Dr.Vet PET CARE By andersen

VETERINARY OPHTHALMOLOGY WEBINAR



OCULAR HYDRATION

Beyond tears:

A PRACTICAL DIAGNOSTIC GUIDE AND THE USE OF NUTRACEUTICALS FOR EVAPORATIVE DRY EYE

- WEDNESDAY, 25 NOVEMBER · 13:00H (SPAIN)



Dr. Laura Gracia Caballero
Veterinary Ophthalmology Specialist

SESSION OVERVIEW

CONTENT

01 About Me

02 Pathophysiology of Dry Eye

03 Etiology of Dry Eye

04 Diagnostic Methods

05 Treatment: Artificial Tears

06 Treatment: Nutraceuticals

07 Clinical Cases

08 Bibliography & Recommended Reading

01 • SPEAKER PROFILE

ABOUT ME

LAURA GRACIA CABALLERO, DVM

Veterinary Ophthalmology Specialist
Dedicated to companion animal ocular surface diagnostics, slit-lamp biomicroscopy, and microsurgery.

Clinical Educator & Keynote Speaker
Translating current ophthalmology evidence into practical, everyday diagnostic protocols for clinicians.

Dr. Vet by andersen Scientific Collaborator
Advancing evidence-based nutraceutical medicine for evaporative dry eye and tear film homeostasis.

