

---

## Case report

---

### A corneal dermoid in a black wildebeest *Connochaetes gnou*

A. WEBER and W. VAN HOVEN

Weber, A. and W. van Hoven. 1990. A corneal dermoid in a black wildebeest *Connochaetes gnou*. *Koedoe* 33(2): 99-101. Pretoria. ISSN 0075-6458.

Dermoids are choristomatous malformations that can occur in the ocular region with a histologic structure similar to that of normal skin. Dermoids occur in a variety of domestic animals but no such cases have been reported in wild animals. A typical corneal dermoid in a black wildebeest *Connochaetes gnou* is presented.

Key words: corneal dermoid, black wildebeest, *Connochaetes gnou*.

A. Weber, Department of Oral Pathology and Oral Biology, Faculty of Dentistry, University of Pretoria, P.O. Box 1266, Pretoria, 0001 Republic of South Africa; W. van Hoven, Centre for Wildlife Research, University of Pretoria, Pretoria, 0001 Republic of South Africa.

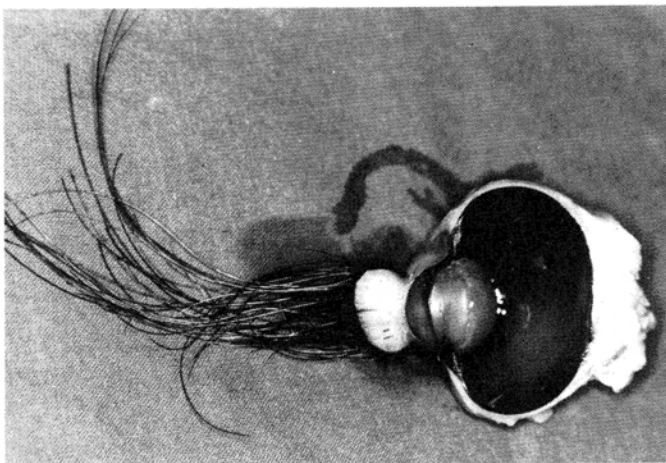
#### Introduction

Dermoids are choristomatous malformations that often occur in the ocular region. Dermoids of the orbit are usually cystic and are called dermoid cysts, whereas those that occur in the conjunctiva or the limbus are solid and are referred to as dermoid tumours. Pure corneal dermoids are relatively rare (Shields 1986). Corneal dermoids are, however, the most common congenital corneal lesion (Neumann 1984). Dermoids occur in several animal species, but are most common in dogs, cattle and horses (Lawson 1975). It is interesting to note that in dogs they appear most frequently in large breeds such as St. Bernards, German Shepherds and Great Danes (Gelatt 1971). Corneal dermoids were also described in sheep, pigs, cats, rats and guinea pigs (Chan 1932; Nichols & Yanoff 1969). Corneal dermoids are most frequently found at the temporal limbus but may occasionally involve the conjunctiva and sclera as well. In rare cases the dermoid may replace

the external canthus of the eyelids or may occur at a lateral part of the margin of an eyelid. The more extreme defects such as total corneal replacement, or total maldevelopment of the anterior segment of the eye, which are seen occasionally in man, have not recently been reported in animals (Lawson 1975). The colour of a dermoid is usually the same as that of the surrounding tissues, but it may be heavily pigmented and nearly always covered with hair (Hogan & Zimmerman 1962). The histologic structure of dermoids mimics that of normal skin. Not all of the cutaneous appendages need to be present in each case.

Dermoids have been described as occurring in a variety of domestic animals, but to the best of the authors knowledge, no such cases have been reported in wild animals. A typical corneal dermoid in a black wildebeest *Connochaetes gnou* (Zimmermann, 1780) is presented.

Fig. 1. The left eye removed, cut section. The lesion is situated on the central area of the corneal surface and is covered by numerous long hairs.



### Case report

The ocular tumour was incidentally detected during a routine examination of a culled black wildebeest bull in the Golden Gate National Park. The eye was removed for further examination and diagnosis. The right eye appeared to be normal.

The eye measured 40 mm x 35 mm and the corneal diameters were 20 mm x 25 mm. The eye was normal except for the circumscribed lesion on the cornea. The lesion, measuring 15 mm x 10 mm, was an elevated black pigmented lesion from which numerous long (40 mm) black hairs protruded (Fig. 1). The lesion occupied slightly more than one third of the cornea. The eye was opened and sections were cut through the corneal lesion for histological examination.

Microscopically, an elevated lesion replaced the entire thickness of the corneal epithelium. The surface of the lesion was covered by stratified squamous epithelium, and many hair follicles, sebaceous glands and large amounts of acellular connective tissue were seen subepithelially (Fig. 2). The pigment of

the dermoid could be seen to stop short of the point where the corneal epithelium becomes raised. The rest of the cornea was normal. A diagnosis of a corneal dermoid was made.

