



VIRGINIA VETERINARY NOTES

VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE

October - December 1998

No. 89

WHAT'S INSIDE!

DURATION OF IMMUNITY IN VACCINATED CATS..... Page 2

GOOD NEWS..... Page 2

WORTH NOTING..... Page 2

TREATMENT OF UROLITHIASIS BY ENDOSCOPICALLY-GUIDED PULSED DYE LASER LITHOTRIPSY..... Page 3

FEMORAL NECK METAPHYSEAL OSTEOPATHY IN THE CAT..... Page 4

WHY PARASITES STUNT GROWTH..... Page 4

IS THE FIP-SPECIFIC ELISA TEST SPECIFIC?..... Page 5

ISCHERICHIA COLI (E. coli) IN ALFALFA SPROUTS Page 5

REFLECTIONS Page 6

YOUR RESPONSE..... Page 6

CONTINUING EDUCATION OPPORTUNITIES Page 7

NEW FACULTY Page 7

TURN CUSTOMER-INQUIRY PHONE CALLS INTO MONEY..... Page 7

THOUGHT FOR THE MONTH

Having lawyers make laws is like having doctors make diseases.

Kent Roberts

Kent C. Roberts, DVM
Extension Veterinarian

DURATION OF IMMUNITY IN VACCINATED CATS

Duration of immunity after vaccination has not been evaluated for most veterinary biologics, except rabies vaccines. The vast majority of vaccines are evaluated for efficacy only for a short duration of a few weeks or months. Until recently, licensure of veterinary biologics did not require duration of immunity studies. New veterinary biologics now must have a minimal duration of immunity established, but no maximum or actual duration of immunity is required. By tradition, manufacturers of veterinary biologics have recommended annual revaccinations, and veterinarians have judiciously followed this recommendation. In recent years, many investigators and many feline practitioners have become convinced that cats in the US are routinely over-vaccinated. Yet scientific information to prove this conviction has not been available for any of the vaccines other than rabies.

Duration of immunity, based on antibody titers, was evaluated in a group of specific pathogen-free cats vaccinated as kittens with an inactivated triple vaccine (feline panleukopenia, feline herpesvirus, and feline calicivirus). During the 6 years of the study, the SPF colony was monitored daily for evidence of clinical signs of disease. No clinical signs of infectious diseases were observed. Vaccination of 15 kittens at 8 and 12 weeks of age with two doses of this inactivated vaccine resulted in high antibody titers against FPV for at least 6 years. FHV and FCV antibody titers were low positive after vaccination, but gradually declined over the 6 years. All vaccinated cats had positive FHV antibody titers for at least 3 years after vaccination, and positive FCV antibody titers for at least 4 years. Negative FHV titers were first determined in some vaccinated cats at 4 years after vaccination, and 5 years for FCV. All 17 unvaccinated contact control cats had negative antibody titers against the 3 viruses throughout the 6-year study.

The present study clearly shows that neutralizing antibodies against FPV, FHV, and FCV persist for at least 3 years in all vaccinated cats. In the opinion of the authors, cats that are properly vaccinated as kittens should be revaccinated with a single dose of triple vaccine at 1 year of age, then revaccinated every 3 years with either a FHV/FCV vaccine or triple vaccine. Manufacturers need to test their vaccines for longer durations of immunity, and thus adjust their label recommendations to a more realistic duration of immunity. Kittens must be properly vaccinated. The question now is how often they should be revaccinated. --Abstracted from: **F.W. Scott, C. Geissinger, Feline Pract. 25(4), 1997, as reported in Veterinary News, May 1998, Penn State University, University Park, PA.**

GOOD NEWS

Each year, approximately 7,600 Americans die from internal bleeding caused by long-term use of non-steroidal antiinflammatory drugs (NSAIDS). Aspirin and other NSAIDS block the production of substances called prostaglandins, which are very versatile molecules, triggering uterine contractions during birth, generating a layer of mucus that protects the stomach from its own acids, and causing blood platelets to form clots. Prostaglandins also trigger pain and inflammation following injury or irritation. In arthritis, they are released in huge quantities, resulting in swelling, pain, and stiffness. New pain relievers are in the human testing stage which block only the pain mechanism without interfering with the other functions of prostaglandins, such as protecting the stomach mucosa from stomach acids. --**Time, July 13, 1998**

WORTH NOTING

- * The interstate highway system comprises only 1% of the nation's roads, but it carries 20% of the traffic.
- * Approximately half the bacteria that cause human pneumonia are resistant to penicillin.

