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Detection of *Raillietina* spp. in Indian peafowl (*Pavo cristatus*): A case report

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Abstract

The case report deals with the detection of *Raillietina* spp. in Indian Peafowl (*Pavo cristatus*). The tapeworm was identified during a necropsy of a peafowl presented to the Wildlife Research & Training Centre, Gorewada, Nagpur. The intestinal contents were subjected to the saturated salt flotation technique, leading to the detection of *coccidian* oocysts and *Raillietina* eggs. The tapeworm was studied by microscopy and identified. The finding has value in captive and free-range management of birds.

Keywords: Peacock, *Pavo cristatus*, *Raillietina* spp., Coccidiosis

Introduction

In India, the peafowl is a symbol of grace, pride and beauty. Ecologically, it contributes significantly to pest control by feeding on a variety of insects, reptiles and small animals. It also provides services like seed dispersal and soil aeration which are critical for maintaining the ecosystem. As per the IUCN list, the species has been categorized into the Least Concern category. However, as per the Wildlife Protection Act 1972, the species is included in Schedule I, according to the highest legal protection due to its ecological and cultural significance. In recent years, habitat loss, hunting and wildlife-human conflict have led to localized population declines (Daszak *et al.*, 2000) ^[1].

Diseases have been an important concern for the free-ranging population of birds in India. Important viral diseases like Newcastle disease and even influenza have led to local population declines in many parts of India. Parasitic infections are often under-reported yet significantly impactful. Internal parasites, including nematodes, cestodes, trematodes and protozoa compromise the bird's physiological functioning, immune response and overall fitness. In captive and semi-captive conditions such infections can proliferate rapidly especially under poor sanitation and limited access to veterinary intervention. One such significant parasite is *Raillietina* spp. a cestode of family *Davaineidae*, is frequently encountered in avian hosts and can lead to gastrointestinal distress, malnutrition and death particularly in stressed or immunocompromised individuals (Soulsby, 1982) ^[3].

In this context, the following case report documents the detection of *Raillietina* infection in a free-ranging Indian Peafowl, presenting insights into its pathological implications, diagnostic approach, and relevance for conservation.

Case Report

In early 2025, an adult Indian Peafowl carcass was submitted for postmortem examination to the Wildlife Research and Training Centre (WRTC), Gorewada, Nagpur. The bird was recovered by the Range Forest Officer, Gorewada Project, within the Gorewada Biodiversity Park. The bird was reportedly found dead without preceding signs of trauma or predation. Standard necropsy procedures were followed, beginning with a detailed external examination that revealed mild emaciation, dull plumage, and a slightly prominent keel bone. No visible injuries were found. Upon internal examination, the intestinal tract appeared congested and moderately distended. Careful dissection of the small intestine revealed multiple flattened, segmented parasites attached to the mucosa.

These worms, measuring several centimeters in length, displayed a scolex with suckers and rostellum, followed by multiple proglottids, characteristic of the genus *Raillietina* (Figure 1 to 3). Specimens were collected and preserved in 10% buffered formalin for morphological identification.

Further, intestinal content was processed for parasitological examination using standard flotation techniques. Approximately 2 grams of intestinal content were homogenized in 10 ml of distilled water and filtered through muslin cloth. The filtrate was centrifuged at 1500 rpm for 5 minutes. The supernatant was discarded and replaced with

saturated sodium chloride solution and, in a parallel setup, zinc sulfate solution (specific gravity 1.18), (Soulsby, 1982) [3]. After gentle mixing, the tubes were centrifuged again, and a coverslip was placed on the meniscus. Following 10 minutes of flotation, the coverslip was transferred to a microscope slide for observation. Microscopic examination at 10× and 40× magnification revealed the presence of oval eggs with distinct three pairs of hooks, consistent with those of *Raillietina* spp. Unsporulated and sporulated oocysts of coccidian spp. were also observed (Figure 4 to 6).



