

***ASCARIS SUUM* INFECTION IN A FREE-RANGE FEMALE WILD BOAR (*SUS SCROFA SCROFA*) AND ITS ASSOCIATED PATHOLOGY: A CASE REPORT**

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ABSTRACT

Ascaris suum is a common nematode of domestic and wild pigs whose migration and maturation cause distinctive lesions in the liver and small intestine. This article describes the morphological identification and pathology of *Ascaris suum* infection in a wild boar. Four nematodes were recovered from the lumen of small intestine during postmortem. Based on morphology, two worms were identified as males and two as females. The worms were yellowish white, with males being smaller and had curved tails with spicules, while females were larger with straight, pointed tails and both had triradiate lips anteriorly. The liver exhibited severe congestion, while the small intestine contained adult worms and showed catarrhal enteritis, and inflammatory infiltrates. The lungs were congested, haemorrhagic with frothy exudate and pleural adhesions. The heart showed epicardial haemorrhage while splenic and gastric congestion, petechiae in the kidneys were observed. The combined lesions reflect both migratory and intestinal stages of *A. suum*. The overall findings confirm the presence of *Ascaris suum* infection in wild boar and highlight the pathological impact on various organs emphasizing the need of continuous surveillance in wild animal populations.

KEYWORDS: Wild boar, Necropsy, *Ascaris suum*, Small intestine, Liver pathology

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INTRODUCTION

Wild boars (*Sus scrofa scrofa*) play a significant role in maintaining forest health by dispersing seeds, aiding in soil aeration and water infiltration through their rooting, and providing habitat for other species by creating soil disturbances. They are widely distributed across India, with the exception of the upper Himalayas and deserts. They inhabit various habitats, including forests, grasslands, and agricultural areas. The primary predators of wild pigs in India are tigers and leopards.

They host a diverse range of helminth parasites which includes trematodes such as *Dicrocoelium dendriticum*, larval cestode stage of *Taenia solium*, and nematode species such as *Ascaris suum*, lungworm *Metastrongylus elongatus*, the stomach worm *Macracanthorhynchus hirudinaceus*, and intestinal worms such as *Trichuris suis*, kidney worm *Stephanurus dentatus* and *Trichinella spiralis* (Coombs and Springer, 1974, Eslami and Farsad-Hamdi, 1992, Foata *et al.*, 2005, Jarvis *et al.*, 2007, Tiwari *et al.*, 2009 and Popiolek *et al.*, 2010).

Ascaris suum infection is common in wild boars, as they serve as reservoirs for the parasite, which can cause liver and lung damage from larval migration, leading to respiratory issues, poor growth, and increased susceptibility to other diseases (Charitha *et al.*, 2022). Transmission occurs through ingestion of infective eggs in contaminated soil, where eggs can survive for years. Wild boars health is generally only mildly to moderately affected, but their

role as a reservoir for the parasite, which also infects domestic pigs and humans, is of significant economic and health concern.

Although, the helminth parasites of domestic pigs are well documented there is paucity of information with regard to wild pigs and most of the observations are based on identification of eggs in faeces (Thanasuwan *et al.*, 2024, Kaur *et al.*, 2017, Krishnamoorthy *et al.*, 2022, Bawn *et al.*, 2024). Prevalence of helminthic fauna in wild pigs in comparison with domestic pigs in the adjoining areas of Mudumalai, Anamalai and Sathyamangalam tiger reserve, Tamil Nadu, South India was studied by Allwin *et al.*, 2015. In wild populations there is usually a balanced host-parasite relationship, however, anthropogenic changes of the environment, the increase of human populations and the introduction of other animal species, may introduce unknown factors that can disrupt the natural balance and induce pathological conditions. The present paper reports the occurrence of *Ascaris suum* in the small intestine of a five-year-old, free-range female wild boar (*Sus scrofa scrofa*) and its associated pathology observed during necropsy at Masinagudi Forest range of The Nilgiris, Tamil Nadu, India.

MATERIALS AND METHODS

Death of an approximately five year old female Wild boar was reported at Masinagudi Forest range of The Nilgiris, Tamil Nadu, India on 6th September, 2025. Necropsy was carried out by the Forest Veterinary Assistant Surgeon following

which four numbers of yellowish white nematodes were found in the lumen of the small intestine. The worms were collected and sent in 70% ethanol to the Department of Veterinary Parasitology, Veterinary College and Research Institute, Theni for further processing and species identification.

The worms were counted, male and female worms were separated and measured. Worms were then examined for gross morphological features at the cranial and caudal ends and morphological characteristics were recorded. Photographs of worms were taken using NIKON Digital camera-mirrorless-Z5 model with NIKKOR Z-24-70 MM F/4S lens. Photographs of cranial and caudal ends of the worms were taken using Stereozoom microscope (Leica-Model: Ivesta 3(Integrated camera)).