TREATMENT OF UROLITHIASIS BY ENDOSCOPICALLY-GUIDED PULSED DYE LASER LITHOTRIPSY

Transendoscopic pulsed dye laser lithotripsy is a commonly used technique for fragmentation of ureteral calculi in humans. Laser energy delivered via a flexible optical quartz fiber under endoscopic visualization facilitates safe, efficient and atraumatic fragmentation of calculi. Fragmentation necessitates direct contact of the optical fiber and complete submersion of the calculus within fluid. The pulsed dye laser initiates a plasma (a rapidly expanding cavity of electrons) at the surface of the calculus that absorbs additional laser energy generating an acoustic wave which overcomes the tensile strength of the aggregated calculus crystals. This photoacoustic effect is to be differentiated from the photoablative effect generated by Nd:YAG or CO₂ surgical lasers. We describe the use of the pulsed dye laser lithotripter for photofragmentation of calcium carbonate urinary calculi in two geldings.

A 7-year-old Paso Fino gelding was admitted for evaluation and treatment of 6cm X 5cm, ovoid cystic calculus. Treatment with trimethoprim sulfamethoxazole and phenylbutazone was initiated and continued for 7 days post-operatively. A subschial urethrostomy was performed under sedation and caudal epidural anesthesia. A one meter flexible videoendoscope was placed via the urethrostomy into the urinary bladder and the interior of the bladder and cystic calculus were examined. A 320 micron quartz optical fiber within a polyethylene tubing was introduced via the endoscope biopsy portal. A small flexible urinary catheter was placed alongside the endoscope to introduce normal saline for submersion of the calculus. A flashlamp tunable dye laser^a emitting at 504 nm in 1.2 microsecond pulses at 10 Hz extended pulse was used to fragment the calculus. A total of 7319 pulses were delivered at 130 mJ per pulse. Visibility was maintained by intermittent removal of the endoscope, saline lavage, and evacuation of fluid and debris from the bladder. The fragmented calculus was removed by the use of a combination of sponge forceps for larger fragments (< 1 cm in diameter) and lavage (ingress/egress) with normal saline through a 1 cm diameter nasogastric tube. An indwelling 30 French catheter was placed into the bladder via the urethrostomy at the conclusion of surgery. Surgical time was approximately 2 hours and the laser was in use for 12 minutes. Endoscopy and lavage with 10% DMSO were performed days 1 and 3 post-operatively to reduce inflammation and ensure complete evacuation of fragmented calculus.

A 4-year-old American Quarter Horse gelding was admitted for treatment of a partial urethral obstruction. Two weeks previously the horse had been treated for a cystic calculus by subschial urethrostomy with manual fragmentation and removal. Partial urethral obstruction was diagnosed based upon the presence of stranguria, dribbling of urine from the penile urethra and visualization of a urethral calculus 40 cm from the urethral orifice during transurethral endoscopic examination. The horse was sedated and pulsed dye laser lithotripsy performed as described previously. During operation of the lithotripter the penile urethra was compressed proximal to the glans penis to allow accumulation of fluid within the urethra. The fragmented calculus was removed by lavage with normal saline and the micturative efforts of the horse. Fragmentation of the calculus required 1889 laser pulses delivered at 130 mJ per pulse. Following removal of the calculus a 2-3 cm length circumferential full-thickness mucosal defect was observed. The endoscope was passed into the urinary bladder where additional abnormalities were not observed. Antibiotic and NSAID therapy and daily urethral lavage with 10% DMSO in normal saline was continued for 7 days.

Three months post-operatively transurethral endoscopic evaluation of horse 2 indicated complete healing of the urethral mucosal defect had occurred without stricture formation. Both horses were reported to be normal by the owners eight months post-operatively.

