Occurrence of *Setaria labiatopapillosa* in peritoneal cavity of a crossbred cattle

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Abstract The current study reports the occurrence of *Setaria labiatopapillosa*, a filarid worm, during post mortem examination in the peritoneal cavity of an adult female cross-bred cattle died due to foreign body syndrome from Ludhiana district, Punjab. The worms were cleared in lactophenol after collection and mounted in glycerol for identification. The worms were 90–95 mm in length, milky white, tapering, long with spirally coiled hind ends. The anterior end of the mounted parasite revealed peribuccal chitinous rings with lateral epaulette like structures in the head region. The posterior end of the female revealed thin, cone shaped, two lateral appendages and terminating into a prominent rosette like structure carrying a number of differently sized spikes.

Keywords Cattle · Peritoneal cavity ·
Setaria labiatopapillosa

Introduction

Setarial parasites (Superfamily: Filarioidea, Class: Nematoda) are commonly found filarids in the peritoneal cavity of ungulates and are considered as non-pathogenic, although sometimes may lead to mild fibrinous peritonitis. However,

at times these worms and their larval stages may cause erratic parasitism to pleural cavity, anterior chamber of eye, urinary bladder, oviduct, liver and pericardium where they cause harmful effects (Soulsby 1982). Amongst various setarial species found in cattle, *Setaria digitata*, *S. marshalli*, *S. cervi* and *S. labiatopapillosa* are the commonly encountered species (Rhee et al. 1994; Tung et al. 2003; Sundar et al. 2005; Nakano et al. 2007; Bazargani et al. 2008). The current study reports the occurrence of *S. labiatopapillosa* in cross-bred cattle from Ludhiana district of Punjab state.

Materials and methods

An adult female cross-bred cattle died due to foreign body syndrome was presented for post-mortem in the Post-Mortem Hall, GADVASU, Ludhiana. The post-mortem revealed thread like worms in the peritoneal cavity. The worms were collected in normal saline solution and brought to the Department of Veterinary Parasitology, GADVASU for identification. The worms were transferred in a Petri-dish and sufficient lactophenol (glycerin 20 ml, lactic acid 10 ml, phenol 10 ml, distilled water 10 ml) was poured over specimen to completely cover them. The Petri-dish was covered and the specimen was allowed to rest till it became transparent. Thereafter, the anterior and posterior ends of worms were mounted on a microscopic glass slide separately in glycerol for identification using standard morphological descriptions under the light microscope (Bhatia et al. 2010).

Results and discussion

As per the morphology, the worms were identified as *S. labiatopapillosa* in the present study. Interestingly, all

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Fig. 1 Adult female *S. labiatopapillosa*

Fig. 2 Light microscopy view of anterior part of female *S. labiatopapillosa* indicating lateral projection (arrow) ($\times 40$)

worms recovered were females (90–95 mm in length) (Fig. 1). The worms were milky white, long with tapering and spirally coiled hind ends, anterior end of the mounted parasite revealed peribuccal chitinous rings with lateral epaulette like structures in the head region (Fig. 2). The posterior end of the female was thin; cone shaped, with two lateral appendages and terminating into a prominent rosette like structure carrying a number of differently sized spikes (Fig. 3).

Setaria labiatopapillosa is a heteroxenous parasite having indirect life cycle with several species of mosquitoes belonging to genus *Culex* and *Anopheles* acting as intermediate hosts (Soulsby 1982). Adult female worms in the peritoneal cavity of the host produce microfilariae that enter the bloodstream and are taken up by the mosquitoes during blood meal. Adult worms in the peritoneal cavity do not cause any major damage to the host; however, migrating immature stages in aberrant hosts like sheep,

Fig. 3 Light microscopy view of posterior part of female *S. labiatopapillosa* indicating lateral appendage (LA) and terminal spikes (arrow) ($\times 40$)

goats, horse may reach the central nervous system and cause considerable damage and even death of the host (Soulsby 1982).

So far as reports on the epidemiology of setarial worms is concerned, more reports are available on the prevalence of *S. digitata* in cattle as compared to *S. labiatopapillosa* (Shoho 1958; Mohan 1975; Patnaik 1989; Mohanty et al. 2000; Tung et al. 2003; Nakano et al. 2007; Kim et al. 2010). Further, only scanty published reports are available on the occurrence of *S. labiatopapillosa* amongst Indian cattle (Patnaik 1989; Sundar et al. 2005) particularly Punjab state, from where only one published report of occurrence of *S. labiatopapillosa* in buffalo is on the record (Singh et al. 1996). The present finding is thus important from epidemiological point of view.

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