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clinique vétérinaire

VisionAnimale

Measurement of the retention time of two different carbomer-based ophthalmic gels with Ultrahigh-Resolution Optical Coherence Tomography in anesthetized dogs

A pilot study

VisionAnimale

ECVO

Conflict of Interest

- **Dômes Pharma** supported **study design and statistical analysis**.
- **No financial compensation** was received, and the company had **no influence** on **data collection**, **analysis**, or **interpretation**.

Why Study Retention Time of Ocular Gels?

- Corneal protection during anesthesia is essential
- Carbomer is widely used for ocular surface lubrication
- Hyaluronic acid (HA) may enhance retention
- No previous canine OCT-based kinetic studies

Study Objectives

- **Compare** Ocry-gel (carbomer) vs. Eye Lube Pro (carbomer + HA)
- Measure Central Tear Film Thickness (**CTFT**) over time using SD-OCT
- Evaluate **feasibility** of kinetic OCT measurements in dogs

Materials and Methods: Study Design

- **Eleven client owned dogs** under general anesthesia (non-ophtalmic procedures)
- Randomized **one eye per product**
- **200 µL of each gel** instilled per eye
- **CTFT** measured at T0, T10, T15, T20, T25, T30, T35, T40,T50, T60’

Materials and Methods: Animals

- **Mean Age 6,86 years** (± 4.70 years)
- **Sex distribution** : 6 Males – 5 Females
- **Breed distribution** : 9 different breeds
  - 4 brachycephalic
  - 7 non-brachycephalic

Surgical indication :

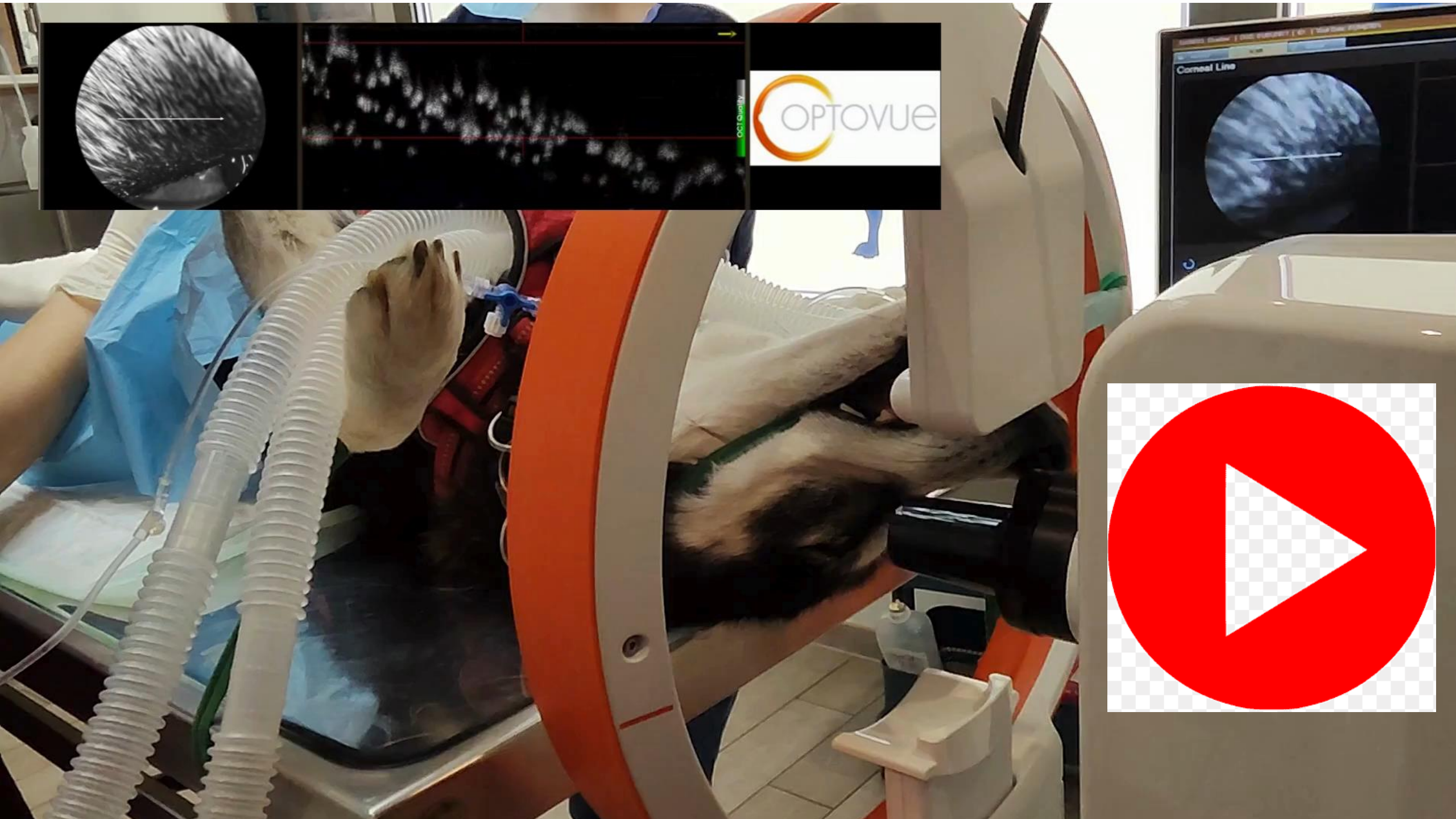
Mass removal: 7 cases (63.6%)

