

# **CHAPTER-I**

## **INTRODUCTION**

Nowadays almost everyone has pet. Elite class people keep pets. Their emotions are associated with these pets. Like human's pets also suffer from many health issues when they are getting old. Besides, accidental or infectious causes results in many diseases. Cats are always cared for by their owners and are nurtured as members of their family. So, if their pets feel bad, the owners get worried. Ocular diseases or injury are almost common among pets. In Bangladesh, ocular trauma accounts for a sizable portion of all new cases that are presented to ophthalmology services; majority of these cases are mild injuries just a small number (between 0.9% and 1.8%) are admitted to the hospital, and are treated either in the accident and emergency department or as outpatients (Desai et al., 1996).

When considering ocular treatment for a patient with an exotic pet, enucleation is sometimes the last option. Enucleation is the surgical removal of the third eyelid and the globe. It is recommended for intraocular neoplasia, severe ocular damage with perforation, and unmanageable glaucoma when other treatments have failed (Van der Woerd, 2012). Without enucleation, exenteration, evisceration, and orbitotomy are also used in case of ophthalmic surgery (AH, 1977). Exenteration is removal of the globe, adnexa and orbital contents to stop a noxious disease process e.g., neoplasia or fulminating and uncontrollable infection (Collins, 1999). Ophthalmology patients have grown to represent a significant segment of the small mammal pet market in recent years (Wagner & Fehr, 2007). It is difficult to do orbital surgery, especially when an orbital condition affects a sighted eye (Ramsey & Fox, 1997). Complex orbital anatomy is always affected by disease processes whenever orbital surgery is required (Ramsey & Fox, 1997).

## **CHAPTER-II**

### **2. MATERIALS AND METHODS**

#### **2.1. Case History:**

A three - months - old local breed weighing 1 kg was taken to Chittagong Veterinary and Animal Sciences University's Shaheedul Alam Quadery Teaching and Veterinary Hospital in

Chattogram, Bangladesh, with a history of accidental injury. They did not take any first aid before going there. A great deal of care was taken to prevent the cats from receiving any medication therapy, including the use of analgesics, corticosteroids, and fluid electrolytes (mannitol, diuretics, etc)(Parlak et al., 2021). Evaluation of the ABCs (airway, breathing, and circulation) is essential for emergency interventions in every trauma patient. However, it was also done to determine hypovolemia and hypoxemia (Sande & West, 2010). Physical examination also revealed that the body temperature was 104.1° C, the heart rate was 177 beats per minute, and the respiration rate was 41 breaths per minute.

## **2.2. Diagnosis:**

When patient came, he was devastating injured. According to the history from the owner, the accident happened two hours before being brought to the hospital. The owner's complaint was, while running after another cat, he collided with something and was fatally injured. Through inspection, we found that his eyeball was dislocated and he was just screaming in pain. A ventral X-ray imaging revealed that, the laceration of the eyeball.

## **2.3. Restraining and Anesthesia:**

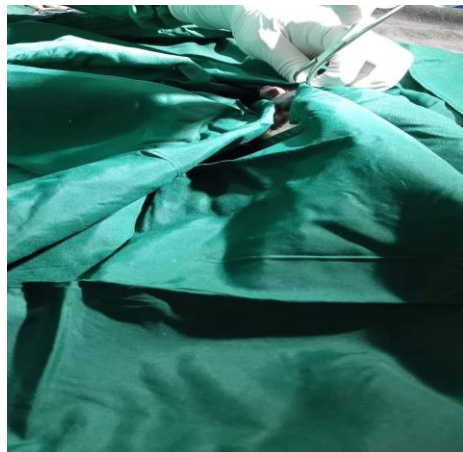
The cat was initially held with its back to the handler and was placed on its side. The handler gasped the cat's front and back legs and placed a forearm over the cat's neck. Xylazine hydrochloride (Inj. Xylazine®, Indian Immunologicals Ltd, India, 1mg/kg BW intramuscularly) was used as a sedative. Ketamine (Inj. Ketalar®, Popular Pharmaceuticals Ltd., Bangladesh, 15 mg/Kg body weight intravenously) was used as general anesthesia (Novack & Robin, 2016). The anesthetic's maintenance dose was cut in half from the initial dose during the surgery. Also Xylazine was given drop by drop as local anesthetic during surgery. The operating region was prepared after shaving and hair removal. The periocular area was carefully scrubbed with povidone-iodine solution diluted with saline. Gross contamination was removed with gauze sponges soaked in sterile saline. The corneal and conjunctival surfaces were irrigated with saline. In the final preparation, 70% ethyl alcohol was first used to scrub the skin around the surgical area, then povidone-iodine, and finally 70% ethyl alcohol again. During scrubbing, care was taken not to allow alcohol to enter the conjunctival sac (Galín et al., 1966).



