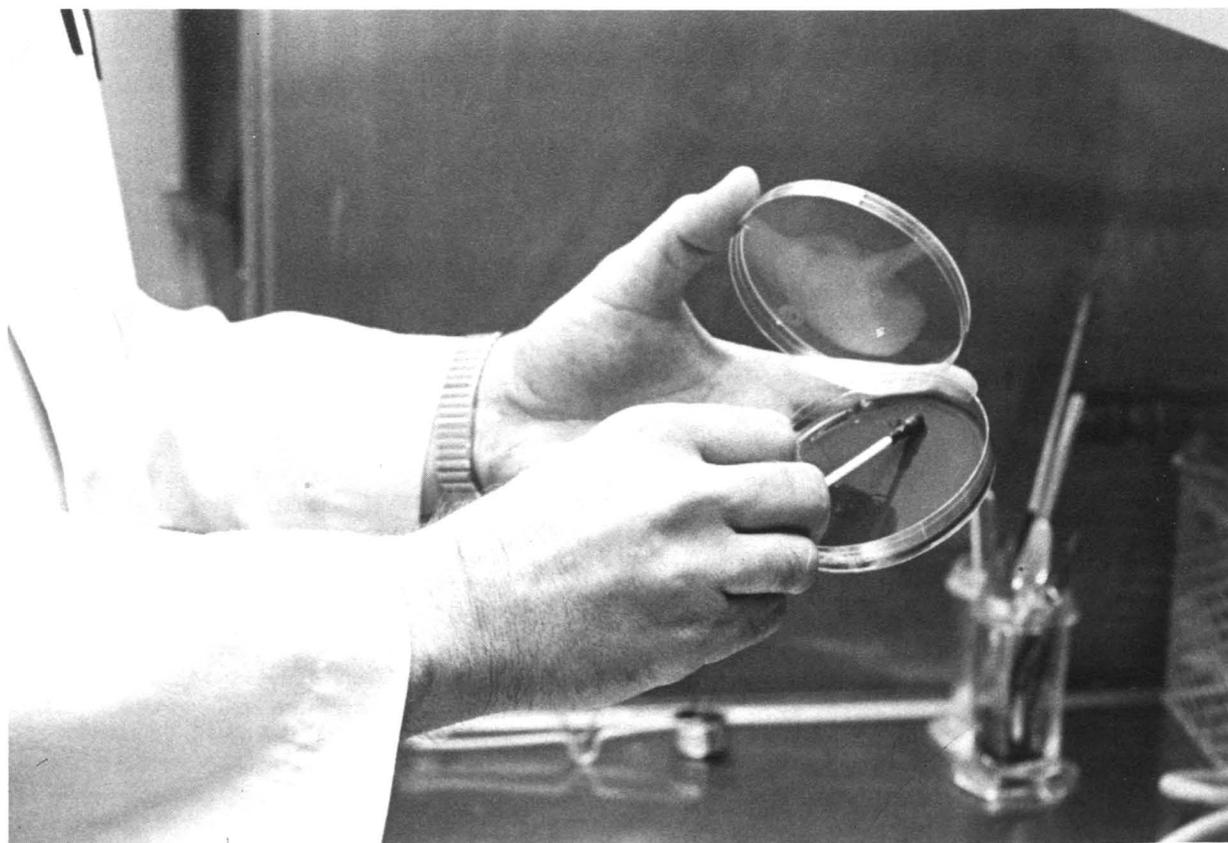


Veterinary Medical Review

College of Veterinary Medicine and Cooperative Extension Service



Contagious Equine Metritis

University of Missouri-Columbia

Fast, accurate diagnostic work had a major role in stopping an outbreak of Contagious Equine Metritis in Missouri this spring. Shown above, a field sample is swabbed onto culture medium. A few days later, the growth on the medium confirmed that the disease had made its second appearance in the U.S. For more information, please turn to p. 4.

July/August, 1979
No. 113

The 30th Class to graduate added 70 more alumni to the College; see p. 2. To help teach all Classes that follow them, a closed-circuit television system is being added to the Small Animal Teaching Hospital, thanks to private donations, see p. 3.

30th Class Graduates

70 Become Alumni



Dr. L. W. Dewhirst

This year, graduation exercises for the College followed the University's General Commencement Exercises. The College's Academic Convocation began at 1:00 p.m., May 12.

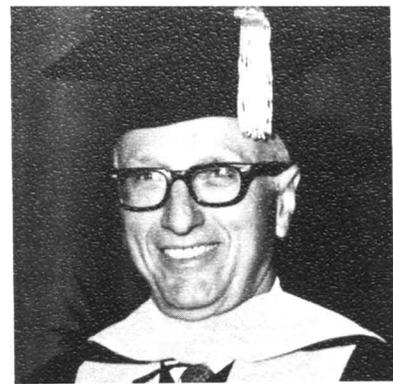
Dr. L. W. "Pete" Dewhirst delivered the address for the Academic Convocation. Dr. Dewhirst is currently Associate

Dean of the College of Agriculture at the University of Arizona, Tucson, and Director of that state's Agricultural Experiment Station. Dr. Dewhirst had been Assistant Dean for Student Affairs for the College from 1974 to 1976.