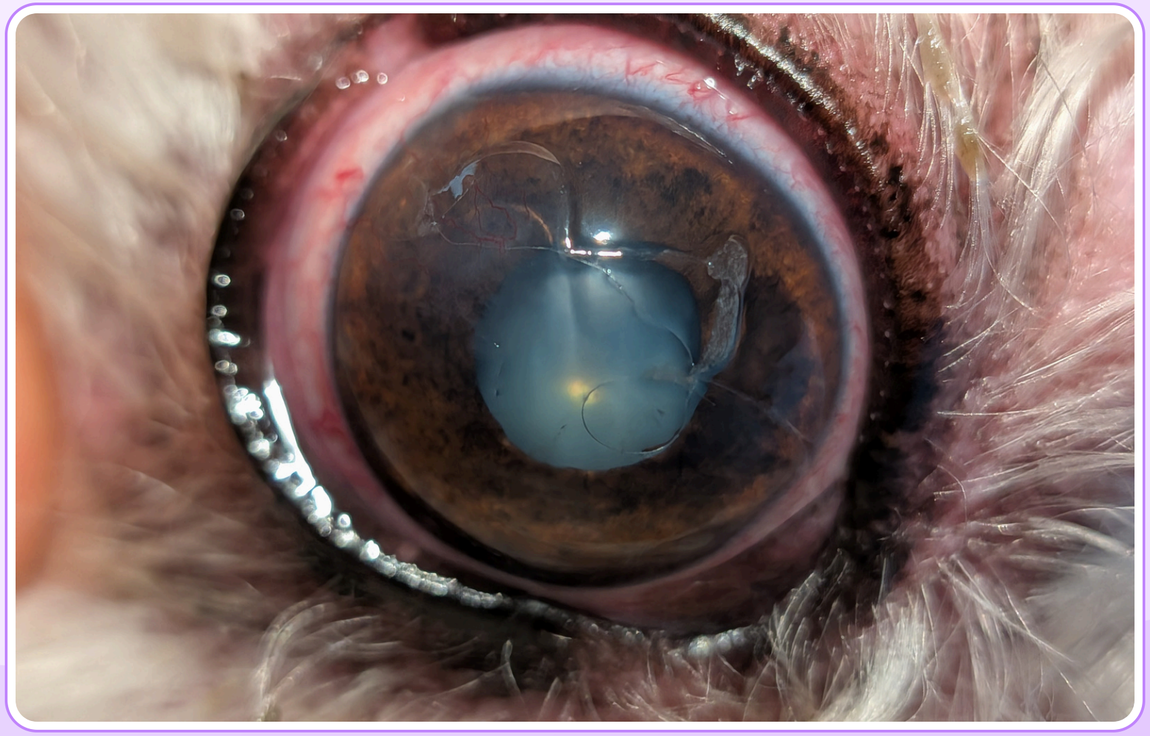


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SECTION 02

PATHOPHYSIOLOGY OF DRY EYE





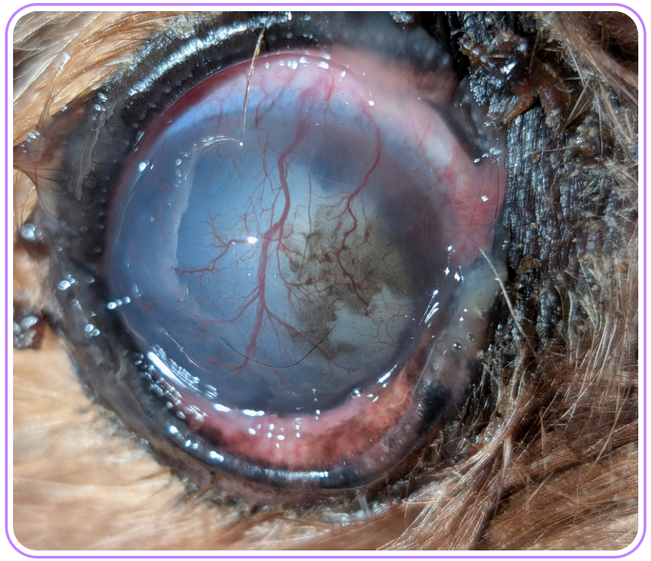
PATHOPHYSIOLOGY OF DRY EYE

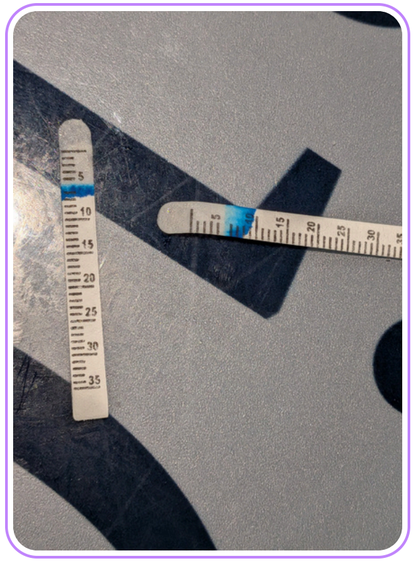
DRY EYE DISEASE

Dry eye disease is a complex, multifactorial condition characterized by chronic irritation of the ocular surface caused by insufficient aqueous secretion, insufficient lipid or mucin secretion, or both.

AQUEOUS DEFICIENT

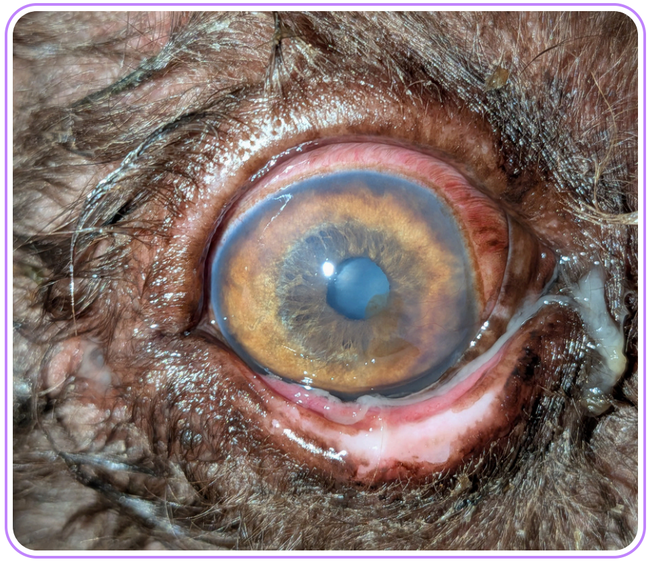
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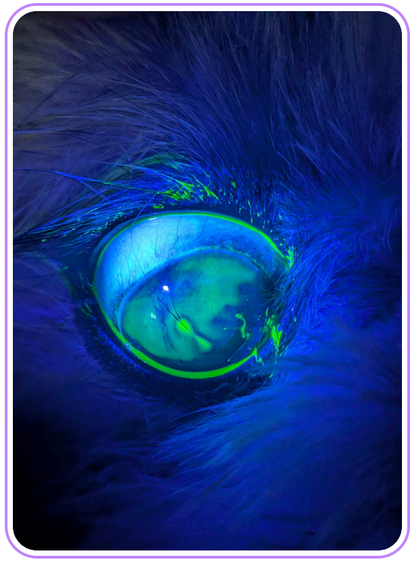