**Figure 1: Preparing the surgical site**

#### **2.4. Surgical Procedure:**

With the exception of the surgical area, which was left uncovered, the cat was placed so that she was resting on her back. A sterile draper was then placed over him. Throughout the procedure, the patient's vital signs, including their heart rate, blood pressure, temperature, gum color, pulse strength and anesthesia level were all carefully monitored.



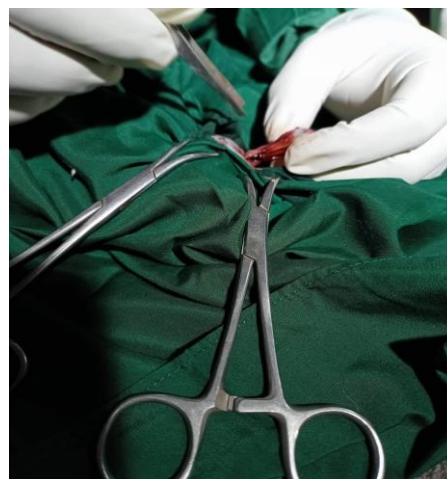
**Figure 2: Fixing the Draper**

A lateral canthotomy was performed for 1 to 2 cm to improve exposure. The conjunctiva was grasped near the limbus with toothed forceps, and a 360° perilimbal incision was made. The conjunctiva, fascia, and extraocular muscles are elevated from the sclera with curved Metzenbaum or Mayo scissors to the optic nerve. If possible, the lacrimal gland which was found dorsolaterally over the globe, should be left attached to it (DiFazio & Fletcher, 2013).

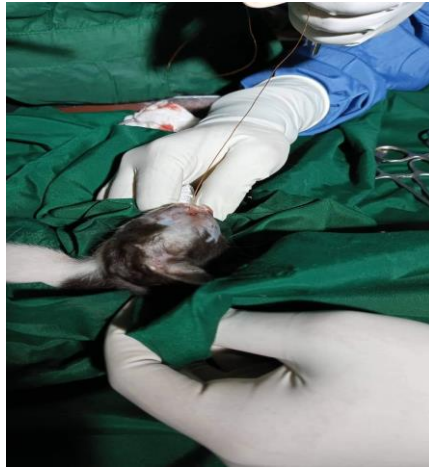


**Figure 3: Applying local Anesthesia**

The optic nerve was severed with either scissors or an electro-surgical tonsil snare. Excess traction on the optic nerve, may damage the optic chiasm and impair vision in the contralateral eye (Duke-Elder, 1958).



**Figure 4: Severing Eyeball**



**Figure 5: Suturing the incision site**

A ligature was placed around the optic nerve and nearby long and short posterior ciliary vessels. Hemorrhage in the orbit was controlled by ligation and pressure from surgical sponges. The third eyelid was grasped and removed, and the orbit was temporarily packed with sponges. The eyelids were re- moved entirely at this later stage to prevent blood from obscuring the earlier dissection during removal of the globe. Surgical sponges were removed, and the conjunctiva and Tenon capsule were closed with simple continuous sutures by Vicryl. The lid incisions were closed with simple continuous sutures of Nylon.



