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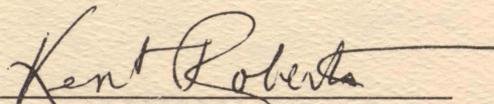
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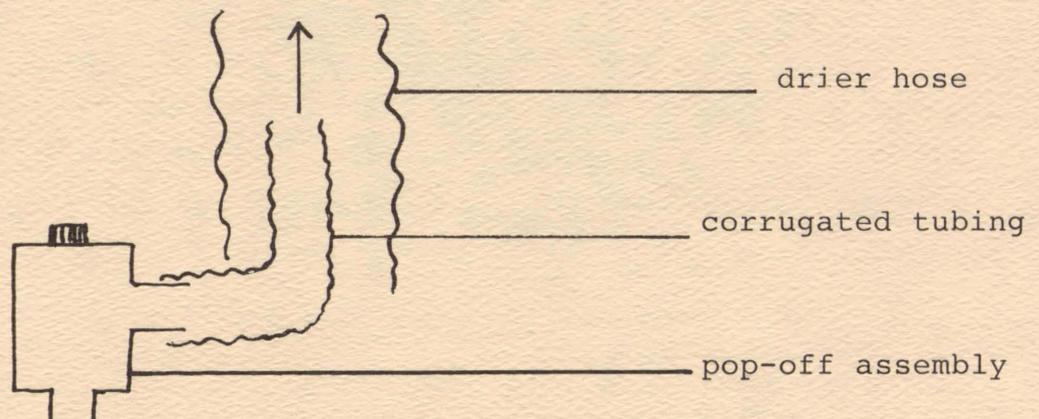

 Kent C. Roberts, DVM
 Extension Veterinarian

SAFE ANESTHETIC PRACTICE - SCAVENGING SYSTEMS

In addition to anesthetic practices that reduce exposure to waste anesthetic gases such as regularly maintaining equipment, minimizing chamber and mask inductions, and educating personnel with regard to risk and prevention, the installation of scavenging equipment can significantly reduce operating room contamination. Gases leaving the patient circuit by way of the pop-off valve should be collected and evacuated from the room. Most anesthetic circuits and ventilators have overflow ports on the pop-off mechanism which can be easily connected to some type of conduit for elimination from the room. Several options can be used to remove waste anesthetic gases from the collection system.

1. Activated charcoal absorbers remove halogenated anesthetic gases, but not N_2O . Their chief advantage is that they require no alteration to the existing building. On the down side, they have a short functional life, and are relatively expensive.
2. Passive systems provide a pathway from the collection system to a point outside the building. The conduit may be run through the space above a suspended ceiling, or out a window in an exterior wall. The conduit should be checked frequently for obstructions.
3. In some locations, the waste has may be delivered through the conduit to existing air conditioning ductwork and vented from the building. The air conditioning system must be non-recirculating and must vent directly out of the building.
4. Finally, a specifically designated system for anesthetic has scavenging may be employed. These utilize a fan or suction pump to assist gas movement through the conduit. These systems are most often utilized in locations that are remote from exterior walls. Interface valves that regulate the amount of suction applied to the circuit must be used with these systems in order to protect the patient from pressure fluctuations.

The diagram below represents a simple scavenging device that can be constructed by connecting a length of corrugated tubing to the overflow port of the pop-off valve. This tubing can be run through a large drier hose, which is run out of the room or building. No interface is required unless a fan is placed at the exterior end of the drier hose. --M. Holland, DVM, DACVA, VA-MD Regional College of Veterinary Medicine, Blacksburg, VA.



CATARACTS AND CATARACT SURGERY

With the steadily increasing average ages of pets and the pet-owning population and continuing improvements in human eye care and public awareness, questions about cataract surgery are being asked of veterinarians more and more frequently. This has also resulted from improvements in veterinary care for older pets (the population most frequently afflicted with cataracts) and the natural human tendency to want the same care for our pets that we expect for ourselves. There are, however, some important differences between dogs and people.