^a The Candela Air-Cooled MDL 2000 LaserTriptor® System, Candela Laser Corporation, Wayland, MA

Surgical approaches described for removal of cystic calculi in geldings include laparocystotomy, subsischial urethrostomy with calculi fragmentation using a lithotrite, forceps, or electrohydraulic lithotripsy, and Gokel's pararectal approach. Urethral calculi in geldings have previously been removed using a ventral urethrotomy approach. The pulsed dye laser lithotripter facilitates removal of cystic calculi without general anesthesia, prolonged convalescence, and complications associated with laparocystotomy, and results in a more expedient procedure with less trauma to the urethra and bladder mucosa than traditional techniques for crushing of large calculi following ischial urethrostomy. Equipment availability and cost of its use are the principal disadvantages. The cost for treatment of cystic calculi using the described technique is comparable to treatment by laparocystotomy. --**Rick D. Howard, DVM, PhD; R. Scott Pleasant, DVM, MS; Kimberly A. May, DVM** Department of Large Animal Clinical Sciences, Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA 24061-0442.

FEMORAL NECK METAPHYSEAL OSTEOPATHY IN THE CAT

Fractures of the femoral neck are not uncommon in the cat and are generally thought to be the result of trauma, although the traumatic incident is seldom witnessed. Fractures of the femoral head and neck account for 16% of all femoral fractures in the cat. A lesion of the proximal femoral metaphysis of the cat, characterized radiographically by bone resorption, which then leads to a secondary, pathological fracture is described. This condition was first described in 1994 and was designated feline metaphyseal osteopathy. It would seem from previous published reports of femoral neck fractures in the cat that this may be a new disease.

Seventeen cats developed an idiopathic necrosis of the femoral neck. In four cats the lesions were bilateral when they were first examined and five cats developed lesions in the other limb within five months. They were all male cats, two years old or younger, and 15 had been neutered. The initial sign was a vague lameness which typically progressed, often acutely, to a more severe lameness. Radiography demonstrated radiolucency and loss of definition within the proximal femoral metaphysis, the femoral neck. In 12 cases there was a complete radiolucent line across the femoral neck. An excision arthroplasty was carried out on all the affected hips and the lameness resolved in all cases. The clinical and radiological signs suggest a primary bone resorption with secondary fracture of the femoral neck. The lesions have some similarities with avascular necrosis of the femoral head (Legg-Calve-Perthes' disease), traumatic fracture of the femoral neck, canine metaphyseal osteopathy, bacterial osteomyelitis and experimental feline herpes virus osteomyelitis. --**Abstracted from: Queen, J., et al. Vet. Rec.142:159-162, 1998, as reported in Vet Med, Vol. 4, Issue 3, May 1998, Iowa State University, Ames, IA.**

WHY PARASITES STUNT GROWTH

ARS researchers believe they have found why many immature calves infected with parasites never reach their full growth potential. During infection, they say, certain white blood cells secrete proteins called cytokines, one of which manipulates the hormones that regulate feed intake, nutrient utilization and ultimately, growth. The responsible cytokine is called "tumor necrosis factor" (TNF). Studies show TNF circulating in the blood caused a decrease in insulin-like growth factor 1, a hormone necessary for growth, and caused an increase in the hormone somatostatin, which blocks growth. The alterations in infected calves persisted even after the symptoms of infection were gone. Researchers say the growth reduction may be a survival mechanism – the animal mobilizes its metabolism to fight off infection at the expense of increasing in size. Researchers want to find way to reverse the effects of TNF. --**Communications in Continuing Education, Hoechst-Roussel Agri-Vet Company, Vol. 8, No. 4, September, 1993, as reported in Clinical Veterinary Medical Newsletter, KSU Veterinary Medical Teaching Hospital, March 1994.**

IS THE FIP-SPECIFIC ELISA TEST SPECIFIC?

For several years, the role of the 7b gene in virulence of feline coronaviruses (FCoVs) has been studied. The absence of the 7b gene is generally consistent with reduced virulence and a decreased likelihood for the development of feline infectious peritonitis (FIP). The presence of the 7b gene has been associated with virulent strains of the virus that may cause FIP. But, the 7b gene is also present in some enteric strains of FCoV that are not associated with the development of FIP. Indeed, the "...UCD [avirulent strain of feline enteric coronavirus (FECV)] contains an intact 7b gene indicating that [the absence of this gene is] not a universal distinguishing property of the feline enteric coronaviruses" (Herrewegh, Vennema, Horzinek, et al. 1995. *Virology* 212, 622-631.) Therefore, our concern is that the presence of antibody to the 7b gene of avirulent (FECV) forms is not always consistent with development of FIP. It appears that the 7b gene-correlate of virulence is not an all or none phenomenon.

