Retrobulbar neurolytic ethanol injections for the treatment of end-stage canine glaucoma

Purpose
To investigate the use of retrobulbar (behind the eye) alcohol (ethanol) injections in dogs with end-stage glaucoma as a treatment option to provide pain relief.

Background
In a healthy eye, fluid is constantly being produced and exiting the eye, which creates a normal pressure system. When the fluid has trouble leaving the eye, it accumulates and pressure in the eye increases above a normal range; this is termed glaucoma and is a painful process. Despite advances in the medical and surgical treatment of glaucoma, the long-term prognosis in dogs remains poor. Blindness and eventual eye removal (enucleation) are common outcomes. Following enucleation, patients almost invariably display marked improvements in comfort.

We are investigating the use of retrobulbar (behind the eye) alcohol (ethanol) injections as a pain-relieving treatment option in dogs with end-stage glaucoma. In this study, we will compare the pain relief provided by this treatment with that achieved by enucleation. We hope that this procedure will serve as a future therapeutic option to provide pain relief in place of eye removal for dogs with end-stage glaucoma.

Eligibility
- Dogs of any age, weight, or breed with refractory, end-stage primary (breed related) glaucoma. Dogs with end-stage glaucoma that have previously undergone cataract surgery or lens extraction are also eligible.

Exclusion
- Historical, systemic, or surgical complications preventing adherence to the study protocol.
- Patients chronically administered systemic pain medications or diagnosed with glaucoma secondary to systemic, ocular, or orbital disease.

Study Design
In this study, dogs presenting to the ophthalmology service with refractory glaucoma (blind eyes with high pressure despite maximal medical therapy) will be enrolled in a prospective, randomized, double-masked clinical trial. Subjects will be sedated and administered a retrobulbar injection of alcohol or control solution. At defined time points after the procedure, clients and the investigating clinician will assess the subject's comfort and potential side effects of the procedure with a survey designed to evaluate behavioral traits considered to reflect the patient's comfort level. Subjects will ultimately return for enucleation (removal of the eye) and the level of comfort after the procedure will again be assessed at defined time points and compared to results achieved with retrobulbar ethanol injection. Overall client satisfaction with each treatment will be assessed at the end of the study. We hypothesize the pain relief achieved with retrobulbar alcohol injections will be equal to standard enucleation. We hope to validate this therapeutic option as an eye-sparing, pain relieving treatment for refractory glaucoma patients; specifically, those patients with comorbidities or who are not healthy enough to undergo anesthesia or clients who would prefer to avoid eye removal for their pet.

Compensation
Costs not covered by the study include the initial examination ($100 for first time patients, $60 for established patients). Costs of anesthesia, hospitalization, and surgery are subsidized, but not completely covered and involve an approximately $400 investment. The cost of medications to go home is not covered by the study, but is included in the $400 estimate.

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