Progressive retinal atrophy in a poodle dog: Case report

Atrofia progressiva de retina em cão da raça poodle: Relato de caso

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ABSTRACT
The aim of this study was to report a case of Progressive Retinal Atrophy (PRA) in a Poodle dog. A female canine Poodle, approximately 12 years old, was treated. According to the report of her guardian, the animal had been presenting visual difficulties for some months. Ophthalmologic examination revealed bilateral mydriasis, positive palpebral reflex, glare reflex, negative direct and consensual pupillary reflexes, and absence of response to threat. In the evaluation of the posterior segment, absence of retinal vascularization was noted, as well as hyperreflective spots in the tapetal region and depigmentation of the non-tapetal region, both bilateral. In the "maze test" in light and dark rooms, the patient collided with objects and was diagnosed with advanced stage RPA. As it is a hereditary and degenerative ophthalmopathy, with no specific treatment, periodic evaluations were recommended in order to monitor the progression of the disease, in addition to ruling out possible future changes. It is essential that these animals are removed from breeding programs, since clinical manifestations will occur only as adults and, probably, new offspring will have already been generated.

Keywords: Ophthalmopathy, Heredity, Retinal degeneration.

1 INTRODUCTION

The retina, also called the nerve tunic of the eye bulb, is responsible for converting light energy into chemical energy and electrical impulses, which are transmitted to the brain. Among the cells that compose it are the photoreceptors, represented by cones, specialized cells that allow the visualization of colors, in addition to the rods, which are more used for night vision (PETERSEN-JONES; MOWAT, 2021; MARINHO *et al.*, 2022).

Progressive Retinal Atrophy (PRA) is defined as a succession of neuro-retinal degenerations with hereditary influence, caused by mutations, which affects more than 100 canine breeds (KELAWALA *et al.*, 2017). Classified as "central" or "generalized", the latter focusing on the photoreceptor unit of the retina, the disease affects both eyes, although it may present irregularity between them (SILVA, 2017). Nictalopia, defined as insecurity to move around in dark environments, is one of the first clinical signs described in the degeneration of rod photoreceptors (FREITAS *et al.*, 2021).

In view of the above, the aim of this study was to report a case of APR in a Poodle dog.

2 CASE REPORT

A female Poodle dog, approximately 12 years old, was attended who, according to her guardian's report, had been presenting visual difficulties for some months, not seeking objects during play, crashing into furniture and not finding her feeder/drinking trough when it was arranged in an unusual place. During the anamnesis, the person in charge reported that the patient had access to the street only during walks, had updated vaccination and deworming protocol and had no other illnesses until the time of consultation. In addition, she revealed that one of her sisters was showing the same signs of visual impairment.

Ophthalmologic examination revealed bilateral mydriasis, positive palpebral reflex, glare reflex, negative direct and consensual pupillary reflexes, and absence of response to threat. There were no changes in ocular appendages, anterior and posterior chambers. On evaluation of the posterior segment, absence of retinal vascularization was noted, as well as hyperreflective spots in tapetal region and depigmentation of non-tapetal

region, both bilateral. However, there were no signs of chorioretinitis or optic disc changes.

Thus, the patient was taken to the "labyrinth test" initially in a bright room and later in a dark room, bumping into objects in both situations. In view of the signs found, electroretinography was requested, which could not be performed due to the financial hyposufficiency of the person responsible for the animal. Laboratory tests were performed, which showed no changes compatible with the signs presented.

In view of the clinical picture, history of progressive visual impairment, combined with the ophthalmologic examination, the diagnosis of advanced stage RPA was reached. As it is a hereditary and degenerative ophthalmopathy, with no specific treatment, periodic evaluations were recommended in order to monitor the progression of the disease, in addition to ruling out possible future changes.

3 DISCUSSION

APR is described as a series of hereditary neuro-retinal degenerations that affects different dog breeds (URKASEMSIN *et al.*, 2021), usually having as its first clinical sign the difficulty of locomotion at dusk or in dark places (PETERSEN-JONES; MOWAT, 2021), as observed in the patient. The hereditary nature of the disease was also identified in the present case, since one of her sisters presented the same clinical manifestations, corroborating what was exposed by the authors.

In addition to nyctalopia, other clinical signs, such as mydriasis, hyperreflectivity of the tapetal region, secondary cataract formation, loss of daytime vision, followed by total blindness, can be observed (FREITAS *et al.*, 2021). The patient presented with nyctalopia, followed by complete loss of vision, confirmed by the response to negative threat. However, to date, no cataract formation has been detected.

According to Kelawala *et al.* (2020), on fundus examination, it is possible to notice attenuation of the retinal vessels, being characteristic of degeneration of the photoreceptor layer of the retina, which can be seen in the patient's evaluation.

After diagnosis, the use of vitamin supplements containing antioxidants tends to slow the progression of the disease and consequent loss of vision (PETERSEN-JONES; MOWAT, 2021), which, in the patient's case, would no longer be possible.

Thus, periodic evaluations are recommended to monitor possible complications (BALICKI *et al.*, 2021), such as retinal detachment and vascular degeneration, loss of pigmentation and optic atrophy (SHEET *et al.*, 2020). With disease progression, complete

retinal atrophy may occur, in addition to changes in vitreous and asteroid hyalosis (BALICKA *et al*., 2020).

4 CONCLUSIONS

Because it is a hereditary and degenerative ophthalmopathy, patients affected by APR should be evaluated periodically to monitor the progression of the disease. In addition, it is essential that these animals are removed from breeding programs, since clinical manifestations will occur only as adults and new offspring will probably have already been generated.

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