



Surgical Correction of Unilateral Congenital Cryptophthalmos in a Lutino Cockatiel (*Nymphicus hollandicus*)

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Abstract

A 3-year-old Lutino Cockatiel (*Nymphicus hollandicus*) of unknown sex was referred to the clinics of our faculty for ocular examination due to lack of the upper and lower eyelids of the right eye since birth has been reported in this study. After anamnesis and detailed ocular examination (ocular ultrasound), congenital cryptophthalmos was diagnosed and the right palpebral fissure of the bird was corrected by a successful surgical procedure. This report provides the clinical features and surgical management of the variant of cryptophthalmos in birds.

Received 24 April 2019
Received in revised form 26 July 2019
Accepted 17 August 2019

Key words:

Atresia, congenital, cryptophthalmos, eyelid, Lutino Cockatiel

Cite this article: Demir K, Gerbaga Özsemir K (2019) Surgical Correction of Unilateral Congenital Cryptophthalmos in a Lutino Cockatiel (*Nymphicus hollandicus*). Turk Vet J, 1(2):106-109.

Bir Sultan Papağanında (*Nymphicus hollandicus*) Tek Taraflı Kongenital Cryptophthalmosun Cerrahi Düzeltilmesi Olgusu

Özet

Bu çalışmada, fakültemiz kliniklerine doğduğundan beri sağ alt ve üst göz kapaklarının olmadığı şikâyeti ile göz muayenesi için sevk edilen, cinsiyeti bilinmeyen, 3 yaşlı, bir sultan papağanı rapor edilmiştir. Alınan anamnez ve yapılan ayrıntılı göz muayenesi (oküler ultrasonografi) sonrası kongenital kriptoftalmus tanısı konulmuş ve kuşun sağ göz palpebral fissürü başarılı bir cerrahi işlem ile düzeltilmiştir. Bu rapor kriptoftalmusun kuşlardaki görünümünün klinik özellikleri ve cerrahi tedavisi hakkında bilgi sağlamaktadır.

Anahtar sözcükler: Atrezia, göz kapağı, kongenital, kriptoftalmus, sultan papağanı

Introduction

Cryptophthalmos was first described by Zehender and Manz in 1872 (Buyukmihci ve ark., 1990, Cook, 2007). It is a rare anomaly characterized by an uninterrupted continuity of the skin covering the eyeball (Doneley, 2016, Gupta & Saxena, 1962). It is also known as eyelid atresia which can occur after trauma or inflammation and is more commonly seen in cockatiels (Mitchell & Tully, 2016). The eyelid aperture is either missing or too small (Buyukmihci ve ark., 1990). Sometimes only a few areas of cornea may be visible (Doneley, 2016). It can be congenital developmental anomaly or secondary to an injury such as self-trauma or infectious disease such as chlamydial infection, poxvirus conjunctivitis (Gupta & Sen, 1990, Gupta ve ark., 1990). This

condition is mostly bilateral, unilateral form being very rare (Buyukmihci ve ark., 1990).

It is classified into two types; complete and incomplete. The complete variety presents with the absence of the palpebral fissure, the eyelid skin completely covers the orbit. The incomplete variety presents with narrowing of the palpebral fissure. While complete eyelid atresia is the total fusion of the eyelid margins, incomplete one is the condition of a part of the eyelid margins (Cook, 2007).

In the previous studies, different abnormalities of eyelid have been reported. This condition is confused with other eyelid anomalies such as ankyloblepharon,

symblepharon, blepharophimosis (Buyukmihci ve ark., 1990, Cook, 2007, Rival, 2015).

The aim of this study was to show that surgical treatment that was previously reported to be unsuccessful may be an effective treatment procedure according to the results of this case.

Case Report

A 3-year-old Lutino Cockatiel was presented for ophthalmologic examination of persistent fusion of the upper and lower eyelids of the right eye since birth (Figure 1). On physical examination, the bird was bright and alert. It was in a good body condition, weighted 85 grams and had no other anomalies present. Both eyes were evaluated using direct ophthalmoscopy and ultrasonography. On ophthalmologic examination revealed the right eyelids had a too small palpebral fissure which was displaced medially from its normal location. The left eye was seen well, the right globe could not be evaluated because of the eyelid skin which is continuous over the globe and incomplete cryptophthalmos was diagnosed. But ultrasonographic examination revealed the right globe was in normal structure meaning that the globe size was normal in both eyes (Figure 2A-B). Diagnosis of congenital cryptophthalmos was made according to the anamnesis given by the owners and it was decided to be reconstructed with surgical technique of the right eyelid palpebral fissure. General anesthesia was induced by administration of isoflurane 2% concentration with modified glove mask. The bird was placed in dorsal recumbency, the head was turned laterally to expose the right eye and ocular surface was cleaned with a dilute solution of 0.05% betadine. Except the operation area,



Figure 1. 3-year-old, unknown sex Lutino Cockatiel with congenital cryptophthalmos. Bird had only a small opening on the right palpebral fissure.

