

Report on documentation of *Cotugnia Diamare*, 1893 from a peafowl

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Abstract

The present investigation deals with the documentation of tapeworm segments collected during the post-mortem examination of a peafowl. Segments of tapeworms were processed and identified using standard parasitological techniques. The scolex revealed the presence of four cup-shaped muscular suckers with armed rostellum. Individual segments revealed the presence of two sets of reproductive organs with bilateral genital pores with testes concentrated at the posterior part of each segment. Based on the morphological features, the worm was identified as *Cotugnia Diamare*, 1893. This communication reports the documentation of *Cotugnia Diamare*, 1893 in peafowl.

Key words: Cestodes, *Cotugnia Diamare* 1893, Helminths, Peafowl

Highlights

- Segments of tapeworms recovered from peafowl were processed.
- Based on morphological characteristics, the tapeworms were identified as *Cotugnia Diamare*, 1893.

Helminth parasites are very common in poultry owing to their scavenging behaviour. Among the helminths, tapeworms are the parasite that can infect both wild and domestic birds. Although there are around 1400 species of cestodes affecting domestic and wild birds, each one is unique in its size and length (Sanap *et al.*, 2011). Generally, tapeworms are not more pathogenic unless they are in significant numbers. Usually, young birds are commonly affected with clinical signs including ill thrift, reduced appetite, weight loss, pale combs due to anaemia and intermittent diarrhoea. Peafowl (*Pavo cristatus*), the pride of our nation, is commonly seen in India and Sri Lanka. The wild and domesticated peafowls are prone to many bacterial, viral and parasitic infectious diseases (Hopkins, 1997). Further, peafowls usually predate various intermediate hosts of parasites that play a pivotal role in transmitting parasitic diseases, particularly helminths (Kathiravan *et al.*, 2017). Reports on health-related issues in peafowl, specifically studies on parasitic diseases are very

limited. The present study documents *Cotugnia Diamare*, 1893 tapeworm from a peafowl during post-mortem examination.

Eleven segments of tapeworm collected during the post-mortem examination of a peafowl were presented to the Department of Veterinary Parasitology, Veterinary College and Research Institute, Tirunelveli. The segments were washed with physiological saline. The segments were flattened by placing them between two microscopic slides, in which it held together with an elastic band at each end and then fixed in 10% formalin overnight. Staining was done by immersing in diluted acetic alum carmine (Fleck and Moody, 1993). The stained segments were de-stained with 1% acid alcohol followed by dehydration in ascending grades of alcohol (70, 90 and absolute ethyl alcohol). Clearing of the worm was done by using xylol and finally mounted in Canada balsam on clean slides for morphological identification. The scolex revealed the presence of four cup-shaped muscular suckers with armed rostellum (Fig. 1).

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Mature segments are measured 83 to 88 mm in length and 3 to 5 mm in breadth, and longer than broad. Individual segments revealed the presence of two sets of reproductive organs with bilateral genital pores with testes concentrated at the posterior part of each segment (Fig. 2). Based on the morphological features, the cestodes were identified as genus *Cotugnia* Diamare, 1893. The observations of four cup-shaped suckers in the scolex and double pored nature of each segment with testes concentrated on the posterior border of each segment are in comparison with Dakhly *et al.* (2016). The morphometry of the mature segment is in agreement with the findings of Azzal and Al-Azizz (2016). Since the whole worms were not presented, the speciation of the parasite could not be carried out, as opined by Shameem *et al.* (2010). Earlier, Johri (1939) identified *Cotugnia taiwanensis* and *Cotugnia fuhrmanni* in peacock. The common species of *Cotugnia* affecting domestic fowls, ducks and pigeons

are *C. digonopora* (Taylor *et al.*, 2007), *C. brotogerys* and *C. fastigata* (Singh, 1952), *C. diamare* (Shinde and Pathan, 2013) and *Cotugnia jadhavae* (Thorat, 2020).

It is concluded that a report on the identification of *Cotugnia* Diamare, 1893 from a peafowl is placed on record.

Conflict of interest: Authors have no conflict of interest in this study.

Author's contribution: AM: Recovered the tapeworm segments and carried out the processing of worms; TA: Contributed to reading the results and correcting the manuscript.

ACKNOWLEDGEMENT

The authors wish to acknowledge the help rendered by the Professor and Head, Department of Veterinary Pathology and the Dean, Veterinary College and Research Institute, Tirunelveli.

REFERENCES

- Azzal Gand Al-Azizz S, 2016. Histopathological effects of *Cotugnia* sp. on intestine of wild pigeons (*Columba livia*) at Basrah City. J Int Acad Res Multidis Impac Fac, 4(11): 69-79
- El-Dakhly KM, Mahrous L and Mabrouk GA, 2016. Distribution pattern of intestinal helminths in domestic pigeons (*Columba liviadomestica*) and turkeys (*Meleagris gallopavo*) in Beni-Suef province Egypt. J Vet Med Res, 23(1): 112-120
- Fleck SL and Moody AH, 1993. Diagnostic techniques in medical parasitology ELBS. With Butterworth-Heinemann, Publisher, London
- Hopkins C, 1997. Peafowl Husbandry. Game Bird and Conservationists Gazette, 6: 37- 39
- Johri LN, 1939. On a collection of cestodes from a peacock (*Pavo cristatus* L, 1758) from the Terai forest area India. Annals Tropic Med Parasitol, 33(3-4): 211-216, doi: 10.1080/00034983.1939.11685068
- Kathiravan RS, Ramachandran P, Shanmuganathan S, Karthikeyan A, Sathiyamoorthy N *et al.*, 2017. Prevalence of endoparasitic infection in free ranging peacocks of Southern Tamil Nadu, India. Int J Curr Microbiol App Sci, 6(10): 366-371, doi: 10.20546/ijcmas.2017.610.045
- Sanap NP, Patil DP and Siddiqui MS, 2011. A new species of genus *Cotugnia murhari* sp. nov. from *Columbia livia* at Wasmat Dist Parbhani (M.S.) India. Sci Res Report, 1(2): 73 -76
- Shameem H, Subramanian H and Regitha TS, 2010. Identification of *Cotugnia* species from a pigeon-A Report. J Vet Anim Sci, 41: 75
- Shinde AR and Pathan AV, 2013. Studies on avian cestode genus *Cotugnia diamare* from *Columbia livia*. Trends Parasitolo Res, 3(1): 1-3
- Singh KS, 1952. Cestode parasites of fowl. Indian J Helminthol, 4(1): 1-72
- Taylor MA, Coop RL and Wall RL, 2007. Vet Parasitol, 3rd edn., pp 688
- Thorat BS, 2020. Histopathological study of the cestode parasite, *Cotugnia jadhavae* from *Gallus domesticus* at Aurangabad (M.S.). Iconic Res Engineer J, 4(5): 1-4