To begin with, the definition of cataract as it applies to clinical diagnosis is different. We all agree that a cataract is an opacity of the normally optically clear lens. In human medicine, a lens is considered cataractous when its nucleus becomes dense enough to scatter a portion of the incident light and appears translucent. This normal aging change or "nuclear sclerosis" restricts the pliability of the lens and interferes with accommodation or variation in focus of the lens. This causes loss of the ability to focus clearly on close objects and fine print. Human patients with nuclear sclerosis (or "sclerotic cataracts") are considered candidates for cataract surgery (lens removal) even though they are still able to see well enough to get around. In veterinary ophthalmology, these normal aging changes are not considered sufficient to warrant any treatment. The less refined visual needs of our patients and the relatively much greater risks in canine lens extraction will probably dictate that position will remain constant for a long time. Canine cataract surgery is generally reserved for patients with significant visual impairment. This is usually recognized as loss of the ability to navigate easily in unfamiliar surroundings. Besides bilateral visual impairment, several other factors are evaluated when considering a potential candidate for cataract surgery.

General health of the patient should be good. Since cataract surgery is an elective procedure, every effort is made to accurately assess the anesthetic risk and weigh that risk against the possible benefits of restored vision. Vaccinations, heartworm preventive programs, and routine maintenance procedures like dentistry, ear cleaning and grooming should be updated before referral. Pre-existing medical conditions should be controlled, particularly regulation of diabetes mellitus and resolution of chronic bacterial problems like prostatitis, periodontitis, and pyoderma. This is vital since the drug regimens used to control postoperative uveitis could exacerbate these problems.

Patient disposition and client willingness to provide aftercare (including repeated visits to the ophthalmology clinic if complications occur) should also be assessed. Vicious or hyperexcitable dogs are poor candidates for cataract surgery because they are difficult to treat and often experience complications like intraocular hemorrhage, disruption of the suture line, or retinal detachment during early post-op struggles. If the client is unable or unwilling to administer topical treatment (2 and sometimes 4 different eye drop solutions) four times a day, surgery is not recommended. Although it is usually anticipated that the frequency of topical medication will be decreased to twice daily after the first two weeks, frequent topical treatment may be required for extended periods if post-operative uveitis is severe. Clients must accept this possibility and the subsequent responsibility.

The presence of other coexisting eye problems may also contraindicate cataract surgery. Retinal atrophy, which can be diagnosed definitively by electroretinography, is the most common ophthalmic condition causing rejection of dogs as surgical candidates. The pupillary light reflexes serve as a crude indicator of retinal function. The presence of uveitis prior to surgery decreases the

success rate dramatically. If uveitis is diagnosed, it must be well controlled before surgery is considered. Corneal ulceration and conjunctivitis should be treated and rendered inactive. Conformational faults like entropion, ectropion, and distichiasis also increase the risk of post-operative complications.

In addition to educating clients about canine cataract surgery, veterinarians must often correct popular misconceptions about the procedures that may be used to treat their pets. Clients often ask about the possibility of "laser surgery for cataracts". While ophthalmic and surgical lasers are being increasingly used for treatment of numerous eye diseases (including glaucoma, intraocular scar formation, posterior lens capsule opacities after cataract removal, and retinal hemorrhages and detachments), there is in fact no such thing as laser cataract surgery in veterinary or human medicine.

Success rates in canine cataract surgery are around 80%. Length of hospital stay varies, but averages 5-7 days. Financial estimates are discussed in advance with the client and usually total \$400-\$500 at the VMRCVM Teaching Hospital. One eye is operated, with the second being considered later only if the first one fails.

In summary, the ideal cataract patient is a healthy, tractable dog with a compliant and cooperative owner. Pre-existing ocular or systemic abnormalities must be controlled or cured prior to intraocular surgery. Normal retinal function, suggested on initial exam by the presence of intact pupillary light reflexes, is confirmed by electroretinography before surgery is performed. --**Kay Schwink, DVM, DACVO; J. Phillip Pickett, DVM, DACVO; VA-MD Regional College of Veterinary Medicine, Blacksburg, VA.**

FELINE CHLAMYDIOSIS

Infections with Chlamydia psittaci should be suspected when upper respiratory disease in cats is characterized by recurrent or persistent follicular conjunctivitis. Rhinitis, an unusual finding, is mild when present. The organism often affects kittens 5 to 12 weeks of age, and may cause neonatal conjunctivitis. Once enzootic in a group of cats, clinical signs may persist in individual cats for several weeks and recurrences are common. The organism has been incriminated in a chronic respiratory disease with a mortality rate of 33% in kittens 10 to 14 days of age. Most upper respiratory disease in cats is due to infections with feline herpesvirus I or feline calicivirus.