After the Veterinarian's Oath had been administered by the President of the Missouri Veterinary Medical Association, Dr. T. J. Vogelweid, each of the 70 members of the Class of 1979 was invested with the hood by Dr. Lloyd Faulkner, Associate Dean for Research and Graduate Studies, and Dr. Kenneth Niemeyer, Assistant Dean for Student and Alumni Affairs.

Following the investiture, Dean Kenneth D. Weide gave recognition to the nine veterinarians who had completed their residencies and internships.

The Class of 1979 brings the total number of the College's graduates to 1,209.



Dr. Leslie C. Murphy: Associate Dean Emeritus

Dean Kenneth D. Weide extended special recognition during the College's Academic Convocation to Dr. Leslie C. Murphy. Dr. Murphy has been awarded the titles of Associate Dean Emeritus and Professor Emeritus of Veterinary Microbiology.

Because he had reached mandatory retirement age for University administrators, Dr. Murphy stepped down as Associate Dean for Research and Graduate Studies, and as Assistant Director of the Missouri Agricultural Experiment Station. Dr. Lloyd Faulkner replaced him on January 1, 1979.

Dr. Murphy came to the then School of Veterinary Medicine in 1964, appointed by Dean Kingrey as Director of Research Development and Chairman of the Veterinary Medicine Research Council. His efforts contributed greatly to building UMC's veterinary research efforts.

Dr. Murphy received his B.S. degree from the University of Idaho in 1935 and his D.V.M. degree from Washington State University in 1939. He is a Charter Diplomate of the American College of Veterinary Microbiology.

Graduating Class of 1979

Doctor of Veterinary Medicine Summa Cum Laude

Karen LaRue Campbell
Joseph Shelton Haynes

Doctor of Veterinary Medicine Magna Cum Laude

David Tint Allard
Kimberlee Gonterman Wheeler

Doctor of Veterinary Medicine Cum Laude

William C. Parsons
Peter D. Schwarz

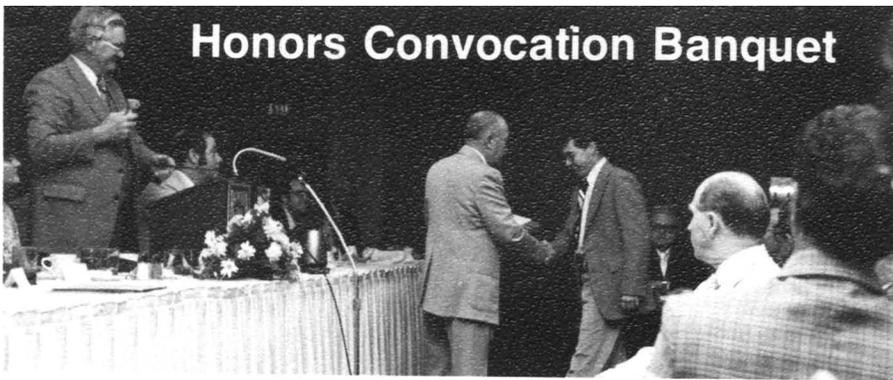
Doctor of Veterinary Medicine

Arthur Kent Allen	Richard Dean Hansen	James Douglas Robertson
William John Armon, Jr.	Kathleen Lorimer Hawkins	Ronald Rogers
Karen Elizabeth Ashley	Christopher Lee Hay	Don W. Ryker, II
Paul Cooper Bartlett	Wayne L. Hunthausen	Elroy E. Schumacher
David William Bodenhausen	Rodney R. Jantz	William Reid Scifers
Roger Jerome Borgmeyer	Gerald B. Jennings	Alan Osher Shanker
Alfred K. Boswell	Bernita Jo Keen	Virginia Ann Shannon
Lucas Harold Brennecke	James Allen Kennedy	Lonnie Dale Shepard
William Victor Bystrom	Lawrence J. Klenofsky	William John Shore
John Parman Cousins	Kenneth W. Kwochka	David H. Simmons
Gregory Mark Crouch	Peter Clifford Mann	John R. Stoltz
Leland Wayne Dochterman	Dennis J. Markway	Steven H. Swaim
Marlene Rae Doering	R. Paul May	Jeffrey Williams Taylor
Thomas Robert Dorsey	Dennis L. Miesner	David J. Theiss
Blair Hilary Ebert	David E. Moser	Michael W. Utz
Robert Elliot Fortney	William A. Nusz	Patricia Wilcox Varner
Ronald L. Franklin	Carol Clark Palmer	Donna Kay Walton
Diane Joyce Gaertner	Daniel Lee Purviance	Marlyn Sue Whitney
Mark Edwin Gants, III	H. Kathryn Ra	John Raymond Wilcox
Robert Paul Gilkerson	Martin Geoffrey Randell	Thomas S. Williams
Walter S. Goodale	Bradley G. Richter	Katherine Biebel Windt

ANNUAL CONFERENCE

Coming: University of Missouri-Columbia, 55th Annual Conference for Veterinarians, October 7 - 8, 1979, Ramada Inn, Columbia, Missouri. For more information, please contact Dr. John Rhoades, 234 Veterinary Medicine Bldg., College of Veterinary Medicine, University of Missouri-Columbia, Columbia, MO 65211.

