APMB - Atti della Accademia Peloritana dei Pericolanti
Classe di Scienze Medico Biologiche
Vol. 105(2) 2017

ISSN 1828-6550

DOI: 10.6092 / 1828-6550 / APMB.105.2.2017.A7

Clinical Case Seminar A7(1-5)

Corneal dystrophy in a cocker spaniel dog: a case report.

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Abstract

A 1-year-old female Cocker Spaniel dog was examined at the ophthalmology service of the Veterinary Teaching Hospital - University of Messina (Italy) for evaluation of symmetrical white spots in both corneas and “red eyes”. Dog was clinically healthy, haematological and biochemical examination were unremarkable, Leishmania PCR was negative. After a complete ophthalmic examination, the clinical diagnosis was corneal stromal dystrophy with uveitis-induced. In dogs, corneal stromal dystrophy is a primary, inherited, bilateral opacity of the corneanot associated with ocular inflammation or systemic disease. Detailed description of corneal dystrophy are available only for few breeds. This lesion is not progressive and treatment is not usually recommended unless vision is impaired or the deposits become irritating.

KEYWORDS: cornea, dystrophy, inherited, eye, dog

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Introduction

In dogs, corneal *dystrophy* is an inherited, non-inflammatory, bilateral, symmetrical condition not associated to systemic disease.[1-3]. Corneal stromal dystrophy is a stromal metabolic defect that result in accumulation of extracellular and intracellular lipid in dog between 6 months and 5 years of age.[4-9]In most breeds, corneal dystrophy appears as gray-white, crystalline or metallic deposits in central or paracentral cornea. The opacities involving anterior stroma are usually oval or round,sometimes doughnut-shaped, mostly progressive.[1,2]. Their progression may be very slow and may or may not lead to blindness (e.g. Cocker Spaniels, Poodles, Samoyeds, and Bichon Frises) or may be rapid and lead to blindness (e.g. Airedale Terriers, Boston Terriers, Chihuahuas and Dachshunds). The mode of inheritance varies among breeds and is unknown in many breeds.

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Case Report

A 1.3 year-old female English Cocker Spaniel was examined at the Veterinary Teaching Hospital of University of Messina for “red eyes” and white spots in both corneas appearing from about a year.

The dog was previously treated with dexamethasone eyedrops q12h for 7days and cyclosporine ophthalmic ointment applied twice a day on both eyes(OU). Cyclosporine was interrupted after few days, for local side effects (hyperemia, corneal irritation).

At the presentation, the dog was in good health conditions clinically healthy. Haematological and biochemical exams were within normal ranges, Leishmania PCR was negative.Vision assessment and neuro-ophthalmic examination were normal. Eye exam showed conjunctival hyperemia, epiphora, and no eyelid anomalies. Ring corneal opacities, composed by a myriad of fine, white and small particles in axial portion of the cornea in right eye(OD) were located. In left eye(OS), an arc-shaped opacity of the same density as OD was evident in the subepithelial and posterior stroma of the axial cornea. The epithelium was intact and no neovascularization was observed(OU). Schirmer Tear Tests were 22mm/min(OU). Fluorescein dye test was negative(OU). Light aqueous flare was present(OU). Intra-ocular pressure measured with Tonovet® was 8mmHg(OD) and 6mmHg(OS). Any anomalies were present in lens, vitreous and fundus.

Figure 1. Right eye at the presentation. Arc-shaped opacities in the corneal stroma and conjunctival hyperemia

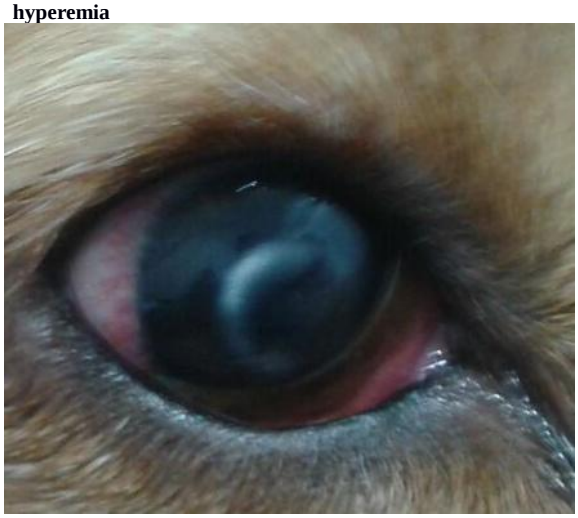

Figure 2. Left eye at the presentation. Donught-shaped opacities in the corneal stroma and conjunctival hyperemia.

