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Title

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Permalink

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Journal

Journal of the American Veterinary Medical Association, 196(9)

ISSN

0003-1488

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Publication Date

1990-05-01

Peer reviewed

02209
A-1003
A-92

Eyelid malformation in four cockatiels

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Fusion of the ciliary margins of the eyelids is termed ankyloblepharon. This is normal at birth in species such as the canine, or is pathologic if it develops after the neonatal period in any species. If the skin is continuous over the orbit and there is no indication of a ciliary margin having formed, the condition is termed cryptophthalmos.

Four cockatiels with various degrees of lack of formation of the palpebral fissures are reported. Attempts to surgically construct palpebral fissures were unsuccessful. All cockatiels were captive hatched from healthy parents and were being provided adequate nourishment.

Bird 1—A 2-year-old male gray cockatiel raised in California was examined because the client maintained that the palpebral fissures had been small since hatching. Bilateral elliptic palpebral fissures about 1 to 2 mm along the long axes were evident (Fig 1). The right palpebral fissure was displaced medially from its normal location, whereas the left was almost central. Evidence of a normal ciliary margin on either side or evidence of a line of fusion in the skin medial or lateral to the existing palpebral fissures was not found. Most of each globe was covered by thin skin, which did not move in response to tactile stimulation, suggesting either paralysis of the motor nerve supply or, more likely, maldevelopment of the orbicularis oculi muscle.

A small part of each cornea, anterior chamber, iris, and pupil was visible and appeared normal. Pupillary responses to light were normal. Each nictitating membrane appeared to move normally across the globe. What little could be seen of these structures through the tiny palpebral fissures appeared normal. The bird could see and behaved normally. Other abnormalities were not found.

Birds 2 and 3—Two 8-week-old cockatiels of unknown sex were examined because the eyelids

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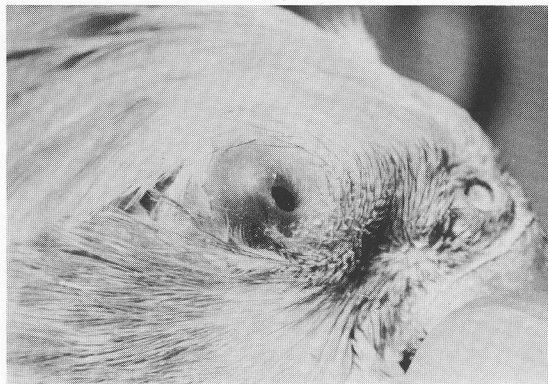


Figure 1—Adult cockatiel with only a tiny opening (the dark, elliptical region in the skin overlying the globe) in place of the normal right palpebral fissure.

had appeared maldeveloped since hatching. Although these birds were nest mates and were raised under similar conditions, they were from different parents. The clients, who lived in California, had hatched and raised over 100 other cockatiels in the same year without incident, even from similar matings. The color of affected bird 2 was lutino. Its right eye had a reduced palpebral fissure with an abnormally smooth ciliary margin. The right upper "eyelid" moved slightly in response to tactile stimulation, and the bird attempted to move away. The remainder of the physical findings, including the condition of the left eye, were similar to those for bird 1. Vision could not adequately be assessed because of the stressed condition of the bird.

The color of bird 3 was pearl. Its right eye was normal. The left eye had no palpebral fissure (Fig 2), and the globe may have been slightly smaller than normal. The nictitating membrane appeared to move normally under the thin skin, and the bird behaved normally.

Surgery was done in an attempt to construct the left palpebral fissures of both birds. Anesthesia was induced by administration of ketamine hydrochloride. Sharp dissection was done to widen or create the palpebral fissure. In the lutino-colored bird, sutures were not used. In the pearl-colored bird, 6-0 polyglactin 910 sutures were placed in a simple interrupted pattern to appose palpebral

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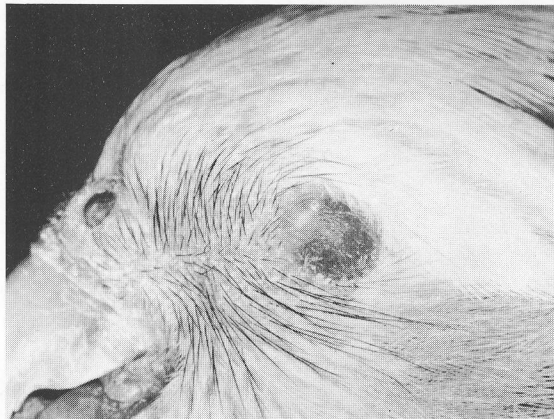


Figure 2—The left palpebral fissure is apparently lacking in this adult cockatiel.



