

SURGICAL MANAGEMENT OF CATARACT IN A LABRADOR DOG

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Abstract: A Labrador dog aged about 6 years was presented with a history of cloudiness of right eye, missing objects for catching while playing and hitting objects at home. Careful ophthalmic examination and visual function tests confirmed it as mature cataract. It was corrected surgically by phacoemulsification and intraocular lens implantation, under general anaesthesia using atropine-xylazine-isoflurane. The lens material extracted through a smallest limbal incision using phacoemulsification and an artificial foldable hydrophobic lens (IOL) was inserted in to posterior capsular bag. The limbal incision was closed using vicryl no 6-0. With good postoperative care with parenteral antibiotics, analgesics and course of ophthalmic preparations the animal recovered uneventfully with regainment of vision over a period of six months.

Keywords: Labrador dog, Cataract, Phacoemulsification, Limbal incision, IOL.

INTRODUCTION

Cataract is a leading cause of blindness in dogs. The lens has a protein concentration of 33% of its total weight, most of which are transparent and water-soluble (Hart, 1992 and Shahzad et al., 2012). A cataract is the cloudiness of an otherwise clear ocular lens, with disturbance in the passage of light (Davidson and Nelms, 1999). This can make vision hazy or even blind. Numerous surgical techniques have been described. Over the years the success rate of cataract surgery has been raised significantly during last decades, especially due to the development of more precise microsurgical techniques and with introduction of phacoemulsification (Gellat and Gellat, 2001) and intraocular lens (IOL) implantation. The only effective means of its treatment was surgical extraction of diseased lens and its replacement by an artificial intraocular lens (Dziezyc, 1990). The present case study reports the efficacy of phacoemulsification for cataract removal and feasibility of intraocular lens implantation in dogs.

CASE HISTORY AND OBSERVATION

A six year old Labrador dog weighing 22 kg was presented to the Department of Surgery and Radiology, Veterinary college, KVAFSU, Bangalore with the history of missing objects while playing, hitting on to the wall or objects while walking at home and cloudiness inside the right eye. On ophthalmologic examination, menace reflex was negative, pupillary light response was positive and fundus was not visible in right eye confirming it as mature cataract. Schirmer's tear test (STT), applanation tonometry, fluorescein dye test and direct ophthalmoscopy have been performed. Intra ocular pressure was 16 mm Hg in both eyes. Cornea, conjunctiva and sclera were clear. The animal was apparently healthy with normal haemato- biochemical parameters.

TREATMENT AND DISCUSSION

The dog was fasted for food 12 hours and water up to 4 hours before surgery. Cefotaxime and Melonex were administered @ 20 mg/ kg BW and 0.2 mg/ kg BW I/V respectively, 2 hours prior to surgery. The dog was premedicated using atropine sulphate and xylazine @ 0.02 mg/ kg and 1.0 mg/ kg BW I/M respectively. General anaesthesia was induced using thiopentone sodium @ 12.5 mg/ kg BW I/V "to effect". After intubation, anaesthesia was maintained with isoflurane @ 1.5 – 2 % in 100% Oxygen and the vital signs were monitored.

Animal was restrained in left lateral recumbency with the affected eye on top. The eye was cleaned with 1:50 povidone-iodine solution followed by normal saline solution. The eye ball was fixed using polyamide no. 1-0. A stab incision was made at limbus using 2.8 mm keratome at 10 O' clock position (Fig. 1) followed by infusion of 1 ml of adrenaline in to anterior chamber to effect mydriasis. Hydroxypropyl methylcellulose (viscoelastic material) was injected intra-ocularly to maintain the stability and integrity of the anterior chamber, coat and to protect the intraocular tissues and to control haemorrhage. Capsular rhexis was done using a 23 gauge hypodermic needle bent at the tip in a semicircular fashion to open the anterior capsule. Then the phacoemulsification hand piece was introduced and the cataractous lens was emulsified and aspirated (Fig. 2). The Hydrophobic Acrylic foldable IOL piece (Fig. 3) was loaded in its cartridge and injected behind the iris in front of the posterior capsular bag of the lens. The incision site was then sutured by one interrupted suture using no. 6/0 polyglactin 910 (Fig. 4). Combination of gentamicin and dexamethasone @ of 0.1 ml each was injected subconjunctivally.

