Vet Develops Implant to Treat Dog Eye Diseases

The biodegradable implant is designed to replace frequent eye drops.

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Sinisa Grozdanic, DVM, an assistant professor of veterinary clinical sciences at Iowa State University's College of Veterinary Medicine, has developed a new treatment method for canine eye diseases. One that is said to be more effective and reliable than using eye drops.

It involves implanting biodegradable medicine into the tissue surrounding a dog's eye, a process that takes just a few minutes and is done with local anesthetic. The medicine releases gradually and treats the infected eye for about a year.

This is the first time the procedure has been tried to improve auto-immune corneal diseases that can cause pain, redness, inflammation, and other eye problems for canines.

Specifically, Dr. Grozdanic has been looking at how the procedure treats pannus, an inflammation of the corneal surface of the eye and the conjunctiva; keratoconjunctivitis sicca, also known as dry eye; and pigmentary keratitis, an inflammatory condition of the cornea characterized by abnormal pigmentation.

Grozdanic said the drug application is designed to replace eye drops, which are often needed several times a day to treat the above listed conditions. Problems associated with eye drops include the length of time the drug is therapeutically active, missed doses, and not getting all the medicine into a dog's eye.

"It's a hassle for the owner to get the drops in," he said. "It is a hassle for the dog as well. With this new method, you don't miss a dose. And it works for 24 hours for an entire year."

Grozdanic has been working on the procedure with Israel-based Nicast Ltd. for almost three years. The company, which makes the polymer, calls the technology electrospinning. In making the implant, the drug is mixed with a polymer and formed into ultra-fine fibers.

"From the fibers, a fabric is created, from which numerous medical devices, including drug-release devices, can be fashioned," said Benjamin Eliason, chief executive officer of Nicast. "Various drugs can be incorporated into or onto the polymer fibers, or encapsulated inside miniature electrospun polymer capsules, and released inside the body over time."

Grozdanic has used the new method on six dogs, who all had been non-responsive to other treatments. He said he has seen positive results.

The next step is developing a polymer device that lasts longer than one year, perhaps three or four years, he said.

Grozdanic hopes the procedure will gain regulatory approval within 12 to 18 months.