Recently, it has been purported that the 7b gene product is always associated with the virulent form of the virus. It is also purported that the 7b gene is not present in cats with avirulent FECVs. On this basis, a commercial laboratory is offering a "FIP-specific ELISA test" that detects antibody to the product of the 7b gene. If the test result is positive at 1:160, the laboratory concludes that the cat has a virulent form of the virus; alternatively, "cats testing negative are expected to be free of FIPV" according to their newsletter.

Can we be certain that cats having antibody to the 7b gene product will develop FIP? Presently, there are insufficient data to draw this conclusion. Can we be certain that a positive test result for antibody to the 7b gene product always infers that the virus strain responsible is a virulent FIPV? No - avirulent FECV of the UCD strain can harbor the gene. We urge caution in drawing conclusions about test results from the so-called FIP-specific assay until more data are acquired to assure that the assay will properly classify animals as to their FIP status. The preliminary data are encouraging, but the assay is not yet fully validated. **-Feline Health Topics, Vol. 13, No. 2, Cornell Feline Health Center, Cornell University, Ithaca, NY.**

ESCHERICHIA COLI (E. coli) IN ALFALFA SPROUTS

Stories about bacterial contamination of the human food supply have been common in the media recently. One specific microorganism is the biotype (strain) *E. coli* 0157:H7, which is known to cause kidney damage, and sometimes death, in humans. The source of this organism is food products, usually hamburger, and is thought to be via contamination of the meat through contact with cattle feces. Livestock can often harbor biotypes of *E. coli* in their bodies and not become ill themselves. Under certain circumstances, however, if an animal has been stressed, some biotypes of *E. coli* can cause kidney or lung disease in livestock and horses.

In addition to meat, the troublesome 0157:H7 biotype of *E. coli* has also been found in alfalfa sprouts, which are used for human consumption. In such a case, it is likely that fecal contamination of the alfalfa seed occurred prior to its being germinated to grow the sprouts. To allay any concerns felt by horse owners, this type of contamination presents no threat to horses. First, it is quite unlikely that alfalfa sprouts grown for human consumption would be used in equine rations, and second, even if contaminated alfalfa seed were used to produce pasture or hay, the *E. coli* would not carry over to the foliage. In addition, there is no evidence that this bacterial biotype would cause any problem for horses, even if it were ingested by them. **--Kenneth Gallagher, Equine Extension Veterinarian, Michigan State University, Vet-Med, Mar 1998, as reported in Veterinary News, May 1998, Penn State University, University Park, PA.**

REFLECTIONS

I have spent a good part of this morning addressing our policy on management of healthy stray kittens. Our patient caseload has approached a limit in the small animal portion of the hospital where busy clinicians are not as willing to manage a stray kitten along with their service and teaching responsibilities as they once were. Yet our staff, students and some of our house officers (interns and residents) and faculty feel a real responsibility to provide for the "relief of animal suffering" by working to get these animals cared for and adopted. I, too, share a concern as a veterinarian and as the hospital director to uphold our profession in the eyes of the public as well as remaining compassionate for the animal. Furthermore, I have a responsibility to the state of Virginia to manage our resources wisely and also to support our faculty who work very hard to teach, train, and provide the very best quality of medicine and surgery for our hospital patients.

I enjoy serving in the various roles of supporter, mediator, and occasionally arbitrator to resolve the conflicts, both big and small, that are a part of the daily operations of a program such as ours. This includes prefacing some decisions by stating that I will not satisfy either party's desires in certain situations but still moving on with whatever decision I conclude is best to meet the circumstances. I know this is similar to life in general for everyone but to different degrees. I spent my noon hour discussing the needs and possibilities for a relative of a university colleague with a cervical spinal injury and this conversation reminded me once again of why I love my job so much. I have suffered visibly whereas many suffer far more than I daily but without overt recognition by the public. I fortunately did not have to go through any vocational rehabilitation and I did not ever doubt that I still had a role to serve in the college following my recovery. This was reinforced on many occasions during my hospitalization and recovery phase by our dean and other colleagues. With this perspective as a background, solving problems like stray kittens presented to our hospital by a Good Samaritan seems trivial. Yet my decision and management of this situation reflect my overall leadership in my role as hospital director.