On the evening of October 6, 1979, the Classes of 1954, 1964 and 1974 will hold reunions at Columbia's Ramada Inn. For more information on these reunions, please contact Dr. Kenneth Niemeyer, W-203 Veterinary Medicine Bldg., College of Veterinary Medicine, University of Missouri-Columbia, Columbia, MO 65211.



Honors Convocation Banquet

Over 470 students, faculty, staff, their spouses, and guests attended the Honors Convocation Banquet, May 10, sponsored by the Upjohn Company and the College. Over 30 students received scholarships or awards totalling \$17,425.

Seven students from the first, second and third year classes received the J. B. Arthur Foundation Scholarships, a scholarship program inaugurated this year for the College. These scholarships are given on the basis of financial need, scholastic ability and professional potential. Dean Kenneth D. Weide made the presentations.

Dean Weide announced a new award for the Convocation, the Loren D. Kintner Veterinary Diagnostic Laboratory Award. Named in honor of Dr. Kintner and

endowed by his family, this award recognizes proficiency, interest, contributions and performance in veterinary diagnostic laboratory medicine. Robert Fortney was named the award's first recipient.

Mr. Willis Boucher made a donation to the Dr. Edgar Ebert Memorial Award Fund, thereby permitting a larger stipend to be made to students. This fund provides awards for two fourth-year students who have demonstrated outstanding ability, one in large animal medicine and surgery, the other in small animal medicine and surgery.

Chancellor Emeritus Herbert Schooling was an honored guest at the banquet and spoke briefly before the awards were announced.



Dr. Schmidt Given Norden Distinguished Teacher Award

Dr. Donald Schmidt, Professor of Clinical Pathology, was presented the Norden Distinguished Teacher Award at the Honors Convocation Banquet.

Students selected Dr. Schmidt for his teaching excellence to be this year's recipient of the award provided by Norden Laboratories. Dr. Schmidt had received this award once before when he was on the faculty of Michigan State University.

Dr. Schmidt obtained his B.S. degree, majoring in agricultural bacteriology, from the University of Wisconsin in 1944, and received his D.V.M. degree from Michigan State University in 1947. He did his work for his M.S. degree, awarded in 1950, at the Mayo Clinic in Rochester, Minnesota.

Dr. Schmidt left academic work in 1950 to be a veterinarian for the Chicago Zoological Park. He returned to Michigan State University in 1953 as Instructor at the College of Veterinary Medicine. In 1959, he became a Diplomate of the American College of Veterinary Pathologists, and in 1961 was awarded his Ph.D. degree.

In addition to the Norden Distinguished Teacher Award, Dr. Schmidt has received in 1947 the Borden Award in Veterinary Medicine and the Michigan Veterinary Medical Association Award.

Dr. Schmidt joined the faculty at UMC in 1967 as Professor of Clinical Pathology.

Closed-Circuit Television System for College

Twelve students who comprise a block, the instructing surgeons, and technicians cannot fit inside one surgery room to participate in surgery on a dog. The students for whom there is no room must learn about a particular surgery case second-hand from reports and lectures. But soon all students will be able to watch every detail of a surgery procedure as it is happening.

Equipment for a closed-circuit television has already been delivered to the College and will soon be installed. This equipment will be used mainly in the Small Animal Teaching Hospital, and will greatly enhance the College's audio-visual methods of instruction.

The new system will have the capability of live transmission to classroom monitors in color and with sound. In addition, recordings may be made with this equipment for playback on other equipment already in use at the College.

Designed so that it may be easily used in a variety of situations, the camera will be the center of the new system. This camera, weighing only 1¼ pounds, can be quickly attached to a special fixture on a surgery light, onto a tripod, or even onto a microscope, an ophthalmic instrument or

an endoscope. With the camera attached to an instrument such as an endoscope, students may then watch on a monitor everything the instructor sees instead of having to wait in line to take a look one at a time.

Three private donors, James H. Woods Foundation, Farmland Industries, and the Charles E. Culpeper Foundation, provided the \$25,000 needed for purchase and installation of the closed-circuit television system made by Circon Corporation, a California-based firm.

When the Veterinary Medicine building was under construction, conduits were placed in the walls in anticipation of just such a television system. Presence of these conduits has lowered the cost of installing such a system.

Visiting Lecturers to Come

On September 13, 1979, Dr. Kenneth Gould will present "Primate Reproduction". Dr. Gould is Director of Reproduction Biology Unit of the Yerkes Regional Primate Center in Atlanta, Georgia.

On November 8, 1979, Dr. Thomas Tobin will present "Equine Pharmacology". Dr. Tobin is on the faculty at the

University of Kentucky, Lexington.

