Occurrence of *Gnathostoma spinigerum* in free range tigress

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Abstract Postmortem examination of free-range tigress of Pench Tiger Reserve, MP, India, aged approx 15 years revealed nodule in the pyloric part of the stomach packed with worms and was identified as *Gnathostoma spinigerum* on the basis of morphology of male and female worms, including eggs.

Keywords Gnathostome · Gastritis · Larva migrans · Paratenic host · Tigress

Genus *Gnathostoma* consists of 12 species, causing gastritis in carnivores while *Gnathostoma spinigerum* considered a zoonotic, infecting carnivores and human through water contamination with infective larval stages. Owen (1836) reported *Gnathostoma spinigerum* in gastric fundus of a young tiger at London Zoo. However, Soulsby (1982) described its life cycle with eggs hatching into encysted larvae in the Cyclops (primary intermediate host), that are usually eaten by fresh water fishes, reptiles and amphibians (secondary intermediate hosts). Levine (1980) reviewed the worldwide prevalence of *G. spinigerum* in various wild carnivores of European and Asian countries. The occurrence of *Gnathostoma* spp. infection has been reported in India, maintained in captivity (Arora and Prasad 1989; Thilakan et al. 2007) and there seems to be no previous report on *Gnathostoma* infection in free range tigers.

Detailed postmortem examination of a free-range tigress, aged 15 years approx was conducted in Pench Tiger Reserve, MP that revealed numerous nodules in the pyloric part of the stomach packed with worms embedded in the sub mucosal layer (Fig. 1a). The live worms were carefully recovered from the stomach nodules and collected in the normal saline and to straighten them worms were kept in 70% alcohol (70°C) for 60 min. The worms were kept in hot air oven for 72 h under 37°C with lactophenol cotton blue for morphological and biometry for identification of the species followed the guideline of Soulsby (1982).

Male and female worms appeared light reddish brown in colour with cylindrical body measured males measuring 10–26 mm × 1.8–2.2 mm and females 25–35 mm × 1.8–2.3 mm. Both male and female worms had anterior head bulb armed with simple hooks (Fig. 1b).

The eggs were also recovered as a result of rupture of a few worms and were thin shelled with a mucoid plug at one end with a mean size of 65 × 52 µm (Fig. 1b).

The present report of gnathostomiasis in free range tigress has epidemiological importance as it causes gastric tumor in carnivores and larva migrans in human. Parija (1990) described the paratenic hosts i.e. the cat, dog, rat, mice, and monkey including man that may pick up the encysted larvae through fish and amphibians. In tigers, infection with the *Gnathostomes* worms was possible due to their feeding on secondary intermediate host or paratenic hosts. Formation of numerous nodules in the stomach due to *G. spinigerum* results into painful gastritis with digestive disorders leading to poor health and loss of agility in the free range tigers of the present study. There is a need to study epidemiological aspects of gnathostomiasis, since it is a zoonotic disease affecting the health of tribes and wild animals including tigers, which are at the verge of extinction.

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Fig. 1 Plate **a** *Gnathostoma spinigerum* worms in the tigress stomach nodules, **b** worm head, **c** egg with mucoid plug

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