EVAPORATIVE DRY EYE

QUALITATIVE



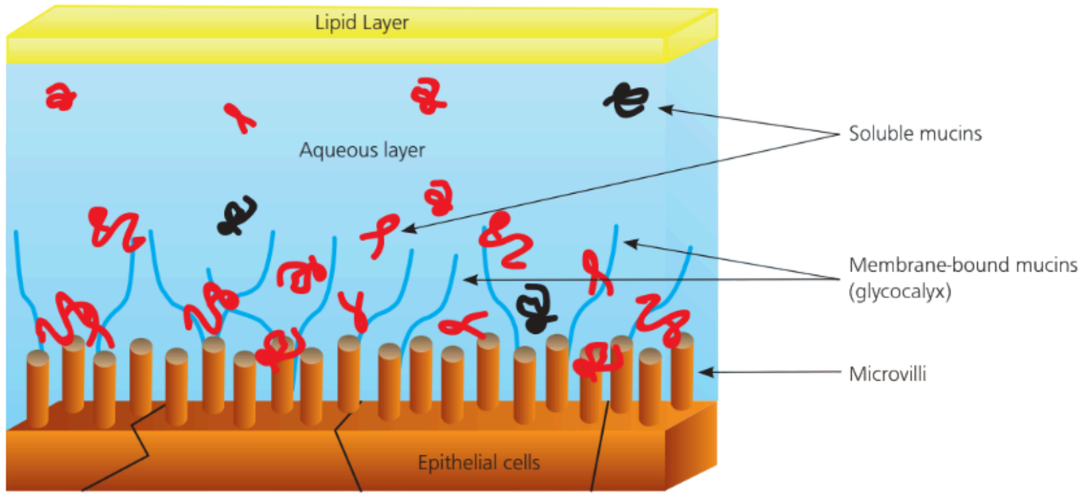


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PATHOPHYSIOLOGY OF DRY EYE

TEAR FILM ARCHITECTURE & DED TYPES

PRECORNEAL TEAR FILM STRUCTURE



TEAR FILM CHANGES: HEALTHY, EDED, ADDE & MIXED DED

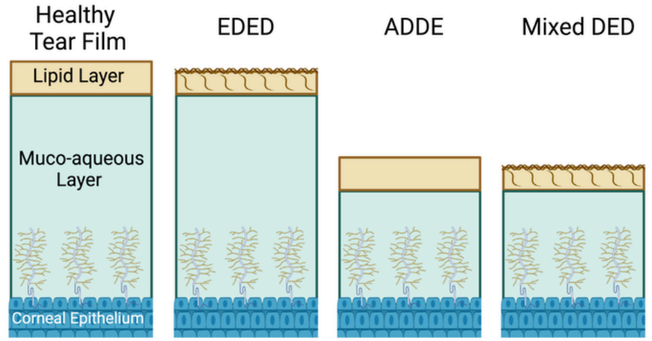


FIGURE 1 Schematic representation of the changes to the tear film in EDED and ADDE. The healthy tear film is represented with approximations for the thicknesses of the layers of the tear film, the muco-aqueous layer, and the lipid layer. Patients with EDED typically have a heterogenous lipid layer, leading to decreased tear film stability (depicted by the waves in the diagram), which may be thinner. However, a thin tear film in the absence of lipid abnormalities that induce tear film instability does not necessarily lead to clinical signs of EDED.[5] In patients with ADDE, the aqueous component of the tear film is severely depleted, leading to clinical signs of disease. Additionally, patients can have mixed conditions in which they have a lipid layer with an altered composition and a decrease in the aqueous component, further confounding the diagnosis.

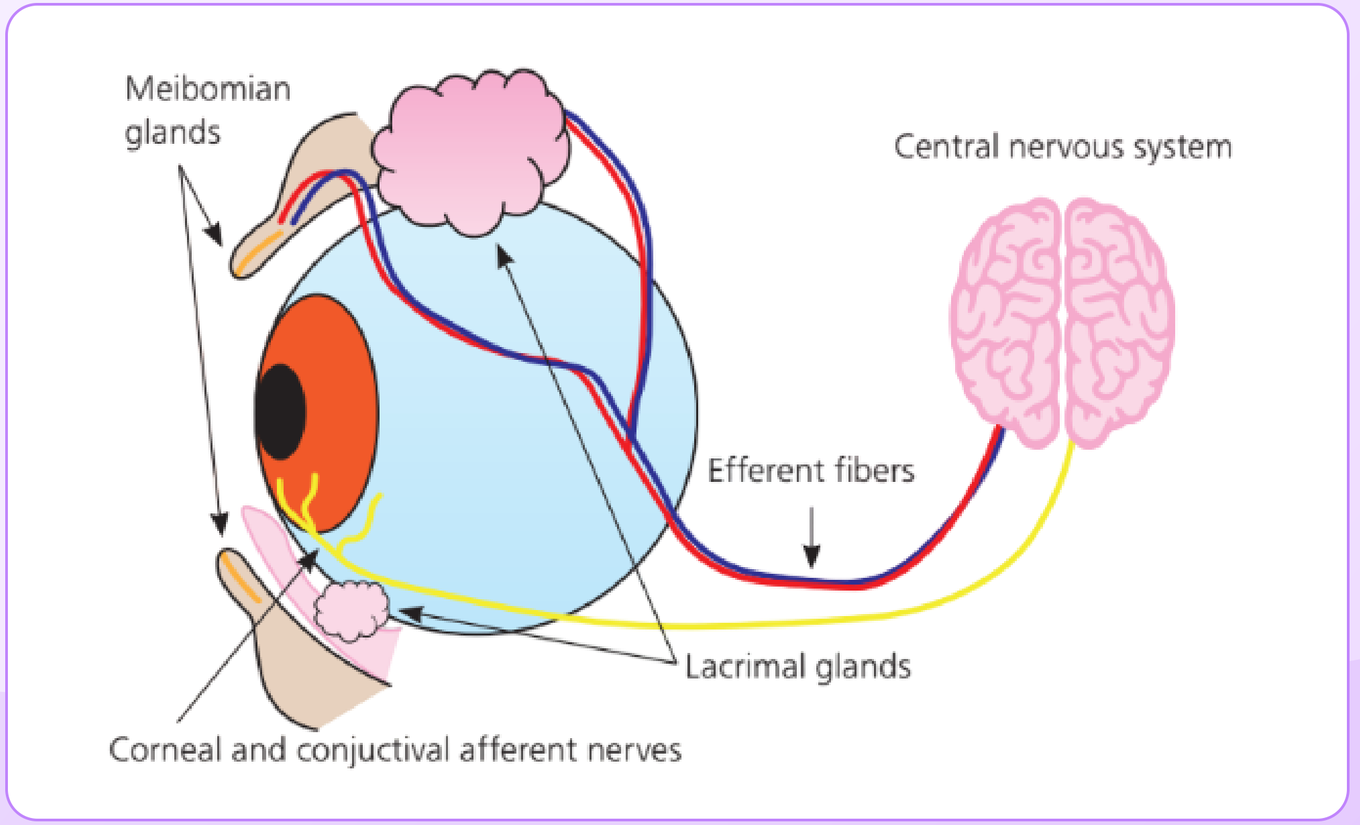
Sources: Maggio F. Companion Animal (2019) • Hisey EA, Galor A, Leonard BC. Vet Ophthalmol (2023)

