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Olgu Sunumu / Case Report

Surgical management of bilateral symblepharon accompanied by ankyloblepharon in a cat

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ABSTRACT

Feline herpesvirus infections, frequently observed in cats, lead to chronic conjunctival adhesions resulting in vision impairment in affected animals, following intense inflammatory responses occurring in the eye and periocular tissues. These adhesions are classified as symblepharon or ankyloblepharon according to the anatomical types. This case report describes the clinical evaluation of symblepharon and ankyloblepharon seen together in a kitten, along with the treatment approach. In the study, a 3-month-old male kitten, presented with bilateral eyelid deformations and extensive conjunctival adhesions on the cornea, was diagnosed with severe symblepharon and ankyloblepharon. Subsequently, surgical intervention was performed, and the adhesions were carefully separated. During the surgery, it was observed that the conjunctiva did not adhere to the cornea and limbus area. In the animal that experienced a sole postoperative recurrence, proliferation and adhesions were observed exclusively in the palpebral conjunctivae, which were subsequently removed and supported with medical treatment. No recurrence was observed in the cat, which was followed for approximately 5 months.

Bir kedide bilateral ankiloblefaronun eşlik ettiği simblefaronun cerrahi yönetimi

ÖZET

Kedilerde sıklıkla görülen kedi herpesvirüs enfeksiyonları, göz ve göz çevresi dokularda oluşan yoğun yangısal yanıtları takiben, etkilenen hayvanlarda kronik konjunktival adezyonlara yol açarak görme bozukluğuna neden olur. Bu adezyonlar anatomik tiplerine göre simblefaron veya ankiloblefaron gibi isimler alır. Bu olgu sunumunda bir yavru kedide ankiloblefaron ile birlikte görülen simblefaronun klinik değerlendirmesi ve sağaltım yaklaşımı anlatılmaktadır. Çalışmada, iki taraflı göz kapağı deformasyonları ve korneada yaygın konjunktival yapışıklıklar ile başvuran 3 aylık erkek yavru kediye, şiddetli simblefaron ve ankiloblefaron tanısı konuldu. Daha sonra cerrahi müdahale yapılarak yapışıklıklar dikkatlice ayrıldı. Operasyon sırasında konjunktivanın kornea ve limbus bölgesine yapışmadığı görüldü. Operasyon sonrası bir kez nüks görülen hayvanda, yalnız palpebral konjunktivalarda bir üreme ve yapışıklık görülürken bu kısımlar da uzaklaştırılarak medikal sağaltımla desteklendi. Yaklaşık 5 ay takip edilen kedide herhangi bir nüks görülmedi.

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1. Introduction

Symblepharon manifests when two epithelialized surfaces, one of which is the conjunctiva, undergo ulceration and subsequently adhere to each other through the substantia propria. It commonly involves the nictitating membrane and the cornea (1). While the etiology remains uncertain, it has been established that feline herpesvirus type 1 (FHV-1) infections predispose individuals to this condition (2). Conjunctival adhesions are rarely seen in dogs and it usually occurs as a result of trauma and chemical burns (3). This condition can occasionally be observed in cats (4). In horses, symblepharon may arise subsequent to traumas, while in birds, it may occur following severe systemic infections (5).

Ankyloblepharon is defined by partial or complete adhesion of upper and lower eyelid margins (6). In both situations, surgical intervention is necessary. The adhesions are carefully removed to preserve the integrity of the corneal surface and the normal anatomical structure of the eye. In the postoperative period, recurrence is attempted to be prevented by the use of anti-inflammatory eye drops and eye lubricants (7).

This case report aimed to present the clinical evaluation and treatment approach of symblepharon and ankyloblepharon disease occurring together in a kitten.

2. Case Story

A three-month-old, male, tabby cat was brought to Ankara University Faculty of Veterinary Medicine Animal Hospital Ophthalmology Clinic with complaints of abnormalities in the anatomical structure of both eyes and loss of vision. In the anamnesis, it was learned that the cat was adopted from the street and had not received vaccinations.

Ophthalmological examination revealed severe deformation in the eyelids of both eyes and a large conjunctive tissue completely covering the corneal surface. The protruding third eyelid covered almost the entire surface of the eye, with the bulbar and palpebral conjunctiva completely attached. There was an opening approximately 1 mm in diameter at the center of the right eye and 2 mm in the left eye. Ankyloblepharon was observed along the line of the lateral canthus (Figure 1). FHV-1 antibody was detected positive by ELISA test in swab samples taken from the conjunctiva.



