Ophthalmology Snapshot

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History

A 4 year-old female mixed breed dog (17 kg) was referred to the Ophthalmology Clinic, Small Animal Teaching Hospital, Faculty of Veterinary Science, Chulalongkorn University with a chief complaint of the abnormal appearance of the left eye; opaque cornea, red eye and enlarged eyeball.Duration of clinical signs was uncertain. As told by the owner, the dog slightly responded to unknown topical eye drop initially given by the private veterinarian.

Ophthalmic examinations

Table 1 Ophthalmic examinations before treatment

Examinations	Right eye	Left eye
Menace response	+	-
Dazzle reflex	+	-
Pupillary light response	+	-
Blink reflex	+	-
STT I	10	6
IOP	22	44
Fluorescein staining test	-	-

Left eye:-

Basic ophthalmic examinations were in table 1. Pupil was dilated. Episcleral injection and conjunctival hyperemia were present. The cornea was quite clear with grey lines running across (figure 1). Lens was posteriorly displaced. Degeneration of the retina could be located above the optic disc.

The dog was re-examined after ten days of topical hypotensive medications that had been continuously applied. Basic ophthalmic examinations were in table 2.

Right eye:-

Abnormalities of the eye were not observed.

Table 2 Ophthalmic examinations after treatment

Examinations	Right eye	Left eye
Menace response	+	-
Dazzle reflex	+	-
Pupillary light response	+	-
Blink reflex	+	-
STT I	15	15
IOP	17	19
Fluorescein staining test	-	-

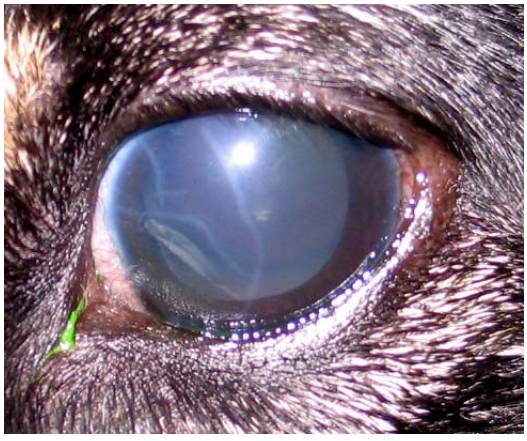

Figure 1 Ophthalmic appearance of the left eye.
(For better quality, figures can be viewed in the TJVM website)

Question

What are grey lines across the cornea?

Please turn to the next page for answers …….

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Answers

Corneal striae or Haab's striae or descemet's streak

Comments

Corneal striae are band-liked structures which appear on the cornea when the intraocular pressure (IOP) is moderately to highly elevated. They are streaks resulting from breaks in descemet's membrane. When the IOP is persistently high, globe is enlarged, stretching of the ocular tunics including the cornea occurs. Descemet's membrane is a thick membrane produced from corneal endothelium throughout life. Its high elasticity comes from the component of several types of collagen fibrils.

Corneal striae are clinically similar to posterior polymorphous corneal dystrophy (PPMD), a dominantly inherited condition in humans characterized by an alteration of the descemet's membrane and corneal endothelium. Most PPMD patients are asymptomatic. Otherwise clinical signs involve photophobia, decreased visual acuity and foreign body sensation. Diagnosis of PPMD via slit-lamp biomicroscopy, posterior corneal vesicles and polymorphous pattern are present. Histopathologically, the PPMD band is a thickening of descemet's membrane between the edges; while it appears thinner at the outer part. Edges of corneal striae on the other hand are thickened and curl; while the area between them is smooth and thin.

Ophthalmic examinations for clinical signs of glaucoma can provide a differentiation between corneal striae and PPMD. Vertical stripe is usually present in chronic glaucoma with preceding corneal edema or human cases with corneal edema accompanying hydrogel lens wear.

References

Cibis, G.W. and Tripathi, R.C., 1982. The differential diagnosis of descemet's tear (Haab's striae) and posterior polymorphous dystrophy bands. A clinicopathologic study. Ophthalmol. 89(6): 614-620.

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