### Discussion

A dermoid is a choristomatous tumour, presumably arising from an ectodermal anlage and composed of tissues foreign to the area of origin (Nichols & Yanoff 1969). The lesion is an embryological defect in the differentiation of the ocular tissues and consists of fibrofatty tissue of mesodermal origin, covered by skin (ectoderm) bearing hair follicles, sweat glands and sebaceous glands. Where the dermoid involves the cornea it replaces its superficial layers and can be seen as raised above the normal corneal surface level (Lawson 1975).

Limbal dermoids involving both cornea and conjunctiva are much more common than pure corneal ones (Nichols & Yanoff 1969). They usually appear as solitary lesions affecting only one eye, but one report described the occurrence of bilateral corneal dermoids as

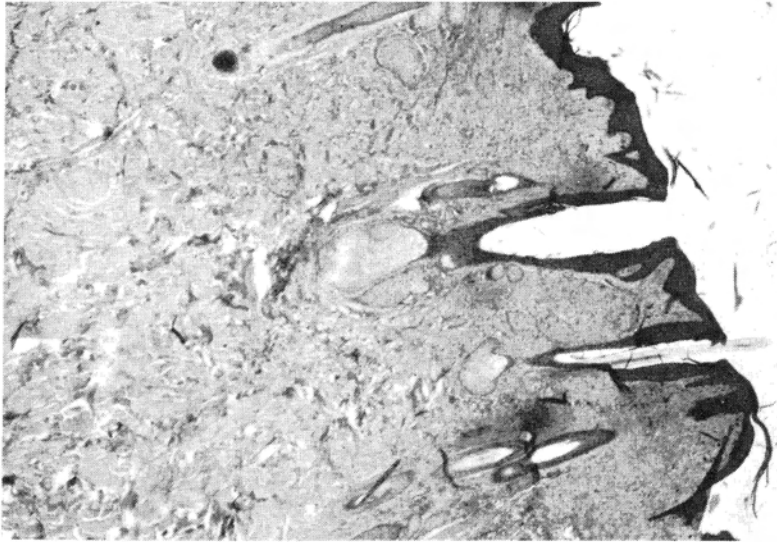


Fig. 2. High magnification of the lesion which is covered by stratified squamous epithelium. Hair follicles, sebaceous glands and large amounts of acellular connective tissue are present in the dermis (H&E x 41,4).

sociated with unspecified deformities of the eye in 50 % of the lambs born in a band of sheep. This raises the possibility of an hereditary tendency for ocular dermoids to occur in certain species. In the present case, the dermoid was exclusively corneal. This is unusual, for most dermoids of this area are reported to have limbal involvement.

Dermoids are seen in several domestic animal species but are not described in wild animals. One would presume that they do occur but escape detection because wild animals are not handled in the same way as domestic animals. No occurrence of any ocular dermoid has previously been described in a black wildebeest and is presented here as an interesting case report.

### Acknowledgements

The authors wish to thank Mrs. Heleen Pienaar for the typing of the manuscript and Miss Martie van der Walt for taking the photographs. The National Parks Board is thanked for their co-operation in the research, par-

ticularly Mr. Corrie Pieterse, Warden of Golden Gate National Park.

### References

- Chan, E. 1932. A corneo-scleral dermoid in a guinea pig. *American Journal of Ophthalmology* 15: 525 - 526.
- Davis, C. L. 1934. An unusual occurrence of corneal dermatoma in newborn lambs. *Journal of the American Veterinary Medicine Association* 85: 679 - 682.
- Gelatt, K. N. 1971. Bilateral corneal dermoids and distichiasis in a dog. *Veterinary Medicine/Small Animal Clinician* 66: 658 - 659.
- Hogan, J. H. & Zimmerman, L. E. 1962. *Ophthalmic Pathology An Atlas & Textbook* 2nd Edn. Ch. 61 pp. 335 W B Saunders Company: Philadelphia
- Lawson, D. D. 1975. Corneal dermoids in animals. *Veterinary Record* 97: 449 - 450.
- Neumann, S. M. 1984. Corneal dermoid in a beef calf. *Modern Veterinary Practice* 65: 553 - 554.
- Nichols, C. W. & Yanoff, M. 1969. Dermoid of a rat cornea. *Veterinary Pathology* 6: 214 - 216.
- Shields, J. A. 1986. Central corneal dermoid: a clinicopathologic correlation and review of the literature. *Canadian Journal of Ophthalmology* 21: 23 - 26.