Spay/Neuter: 3 cases (27.3%)

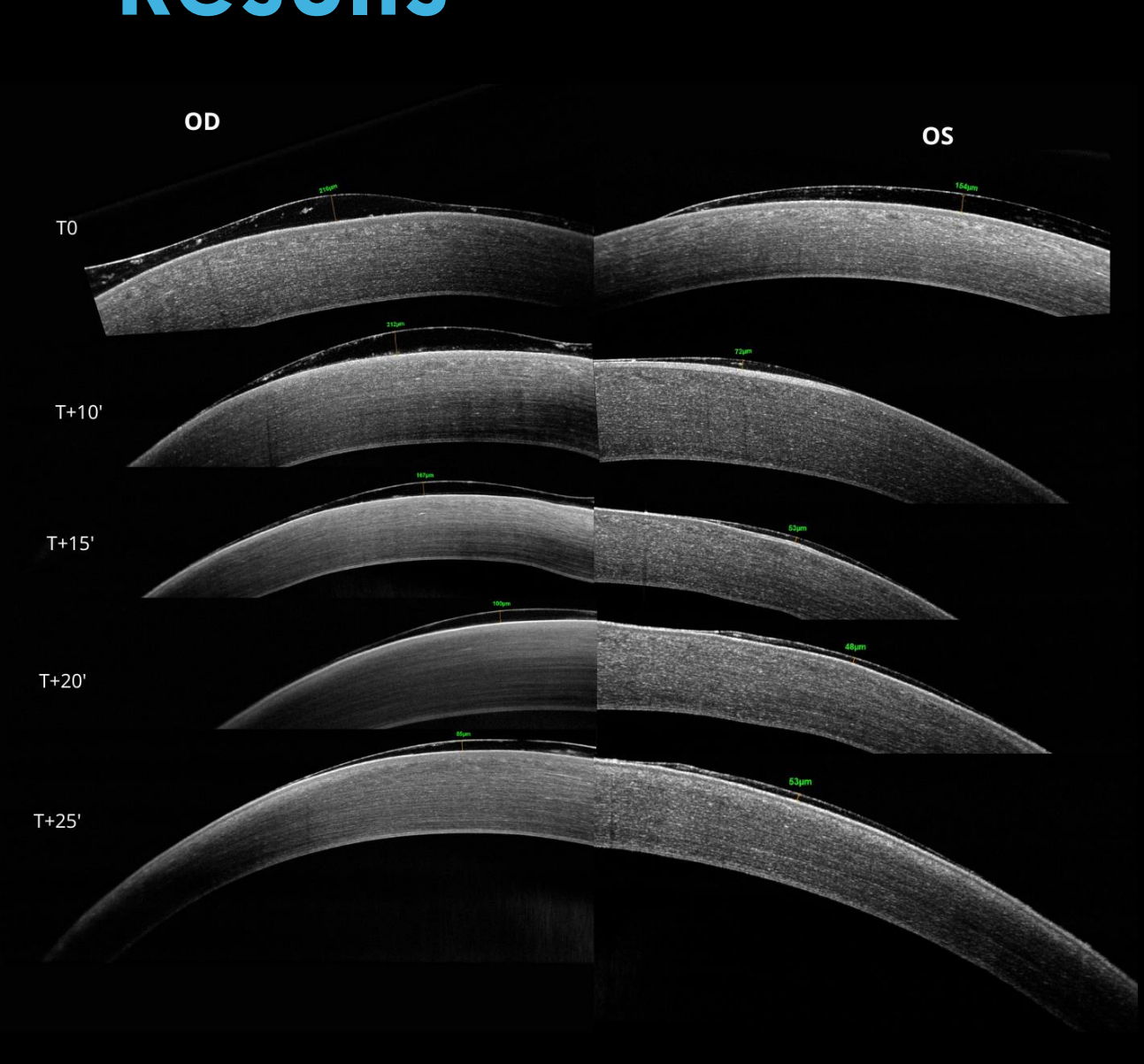
Wound suturing: 1 case (9.1%)

