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Therapeutic Management of Swollen Eye Syndrome in Turtles - A Clinical Study

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Abstract

Swollen eye syndrome was observed in 228 turtles kept under unhygienic conditions and on commercial diet without supplementation of greens. Treatment with parenteral Enrofloxacin and Vitamin-A and Ophthalmic drops containing Gentamicin and Hydroxypropyl methyl cellulose was far superior than the local application of ophthalmic drops only. Vitamin-A deficiency seemed a major causative for 'Swollen eye syndrome in turtles'.

Keywords: Enrofloxacin; puffiness; swollen eye syndrome; turtle; vitamin-A

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Introduction

During recent years, turtles/tortoises are being increasingly kept in urban houses as a pet. Their domestication has caused many health problems. Swollen eye syndrome is one of the most common problem of both aquatic and terrestrial turtles (Gelatt, 2008). It may lead to serious respiratory tract infections if left untreated. Gram positive and Gram negative organisms have been isolated from healthy eyes of chelonians (Di Ianni *et al*., 2015). These opportunistic pathogen flare up under conditions of poor hygiene and improper nutrition. Despite common occurrence, swollen eye syndrome in turtles has not attracted enough attention of clinicians in India. Therefore the present study was undertaken on the clinical management of swollen eye syndrome in aquatic turtles.

Materials and Methods

Two hundred twenty eight aquatic turtles (female, 148; male, 80), weighing from <100 g to 1.5 kg with swelling of both eyes, observed during a period of three years from 2013 to 2015, formed the material for the present study. The turtles were subjected to visual eye examination. The turtles with swollen eyes were divided in to two groups consisting of 20 in group A and 208 in group B and were treated as per protocol (Table 1).

Table: 1. Treatment protocol of turtles suffering with swollen eye syndrome

Groups	No. of Turtles	Treatment protocol
A	20	1. Eye drops consisting of Gentamicin and Hydroxypropyl methyl cellulose administered thrice daily up to 21 days. 2. Advised to change water daily
B	208	1. Enrofloxacin 7.0 mg/kg (diluted in saline) IM in front leg daily up to 7 days 2. Vit.A 750-1500 IU/kg IM weekly 3. Eye drops consisting of Gentamicin and Hydroxypropyl methyl cellulose administered thrice daily till recovery but not later than 21 days. 4. Advised to change water daily.

Results and Discussion

Two hundred twenty eight aquatic turtles with both eyes closed, brought during a period of three years with history of swollen eyes and anorexia for 2-3 weeks formed the material for the clinical study. History revealed that turtles were being fed on commercial diet consisting of meat and insects and kept in chlorinated water changed every 2nd or 3rd day. Clinical examination showed puffiness of eye lids, infected conjunctiva, conspicuous orbital glands (tear glands) and epiphora. In severely affected cases, eye lids were completely closed making them practically blind (Fig.1) and off feed. In 12 turtles, Harderian glands were swollen. Rubbing of eyes was also evident in 15 cases. The symptoms observed in the study resembled with those

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Fig.1: Swollen and closed eyes of referral day



Fig. 3: Remarkable reduction of swelling with open eyes on 5th day

described for swollen eye syndrome in turtles/ tortoises in many reports. Feeding on commercial diets containing meat and insects without green supplementation aroused suspicion of Vitamin-A deficiency (Bellhorn,1973) as it has been considered as one of the important predisposing factor of swollen eyes in chelonians (Gelatt, 2008). Chlorinated water and/or dirty habitat were another factors for eye irritation predisposing them to flaring up of opportunistic pathogens. Uneasiness and anorexia in these seemingly blind turtles added to their dehydration causing further eye irritation. It appears that in present cases unhygienic husbandry conditions and improper nutrition were responsible for development of swollen eye syndrome.

Topical ophthalmic antibiotics, parenteral antibiotics and a diet having Vitamin-A have been recommended for the management of swollen eye syndrome in chelonians (Millichamp, 1983). Turtles treated with eye drops only (Group-A) showed poor recovery rate of 40% (08/20) and long recovery period (range 18-21 days, mean 19.62 ± 3.50 days, median 20 days) possibly because of poor compliance owing to difficulty in topical application of eye drops as stated by the owners. When topical application of ophthalmic drops was combined with



Fig. 2: Decrease in swelling and partial opening of eyes on 3rd day.

parenteral Enrofloxacin and Vitamin-A (Group-B) recovery rate became high (198 /208; 95.19%) with short recovery period (Mean 6.12±0.14 days, median 6.0 days, range 2-14 days). Swelling started reducing by 3rd to 5th day of treatment (Fig. 2) and complete recovery took place in 6-14 days (Fig.3). Eye drop containing Gentamicin and hydroxypropyl methylcellulose was selected for bactericidal activity of Gentamicin against Gram positive and Gram negative organisms and moistening property of hydroxypropyl methylcellulose. Enrofloxacin was given for its broad spectrum anti-microbial activity and easy one time administration. As Vitamin-A is one of the important predisposing factor for swollen eye syndrome in turtles fed on commercial diet, it was given weekly (Group-B). Promising results in group-B seems to be due to combined effect of parenteral antibiotic (Enrofloxacin), Vitamin-A and topical application of Gentamicin with hydroxypropyl methylcellulose eye drop.

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