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PATHOPHYSIOLOGY OF DRY EYE

LACRIMAL FUNCTIONAL UNIT

- Cornea
- Conjunctiva
- Eyelids: Meibomian glands & proper blinking
- Lacrimal glands: main and accessory
- Corneal sensitivity
- Ocular innervation: facial & trigeminal nerves



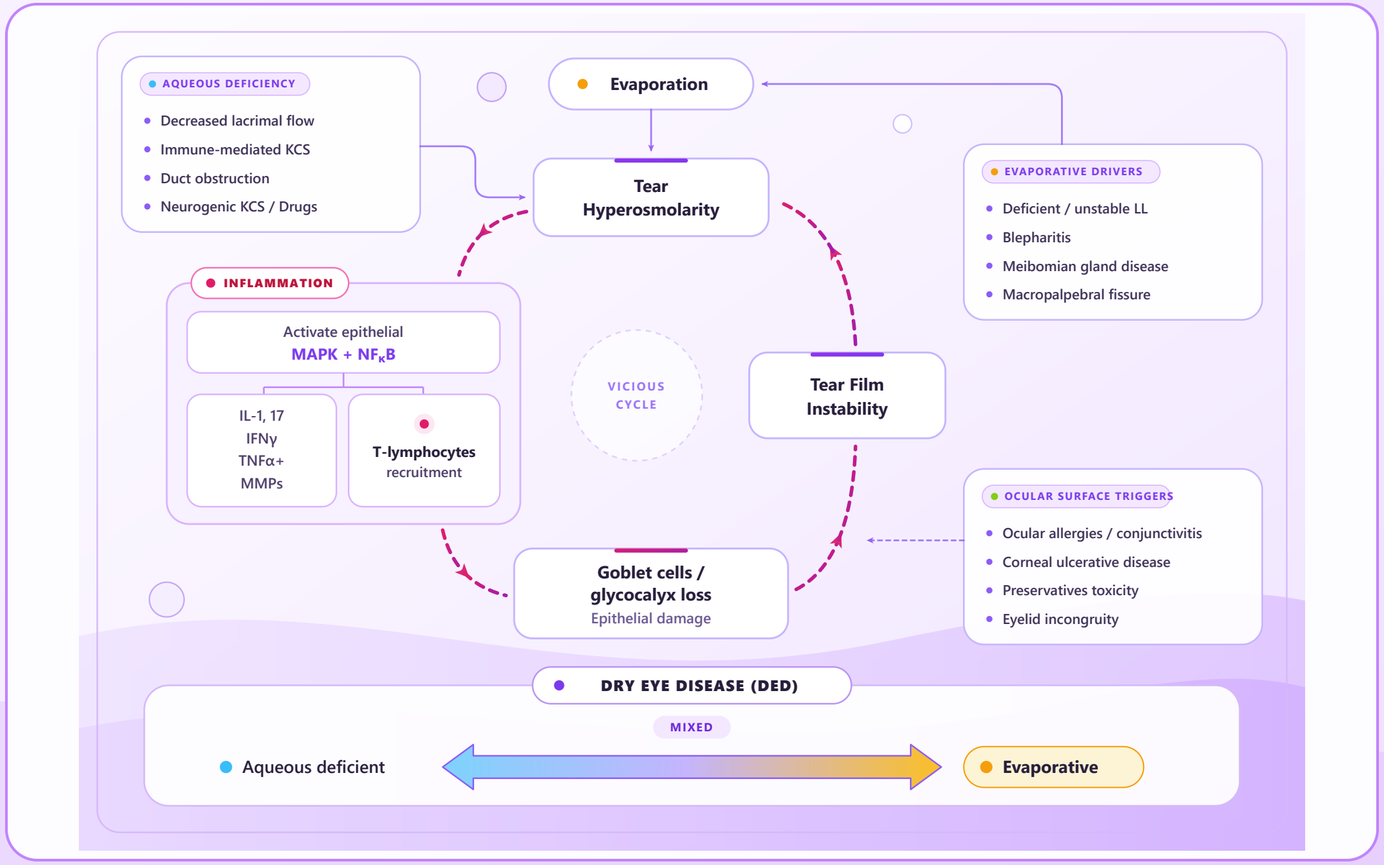
Source: Maggio F. Ocular surface disease in dogs part 1. Companion Animal, 24(5), 2019

