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Penn First With Veterinary Echocardiography

Alan Atchison
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Penn First with Veterinary Echocardiography

By Alan Atchison

Daphne lay still as ECG electrodes were attached to her paws. The five-year-old border collie with a ventricular septal defect looked around tentatively. Then she relaxed on the specially designed elevated examination table as **Dr. Sharon Huston**, adjunct assistant professor of cardiology, examined her through the cutout underneath the table.

Not long ago, Daphne's exam would have been an invasive procedure. But echocardiography has greatly reduced the need for angiography, a procedure requiring cardiac catheterization and anesthesia. The School has become the first veterinary institution to perform real-time 3-D echocardiography exams using the Philips Sonos 7500, a new technological advancement in the field of cardiology.

By using ultrasound waves, echocardiography can fully and noninvasively diagnose heart conditions in most animals. To date, cardiologists at the School have performed echocardiograms on dogs, cats, horses, cows, and less common species such as ferrets, rabbits, guinea pigs, birds, lizards, camels, alpacas, llamas, tigers, chimpanzees, and squirrel monkeys.

Echocardiograms aid doctors in discriminating between soft-tissue structures and fluid, both within the heart and in the chest cavity. In addition, Doppler echocardiography reveals the direction and velocity of blood flow moving



Photo by Jim Graham

Fe Wright, cardiac imaging technician, and Dr. Sharon Huston illustrate the use of color flow Doppler in targeting an aortic blood flow problem.

in and out of the heart by displaying the data in color or graphically, a very useful tool for evaluating congenital heart defects and acquired abnormalities such as mitral regurgitation. "The acquisition of the Sonos 7500 allows cardiologists to evaluate many cardiac abnormalities such as cardiac masses and cardiac valve abnormalities better than ever before," said **Meg Sleeper, V'93**, assistant professor of cardiology.

"On the screen we see Daphne's heart in real time; its size, shape, and motion. We also see a small hole at the base of the septum," Dr. Huston said. "By adding color flow Doppler, we can immediately map Daphne's turbulent blood flow. In this case, we can see the rapid flow of

blood moving from the left ventricle to the right ventricle through the defect. She also has aortic and pulmonic insufficiencies, meaning the valves are not closing properly and causing a little blood to leak back the wrong direction."

Dr. Huston explained that before Daphne's first echocardiogram, the sound of her heart caused major concern, prompting doctors to place her on exercise restriction. "Upon initial examination with a stethoscope, we heard a loud heart murmur and feared it would lead to complications," she said. "The echocardiogram proved the problem was quite small. Structurally, no therapy was required and the exercise restrictions were lifted." ■