March-April, 1990

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The Virginia-Maryland Regional College of Veterinary Medicine invites you to an Open House on Saturday, April 7, 1990. All are welcome.

THOUGHT FOR THE MONTH

Good judgement comes from experience, and experience - well, that comes from poor judgement.
--Unknown

Kent C. Roberts
Extension Veterinarian
RACCOON ASCARIDS AND HUMAN DISEASE

The disease in humans known as larva migrans is caused by the migration of parasite larvae through body tissues. The most common cause of this condition is the dog ascarid, Toxocara canis, but it is now recognized that another important cause is the raccoon ascarid, Baylisascaris procyonis. In fact, infection with this parasite has been identified as the cause of death of two children in the U.S. Baylisascaris is widely prevalent in raccoons, and its life cycle is similar to that of roundworms of small domestic animals. Adult worms in the small intestine produce eggs which look similar to those of Toxocara. These eggs develop to the infective stage in the environment over a minimum period of 3 to 4 weeks. Infection of young raccoons usually occurs through ingestion of infective eggs, while older animals generally acquire the parasite by eating larvae in the tissues of intermediate hosts such as rabbits or rodents. Patent (egg-producing) infections are most common in young raccoons.

Although Baylisascaris is essentially nonpathogenic in raccoons, parasite larvae can cause serious disease during their tissue migration in intermediate hosts, including humans. Naturally occurring disease has also been described in a number of other species, including woodchucks, rabbits, mice, squirrels, pigeons, quail and mourning doves. Following ingestion, larvae leave the intestinal tract and are carried to the liver and lungs and are then distributed throughout the body in the systemic circulation. They migrate in the tissues until they become encapsulated by an eosinophilic granuloma. Unlike Toxocara larvae, the Baylisascaris larvae molt and grow during their migrations, increasing from 300 µm to as much as 1900 µm in length. Clinical disease is produced as a result of both mechanical damage and the inflammatory response of the host.

Infections with small numbers of larvae are probably subclinical. When large numbers of larvae are ingested, however, severe disease may develop. These cases are more serious than similar Toxocara infections because they are usually accompanied by CNS signs due to the larger size of the parasite and its more aggressive migrating ability. Consequently, it is very important to minimize contact with potentially infected raccoons. In the two confirmed fatal cases reported in children, exposure to feces of wild raccoons led to infection. Orphaned or injured raccoons kept as pets may also be a source of the parasite. Fecal samples from these animals can be checked by routine flotation tests for eggs that are similar in appearance to Toxocara eggs. Anthelmintics effective against ascarids in small animals should also be effective against Baylisascaris and treatment should be recommended. Any individual keeping raccoons should be informed of the dangers of Baylisascaris infection. --Anne Zajac, DVM, MS, PhD. VA-MD Regional College of Veterinary Medicine, Blacksburg, VA.

ILLINOIS ANNOUNCES TOLL-FREE NUMBER FOR ANIMAL POISON INFORMATION

In response to suggestions from practicing veterinarians, the Illinois Animal Poison Information Center (IAPIC) is pleased to provide a 24-hour toll-free number, 1-800-548-2423, for veterinarians and their clients to obtain telephone assistance with poisoning and/or residue problems in animals. A charge of $25.00 per case will be made via Visa/MasterCard. Under special circumstances, animal hospitals and emergency clinics can be invoiced $25 for the service, plus a $5 billing fee. Before a call can be accepted, the caller will be asked to provide:

* Valid Visa/MasterCard number, including expiration date - or
* Social Security or Federal Employee Identification Number (veterinary hospital/clinics only)

The IAPIC will continue to consult with human poison control centers on a gratis basis concerning cases of human exposures to animal drugs; however, charges will be made for animal consultation calls. Veterinarians and animal hospitals/clinics who have current subscriptions to the toll-free number will not be charged.
BASIC INFORMATION ON FERRETS

Ferrets are small carnivores that increased in popularity as a pet several years ago. The practitioner who has occasion to examine these agile creatures, will find it necessary to be armed with some basic information. Hopefully this will serve as an easy reference.

