

Ophthalmology Snapshot

Nalinee Tuntivanich

History

A twelve-year-old, female Miniature pinscher had presented to the Ophthalmology Clinic, Animal Teaching Hospital, Faculty of Veterinary Science, Chulalongkorn University with sudden ocular pain on the right eye. It was disclosed from history taking that the dog always jumped onto furniture. It was three days that she began to show blepharospasm and

squinting on the right eye, in particular.

Ophthalmic examination revealed mild to moderate eyelid swelling. Blepharospasm was apparent. The dog was not relaxed during examination. Menace response and dazzle reflex were negative. Pupil was fully dilated. Fundus was unclear from retro-illumination.



Figure 1 Right eye of the Miniature pinscher
(For better quality of photographs, please visit the TJVM website)

Question

Give ophthalmic diagnosis.

Please turn to next page for the answer.

Answer

Anterior lens luxation

Comments

Lens is able to adjust itself to refract light onto the retina, known as accommodation. Dislocation of lens (displacement or luxation) is a condition that lens changes its normal position. Thus vision is altered. Lens is normally located in the lens patella fossa, securely in place by Zonule of Zinn. When rupture of zonular fibers occurs, lens capsule separates from the zonules, resulting in dislocation of lens. Degree of luxation can be varied. Total or complete lens luxation occurs when lens capsule has 360 degree separation from the zonules. If lens comes forward through the pupil, in front of the iris, it is called anterior lens luxation. If lens goes posteriorly into vitreous chamber or posterior segment, it is called posterior lens luxation.

From figure 1, refractive edge of the lens from 11 to 5 o'clock position is noticed. Floating of the lens sign is indicated complete dislocation of the crystalline lens into the anterior chamber. Depth of the anterior chamber is reduced. It can be somewhat hard to visualize when lens is initially displaced and still clear.

Predisposition for primary lens luxation is noted in many dog breeds; Terriers, Chinese Crested dogs, Pinscher and Spitz. In contrast, secondary lens luxation is noted in Siberian Huskies, Basset Hounds, Bearded Collies, Cairn Terriers, mixed breed dogs, Bolonka Zwetna, Boston Terriers, Borzoi,

Doberman, Eurasian, Leonberg, Luzerner Niederlaufhund and Weimaraner. Most frequent causes for secondary lens luxation were glaucoma, cataract and trauma.

Lens dislocation can lead to several ocular disorders. Uveitis likely occurs from lens motion, stimulating intra ocular inflammation. Obscuring aqueous humor outflow by lens itself and possibly vitreous humor can directly cause elevation of intra ocular pressure. In the meantime, rising of pressure can be indirectly influenced by accumulation of inflammatory cells in the filtration angle. As a consequence of vitreous moving forward, retinal detachment is then possible. Prolong dislocation of lens causes reduction of lens nourishment, which in turn results in lens opacity afterward. Change in refraction of light onto the retina or retinal detachment will subsequently lead to impaired vision or blindness.

Reference

Betschart S, Hässig M and Spiess B, 2014. Lens luxation in dogs: a retrospective study of 134 dogs (2000-2011). *Schweiz Arch Tierheilkd.* 156 (3):125-31.

Oberbauer AM, Hollingsworth SR, Belanger JM, Regan KR, Famula TR, 2008. Inheritance of cataracts and primary lens luxation in Jack Russell Terriers. *Am J Vet Res.* 69 (2): 222-7.