RESULTS AND DISCUSSION

In the present study, the nematodes recovered from the wild boar were identified as *Ascaris suum* based on the morphological characteristics. The worms were yellowish white in colour and were found in the lumen of the small intestine (Fig. 1). A total of four worms were recovered out of which two were identified as female worms and two were identified as male worms morphologically. On an average, the male worms were 17 cm long and 1.3 cm wide (Fig. 2a) female worms were 33.5 cm long and 2.05 cm wide (Fig. 2b). Cranial end of both the male and female worms had triradiate lips (one dorsal and two subventral) (Fig. 3a). The caudal end of male worms was curved or hooked

with a pair of spicules found projected out of the cloacal pore (Fig. 3b) whereas the caudal end of female worms was straight and pointed (Fig. 3c). On gross examination, hepatic congestion was observed in *Ascaris suum*-infected wild boar. The liver showed a dark reddish discoloration and prominent vascularity, suggestive of marked congestion (Fig. 4).

The recovery of large, yellowish white nematode from the small intestine of the wild boar agrees with the findings of Soulsby (1982) who described *A. suum* as a large intestinal nematode inhabiting the jejunum and ileum of pigs. Similar observations regarding the predilection site and general appearance of the worms were also reported by Urquhart *et al.*, (1996) and Taylor *et al.*, (2007) in parasitological studies of swine ascariasis. The presence of triradiate lips both in the male and female worms was in agreement with the standard taxonomic descriptions provided by Bowman (2014) who reported that *A. suum* possesses three prominent lips surrounding the oral opening, consisting of one dorsal and two ventrolateral lips. The morphological measurements noted in the present study for male (17 cm) and female (33.5cm) worms falls with the range described by Soulsby (1982) and Bowman (2014), who reported that male *A.suum* measure 15-25 cm, while female measure 20-40 cm. In the present study, the liver was observed to be normal in size and colour, but the hepatic tissue showed marked congestion. This may be due to the reason that migratory phase of *Ascaris suum* larvae, which pass through the liver via the hepatoportal circulation,

causing disturbances in vascular system subsequently with inflammatory changes. The hepatic congestion observed in the necropsy was in agreement with the description made by Soulsby (1982), who reported that early larval migration of *A. suum* leads to circulatory impairment and hepatic tissue congestion before the onset of fibrotic changes resembling the milk-spot lesions. Similarly, Urquhart *et al.*, (1996) noted that larval penetration and migration of *Ascaris suum* through the liver parenchyma results in haemorrhage, inflammation, and congestion. Furthermore, Roberts *et al.*, (2009) described that during the initial onset of ascarid infection in pigs hepatic changes were limited to congestion and mild inflammatory changes. The absence of marked enlargement or fibrotic lesion in the present case may indicate relatively early or moderate stage of infection. The presence of adult worms in the intestinal lumen, along with congestion, thickening of intestinal mucosa, and production of excess mucus was observed. These findings were in concordance with Roberts *et al.*, (2009), who describes that boars affected with *Ascaris suum* had severe enteritis characterized by mucosal irritation, goblet cell hyperplasia, and increased mucus secretion. Similarly, Taylor *et al.*, (2016) concluded that *A.suum* adult worms interferes with absorption of nutrients and causes inflammatory responses in the intestinal mucosa. These gross findings of the liver in the present study were in consistent with Urquhart *et al.*, (1996), who described verminous pneumonia (*A.suum*) caused by larval migration through the lungs causing haemorrhage, edema, and difficulty in respiration. In addition, Nejsun *et al.*,

(2012) reported that migration of *A.suum* larvae induces inflammatory responses, resulting in pulmonary consolidation and formation of exudates in the air passage. The pleural adhesions observed in the present study suggest chronic inflammation, which was also reported by Roepstorff *et al.*, (2011) in cases of heavy infections. The heart revealed diffuse haemorrhagic patches in the epicardium and adhesion between epicardium and pericardium were observed. The gross lesions noticed in the heart and kidney was according to Radostits *et al.*, (2007) who had reported that any systemic parasitic infections causes vascular damage and inflammatory alterations in organs like the heart and kidney. A circular haemorrhagic patch in the stomach mucosa was observed in the present study. This finding is not commonly seen in all *A. suum* infections. However, Jubb *et al.*, (Maxie, 2015) suggested any systemic inflammation, or secondary infections can causes haemorrhage in the gastric mucosa. These findings demonstrate the complete pathogenic spectrum of *A. suum* infection in wild pigs and underscore its epidemiological significance for domestic animal health and food safety.

