

## Case Report

# Medical management of bilateral corneal opacity in an Asian elephant (*Elephas maximus*): A case report

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### ABSTRACT

**Objective:** This study was aimed at studying efficacy of medical management of corneal opacity in an Asian elephant (*Elephas maximus*).

**Material and methods:** A 42 years old male Asian elephant was brought to the Teaching Veterinary Hospital (TVH) at Chittagong Veterinary and Animal Sciences University (CVASU) with a history of chronic lacrimation and impaired vision. On clinical examination, the animal was found apparently healthy. Ophthalmological examination tentatively revealed the condition as corneal opacity. The left eye was much more affected as compared to the right one. Medical management was instituted with topical administration of ciprofloxacin, dexamethasone, subconjunctival prednisolone and dexamethasone along with intramuscular ketoprofen (at 1 mg/Kg bwt) and vitamin A (at 5000 IU/Kg bwt).

**Results:** The “mabou” (elephant caretaker) of the elephant was kept in close contact over cell phone to follow up the progress of the condition. Clinical examination after 19 days revealed complete recovery of the corneal opacity. There was no sign of lacrimation and the animal regained its normal vision.

**Conclusion:** The treatment protocol successfully eliminated the discomfort along with corneal opacity and lacrimation in an Asian elephant.

### KEYWORDS

Asian elephant; Corneal opacity; Medicinal management

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## INTRODUCTION

The cornea is considered as the clear window in front of the eyes through which light enters the eye and subsequently reached to retina, where image of the object is created. A corneal opacity or scar will prevent the light and the image from being properly transmitted to the retina (Maggs et al., 2012). Images can become distorted, leading to decreased vision. Several factors such as advancing age, atopic dermatitis, exposure to ultraviolet light, genetics and diabetes are thought to be associated with this pathological condition of eyes (Ajitkumar et al., 2010). However beside those, trauma and vitamin A deficiency are considered to be the main cause of corneal opacity in case of elephant (Chandrasekharan et al., 1995). Opacity can be white, red or even pigmented based on the nature of etiology (Martin, 2009). Opacity of cornea may lead to temporary or permanent loss of vision if not treated (Maggs, 2008). With the advancement of corneal opacity, ability of vision gradually reduced. As a consequence, vision could be lost temporarily or permanently due corneal opacity. This paper reports the medicinal management of corneal opacity in an Asian elephant.

## MATERIALS AND METHODS

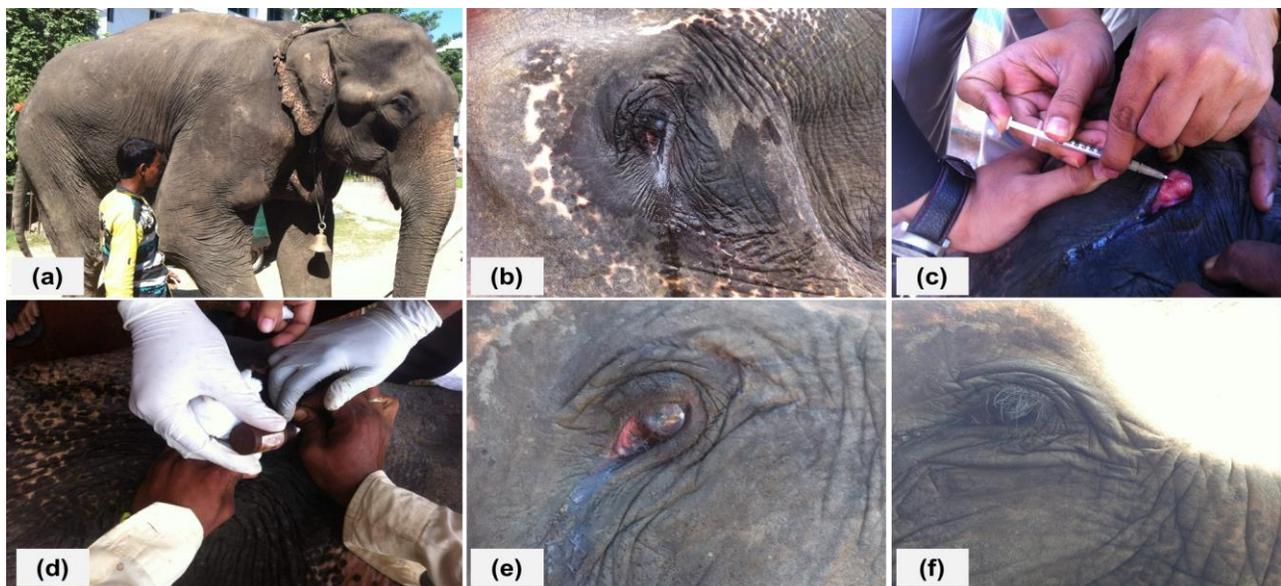
**Case history and description:** A forty-two years old Asian male elephant was brought to the Teaching Veterinary Hospital (TVH) at Chittagong Veterinary and

Animal Sciences University (CVASU) with a complaint of impaired vision and chronic lacrimation (Figure 1a). On clinical examination of animal all the physiological parameters were found in normal range. Detailed ophthalmic examination was carried out. The cornea in left eye was totally opaque, and the right eye had a minimum level of vision (Figure 1b). Profound lacrimation from both eyes was also observed during the examination.

