more finely the grains are ground, the greater the danger.
8. If faced with the problem, remove all grain and replace with whole oats at 1/2 the normal rate.
9. Reintroduce the horse slowly to the necessary level of grain over two weeks.

Owners must understand the source of the problem. Exercise, not restrictive diets, reduces enlarged abdomens. Race horses receive all the hay they can eat and still may look like greyhounds.

Only nutritional management can control this problem; medication will not have the desired effect.—**R.D. Scoggins, D.V.M., Equine Extension Veterinarian at the University of Illinois College of Veterinary Medicine, as reported in the Veterinary Professional Topics, 1984—Vol. 10, #4.**

SKIN BIOPSIES

What to biopsy:

Selection of representative and diagnostic skin lesions for biopsy is essential for adequate histopathologic interpretation. This selection, however, can frequently prove difficult, because most skin diseases involve large areas of body surface; both primary (i.e., macules, papules, pustules, nodules, vesicles, or wheals) and secondary (i.e., scales, crusts, scars, erosions/ulcers, or pigmentary abnormalities) lesions may be present. The following guidelines are recommended for choosing biopsy sites:

General Rules:

1. One biopsy should always be of the most representative lesion on the animal regardless of whether it is primary or secondary.
2. Additional biopsies of primary lesions should then be obtained. It is important that primary lesions be biopsied, even if they are only a minor component of the clinical disease.

3. The number of biopsies is directly correlated with the accuracy and specificity of the histopathologic diagnosis.

Sites to biopsy in specific skin diseases:

Pustular, vesicular, and bulous dermatitides: the biopsy should be of the most representative, nonulcerated lesion on the animal. (Note: In pemphigus, the earliest lesion is a small blister; in bulous pemphigoid, the earliest is an erythematous papule, not a blister.) When a vesicular dermatitis is suspected and an intact vesicle is not present, a recent erythematous and noncrusted erosion or ulcer should be biopsied.

Primary alopecic dermatoses: Biopsy the most severely affected region, less affected regions, and grossly normal regions. Please submit these biopsies in separate containers.

Allergic skin diseases: Avoid biopsying secondary lesions, such as areas of lichenification, hyperpigmentation and excoriation. The primary lesions to look for and biopsy include the macule, papule, and wheal.—**Drs. R.W. Dunstan and E. Rosser, New Mexico Veterinary News, February 1985, as reported in North Dakota Veterinary News, April 1985. Veterinary Medicine Newsletter, University of Florida, May 1985.**

VETERINARY COLLEGE NEWS

Dr. Peter Eyre has been appointed dean of the Virginia-Maryland Regional College of Veterinary Medicine. He will assume his new duties on September 1. Dr. Eyre is presently chairman of the department of biomedical sciences at the University of Guelph, Ontario, Canada. An internationally recognized veterinary pharmacologist, he is a 1960 graduate of the Royal Veterinary School at the University of Edinburgh, a member of the Royal College of Veterinary Surgeons and a charter diplomate in the American Academy of Veterinary Pharmacology Therapeutics.

Construction of the Phase III building is well underway and is scheduled for completion in August 1986. Remodeling of the large animal areas in Phase I started June 1 and should be finished by September.

New College faculty who have arrived recently or are due very soon are:

Kay L. Schwink, D.V.M., Iowa State, 1980, served her small animal internship and surgical residency at the University of Missouri and an ophthalmology residency at Iowa State. She joins the Teaching Hospital staff as ophthalmologist for the small and large animal clinics.

William "Ed" Monroe, D.V.M., M.S., a native of Arizona, received his D.V.M. from Colorado State in 1980, practiced in Arizona and New Mexico before completing a residency in small animal medicine at Iowa State. He is a VMTH staff clinician in small animal medicine with a special interest in immunology.

Lois Roth, D.V.M., Ph.D., received her degrees at Cornell University and is a Diplomate of the American College of Veterinary Pathologists. She has a special interest in pathology of the liver, GI tract and wildlife diseases.

Beverly Jean Purswell, D.V.M., M.S., Ph.D. is a Diplomate of the American College of Theriogenologists. She received her degrees from the University of Georgia and practiced at Stone Mountain, Georgia for two years after graduation. She will serve as theriogenologist for the Teaching Hospital.

Jerry Woodfield, D.V.M., University of California, 1982 is completing a residency in cardiovascular medicine at Davis in the School of Veterinary Medicine. He served an internship in small animal medicine/surgery at Colorado State. He joins the Teaching Hospital staff as a cardiologist with a special interest in echocardiography.

Deborah Jo Davenport, DVM, a native of North Carolina, graduated from North Carolina State and received her D.V.M. from Auburn University in 1981. She completed a small animal internship at Louisiana State and a residency in internal medicine at Ohio State. She joins the VMTH small animal medicine staff with a special interest in gastroenterology.

TOXICOLOGY SERVICE AT VIRGINIA TECH

The Virginia-Maryland Regional College of Veterinary Medicine offers a diagnostic toxicology service to practitioners and owners in the region. This service, initiated in July 1982, can now offer a much wider range of assays to assist in diagnosing appropriate cases. The capability of the laboratory includes: heavy metals, trace mineral deficiencies, mycotoxins, rodenticides, nitrates, cyanide, urea and ethylene glycol. We have arranged with another laboratory on campus to analyze specimens for pesticides and herbicides. A fee schedule for these analyses will be sent upon request.

The toxicology laboratory is equipped with modern analytical instruments and is staffed by three professional toxicologists as well as technical support staff. The laboratory endeavors to provide you with a meaningful interpretation of test results as soon after receipt of samples as possible. It is recommended that you call the lab in those cases with possible toxicological etiologies to discuss sampling procedures and specific tests required. Dr. Dennis Blodgett, Dr. Marion Enrich or Dr. Blair Meldrum will be available to discuss your case with you.

If you have any questions regarding the capabilities of the laboratory, please feel free to call one of them at (703)961-7666.

THOUGHT FOR THE MONTH

Others will believe in you only if you believe in yourself.

Virginia-Maryland Regional College of Veterinary Medicine Extension Staff:

Dr. C. T. Larsen - Extension Specialist - Avians
Dr. K. C. Roberts - Extension Specialist - Equine and Companion Animals
Dr. H. F. Troutt - Extension Specialist - Cattle and Swine

K. C. Roberts, DVM, Editor

Barbara B. Jones, Managing Editor of VIRGINIA VETERINARY NOTES

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