

## The first report of *Eucoleus dispar* (Nematoda: Capillariidae) in the common buzzard (*Buteo buteo*) in Turkey

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**Abstract:** A common buzzard (*Buteo buteo*) was brought to the Department of Anatomy, Kırıkkale University Faculty of Veterinary Medicine, following its death from trauma. The tongue of the buzzard was processed for routine histology and stained with hematoxylin and eosin. A curled *Eucoleus dispar* and its eggs, embedded in the dorsal epithelium of the tongue, were observed in histological sections during morphological analysis of the papillae linguae in the buzzard under a light microscope. According to the authors' knowledge, this is the first report on *E. dispar* in the buzzard in Turkey.

**Key words:** *Eucoleus dispar*, *Buteo buteo*, parasite, Nematoda

The common buzzard (*Buteo buteo*) is found widely throughout Europe, including Turkey and Russia, and in the northern part of Africa. It prefers open habitats with forests to build its nest. Raptors usually migrate from the coldest habitat to warmer areas of the world. A lot of buzzards migrate from North Europe to Turkey for wintering.

The common buzzard carries several ecto- and endoparasite species. One of the endoparasite species, *Eucoleus dispar* (synonym *Capillaria contorta*, *Thominx dispar*, *Capillaria dispar*), lives in the upper alimentary tract of raptors. White diphtheritic membranes can be seen in the upper digestive system such as the buccal cavity, pharynx, and esophagus of birds infected with *E. dispar*. The development of the parasite is direct, but earthworms can act as paratenic hosts in the life cycle (1).

There are several studies related to the parasitic diseases in buzzards in Turkey (2–4). To our knowledge, there is no report on *E. dispar* in buzzards from Turkey. In the present case, surprisingly, a curled *E. dispar* and its eggs, embedded in the dorsal epithelium of the tongue, were observed in histological sections during morphological analysis of the papillae linguae in the buzzard under a light microscope.

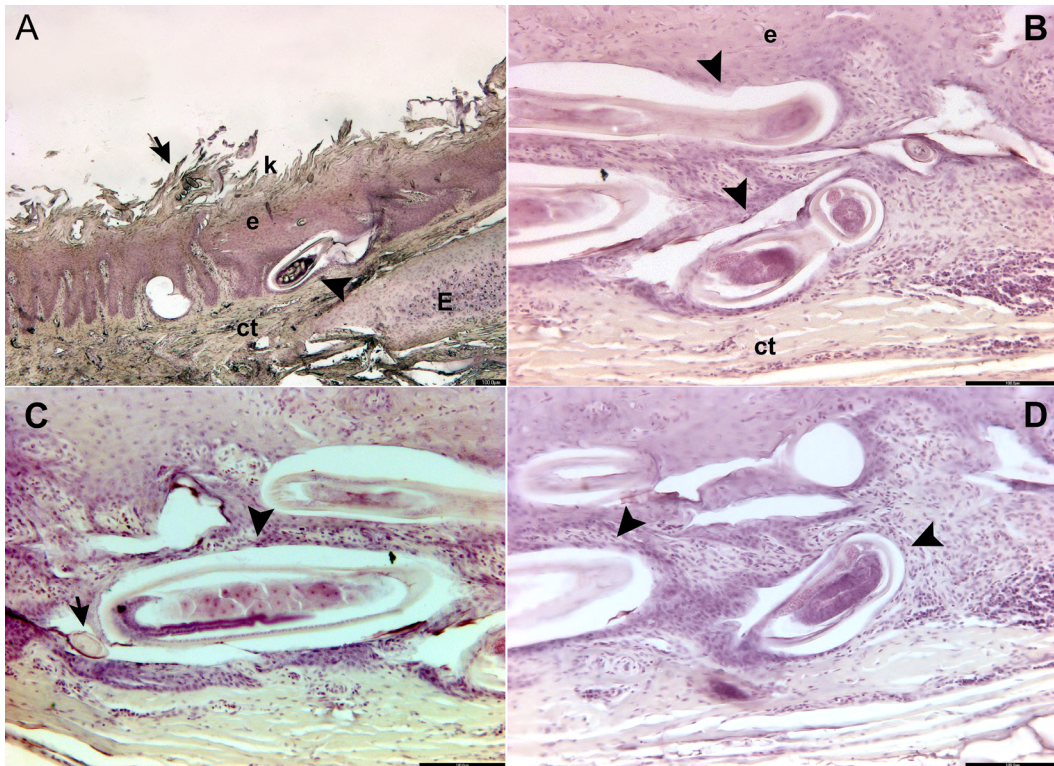
A common buzzard (*Buteo buteo*) was brought to the Department of Anatomy, Kırıkkale University Faculty of Veterinary Medicine, following its death from trauma. Formalin solution (10%) was injected via the aorta for

