



ISSN Print: 2617-4693
 ISSN Online: 2617-4707
 IJABR 2024; 8(8): 667-669
www.biochemjournal.com
 Received: 08-05-2024
 Accepted: 11-06-2024

Deepthi Swapna Latha W
 Sri Venkateswara Veterinary
 University, College of
 Veterinary Science
 Tirupati, Andhra Pradesh,
 India

Amaravathi P
 Sri Venkateswara Veterinary
 University, College of
 Veterinary Science
 Tirupati, Andhra Pradesh,
 India

A note on occurrence of proventricular nematodes in desi chicken in Tirupati, Andhra Pradesh

Deepthi Swapna Latha W and Amaravathi P

DOI: <https://doi.org/10.33545/26174693.2024.v8.i8i.1823>

Abstract

A study was undertaken to identify the gastrointestinal parasites collected from desi chicken during postmortem. Out of 9 gastrointestinal tracts examined, 3 birds were harboring proventricular nematodes. Mixed infection was identified in two birds and single infection in one bird. The nematodes recovered from proventriculus were identified as *Dispharynx spiralis* and *Tetrameres mohtedai*. The infection with these nematodes was recorded during summer season.

Keywords: Poultry nematodes, desi chicken, Proventriculus, histopathology, *Dispharynx spiralis*, *Tetrameres mohtedai*

Introduction

In backyard poultry production the birds are often at higher risk of parasitism when compared to intensive farming. Birds are allowed to roam freely scavenging for feed and they consume variety of foods such as grains that include intermediate hosts, eggs, or larval stages of gastrointestinal parasites. Various workers from different parts of India have reported gastrointestinal parasitism in birds in free range system (Hange *et al.*, 2007; Katoch *et al.*, 2012., Sreedevi *et al.*, 2016) [3, 4, 5].

Dispharynx spiralis belongs to the family *Acuaridae* and superfamily *Spiruroidea*, occurs in the walls of the proventriculus and oesophagus of fowl, turkey, pigeon, guinea fowl, pheasant and other birds in Africa, Asia and America. The anterior extremities of worms are embedded in the mucosa in severe infections causing extensive destruction of glands and cellular infiltration of underlying tissues. Infections in young birds lead to rapid weight loss, weakness, and anaemia.

Tetrameres mohtedai occurs in the proventriculus of fowl, causing irritation, inflammation, glandular necrosis, and exfoliation of proventricular wall. Grasshoppers and cockroaches act as intermediate hosts

Materials and Methods

Eight native fowls from backyard poultry farming were presented for necropsy with a history of mortality at College of Veterinary science, Tirupati. Gross necropsy of mucosa of proventriculus revealed thickened wall. On further examination of proventriculus, numerous short, white coiled round worms were seen embedded in the wall and the serosa revealed small dark worms. The nematodes were carefully collected with fine forceps and washed in normal saline and were subjected to dehydration in ascending grades of alcohol (70%, 90% and absolute alcohol) followed by clearing in lactophenol. Parasitological examination of temporary mounts of the processed nematodes was done. Pieces of proventriculus were collected in 10% formalin. Fixed tissues were processed by routine paraffin embedding technique. Sections of 5-6 microns thickness were cut and were stained with routine Haematoxylin and Eosin method (H&E) (Culling 1974) [1].

Results and Discussion

The white coiled round worms in the proventriculus were identified as *Dispharynx spiralis* (Soulsby EJL, 1982) [6]. The anterior end of the body of *D.spiralis* bears convoluted cordons with transverse striations, starting from oral opening. Recurrent cordons with sinuous course were seen.

Corresponding Author:
Deepthi Swapna Latha W
 Sri Venkateswara Veterinary
 University, College of
 Veterinary Science
 Tirupati, Andhra Pradesh,
 India

Female worms were identified by the presence of vulva in the posterior part and pointed tail end. The eggs have thick shells. Male tail end bears papillae and unequal spicules. The dark colored worms embedded on the serosa of proventriculus were identified as *Tetrameres mohtedai*. Female worms were subspherical bearing grooves on the body whereas the anterior and posterior ends were projected as conical appendages.

Histopathological examination of proventriculus revealed cut section of worm and eggs in between proventricular glands. Disrupted proventricular glands with infiltration of lymphocytes were also noticed.