All Visiting Lecturers will appear in the College's Teaching Hospital Auditorium at 4:00 pm. Names and topics of other Visiting Lecturers for 1979-1980 academic year will be listed in future issues of *V.M.R.*



Removing swab from transport medium

Contagious Equine Metritis Appears in Missouri

This Equine Venereal Disease Makes a Limited Appearance in Missouri, the Second Time in the U.S., and Is Brought Under Control Without Need for State-Wide Quarantine.

... if the disease had not been discovered this breeding season, it would have carried over. . . probably into the general horse population.

"It would have been a nightmare," stated Dr. Kent Haden, veterinarian for the Missouri Department of Agriculture, when he referred to the consequences of Contagious Equine Metritis (CEM) having not been detected and isolated early in the breeding season this year. His concern, a concern shared by everyone working with horses in the U.S., is that if the disease had not been discovered this breeding season, it would have carried over to the season next year and then probably into the general horse population.

If CEM ever slips into the general horse population for which accurate breeding records are not generally kept, this venereal disease could become endemic and virtually impossible to eradicate.

CEM was detected April 18, early in the 1979 breeding season, on the premises of Barr Trak Farms, Inc. in Boone County. The single stallion suspected of transmitting CEM had covered only eight mares prior to diagnosis. He had been booked for more than 40 mares for this breeding season. The MDA, through the state veterinarian's office, promptly quarantined the premises of that farm along with three other horse farms in Missouri whose animals had come into contact with the suspect stallion.

... premise quarantines saved the horse industry of Missouri approximately \$10 million this year.

The MDA was able to quickly respond to this crisis because the College's Veterinary Medical Diagnostic Laboratory had alerted that agency as soon as diagnostic procedures were begun. The College's Diagnostic Laboratory kept the MDA informed of all findings as soon as they were known, thereby enabling the state veteri-

narian's office to take appropriate regulatory action.

State and federal regulatory officials agree that the early discovery and immediate premise quarantines saved the horse industry of Missouri approximately \$10 million this year. (See accompanying story, p. 5.) This loss was averted because neither the U.S. Department of Agriculture nor the MDA had to impose a state-wide quarantine on Missouri horses. That type of quarantine was avoided due to accurate diagnosis of CEM, and prompt identification and isolation of suspect animals coupled with the fact that so few animals were involved.

In a statement made May 3, Dr. Taylor Woods, State Veterinarian for the MDA, said: "At this time we feel that all exposed animals are under quarantine and that the possibility of infection outside of the quarantine premises is no greater than it was before this outbreak was discovered."

Shortly after news of the outbreak was released, the states of Nebraska and Hawaii, and Canada embargoed all horses from Missouri. On May 15, Nebraska dropped its embargo.

Last year, a more widespread CEM outbreak and subsequent statewide quarantine struck hard at Kentucky's \$1 billion a year Thoroughbred Horse industry.

... this is the first time that CEM has appeared in a breed of horses other than Thoroughbreds.

This outbreak was unique in that this was the first time that CEM appeared in a breed of horses other than Thoroughbreds. The suspect stallion is a Trakehner; many of the suspect mares are Quarter Horse-Arabian-Thoroughbred cross. The stallion was imported two years ago from West Germany, and at that time CEM had not been detected in that country. German officials are helping USDA personnel in the epidemiology related to the Missouri outbreak. To date, CEM has been found in several countries of western Europe.

Precise breeding records maintained by personnel of Barr Trak Farms, Inc., enabled regulatory officials to pinpoint all suspect animals in Missouri. The outbreak was very limited—confined to fewer than ten horses.

Nevertheless, regulatory officials are still working on the epidemiology of the disease. Pending verification from German officials, USDA authorities are trying to indirectly implicate the stallion as the sole disease source in this outbreak by investigating all other horses involved. Dr. Woods stated: "All mares have been traced for breeding history the last four seasons to rule out the possibility that a mare brought the infection in."

... often the first indication of infection is a covered mare quickly returning to estrus.

Regulatory officials are relieved that CEM was positively identified early in the breeding season. CEM is a difficult disease to diagnose because it is insidious; signs of infection in the mare are subtle and fleeting, and signs are non-existent in the stallion. The disease would be nothing more than a minor nuisance if infection did not greatly increase the chances of failure to conceive or of early abortion. In fact, often the first indication of infection is a covered mare quickly returning to estrus. (See accompanying story, p. 5.)

This sign, coupled with a vaginal discharge from a mare, made a Columbia-area practitioner suspicious after he had been called to examine horses belonging to Barr Trak Farms, Inc. On the evening of April 18 that practitioner brought samples, smears taken from the reproductive tract of the mare, to the College's Veterinary Medical Diagnostic Laboratory. Dr. William Fales, bacteriologist, and other laboratory personnel began preliminary culturing for isolation and identification of the disease organism in the samples.

Dr. Lawrence Morehouse, Director of the Diagnostic Laboratory, stated: "On the basis of the initial smear, and the observa-

tion that the sampled organism was compatible in morphology with the CEM organism, and along with clinical signs, this laboratory instituted immediate measures to confirm or disprove the presence of CEM."

On the morning of April 19 Dr. Morehouse reported what had been found to state and federal regulatory officials. He requested permission for laboratory personnel to hand-carry additional smears and cultures from the diseased mare to the National Veterinary Services Laboratory in Ames, Iowa, for additional analysis. He also made arrangement to obtain specimens from other mares showing signs of CEM at the farm.