My job performance and the program that I manage (Veterinary Teaching Hospital) will be reviewed later this year or early next year as part of our college and university procedures to conduct 5-year reviews of each programmatic area and its leadership. This is a good policy and it requires me to be sensitive to the smaller concerns as well as the greater matters. I am thankful for my job in this college of veterinary medicine at this university, regardless of the circumstances. There is no place my family and I would rather be and there is no job that I would rather have than what I currently do. I only work toward making each day better for all that fall under my area of responsibility. What more could I ask for? --**Dr. Robert A. Martin, Hospital Director, Veterinary Teaching Hospital, VMRCVM, Blacksburg, VA.**

YOUR RESPONSE

We received a gratifying response to our change of address form in the July issue of this publication. Getting each issue to our colleagues is a primary concern and it all starts with accurate addresses which make up our mailing list of over 2,000 veterinarians.

While we can no longer send individual copies to each and every veterinarian because of budgetary constraints, we try to provide enough copies so that they should be available to most veterinarians who want to see one. We ask that you share your copy with a colleague.

Please send us your comments and changes of address and we will do our best to provide a newsletter with interesting and useful information. Thanks for your support.

Kent Roberts, Editor
VMRCVM – Virginia Tech
Blacksburg, VA 24061-0442

Tel. (540) 231-7181
Fax (540) 231-7367

CONTINUING EDUCATION OPPORTUNITIES

Date	Topic	Location	Contact Hours
October 9-10	Practical Eye Surgery	Blacksburg	10
October 23-24	Orthopedic Surgery - Canine Forelimb	Blacksburg	14
November 7	Annual CE Update	Roanoke	8
November 13-14	GI & Urological Surgery	Blacksburg	10
December 11-12	Echocardiography	Blacksburg	10

Soft Tissue Surgical Series

Six sessions of five hours each = 30 contact hours

September 25

November 20

December 18

VMRCVM

October 30

December 4

December 19

Blacksburg

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 registration or more information, please contact: **Dr. J. M. Bowen**, VMRCVM - Virginia Tech, Blacksburg, VA 24061, (540) 231-7388; or **Conference Registration**, Continuing Education Center, (540) 231-5182.

NEW FACULTY

Three new clinical faculty members have joined the College faculty during the summer.

Dr. Thomas Manning, associate professor of dermatology, is a Cornell University graduate where he completed his residency before serving on the faculty at North Carolina State.

Dr. David Panciera, associate professor of small animal medicine, received his DVM from Oklahoma State and then completed an internship at Missouri and a residency at Wisconsin. He has served on the faculties of Saskatchewan and Wisconsin.

Dr. Otto Lanz, assistant professor of small animal surgery, is a graduate of Auburn University, practiced for two years and then completed an internship at Michigan State and a residency at Florida.

TURN CUSTOMER-INQUIRY PHONE CALLS INTO MONEY

Retail sellers waste excellent selling opportunities by failing to follow up on more than 80% of the sales leads provided by customer-inquiry telephone calls. This translates into a huge amount of lost sales, because every caller has a demonstrated interest in buying.

Latest evidence: A research firm made more than 2,000 calls to a wide range of retail businesses, asking, "How much is your product or service?"

Results:

79% of the businesses called never asked the caller's name.

86% never asked for the caller's phone number or address or for any means to make a follow-up contact.

38% gave the price and then immediately hung up after the caller said "Thank you."

44% gave the price and some other information about available products or services, but made no effort to make a sale or arrange an appointment.

52% took more than eight rings to answer the phone, and after answering, 28% put the caller on hold for more than two minutes. --from **Bottom Line Business**, April 1998.

Virginia-Maryland Regional College of Veterinary Medicine Extension Staff:

Dr. J.M. Bowen - Extension Specialist - Equine
Dr. C.T. Larsen - Extension Specialist - Avians
Dr. W. Dee Whittier - Extension Specialist - Cattle

K.C. Roberts, Editor

Maura M. Wood, Production Manager of VIRGINIA VETERINARY NOTES

VT/0036/1098/2M/991469

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

**Non -Profit Org.
BULK MAILING
U.S. POSTAGE
PAID
Blacksburg, VA 24060
Permit No. 28**

Dr. Tom Bailey
VMRCVM
Virginia Tech
Blacksburg VA 24061-0442