

Atrial Septal Defects in Standard Poodles

Not long after Sonya Gordon, DVM, DVSc, adopted her Standard Poodle Tiger, she began referring to herself as a "poodle junkie." So it seems fitting that she is now leading a study to sort out a health problem she stumbled upon in Tiger's family. "I have a vested interest in healthy Standard Poodles," she says. "I'll never live without one."

As a veterinary cardiologist, Dr. Gordon was able to care for Tiger herself when she discovered he had a heart problem. Tiger's breeder became concerned, however, because Dr. Gordon had found a different heart condition--a hole between the upper chambers of the heart--in one of Tiger's aunts after detecting that she had a heart murmur. Worried that heart problems might run in her line, the breeder contacted owners to whom she had sold dogs and brought as many related dogs as she could for heart screening at Texas A&M University.

"The breeder was amazing, so very dedicated and a big reason why we now know this is a more widespread problem," Dr. Gordon says. She initially evaluated 23 related dogs, finding that nine had the hole, called atrial septal defect (ASD), between their upper heart chambers. Three had symptoms of heart failure. Dr. Gordon and her team at Texas A&M reported these findings at the 2006 meeting of the American College of Veterinary Internal Medicine. Since then, they have learned of Standard-Poodle ASD cases in other parts of the country and Canada, none in dogs closely related to the initial family examined. "When we see this showing up around the country," Dr. Gordon says, "we get concerned that it may be quite common."

Atrial septal defects are a relatively rare congenital heart malformation in dogs. Breeds considered at increased risk for ASD are Boxer, Doberman Pinscher, Samoyed and Newfoundland. Although one case of ASD was reported in a Standard Poodle, Dr. Gordon's findings are the first to suggest that ASD may be a problem in this breed. All poodle cases she diagnosed were in dogs between 1 and 7 years old. Although dogs may have no symptoms if the hole is small, signs of ASD might include coughing, trouble breathing, exercise intolerance and possibly collapse or fainting--even death from heart failure.

Dr. Gordon's team has successfully repaired ASD in a number of Standard Poodles using a technique designed to fix the same defect in children. The technique and equipment were adapted to work well in the dog and involve threading a catheter through a large neck vein into the heart and then inserting a device that looks like Oreo cookie halves, fitting the halves against opposite sides of the wall between affected heart chambers, thus sealing the hole. In some cases, the hole is too big for this technique, and open-heart surgery is required to repair the defect.

Because atrial septal defects were present in many dogs of the Standard Poodle family they studied, Dr. Gordon's team joined forces with cardiologist and geneticist Kathryn Meurs, DVM, PhD, of Washington State University, to explore a possible genetic cause. Initial pedigree analysis ruled out an X-linked recessive mode of inheritance, Dr. Gordon notes, because two affected females were able to produce unaffected male dogs. Although ASD appeared in every generation of the family studied, the possible mode of inheritance remains unclear.

"With our current study, we're hoping to identify a genetic test that will allow widespread screening," Dr. Gordon says, "but even if we can't do that, we can find out more about how ASD is passed on and help breeders make informed breeding decisions."

The team has investigated four of the most common genes associated with development of atrial septal defects in humans. These genes were not abnormal in the affected Standard Poodles, but the team will continue to explore possible inheritance similarities as more discoveries are made for humans with this defect.

The researchers currently are using the most recent genomic technology to analyze DNA from affected dogs and their relatives. Dr. Gordon would appreciate hearing from owners or their veterinary cardiologists if they have a Standard Poodle with suspected or confirmed ASD. She can be contacted at sgordon@cvm.tamu.edu (please put standard poodle in the subject line).

Pending further research results, Dr. Gordon and the PCA Foundation recommend echocardiogram screening for ASD as a part of pre-breeding health testing for Standard Poodles.

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