At 6 a.m., Friday, April 20, Drs. William Fales and William Braun, Jr. of the College, accompanied by the referring veterinarian, returned to the farm to obtain cultures and smears from suspect animals for immediate transport to the laboratories. They rushed all samples back to Columbia where culturing was initiated while Dr. Fales took other samples by car to Ames.

UMC laboratory personnel chose to work simultaneously with the Ames laboratory in order to confirm (or disprove) the identity of the disease as soon as possible.

Both laboratories isolated and identified the CEM organism.

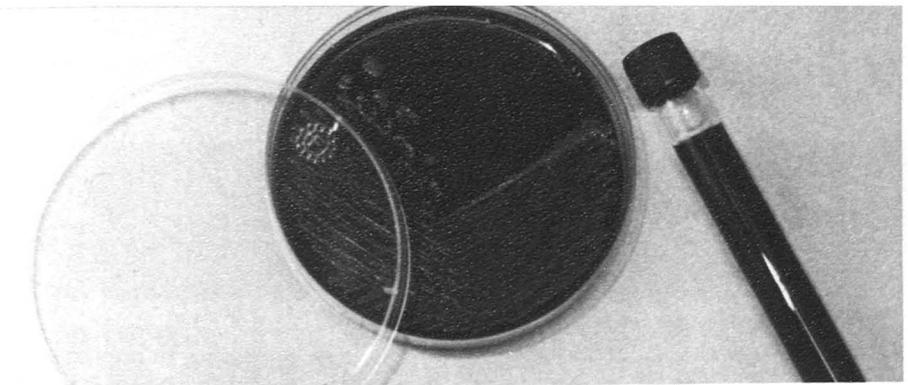
On April 20, reacting to initial suspicions regarding what the College's Diagnostic Laboratory had reported, the MDA, through the state veterinarian's office, began quarantine action.

How Much Was Saved by Avoiding a State-Wide Quarantine?

A dollar figure cannot be precisely fixed on how much was saved by Missouri this year by avoiding a state-wide quarantine on its horses. No current statistics exist on the total horse population of Missouri. According to a 1974 census, however, 16,900 farms in this state had 58,712 horses and ponies on the premises. Of just those horses and ponies sold that year, the money changing hands came to \$11,029,000.

Federal and state regulatory officials estimate that Missouri saved \$10 million this year because no quarantine was imposed.

They base that estimate on several factors. Over 800 stallions with fees of \$300 or more stand at stud now in Missouri. Stud fees for a few stallions top \$6,000. Compounding those figures, some stallions cover as many as 100 mares in a single breeding season. There are three farms in



Culture of field strain of Contagious Equine Metritis with tube of transport medium at right.

Throughout the investigation and control of this outbreak, all involved persons, laboratories, and agencies cooperated to the utmost with one another. As a result,

calm, reasonable action prevailed. Thus, the outbreak was contained without the need for a costly state-wide quarantine.

CEM—Difficult to Diagnose

By the time this publication reaches you, the practitioner, the 1979 breeding season will be finished. In light of the fact that CEM has appeared in the U.S. in both the 1978 and the 1979 breeding seasons, everyone should be particularly alert to the possibility of the disease breaking out during the 1980 season. This winter, before the 1980 breeding season begins, *V.M.R.* will publish as a Continuing Education article a protocol for diagnosing CEM. The protocol will go into detail concerning methods of collecting samples for analysis by a veterinary diagnostic laboratory.

The College's Veterinary Medical Diagnostic Laboratory is one of the few laboratories in the U.S. with the personnel and material necessary for accurate diagnosis of CEM. For diagnosing CEM, two procedures are used: culture and serology.

The CEM organism is not easy to grow in culture. It is fastidious, requires a special medium, and its microaerophilic nature requires an atmosphere of 5-10% CO₂ for growth. Furthermore, it must be transported to a diagnostic laboratory in Amies Transport Medium within 8 to 12 hours after being collected, or it won't grow. In culture, colony morphology varies. Diagnosis may be complicated because the horse may have secondary infections associated with CEM, and these may also appear in the culture.

Serologic tests help to confirm what may be found in culture. However, the serologic titer that these tests reveal appears to develop in many mares only when clinical signs of CEM are obvious. The signs may last only two to four days, during which the titer goes up, but then goes back down. If blood samples are taken after signs disappear, the serum agglutination test and the complement fixation test may be negative. Because the stallion shows no clinical signs, these tests will be negative.

Aside from the signs of failure to conceive or of early abortion, the other clinical sign may be a vaginal discharge. This discharge may be short-term, and may be copious or slight. It may not be noticed by someone who is not alert to the possibility of CEM infection.

Whenever CEM is suspected, strict sanitation must be observed. The organism is readily transmitted from animal to animal on instruments, on clothing, and on the hands of examiners and assistants.

The CEM organism is a gram-negative, non-motile coccobacillus, and has been tentatively named *Hemophilus equigenitalis*. In several ways, it appears similar to *Brucella* organisms.