**Medical management:** After careful examination, medical therapy was resorted to. The animal was treated with topical instillation (Figure 1c) of ciprofloxacin and dexamethasone eye drops (Civodex®), for 14 days, subconjunctival administration (Figure 1d) of prednisolone acetate and dexamethasone at 3 day intervals for 5 times (Predexanol S®, Renata Pharma. Ltd.) and intramuscular injection of ketoprofen (Keto A Vet®, Acme Pharma Ltd.) at 1 mg/Kg bwt, daily for 3 days. Available veterinary preparation of vitamin A (Vita AD<sub>3</sub>E® Acme Pharma Ltd.) at 5000 IU/Kg bwt was also administered for 7 days through intramuscular injection.

## RESULTS AND DISCUSSION

In this clinical study, disease condition was identified which was successfully managed by medicinal means. This finding was in accordance with the report of Ahmed and Doley (2016). No signs of lacrimation or ocular discharges were observed after completion of the



**Figure 1.** Medicinal management of corneal opacity in an elephant. (a) affected Asian elephant, (b) before treatment the condition of affected eye, (c) sub-conjunctival administration of drug, (d) topical installation of eye drops, (e) after treatment of two weeks, (f) completely recovered animal.

treatment. But in some study it was reported that it takes months even occasionally year for the improvement of vision and comfort of the patient by this therapy (Costagliola et al., 2013). After 14 to 19 days of post-treatment, the corneal opacity completely disappeared (Figure 1e). After 20 days, no subsequent irritation effects was noted, even no abnormality was recurred. (Figure 1f). The vision of the elephant recovered gradually regained, as reported by Costagliola et al. (2013) and (Buchoo et al., 2005).

Corticosteroids reduce corneal opacification by inhibiting fibroplasias and decreasing vascularization. Antibiotics were used to reduce the risk of infection and Vitamin A supplementation helps in the improvisation of vision (Fowler and Mikota, 2008).

## CONCLUSION

Corneal opacity may cause temporary to permanent eye damage if left untreated. Immediate diagnosis and necessary therapy are crucial for saving the vision of eyes affected with corneal opacity. Here, we report the medicinal management of corneal opacity in an Asian elephant using ciprofloxacin, dexamethasone, prednisolone and vitamin A.

## ACKNOWLEDGEMENT

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## CONFLICT OF INTEREST

The authors declared no potential conflict of interest.

## AUTHORS' CONTRIBUTION

All the authors have equal contribution.

## REFERENCES

1. Ahmed N, Doley S. Successful management of corneal opacity in Asian elephants (*Elephas maximus*). International Journal of Agricultural Science and Research. 2016; 6:433-6434.
2. Ajitkumar G, Narayanan PH, Sreejith R, Abraham D, Alex PC. Prevalence of ocular problems among captive Asian Elephants of Kerala. Zoos' Print. 2010; 25(10).
3. Buchoo BA, Pandit BA, Shahardar RA, Parrah JD, Darzl MM. Surgical management and prevalence of ocular filariasis in equines. Indian Veterinary Journal. 2005; 82(1):81-82.
4. Chandrasekharan K, Radhakrishnan K, Cheeran JV, Nair KM, Prabhakaran T. Review of the incidence, etiology and control of common diseases of Asian elephants with special reference to Kerala. Proceedings of the International Seminar on the Conservation of Elephant. 1995; p. 439-449.
5. Costagliola C, Romano V, Forbice E, Angi M, Pascotto A, Boccia T, Semeraro F. Corneal oedema and its medical treatment. Clinical and Experimental Optometry. 2013; 96(6):529-35. <https://doi.org/10.1111/cxo.12060>
6. Fowler ME, Mikota SK. Biology, medicine, and surgery of elephants. John Wiley & Sons. 2008; p. 446.
7. Maggs DJ. Slatter's fundamentals of veterinary ophthalmology. Cornea and Sclera. 2008; 10:175. <https://doi.org/10.1016/B978-072160561-6.50013-7>
8. Maggs DJ, Miller P, Ofri R. Slatter's fundamentals of veterinary ophthalmology. Elsevier Health Sciences. 2012; p.187.
9. Martin CL. Ophthalmic disease in veterinary medicine. CRC Press. 2009; p.245. <https://doi.org/10.1201/b15194>

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