

DESCRIPTION OF TRICHURIS SP. RECOVERED FROM A FREE-RANGE GAUR (*BOS GAURUS*)

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ABSTRACT

The occurrence of Trichuris sp. nematodes in the caecum and colon of a free-ranging female gaur (Bos gaurus) observed during necropsy is reported. The body condition of the animal was thin with appreciable muscle wasting, sunken eye balls, rough hair coat, enlarged lymph nodes and pale mucous membrane. On necropsy, worms were found adhering to the mucosa of the caecum and colon. The worms were collected in 10% formalin, processed and identified as Trichuris sp. The worms were white in colour with whip-like anterior end, males were shorter than females. A total of 265 worms were recovered out of which 80 were male worms and 185 were female worms. The adult males were 30-55 mm long and 0.2-0.6 mm in width with a slender filiform anterior end comprising and a coiled posterior end. The adult females were 60-70 mm long and 0.3- 0.6 mm in width with a straight posterior end. It is however not probable that this infection could be one of the factors causing death of the animal.

Keywords: Gaur, necropsy, Trichuris sp., Morphology

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INTRODUCTION

The gaur (*Bos gaurus*) or Indian bison is a large species of wild cattle native to the Indian subcontinent. Gaurs are found in forests, grasslands, and hilly regions, typically at altitudes ranging from 300 to 2,100 meters (980 to 6,890 feet). They are mainly distributed across India, Bhutan, Nepal, and Myanmar, though their range is also found in some parts of Bangladesh and Thailand. They typically form small herds,

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led by an older female usually active during the day, foraging and grazing during daylight hours. It is listed as “Vulnerable” on the IUCN Red List since 1986, primarily due to habitat loss, poaching, and competition with domesticated livestock. They are protected under various national wildlife conservation laws and can be found in several protected areas, including national parks and wildlife sanctuaries and in those areas, the populations are stable and increasing (Duckworth *et al.*, 2016). They are natural food resources for wild carnivores especially tigers and their sustenance depend on their agility and alertness (Kiziewicz, 2013).

Several diseases may affect the health status of gaurs leading to morbidity and mortality. Parasites play a major role in affecting the general health of these animals. Little is known about the health parameters and gastrointestinal parasitic infections in free-ranging gaurs. Several parasitic infections affect gaurs, the notable ones being strongyles, *Eimeria* sp., *Moniezia* sp. of tapeworms, amphistomes, *Trichuris* sp. and *Fasciola* sp. (Bhaydiya *et al.*, 2021). Recording the incidence of parasites in captive and wild gaurs will assist in health monitoring and advocating necessary control measures whenever needed. The present paper reports the presence of *Trichuris* sp. in female gaur during necropsy.

MATERIALS AND METHODS

Necropsy was carried out in a free-range gaur cow that was found dead in Kundha Forest range, Athigaratty division of The Nilgiris, Tamil Nadu. The animal

was reported to found roaming close to human habitation area for one week with generalized weakness before death. On necropsy a large number of nematodes were found adhering to the wall of caecum and colon with one end found floating in the contents of the caecum and colon. The worms were collected and sent in 10% formalin to the Department of Veterinary Parasitology, Veterinary College and Research Institute, Theni, for further processing and species identification.

The worms were counted and male and female worms were separated. Worms were then examined for gross morphological features and then processed by dehydrating in ascending grades of alcohol and cleared using carbolic acid. Cleared specimens were directly examined under Stereoscope, mounted in DPX and examined under light microscope and morphological characteristics were recorded.

Photographs of gross worms were taken using NIKON Digital camera-mirrorless-Z5 model with NIKKOR Z-24-70 MM F/4S lens. Photographs of processed and cleared worms were taken using Trinocular microscope (Lawrence and Mayo-Lynx, CAT. No: LM-52-3000, Sl. No: 500700) under 4x magnification with photomicrograph and computer attachment.

RESULTS AND DISCUSSION

The body condition of the animal was found to be poor with appreciable muscle wasting and sunken eye balls. Rough hair coat with coarse hair was observed.

Prescapular lymph node was enlarged and palpable. Visible mucous membranes were pale. Subcutaneous fat deposition was thin. Generalized wasting of muscles was appreciated.

On necropsy, the large intestine was filled with fluid dung with the worms in the contents. Ulcerative and necrotic lesions on the mucosa of caecum and colon were observed. Liver with generalized whitish streak on the surface was observed. Liver tissue was dark brown in colour. Gelatinization of pericardial fat was appreciated. Epicardium was with diffuse white streaks.