prefixation. The tongue of the buzzard was processed for routine histology, fixed in 10% buffered formalin, embedded in paraffin, sectioned at 5 µm, and stained with hematoxylin and eosin (H&E) for the detection of the papillae linguae.

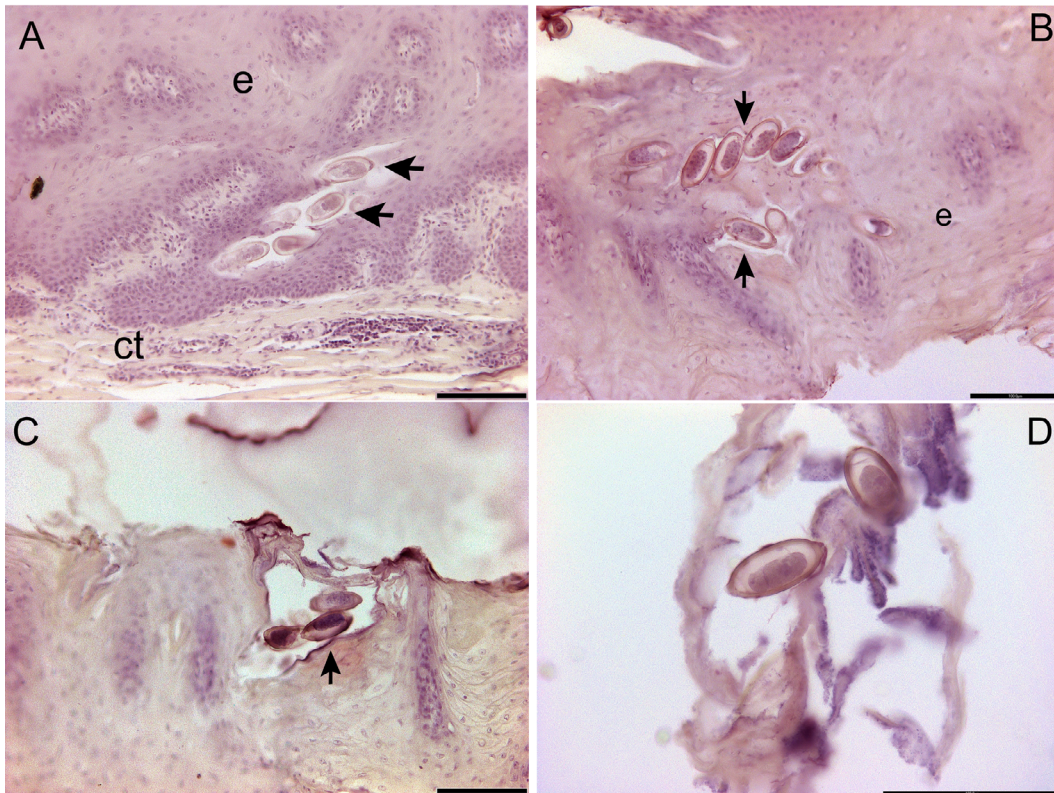
During light microscopic observation of the tissue sections, it was interesting to find the curled nematode and its eggs in the dorsal epithelium of the tongue sections of the buzzard (Figure 1). The eggs were typical capillariid eggs, barrel-shaped, with two protruding polar plugs, and they measured in the range of 58.8–64.4 µm (with a mean of 60.2 µm) (Figure 2). The identification of the parasite was carried out following the keys of Yamaguti (5) and Cram (6). Apart from the formation of a cellular inflammatory response around the parasite, there was nothing significant around the eggs in the tissue sections.