Fig 1: Mouth part of the *Raillietina* spp. tapeworm showing a scolex with suckers and rostellum (10X)

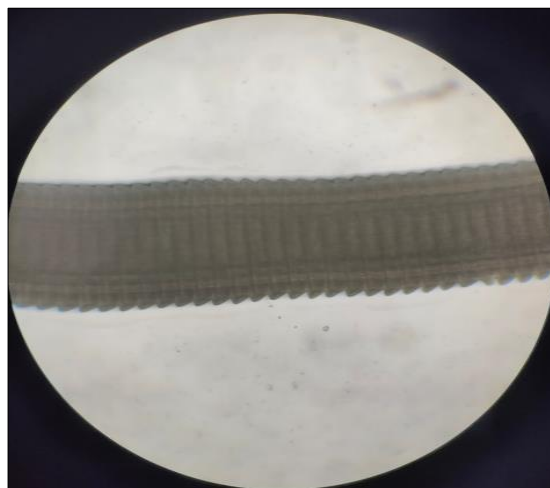


Fig 2: Segment of *Raillietina* spp. tapeworm (10X)



Fig 3: Recovered *Raillietina* spp. tapeworm



Fig 4: Egg of *Raillietina* spp. tapeworm showing distinct hooks

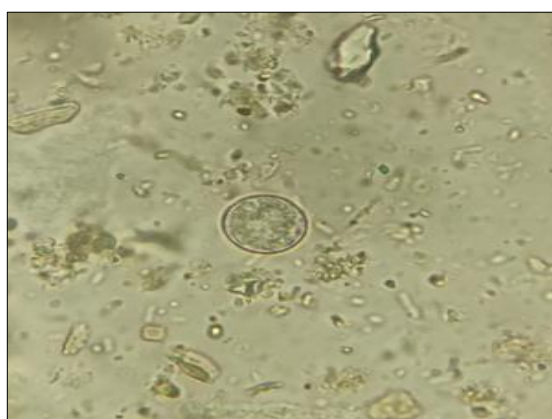


Fig 5: Unsporulated oocyst of *Coccidia* spp.

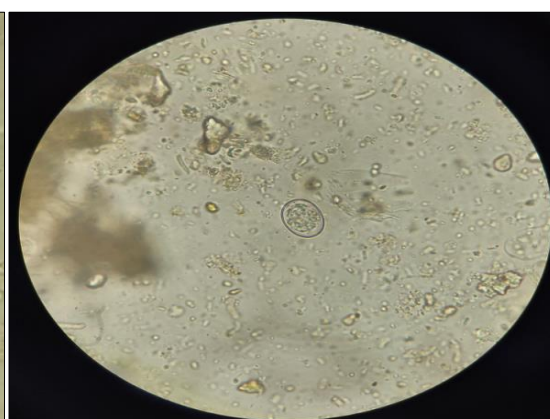


Fig 6: Sporulated oocyst of *Coccidia* spp.

Discussion

The detection of *Raillietina* spp. in Peafowl is noteworthy, particularly given its protected status under Schedule I of the Wildlife (Protection) Act, 1972. These cestode parasites are typically acquired by ingesting intermediate hosts such as ants and beetles, which carry the infective cysticercoid stage. Such arthropods are common in semi-natural enclosures rich in leaf litter and organic matter. After ingestion, the larvae mature into adult tapeworms in the intestine, absorbing nutrients and causing mucosal irritation (Permin & Hansen, 1998) ^[2]. While mild infections may be asymptomatic, heavy burdens can lead to clinical signs like diarrhoea, weight loss, poor plumage, and even intestinal blockage or death (Soulsby, 1982) ^[3].

In poultry, *Raillietina* infections have been linked to reduced productivity, while in wild birds, detection is usually post-mortem unless symptoms are overt. In this case, the tapeworms and associated poor body condition suggest chronic parasitism. The naturalistic setting of the enclosure likely facilitated exposure to intermediate hosts, underscoring the need for routine parasitological monitoring in such environments (Soulsby, 1982) ^[3]. Parasitism is increasingly recognized as a significant factor in wildlife conservation. Health surveillance including parasite screening serves as a key indicator of ecosystem health and informs disease mitigation strategies. For protected species like the Indian Peafowl, regular monitoring, targeted deworming, and ecological control of intermediate hosts are crucial, especially in biodiversity parks and rescue centers. This case reaffirms the importance of integrated wildlife health programs, blending veterinary diagnostics, ecological management, and conservation awareness. Early detection and preventive measures can play a pivotal role in preserving the health of India's national bird.

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Competing Interests

The authors declare that they have no competing interests.

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