Please feel free to contact the College's Diagnostic Laboratory for assistance. Call: Microbiology Section, (314) 882-6695.

PATIENT SELECTION FOR CATARACT SURGERY

Cecil P. Moore, D.V.M.,
Resident, Dept. Veterinary Medicine & Surgery

Introduction

Clients frequently pose questions to the practitioner concerning cataracts in their pets or breeding animals. As a service to the client the veterinarian should be capable of offering accurate advice regarding the feasibility of cataract surgery. This article is intended to review for the general practitioner what is entailed in determining whether or not a given canine patient is a good prospect for cataract surgery.

General Exam

A main concern in selecting the candidate for cataract surgery is to choose a healthy and tractable patient. Therefore, a thorough history and physical exam is essential. Particular emphasis must be placed on cardiovascular, respiratory, renal and hepatic function since potential anesthetic problems must be identified. Screening tests for diabetes mellitus are imperative. Appropriate laboratory tests would include CBC, liver and kidney function test, microfilaria check, fasting blood sugar, and urinalysis. Chest radiographs and an EKG may be necessary for some patients.

The animal's temperament is an important concern in the selection of the cataract surgery patient. Hyperexcitable animals or "fear biter" types are poor candidates because serious ocular injury can easily occur from treatment attempts during the post-operative period.

If trauma is suspected as a cause of the cataracts, the possibility of multiple trauma must be considered. Likewise, if the cataracts are thought to be congenital, possible multiple congenital defects should be taken into account.

A careful history should reveal when vision is most severely affected. Poor day vision may occur with axial type cataracts while poor night vision would indicate progressive retinal atrophy (PRA).

Ocular Exam

The practitioner should make a thorough ophthalmologic evaluation in addition to the general physical examination. The practitioner should examine the eye and adnexa by starting with the orbit and

eyelids, then proceeding to the conjunctiva, third eyelid, cornea, anterior chamber, iris, lens, vitreous portions, and finally the optic nerve and retina. To make examination easier, the practitioner should use a short-acting mydriatic such as Mydracyl® (1% tropicamide) which causes pupillary dilation in approximately 20 minutes. Prior to dilating the eye, though, pupil responses and intraocular pressure should be checked. For this complete eye examination, a darkened room, slit light beam and means of magnification are important prerequisites.

Specific problems to be aware of are:

1. Bacterial conjunctivitis - infections should be treated and cleared up before surgery is attempted.
2. Corneal diseases - ulcerative keratitis, corneal vascularization or pigmentary keratitis preclude intraocular surgery. These conditions suggest friction irritation, poor tear film formation or distribution, or chronic infections. Corneal edema may indicate a luxated lens, anterior uveitis, increased intraocular pressure or corneal dystrophy.
3. Abnormalities of the iris (note position, movement and margins). Strands of iris tissue from the margin to the anterior lens capsule indicate uveitis, whereas strands from the collarette area of the iris to the lens indicate persistent pupillary membranes (PPM). These findings can suggest the cause of the cataract as well as influence a surgical decision. Dogs with posterior synechiae (old uveitis) or PPM's should not be operated. The depth of the anterior chamber (AC) may reflect the state of the lens, e.g. shallow AC occurs with anterior lens luxation or a swollen (intumescent) lens; a deep AC with a flat iris indicates a resorbing shrunken cataract or posterior lens luxation.

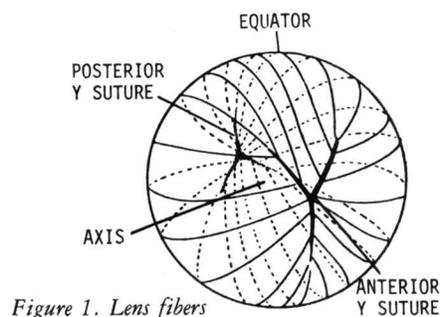


Figure 1. Lens fibers

4. Vitreal pathology - attempts to surgically correct embryonic vascular structures may result in hemorrhage. If a loose lens moves posteriorly, the vitreous body may liquefy (syneresis).
5. Retinal disease - in breeds with inherited retinopathies, many animals develop cataracts simultaneous with retinal atrophy. If the cataract is incomplete, the fundus can be viewed and evaluated. A brisk pupillary response is a good sign; however, in advanced progressive retinal atrophy (PRA) the pupillary response is retained until late in the disease. If the fundus cannot be seen, an electroretinogram (ERG) is the best evaluation of retinal function. Removal of cataracts in animals with advanced retinal disease will not improve vision.

Lens Exam - Classification of Cataracts

A cataract is any opacity of the lens or its capsule. Lens changes occur as vacuolizations and precipitation of lens proteins that result in lens opacity. Any cataract must be studied carefully as the type of cataract may dictate the best surgical approach or if surgery is even indicated (Table 1).

Cataracts are usually described in terms of: (1) cause or age of onset, i.e. congenital, juvenile, senile, diabetic, traumatic, or complicated; (2) stage of changes, i.e. incipient, immature, mature, or hypermature; and (3) location of opacities, i.e. focal, capsular, subcapsular, cortical, nuclear, diffuse, equatorial, axial, or polar. Other descriptive terms may reflect rate of development, size, shape, consistency, and clarity of the lens. The examiner should document whether there is unilateral or bilateral involvement.

