



Anterior Uveitis and Aqueous Lipidose Associated with Hyperlipidemia in Two Cats

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Geliş Tarihi/Received	Kabul Tarihi/Accepted	Yayın Tarihi/Published
07.01.2019	29.06.2019	25.12.2019

Bu makaleye atıfta bulunmak için/To cite this article:
Demir, A, Karagozlu GS, Eregar BE: Anterior Uveitis and Aqueous Lipidose Associated with Hyperlipidemia in Two Cats. Atatürk University J. Vet. Sci., 14(3): 330-334, 2019. DOI: 10.17094/ataunivbd.509306.

Abstract: A 9 months old male and a 1-year old female crossbreed cats were presented with history of unilateral sudden onset cloudy eye has been reported in this study. Ophthalmological examination was revealed clear corneal surface, corneal edema did not occurred, homogeneous blurred with white color in the anterior chamber of the eyes in both cases and laboratory findings were revealed hypertriglyceridemia and hypercholesterolemia. According to the ocular and laboratory examination findings after the anamnesis, the patients were diagnosed with hyperlipidemia-related aqueous lipidemia. Topical ophthalmic solution of prednisolone sodium fosfat 1% was applied 2 drops, 5 times in a day and low-fat diet was recommended. Both patients were responded to medical treatment within one week, positively. No complications were encountered during the 2-year follow-up period of the patients.

Keywords: Aqueous lipidemia, Cat, Cloudy eye, Hyperlipidemia.

İki Kedide Hiperlipidemi ile İlişkili Anterior Üveit ve Aköz Lipidozis

Öz: Bu çalışmada, tek gözlerinde ani şekillenen bulanıklık şikayeti ile getirilen 9 aylık erkek ve 1 yaşında dişi melez iki kedi rapor edilmiştir. Yapılan göz muayenesinde her iki gözde homojen dağılmış beyaz renkli bulanıklık ile laboratuvar bulgularında hipertrigliseridemi ve hiperkolestrolemi varlığı belirlendi. Alınan anamnez sonrası yapılan oküler ve laboratuvar muayene bulgularına göre hastalara hiperlipidemi ile ilişkili aköz lipidemi teşhisi koyuldu. Topikal prednizolon sodyum fosfat 1 % günde 5 kez 2 damla şeklinde uygulanırken, düşük yağlı diet önerildi. Her iki hastada bir hafta içerisinde medikal tedaviye olumlu yanıt alındı. Hastaların yaklaşık 2 yıllık kontrol süreleri boyunca herhangi bir komplikasyon ile karşılaşmadı.

Anahtar Kelimeler: Aköz lipidemi, Bulanık göz, Kedi, Hiperlipidemi.

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INTRODUCTION

Aqueous lipidosis is a sporadic ocular disease which has an opaque milk-like appearance (1). This condition refers to high levels of triglyceride and cholesterol in the anterior chamber of one or both eyes due to break down in the blood-aqueous barrier(2,3). The clinical appearance of the whiteness is varied depending on type of lipid molecule, accumulated in the anterior chamber (4). It is relatively common in dogs however very rare in cats (5). Despite all of this, it is unclear whether coexistence of uveitis and hyperlipidemia is incidental. A vasculitis due to hyperlipidemia, and then the disruption of the blood-aqueous barrier, and spontaneously occurring lipid flare is a possible scenario of this condition (6). It has been recently reported that nutrition with lipid-rich foods is effective in this condition. Diagnosis of aqueous lipemia in which confused with hypopyon and neoplastic infiltrate (transient lymphoma), is based on clinical findings (4). Treatment varies depending on the underlying cause of the disease (6). In this case report; two cats, one of them diagnosed diabetes mellitus, with aqueous lipidosis were evaluated and the underlying cause were found high-fat diet.

The goal of this report is to contribute to the increase of awareness in veterinary medicine about ocular complications due to metabolic diseases.

CASE REPORT

Case 1

A 9 month-old, non-sterilized male cat was presented for the sudden onset cloudy appearance in the right eye for 2 days. There was no trauma or infection anamnesis and the cat's diet were consisted of food such as egg yolks and white cheese. On the ocular examination, there was no pain. The structure of the right eye was not enough evaluate because of the diffuse white components in the anterior chamber (Figure 1).



Figure 1. Case 1. Diffuse white opacity in the anterior chamber of the right eye.

Şekil 1. Olgu 1. Sağ gözün ön kamarasında diffüz beyaz opasite.

Schirmer tear tests were 14 and 16 mm/min in the right and left eyes, respectively. Fluorescein test was negative for both eyes. The intraocular pressure was 10 and 17 mm Hg in the right and left eyes, respectively by rebound tonometer. All other physical examination findings were healthy. Complete blood count (CBC) and serum biochemical analysis were performed. Results of the CBC were unremarkable. Blood serum was (+4) a lipemic. Results of the biochemical analysis were revealed hyperglisemia (165mg/dl; range 70-150 mg/dl), ALT (122 U/L; range 28-75 U/L), hypercholesterolemia (300 mg/dl; range 82-218 mg/dl), hypertriglyceridemia (108 mg/dL; range 20-90mg/dL). Additional serologic tests for Feline Infectious Peritonitis (FIP), Feline Immunodeficiency Virus (FIV) and Feline Leukemia Virus (FeLV) were performed but all of them were negatif. According to the feeding with high-fat diet, ocular signs and laboratory findings revealed diagnosis of aqueous lipidosis associated with secondary hypercholesterolemia, hyperlipidemia. The first step in treatment was started with a low-fat diet. The cat's right eye was treated with topical 1% prednisolone sodium fosfat and 0.3% ofloxacin 5 times daily and dorzolamide HCl-timolole maleat ophthalmic solution was administered 2 times daily against the secondary glaucoma. The owner reported the right eye has become more transparent within 96 hours. On the

5th day of treatment, white, diffuse opacity was decreased and localized in the ventral region of the eye (Figure 2).