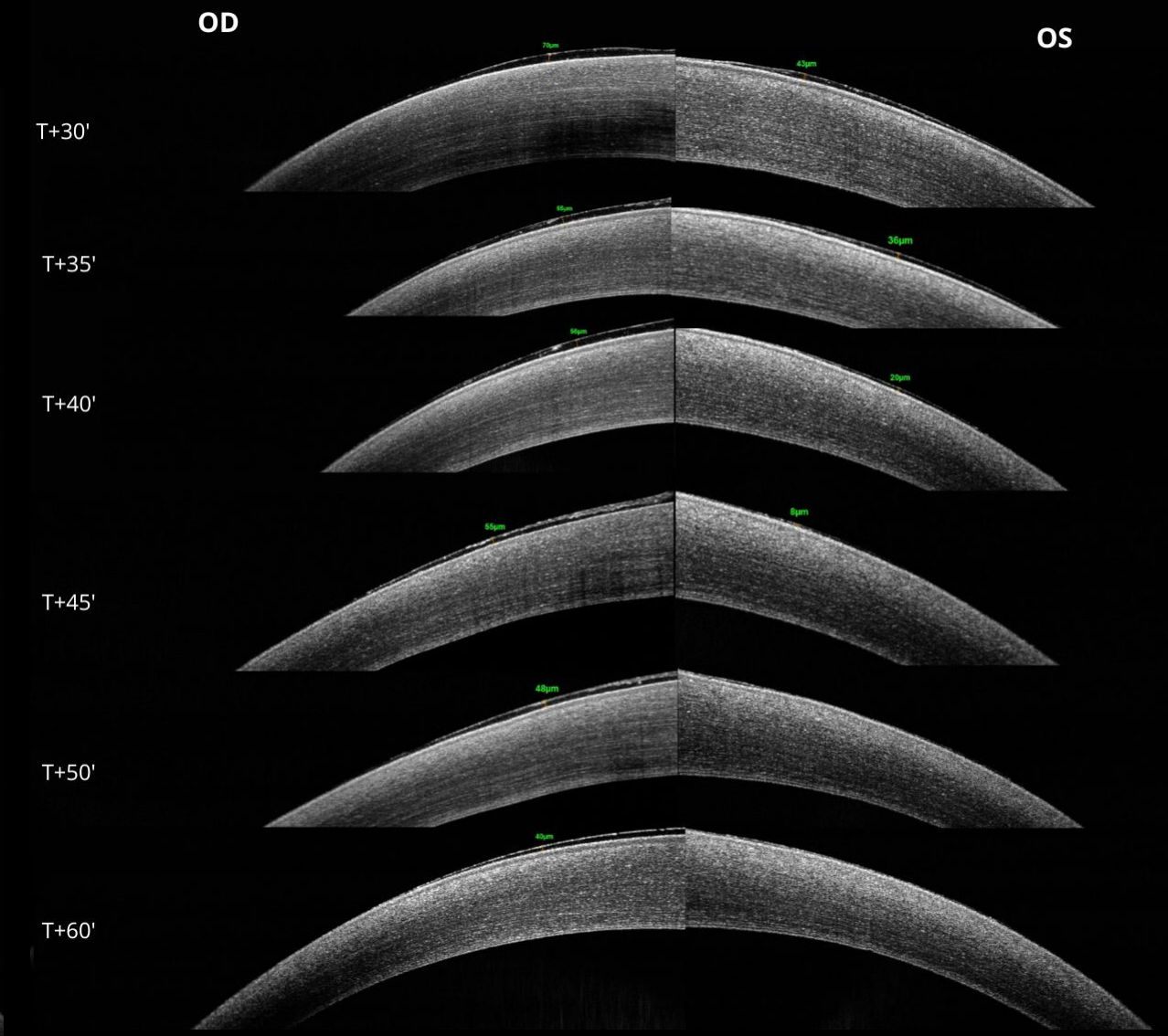
OCT Acquisition Method

- **Device**: Solix SD-OCT (Visionix)
- **Central CTFT**: from corneal epithelium to gel-air interface
- **Standardized** instillation and eyelid closure


