Occurrence of bile duct hook worms in a wild elephant of Wayanad, Kerala

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ABSTRACT: Present communication reports the presence of more than hundred nematodes on the liver surface of a wild elephant during post mortem and were identified as the bile duct hook worm called *Grammocephalus varedatus*.

INTRODUCTION

Parasites can have a wide range of impact on the ecology of their hosts, in terms of health, behavior, sexual selection, and regulation of host populations (Vidya and Sukumar, 2002). A healthy wild animal may harbour large number of parasites without showing clinical signs of diseases. Parasitic diseases result when equilibrium between parasite and host is upset (Fowler, 2006).

A detailed account on parasites of elephants including their identification, lifecycle, epizootiology, clinical signs and management was provided by Fowler, 2006. Various parasites reported from asian elephants (*Elephas maximus*) of Kerala were reviewed by Chandrasekharan *et al.,* 2009. This communication report the occurrence of bile duct nematode *Grammocephalus varedatus* recovered during the post mortem of a wild tusker.

MATERIALS AND METHODS

During the month of July 2009, death of a wild male elephant (approximately 15 years of age) was reported from Thirunelli, Wayanad by the range officer of Department of Forest and post mortem examination of the animal was requested. On detailed examination of the internal organs, the surface of the liver was occupied by numerous worms (more than 100). The parasites were collected in 10 percent formalin solution and sent to Department of Veterinary Parasitology, College of Veterinary and Animal Sciences, Pookot for identification. The nematodes were dehydrated in ascending grades of alcohol and then cleared using creosote. Cleared specimens were mounted using DPX and photographs were taken. The gastric bots were boiled in 10 percent potassium hydroxide solution. They were kept in the same solution for 1 week. Later, they were also dehydrated and cleared. The species identification of the specimens was conducted based on Sundaram, (1966), and Singh, (2003).

RESULTS

The nematodes were identified as *Grammocephalus varedatus*. The male measured 32 mm length and 1.5 mm maximum breadth and the female 40mm and 1.5mm respectively (Fig.1). The anterior edges of the lateral teeth do not lie posterior of the corresponding edges of the subventral teeth (Fig. 2) which differentiate it from the *G clathratus*. In males rays of bursa were relatively short and the lateral rays were quite stout spicules were strong with massive thickening and alate and measured 1.35 mm in length (Fig.3).

Figure 1. Female and male *Grammocephalus varedatus*

DISCUSSION

G.varedatus is a hook worm inhabiting the bile duct and their precise life cycle is unknown but is presumably similar to *Bunostomun* sp (Fowler, 2006). Elephants get infected through the skin penetration by larvae or by direct ingestion of it. They are the largest hook worms under the family Ancylostomidae (Sundaram, 1966). Adult parasites are blood suckers. So anaemia and weakness along with other signs of hepatic insufficiency occur in severe infestation (Fowler, 2006). Chandrasekharan *et al*., 2009 observed haemorrhage, erosion, proliferation of lymphoid tissue, ulcers and necrotic foci in the bile ducts with the presence of large numbers of adult and immature worms of *G. varedatus*. The presence of *G. varedatus* over liver surface could be due to rupture of bile duct.

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References

Fowler, M.E. (2006). Parasitology, pp. 159-181. In: Fowler, M.E. & S.K. Mikota (eds.). *Biology Medicine and Surgery of Elephants.* Wiley-Blackwell.

Sundaram, R.K. (1966). Some common elephant parasites. *Kerala Veterinary College and Research Institute Magazine* 19-21.

Vidya, T.N.C. & R. Sukumar (2002). The effect of some ecological factors on the intestinal parasite loads of the Asian elephant (*Elephas maximus*) in southern India. *J. Biosci.*27: 521-528.

Chandrasekharan, K., K. Radhakrishnan, J.V. Cheeran, K.N.M. Nair & T. Prabhakaran (2009). Review of the incidence, etiology and control of common diseases of asian elephants with special reference to Kerala. In: Ajithkumar, G., K.S. Anil & P.C. Alex (eds.). *Health Care management of Captive Asian Elephants.* Kerala Agricultural University, India.

Figure 2. Anterior end of male *Grammocephalus varedatus*

Figure 3. Tail end of male *Grammocephalus varedatus* showing copulatory bursa and spicules