Figure 2. Case 1. Clinical appearance of opacity on the 5th day of treatment.

Şekil 2. Olgu 1. Tedavinin 5. gününde opasitenin klinik görünümü.

The iris shape and structure were observed easily and normal. After 2 weeks of treatment, blood results were decreased to normal values.

Case 2

A 1 year-old, spayed-female cat was presented with history of an acute onset visual deficit and a white-blue appearance in the left eye. She also recently had polyphagia, polydipsia and polyuria. The owner reported that they fed the cat with food such as eggs, fish etc. During the ophthalmic examination, the left pupil was seen partially and moderately. There was a direct and indirect pupillary light response. The size of the both eyes were similar and normal. Schirmer and fluorescein tests were in normal. Intraocular pressures were 18 and 12 mm Hg in the right and left eyes, respectively. In the left eye, uveitis was diagnosed. Fundus of the right eye was normal, the left one was not evaluated due to the diffuse white opacity (Figure 3).



Figure 3. Case 2. Appearance of the anterior segment of the left eye.

Şekil 3. Olgu 2. Sol göz ön segmentinin görünümü.

CBC was normal and results of the biochemical analysis revealed were a hyperglisemia (625 mg/dl; range 70-150 mg/dl), uremia (82 mg/dl; range 15-34 mg/dl), AST (71 U/L; range 5-55 U/L), ALT (151 U/L; range 28-75 U/L), ALP (74 U/L; range 0-62 U/L), cholesterol (217 mg/dl; range 82-218 mg/dl), hypertriglyceridemia (354 mg/dl; range 20-90 mg/dl). Glucose was also found in urine. It was assessed in terms of diabetes due to the high level of fasting blood glucose and glucose in the urine. Treatment was started with a low-fat diet. Systemic medical management of diabetes treatment was performed in Department of Internal Medicine Clinic. The same drugs achieved topical treatment of the left eye as the first case. 72 hours after the treatment, it was observed that the cloudy appearance was completely disappeared (Figure 4).

Figure 4. Case 2. The left eye appearance on the 3rd day of the treatment.

Şekil 4. Olgu 2. Tedavinin 3. gününde sol gözün görünümü.



The anterior segment was clearly visible. There was no anomalies in pupil or iris shape and size. No problems were encountered in the follow-up period of 2 years.

DISCUSSION and CONCLUSION

Hyperlipidemia is a carbohydrate and lipid metabolism disease which is defined as increased blood glucose, cholesterol and/or triglyceride concentrations (1,7,8). It is very rare in cats compared to dogs (5,9). This disease is classified into as primary and secondary hyperlipidemia (1,5,8,9). Primary hyperlipidemia is not commonly observed in cat (5). It has been reported to be as a familial disease in Burmese, Himalayan and mixed breed cats. Secondary hyperlipidemia has been reported developing due to the drugs use such as megestrol acetate (cats), obesity (dog), high fat diets, hypothyroidism, hyperadrenocorticism, hyperglycemia, pancreatitis, nephropathy (3,5,9,10). Increased triglycerid levels in the blood can cause lipid accumulation in vascular system, musculoskeletal system and eyes. Increased triglycerides can also cause lesions in the eye such as anterior uveitis, lipid keratopathy and lipemia, chorioretinit, xanthomas (3,10,11). In our cases the only significant ocular clinical finding was the aqueous lipidosis with anterior uveitis. Aqueous lipidosis is the deposition of lipid molecules (cholesterol or triglyceride) in the anterior chamber due to break down of the blood-aqueous barrier and this condition causes a sudden onset of diffuse white opacity of aqueous humor (2,3,10). Arıcan et al. (2018) and Ghaffari(2008) reported that their lesions developed bilaterally in their cases, whereas in this study, the lesions were unilateral in both cases.

The diagnosis of aqueous lipidosis is based on ocular examination findings demonstrating blue-gray appearance in the anterior chamber. Additional, laboratory test results such as elevated serum cholesterol and/or triglyceride levels are supportive for the clinical diagnosis (2).

Treatment of hyperlipidemia involves the management of any underlying systemic disease and

nutritional therapy (2,3,7,9). The underlying causes of hyperlipidemia in these cases were considered as feeding with high-fat-diet and hyperglycemia. In the literature, medical treatment is recommended for the treatment of the disease (9). In most cases, lesions have been reported to be resolved within a few days (1). In our cases, it was determined that medical treatment and low-fat diet was improved hyperlipidemia (case 1: 76 mg/dL, 92 mg/dL), hypercholesterolemia (case 1: 156 mg/dL) and anterior chamber lipemia.

In conclusion; In this study, it is goal to know that anterior uveitis in cats is not only infectious but also due to various nutritional and metabolic diseases and due to its clinical appearance, it can be easily distinguished from other conditions that cause of anterior uveitis.

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