Figure 1: Right eye of the kitten with severe symblepharon and ankyloblepharon. The upper and lower palpebral conjunctival regions were adherent across all but the smallest area in the center. Note the fused eyelid at lateral canthus. Extensive deformation of the contours of the upper and lower eyelids were observed.

Şekil 1: Şiddetli simblefaron ve ankiloblefaronlu yavru kedinin sağ gözü. Merkezdeki en küçük alan dışında üst ve alt palpebral konjunktival bölgelerin tamamen yapışık olduğu görülmektedir. Göz kapağının lateral kantus hizasında yapıştığı dikkati çekmektedir. Üst ve alt göz kapaklarının dış hatlarında yaygın deformasyon gözlenmektedir.

In the ultrasonographic examination, no pathology was observed in the bilateral vitreous, retina, and optic disc. Only a few hyperechoic foci were noted in the lens cortex (Figure 2). It was thought that these structures might be congenital.

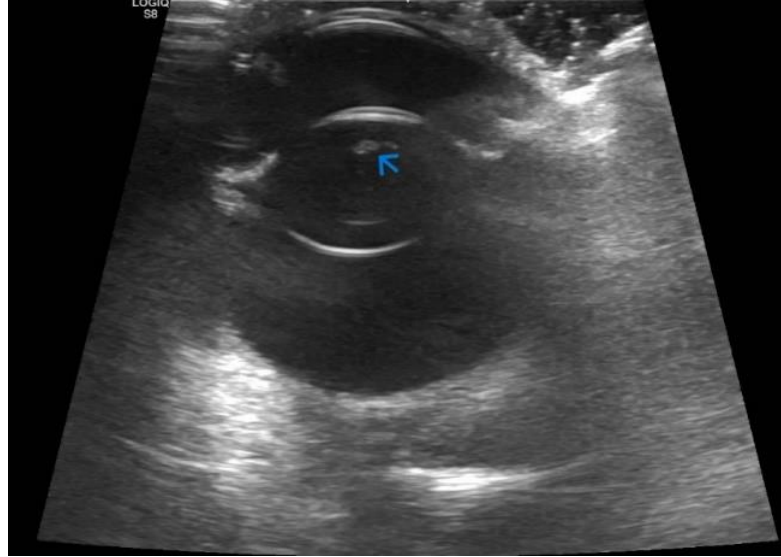


Figure 2: Sonographic view of the right eye revealed no evident pathology within the ocular structures. However, hyperechoic foci were identified in the lens cortex, which do not interfere with vision (blue arrow).

Şekil 2: Sağ gözün ultrasonografik incelemesinde oküler yapılarda belirgin bir patoloji görülmedi. Ancak lens korteksinde görmeyi engellemeyen hiperekoik odaklar tespit edildi (mavi ok).

In surgery, ankyloblepharon at the lateral canthus was revised to conform to the anatomical region. All adhesions between the dorsal and ventral edges of the third eyelid and the palpebral and bulbar conjunctiva were carefully dissected to release the third eyelid. The third eyelid was fixed to its normal anatomical position at the medial canthus by using 5/0 monofilament absorbable suture material. Firstly, the purse string was initiated at the ventral aspect of the medial canthus by introducing the suture from the dermal surface into the conjunctival fornix. Subsequently, a prolonged subconjunctival pass was executed along the freshly incised ventral margin of the third eyelid, emerging proximate to its anterior margin. Two additional extensive subconjunctival sutures were then traversed sequentially. Finally, the suture was guided from the dorsomedial conjunctival fornix outward through the dermal layer just dorsal to the medial canthus, and the purse string was pulled tight to retract the third eyelid into the medial orbit. Corneal conjunctivalization surgically removed from both eyes under the microscope.

Amoxicillin-clavulanic acid (20 mg/kg, twice daily, orally), tobramycin (four times daily), and sodium hyaluronate eye drops (four times daily) were administered for postoperative one week. Three months postoperative, the conjunctival tissue had migrated from the palpebrae and surrounded the eye, but had not reached the cornea. (Figure 3). Adhesions were removed and the palpebrae loosed. No recurrence was observed during the 6 months of postoperative follow-up.

