Advanced in vivo imaging of spontaneous chronic corneal epithelial defects (SCCEDs) in Boxers

Rachel V. Brady1, Sara M. Thomasy1, Connor Chang1, & Christopher J. Murphy1,2
1Surgical & Radiological Sciences, School of Veterinary Medicine
2Ophthalmology & Vision Science, School of Medicine, University of California, Davis, Davis, CA

Introduction

• Boxers are overrepresented in the population of dogs affected by spontaneous chronic corneal epithelial defects (SCCEDs), a disease which affects middle-aged to older dogs of all breeds. Dogs diagnosed with SCCED have persistent corneal epithelial ulceration due to loss of the basement membrane and formation of a superficial, acellular hyalinized zone in the anterior stroma. These abnormalities lead to delayed healing and poor epithelial adhesion, causing ocular discomfort and persistence of the defect for weeks to months.

• Advanced in vivo imaging techniques are regularly used in physician-based ophthalmic practice, but are not commonly used to diagnose and manage SCCEDs in veterinary medicine.

• The purpose of this study was to further characterize SCCEDs in Boxers with advanced in vivo ophthalmic imaging techniques.

Methods

• Six unaffected (9.0 ± 2.0 years; 3 castrated males and 3 spayed females) and 10 affected (8.1 ± 1.1 years; 4 castrated males and 6 spayed females) Boxers were examined.

• Prior to imaging, ophthalmic exams were performed and color photographs were taken. Following administration of a sedative, Fourier domain-optical coherence tomography, digital slit lamp biomicroscopy and in vivo confocal biomicroscopy were performed in non-dilated eyes. Fluorescein stain was applied after imaging was complete.

Summary and Future Directions

• Boxers with SCCEDs exhibit differences in corneal morphology in comparison to breed and age-matched control dogs.

• These data will be used to better inform the diagnosis and management of SCCEDs in Boxers.

Acknowledgements

• This study was supported by the National Institutes of Health, and grants NIH K08 EY021142, P30 EY12576, and R01 EY019475.