Natural immunity to C. psittaci appears to be incomplete and recovered animals have only partial immunity to reinfection. Control of enzootic disease in catteries depends on identification and treatment of all infected cats, and vaccination. Using modified live cells line-origin strains of C. psittaci, available vaccines provide significant but incomplete lasting 1 year or more. U[on challenge, vaccinated cats may show mild signs of short durations, but do not suffer from the protracted disease typical of natural infections in unvaccinated animals.

Because there is little interference from maternal antibodies, the age of vaccination is not critical, and one immunization usually affords protection against severe disease. When chlamydial conjunctivitis occurs in young kittens, vaccination may be initiated as early as 3 weeks of age. --**John R. August, Texan A&M University as reported in Veterinary News, Penn State University, August 1989.**

EQUINE GASTRIC ULCER SYNDROME

The recognition of gastric ulcers in horses ranging in age from neonates to aged horses has increased with the use of a new endoscopic system at the Marion duPont Scott Equine Medical Center. For the past year, the stomachs of more than 200 foals and horses have been examined with the Video-Endoscope system, made by Welch Allyn. The system produces an image of exceptional clarity, which can be observed on a video monitor and recorded for further analysis. The endoscope is 9.5 mm in diameter, and 2 meters in length, and thus can be passed through the nasal passages and into the stomach of a newborn foal, and can reach the stomach of large mature horses. A very bright light source passes through the cope to illuminate the stomach, and a video microchip at the end of the scope records and transmits a video image to a color monitor; the result is a color TV image of remarkable clarity of the interior of the stomach! Endoscopy of the stomach is the only accurate and reliable means of determining whether the lining of the stomach is normal or not.

Several studies, both at the Equine Medical Center and in the field, have been performed or are in progress to determine the prevalence of agastric ulcers in foals and horses of different ages and uses, to determine what the causes and contributing factors may be, and to study the physiology of the equine stomach so that abnormalities resulting in ulcers can better be understood. Results obtained to date have revealed that a high percentage of young foals have stomach ulcers. Fifty-one percent of 72 foals on breeding farms and in the hospital, that had none of the characteristic signs of ulcers, had ulcers in the stomach. The average age of this group of foals was one month. Ulcers have been observed in foals as early as 3 days of age. Overall, 58% of the 108 foals examined by gastroendoscopy in 1987, including normal foals and sick foals, had ulcers. The most typical clinical signs exhibited by the foals with ulcers were 1) diarrhea, 2) poor bodily condition, and a distant 3) colic. It is not known whether the ulcers seen in young foals resolve without treatment, and that will be studied this year.

Another interesting finding has been the number of yearlings and adult horses that have had ulcers. These horses have been examined because of a history of recurrent colic, poor appetite and condition, and/or poor athletic performance. To date, approximately fifty such horses have been examined by endoscopy, and 80% have had stomach ulcers. In most cases, the ulcers were felt to have directly contributed to the bouts of colic, poor appetite and condition, etc. This has been confirmed by a positive response to treatment for the ulcers, in most cases. In a study that is currently in progress, we are examining the stomachs of horses in training for shows, racing and other activities to determine the prevalence of ulcers in normal horses. This information should help to determine the significance of ulcer observed in a horse with a clinical problem, and contributing factors such as diet, training transportation, etc.

The cause of gastric ulcers in foals and horses is not known. Several causes in people are known, but the human stomach is anatomically different than the equine stomach. The lining of the human stomach consists entirely of a glandular tissue, which secretes acid, digestive enzymes, and hormones, as well as mucus and other chemical which protect the lining from damage by the acid. About 40% of the equine stomach is lined by glandular tissue, similar to that in people, but the remaining 60% is lined by a squamous epithelial tissue that structurally is very similar to skin (without the hair, etc). In foals and horses, ulcers occur primarily in the squamous epithelial portion of the stomach,

which is relatively unprotected from the acid. Stress is commonly cited as a cause of ulcers, because it seems to be a factor in human ulcer disease, but the role of stress in the equine gastric ulcer syndrome is unknown. Interestingly, the high percentage of normal young foals observed with gastric ulcers suggests that a factor intrinsic to the physiology of young foals, may be the cause of ulcers in this group.