3. Discussion and Conclusion

Conjunctival pathologies can lead to vision loss, particularly in kittens, and are often seen as ophthalmological complications of FHV-1 infections (8). Neonatal ophthalmia predisposes individuals to the development of ankyloblepharon. This condition may be linked to delayed or incomplete eyelid opening in puppies during the subsequent days. Bacterial conjunctivitis is prevalent in such animals and may coexist with FHV-1 (6, 9). The severity

of the ocular lesions observed in the presented case, relative to the age of the cat, reinforced the likelihood of neonatal ophthalmia attributed to herpesvirus.



Figure 3: Postoperative 3rd month view of the left eye. It was observed that conjunctival tissue had migrated from the palpebrae and surrounded the eye. The corneal surface was transparent.

Şekil 3: Sol gözün postoperatif 3. ay görüntüsü. Konjunktiva dokusunun palpebradan göç ederek gözü çevrelediği görülmektedir. Kornea yüzeyinin saydamlığını koruduğu dikkati çekmektedir.

FHV-1 emerges as the principal viral etiology of ocular surface infections, impacting the limbal region as well (10). The high prevalence of herpesvirus infection in the global feline population, its particular affinity for epithelial cells of the eye and nasal mucosa, and its rapid viral replication, resulting in acute cellular damage to these tissues, underscore the significance of this infection (11). Especially in cases where the limbal region is affected, the progression of the conjunctiva towards the corneal surface, defined as conjunctivalization, is a condition that may be encountered in herpesvirus-infected cats (12). In the presented case, despite the corneal surface being covered with extensive conjunctival tissue, the absence of adhesion and the absence of conjunctivalization originating from the limbal region may suggest that the virus did not affect the limbus. This is supported by the absence of tissue growth that would compromise the transparency of the cornea following the removal of adhesions postoperatively.

The diagnosis of symblepharon and ankyloblepharon can be readily established through clinical examination. Eyelid deformities, diminished corneal transparency, and vision impairment represent the most prevalent clinical observations (3, 13). The predominant clinical manifestation observed in the assessed case was the presence of dense conjunctival tissue enveloping the entire ocular surface, resulting in vision impairment in the animal. The lacrimal puncta were not discernible in either eye; nonetheless, the absence of epiphora and only a mild brown ocular discharge were noted.

For symblepharon in cats, Shiraishi proposed a clinical grading system encompassing five anatomical classifications: (i) eyelid deformity, (ii) fusion of eyelid margins (ankyloblepharon), (iii) conjunctival adhesion to conjunctiva, (iv) conjunctival adhesions of the third eyelid, and (v) corneal-conjunctival adhesions. In the study, eyelid deformation emerged as the most prevalent manifestation of symblepharon, followed by conjunctival adhesions of the third eyelid (9). Upon clinical assessment of the presented case, it was observed that it exhibited characteristics consistent with multiple types of symblepharon, including severe bilateral eyelid deformations, conjunctival-conjunctival adhesions, adhesion of the third eyelid to surrounding tissue, and formation of ankyloblepharon at the lateral canthus level.

In the study, intraocular structures were assessed via ultrasonographic examination of both eyes prior to the procedure. Ocular ultrasonography represents a safe and noninvasive diagnostic modality facilitating the evaluation of intraocular structures. This technique, utilized in scenarios where direct clinical examination of the eye is not feasible,

enables assessment of treatment efficacy and disease prognosis (14).

In the management of symblepharon and ankyloblepharon, surgical intervention involves the excision of adhesions between the palpebral and bulbar conjunctivae, along with those involving the third eyelid, and removal of conjunctival tissue from the corneal surface (15). In our case, while the extensive adhesions were surgically excised, the adhesions could be easily separated through blunt dissections. Although the conjunctiva extensively enveloped the entire ocular surface, the recurrence observed postoperatively was attributed to the preserved corneal transparency, lack of direct adherence of conjunctival tissue to the corneal surface, and absence of conjunctivalization.

In conclusion, following thorough evaluation of intraocular structures utilizing appropriate diagnostic imaging modalities, precise surgical intervention conducted on eligible patients can enhance the animal's vision and consequently elevate its quality of life.

Conflict of Interests

The authors declare that there were no conflicts of interest.

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Ethical Approval

An ethical statement was received from the authors that the data, information and documents presented in this article were obtained within the framework of academic and ethical rules, and that all information, documents, evaluations and results were presented in accordance with scientific ethics and morals.

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