



A conjunctival dermoid of the third eyelid in a Birman cat

A 2-month-old female Birman cat was brought for evaluation of a small mass protruding from the anterior surface of the conjunctiva of the third eyelid of the right eye. The initial ophthalmic examination did not reveal any other obvious clinical signs. Given that the mass doubled in diameter in just 3 weeks, it was surgically removed and subjected to histopathological analysis. The definitive diagnosis was a conjunctival dermoid. To the authors' knowledge, this is the first case of a primary dermoid on the conjunctiva of the third eyelid described in a Birman cat.

Key words - Third eyelid, conjunctival dermoid, cat, choristoma, hamartoma, limbus.

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INTRODUCTION

The term dermoid means the formation of aberrant tissue (for example, skin, cartilage, bone) caused by the abnormal development of an isolated group of cells. With regards to the eye, a dermoid can differentiate from parts of the ectoderm during the development of the optic vesicle or from invagination of ectodermal tissue during gestation in a pocket of differentiated cutaneous tissue¹.

The disorder, which is congenital in nature, affects the dog more often than the cat. A dermoid typically develops in the cornea or conjunctiva; however, it can also occur in the margin of the eyelid or in the third eyelid^{2,3}.

It was recently shown that dermoid is a hereditary condition in the Dachshund, Doberman Pinscher, Dalmatian and Saint Bernard⁴, whereas it occurs sporadically in other dog breeds such as Puli, Siberian Husky, Australian Shepherd dog, Cocker Spaniel, English Springer Spaniel, Golden Retriever, Poodle, and Pug⁵.

A rare finding in the cat, dermoid has been described in an inherited form in Burmese cats, Birman and in European Shorthair cats^{6,7}.

The epithelial tissue of a dermoid can have hair follicles, sweat and sebaceous glands, vessels and fatty tissue⁸. The dermoid can be located on the lid margins, conjunctiva, the third eyelid, the limbus or cornea⁹.

A dermoid is normally slow-growing or may remain a constant size for a long time¹⁰. It may be unilateral or

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bilateral and usually occurs in the lateral perilimbic area¹¹. Some authors classify dermoids into choristomas, when they are located on the ocular surface, cornea and/or conjunctiva, and hamartomas, when they are located on the eyelid skin¹². Other authors, however, consider them all as choristomas¹³.

When the dermoid contains hair follicles, the hair emerging from the surface of the lesion can cause corneal opacity, conjunctival hyperaemia and epiphora.

Treatment is exclusively surgical.

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We report here the case of a Birman cat with a conjunctival dermoid of the right third eyelid.

CASE REPORT

History

Priscilla, a female, 2-month old Birman cat was brought for evaluation of a roundish lesion in the third right eyelid. The mass had been noted by the owner a few days previously. The cat had no clinical signs of discomfort or itching of the eye, only a mild epiphora.

Ophthalmological examination

On ophthalmological examination, the eyelids did not show any morphological changes, the pupillary light reflexes, both direct and consensual, were normal, while Schirmer's test (STT1) revealed increased lachrymation in the right eye, with values greater than 25 mm/min, and a normal tear production of 15 mm/min in the left eye. The cornea did not stain with the vital dyes, fluorescein and Rose Bengal. The intraocular pressure, measured using a Tonopen Vet, was 11 mmHg on the left and 12 mmHg on the right. The iris, vitreous body and retina were normal.

A rounded, whitish, lard-like mass of about 2 mm was identified on the third eyelid of the right eye, protruding from the anterior surface of the conjunctiva and in proximity, but without adhering, to the edge of the tarsal part of the eyelid (Figure 1).



Figure 1 - Nodule protruding from the anterior surface of the conjunctiva, adjacent, without being adherent, to the medial canthus of a 2-month old Birman cat.

Considering the age of the animal and the very small size of the lesion (which prevented cytology), initially it was decided to limit the therapy to local treatment of the nodule with an antibiotic ointment containing ofloxacin 0.3%, and an anti-inflammatory agent, based on dexamethasone 0.2%, applied twice daily for a period of 2 weeks. Three weeks after the first evaluation, the diameter of the nodule had doubled. Given the fast rate of growth of the mass, surgical excision and subsequent histopathological examination were recommended.

Pre-operative clinical examination

A thorough physical examination did not detect any signs of disease. The patient was slightly underweight (body condition score: 4/9). The mucous membranes were pinkish and the capillary refill time was of less than 2 seconds. The heart rate was 140 beats per minute, while the respiratory rate was 30 breaths per minute. Auscultation of the chest and abdominal palpation were normal as were the blood count and biochemical assays. Tests for FeLV and FIV were negative.

