

## New equipment helps veterinarians provide improved care for patients

By Keryn Page



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CVM orthopedic surgeons apply endoscopic techniques to evaluate and repair joint problems in animals.

Photos by Tom Thompson

When Regan's owners brought the 4-month-old golden retriever in, the attending veterinarians knew they had to work quickly to save the puppy's life.

"The puppy was playing outside at her home and suddenly began having severe difficulty breathing. The referring veterinarian sent her here, and when we took X-rays, we saw something round in her windpipe," said Dr. Andrew Mackin, service chief of the Small Animal Internal Medicine Service at Mississippi State University's College of Veterinary Medicine.

Mackin said it was necessary to anesthetize Regan even though doing so is risky in an animal with an airway obstruction.

"We put the bronchoscope down her airway and found, right down where the airway splits in two, this big, round lump of what looked like wood. We were very lucky that we got the snare around the object on the first try and popped it out," Mackin said. "When we pulled it out, we saw that it was an acorn."

Once the acorn was removed, Regan was back to 100 percent.

"Without this scope, there was just no way we could have solved Regan's problem without major chest surgery, which would have been pretty risky and very difficult," Mackin said.

Life-saving emergency rescues are not necessarily typical with endoscopy equipment, but the minimally invasive scopes often enable doctors to diagnose and treat animals without major surgery. MSU's veterinary college recently purchased a number

of new flexible and rigid endoscopes for clinical use, completing the array of scopes necessary for performing both routine and specialized endoscopic procedures.

Scopes often are used to place feeding tubes in cats with hepatic lipidosis, or fatty liver. This severe liver disease used to be almost always fatal because cats would stop eating and eventually starve to death.

"Now, in about five to 10 minutes, we can use the scope to put a feeding tube in the cat's stomach. The tube is very well-tolerated, and the cat can be at home and very happy and active, with the owners feeding via the tube twice a day until the cat's appetite comes back and the fatty liver resolves," Mackin said. "We've saved plenty of cats' lives this way."

These scopes are used to examine the nasal passages, trachea and major airways, esophagus, stomach and much of the small intestine, all of the large intestine and colon, and the urethra and urinary bladder on most dogs and cats. Looking at the inner surface of these various hollow organs and tubes allows Mackin to diagnose foreign bodies, infections, tumors and various inflammatory conditions.

"Looking at the stomach and small intestine with the gastroscope alone, I can diagnose swallowed objects, inflammatory bowel disease, gastric ulcers, stomach tumors and even, on occasion, stomach worms," Mackin said. "As far as treatment goes, I can remove foreign bodies from the nose, airways, stomach and colon—things like stones, sticks, coins and rubber toys."

Another recent case involved a dog that had a sharp bone temporarily stuck in its food pipe, deep in the chest cavity, that created a hole between the food pipe and the lungs. The bone eventually moved on, but a small hole remained.

"Every time the dog ate or drank, food and water would leak from the food pipe into the lungs, and the dog would cough," Mackin explained. "Using a scope in the airways, we found the



The "business end" of an endoscope has light sources and a central channel that allows the introduction of suction tubes, snares and other instruments to perform procedures without using more invasive techniques.

small hole and passed a wire probe through it, from the airway into the food pipe."

Mackin left that probe in place, enabling the surgeon to go in and find the hole. CVM small animal surgeon Dr. Ron McLaughlin then was able to easily locate the hole due to the wire probe left by Mackin, and repair the defect.

McLaughlin said scope technology has revolutionized veterinary medicine because it allows surgeons to see areas that otherwise are difficult to assess. The arthroscope, for example, is used to diagnose and treat joint injuries and disorders.

"The enhanced visualization of joint structures and surfaces leads to greater precision while identifying and treating problems within the joint," McLaughlin said. "In our hospital we use arthroscopy on a daily basis for the diagnosis and treatment of a variety of disorders within the knee, shoulder and elbow of our canine patients. After visualization of these structures, we are able to treat tears within the ligaments or defects within the cartilage surfaces appropriately before stabilizing the joint."

McLaughlin said arthroscopy, combined with computer tomography (CT), has allowed veterinary surgeons the ability to recognize and treat developmental disorders like osteoarthritis before they become debilitating.

The veterinary college also recently began to provide treat-

ment of some small animal abdominal and chest conditions using endoscopic surgical techniques. Laparoscopic surgery for the abdomen and thoroscopic surgery for the chest are primarily available at only a handful of veterinary surgical referral centers throughout the country.

Endoscopes are not just beneficial to small animals. CVM large animal surgeon Dr. Robert Linford said the instruments frequently are used in horses and sometimes cows.

Problems in horses that can require endoscopic diagnosis or treatment include paralysis of muscles that control the opening to the trachea, abnormal growths or tumors in the nasal cavity or sinuses, and fungal lesions. Linford said the endoscope allows veterinarians to evaluate and often treat problems in areas that are difficult to access and treat with conventional surgery. Treatment through the endoscope avoids the trauma and scarring associated with traditional surgical incisions into the sinuses or nasal cavity.

"We recently examined a horse for a bloody nose. The endoscope allowed us to see that the blood originated from a tumor on the ethmoid turbinates, deep within the horse's head. Untreated, such tumors often grow big enough to cut off a horse's ability to breathe," Linford said. "With the endoscope, we were able to detect the problem early and kill the tumor with a 15-minute injection procedure through the scope. The treatment was less painful for the horse, and considerably less expensive than regular surgery."

Cows can have problems when an object lodges in the esophagus, preventing the animal from releasing excess gas from one of its four stomachs. The endoscope is used to see what kind of object is causing the problem and whether it can be pulled out or treated.



Dr. Robert Linford uses an endoscope to evaluate the airways and esophagus of an equine patient.

Besides the obvious benefit of providing better care to patients, the scopes also are used to give veterinary students a real-life experience they otherwise might not have.

"We use the scope to demonstrate what the inside of various parts of the animal looks like, and to teach. In particular, by becoming familiar with the scope, our students, interns and residents can then decide if having a scope will be useful for their practice," Mackin said.

Most specialty practices have scopes, and general practitioners increasingly are buying them. Mackin said the more individual veterinarians start using scopes, the more minimally invasive diagnoses and treatments will become possible.