Treatment of gastric ulcers in horses has been empirical, being based on treatments used in human medicine. Gastric acid secretion probably is involved in the development of ulcers, and treatment has centered on inhibition of acid secretion using drugs which block the activation of acid secretion by histamine (H-2 antagonists). Antihistamine drugs taken for allergies block type 1 receptors, while the H-2 antagonists block type 2 receptors in the stomach, which are responsible for acid secretion. Two drugs currently in widespread use are cimetidine (Tagamet, SK&F Labs Co) and ranitidine (Zantac, Glaxo Inc). Both are available in preparations for oral and i.v. use. Cimetidine must be given 4-6 daily, and ranitidine 2-3 times daily. A minimum dosage of 2 mg/lb for these drugs is recommended to effectively inhibit acid secretion. The daily cost of each drug is approximately \$.20 per pound per day, for the oral forms. The medication should be used for at least 2 weeks, and thus in an adult horse, can cost \$600 for a complete treatment.

Through the use of the video endoscope system, both with clinical cases and in research conducted in the field, the extent of the gastric ulcer problem in horses is being defined. The cause of ulcers in young foals, weanings and yearlings, and mature horses may be different for each group. Research currently in progress, and in the planning stages, is designed to determine the extent and causes(s) of the disorder, so that effective measures for the prevention and treatment of gastric ulcers in horses can be found. --Michael J. Murray, DVM, MS, Diplomate ACVIM, Marion duPont Scott Equine Medical Center, Leesburg, VA.

**CONTINUING EDUCATION OPPORTUNITIES
VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE
CONTINUING EDUCATION PROGRAMS 1989-90**

<u>Date</u>	<u>Program</u>	<u>Location</u>	<u>Contact Hours</u>
November 30	Small Animal Behavior	Charlottesville	6
*December 1-2	Eye/Ear Surgery	Blacksburg	10
*December 8-9	Wound Management/ Reconstructive Surgery	Blacksburg	10
Spring 1990			
*March 16-17	Special Eye Surgery	Blacksburg	10
March 29	Small Animal Medicine Update	Charlottesville	4

*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

SWINE HEALTH EVENTS THE SUBJECT OF NEW STUDY

The Animal Health Monitoring System (NAHMS) is ready to begin its first national survey. NAHMS was launched in 1983 by the Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture (USDA). The program was designed to measure the occurrence and costs of diseases and health conditions in various livestock types and began with pilot projects in 7 States.

The first national survey will focus on swine, specifically farrowing sows and preweaning pigs (from birth to weaning). NAHMS is now field testing its interviewing techniques and data collection forms in preparation for the year-long survey to begin in early 1990. Information will be collected from approximately 1,400 swine operations from 18 States, including Virginia. The farms will be chosen by random sampling to represent the swine population nationwide. NAHMS will collect the information using a combination of daily records and questionnaires. For a 3-month period, each participating producer will be asked to keep daily records of the diseases and conditions occurring in farrowing sows and their litters. In addition to the daily records, each producer will be asked to complete three questionnaires that provide an outline of the facilities, feeds, management, and treatment practices used for all phases of the operations. Questions on labor and operating expenses are also included.

The producers will be given the opportunity to participate in a laboratory subsampling program testing water and blood sera. Once the information has been examined, each producer will be provided with reports that compile the farm's data and outline that national and regional information collected. The data will be used by producers, veterinarians, scientists, pharmaceutical companies, legislators, and others to apply practices and programs that will affect the swine industry in the future.

For more information on NAHMS and the Swine Survey, please write: USDA:APHIS:VS, Animal Health Monitoring System, 555 South Howes, Suite 300, Fort Collins, Colorado 80521 (303) 498-1974. --David Sprecher, DVM, MS; Production Management Medicine, VA-MD Regional College of Veterinary Medicine, Blacksburg, VA.

OBESITY IN DOGS AND CATS: EFFECTS, CAUSES AND TREATMENT

Diabetes, circulatory, locomotion, skin reproduction and neoplastic diseases are 40-74% higher in overweight than optimum wt. dogs. Heat tolerance, exercise, immunity, hepatic and intestinal function are reduced. The overweight pet should be reduced to decrease these problems and future health care costs. Weight reduction is best accomplished by: 1) emphasizing effects of obesity and benefits of weight reduction, 2) giving written instructions, 3) feeding a high-fiber, low-fat, low-calorie diet (Prescription Diet r.d), 4) restricting amount fed to 60% of caloric requirements at optimum wt., 5) feeding nothing else, and 6) recording weight weekly on a graph vs. time. Body weight should decrease 3%/week. --Lewis, LD: XXIII World Veterinary Congress Abstracts as reported in Animal Health Notes, Washington State University, Pullman, WA, Sept. 1989.

OUR CE MOTTO

"Don't be so busy chopping wood that you forget to sharpen the axe"

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