**Figure 6: Enucleation**

## **2.5. Post-operative Care:**

Ceftriaxone was administered intramuscularly once day for seven days at a dose of 20 milligrams per kilogram of the patient's body weight (Injection Ceftron 250mg®, Square Pharmaceuticals, Bangladesh). For seven days, muscle was injected daily with antihistaminic chlorpheniramine maleate (Injection Alerin®, SK+F Pharmaceuticals Ltd., Bangladesh) at a dosage of 1 mg per kg of body weight. For the purpose of treating pain, an analgesic Meloxicam at a dose of 40 mg/Kg body weight (Injection Melvet®, Acme Laboratories Ltd., Bangladesh) was given subcutaneously each day for five days. Tropical antibiotic Povidon Iodine (Ointment Viodin®, Square Pharmaceuticals Ltd., Bangladesh) was given in the operating site. For seven days, the patient was placed in a sterile environment and monitored. An Elizabethan collar was recommended for prevention of self-trauma.

## **2.6. Follow Up Period:**

After 14days of the surgery, the suture was removed and also checked the condition of the patient. X-ray was done to confirm the eye condition. There were no complications, and he recovered without issue.

# **CHAPTER-III**

## **3. RESULT AND DISCUSSION**

The majority of eye injuries in animals are avoidable but also more catastrophic. Younger individuals are more likely to experience ocular trauma, yet the majority of published research describe difficult cataracts brought on by trauma along with their treatment options. Male cats are three times more likely to develop ocular trauma than female cats (Klopfer et al., 1992). Ocular morbidity has trauma as a major contributing factor. After trauma, the patient's clinical history might range from minor symptoms to a number of sight-threatening problems that are challenging to treat (Kaur et al., 2014). Despite the deformity and visual loss they inflict, little is known about the prevalence and severity of eye injuries (Karlson & Klein, 1986). Any kind of eye injury should be done very carefully. For basic exterior treatments involving the lids and

third eyelid, some restrictions may be eased, but full aseptic precautions are used for intraocular surgery. For intraocular procedures, surgical gloves are cleaned with sterile saline to eliminate starch powder, which could result in postoperative endophthalmitis (RL, 1980). Cryotherapy is used in veterinary ophthalmic surgery to selectively destroy neoplasms, remove luxated lenses, treat distichiasis and trichiasis, and destroy the section of the ciliary body that regulates glaucoma. (D, 1990). Many Orbital disorders need enucleation, evisceration, exenteration, orbitotomy. Cryotherapy, intrascleral prosthesis, and intraocular drainage implants have almost completely replaced the requirement for enucleation in the treatment of glaucoma (Slatter, 2003). In contrast to enucleation, this method first inclines the eyelids, and the plane of dissection is outside the extraocular muscles rather than just next to the sclera. The postoperative defect is bigger with this procedure than with enucleation because more of the orbital contents are eliminated. Due to the removal of the contents of the orbit and the potential for disease recurrence, orbital implants are prohibited after this treatment. The sclera and cornea are not removed during evisceration; only the contents of the globe are. In the course of treating advanced glaucoma, it is carried out prior to the placement of an intrascleral prosthesis (RW, 1972).

## **Conclusion**

Ocular trauma is still a significant factor in the development of monocular, largely preventable visual morbidity and blindness (Desai et al., 1996). Now that the house has been identified as the one location where blindness injuries occur most frequently, health education and safety measures should be implemented. To stop major eye injuries, attention should now be focused on this previously unknown area.



## **Limitations of this study**

This study has a number of drawbacks. The fact that this was a retrospective clinical investigation led to the inclusion of a number of issues, including dates for absorption and/or disintegration, management of difficulties, and PO management. The study's biggest flaw is the lack of documentation of post-operative symptoms and radiological images due to the owner's lack of comprehension.