OPTOVUE
Corneal Line

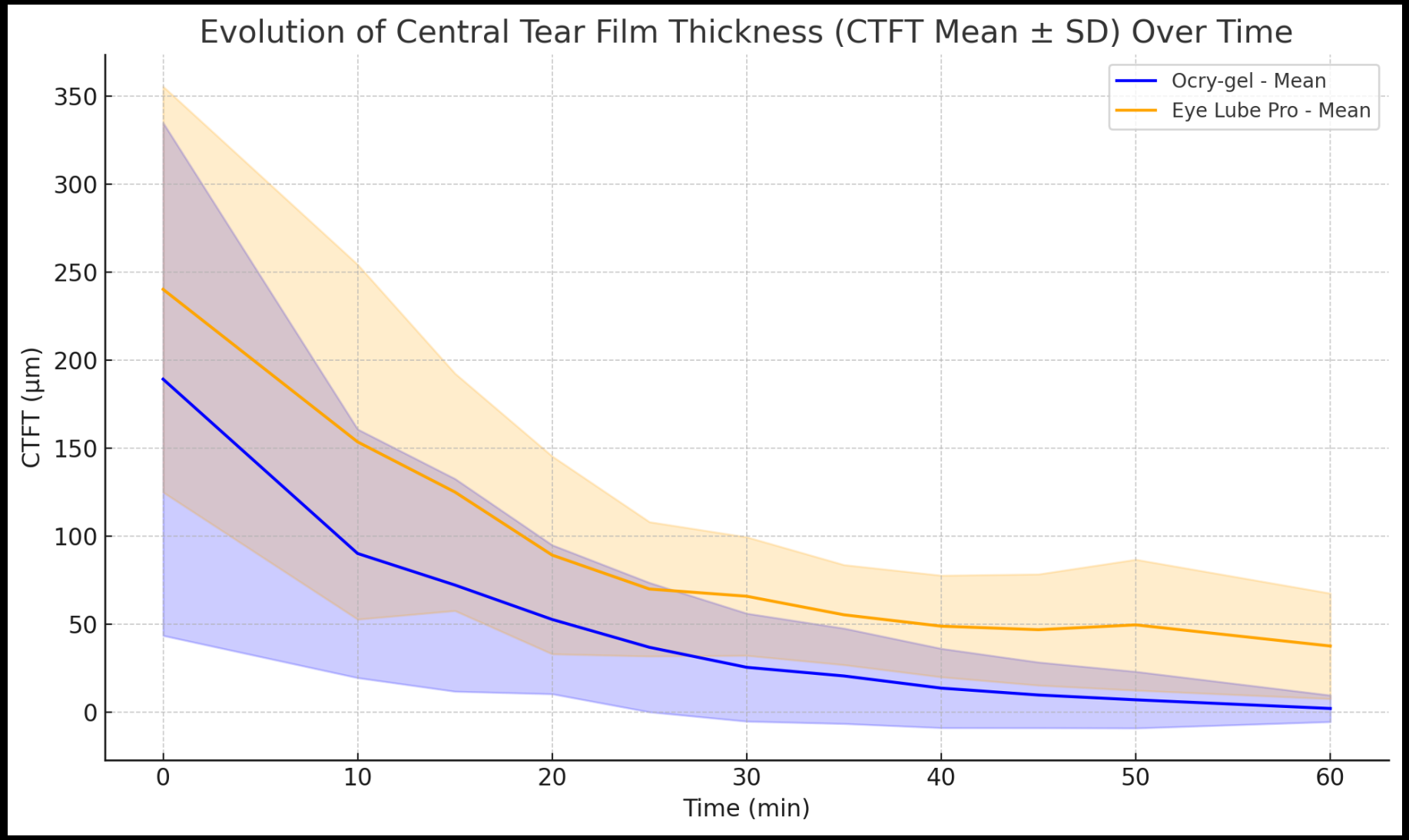
Results



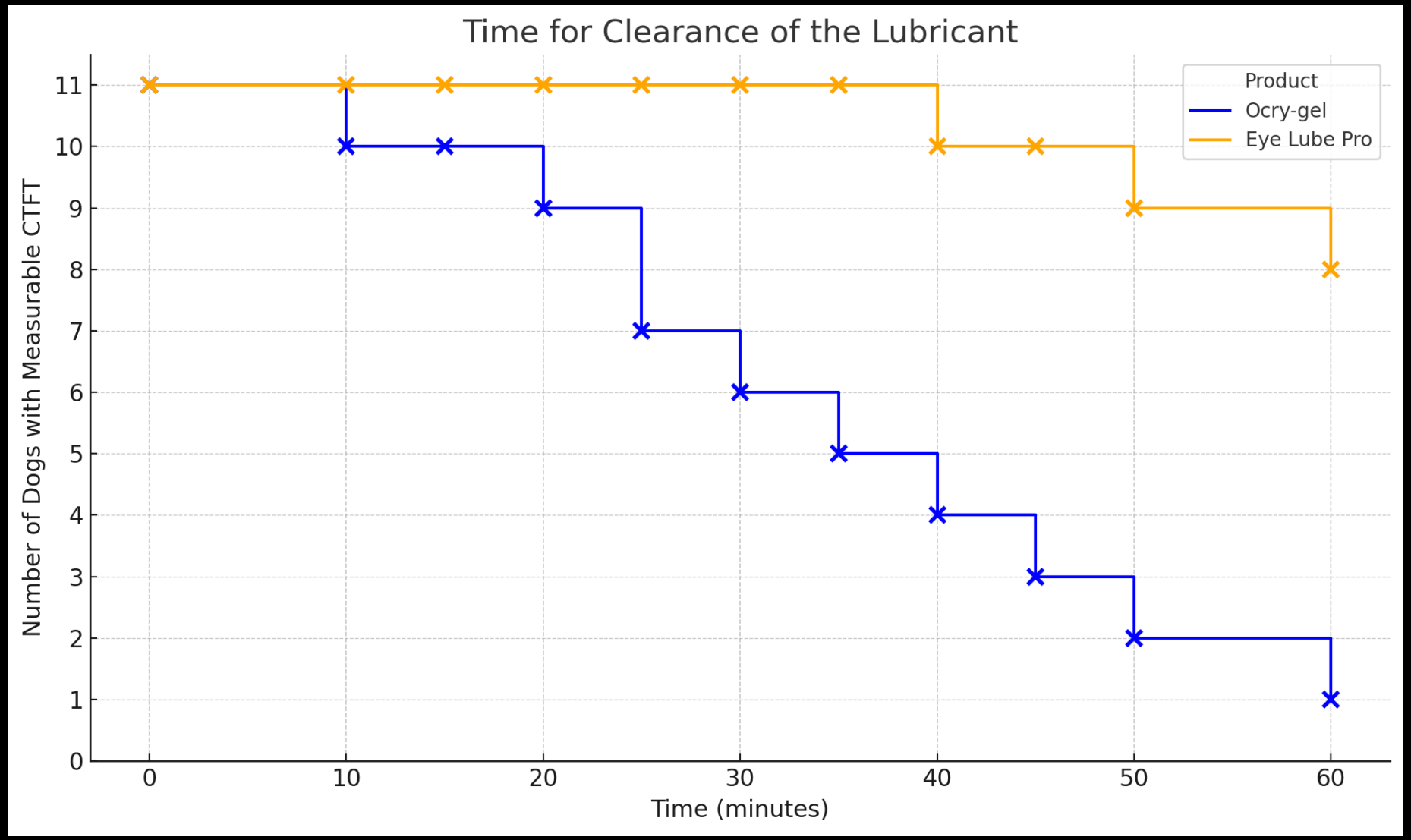



OD
OS
55µm
8µm
T+45'
48µm
T+50'
40µm
T+60'

CTFT Evolution Over Time (n = 11 Dogs)



CTFT Evolution Over Time (n = 11 Dogs)



Statistical Comparison – 11 Dogs

- **Repeated-measures** ANOVA: $p < 0.001$
- Post-hoc tests: **significant at all timepoints** except T0