The worms recovered from the gaur were identified as *Trichuris* sp. based on morphological characteristics. Out of the total 265 worms recovered, 80 (30.18%) were identified as male worms and 185 (69.81%) were identified as female worms morphologically (Fig. 1a). The worms were white in colour. Buccal cavity was provided with spear-like structure, but devoid of lips (Fig. 1b). The cuticle was transversally striated with wide longitudinal bacillary band and the oesophagus consisted of a thin-walled tube surrounded by large unicellular glands, the stichocytes (Fig. 1c).

The males were 30-55 mm long and 0.2-0.6 mm in width with a slender filiform anterior end comprising about three-fourths of the entire body length with a spirally coiled posterior end (Fig. 2a). A single spicule with a slightly expanded proximal and pointed distal end was observed. The

spicule sheath had a slightly stretched globular expansion at its distal end and was covered with closely set spines (Fig. 2b and 2c). The females were 60-70 mm long and 0.3- 0.6 mm in width (Fig. 3a) with a straight or slightly curved posterior end. The genital tract of female worms was filled with typical eggs which were lemon/barrel shaped, thick shelled with plug on both the poles (Fig. 3b and 3c).

Endoparasitic helminths are common in the gaur. Though these wild herbivores are infected with *Fasciola* sp., amphistomes, *Moniezia* sp. of tapeworms, strongyles and *Trichuris* sp. (Bhaydiya *et al.*, 2021), data on impact of gastrointestinal parasites on the health parameters of Indian Gaurs is very minimal. Bhaydiya *et al.*, (2021) reported an overall prevalence of 5.55% of infection with *Trichuris* sp. in Indian Gaurs at the Satpura Tiger Reserve, Madhya Pradesh, India based on examination of faecal samples. Allwin *et al.*, (2016) reported 6.7% prevalence of *Trichuris* sp. in gaurs at the interface zones of The Nilgiri Hills, Tamil Nadu, which is adjacent to the location of the gaur infected with *Trichuris* sp. nematodes encountered in the present study. Though there are scanty reports on *Trichuris* sp. in gaurs, this infection has been reported in several other wild herbivores.

In a study undertaken by Gupta *et al.*, (2011) on the incidence of gastrointestinal parasites in wild ruminants around Jabalpur, India, *Trichuris* sp. was the dominant parasite (70%) compared to other helminthic infections in Indian gaur. They also observed *Trichuris* sp. in other wild

ruminants such as sambar deer (20%), chital (53.35%) and nilgai (66.7%) which was low compared to that of Indian gaur.

Though the pathogenesis of whip worms in gaur has not been well reported, they appear to be well tolerated by the animals even in large numbers. However, it has been reported that the infected animals show symptoms of gradual emaciation, disinclination to feed, loss of condition and enteritis. The present findings on the occurrence of nematode infection with *Trichuris* sp. in gaur will be important to

map the status of endoparasitic infections in gaurs in wild and to frame strategies for control of intestinal nematodiasis in these animals.

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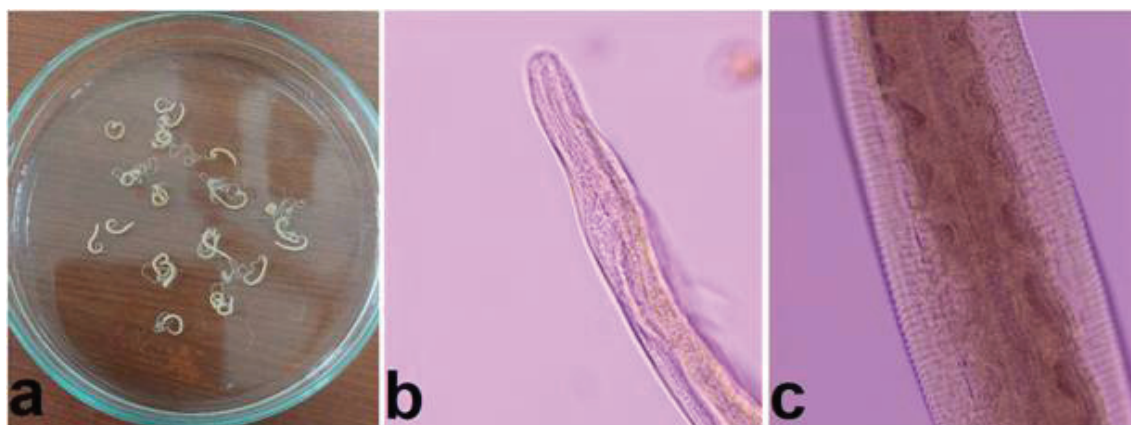