Differential diagnoses

Given the young age of the animal and the characteristics of the lesion, the differential diagnoses considered were a dermoid, a cyst, an abscess, a foreign body reaction, and neoplasia.

Surgery and post-operative course

The patient was pre-medicated with methadone 0.2 mg/kg given intramuscularly. Anaesthesia was induced with propofol 4 mg/kg, given intravenously, and maintained with a mixture of oxygen 70% and isoflurane at a concentration of 2%.

The surgical excision was limited to the anterior conjunctival surface of the third eyelid (Figure 2); the conjunctiva was closed with simple interrupted stitches, with a polydioxanone 6-0 suture (PDS Ethicom®).

The cat was discharged the same day as surgery with the following therapy: cefadroxil (Cefacure tabs®) 20 mg/kg *per os* twice daily for 10 days and locally applied chloramphenicol eye ointment (Oftalvet®) 5 g three times daily for a week.

The histopathological examination (Figure 3) showed keratinised stratified squamous epithelium, resting on a stroma with normal skin adnexae, diffusely hyperplastic and hyperkeratotic but with normal architecture and arrangement of the strata. On the basis of the histology, the diagnosis of a conjunctival dermoid was made. Healing was complete at the clinical controls 1 week and then 3 months after surgery.

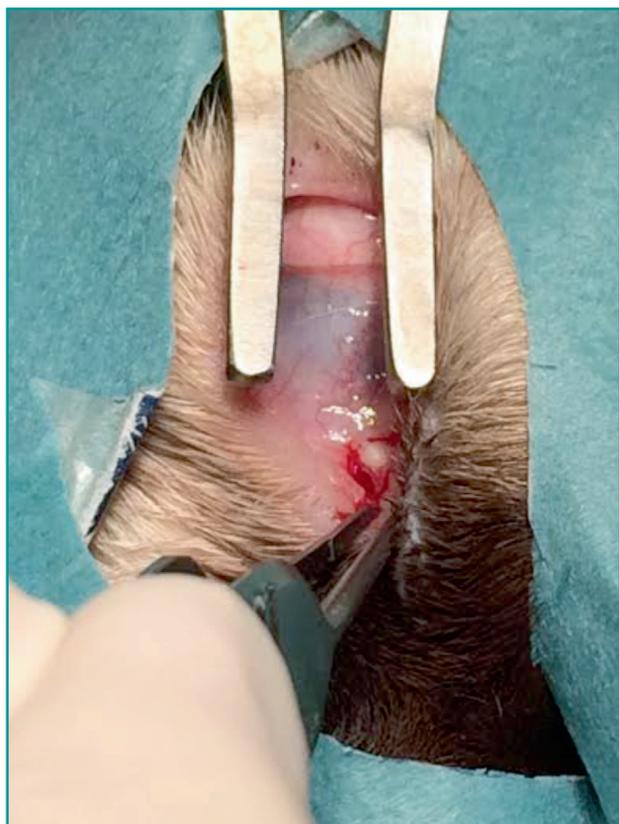


Figure 2 - Surgical excision of the conjunctival nodule.

DISCUSSION

The pathogenic mechanism leading to the formation of a dermoid is not entirely understood. The most likely hypothesis is abnormal differentiation of surface ectoderm during embryonic development¹⁴. The resulting dermoid usually contains elements derived from the ectoderm (keratinised epithelium, hair, sebaceous and sweat glands) and mesenchymal elements (fibrous tissue, adipose tissue and cartilage), combined in different proportions¹⁵.

The first historical reference in human medicine to a “choriostoma” is attributed to Mauchard and Samuels who, in 1742, independently described an epithelial choriostoma. In 1852, Ryba coined the term “dermoid” while Virchow, in 1860, defined the term metaplasia as “histological replacement” to describe congenital abnormalities related to dermoid. In 1926, Khan published an article, accompanied by photographic examples, which described, probably for the first time, an ocular dermoid in a pig¹⁶.

Despite being a well-documented pathology in human medicine, dermoids are described less frequently in veterinary medicine since they occur sporadically and are relatively rare¹⁷. Ocular dermoids have been observed in a number of domestic animals, such as dogs¹⁸, cats¹⁹, horses²⁰, cows²¹, sheep²², guinea pigs²³, rabbits²⁴, birds²⁵ and also in wild species such as the gnu²⁶.