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PATHOPHYSIOLOGY OF DRY EYE

THE VICIOUS CIRCLE OF DRY EYE DISEASE







Source: Maggio F. Ocular surface disease in dogs part 1. Companion Animal, 24(5), 2019

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SECTION 03

ETIOLOGY OF DRY EYE



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MEIBOMIAN GLAND DYSFUNCTION (MGD)

Meibomian gland dysfunction (MGD) is a multifactorial condition most commonly described by four hallmark pathological changes affecting lipid layer stability:

01

Orifice Obstruction & Metaplasia

Terminal duct keratinization and plugging block the normal delivery of meibum onto the eyelid margin.

02

Altered Meibum Lipid Profile

Quantitative reduction and qualitative changes in meibum viscosity destabilize the outer tear film lipid layer.

03

Cystic Duct Dilatation

Increased intraductal pressure behind obstructed orifices leads to progressive dilatation of the central duct.

04

Acinar Atrophy & Gland Dropout

Chronic stasis causes degeneration of secretory acini, visible clinically as meibomian gland dropout.

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MACROSCOPIC FEATURES

01

TEAR ASPECT

Evaluate tear meniscus height, mucoid debris, foaming, and abnormal ocular surface discharge.

02

MEIBOMIAN GLANDS

Inspect eyelid margin regularity, gland orifice plugging, retroplacement, and secretion quality.

03

LIGHT REFLECTION

Assess corneal specular light reflex crispness to detect rapid evaporation and surface irregularity.

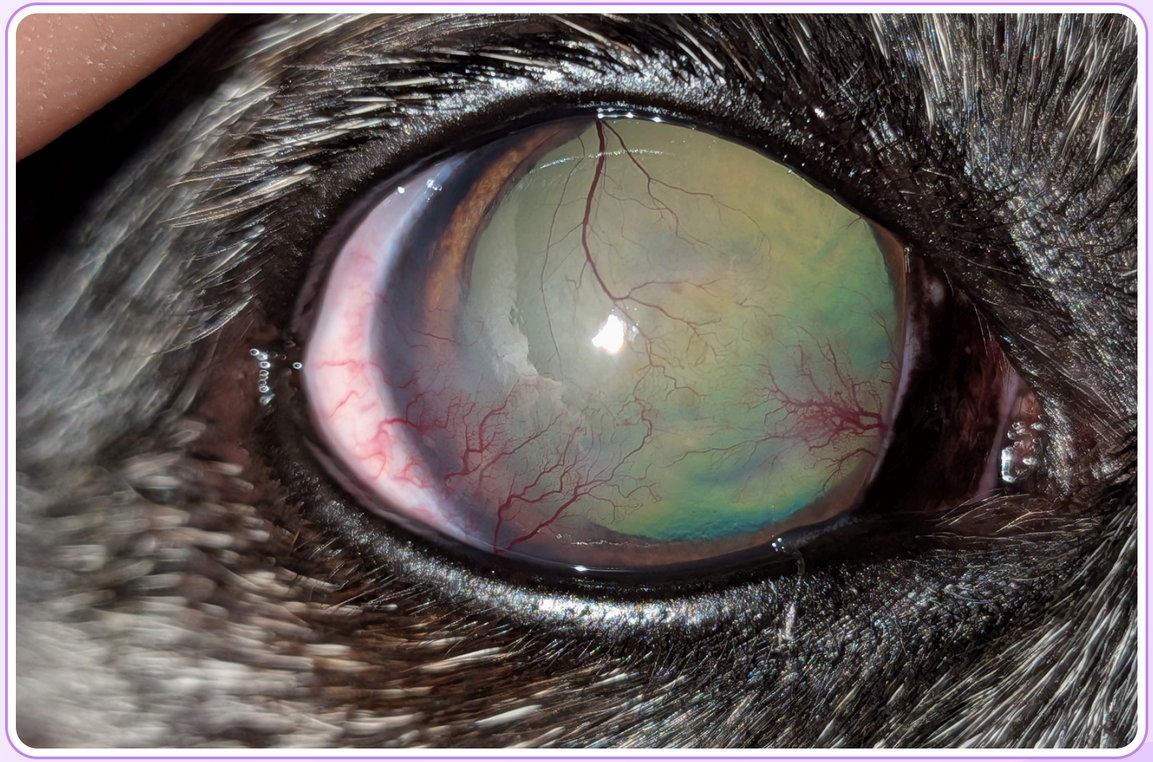
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MACROSCOPIC FEATURES

