Case Report

OCCURRENCE AND PATHOGENICITY OF *Tetrameres mohtedai* INFECTION IN *DESI* CHICKENS FROM CAUVERY DELTA REGION OF TAMIL NADU

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ABSTRACT

On post-mortem examination of five desi chickens, cherry red coloured spindle shaped worms were collected from the proventriculus of each bird for identification. Based on the morphological examination, these worms were identified as Tetrameres mohtedai. A high prevalence of Tetrameres mohtedai helminth infection was documented in desi chickens in Cauvery delta region of Tamil Nadu, which causes high morbidity and mortality in desi chickens from Cauvery delta region of Tamil Nadu. Appropriate deworming strategies need to be followed in desi chicken for the control of parasite in this region.

Keywords: Cauvery delta region, *Desi* chicken, Helminths, Occurrence, Tamil Nadu, *Tetrameres mohtedai*

Received : 09.06.2021 Revised : 29.09.2021 Accepted : 18.10.2021

Desi native chicken rearing is an important additional source of income to farmers and landless labourers in India. Due to the scavenging habit of feeding of desi chickens, they are exposed to several helminth intermediate hosts such as insects, ants, earthworms and snails etc. Helminthic infections in desi chicken result in economic loss to the farmers as they contribute to the decreased weight gain and egg production. Among the helminths, *Tetrameres mohtedai* is located in the proventricular region of gastrointestinal tract of chicken resulting in severe anaemia, irritation, and inflammation due to blood sucking and sometimes death (Soulsby, 2012).

The study was carried out during the year 2019-20 at Veterinary College and Research Institute, Orathanadu, Thanjavur District of Tamil Nadu in Cauvery Delta Agro-Climatic Zone. The minimum temperature

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prevailing in this region was 20°C and a maximum temperature of 41°C during the study period. Loamy, clayey and sandy alluvial are the soil types found in the Cauvery delta region of Tamil Nadu. The socio-economic status of the families in the region is poor and their livelihood mainly depends on agriculture and animal husbandry activities.

Processing and identification of helminths

The worms were collected from desi chickens in normal saline solution (NSS) during postmortem examination. The worms were identified using standard parasitological techniques according to the description given by Soulsby (2012).

In this study, *Tetrameres mohtedai* worms were identified in the proventricular region of desi chickens on post-mortem examination. Hange *et al.* (2007), Chowbay *et al.* (2012), Kumar *et al.* (2017) and Vimalraj and Latchumikanthan (2019) also reported occurrence of *Tetrameres mohtedai* in proventricular region of chickens in India.

Proventriculus infected with female *Tetrameres mohtedai* showed small blackish red spots in the serosal surface and nodules in luminal surface (Fig. 1). A single worm was found in each nodule examined. Upon incision on the nodule a little amount of blood oozed out along with worm from the incision site. Sometimes, the whole worm could protrude out upon mild pressure on sides of the nodule.

On microscopic examination, the body of the worm was globular or pear or spindle shaped with blood red in colour ranging 7 mm long and 3.5 mm wide, posterior and anterior ends called spicules, were thin and sharp (Fig. 2). The adult worms feed on the blood and become engorged and gravid. This feeding habit could lead to severe haemorrhage, congestion, anaemia and death in the infected birds (Kumar *et al.,* 2017; Soulsby, 2012). Infected proventriculus showed areas of haemorrhages across the glandular epithelium, vascular congestion, fibrosis and necrosis of proventricular glandular structures (Vimalraj and Latchumikanthan, 2019).

Histopathological studies of the infected proventriculus revealed cut section of female parasite (Fig. 3) inside the glands of proventriculus. The glandular epithelium surrounding the parasite exhibited pressure atrophy. The inter-proventricular glandular spaces underwent intense fibrous proliferative thickening around the parasite infected region.

In the present study, *Tetrameres mohtedai* produced severe tissue changes that include inflammatory response, haemorrhages and pressure atrophy leading to disruption of proventricular organ function. Ramaswamy and Sundaram (1981), Kamil *et al.* (2011) and Soulsby (2012) also documented similar histopathological changes in chicken. The results of the study indicated that periodic faecal examination and strategic anthelmintic treatment are essential to avoid worm infection in scavenging type of backyard chickens.

ACKNOWLEDGEMENT

We thankfully acknowledge the Department of Veterinary Pathology, Veterinary College and Research Institute, Orathanadu, Thanjavur District, Tamil Nadu for providing samples for this study.

Fig.1. Blackish red spots in the serosal surface of proventriculus

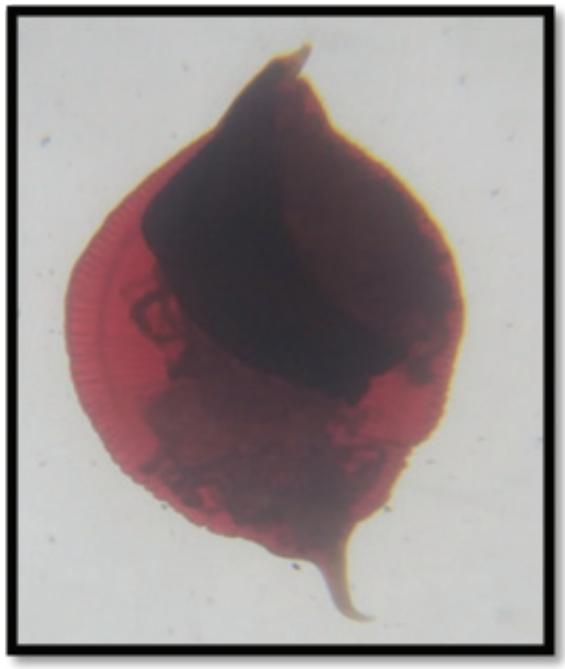

Fig. 2. Globular shaped adult female of *Tetrameres mohtedai*

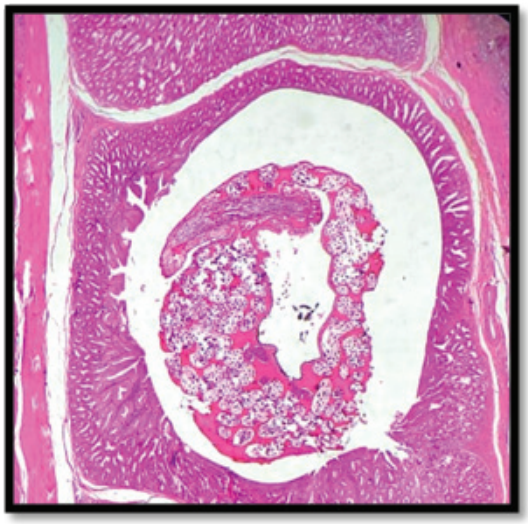

Fig. 3. Cut section of *Tetrameres worm* in proventricular lumen (H&E – 40X)
(Worms located in the proventricular glands and showing pressure atrophy of glandular epithelium)

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