Figure 3—Appearance of the left eye of the bird seen in Figure 2, 4 days after surgery to construct a palpebral fissure.

conjunctiva to skin at the new "eyelid" margins. Both birds were treated after surgery with topically administered chloramphenicol ophthalmic ointment. Four days after surgery (Fig 3), the "eyelids" of the pearl-colored bird moved well spontaneously. The nictitating membranes appeared structurally normal and moved normally across the globes. Within a month, however, in both birds, the skin overlying the globes had returned to the preoperative condition.

Several additional attempts were made to surgically construct the left palpebral fissure in these birds. Despite postoperative use of a combination antibiotic-corticosteroid medication applied topically, all attempts failed to bring lasting results. Invariably, within 10 days of discontinuing topical administration of corticosteroids, the new palpebral fissure began to narrow and returned to its preoperative state within the ensuing 2 to 3 months. Examination at 23 months after initial examination revealed essentially no changes except for minor scarring. At that time, it was noticed that the skin over the left globe of each bird had no motor eyelid response to tactile stimulation, although the birds' behavior verified that sensory innervation was intact.

Bird 4—This 24-day-old male gray cockatiel from Tennessee was from a clutch of 5; 2 had died and 2 were clinically normal. The cause of death in the former was unknown. The bird was underweight and undersized. It first was seen by the client at 3 weeks of age and veterinary assistance was sought because the left eye was closed. Physical examination revealed a small, oval right palpebral fissure, rather than round as normally expected. The eyelid margin had a smooth surface. Other abnormalities were not noticed in the right eye. Findings for the left eye were essentially similar to those for both eyes of bird 1, the small palpebral fissure being displaced medially. The globe could not be evaluated.

Over the next 4 weeks, the left eye developed a small amount of mucoid discharge, causing the lower "eyelid" to swell. At that time, the palpebral fissure had enlarged somewhat and the "eyelid" margins were smooth. Surgical intervention was attempted once in a manner similar to that used for birds 2 and 3. In addition, a full-thickness excision specimen of the lower eyelid tissue was obtained, but was not examined microscopically. Postoperative medication was not prescribed.

After surgery, it was determined that the size of the left globe was normal. The eye had normal pupillary response to light, and the bird avoided menacing stimuli directed at the eye. The nictitating membrane seemed to be structurally normal and moved normally across the globe. Over the next 2 to 3 weeks, the palpebral fissure slowly assumed its preoperative appearance. By the time the bird was 15 months old, the client indicated that there was no further change in appearance.

In dogs,¹ cats,² and horses,³ ankyloblepharon usually is the result of delayed opening of the eyelids, and is without serious complications or consequences for the affected animal. Cryptophthalmos, a considerably more serious condition, appears only to have been reported in the veterinary literature in a dog.⁴ There has been a report of narrowed palpebral fissures in zebra finches⁵; however, a ciliary margin apparently was present.

In this series of cockatiels, precise classification of the condition was difficult because there were features of cryptophthalmos and ankyloblepharon. Cockatiels are altricial birds whose eyelids are closed at hatching. The time of eye opening appears to range from about 8 to 12 days based on the observation of breeders.⁶ Because most birds in question had been seen within this period, it seems likely that their condition was congenital. There was no apparent line of fusion in the skin overlying the globes, suggesting that eyelid folds and a ciliary margin had never properly formed during development. This would suggest a diagnosis of partial cryptophthalmos. The fourth cockatiel was not observed until after the eyelids normally would

⁶Nearenberg D, Davis, Ca: Personal communication, 1988.

have opened, so we cannot rule out the possibility that the eyelids opened, then fused. This seems unlikely, because the skin over the severely affected globe appeared to be devoid of a fusion line.

There has been brief mention of an adult cockatiel who had a condition strikingly similar in appearance to what we report.⁶ The description, however, is one of the eyelids progressively closing over time, implying that they were normal previously. This would appear to be different from what we observed in the birds of this report.

Curiously, attempts at surgically creating an artificial palpebral fissure failed in all birds. Despite suturing of exposed skin to conjunctiva in 1 bird, and the use of topically applied corticosteroids in 2 birds, the tendency for the tissues to return to their presurgical state was overwhelming. There appeared to be some direct correlation of fusion of the eyelids with cessation of corticosteroid administration. The apparent ability of corticosteroid administration to prevent fusion may have been only temporary, and use of the drug on an indefinite basis would not have been feasible.

We have received anecdotal reports from other veterinarians throughout the United States who have seen a similar condition in cockatiels.

There is no evidence to date that the condition is heritable. It would be prudent, however, to exclude affected individuals from a breeding program. On the basis of our limited experience, we cannot recommend attempts at surgical correction of the condition. From a clinical standpoint, the need for surgical correction may be moot because all cockatiels reported here, including the bird with bilaterally severe reduction in palpebral fissure size, were able to navigate and were thriving under the usual cage situations.

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