## References

- AH, B. (1977). *cryosurgery for the treatment of canine glaucoma* (Vol. 18).
- Collins, B. K. (1999). Diseases and surgery of the canine anterior uvea. *Veterinary Ophthalmology*.
- D, S. (1990). *Fundamentals of Veterinary Ophthalmology* (W. . Saunders (ed.); 2nd ed.).
- Desai, P., MacEwen, C. J., Baines, P., & Minassian, D. C. (1996). Incidence of cases of ocular trauma admitted to hospital and incidence of blinding outcome. *British Journal of Ophthalmology*, 80(7), 592–596.
- DiFazio, J., & Fletcher, D. J. (2013). Updates in the management of the small animal patient with neurologic trauma. *Veterinary Clinics: Small Animal Practice*, 43(4), 915–940.
- Duke-Elder. (1958). *System of Ophthalmology*.
- Galin, M. A., Davidson, R., & Shachter, N. (1966). Ophthalmological use of osmotic therapy. *American Journal of Ophthalmology*, 62(4), 629–634.
- Karlson, T. A., & Klein, B. E. K. (1986). The incidence of acute hospital-treated eye injuries. *Archives of Ophthalmology*, 104(10), 1473–1476.
- Kaur, S., Kaushik, S., & Pandav, S. S. (2014). Traumatic glaucoma in children. *Journal of Current Glaucoma Practice*, 8(2), 58.
- Klopper, J., Tielsch, J. M., Vitale, S., See, L.-C., & Canner, J. K. (1992). Ocular trauma in the United States: eye injuries resulting in hospitalization, 1984 through 1987. *Archives of Ophthalmology*, 110(6), 838–842.
- Novack, G. D., & Robin, A. L. (2016). Ocular pharmacology. *The Journal of Clinical Pharmacology*, 56(5), 517–527.
- Parlak, K., Akyol, E. T., Zamirbekova, N., Songül, A., Kayacik, S., Çayirli, Ü. F. B., Tanirli, Y., & Kadir, Sulu Alkan, F. (2021). Eye Injuries in Cats with Head Trauma. *Kocatepe*

*Veterinary Journal*, 14(4), 482–491.

Ramsey, D. T., & Fox, D. B. (1997). Surgery of the orbit. *Veterinary Clinics of North America: Small Animal Practice*, 27(5), 1215–1264.

RL, P. (1980). *Current Concepts in Ophthalmic surgery* (Issue 10).

RW, B. (1972). *Enucleation technique: A lateral approach* (Vol. 8).

Sande, A., & West, C. (2010). Traumatic brain injury: a review of pathophysiology and management. *Journal of Veterinary Emergency and Critical Care*, 20(2), 177–190.

Slatter, D. H. (2003). *Textbook of small animal surgery* (Vol. 1). Elsevier health sciences.

Van der Woerd, A. (2012). Ophthalmologic diseases in small pet mammals. *Ferrets, Rabbits, and Rodents*, 532.

Wagner, F., & Fehr, M. (2007). Common ophthalmic problems in pet rabbits. *Journal of Exotic Pet Medicine*, 16(3), 158–167.

## **ACKNOWLEDGEMENT**

Inestimable praises, thanks and adoration goes to the Almighty God, the beginning and the end of everything, for His infinite mercies, loving kindness and divine favour towards me.

It is with immense gratitude that I acknowledge my Supervisor DR. Mohi Uddin (Professor, Department of Anatomy and histology, CVASU) for his supervision, support and providing the facilities to complete the report.

I also express deep appreciation to Dean and External Affairs for giving the chance to me to fulfill my study.

I would like to acknowledge the cooperation and support of DR. Bibek Chandra Sutradhar (Department of Medicine and Surgery) for assisting in the study.

Special thanks for the surgery team of CVASU, who helps me to make this study.

I am indebted to my family for their spontaneous blessings, support and encouragement that was needed for completion of my report.

Most importantly, I am very much thankful to Chittagong Veterinary and Animal Sciences University (CVASU) for giving me opportunity for my study.

## **BIOGRAPHY**

The author, Farhana Farsa, was born and brought up in Chattogram, a beautiful city. She attended Dr. Khastagir Government Girls' High School, where she completed her Secondary School Certificate. Then she completed her Higher Secondary Certificate from Chattogram Govt Girls' college. For being an avid lover of animals, she had dreamed of becoming a veterinarian from her childhood. So, she got herself admitted in Chattogram Veterinary and Animal Sciences University. After completing her DVM degree, she wants to get involved in the field of research. Her research interest includes working on Bioinformetics.