LIGHT REFLECTION



Normal Tear Film • Crisp, Regular Specular Reflection



Altered Tear Film • Dull, Irregular Surface & Neovascularization

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MACROSCOPIC FEATURES

MEIBOMIAN GLANDS

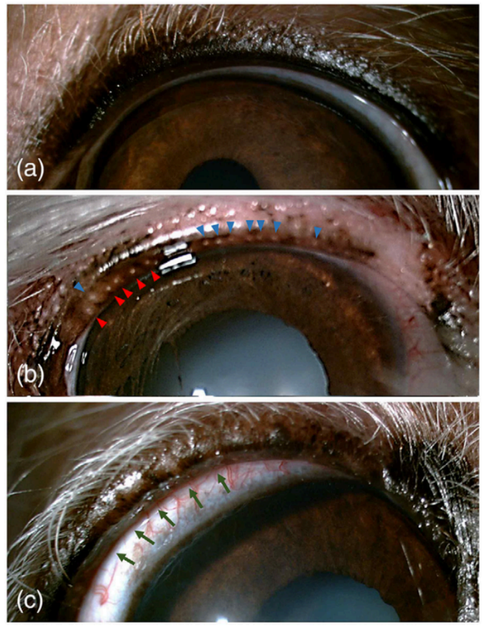
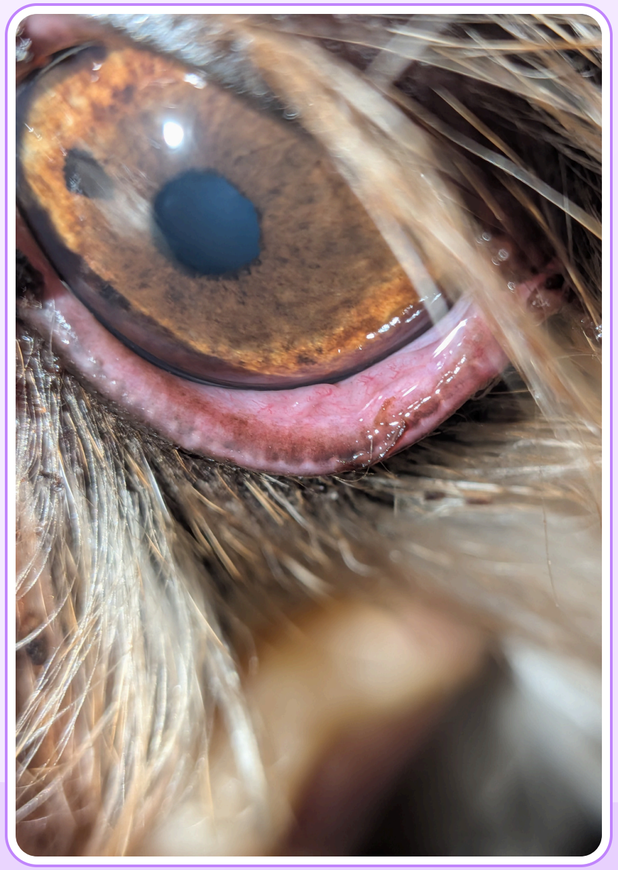
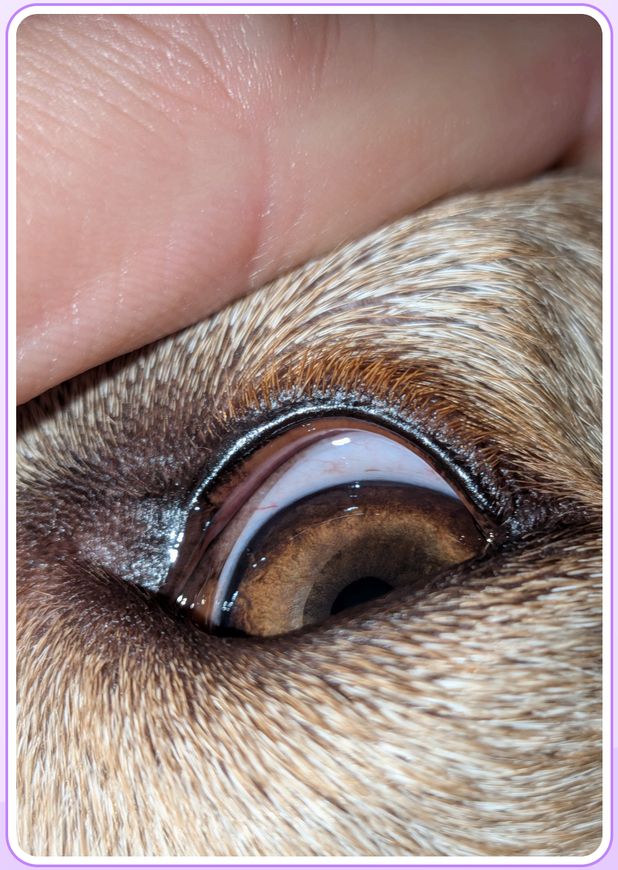


