

**BIOMEDICAL & VETERINARY SCIENCES
GRADUATE PROGRAM**



ANNOUNCES

The Master of Science Seminar and Examination of

Andrew Enders

**“Retrobulbar neurolytic ethanol injection for the
treatment of end-stage canine glaucoma”**

Friday, May 3rd, 2019

10:00 AM

Classroom 100

Bio



Originally from Pasadena, Maryland. Achieved a bachelor of science degree in animal veterinary sciences from Clemson University. Achieved a doctorate of veterinary medicine from Cornell University. Completed a one-year rotating small animal internship at the Animal Medical Center in New York City. Scheduled to complete a three year residency in veterinary ophthalmology at Virginia-Maryland College of Veterinary Medicine in July 2019.

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Lay Language Abstract

The glaucomas represent a diverse group of blinding and painful diseases associated with elevated intraocular pressure (IOP). Despite advances in the medical and surgical treatment of glaucoma, the long-term prognosis in dogs remains dismal for IOP control, comfort, and globe retention. Blindness and pain are common long-term outcomes, necessitating surgical salvage procedures aimed at restoring patient comfort, including enucleation (eye removal), intrascleral prosthesis, or intravitreal chemical cycloablation. The most commonly performed, effective, and predictable of these options is enucleation, but this requires general anesthesia, a considerable financial investment, risks post-surgical complications, and has a negative psychological impact on some owners.

Retrobulbar neurolytic injections with absolute ethanol have been performed in humans with blind, painful eyes since the early 1900s. Immediate and long lasting pain relief can be achieved from 2 weeks to 2 years after a single injection. The purpose of this study is to determine the safety and efficacy of retrobulbar ethanol injections as a globe-sparing therapeutic option for end-stage glaucoma in dogs.

Nineteen dogs presenting to the VTH ophthalmology service with end-stage glaucoma were enrolled in a prospective, randomized, double-masked clinical trial. Subjects were sedated and administered a retrobulbar injection of ethanol (n=9) or control saline solution (n=10). At specified time points after the procedure, clients assessed their pet's comfort and side effects of the injections via survey. Three weeks later, subjects returned for

enucleation and the level of comfort after the enucleation was assessed at identical post-procedure time points and compared to that achieved with retrobulbar ethanol injection or control solution.

Retrobulbar neurolytic ethanol injections did not significantly improve comfort compared to control group sham treatment or provide more comfort than enucleation. Retrobulbar ethanol injections did not significantly lower IOP, but did significantly elevate corneal touch threshold in treated patients.

There was a trend towards lower tear production in eyes receiving retrobulbar ethanol injections. Retrobulbar ethanol injections were safe, well tolerated, and no differences in client satisfaction with participation in the study were noted in either injection group. Further investigation is warranted to determine the optimal volume of retrobulbar ethanol to provide analgesia for patients with end-stage glaucoma as well as to determine the duration of clinical effect of these injections.

Publications

Enders A, Donovan T, van der Woerd A. What's your Diagnosis? Intraocular osseous metaplasia in a rabbit. *Journal of the American Veterinary Medical Association* 2018;253(8):991-994.

Vallone L, **Enders A**, Mohammed H, et al. *In Vivo* Confocal Microscopy of Dogs with Pigmentary Keratitis. *Veterinary Ophthalmology* 2017;20(4):294-303.

Enders A, van der Woerd A, Donovan T. Endogenous mycotic endophthalmitis in a dog with candiduria and Evans syndrome. *Veterinary Ophthalmology* 2017;20(1):84-88.

Presentations

“Photodynamic therapy as an alternative treatment approach to a periocular tumor in a cat.” L. Page, A. Enders, R. Rodriguez. Midwest meeting of Veterinary Ophthalmologists 2019

“Corneal ulcer.” One hour continuing education lecture at the South West Virginia Veterinary Medical Association monthly meeting in Christiansburg, Virginia 2018.

“Corneal ulcer.” One hour continuing education lecture at the Maryland Veterinary Medical Association Summer Conference in Ocean City, Maryland 2018.

“Glaucoma.” One hour continuing education lecture at the Maryland Veterinary Medical Association Summer Conference in Ocean City, Maryland 2018.

“Lens disease and Ask your ophthalmologist.” One hour continuing education lecture at the Maryland Veterinary Medical Association Summer Conference in Ocean City, Maryland 2018.

“Neurolytic retrobulbar ethanol injection for the treatment of end-stage canine glaucoma.” VA-MD College of Veterinary Medicine Resident Seminar Series. 2017

Posters

“Subretinal protothecosis in a dog.” Annual meeting of the American College of Veterinary Pathologists/American Society of Veterinary Clinical Pathologists 2018.

“Clinical and histopathological characteristics of feline diffuse iris melanoma.” Annual meeting of the American College of Veterinary Pathologists/American Society of Veterinary Clinical Pathologists 2018.

“Neurolytic retrobulbar ethanol injection for the treatment of end-stage canine glaucoma.” VA-MD College of Veterinary Medicine 29th Annual Research Symposium 2018

Examination Graduate Committee

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Ian Herring, DVM, MS, DACVO

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