*Eucoleus dispar* has been reported in a lot of wild avian hosts in the world (7–10). Its prevalence was highest in *Buteo buteo* (10). Although extremely infected with *E. dispar*, the wild birds seemed healthy (7–9). Some upper digestive system signs associated with *E. dispar* such as glossitis and stomatitis, with small yellow diphtheroid plaques, were reported in some raptors such as buzzards, falcons, marsh harriers, kestrels, honey buzzards, and sparrow hawks (10). In the present case, a curled *E. dispar* and its eggs, embedded in the dorsal epithelium of the tongue, were surprisingly observed in tissue sections of the

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**Figure 1.** Curled adult parasite in the tissue section (A–D). k: keratin layer; e: epithelium; ct: connective tissue; E: entoglossum; Arrow: the eggs; Arrowhead: the adult parasite section; Bar: 100  $\mu$ m, H&E.



**Figure 2.** *Eucoleus dispar* eggs with two protruding polar plugs located in the tissue section (A–D). Arrow: the eggs, e: epithelium; ct: connective tissue; Bar: 100  $\mu$ m, H&E.



tongue during morphological analysis of the papillae lingua in the buzzard. Diphtheroid plaques on the surface of the tongue were not observed, but a cellular inflammatory response was noted around the curled parasite in the tissue sections.

In conclusion, *E. dispar* and its eggs were observed in the tongue sections of the buzzard histologically. According to the authors' knowledge, this is the first report on *E. dispar* in the buzzard in Turkey.

## References

1. Cooper JE. Birds of Prey: Health and Disease. 3rd ed. Oxford, UK: Blackwell Scientific; 2002.
2. İnci A, Babür C, Çam Y, İça A. Investigation of seropositivity of *Toxoplasma gondii* (Nicolle and Manceaux, 1908) in some prey birds. *Firat Üniv Sağlık Bil Derg* 2002; 16: 177–179 (in Turkish with abstract in English).
3. Dik B. *Mallophaga* species on long-legged buzzards (*Buteo rufinus*): new records from Turkey. *Türkiye Parazitol Derg* 2006; 30: 226–230.
4. Özmen Ö, Halgür M, Adanır R. Identification of different protozoa species from a common buzzard (*Buteo buteo*). *Turk J Vet Anim Sci* 2009; 33: 257–260.
5. Yamaguti S. Systema Helminthum. Volume III. The Nematodes of Vertebrates. London, UK: Interscience Publishers; 1961.
6. Cram EB. Species of *Capillaria* Parasitic in the Upper Digestive Tract of Birds. Technical Bulletin No. 516. Washington, DC, USA: United States Department of Agriculture; 1936.
7. Atkinson CT, Thomas NJ, Hunter DB. Parasitic Diseases of Wild Birds. Ames, IA, USA: John Wiley & Sons; 2008.
8. Borgsteede FHM, Okulewicz A, Zoun PEF, Okulewicz J. The helminth fauna of birds of prey (Accipitriformes, Falconiformes, and Strigiformes) in the Netherlands. *Acta Parasitol* 2003; 48: 200–207.
9. Ferrer DR, Adelantado MC, Kinsella JM. Helminths isolated from the digestive tract of diurnal raptors in Catalonia, Spain. *Vet Rec* 2004; 154: 17–20.
10. Santoro M, Tripepi M, Kinsella JM, Panebianco A, Mattiucci S. Helminth infestation in birds of prey (Accipitriformes and Falconiformes) in Southern Italy. *Vet J* 2010; 186: 119–122.

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