Congenital ocular abnormalities, such as a dermoid, are usually noted at birth or, as in the case described in this report, within a few weeks of life and can be associated with eye malformations. They can be found in the eyelid, conjunctiva (palpebral and bulbar), third eyelid or cornea, or can be described as orbital inclusion cysts²³.

Conjunctival dermoid in the cat is very rare, grows slowly and normally presents in the lateral limbal canthus.

Conjunctival dermoids in cats are very rare, are characterized by slow growth and normally occur in the lateral limbal canthus. In the case presented here, the mass developed in the conjunctiva of the third eyelid of the right eye, an abnormal localization which, to our knowledge, has never been described before in the literature in the feline species.

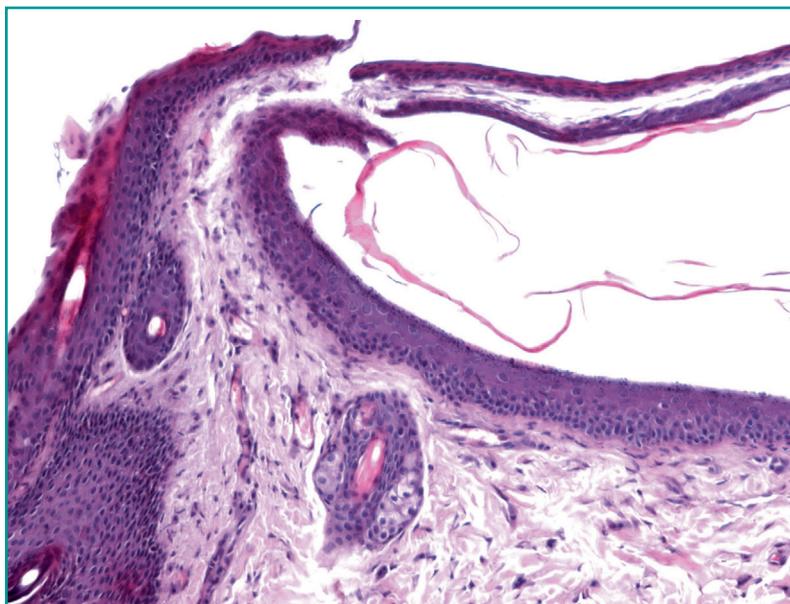


Figure 3 - Histological examination of the conjunctival growth: a small section of skin in which the dermis is focally expanded by a small cystic lesion that is displacing the cutaneous appendages to the periphery. The lesion has a large central lumen containing flakes of amorphous eosinophilic lamellar material (keratin) and lined by keratinised stratified squamous epithelium, diffusely hyperplastic and hyperkeratotic but with a normal architecture and arrangement of the layers (stained with haematoxylin and eosin, magnification 20x). Since the biopsy under examination was taken from the conjunctiva, the presence of keratinised squamous epithelium resting on a stroma with normal skin appendages (sebaceous follicle units) should be considered in itself an aberration, probably attributable to a conjunctival dermoid (choriostoma).

The rarity of the disease in cats, the anomalous site and presentation, as well as the subsequent rapid increase in the size of the mass, did not enable the authors to make a definitive diagnosis, which was achieved only after histopathological examination. The best treatment for ocular dermoids is surgical excision, which is carried out as soon as the animal has attained an age and weight appropriate to undergo general anaesthesia. In the presence of dermoid masses that cause corneal abnormalities, such as ulcers, pigmentation or chronic ocular pain, it is recommended that surgery is performed at an early age. In the absence of such conditions, surgery, although still recommended, may be postponed. The age of the patient and the absence of a clear symptomatology led to local medical therapy being preferred. However, given the lack of response to this therapy and the subsequent rapid growth of the lesion, we opted for a surgical solution, to avoid having to perform reconstructive surgery later on a larger growth.

In the presence of dermoid masses that cause corneal abnormalities, such as ulcers, pigmentation or chronic ocular pain, it is recommended that surgery is performed at an early age. In the absence of such conditions, surgery, although still recommended, may be postponed.

The pathology report confirmed the suspected diagnosis of dermoid.

This article describes a rare case of conjunctival dermoid in a cat. The site and course of the disorder were unusual. Surgical excision and subsequent histopathological examination of the mass were necessary to reach the diagnosis.

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KEY POINTS

- A dermoid is the formation of aberrant tissue in the cornea or conjunctiva.
- Dermoids are more frequent in dogs; they are rare in cats.
- A dermoid may develop in the eyelid, the conjunctiva (palpebral and bulbar), third eyelid or cornea, or may present as an orbital inclusion cyst.
- The only possible treatment is surgical excision.

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