# EPIDEMIOLOGICAL AND CLINICO-THERAPEUTIC STUDIES OF STRONGYLOSIS IN ELEPHANTS

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### Abstract

Elephants like other herbivores are susceptible to various diseases including internal parasitism. In Nehru Zoological Park (NZP), Hyderabad, clinical records of Asian Elephants for a period of 10 years (1987-1996) were examined to determine the percent incidence of strongylosis in relation to season, age and sex. Faecal samples from elephants of S.V. Dairy Farm (SVD), Tirupathi were also screened from January to June for helminthosis. Eggs per gram of faeces (EPG) was estimated by Stoll's dilution method. Analysis of old records revealed that in NZP strongylosis was predominant in summer (52.63%) and the incidence was lower in animals below 15 years. Seven animals (63.64% and 87.5%) each were tested positive for ova of strongylosis in NZP and SVD respectively. On treatment with oral kalbend the animals completely recovered on the seventh day. The therapy brought down the pretherapeutic mean EPG of 700+/- 128.89 (SVD) and 671.4 +/- 123.20 (NZP) to 78.57 +/- 30.53 and 50 +/-21.79 respectively. The animals were monitored up to four weeks after therapy. The study indicates the efficacy of kalbend in the treatment of strongylosis in elephants.

### Keywords

Asian Elephants, strongylosis, Nehru Zoological Park, S.V. Dairy Farm, therapy

## Introduction

Elephants are the largest of the living land animals with an evolutionary background of more than 60 million years. They are susceptible to a number of ailments which are analogous to those of horses and cattle. Among the different infectious diseases of elephants, internal parasitism is commonly

encountered. Hence the present study was undertaken to find out the epidemiological data of a commonly seen nematode infestation i.e. strongylosis, (strongylosis alone rather than a mixed infection) in elephants of Nehru Zoological Park (NZP) of Hyderabad. An attempt was also made to screen the faecal samples of elephants of NZP and S.V. Dairy Farm (SVD) of Tirupati for helminthosis and assess the efficacy of an oral anthelmintic in positive cases.

## **Materials and Methods**

The available clinical case sheets and records of Asian Elephants (*Elephas maximus*) belonging to NZP for a period of 10 years (1987-1996) were examined in order to assess the percent incidence of strongylosis in relation to season, age and sex. Besides this, faecal samples from elephants of SVD were screened from January to June 1997 for helminthosis and in positive cases EPG (Eggs per gram of faeces) were estimated by Stoll's dilution method (Stoll, 1923). Elephants found to be positive for helminthosis were treated with oral albendazole (Kalbend 1.5g @ 5 mg/kg b.wt.) without any symptomatic therapy. Observation of clinical symptoms and faecal examination including EPG were carried out on third, seventh, fourteenth, twenty-firstand twenty-eighth day of initiation of therapy.

### Results

Analysis of data revealed that the overall incidence of strongylosis in elephants of NZP during the period 1987 to 1994 was 29.23 per cent, infections being predominant during summer (52.63%) followed by monsoon (42.10%) and winter season (5.26%). It was also noted that the infection rate in females was higher (24.6%) than in males (18.75%). Age-wise analysis of data also showed that the incidence was similar in both the groups of 15 to 30 years and 30 years and above (33.33%) but was lower in the age group of 0 to 15 years (9.04%). During the

Manuscript received 14 August 2000; Revised manuscript received 1 February 2001; Accepted for publication 1 May 2001

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year 1997 out of 11 and eight elephants examined at Tirupati and Hyderabad respectively seven animals at each place were found to be positive for ova of strongyles with corresponding incidence of 63.64 per cent and 87.5 per cent. The affected animals exhibited clinical symptoms such as varying degrees of inappetence, pallor of conjunctiva and passing of foul smelling, slightly diarrhoeic dung with an EPG of 400 to  $1200(700 \pm 128.89, \text{Tirupati})$  and 300 to  $1200 (671.4 \pm 130.20)$ , Hyderabad). No worms were recovered from the dung of elephants screened for helminthosis. The elephants harbouring gastrointestinal namatode infections were separated, treated and monitored at weekly interval for one month. Three days after treatment slight improvement was noticed in general condition with the disappearance of foul smell from the faeces. The EPG ranged between 0 to  $200(78.57 \pm 36.53)$  and 0 to  $150(50 \pm 21.79)$  at Tirupati and Hyderabad respectively. Seven days after treatment, the animals were found to have normal appetite and improved colour of conjunctival mucous membranes. Monitoring of elephants up to four weeks after treatment revealed a state of absolutely normal health with faeces devoid of any helminthic ova.

# Discussion

Perusal of available records of elephants of NZP regarding strongylosis indicated that the overall incidence of infection from the years 1987 to 1996 was 29.23 per cent. The season-wise and sex-wise incidence of strongylosis was predominant in summer and in females respectively. The clinical symptoms manifested by elephants infested with strongylosis in the present study were similar to those reported by Rao *et al.* (1992) and Cheach *et al.* (1993). Following treatment with oral kalbend, the

elephants showed slight improvement in the general condition with nearly normal faeces by the third day. By the seventh day, the general condition was completely normal with the disappearance of foul smell and improved consistency of dung. Therapy could bring down the pretherapeutic mean EPG of 700  $\pm$  128.89 (Tirupati) and 671.4  $\pm$  123.20 (Hyderabad) to 78.57  $\pm$ 30.53 (Tirupati) and 50  $\pm$  21.79 (Hyderabad) by the third day. Subsequent examination of faeces after one, two, three and four weeks revealed the absence of strongyle ova, indicating cent per cent efficacy of kalbend.

# Conclusion

Based on the clinical improvement and abilities to reduce the faecal egg counts to nil, it can be concluded that albendazole administered as boli orally was effective in treating strongylosis in elephants. Besides it is felt that elephants be dewormed once in four to six months.

# References

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