- No effect of **age**, **sex**, or **skull morphology** ($p > 0.1$)

Discussion

- **Matches** Bedos et al. (2023) **fluorophotometry** results
- **Extends** Gagliano et al. (2017) **human OCT study** to dogs
- HA known for **viscoelastic**, **mucoadhesive retention**

Study limitations

- **Small sample size** (n = 11)
- Anesthesia prevents **blinking**
- OCT **limit of detection**: 5 µm

Conclusion

- Eye Lube Pro retained >5 µm CTFT in 73% of dogs at T60'
- OCT is **reliable** to monitor tear substitute kinetics
- HA addition clearly **improves corneal film stability**

Acknowledgements

DÔMES PHARMA

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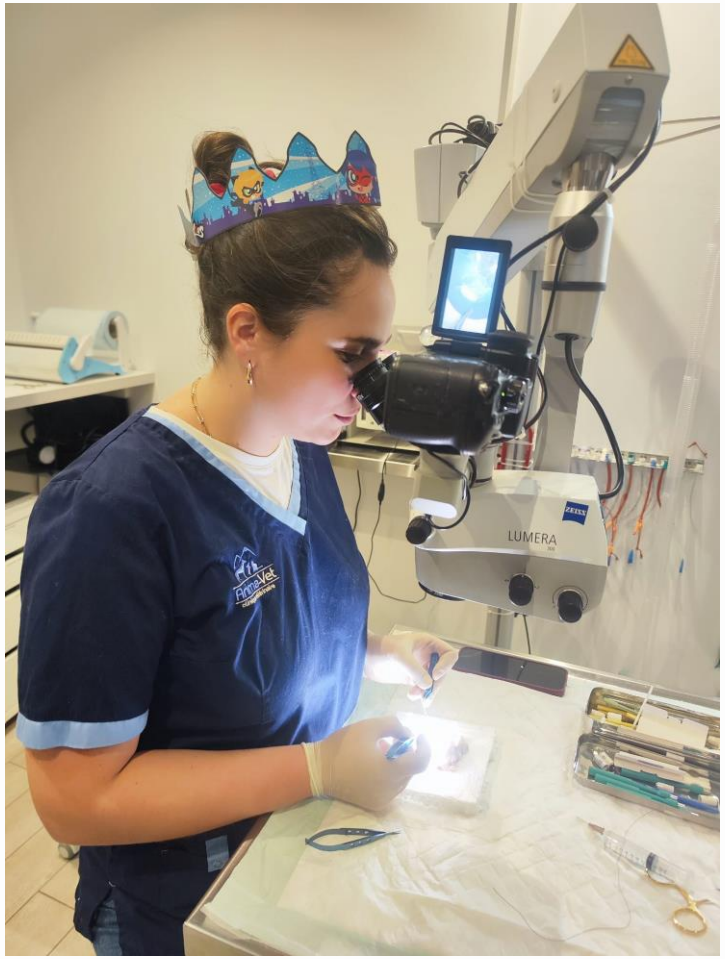
www.anima-vet.fr



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Merci de votre
attention !