FIGURE 1 Lid margin abnormalities observed with slit-lamp biomicroscopy. (a) Normal eyelid without meibomian gland dysfunction. Lid margin abnormalities consistent with MGD are shown in (b) and (c). (b) Note the plugged gland orifices (blue arrowheads), and retroplaced and plugged orifices (red arrowheads). (c) Thickened lateral eyelid. Note the irregular lid margin (arrows)





Source: Jeong D, Kang S, Shim J, Lee E, Jeong Y, Seo K. Evaluation of ocular surface parameters in dogs with and without MGD. Vet Record.

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SECTIONS 06 & 07 · CLINICAL EVIDENCE

NUTRACEUTICAL RESEARCH & CLINICAL CASES

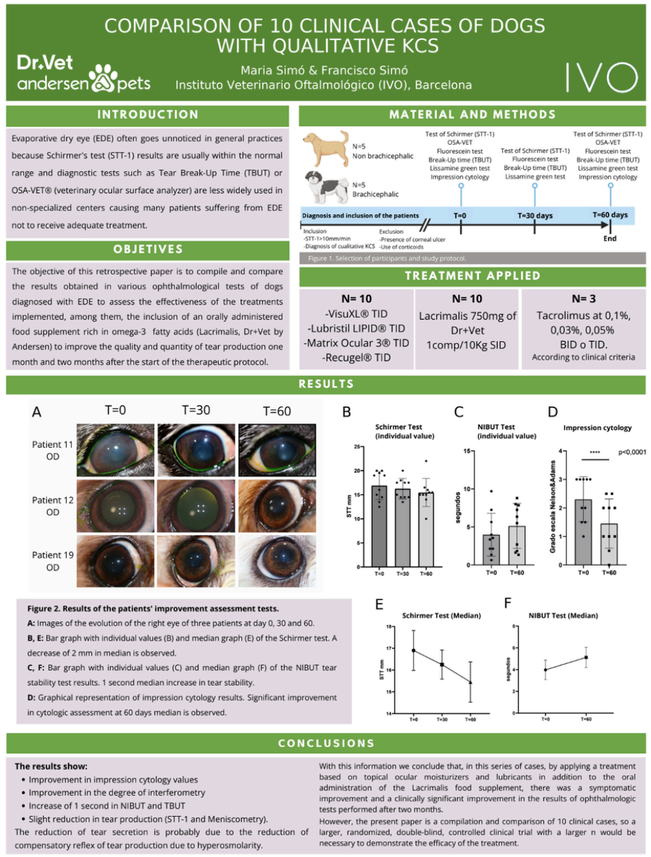
Retrospective evaluation of oral Omega-3 supplementation (Lacrimalis+) alongside ocular moisturizers in canine qualitative KCS.

Instituto Veterinario Oftalmológico (IVO), Barcelona · Dr. Vet by andersen

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CLINICAL STUDY • IVO BARCELONA

COMPARISON OF 10 CLINICAL CASES OF QUALITATIVE KCS



COMPARISON OF 10 CLINICAL CASES OF DOGS WITH QUALITATIVE KCS

Dr.Vet andersen pets

Maria Simó & Francisco Simó
Instituto Veterinario Oftalmológico (IVO), Barcelona

IVO

INTRODUCTION

Evaporative dry eye (EDE) often goes unnoticed in general practices because Schirmer's test (STT-1) results are usually within the normal range and diagnostic tests such as Tear Break-Up Time (TBUT) or OSA-VET® (veterinary ocular surface analyzer) are less widely used in non-specialized centers causing many patients suffering from EDE not to receive adequate treatment.