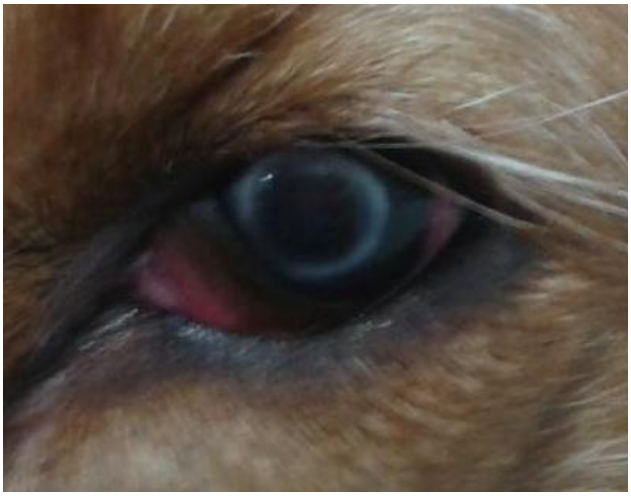

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Figure 3. Right eye post-treatment

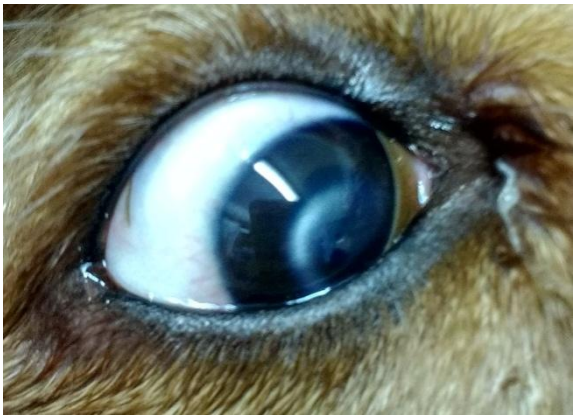
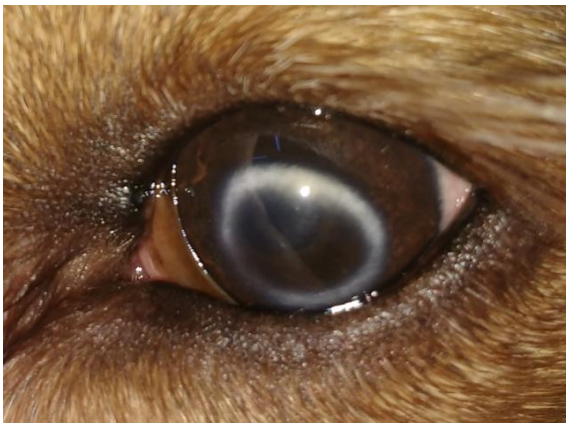


Figure 4. Left eye post-treatment.



Final diagnosis was corneal stromal dystrophy with uveitis-induced. A treatment with both oral Prednisone 1mg/kg/twice a day and topical Dexamethasone 1 drop/four times a day was prescribed to resolve the uveitis and relieved eye discomfort. Atropine eye drop 1% was topically applied to decrease ciliary spasm. Furthermore, EDTA in ocular solution was applied in OU q6h. After a month, eye discomfort and inflammation were resolved and IOP were 13mmHg(OS) and 14mmHg(OD).

Discussion.

The diagnosis of corneal stromal dystrophy was formuled on signaling and clinical manifestations. Differential diagnoses includednot inherited or familial, non-symmetrical, and not necessarily bilateral ocular diseases: corneal fibrosis, corneal degeneration, and lipid keratopathies. No alterations on blood examinations suggested the presence of systemic diseases that could be related to corneal opacities.

No tear or eyelid abnormalities were present and the corneas were not irritated.

The lesion found in this case report was suggestiveof Schnyder's crystalline stromal dystrophy.In crystalline stromal dystrophy inflammatory element and no vascularization are present. The dystrophy is associated with accumulation of lipid within the corneal fibroblasts, but typical foam cells are absent, the crystalline opacity involves the coolest part of the cornea, correlates with local fibroblast death, and is always bilateral. This condition is described in both the Cavalier King Charles Spaniel and Rough Collie[8] and not was reported in English Cocker Spaniel In this breed, two different kind of corneal dystrophy has been decribed only two different type of corneal dystrophy:

- epithelial/stromal: non-inflammatory corneal opacity (white to gray) present in one or more of the corneal layers;

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- posterior polymorphous: multifocal, non-pigmented, vesicular to linear posterior corneal opacities at the level of endothelium. The condition affecting dogs from 1 to 7 y.o. is bilateral and differs from endothelial dystrophy for absence of corneal edema.[10,11]

Corneal dystrophy is not primarily associated with corneal vascularization; however, with chronicity, the lipid accumulation may cause cell death and induce inflammation with subsequent development of corneal vascularization.[12]

In this case report, the lipid accumulation in subepithelial layer may have caused the painfull and a subsequent secondary anterior uveitis.

The prognosis for corneal stromal dystrophies is excellent. They do not tend to cause visual disturbance and they are usually not associated with ocular pain.[13]

No medication "dissolves" the opacity and surgery is not usually recommended. The lesions can be removed by keratectomy if the opacity is obstructing vision significantly. Often, the opacities will reform in the healed cornea.[1,14]

Reduction of opacities has been reported with topical cyclosporine and tacrolimus.[15]In this case report an initial topical treatment with cyclosporine was performed, but discontinued for ocular discomfort. The arc and donught-shaped opacities did not impair the vision, the rest of the cornea was transparent in both eye and prognosis for this dog is good for the function.

Topical EDTA, in artificial tears may be effective in removing calcium,[3,16,17]reducing mineral accumulation and facilitating re-epithelialization[16] in corneal degeneration. In this case, this therapy was added to the treatment without significant amelioration of opacities.

Conflicts of Interest: There is no potential conflict of interest, and the authors have nothing to disclose. This work was not supported by any grant.

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Communicated and received November 15, 2017, Revised November 22, published on line December 20, 2017