Fig. 1a. Gross *Trichuris* sp. worms without magnification

Fig. 1b. Buccal cavity of *Trichuris* sp. worms with spear-like structure, devoid of lips (10X-left and 40X-right)

Fig. 1c. Cuticle of *Trichuris* sp. worms showing transverse striations (left-40X) and oesophagus with stichocytes forming stichosome (right-10X)

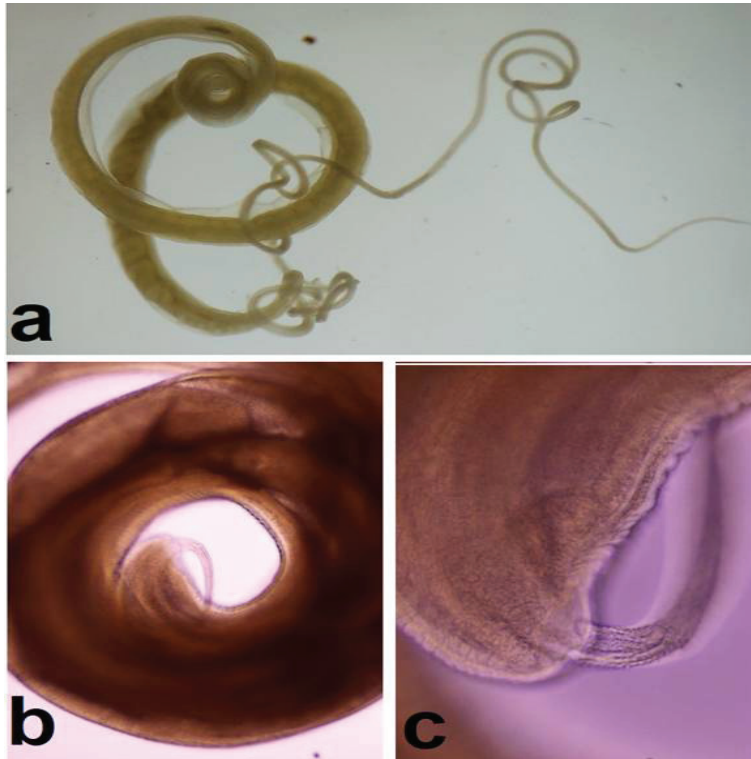


Fig. 2a. Gross *Trichuris* sp. male worm under stereoscope

Fig. 2b and 2c. Male *Trichuris* sp. worm showing spicule (left-10X) and spines in spicule (right-40X)

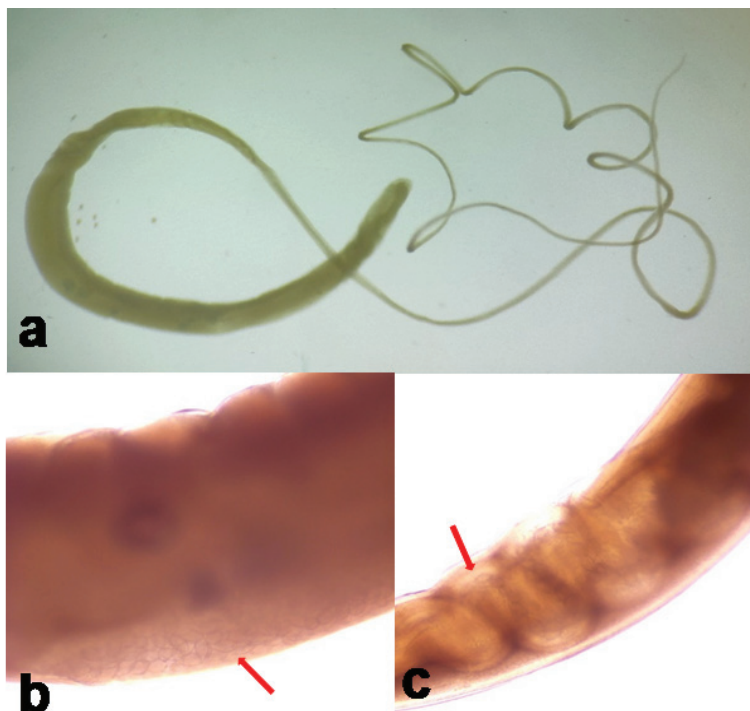


Fig. 3a. Gross Trichuris sp. female worm under stereoscope

Fig. 3b and 3c. Female Trichuris sp. worms filled with eggs (10X)

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