In the present study, the phacoemulsification followed with implantation of intraocular lens was proved to be a satisfactory technique for management of cataract in dogs. It facilitated ultrasonic fragmentation and aspiration of cataractous lens through an incision of about 2.8 mm. The advantages included smaller incision, less operating time and lesser astigmatism (Gelatt, 1991) and optimal correction of aphakia with near normal emmetropia as a result of using foldable hydrophobic acrylic intraocular lens through a very small (2.8 mm) opening with lesser post-operative complication and better recovery Ofri (2008), Raghuvanshi and Maiti (2013) and Hmar (2014). Glover and Constantinescu (1997) injected Hydroxypropyl methylcellulose (viscoelastic material) intra-ocularly to maintain the stability and integrity of the anterior chamber, coat and to protect the intraocular tissues and to control haemorrhage. Phacoemulsification was reported to reduce the severity of postoperative lens induced uveitis due to shorter surgical time and more adequate removal of lens cortex than other techniques (Ramani et al., 2011). Removal of cataract allows the patients with a hyperopic vision called aphakic refraction which can be overcome with the insertion of Hydrophobic Acrylic foldable IOL piece behind the iris in front of the posterior capsular bag of the lensKopala (2008) and Amitha (2015).

References

- [1] Amitha EK. (2015). Studies on scleral approach of phacoemulsification in dogs with cataract. MVSc Thesis submitted to KVAFSU, Bidar, India.
- [2] Arshinoff SA. (1999). Dispersive cohesive viscoelastic soft shell technique. *J. Cataract. Refract. Surg.* 25: 167-173
- [3] Davidson MG and Nelms SR. (1999). Diseases of the lens and cataract formation. In: Gelatt KN (Ed.), *Veterinary ophthalmology*. 3rd Edn, Philadelphia, Pennsylvania, Williams and Wilkins. pp: 797-825.
- [4] Dziezyc J. (1990). Cataract surgery: Current approaches. *Vet. Clin.North Am. Small Ani.Pract.*20: 737-754.
- [5] Gelatt KN. (1991). Editor, *Text book of Veterinary Ophthalmology*. 2nd Ed. Philadelphia. Lea & Febiger. pp. 429-460.
- [6] Glover TD and Constantinescu GM. (1997). Surgery for cataracts. *Vet. Clin.North Am. Small Ani.Pract.*27: 1143-1147
- [7] Hart W. (1992). *Adler's physiology of the eye*. 9th Edn, St Louis, USA, CV Mosby. pp: 131-164.

- [8] Shahzad S, Suleman MI, Shahab H, Mazour I, Kaur A, Rudzinskiy P and Lippmann S. (2012). Cataract occurrence with antipsychotic drugs. *Psychosomatics*. 43:354-359.
- [9] Gelatt KN and Gelatt JP. (2001). Surgical procedures of the lens and cataracts. In: *Small Animal Ophthalmic Surgery*. Massachusetts: Reed Educational and Professional Publishing Ltd. pp.286-335.
- [10] Hmar L. (2014). Comparison of phacoemulsification with and without intra ocular lens implantation for management of cataract in dogs. MVSc Thesis submitted to KVAFSU, Bidar, India.
- [11] Kopala RL. (2008). Unilateral phacoemulsification and intraocular lens implantation in a dachshund. *Can. Vet. J.* 49: 1031-1036
- [12] Raghuvanshi PDS and Maiti SK. (2013). Canine cataract and its management: An overview. *J. Anim. Res.* 3(1): 17-26.
- [13] Ofri R. 2008. Lens. In: *Slatter's Fundamentals of Veterinary Ophthalmology* Edt. Slatter DH. 4th Edn . W. B. Saunders Co., Philadelphia., pp: 261-272.



Fig 1: Photograph showing Limbal incision using 2.8mm keratome



Fig. 2: Photograph showing removal of remnants of lens by phacoemulsification

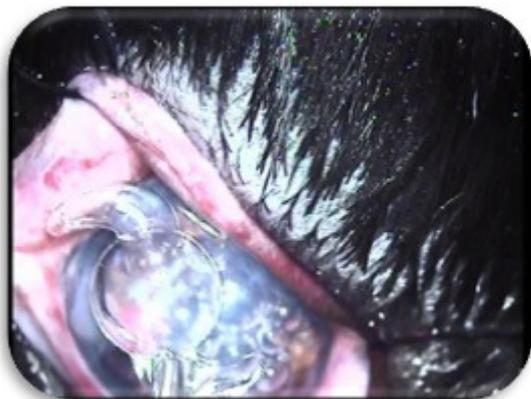


Fig. 3: Photograph showing foldable Hydrophobic IOL implantation.

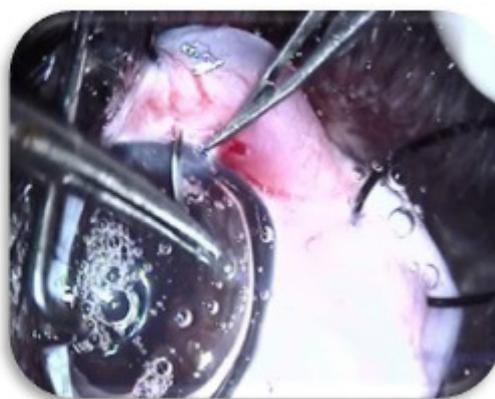


Fig. 4: Photograph showing Closure of limbal incision using Vicryl 6-0