Fig 1a: Anterior end of *Dispharynx spiralis*



Fig 1b: Anterior end of *Dispharynx spiralis*



Fig 2: Posterior end of female *Dispharynx spiralis*

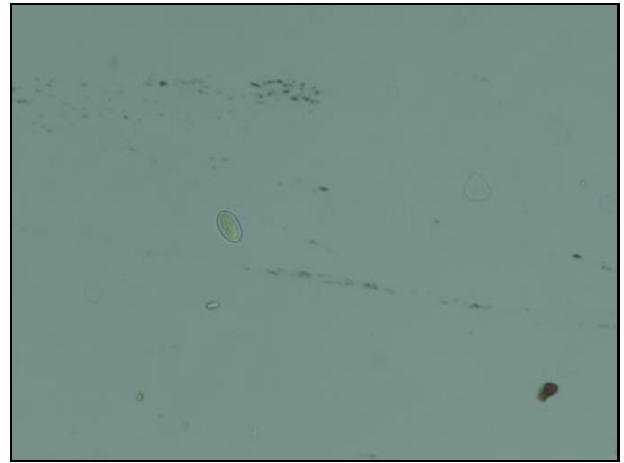


Fig 3: Egg of *Dispharynx spiralis*



Fig 4: Posterior end of male *Dispharynx spiralis* with unequal spicules



Fig 5: *Dispharynx spiralis* worms in Proventricular wall



Fig 6: *Tetrameres mohtedai* worms in Proventricular wall

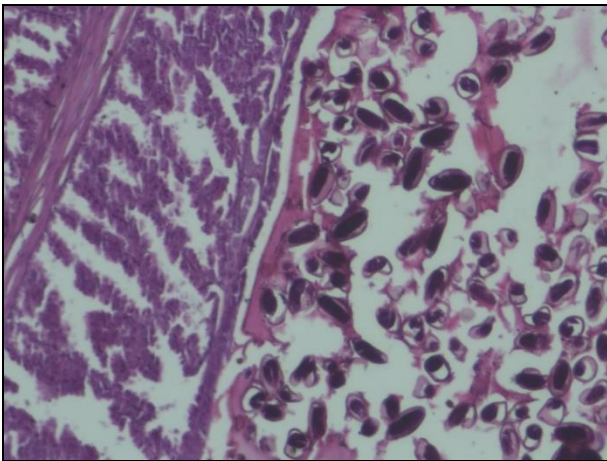


Fig 7: Section showing nematode eggs in between proventricular glands. H & E: x100

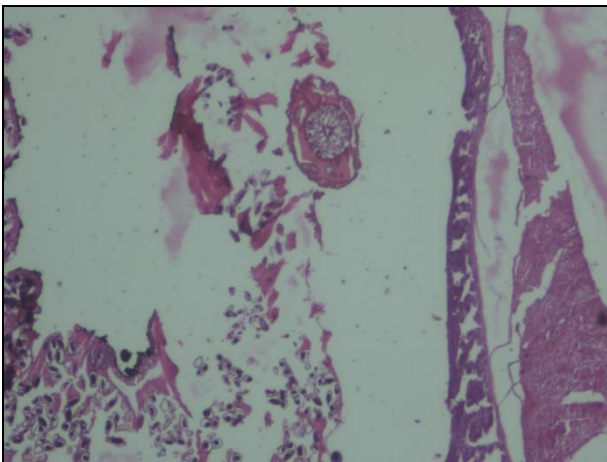


Fig 8: Note section of nematode in between proventricular glands. H & E: x40

Conclusion

In conclusion, backyard poultry are particularly vulnerable to parasitic infections due to their free-range environment, which exposes them to various intermediate hosts and parasite stages. This study highlights the identification of two significant nematodes affecting native fowls: *Dispharynx spiralis* and *Tetrameres mohtedai*. *Dispharynx spiralis* was found embedding in the proventriculus, causing severe tissue damage and symptoms such as weight loss and anemia. Similarly, *Tetrameres mohtedai* was identified on

the proventricular serosa, contributing to glandular inflammation and necrosis. Histopathological findings confirmed extensive glandular damage and parasitic presence. These results underscore the need for vigilant parasite management and preventive measures in backyard poultry systems to improve bird health and productivity.

Acknowledgement

We are thankful to Department of Veterinary Parasitology and Department of Veterinary Pathology, College of Veterinary Science, Sri Venkateswara Veterinary University, Tirupati, Andhra Pradesh for providing facilities to carry out the work.

References

1. Culling CFA. Hand Book of Histopathological and Histochemical Techniques (Including Museum Techniques). 3rd ed. 1974. p. 361.
2. Divya Sree J, Sreenivasa Murthy GS, Udaya Kumar M, Kalyan P. Prevalence of gastrointestinal parasites of backyard poultry in Telangana state. The Pharma Innovation Journal. 2023;12(12):2451-6.
3. Hange RR, Raote YV, Jayraw AK. Prevalence of helminth parasites in desi fowl (*Gallus gallus domesticus*) at Parbhani. J Parasitic Dis. 2007;31(1):61-4.
4. Katoch R, Yadav A, Godara R, Khajuria JK, Borkataki S, Sodhi SS. Prevalence and impact of gastrointestinal helminths on body weight gain in backyard chickens in subtropical and humid zone of Jammu, India. J Parasitic Dis. 2012;36:49-52.
5. Sreedevi C, Jyothisree C, Rama Devi V, Annapurna P, Jeyabal L. Seasonal prevalence of gastrointestinal parasites in desi fowl (*Gallus gallus domesticus*) in and around Gannavaram, Andhra Pradesh. J Parasitic Dis. 2016;40:656-61.
6. Soulsby EJ. Helminths, Arthropods and Protozoa of Domesticated Animals. 7th ed. 1982.