PHYSIOLOGICAL VALUES

<table>
<thead>
<tr>
<th>Normal blood values:</th>
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<tbody>
<tr>
<td>PCV................. 35-51%</td>
</tr>
<tr>
<td>Total protein........ 5.8-7.4 gm/dl</td>
</tr>
<tr>
<td>Platelets........... 78,000-500,000/ul</td>
</tr>
<tr>
<td>WBC.......................... 9,000-13,000/ul</td>
</tr>
<tr>
<td>Segmented cells........ 65%</td>
</tr>
<tr>
<td>Band cells............. -</td>
</tr>
<tr>
<td>Lymphocytes.......... 35%</td>
</tr>
<tr>
<td>Eosinophils.......... 0%</td>
</tr>
<tr>
<td>Monocytes............. 0%</td>
</tr>
<tr>
<td>RBC................... 9.98 x 10^6/ul</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physiological Values:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifespan ............. 8-13 years</td>
</tr>
<tr>
<td>Body Temperature . 100-102.5 F</td>
</tr>
<tr>
<td>Heart Rate ........ 216-242/min</td>
</tr>
<tr>
<td>Respiratory Rate ... 33-36/min</td>
</tr>
<tr>
<td>Gestation ........... 41-42 days</td>
</tr>
<tr>
<td>Litter Size ...... 5-15</td>
</tr>
<tr>
<td>Weaning ............. 6-8 weeks</td>
</tr>
<tr>
<td>Adult Size ........ reached at 4 months</td>
</tr>
<tr>
<td>Weight ............. Males; 1350-2700 gm</td>
</tr>
<tr>
<td>females; 450-900 gm</td>
</tr>
<tr>
<td>Length ............. Males; 45-510 cm</td>
</tr>
<tr>
<td>females; 350-425 cm</td>
</tr>
</tbody>
</table>

SEXUAL MATURITY: Occurs in the spring following birth or 9-12 months of age. Breeding season in the northern hemisphere is March through August. Females are seasonally polyestrous, are induced ovulators, and can remain in heat for 6 months. This prolonged production of estrogen can lead to severe alopecia and bone marrow depression.

DIET: Mink pellets, low ash cat food with table scraps, and fresh water. Generally, they will eat to their caloric needs. However, obesity can occur later in life.

VACCINATIONS: Currently there are no approved vaccines for use in ferrets. The state of Georgia prohibits the use of rabies vaccines in these animals. In bite cases involving a ferret, they are treated as wild animals and must be destroyed. Approval for a rabies vaccine is currently pending and may be available in 1990. However, use of this vaccine may also be subject to state approval and a practitioner should consult with authorities within their state before use. Use of all other vaccines constitutes non-label use. However, ferrets are highly susceptible to canine distemper.

*6-8 and again at 9-12 weeks; modified live canine distemper vaccine of non-ferret origin.
*1 year after second vaccination and yearly thereafter; canine distemper.
*Panleukopenia can be given at same time as canine distemper, but there is some question as to need.

NEUTERING: Males - 6 months of ages, testes in scrotum during breeding season. Females - 6 months of ages. Strongly recommended in all females not used for breeding.

ANAL SACS: 2, ducts open at 4 and 8 o'clock position. Removal of these glands will reduce the odor associated with these animals, but will not eliminated it. Ferrets have well developed perianal sebaceous and apocrine glands that add to their odor, and removal of these glands is not recommended. Bathing with a mild baby shampoo may help reduce body odor.

COMMON DISEASES
- Parasites: fleas, ear mites, mange, toxoplasmosis, coccidiosis, giardiasis, heartworm. Treat them as you would a cat.
- Viral: human influenza, distemper, aleutian disease.
- Bacterial: proliferative colitis (Campylobacter fetus), mastitis, abscesses, botulism, mycobacteria.
- Fungal: Microsporum canis, actinomycosis, cryptococcosis.
- Miscellaneous: urethral obstruction, gastric ulcers, diabetes, cataracts, neoplasia, eclampsia, rectal prolapse (the result of Campylobacter fetus), seasonal bilateral alopecia of the tail and ventral abdomen and bone marrow depression (aplastic anemia) due to hyperestrogenism.

RESTRAINT: Ferrets will bite and claw if frightened. They should be approached slowly. When they become angry or excited, they may excrete a musk substance. Lift the animal out of its cage either by the cape of the neck or the base of the tail. They will generally calm down if allowed to investigate the new environment. Since they are poor climbers, they will not try to get down from the examination table. Ferrets can be restrained a couple of ways.

- Grasp the animal firmly around the thorax and neck with one hand and support the pelvic limbs with the other.
- Place the ferret on a surface that it can grip and gently pull back on the tail. Then pin the head and forelegs with the free hand. Ferrets do not tolerate being stretched out in the method used for cats. Generally, ferrets will not attack when released from a restraint procedure.

Intravenous injections can be given in the cephalic or recurrent tarsal vein. Intramuscular injections can be given in the hind leg or lumbar muscles. However, ferrets have a layer of fat in this area that becomes thicker in the fall.

ANESTHESIA: Before anesthetizing a ferret, food should be withheld for 12 hours. It is suggested that atropine be given at a dosage of 0.04 mg/kg subcutaneously or intramuscularly.

