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A tiger with glaucoma

We aimed to conduct an ocular examination on a tiger with suspected glaucoma rescued from a circus and on a normal control. Initial observation with flashlight was followed with a complete eye examination under sedation with ketamine and xylazil. We diagnosed anterior staphyloma with secondary glaucoma in the right eye and secondary glaucoma in the left eye of the tiger. The intraocular pressure (IOP; tonopen) in the affected and normal tigers were >80 and <14 mm Hg, respectively. The dependent IOP was higher. Circumstantial evidence suggested that the secondary glaucoma in the tiger was probably caused by circus training-related trauma.

We have heard of reports on glaucoma in cats, dogs and lions,[1–5] but not in tigers. We had the opportunity to examine the eyes of a 22-year-old male tiger (*Panthera tigris*) rescued from a circus troupe, suspected of having glaucoma.

Case report

The visual acuity in the tiger seemed to be no perception of light, and projection was inaccurate in both the eyes. The conjunctiva was clear. The cornea of the right eye had a pigmented ectatic scar suggestive of anterior staphyloma (fig 1A), whereas the left cornea was white with areas of slight pigmentation and mild vascularisation. The pupil, lens and fundus were not visible. The vertical corneal diameter was 35 mm in both eyes; horizontal corneal diameter was 40 mm in the left eye and could not be measured in the right eye. IOP measured with the tonopen (Medronic Zomed, Jacksonville, Florida, USA) was 90 and 88 mm Hg in the right and left eyes, respectively. On the basis of these findings, we made a diagnosis of anterior staphyloma with secondary glaucoma in the right eye and secondary glaucoma in the left eye.

For comparison, we examined a 6-year-old normal tigress, who showed good fixation and following movements. Discretion demanded omission of the cover test. The conjunctivas were normal, the limbus darkly pigmented and the corneas clear with nictitating membranes.

The iris was yellowish brown (before sedation, brisk pupillary reactions were noted). The lenses were clear (fig 1B). The normal and dependent IOPs were 13 and 12 mm Hg, and 21 and 22 mm Hg, in the right eye and left eyes, respectively.

A tapetal fundus reflex was noted in both eyes. The mid-periphery of the fundus was dark and the greenish macular pigmentation darkened with increased duration of light. The eyes had small optic discs and a 0.8:1 deep cup with vessels extending from the margin.

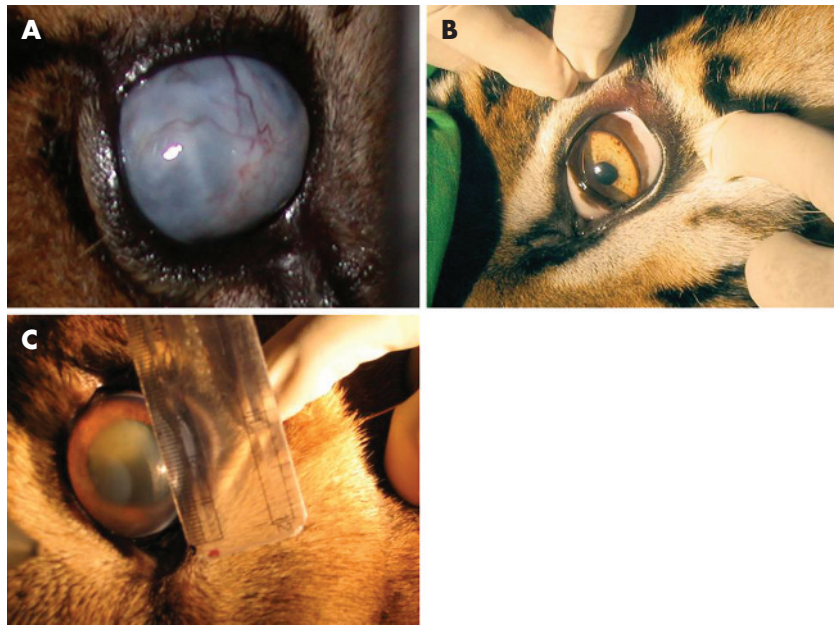

Figure 1 (A) Anterior staphyloma in the right eye of the glaucoma-affected tiger. (B) The right eye of the normal tigress. (C) Subluxated lens in the right eye of the glaucoma-affected lion.

Comment

The cause of the secondary glaucoma in the tiger was puzzling. We also had the opportunity to examine the eyes of two lions (fig 1C) rescued from the same circus. Both had dislocated lenses and glaucoma. On the basis of the circumstantial evidence, we suspect that the cause of secondary glaucoma in them was consequent to circus training-related trauma. As the tiger was also rescued from the same circus, the glaucoma was probably consequent to trauma sustained during training for the circus.

The parameters in the normal tigress could be within normal limits. The IOP was at the higher end of human IOP, but this may be due to the ketamine used. The dependent IOP was higher, as in humans.

Interestingly, the secondary glaucoma caused an increase in corneal diameter in the tiger. As such enlargement does not occur in humans,[6] perhaps there is a difference in the structure of the limbus in these animals.

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Lothian combined paediatric ophthalmology and rheumatology service

The American Academy of Pediatrics has recently published updated guidelines for ophthalmological examination in children with juvenile rheumatoid arthritis (JIA).[1] UK guidelines are currently under preparation. The American guidelines reiterate the need for rigorous screening to prevent the potentially blinding complications of undiagnosed uveitis, which is often asymptomatic and insidious in onset.[2] The Paediatric Ophthalmology service in Edinburgh runs a weekly joint clinic with the paediatric rheumatologists in the Sick Children's Hospital (Edinburgh, UK). A review of this service,