the bird was covered with a sterile cloth. After the eyelid was cleaned with 0.9% sterile isotonic, the skin covering the right globe was incised by sharp dissection of full thickness to create the palpebral fissure. Ophthalmic microsurgical instruments were used to minimize surgical trauma. The surgical incision was performed from the medial palpebral fissure to the adhered lateral area using iris scissors and minimal bleeding was

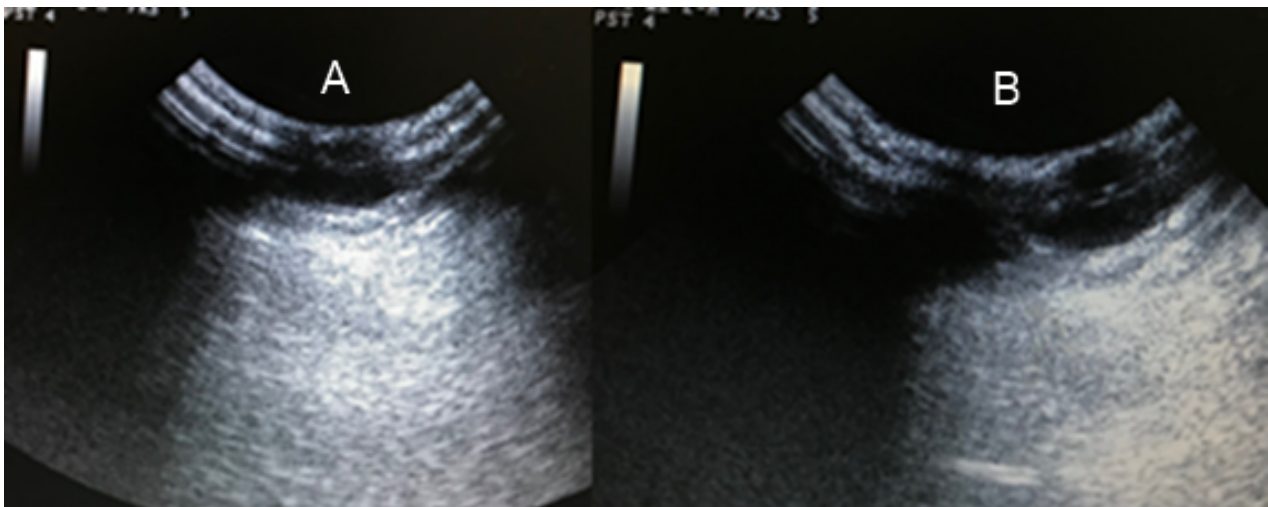


Figure 2. Ultrasonographic findings of left eye (A) and right eye (B). Both the left and right globes were evaluated in normal size and structure in ultrasonographic examination.

occurred with sterile swabs compression (Figure 3). Examination under anesthesia confirmed the preoperative ultrasonographic findings in the right eye which was normal size. No corneal or nictitans adhesions were observed. The right eye had normal pupillary and menace response. The eyelids mobility appeared to be normal after the incision. Suture was not applied to prevent the possibility of regional deterioration of the eyelid structure after the conjunctival mucosa adhered to the thin eyelid skin. Surgical correction was performed successfully. The bird regained a normal appearance Postoperatively, 0.3% tobramisin ve 0.1% dexamethasone (Tobradex®, Alcon laboratory, Turkey) eye drops (three times daily) and fusidic acid (Fucithalmic®, Abdi Ibrahim, Turkey) eye ointment (two times daily) were instilled for 2 weeks. Recheck was performed at first, second and fourth weeks. The palpebral fissure narrowed lightly 2 weeks after the surgery but never returned to its preoperative appearance (Figure 4,5).

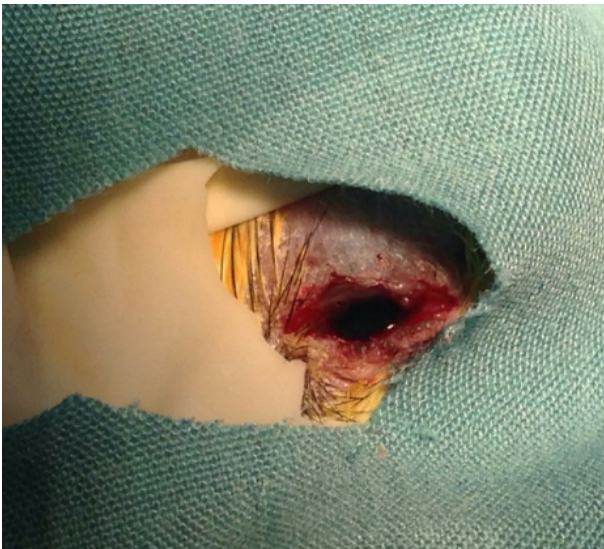


Figure 3. Apperance of eyelids after incision.



Figure 4. Apperance of the right eye 2 weeks after surgery. Palpebral fissure appeared to narrowed slightly.