The practitioner should examine the entire lens and supporting structures in a darkened room with the eye dilated. By using a slit light source held at oblique angles and by observing the pathways of focused light, the practitioner will notice any opacities that may appear in various ways depending on their size, shape and position. Normal zonules, capsule, nuclear zones and sutures are made visible by the practitioner varying the inspection angle and light source placement.

Before further examination for cataracts, the practitioner should take into consideration features of the normal lens. In an examination, the practitioner will encounter normal structures such as Y sutures, hyaloid remnants, hyaloidal capsular ligament, and lenticular sclerosis.

Throughout a dog's life, secondary lens fibers continue to develop from the equator of the lens. Y sutures evolve as these fibers

elongate and come together near the visual axis of the lens (figure 1). The anterior Y suture is upright while the posterior suture is inverted. The adult lens has a capsule, anterior epithelium, equator, cortex and nucleus (figure 2). The lens itself consist of fibers and cement substance. A depression in the anterior surface of the vitreous is termed the patellar fossa. In the dog the lens and anterior hyaloid (rostral membrane which limits the vitreous body) are adherent. This adhesion is referred to as the hyaloidal capsular ligament (figure 2). It may be visible normally as a slight wrinkle at the level of the posterior lens capsule.

The developing lens of the embryo demands a large blood supply. Nutrition is provided by vessels coursing from the optic nerve through the vitreous space up to the back of the lens (tunica vasculosa lentis—figure 3). The artery feeding the lens is termed the hyaloid artery or the primary vitreous and should atrophy shortly after birth. Innocuous remnants frequently persist and may be seen as grey-white tags on the posterior pole of the lens; see persistent hyaloid in figure 2. In other individuals, posterior capsular cataracts may occur at this site, and in some dogs a patent blood vessel may be encountered.

Lens size remains fairly constant throughout the dog's life even though lens fibers continue to form. Therefore, compression of the lens occurs as the animal ages. This compression accentuates the lens nucleus. Older lens fibers tend to shrink and become irregular, and as a result are less transparent (sclerotic). As the lens becomes compressed, the nucleus develops a gray haze. the term "nuclear sclerosis" is used to describe this hazy zone which is normal and not a cataract. Nuclear sclerosis may be a pre-cataract condition in geriatric dogs, however.

Light will pass through a sclerotic area; light will not pass through a cataract. A frequent error made by practitioners when

cont., p. 8

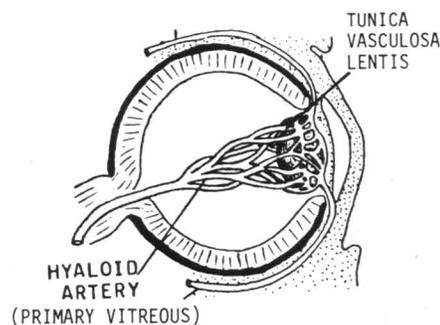


Figure 3. Schematic representation of the vasculature to the embryonic lens. The primary vitreous should atrophy and disappear by the end of the second post natal week.