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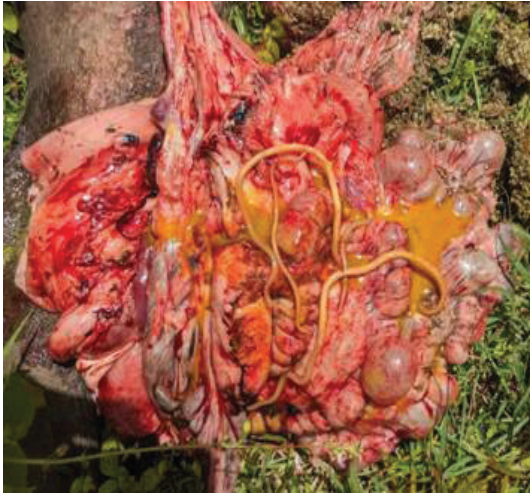


Fig.1. Yellowish white nematodes in the lumen of the small intestine observed during postmortem of the wild female boar

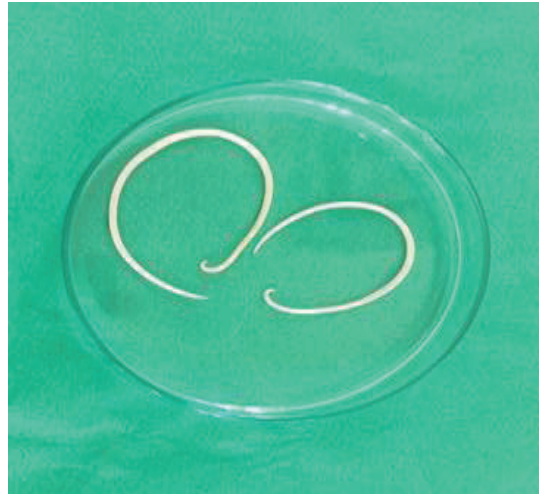


Fig.2a. Male *Ascaris suum* worms recovered from the wild boar



Fig.2b. Female *Ascaris suum* worms recovered from the wild boar

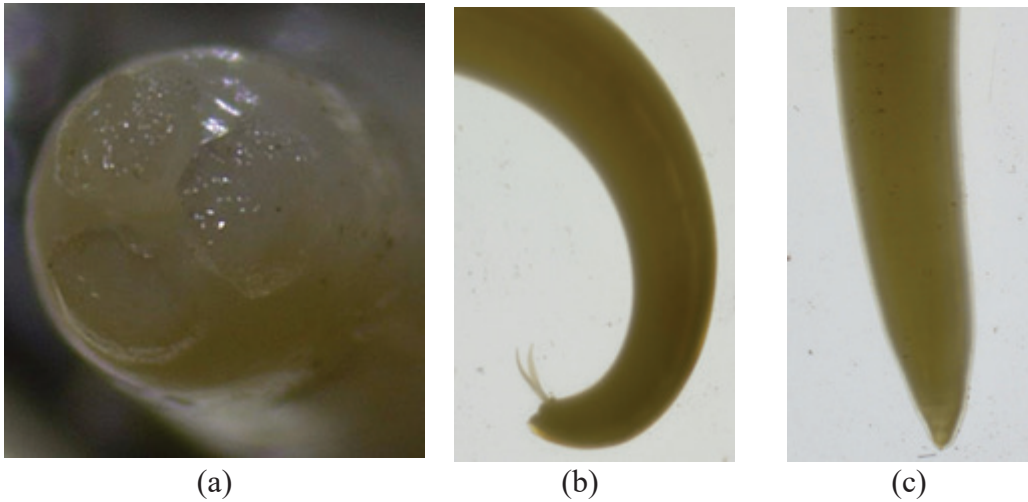


Fig.3. *Ascaris suum* from wild boar- a) Cranial end showing lips, b) curved Male tail end with a pair of spicules found projected out of the cloacal pore and c) Female tail end was straight

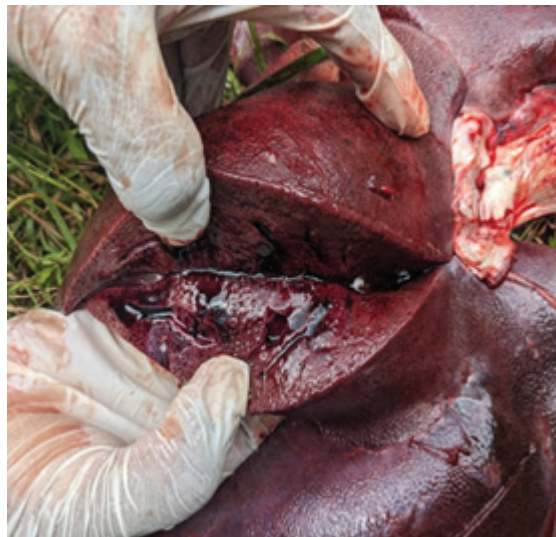


Fig.4. Congestion of liver observed in the wild boar infected with *A.suum*

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