



Cecum Associated with Histomoniasis in Van Province, Turkey

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Authors' contributions

This work was carried out in collaboration between all authors. Author BO designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors SG and AK managed the analyses of the study. Author SG managed the literature searches. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Histomonas meleagridis (Trichomonadida; Monocercomonadidae), an effective protozoan causing the disease known as "Karabaş Hastalığı" in Turkey. This parasite, which has a cosmopolitan spread in the world, is manifesting deaths of up to 100% in young turkeys. It is also found in chickens, partridge, quail, duck, pheasant and Guinea fowl. A cecum of a 60-day old American bronze turkey was sent to our laboratory for examination from a local turkey carer in Van. In the macroscopic examination, it was seen that there was engorged cecum. Giemsa stained smears were prepared from these focal and examined microscopically. As a result of the examination, several flagellated form ranging from 8 to 15 µm were detected. Histomoniasis was diagnosed by considering the anemnesis obtained from the owner, engorged detected in the cecum and flagellated forms seen in the microscopic examination.

Keywords: *Histomonas meleagridis*; Van; Turkey.

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1. INTRODUCTION

Histomonas meleagridis (Trichomonadida; Monocercomonadidae) is an anaerobic protozoan parasite usually characterised by flagellate or amoeboid forms. *H. meleagridis* is transmitted either directly via droppings of infected birds or indirectly through histomonad-carrying cecal worms *Heterakis gallinarum* or earthworms. The parasite causes high morbidity and mortality in turkeys, and the disease is manifested by yellow-coloured fibrinous inflammation and by yellow necrotic areas in the liver [1,2].

Clinically, the symptoms include depression, reduced appetite, poor growth, sagging wings and tail, sulphur-yellowish diarrhoea, stagnation, ruffled feathers. The head may become cyanotic [3].

The post-mortem diagnosis of disease depends mainly on clinical symptoms, typical necrotic lesions in the liver, histopathological examinations, presence of 1 or 4 flagella forms of parasites. Moreover, in recent years, molecular

diagnosis methods (such as PCR) have been used to diagnose the disease to contribute to the epidemiology of the disease [4].

In Turkey, there are no large-scale studies on the prevalence of the disease. It is generally reported as sporadic incidents. In this case report, histomoniasis diagnosed on a 60-day old American bronze turkey was reported Hu and McDougald [5].

2. PRESENTATION OF CASE

In June 2018, a 60-day old American bronze turkey was brought into the laboratory of the Department of Microbiology of the Department of Veterinary Medicine, Van Yüzüncü Yıl University. After the necropsy, the cecum was observed in a swollen state. The typical important lesions associated with histomoniasis are thickened cecal wall filled with dark yellowish fibrinous content (Fig. 1). To confirm the diagnosis smears from cecum stain with Giemsa showing a typical feature known as the flagellated form of the parasite as showing in Fig. 2.



Fig. 1. Showing enlargement of the cecum

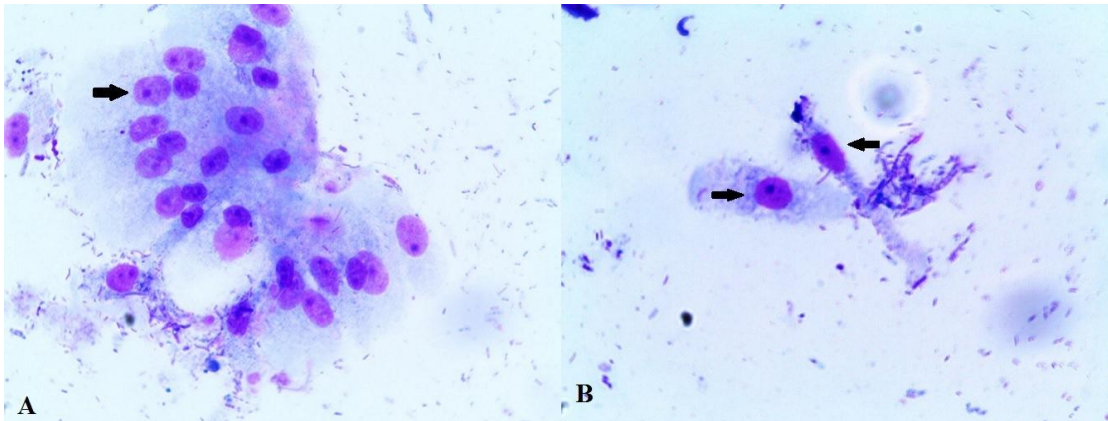


Fig. 2. Giemsa staining from smear of cecum, flagellated form A and B black arrow

3. DISCUSSION AND CONCLUSION

The flagellated protozoan, *Histomonas meleagridis* causes histomoniasis associated with high mortality in turkeys while chickens have been considered to be less affected. Chicken and wild birds can be a reservoir of *H. meleagridis*. Vectors like the worm *Heterakis gallinarum* and earthworm may infect the parasites [6]. Diagnosis is made by clinical signs, post-mortem lesions, fresh caecal smears, histopathology, immunohistochemistry and PCR [7].

Old turkeys and young turkeys should be kept separately to prevent this disease. In addition, separate breeding of turkeys with chickens have been great importance in protection and control. It is reported that *Heterakis gallinarum* eggs are spread by chickens as the most important infection source of the disease [8].

In Turkey, there is no extensive investigation about histomoniasis diagnosis, epidemiology and economic loss. Native examination and Giemsa staining analyses have diagnosed three 4-month-old American bronze turkey [9]. Karaman et al. [10] also diagnosed on 35 turkeys with histomoniasis by histopathological and molecular methods (PCR). Utuk and Piskin [7] reported that histomoniasis was diagnosed by histopathological and microscopic examination in a 50-day old American bronze turkey.

This study shows the possibility to detect *H. meleagridis* in a 60-day old American bronze turkey: some unusual cases should be discussed in more detail to prevent and improve the control of the disease.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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