- Inhalation anesthesia: Methoxyflurane can be administered through an induction chamber, followed by mask or intubation. Halothane through a pediatric mask, can be given with or without nitrous oxide. Some advantages to Halothane are rapid induction, ease of depth control, and rapid recovery. Halothane can be used in conjunction with ketamine.
- Intramuscular: Ketamine can be used alone or in conjunction with xylazine. Ketamine alone at 20-30 mg/kg gives light surgical anesthesia for 40-60 minutes. At 60 mg/kg excellent immobilization is achieved, but muscle rigidity and incomplete analgesia are reported. The same effect occurs when 35 mg/kg ketamine is given with 3 mg/kg diazepam. Use of xylazine improves relaxation at 1 mg/kg. Acepromazine can also be used in conjunction with ketamine at a dosage of 0.2-1.1 mg/kg.
- Intraperitoneal: Pentobarbital can be given at a dosage of 35-38 mg/kg IP for anesthesia. Usually the lower dose is sufficient. This allows 30-45 minutes of anesthesia with a 3-4 hour recovery period. The disadvantages of this is its small margin of safety and long recovery period. --Dr. Jean Sander, Extension Veterinarian-Avian, University of Georgia, Veterinary Newsletter, No. 256, Jan. 1990.

TOXICOLOGY TIPS

Blood samples for lead determination must be whole blood samples, either heparinized or clot samples THAT CONTAIN THE CLOT. (Lead is bound to red blood cells; serum alone is not diagnostic!).

Ocular fluid, 3 cc, should be included with feed and water samples, ingesta and serum from cases of suspected NITRATE TOXICITY.

Brain is the tissue of choice for cholinesterase determination in cases of suspected organophosphate toxicity. Wrap in foil, freeze immediately, and ship to preserve frozen state. --L.J. Runnels, F.R. Robinson, Robert Everson, Purdue Veterinary Notes, SVM, Purdue University, No. 166, Dec. 1989.
## CONTINUING EDUCATION OPPORTUNITIES

**VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE**  
**SPRING 1990 PROGRAMS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Program</th>
<th>Location</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>*March 9-10</td>
<td>Critical Care Nutrition</td>
<td>Blacksburg</td>
<td>10</td>
</tr>
<tr>
<td>*March 16-17</td>
<td>Plastic and Reconstructive Eyelid Surgery</td>
<td>Blacksburg</td>
<td>10</td>
</tr>
<tr>
<td>March 24-25</td>
<td>Llama Conference</td>
<td>Blacksburg</td>
<td>10</td>
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<tr>
<td>March 29</td>
<td>Small Animal Medicine Update</td>
<td>Blacksburg</td>
<td>4</td>
</tr>
<tr>
<td>*March 30-31</td>
<td>Equine Respiratory Disease</td>
<td>Blacksburg</td>
<td>10</td>
</tr>
<tr>
<td>April 8</td>
<td>Small Animal Medicine Update</td>
<td>Charleston, WV</td>
<td>4</td>
</tr>
<tr>
<td>*April 20-21</td>
<td>Gastrointestinal Endoscopy</td>
<td>Blacksburg</td>
<td>8</td>
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<tr>
<td>April 22</td>
<td>Pet Bird Medicine</td>
<td>Midlothian</td>
<td>6</td>
</tr>
<tr>
<td>May 12</td>
<td>Food Animal Practitioners</td>
<td>Waynesboro</td>
<td>6</td>
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</tbody>
</table>

*Limited enrollment course

Note: Program brochures are mailed approximately six-eight weeks prior to the course date. For course information or assistance, please contact:

Kent Roberts, DVM  
VA-MD Regional College of Veterinary Medicine  
Blacksburg, VA 24061  
(703) 231-7181

### SUCCESS IS NO ACCIDENT

Vitality in people and organizations will set them apart in the quest for success. Organizational vitality indicates a caring, progressive group of people at work, and comes as the result of genuine commitment and dedication. This vitality is based on effective communication, conscious propose and dedication to worthwhile goals.

If there is a key to developing and maintaining vitality within any structured group of people, it is good communication. Not only is it critical, but it must occur at all levels within the organization. Some guidelines for effective communication are:

- Those in authority within an organization have a special responsibility to initiate and sustain effective communication.
- The more authority one has in the organization, the more and better one has to listen.
- **Listening is the single most important aspect of communication.**
- Have a "sacred" time, on a regular basis, for this exchange of ideas and information to occur.
- Everyone, all members of the group, must participate - no outcasts.
- Communication must serve to benefit the participants and the organization or it is a waste of time.
- To be beneficial and meaningful, communication must be truthful.

Organizational vitality is seldom easily or quickly achieved, but it is certainly worthy of considerable thought and effort. Within the organization, we often don't think the same way, but we do need to share commitment, purpose and the desire to communicate. --Kent Roberts, DVM, Extension Veterinarian, VA-MD Regional College of Veterinary Medicine, Blacksburg, VA.
VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE
VETERINARY TEACHING HOSPITAL FACULTY

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Resident-Internal Medicine
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Large Animal Intern

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Theriogenology

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General Surgery
General Surgery
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Laboratory Director

Laboratory Director

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Dr. C.T. Larsen - Extension Specialist - Avians
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