OBJETIVES

The objective of this retrospective paper is to compile and compare the results obtained in various ophthalmological tests of dogs diagnosed with EDE to assess the effectiveness of the treatments implemented, among them, the inclusion of an orally administered food supplement rich in omega-3 fatty acids (Lacrimalis, Dr+Vet by Andersen) to improve the quality and quantity of tear production one month and two months after the start of the therapeutic protocol.

MATERIAL AND METHODS

N=5 Non brachicephalic

N=5 Brachicephalic

Test of Schirmer (STT-1) OSA-VET Fluorescein test Break-Up time (TBUT) Lissamine green test Impression cytology

Test of Schirmer (STT-1) Fluorescein test Break-Up time (TBUT) Lissamine green test

Test of Schirmer (STT-1) OSA-VET Fluorescein test Break-Up time (TBUT) Lissamine green test Impression cytology

Diagnosis and inclusion of the patients | T=0 | T=30 days | T=60 days End

Inclusion: -STT-1<10mm/min -Diagnosis of cualitative KCS

Exclusion: -Presence of corneal ulcer -Use of corticoids

Figure 1: Selection of participants and study protocol

TREATMENT APPLIED

N= 10	N= 10	N= 3
-VisuXL® TID -Lubristil LIPID® TID -Matrix Ocular 3® TID -Recugel® TID	Lacrimalis 750mg of Dr+Vet 1comp/10Kg SID	Tacrolimus at 0,1%, 0,03%, 0,05% BID o TID. According to clinical criteria

RESULTS

A: T=0 T=30 T=60; Patient 11 OD; Patient 12 OD; Patient 19 OD

B: Schirmer Test (individual value) — STT mm

C: NIBUT Test (individual value) — segundos

D: Impression cytology — Grado escala Nelson&Adams — ****, p=0,0001

Figure 2. Results of the patients' improvement assessment tests.

A: Images of the evolution of the right eye of three patients at day 0, 30 and 60.

B, E: Bar graph with individual values (B) and median graph (E) of the Schirmer test. A decrease of 2 mm in median is observed.

C, F: Bar graph with individual values (C) and median graph (F) of the NIBUT tear stability test results. 1 second median increase in tear stability.

D: Graphical representation of impression cytology results. Significant improvement in cytologic assessment at 60 days median is observed.

E: Schirmer Test (Median) — STT mm

F: NIBUT Test (Median) — segundos

CONCLUSIONS

The results show:

- Improvement in impression cytology values
- Improvement in the degree of interferometry
- Increase of 1 second in NIBUT and TBUT
- Slight reduction in tear production (STT-1 and Meniscometry).

The reduction of tear secretion is probably due to the reduction of compensatory reflex of tear production due to hyperosmolarity.

With this information we conclude that, in this series of cases, by applying a treatment based on topical ocular moisturizers and lubricants in addition to the oral administration of the Lacrimalis food supplement, there was a symptomatic improvement and a clinically significant improvement in the results of ophthalmologic tests performed after two months.

However, the present paper is a compilation and comparison of 10 clinical cases, so a larger, randomized, double-blind, controlled clinical trial with a larger n would be necessary to demonstrate the efficacy of the treatment.



Lacrimalis+ • High EPA/DHA

SCAN FULL STUDY

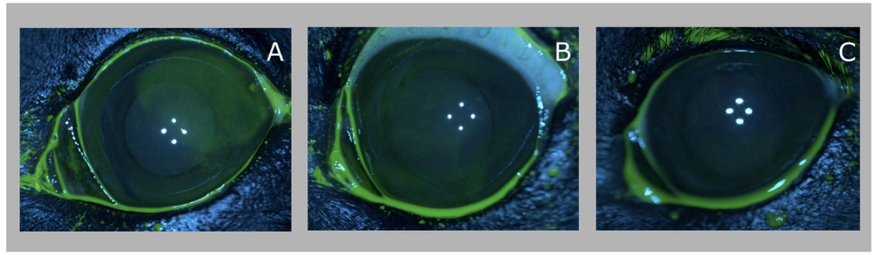


Figure 1. Images of the left eye of Doberman patient number 16 during the fluorescein test, diagnosed with quantitative keratoconjunctivitis sicca at the Instituto Veterinario Oftalmológico (IVO): (A) On the first visit on day 0, (B) on the 2nd visit on day 30, (C) on the 3rd visit on day 60.

Doberman Case #16 (Fluorescein Test, IVO): (A) Day 0 • (B) Day 30 • (C) Day 60

BIBLIOGRAPHY & RECOMMENDED READING

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A review of diagnostic tests for qualitative and quantitative tear film deficiency in dogs

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Dajeong Jeong, Seonmi Kang, Jaeho Shim, Eunji Lee, Youngseok Jeong, Kangmoon Seo

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Thank you!

LIVE Q&A SESSION

Dr. Laura Gracia Caballero
Veterinary Ophthalmology Specialist • Beyond Tears Webinar

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