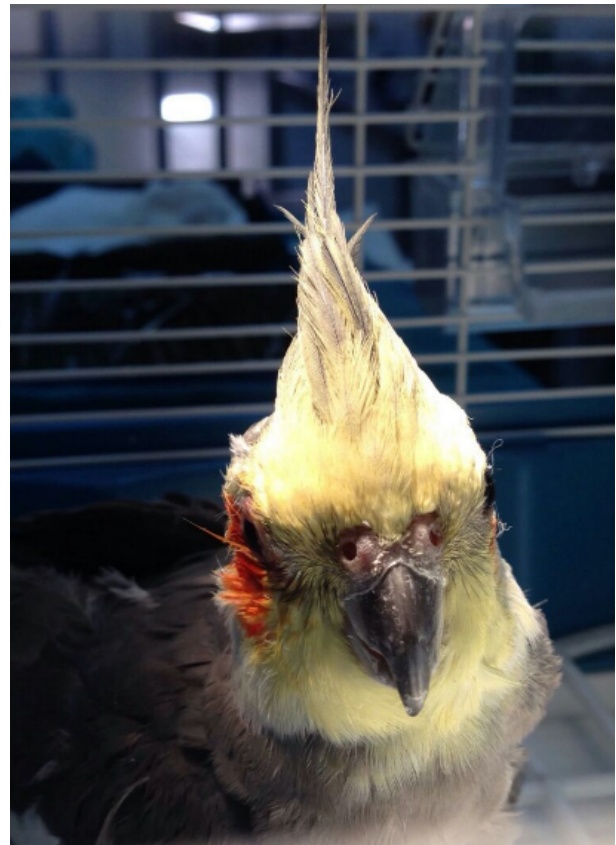


Figure 5: The frontal view of the bird in the fourth week.

Discussion

Anomalies of the eyelid in birds may occur due to congenital or secondary etiologies (Cook, 2007, Gupta & Saxena, 1962). In cockatiels, palpebral fissure lesions may develop owing to such causes as cryptophthalmos, ankyloblepharon, symblepharon and blepharophimosis (Cook, 2007, Rival, 2015). Although there are some similarities between them, cryptophthalmos is a congenital anomaly of the eye and there is no indication of a ciliary margin having formed, ankyloblepharon is usually secondary and there is a fusion of the upper and lower eyelids (Doneley, 2016, Rival, 2015, Subramanian ve ark., 2013). The term ‘symblepharon’ refers to multiple permanent adhesion between eyelid and globe due to the conjunctival inflammation (Pinard et al., 2006, Rival, 2015). The term ‘blepharophimosis’ refers to narrowing of palpebral fissure without eyelid fusion (Rival 2015).

Normally, in the neonatal periods such as a few weeks after birth for some species such as feline, canine and parrot, the eyelid margins usually remain fused (Doneley, 2016). In Cockatiel, complete separation is occurred within 10-12 days (Doneley, 2016, Gupta & Saxena, 1962). Rarely, eyelid margins may not be

completely separated during this process and this may result in palpebral congenital anomalies. These are one of the difficult problems encountered by surgeons. Cryptophthalmos from these animals has been reported in cockatiels by Buyukmihci et al. (1990). This is a very serious, congenital condition which has been reported in a dog and eyelids do not form, skin is continuous over the eye region (Gupta & Sen, 1990). In humans this condition is called by various authors, as cryptophthalmos syndrome or Fraser syndrome which is usually associated with multiple developmental defects such as nose and ear deformities, cleft palate, cleft lip, ankyloglossia, variations of the hairline, malformations of the teeth, hypertelorism, lacrimal duct defect, laryngeal atresia, renal anomaly, umbilical hernia, meningo-encephalocele, total or partial syndactyly, and incomplete development of the genitalia (Buyukmihci et al., 1990). However, at this reported case, lesion was not associated with other systemic anomalies and the exact etiologies of this condition was unknown. It is usually may present at birth as a result of abnormal embryogenesis. A study has been reported that the eyelid and palpebral fissure are induced by the contact of the optic vesicle with the surface ectoderm (Williams, 2012, Willis & Wilkie, 1999). If a problem develops in this contact, eyelid or palpebral fissure anomalies may occur. In this reported case, the bird was diagnosed to have congenital, unilateral cryptophthalmos due to the no history of illness or trauma (Williams 2012).

To our knowledge, this is the first reported case of a congenital cryptophthalmos with a successful surgical outcome in a Cockatiel although surgical procedures have been reported as unsuccessful according to previous reports in such clinical cases (Gupta & Sen, 1962, Rival, 2015). In previous studies, it has been reported that the skin covered the globes again and returned to the preoperative condition in about 1 month (Gupta & Saxena, 1962, Buyukmihci et al., 1990). But in this case we had a positive outcome from the surgical operation and the medical treatment which was administered postoperatively. Within two months, the skin did not return to its former state.

Kaynaklar

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