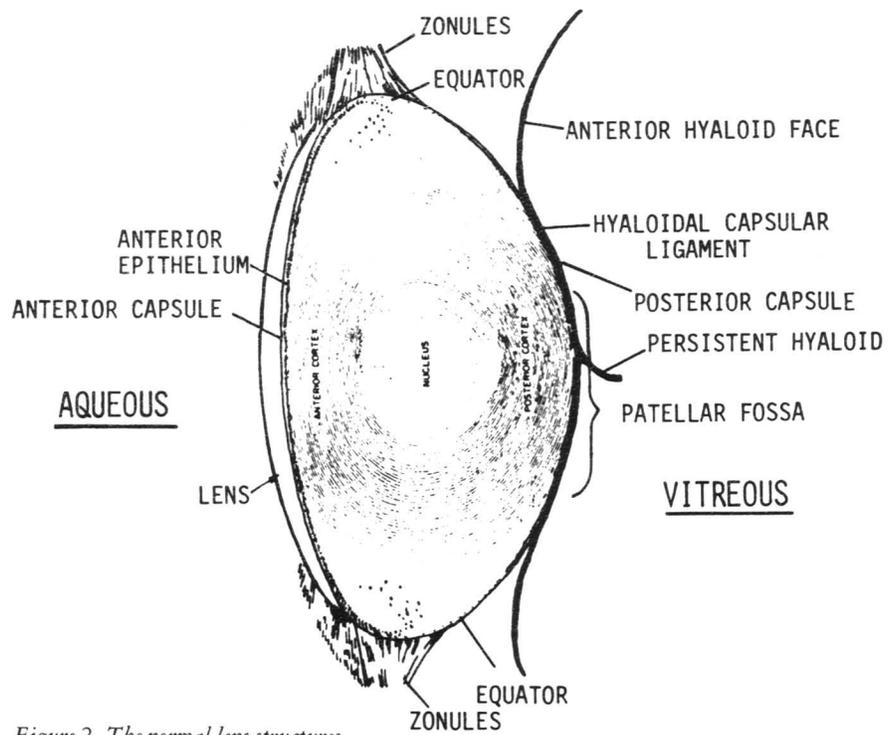


Figure 2. The normal lens structures

Table 1. SURGICAL IMPLICATION OF COMMON CATARACT TYPES

Type of Cataract	Surgical Implication	comment
Congenital	most do not require surgery most are incomplete and non-progressive discission and aspiration may be performed if bilateral and animal is blind	majority not inherited may be associated with other ocular abnormalities
Juvenile	approx. 25% spontaneously resorb impossible to predict progression uveitis may occur with resorption do not prescribe surgery if resorption or uveitis present if cataracts mature- extracapsular procedure preferable	many are genetic specific breed incidence ^{1,3} occur between 1-6 years
Senile	operate only mature cataracts extracapsular procedure recommended	preceded by lenticular sclerosis
Diabetic	handle same as senile cataract	animal must be well regulated prior to surgery
Complicated	do not operate treat uveitis	capsular changes occur secondary to synechiae (uveitis)
Intumescent (swollen lens)	swollen lens from fluid imbibition surgery necessary to remedy glaucoma	may cause secondary glaucoma from angle closure
Hyperature (shrunken lens)	do not operate treat concurrent uveitis	resorption accompanied by a degree of uveitis anterior capsule wrinkled, surface roughened lens small, dry, shrunken

Cataract, cont.

examining a blind animal is confusing nuclear sclerosis for cataracts when there is another cause for blindness, e.g., retinal disease such as PRA. When examining a dog with nuclear sclerosis, the practitioner should clearly see through the lens to the fundus. Likewise, the dog should be able to see out through the lens.

The degree of vision loss depends on the location and severity of the cataract. Surgery is indicated only if cataracts are in both eyes and the animal is blind. Surgery is usually not necessary for those dogs with a cataract occurring along the axis of the lens which interferes with vision when the pupil is constricted, but results in little loss of vision when the pupil is dilated. In those patients 1% atropine used symptomatically every 2-3 days will keep the eyes dilated, thus allowing vision around central opacities. For these patients, surgery and its possible sequelae may lower sight level instead of improving it.

Table 1 lists some practical implications of the relatively common cataract types. For detailed information on hereditary cataracts in the dog, the reader may consult other references^{1,3}.

Client Education

Cataract surgery is an elective procedure and should not be oversold. Clients familiar with cataract surgery in humans may expect similar approaches in the dog to yield the same functional and cosmetic results. This does not hold true in the canine because of inherent physiologic and anatomic differences. Problems such as exposure and fixation of the globe, an extremely vascular and reactive uveal tract, adhesion of the posterior lens capsule to the anterior hyaloid, and tough zonular attachments to the lens plague the veterinary ophthalmic surgeon.

Clients should be informed of the intensive post-operative treatment period

Resident Selected for Special Course

Dr. Barbara Hook, Resident in the College's Department of Veterinary Anatomy-Physiology, was one of 24 graduate students nationwide selected to receive a \$3,000 traineeship to cover tuition costs, room and board for a special course to be held this summer at Massachusetts Institute of Technology. Dr. Hook is among 50 students participating in the 10-week-long course, Principles of Toxicology.

The purpose of this course is to expand the training of scientists and engineers in the science of hazardous substances, and the course is partially sponsored by the Environmental Protection Agency.

Dr. Hook is currently specializing in toxicology studies in her residency program. She received her DVM degree from UMC in 1978. She is a native of Mexico, Missouri.



Help Is Appreciated

Drs. A. W. Dobson (L) and J. T. McGinity (R) presented to Mr. Dorsey Martin (C) a certificate of appreciation for the cooperation and assistance he gave the College in instructing students in the Herd Health Block. This presentation, made April 19, was the first of 16 certificates given to various private individuals, veterinarians, and businesses as a way of thanking them for help in teaching third and fourth year students of the College.

Mr. Martin is a pork producer who lives just south of Columbia. For several years he has shown veterinary students his farm and has talked with them concerning his methods of management.

required prior to deciding on surgery. A four to six week treatment period should be anticipated with topical medication being used frequently. In addition, possible post-operative complications should be discussed that include corneal edema, uveitis with extensive synechiae, vitreous strands, iris bombe with secondary glaucoma, intraocular hemorrhage, and secondary cataract formation.

Most important, the practitioner can accurately advise the client about the likelihood of success with cataract surgery on a given canine patient. To best advise the client, the practitioner must stress the value of a thorough preoperative evaluation of the patient. By making this evaluation, potentially serious complications may be

avoided as well as unnecessary risks. Cataract extraction should be done only for the blind animal with a favorable evaluation. For this type of patient, surgery should restore some degree of sight.

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Veterinary Medical Review

College of Veterinary Medicine
and Cooperative Extension Service

Editor: Barry L. Siler, W-205 Veterinary Medicine Bldg.,
College of Veterinary Medicine, University of Missouri, Columbia, MO 65211

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